Results from the 2013
National Survey on Drug Use and Health:
Summary of National Findings

Acknowledgments

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Highlights

This report presents detailed results from the 2013 National Survey on Drug Use and Health (NSDUH), an annual survey sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA). The survey is the primary source of information on the use of illicit drugs, alcohol, and tobacco in the civilian, noninstitutionalized population of the United States aged 12 years old or older. Approximately 67,500 persons are interviewed in NSDUH each year. Unless otherwise noted, all comparisons in this report that are described using terms such as "increased," "decreased," or "more than" are statistically significant at the .05 level.

Illicit Drug Use

- In 2013, an estimated 24.6 million Americans aged 12 or older were current (past month) illicit drug users, meaning they had used an illicit drug during the month prior to the survey interview. This estimate represents 9.4 percent of the population aged 12 or older. Illicit drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics (pain relievers, tranquilizers, stimulants, and sedatives) used nonmedically.

- The rate of current illicit drug use among persons aged 12 or older in 2013 (9.4 percent) was similar to the rates in 2010 (8.9 percent) and 2012 (9.2 percent), but it was higher than the rates in 2002 to 2009 and in 2011 (ranging from 7.9 to 8.7 percent).

- Marijuana was the most commonly used illicit drug in 2013. There were 19.8 million past month users in 2013 (7.5 percent of those aged 12 or older), which was similar to the number and rate in 2012 (18.9 million or 7.3 percent). The 2013 rate was higher than the rates in 2002 to 2011 (ranging from 5.8 to 7.0 percent). Marijuana was used by 80.6 percent of current illicit drug users in 2013.

- Daily or almost daily use of marijuana (used on 20 or more days in the past month) increased from 5.1 million persons in 2005 to 2007 to 8.1 million persons in 2013.

- In 2013, there were 1.5 million current cocaine users aged 12 or older, or 0.6 percent of the population. These estimates were similar to the numbers and rates in 2009 to 2012 (ranging from 1.4 million to 1.7 million or from 0.5 to 0.7 percent), but they were lower than those in 2002 to 2007 (ranging from 2.0 million to 2.4 million or from 0.8 to 1.0 percent).

- The number of past year heroin users in 2013 (681,000) was similar to the numbers in 2009 to 2012 (ranging from 582,000 to 669,000) and was higher than the numbers in 2002 to 2005, 2007, and 2008 (ranging from 314,000 to 455,000).

- An estimated 1.3 million persons aged 12 or older in 2013 (0.5 percent) used hallucinogens in the past month. The number of users in 2013 was similar to that in 2012 (1.1 million), but it was higher than in 2011 (1.0 million).

- The percentage of persons aged 12 or older who used prescription-type psychotherapeutic drugs nonmedically in the past month in 2013 (2.5 percent) was similar to the percentages in 2010 to 2012 (ranging from 2.4 to 2.7 percent).

- The number and percentage of past month methamphetamine users in 2013 (595,000 or 0.2 percent) were similar to those in 2012 (440,000 or 0.2 percent) and 2011 (439,000 or 0.2 percent), but they were higher than the estimates in 2010 (353,000 or 0.1 percent).

- Among youths aged 12 to 17, the rate of current illicit drug use was lower in 2013 (8.8 percent) than in 2002 to 2007 (ranging from 9.6 to 11.6 percent) and in 2009 to 2012 (ranging from 9.5 to 10.1 percent).

- The rate of current marijuana use among youths aged 12 to 17 in 2013 (7.1 percent) was similar to the 2012 rate (7.2 percent) and the rates in 2004 to 2010 (ranging from 6.7 to 7.6 percent); however, it was lower than the rates in 2002, 2003, and 2011 (ranging from 7.9 to 8.2 percent).

- Among youths aged 12 to 17, the rate of current nonmedical use of prescription-type drugs declined from 4.0 percent in 2002 and 2003 to 2.2 percent in 2013. The rate of nonmedical pain reliever use among youths also declined from 3.2 percent in 2002 and 2003 to 1.7 percent in 2013.

- The rate of current use of illicit drugs among young adults aged 18 to 25 in 2013 (21.5 percent) was similar to the rates in 2009 to 2012 (ranging from 21.3 to 21.6 percent), which was consistent with the steady rate of current marijuana use in this age group during this time (19.1 percent in 2013 and ranging from 18.2 to 19.0 percent in 2009 to 2012).

- Among young adults aged 18 to 25, the rate of current nonmedical use of prescription-type drugs in 2013 was 4.8 percent, which was similar to the rates in 2011 (5.0 percent) and 2012 (5.3 percent), but it was lower than the rates in the years from 2002 to 2010 (ranging from 5.5 to 6.5 percent).

- The rate of current cocaine use in 2013 among young adults aged 18 to 25 was 1.1 percent, which was similar to the rates in 2009, 2011, and 2012, but it was lower than the rates from 2002 to 2008 and in 2010.

- Among adults aged 26 or older, the rate of current illicit drug use in 2013 (7.3 percent) was similar to the rate in 2012 (7.0 percent), but it was higher than the rates in 2002 to 2011 (ranging from 5.5 to 6.6 percent). This was driven by rates of current marijuana use, which also remained steady between 2013 and 2012 (5.6 and 5.3 percent, respectively). However, the rate of current marijuana use in 2013 was higher than the rates in 2002 to 2011 (ranging from 3.9 to 4.8 percent).

- Among adults aged 50 to 64, the rate of current illicit drug use increased from 2.7 percent in 2002 to 6.0 percent in 2013. For adults aged 50 to 54, the rate increased from 3.4 percent in 2002 to 7.9 percent in 2013. Among those aged 55 to 59, the rate of current illicit drug use increased from 1.9 percent in 2002 to 5.7 percent in 2013. Among those aged 60 to 64, the rate of current illicit drug use increased from 1.1 percent in 2003 and 2004 to 3.9 percent in 2013.

- Among unemployed adults aged 18 or older in 2013, 18.2 percent were current illicit drug users, which was higher than the rates of 9.1 percent for those who were employed full time and 13.7 percent for those who were employed part time. However, most illicit drug users were employed. Of the 22.4 million current illicit drug users aged 18 or older in 2013, 15.4 million (68.9 percent) were employed either full or part time.

- In 2013, 9.9 million persons (3.8 percent of those aged 12 or older) reported driving under the influence of illicit drugs during the past year, which was similar to the rate in 2012 (3.9 percent). In 2013, the rate was highest among young adults aged 18 to 25 (10.6 percent), although this rate was lower than the rate in 2012 for this age group (11.9 percent).

- Among persons aged 12 or older in 2012-2013 who used pain relievers nonmedically in the past 12 months, 53.0 percent got the drug they used most recently from a friend or relative for free, and 10.6 percent bought the drug from a friend or relative. Another 21.2 percent reported that they got the drug through a prescription from one doctor. An annual average of 4.3 percent got pain relievers from a drug dealer or other stranger, and 0.1 percent bought them on the Internet.

Alcohol Use

- Slightly more than half (52.2 percent) of Americans aged 12 or older reported being current drinkers of alcohol in the 2013 survey, which was similar to the rate in 2012 (52.1 percent). This translates to an estimated 136.9 million current drinkers in 2013.

- In 2013, nearly one quarter (22.9 percent) of persons aged 12 or older were binge alcohol users in the past 30 days. This translates to about 60.1 million people. The rate in 2013 was similar to the estimate in 2012 (23.0 percent). Binge drinking is defined as having five or more drinks on the same occasion on at least 1 day in the 30 days prior to the survey.

- In 2013, heavy drinking was reported by 6.3 percent of the population aged 12 or older, or 16.5 million people. This rate was similar to the rate of heavy drinking in 2012 (6.5 percent). Heavy drinking is defined as binge drinking on at least 5 days in the past 30 days.

- Among young adults aged 18 to 25 in 2013, the rate of binge drinking was 37.9 percent, and the rate of heavy drinking was 11.3 percent. These rates were lower than the corresponding rates in 2012 (39.5 and 12.7 percent, respectively).

- The rate of current alcohol use among youths aged 12 to 17 was 11.6 percent in 2013. Youth binge and heavy drinking rates in 2013 were 6.2 and 1.2 percent, respectively. The rates for current and binge alcohol use were lower than those reported in 2012 (12.9 and 7.2 percent, respectively).

- In 2013, an estimated 10.9 percent of persons aged 12 or older drove under the influence of alcohol at least once in the past year. This percentage was lower than in 2002 (14.2 percent), but it was similar to the rate in 2012 (11.2 percent). The rate was highest among persons aged 21 to 25 and persons aged 26 to 29 (19.7 and 20.7 percent, respectively). Among persons aged 12 to 20 and those aged 21 to 25, the rates of driving under the influence of alcohol were lower in 2013 (4.7 and 19.7 percent, respectively) than in 2012 (5.7 and 21.9 percent, respectively).

- An estimated 8.7 million underage persons (aged 12 to 20) were current drinkers in 2013, including 5.4 million binge drinkers and 1.4 million heavy drinkers. Corresponding percentages of underage persons in 2013 were 22.7 percent for current alcohol use, 14.2 percent for binge alcohol use, and 3.7 percent for heavy use. All of these percentages were lower than those in 2012.

- Past month, binge, and heavy drinking rates among underage persons declined between 2002 and 2013. Past month alcohol use declined from 28.8 to 22.7 percent, binge drinking declined from 19.3 to 14.2 percent, and heavy drinking declined from 6.2 to 3.7 percent.

- In 2013, 52.2 percent of current underage drinkers reported that their last use of alcohol occurred in someone else's home, and 34.2 percent reported that it had occurred in their own home. Most current drinkers aged 12 to 20 (77.6 percent) were with two or more other people the last time they drank alcohol. The rate of drinking alone the last time that underage persons drank alcohol was highest among youths aged 12 to 14 (14.5 percent).

- Among current underage drinkers, 28.7 percent paid for the alcohol the last time they drank, including 7.8 percent who purchased the alcohol themselves and 20.5 percent who gave money to someone else to purchase it. Among those who did not pay for the alcohol they last drank, 36.6 percent got it from an unrelated person aged 21 or older; 24.5 percent got it from a parent, guardian, or other adult family member; and 16.4 percent got it from another person younger than 21 years old.

- In 2013, underage current drinkers were more likely than current alcohol users aged 21 or older to use illicit drugs within 2 hours of alcohol use on their last reported drinking occasion (19.9 vs. 5.7 percent, respectively). The most commonly reported illicit drug used by underage drinkers in combination with alcohol was marijuana.

Tobacco Use

- In 2013, an estimated 66.9 million Americans aged 12 or older were current (past month) users of a tobacco product. This represents 25.5 percent of the population in that age range. Also, 55.8 million persons (21.3 percent of the population) were current cigarette smokers; 12.4 million (4.7 percent) smoked cigars; 8.8 million (3.4 percent) used smokeless tobacco; and 2.3 million (0.9 percent) smoked tobacco in pipes.

- Between 2002 and 2013, past month use of any tobacco product among persons aged 12 or older decreased from 30.4 to 25.5 percent, and past month cigarette use declined from 26.0 to 21.3 percent. Rates of past month use of smokeless tobacco and pipe tobacco in 2013 were similar to corresponding rates in 2002. However, past month cigar use decreased from 5.4 percent in 2002 to 4.7 percent in 2013.

- The rate of past month tobacco use among 12 to 17 year olds declined from 15.2 percent in 2002 to 7.8 percent in 2013, including a decline from 2012 (8.6 percent) to 2013. The rate of past month cigarette use among 12 to 17 year olds also declined between 2002 and 2013, from 13.0 to 5.6 percent.

- Among youths aged 12 to 17 who smoked cigarettes in the past month, 53.9 percent also used an illicit drug compared with only 6.1 percent of youths who did not smoke cigarettes.

- In 2013, an estimated 2.8 million persons aged 12 or older used an illicit drug for the first time within the past 12 months. This averages to about 7,800 initiates per day and was similar to the estimate for 2012 (2.9 million). A majority of these past year illicit drug initiates reported that their first drug was marijuana (70.3 percent). About 1 in 5 initiated with nonmedical use of prescription drugs (20.6 percent, including 12.5 percent with pain relievers, 5.2 percent with tranquilizers, 2.7 percent with stimulants, and 0.2 percent with sedatives). In 2013, 6.3 percent of initiates reported inhalants as their first illicit drug, and 2.6 percent used hallucinogens as their first drug.

- In 2013, the illicit drug categories with the largest number of past year initiates were marijuana use (2.4 million) and nonmedical use of pain relievers (1.5 million). The marijuana estimate was similar to the numbers in 2008 to 2012; however, the estimate for nonmedical use of pain relievers was lower in 2013 than in 2002 through 2012.

- The number of past year initiates of methamphetamine was 144,000 in 2013, which was similar to the estimates in 2007 to 2012.

- The number of past year initiates of Ecstasy was 751,000 in 2013, which was similar to the number in 2012 (869,000), but was lower than the numbers in 2009, 2010, and 2011 (1.1 million, 949,000, and 922,000, respectively). Most (69.4 percent) of the recent Ecstasy initiates in 2013 were aged 18 or older at the time they first used Ecstasy.

- The number of past year cocaine initiates was 601,000 in 2013, which was similar to the numbers in 2008 to 2012, but was lower than the estimates from 2002 through 2007. The number of crack cocaine initiates was 58,000 in 2013, which was similar to the estimates in 2009 to 2012, but was lower than the estimates from 2002 through 2008.

- In 2013, there were 169,000 persons aged 12 or older who used heroin for the first time within the past year, which was similar to the estimates in 2002 to 2005 and from 2007 to 2012.

- Most (83.5 percent) of the 4.6 million past year alcohol initiates in 2013 were younger than age 21 at the time of initiation.

- The number of persons aged 12 or older who smoked cigarettes for the first time within the past 12 months was 2.1 million in 2013, which was lower than the estimates from 2008 to 2012 (ranging from 2.3 million to 2.5 million). About half of new smokers in 2013 were younger than 18 when they first smoked cigarettes (50.5 percent).

- The number of persons aged 12 or older who used smokeless tobacco for the first time within the past year was 1.1 million in 2013, which was similar to the estimates in 2011 and 2012.

Youth Prevention-Related Measures

- In 2013, 39.0 percent of youths aged 12 to 17 perceived great risk in having five or more drinks once or twice a week. Similarly, 39.5 percent of youths perceived great risk in smoking marijuana once or twice a week.

- The percentage of youths aged 12 to 17 perceiving great risk in smoking marijuana once or twice a week decreased from 54.6 percent in 2007 to 39.5 percent in 2013.

- The percentage of youths who reported great risk in smoking one or more packs of cigarettes per day was 64.3 percent in 2013. The 2013 rate was lower than the rates between 2004 and 2009 (ranging from 65.5 to 69.5 percent) and was similar to the rates in 2002 (63.1 percent) and 2003 (64.2 percent).

- About half (48.6 percent) of youths aged 12 to 17 reported in 2013 that it would be "fairly easy" or "very easy" for them to obtain marijuana if they wanted some. One in eleven reported it would be easy to get heroin (9.1 percent), 11.3 percent indicated that LSD would be easily available, and 14.4 percent reported easy availability for cocaine. In comparison with the rates in 2002, the 2013 rates represent declines in perceived availability for all four of these drugs.

- About one in eight youths aged 12 to 17 (12.4 percent) indicated that they had been approached by someone selling drugs in the past month, which was similar to the rate in 2012 (13.2 percent).

- A majority of youths aged 12 to 17 (88.4 percent) in 2013 reported that their parents would strongly disapprove of their trying marijuana once or twice, which was a decline from 2012 (89.3 percent). Current marijuana use was much less prevalent among youths who perceived strong parental disapproval for trying marijuana once or twice than for those who did not (4.1 vs. 29.3 percent, respectively).

- In 2013, 72.6 percent of youths aged 12 to 17 reported having seen or heard drug or alcohol prevention messages from sources outside of school, which was lower than in 2002 (83.2 percent) and in 2012 (75.9 percent). The percentage of school-enrolled youths reporting that they had seen or heard prevention messages at school also declined during this period, from 78.8 percent in 2002 to 73.5 percent. The prevalence of past month illicit drug use in 2013 was lower among youths who reported having such exposure to prevention messages compared with youths who did not have such exposure.

Substance Dependence, Abuse, and Treatment

- In 2013, an estimated 21.6 million persons aged 12 or older (8.2 percent) were classified with substance dependence or abuse in the past year based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV). Of these, 2.6 million were classified with dependence or abuse of both alcohol and illicit drugs, 4.3 million had dependence or abuse of illicit drugs but not alcohol, and 14.7 million had dependence or abuse of alcohol but not illicit drugs.

- The annual number of persons with substance dependence or abuse in 2013 (21.6 million) was similar to the number in each year from 2002 through 2012 (ranging from 20.6 million to 22.7 million).

- The specific illicit drugs with the largest numbers of persons with past year dependence or abuse in 2013 were marijuana (4.2 million), pain relievers (1.9 million), and cocaine (855,000). The number of persons with marijuana dependence or abuse was similar between 2002 and 2013. The number with pain reliever dependence or abuse in 2013 was similar to the numbers from 2006 to 2012. The number with cocaine dependence or abuse in 2013 was similar to the numbers in 2010 to 2012.

- The number of persons who had heroin dependence or abuse in 2013 (517,000) was similar to the numbers in 2009 to 2012 (ranging from 361,000 to 467,000), but it was higher than the numbers in 2002 to 2008 (ranging from 189,000 to 324,000).

- In 2013, adults aged 21 or older who had first used alcohol at age 14 or younger were more likely to be classified with alcohol dependence or abuse than adults who had their first drink at age 21 or older (14.8 vs. 2.3 percent).

- Between 2002 and 2013, the percentage of youths aged 12 to 17 with substance dependence or abuse declined from 8.9 to 5.2 percent. For young adults aged 18 to 25, substance dependence or abuse also declined during this period from 21.7 percent in 2002 to 17.3 percent in 2013.

- Treatment need is defined as having substance dependence or abuse or receiving substance use treatment at a specialty facility (hospital inpatient, drug or alcohol rehabilitation, or mental health centers) within the past 12 months. In 2013, 22.7 million persons aged 12 or older needed treatment for an illicit drug or alcohol use problem (8.6 percent of persons aged 12 or older). Of these, 2.5 million (0.9 percent of persons aged 12 or older and 10.9 percent of those who needed treatment) received treatment at a specialty facility. Thus, 20.2 million persons (7.7 percent of the population aged 12 or older) needed treatment for an illicit drug or alcohol use problem but did not receive treatment at a specialty facility in the past year.

- Of the 20.2 million persons aged 12 or older in 2013 who were classified as needing substance use treatment but did not receive treatment at a specialty facility in the past year, 908,000 persons (4.5 percent) reported that they felt they needed treatment for their illicit drug or alcohol use problem. Of these 908,000 persons who felt they needed treatment, 316,000 (34.8 percent) reported that they made an effort to get treatment. Based on combined 2010-2013 data, the most commonly reported reason for not receiving treatment among this group of persons was a lack of insurance coverage and inability to afford the cost (37.3 percent).

1. Introduction

This report presents a detailed look at results from the <mark>2013 National Survey on Drug Use and Health (NSDUH)</mark>, an annual survey of the civilian, noninstitutionalized population of the United States aged 12 years old or older. The report presents national estimates of rates of use, numbers of users, and other measures related to illicit drugs, alcohol, and tobacco products. The report focuses on trends between 2012 and 2013 and from 2002 to 2013, as well as differences across population subgroups in 2013. A first glimpse of the NSDUH substance use and mental health data was provided in September 2014 through a shorter report available on the Substance Abuse and Mental Health Services Administration (SAMHSA) Web site (http://www.samhsa.gov/data/). Detailed NSDUH national estimates related to mental health and NSDUH State-level estimates related to both substance use and mental health will be published in separate releases in the fall of 2014.

Summary of NSDUH

NSDUH is the primary source of statistical information on the use of illegal drugs, alcohol, and tobacco by the U.S. civilian, noninstitutionalized population aged 12 or older. Conducted by the Federal Government since 1971, the survey collects data through face-to-face interviews with a representative sample of the population at the respondent's place of residence. The survey is sponsored by SAMHSA, U.S. Department of Health and Human Services, and is planned and managed by SAMHSA's Center for Behavioral Health Statistics and Quality (CBHSQ). Data collection and analysis are conducted under contract with RTI International.[1] This section briefly describes the survey methodology; a more complete description is provided in Appendix A.

NSDUH collects information from residents of households and noninstitutional group quarters (e.g., shelters, rooming houses, dormitories) and from civilians living on military bases. The survey excludes homeless persons who do not use shelters, military personnel on active duty, and residents of institutional group quarters, such as jails and hospitals. Appendix C describes sources of data on substance use and treatment, including those that include populations outside the NSDUH target population.

From 1971 through 1998, the survey employed paper-and-pencil data collection. Since 1999, the NSDUH interview has been carried out using computer-assisted interviewing (CAI). Most of the questions are administered with audio computer-assisted self-interviewing (ACASI). ACASI is designed to provide the respondent with a highly private and confidential mode for responding to questions in order to increase the level of honest reporting of illicit drug use and other sensitive behaviors. Less sensitive items are administered by interviewers using computer-assisted personal interviewing.

The 2013 NSDUH continued to employ a State-based design with an independent, multistage area probability sample within each State and the District of Columbia. The eight States with the largest population (which together account for about half of the total U.S.

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[1] RTI International is a trade name of Research Triangle Institute.

population aged 12 or older) are designated as large sample States (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas) and have a sample size of about 3,600 each. For the remaining 42 States and the District of Columbia, the sample size is about 900 per State. In all States and the District of Columbia, the design oversampled youths and young adults; each State's sample was approximately equally distributed among three age groups: 12 to 17 years, 18 to 25 years, and 26 years or older.

Nationally, screening was completed at 160,325 addresses, and 67,838 completed interviews were obtained. The survey was conducted from January through December 2013. Weighted response rates for household screening and for interviewing were 83.9 and 71.7 percent, respectively. See Appendix B for more information on NSDUH response rates.

Limitations on Trend Measurement

Trend analysis using NSDUH data is limited to 2002 to 2013, even though the survey has been conducted since 1971. Because of the change in interviewing method in 1999, the estimates from the pre-1999 surveys are not comparable with estimates from the current CAI-based surveys. Although the design of the 2002 through 2012 NSDUHs is similar to the design of the 1999 through 2001 surveys, methodological differences affect the comparability of the 2002 to 2013 estimates with estimates from prior surveys. The most important change was the addition of a $30 incentive in 2002. Also, the name of the survey was changed in 2002, from the National Household Survey on Drug Abuse (NHSDA) to the current name. Improved data collection quality control procedures were introduced in the survey starting in 2001, and updated population data from the 2000 decennial census were incorporated into the sample weights starting with the 2002 estimates. Analyses of the effects of these factors on NSDUH estimates have shown that 2002 and later data should not be compared with 2001 and earlier data from the survey series to assess changes over time. Appendix C of the 2004 NSDUH report on national findings discusses this in more detail (Office of Applied Studies, 2005).

Because of changes in the questionnaire, estimates for methamphetamine, stimulants, and psychotherapeutics in this report should not be compared with corresponding estimates presented in previous reports for data years prior to 2007. Estimates for 2002 to 2006 for these drug categories in this report, as well as in the 2007 and 2008 reports, incorporate statistical adjustments that enable year-to-year comparisons to be made over the period from 2002 to 2013.

The calculation of NSDUH person-level weights includes a calibration step that results in weights that are consistent with population control totals obtained from the U.S. Census Bureau (see Section A.3.3 in Appendix A). These control totals are based on the most recently available decennial census; the Census Bureau updates these control totals annually to account for population changes after the census. For the analysis weights in the 2002 through 2010 NSDUHs, the control totals were derived from the 2000 census data; starting with the 2011 NSDUH weights, the control totals were based on data from the 2010 census. This shift to the 2010 census data could affect comparisons between substance use estimates for 2011 onward and those from prior years. Analyses of the impact of this change for the 2011 NSDUH weights show that estimates of the number of substance users for some demographic groups were substantially affected, but percentages of substance users within these groups (i.e., rates) were not. Details for this investigation are provided in Section B.4.3 in Appendix B of the 2011

national findings report for NSDUH (CBHSQ, 2012b). This change in control totals does not affect comparisons between 2012 and 2013 because the control totals for each of these years were based on the 2010 census. However, some trends between 2013 and years prior to 2011 may need to be interpreted with caution because of differences in how the control totals for each of these years were developed.

Format of Report and Data Presentation

This report has separate chapters that discuss findings on the use of illicit drugs; use of alcohol; use of tobacco products; initiation of substance use; prevention-related issues; and substance dependence, abuse, and treatment. A final chapter discusses key findings on trends in substance use among youths and young adults, including comparisons with other survey results. The data and findings described in this report are based on a comprehensive set of tables, referred to as "detailed tables," that include population estimates (e.g., numbers of drug users), rates (e.g., percentages of the population using drugs), and standard errors of estimates. These tables are available separately at http://www.samhsa.gov/data/. In addition, the tables are accompanied by a glossary that covers key definitions used in this report and in the detailed tables. Appendices in this report describe the survey (Appendix A), technical details on the statistical methods and measurement (Appendix B), and other sources of related data (Appendix C). A list of references cited in the report (Appendix D) and a list of contributors to this report (Appendix E) also are provided.

Text, figures, and detailed tables present prevalence measures for the population in terms of both the number of persons and the percentage of the population and by lifetime (i.e., ever used), past year, and past month use. Analyses focus primarily on past month use, also referred to as "current use." Where applicable, footnotes are included in tables and figures to indicate whether the 2013 estimates are significantly different from 2012 or earlier estimates. In addition, some estimates are based on data combined from two or more survey years to increase precision of the estimates; those estimates are annual averages based on multiple years of data.

During regular data collection and processing checks for the 2011 NSDUH, data errors were identified. These errors affected the data for Pennsylvania (2006 to 2010) and Maryland (2008 and 2009). Data and estimates for 2011 onward were not affected, including those for 2013. The errors had minimal impact on the national estimates. The only 2008 to 2011 estimates appreciably affected were estimates for the mid-Atlantic division and the Northeast region. Cases with erroneous data were removed from data files, and the remaining cases were reweighted to provide representative estimates. Therefore, some estimates for 2010 and other prior years in the 2013 national findings report and the 2013 detailed tables will differ from corresponding estimates found in some previous reports and tables. Further information is available in Section B.3.5 in Appendix B of this report.

All estimates presented in the report have met the criteria for statistical reliability (see Section B.2.2 in Appendix B). Estimates that do not meet these criteria are suppressed and do not appear in tables, figures, or text. Statistical tests have been conducted for all statements appearing in the text of the report that compare estimates between years or subgroups of the population. Suppressed estimates are not included in statistical tests of comparisons. For example, a statement that "whites had the highest prevalence" means that the rate among whites

was higher than the rate among all nonsuppressed racial/ethnic subgroups, but not necessarily higher than the rate among a subgroup for which the estimate was suppressed. Unless explicitly stated that a difference is not statistically significant, all statements that describe differences are significant at the .05 level. Statistically significant differences are described using terms such as "higher," "lower," "increased," and "decreased." Statements that use terms such as "similar," "no difference," "same," or "remained steady" to describe the relationship between estimates denote that a difference is not statistically significant. When a set of estimates for survey years or population subgroups is presented without a statement of comparison, statistically significant differences among these estimates are not implied and testing may not have been conducted.

Data are presented for racial/ethnic groups based on guidelines for collecting and reporting race and ethnicity data (Office of Management and Budget [OMB], 1997). Because respondents could choose more than one racial group, a "two or more races" category is included for persons who reported more than one category (i.e., white, black or African American, American Indian or Alaska Native, Native Hawaiian, Guamanian or Chamorro, Samoan,[2] Other Pacific Islander, Asian, Other). Respondents choosing more than one category from among Native Hawaiian, Guamanian or Chamorro, Samoan, and Other Pacific Islander but no other categories are classified as being in the "Native Hawaiian or Other Pacific Islander" category instead of the "two or more races" category. Except for the "Hispanic or Latino" group, the racial/ethnic groups include only non-Hispanics. The category "Hispanic or Latino" includes Hispanics of any race.

Data in this report also are presented for four U.S. geographic regions as defined by the U.S. Census Bureau (Figure 1.1). Other geographic comparisons also are made based on county type, a variable that reflects different levels of urbanicity and metropolitan area inclusion of counties. This county classification was originally developed and subsequently updated by the U.S. Department of Agriculture (Butler & Beale, 1994). All U.S. counties and county equivalents were grouped based on revised definitions of metropolitan statistical areas (MSAs) and definitions of micropolitan statistical areas as defined by the OMB in June 2003 (OMB, 2003). Large metropolitan areas have a population of 1 million or more. Small metropolitan areas have a population of fewer than 1 million. Nonmetropolitan areas are outside of MSAs. Counties in nonmetropolitan areas are further classified based on the number of people in the county who live in an urbanized area, as defined by the Census Bureau at the subcounty level. "Urbanized" counties have a population of 20,000 or more in urbanized areas, "less urbanized" counties have at least 2,500 but fewer than 20,000 population in urbanized areas, and "completely rural" counties have populations of fewer than 2,500 in urbanized areas. Additional details about this county type definition are included in the glossary that accompanies the 2013 detailed tables.

Other NSDUH Reports and Data

Other reports using the 2013 NSDUH data and focusing on specific topics of interest will be made available on SAMHSA's Web site. In particular, detailed estimates on mental health will be released later in 2014 in a separate report: *Results from the 2013 National Survey on*

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[2] Since 2013, the question about race has included categories for Guamanian or Chamorro and for Samoan. Prior to 2013, these groups were reported in the interview as Other Pacific Islander.

Figure 1.1 U.S. Census Bureau Regions
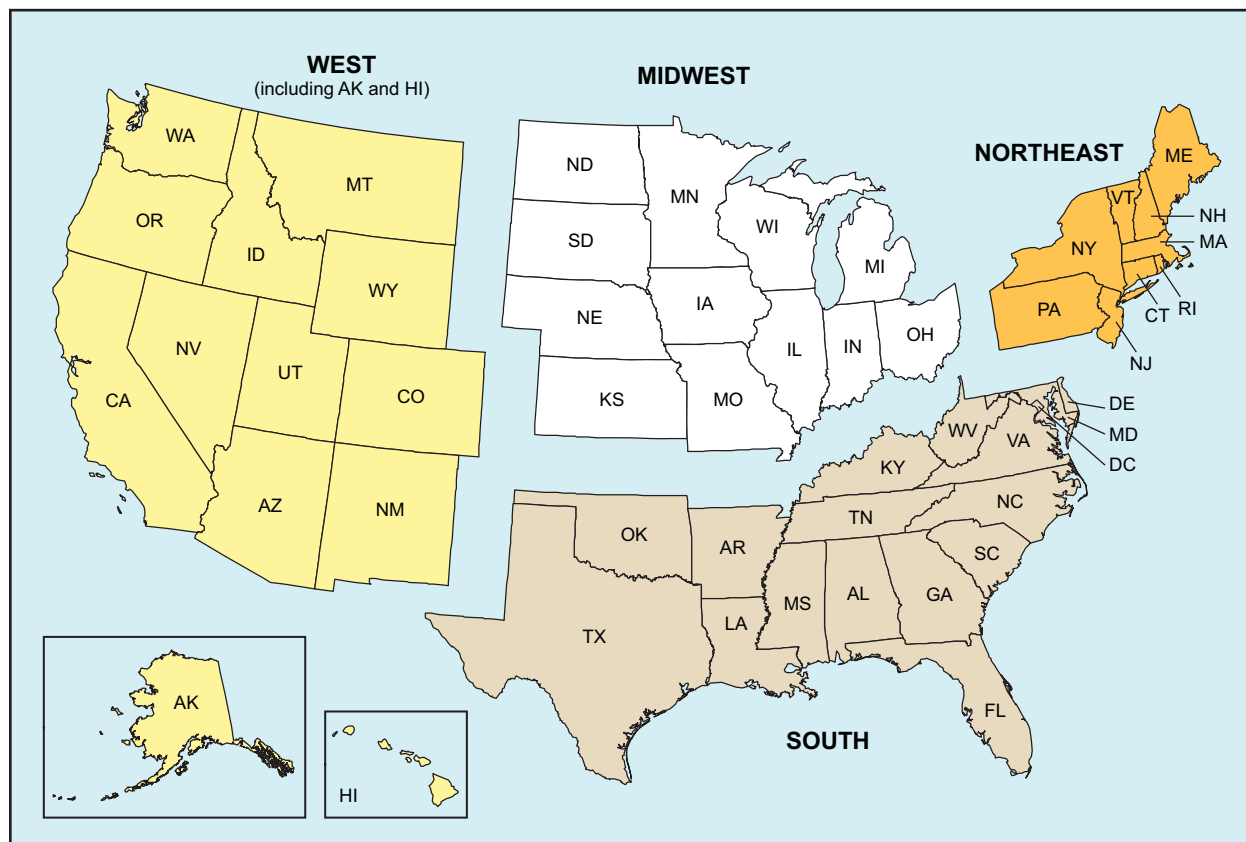
Drug Use and Health: Mental Health Findings. State-level estimates for substance use and mental health for 2012-2013 are scheduled to be released later this year as well.

The detailed tables, other descriptive reports and in-depth analytic reports focusing on specific issues or populations, and methodological information on NSDUH are all available at http://www.samhsa.gov/data/. In addition, CBHSQ makes public use data files available through the Substance Abuse and Mental Health Data Archive (SAMHDA) at http://www.datafiles.samhsa.gov. Currently, files are available from the 1979 to 2012 surveys. The 2013 NSDUH public use file will be available by the end of 2014. CBHSQ also makes confidential restricted-use data available in two ways. Restricted-use data, including State codes and other detailed variables, can be included in tables as part of the online Restricted-use Data Analysis System (R-DAS). In the R-DAS, data are not available for downloading, but estimates can be generated by State and other restricted variables that are specified by the data user. Estimates that are generated by the R-DAS do not require any further review for protection of respondent confidentiality. CBHSQ also makes restricted-use microdata files available through a data portal on the SAMHDA Web site. More details on both of these programs are available at http://www.datafiles.samhsa.gov.

2. Illicit Drug Use

The National Survey on Drug Use and Health (NSDUH) obtains information on nine categories of illicit drug use: use of marijuana, cocaine, heroin, hallucinogens, and inhalants, as well as the nonmedical use of prescription-type pain relievers, tranquilizers, stimulants, and sedatives. In these categories, hashish is included with marijuana, and crack is considered a form of cocaine. Several drugs are grouped under the hallucinogens category, including LSD, PCP, peyote, mescaline, psilocybin mushrooms, and "Ecstasy" (MDMA). Inhalants include a variety of substances, such as nitrous oxide, amyl nitrite, cleaning fluids, gasoline, spray paint, other aerosol sprays, and glue. Respondents are asked to report use of inhalants to get high but not to report times when they accidentally inhaled a substance.

The four categories of prescription-type drugs (pain relievers, tranquilizers, stimulants, and sedatives) cover numerous medications that currently are or have been available by prescription. They also include drugs within these groupings that originally were prescription medications but currently may be manufactured and distributed illegally, such as methamphetamine, which is included under stimulants. Respondents are asked to report only "nonmedical" use of these drugs, defined as use without a prescription of the individual's own or simply for the experience or feeling the drugs caused. Use of over-the-counter drugs and legitimate use of prescription drugs are not included. NSDUH reports combine the four prescription-type drug groups into a category referred to as "psychotherapeutics."

Estimates of "illicit drug use" reported from NSDUH reflect the use of any of the nine drug categories listed above. Use of alcohol and tobacco products, while illegal for youths, is not included in these estimates, but is discussed in Chapters 3 and 4.

- In 2013, an estimated 24.6 million Americans aged 12 or older were current (past month) illicit drug users, meaning they had used an illicit drug during the month prior to the survey interview (Figure 2.1). The estimate represents 9.4 percent of the population aged 12 or older.

- The overall rate of current illicit drug use among persons aged 12 or older in 2013 (9.4 percent) was similar to the rates in 2010 (8.9 percent) and 2012 (9.2 percent), but it was higher than the rates in 2002 to 2009 and in 2011 (Figure 2.2).

- In 2013, marijuana was the most commonly used illicit drug, with 19.8 million current (past month) users. It was used by 80.6 percent of current illicit drug users. Nearly two thirds (64.7 percent) of current illicit drug users used only marijuana in the past month. Also, in 2013, 8.7 million persons aged 12 or older were current users of illicit drugs other than marijuana (or 35.3 percent of illicit drug users aged 12 or older). Current use of other drugs but not marijuana was reported by 19.4 percent of illicit drug users, and 15.9 percent reported using both marijuana and other drugs.

Figure 2.1 Past Month Illicit Drug Use among Persons Aged 12 or Older: 2013
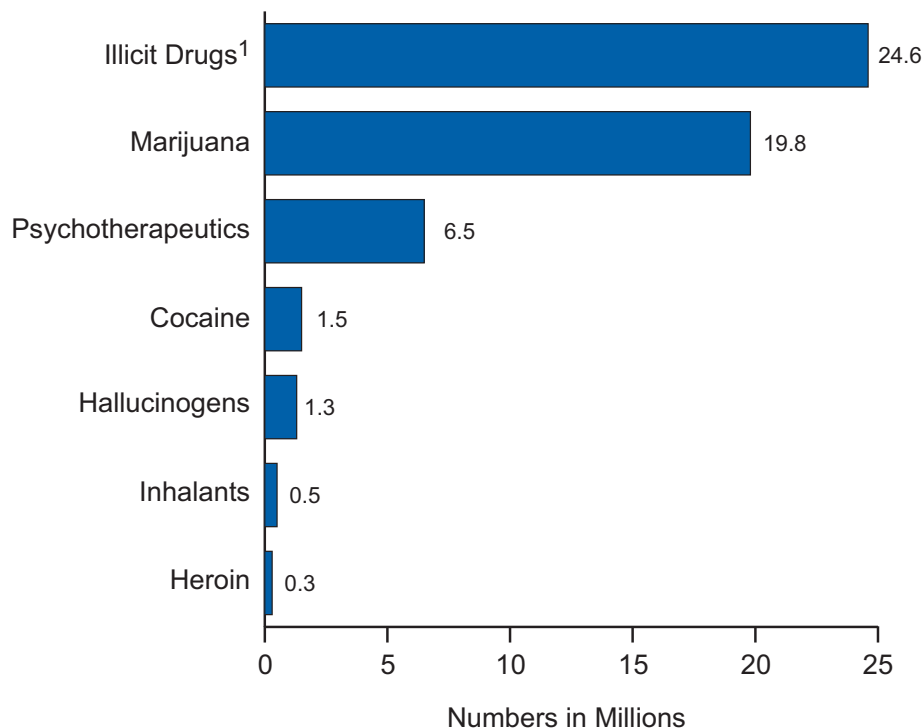
[1] Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

- The number and percentage of persons aged 12 or older who were current users of marijuana in 2013 (19.8 million or 7.5 percent) were similar to the estimates in 2012 (18.9 million or 7.3 percent) (Figure 2.2). The rate of current marijuana use in 2013 was higher than the rates in 2002 to 2011. For example, during the period from 2002 to 2008, the rates varied from 5.8 to 6.2 percent. By 2009, the rate increased to 6.7 percent, then continued to increase to the rate in 2013.

- An estimated 8.7 million persons aged 12 or older (3.3 percent) were current users of illicit drugs other than marijuana in 2013. The majority of these users (6.5 million persons or 2.5 percent of the population) were nonmedical users of psychotherapeutic drugs, including 4.5 million users of pain relievers (1.7 percent), 1.7 million users of tranquilizers (0.6 percent), 1.4 million users of stimulants (0.5 percent), and 251,000 users of sedatives (0.1 percent).

- The percentage of persons aged 12 or older who were current nonmedical users of psychotherapeutic drugs in 2013 (2.5 percent) was lower than the percentages in 2006, 2007, and 2009 (ranging from 2.8 to 2.9 percent), but it was similar to the percentages in all of the other years from 2002 to 2012 (ranging from 2.4 to 2.7 percent) (Figure 2.2). The number of persons aged 12 or older who were current nonmedical users of psychotherapeutic drugs in 2013 (6.5 million) was similar to the number of users in 2002 to 2012 (ranging from 6.1 million to 7.1 million).

Figure 2.2 Past Month Use of Selected Illicit Drugs among Persons Aged 12 or Older: 2002-2013
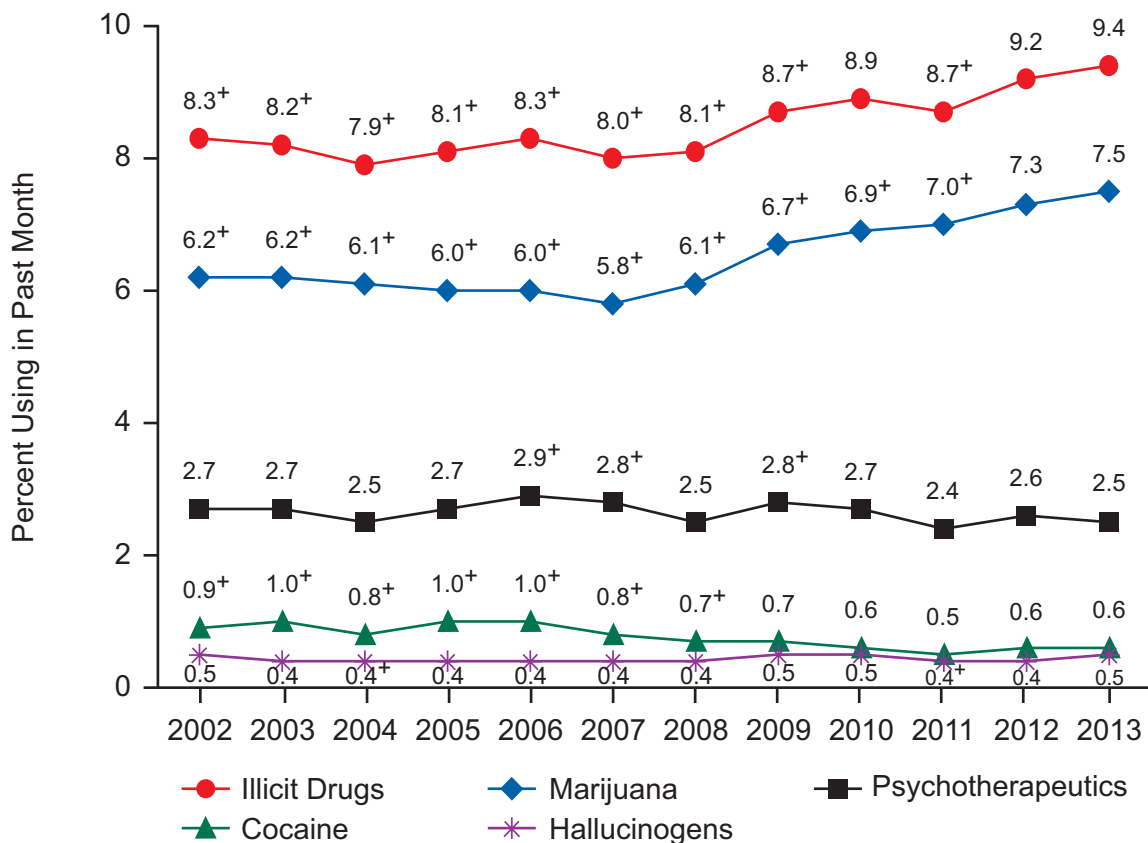
Chart: Percent Using in Past Month (y-axis, 0 to 10) by Year (2002-2013)

Illicit Drugs: 8.3+, 8.2+, 7.9+, 8.1+, 8.3+, 8.0+, 8.1+, 8.7+, 8.9, 8.7+, 9.2, 9.4

Marijuana: 6.2+, 6.2+, 6.1+, 6.0+, 6.0+, 5.8+, 6.1+, 6.7+, 6.9+, 7.0+, 7.3, 7.5

Psychotherapeutics: 2.7, 2.7, 2.5, 2.7, 2.9+, 2.8+, 2.5, 2.8+, 2.7, 2.4, 2.6, 2.5

Cocaine: 0.9+, 1.0+, 0.8+, 1.0+, 1.0+, 0.8+, 0.7+, 0.7, 0.6, 0.5, 0.6, 0.6

Hallucinogens: 0.5, 0.4, 0.4+, 0.4, 0.4, 0.4, 0.4, 0.5, 0.5, 0.4+, 0.4, 0.5

Legend: ● Illicit Drugs ◆ Marijuana ■ Psychotherapeutics ▲ Cocaine ✳ Hallucinogens

[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The number and percentage of persons aged 12 or older who were current nonmedical users of pain relievers in 2013 (4.5 million or 1.7 percent) were similar to those in 2011 and 2012 (4.5 million and 4.9 million, respectively, or 1.7 and 1.9 percent) (Figure 2.3).

- The number and percentage of persons aged 12 or older who were current nonmedical users of the pain reliever OxyContin® in 2013 (492,000 or 0.2 percent) were similar to the numbers in 2007 to 2012 (ranging from 358,000 to 566,000 or 0.1 to 0.2 percent).

- The number and percentage of current nonmedical users of tranquilizers in 2013 (1.7 million or 0.6 percent) were lower than the estimates in 2012 (2.1 million or 0.8 percent).

- The number and percentage of persons aged 12 or older who were current nonmedical users of stimulants in 2013 (1.4 million or 0.5 percent) were similar to those in 2012 (1.2 million or 0.5 percent), but were higher than the estimates in 2011 (970,000 or 0.4 percent).

Figure 2.3 <mark>Past Month Nonmedical Use of Types of Psychotherapeutic Drugs among Persons Aged 12 or Older: 2002-2013</mark>
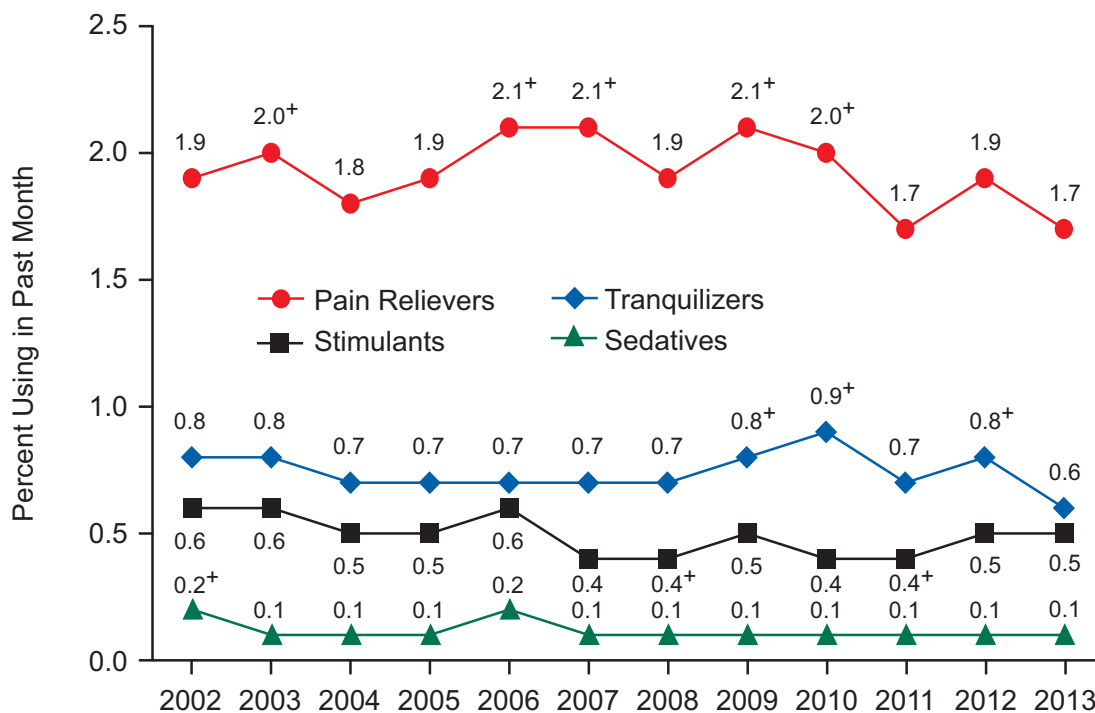
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The number and percentage of persons aged 12 or older who were current users of methamphetamine in 2013 (595,000 or 0.2 percent) were similar to those in 2012 (440,000 or 0.2 percent) and 2011 (439,000 or 0.2 percent). However, the estimates in 2013 were higher than those in 2010 (353,000 or 0.1 percent).

- The number and percentage of persons aged 12 or older who were current users of cocaine in 2013 (1.5 million or 0.6 percent) were similar to those in 2009 to 2012 (ranging from 1.4 million to 1.7 million or from 0.5 to 0.7 percent), but were lower than those in 2002 to 2007 (ranging from 2.0 million to 2.4 million or from 0.8 to 1.0 percent) (Figure 2.2).

- <mark>The number and percentage of persons aged 12 or older who were current heroin users in 2013 (289,000 or 0.1 percent) were similar to those in 2008 to 2012 (ranging from 193,000 to 335,000 or 0.1 percent for all 4 years) (Figure 2.4). The number of current heroin users in 2013 was higher than the number of users in 2002 to 2005 (ranging from 119,000 to 166,000) and in 2007 (161,000). The number of persons aged 12 or older who were past year heroin users in 2013 also was higher than the numbers in 2002 to 2005, 2007, and 2008 (ranging from 314,000 to 455,000). (See Section B.2.3 in Appendix B for additional discussion of the estimated numbers of past year and past month heroin users in 2006.)</mark>

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- The number and percentage of persons aged 12 or older who were current users of hallucinogens in 2013 (1.3 million or 0.5 percent) were similar to those in 2012 (1.1 million or 0.4 percent), but were higher than in 2011 (1.0 million or 0.4 percent) (Figure 2.2).

Figure 2.4 <mark>**Past Month and Past Year Heroin Use among Persons Aged 12 or Older: 2002-2013**</mark>

[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Age

- In 2013, the rate of current illicit drug use varied by age. Among youths aged 12 to 17 in 2013, the rate increased from 2.6 percent at ages 12 or 13 to 7.8 percent at ages 14 or 15 to 15.8 percent at ages 16 or 17 (Figure 2.5). The highest rate of current illicit drug use was among 18 to 20 year olds (22.6 percent), with the next highest rate occurring among 21 to 25 year olds (20.9 percent). Thereafter, the rate generally declined with age, although not all decreases between consecutive age groups were significant.

- In 2013, the rate of current use of illicit drugs was highest among young adults aged 18 to 25 (21.5 percent), followed by youths aged 12 to 17 (8.8 percent), then by adults aged 26 or older (7.3 percent) (Figure 2.6). The number and percentage of current illicit drug users among youths aged 12 to 17 decreased from 2.4 million (9.5 percent) in 2012 to 2.2 million (8.8 percent) in 2013.

Figure 2.5 Past Month Illicit Drug Use among Persons Aged 12 or Older, by Age: 2012 and 2013

+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Figure 2.6 Past Month Illicit Drug Use among Persons Aged 12 or Older, by Age: 2002-2013
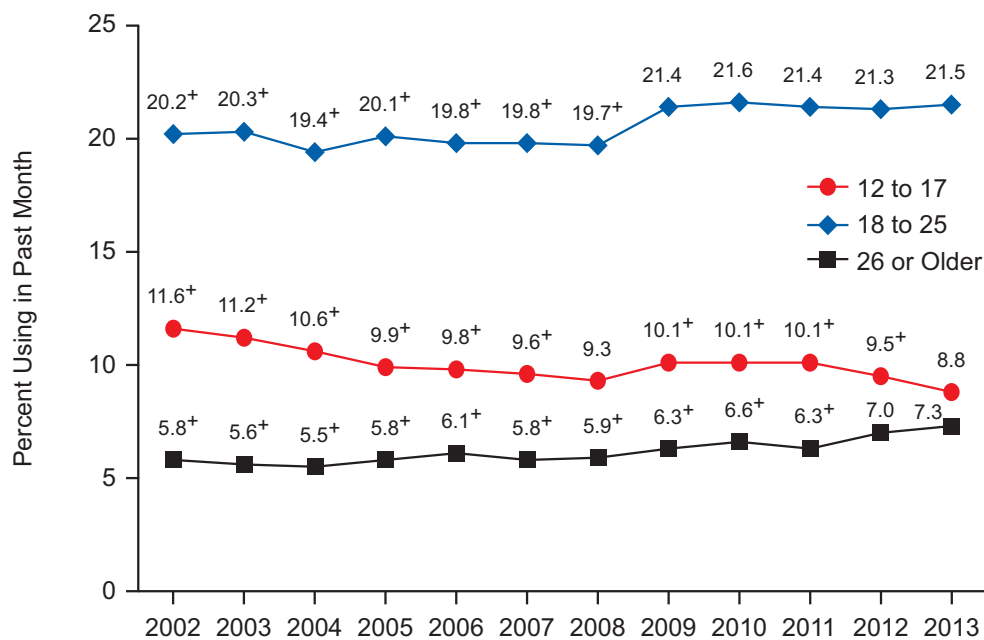
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Youths Aged 12 to 17

- In 2013, 8.8 percent of youths aged 12 to 17 were current illicit drug users (Figure 2.7). This rate was lower than the rates of current illicit drug use among 12 to 17 year olds in 2002 to 2007 and in 2009 to 2012, but was similar to the rate in 2008 (9.3 percent).

- In 2013, 7.1 percent of youths aged 12 to 17 were current users of marijuana, 2.2 percent were current nonmedical users of psychotherapeutic drugs (including 1.7 percent who were current nonmedical users of pain relievers), 0.6 percent were current users of hallucinogens, 0.5 percent were current users of inhalants, 0.2 percent were current users of cocaine, and 0.1 percent were current users of heroin. Current marijuana use among 12 to 17 year olds declined from 8.2 percent in 2002 to 6.8 percent in 2005, remained similar through 2008, then increased to 7.9 percent in 2011 before decreasing again to 7.2 percent in 2012 and 7.1 percent in 2013 (Figure 2.7). Current nonmedical use of psychotherapeutic drugs declined from 4.0 percent in 2002 and 2003 to 2.2 percent in 2013. This includes a decrease in the prevalence of current nonmedical use of pain relievers from 3.2 percent in 2002 and 2003 to 1.7 percent in 2013.

- Among youths aged 12 to 17, the specific types of illicit drugs used in the past month varied by age in 2013 (Figure 2.8). Among 12 or 13 year olds, 1.3 percent used psychotherapeutic drugs nonmedically, including 0.9 percent using pain relievers nonmedically (which was a decrease from 1.5 percent in 2012), 1.0 percent used marijuana, and 0.6 percent used inhalants. Among 14 or 15 year olds, 5.8 percent used marijuana, 2.2 percent used psychotherapeutic drugs nonmedically, including 1.8 percent using pain relievers nonmedically, 0.6 percent used inhalants, and 0.4 percent used hallucinogens. Among 16 or 17 year olds, 14.2 percent used marijuana, 3.1 percent used psychotherapeutic drugs nonmedically (which was a decrease from 4.0 percent in 2012), 1.3 percent used hallucinogens (including an increase in the use of LSD from 0.2 percent in 2012 to 0.5 percent in 2013), 0.4 percent used cocaine, and 0.3 percent used inhalants (which was a decrease from 0.7 percent in 2012). Rates of current nonmedical use of psychotherapeutic drugs among youths aged 16 or 17 included 2.3 percent for pain relievers (which was a decrease from 3.1 percent in 2012) and 0.5 percent for tranquilizers (which was a decrease from 1.2 percent in 2012).

Young Adults Aged 18 to 25

- Among young adults aged 18 to 25, the rate of current illicit drug use in 2013 (21.5 percent) was similar to the rates in 2009 to 2012 (ranging from 21.3 to 21.6 percent), but was higher than the rates in 2002 to 2008 (ranging from 19.4 to 20.3 percent) (Figure 2.9).

- The rate of current marijuana use in 2013 among young adults aged 18 to 25 (19.1 percent) was similar to the rates in 2009 to 2012 (ranging from 18.2 to 19.0 percent), but was higher than the rates in 2002 to 2008 (ranging from 16.1 to 17.3 percent) (Figure 2.9).

Figure 2.7 Past Month Use of Selected Illicit Drugs among Youths Aged 12 to 17: 2002-2013
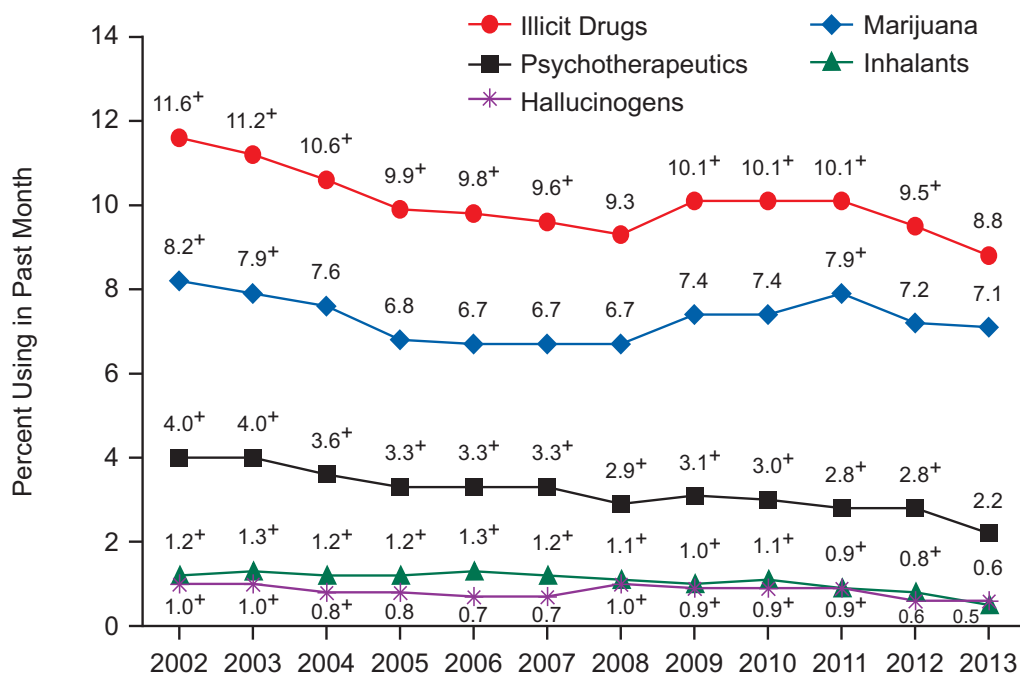
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Figure 2.8 Past Month Use of Selected Illicit Drugs among Youths Aged 12 to 17: 2013
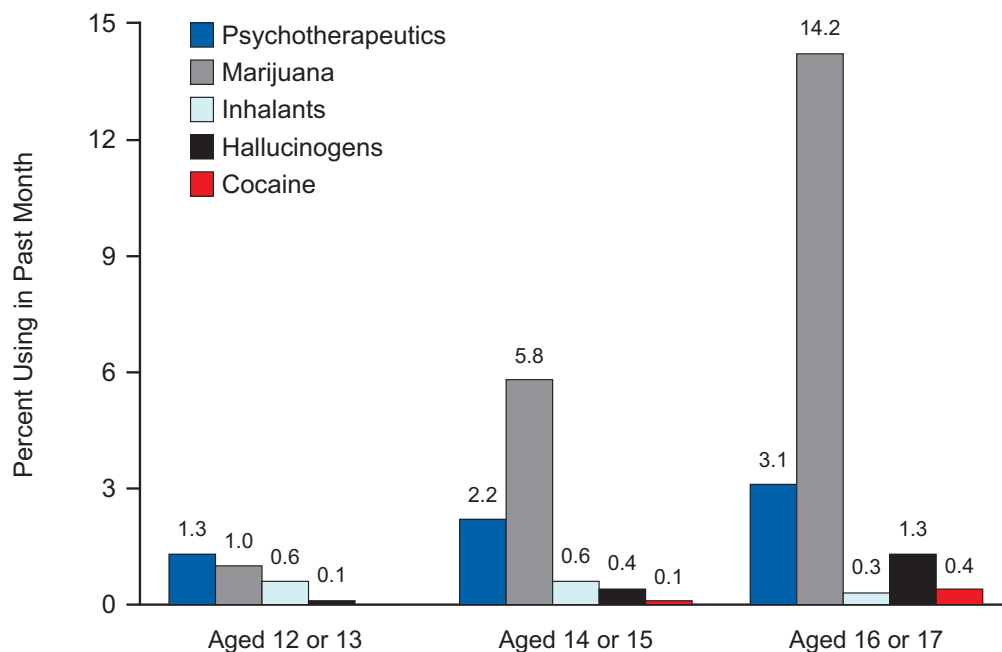
Note: The prevalence of past month cocaine use among youths aged 12 or 13 rounds to less than 0.1 percent and is not shown.

Figure 2.9 Past Month Use of Selected Illicit Drugs among Young Adults Aged 18 to 25: 2002-2013
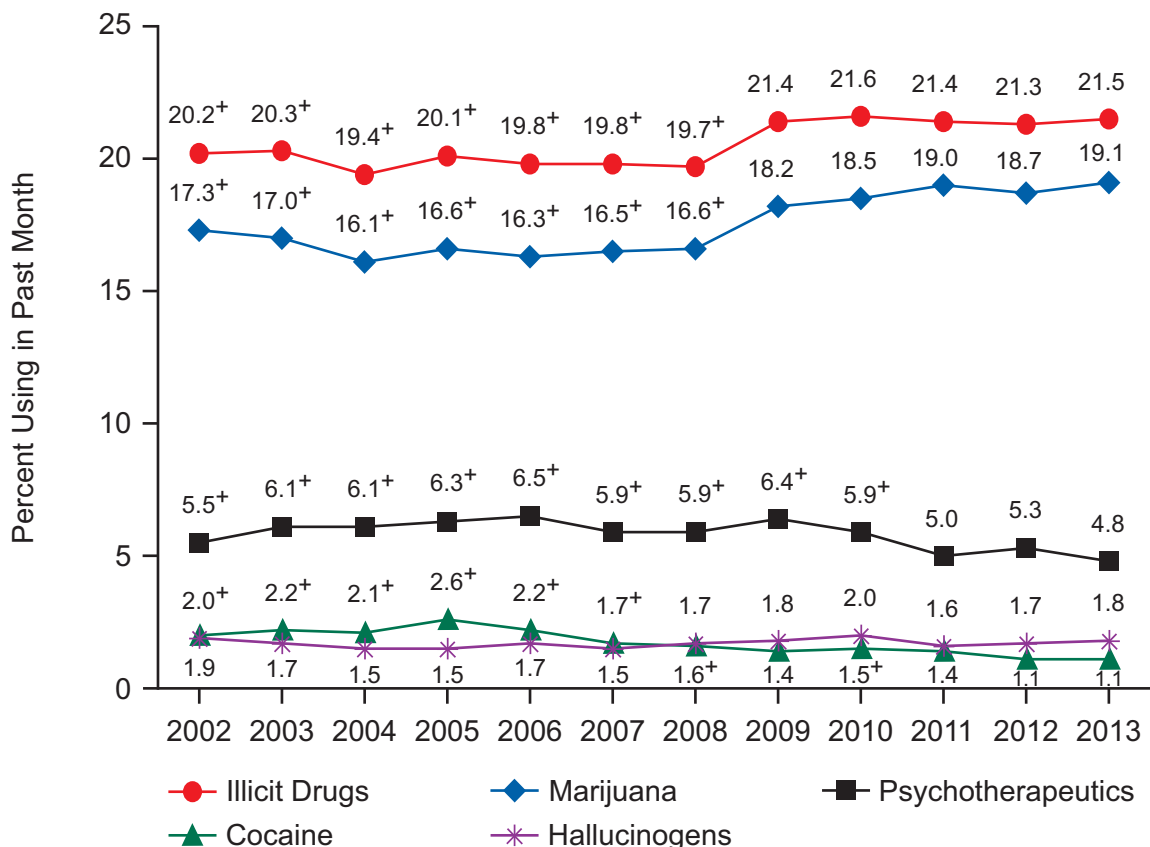
- Among young adults aged 18 to 25, the rate of current nonmedical use of psychotherapeutic drugs in 2013 (4.8 percent) was similar to the rates in 2011 (5.0 percent) and 2012 (5.3 percent), but it was lower than the rates in 2002 to 2010 (ranging from 5.5 to 6.5 percent) (Figure 2.9). The rate of current nonmedical use of pain relievers among young adults in 2013 (3.3 percent) was lower than the rates in 2012 (3.8 percent) and in 2002 to 2010 (ranging from 4.1 to 5.0 percent), but it was similar to the rate in 2011 (3.6 percent).

- In 2013, the rate of current cocaine use among young adults aged 18 to 25 was 1.1 percent, which was similar to the rates in 2009, 2011, and 2012, but it was lower than the rates from 2002 to 2008 and in 2010 (Figure 2.9).

- Among 18 to 25 year olds in 2013, the rates of current use of hallucinogens (1.8 percent), heroin (0.3 percent), and inhalants (0.3 percent) were similar to the rates in 2012.

Adults Aged 26 or Older

- In 2013, the rate of current illicit drug use among adults aged 26 or older was 7.3 percent, including rates of 5.6 percent for current use of marijuana and 2.1 percent for current nonmedical use of psychotherapeutic drugs. Less than 1 percent of adults in this age group were current users of cocaine (0.5 percent), hallucinogens (0.3 percent), heroin (0.1 percent), and inhalants (0.1 percent). The rate of current illicit drug use in 2013 was similar to the rate in 2012 (7.0 percent), but it was higher than the rates in 2002 to 2011 (ranging from 5.5 to 6.6 percent). Also, the rate of current marijuana use in 2013 (5.6 percent) was similar to the rate in 2012 (5.3 percent), but it was higher than the rates in 2002 to 2011 (ranging from 3.9 to 4.8 percent).

- Among adults aged 50 to 64, the rate of current illicit drug use increased from 2.7 percent in 2002 to 6.0 percent in 2013. For adults aged 50 to 54, the rate increased from 3.4 percent in 2002 to 7.9 percent in 2013 (Figure 2.10). Among those aged 55 to 59, the rate of current illicit drug use increased from 1.9 percent in 2002 to 5.7 percent in 2013. Among those aged 60 to 64, the rate of current illicit drug use increased from 1.1 percent in 2003 and 2004 to 3.9 percent in 2013.

Figure 2.10 Past Month Illicit Drug Use among Adults Aged 50 to 64: 2002-2013
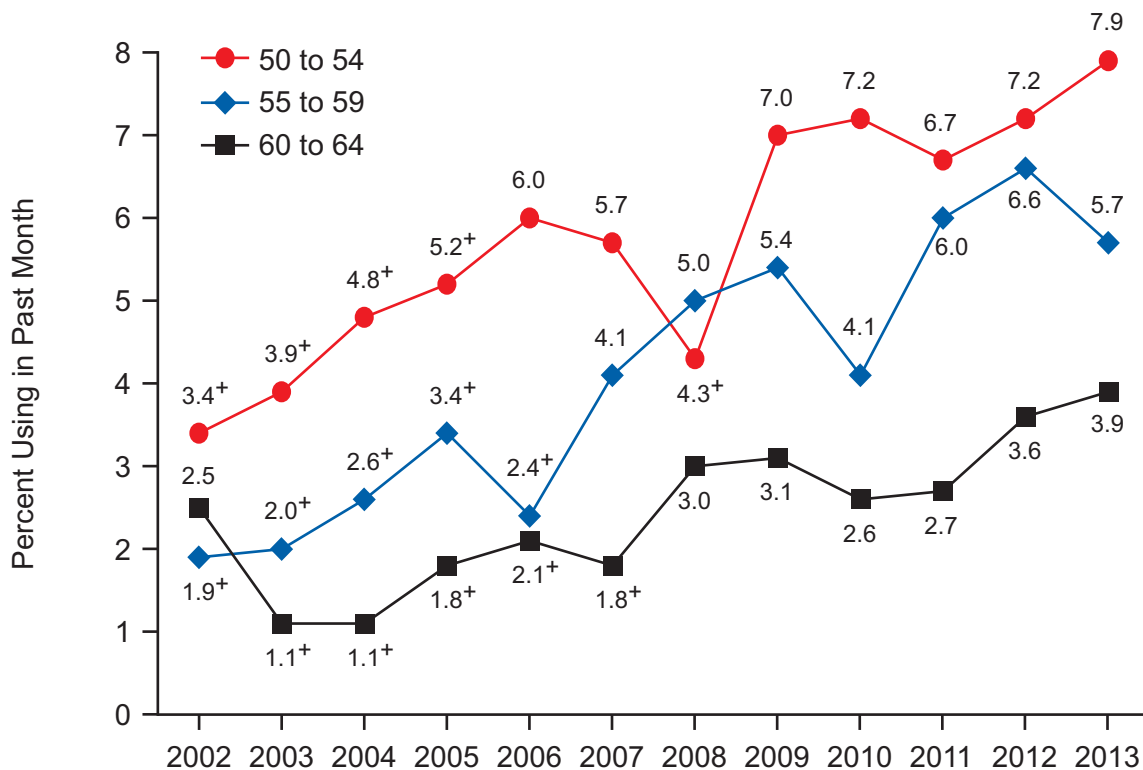
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Gender

- In 2013, as in prior years, the rate of current illicit drug use among persons aged 12 or older was higher for males (11.5 percent) than for females (7.3 percent). Males were more likely than females to be current users of several different illicit drugs, including marijuana (9.7 vs. 5.6 percent), cocaine (0.8 vs. 0.4 percent), and hallucinogens (0.7 vs. 0.3 percent).

- In 2013, the rate of current illicit drug use was higher for males than females aged 12 to 17 (9.6 vs. 8.0 percent). This represents a change from 2012, when the rates of current illicit drug use were similar among males and females aged 12 to 17 (9.6 and 9.5 percent, respectively), and reflects a decrease in the rate of current illicit drug use among females from 2012 to 2013. Likewise, in 2013, the rate of current marijuana use was higher for males than females aged 12 to 17 (7.9 vs. 6.2 percent), which is a change from 2012 when the rates of current marijuana use for males and females were similar (7.5 and 7.0 percent).

- The rate of current marijuana use among males aged 12 to 17 declined from 9.1 percent in 2002 to 6.9 percent in 2006, then increased between 2006 and 2011 (9.0 percent) (Figure 2.11). The rate decreased from 2011 to 2012 (7.5 percent) and remained stable in 2013 (7.9 percent). Among females aged 12 to 17, the rate of current marijuana use decreased from 7.2 percent in 2002 and 2003 to 6.2 percent in 2013.

Figure 2.11 Past Month Marijuana Use among Youths Aged 12 to 17, by Gender: 2002-2013
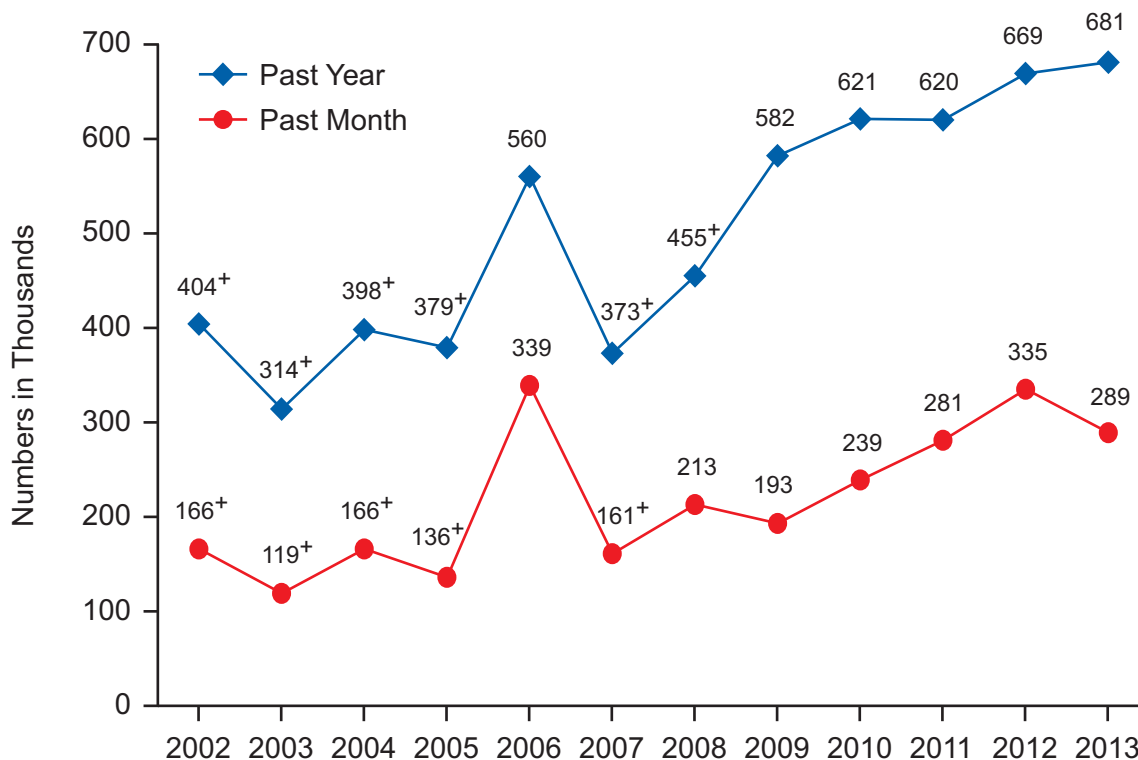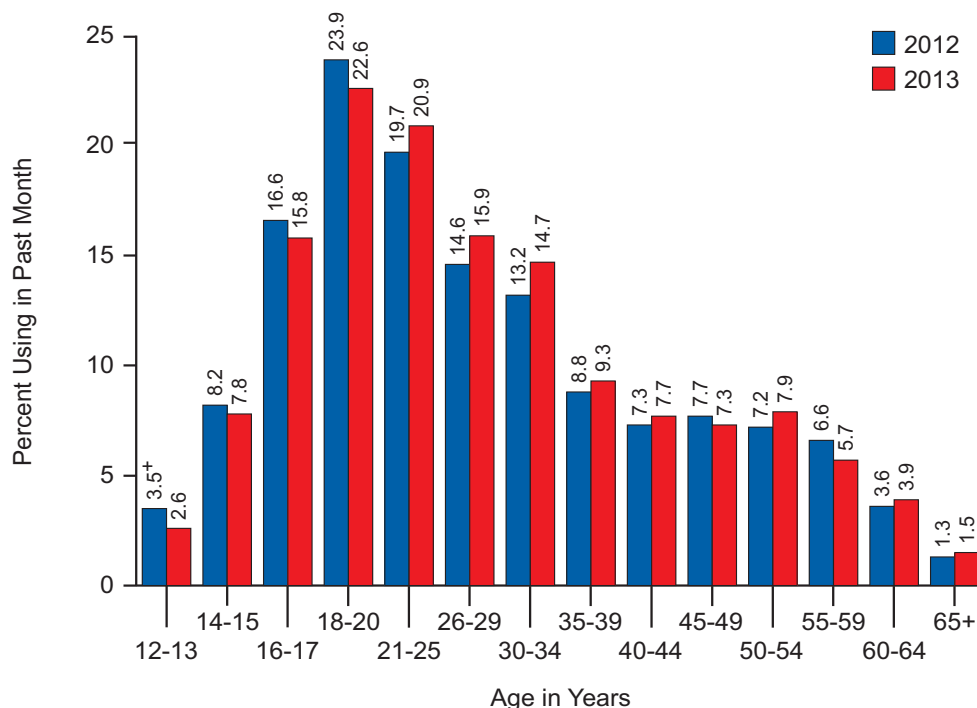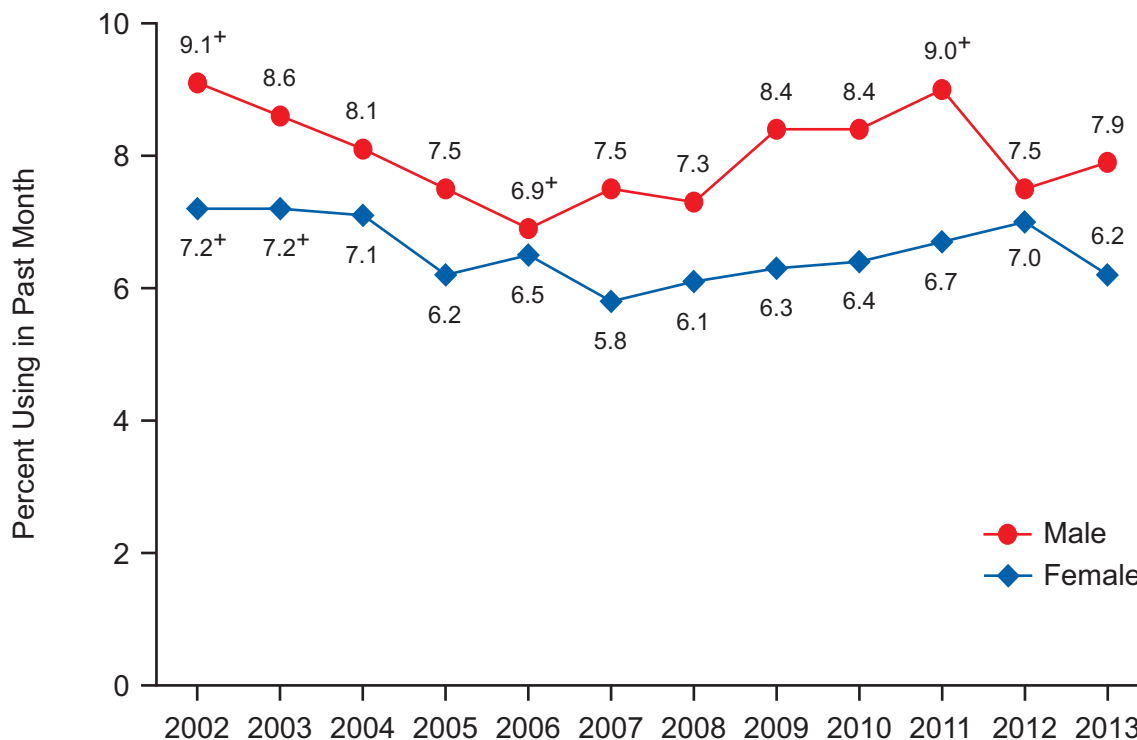

+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The rate of current nonmedical use of psychotherapeutic drugs among males aged 12 to 17 decreased from a high of 3.7 percent in 2003 to 2.0 percent in 2013. Among females aged 12 to 17, the rate of current nonmedical use of psychotherapeutic drugs decreased from a high of 4.4 percent in 2002 to 2.4 percent in 2013, including a decrease from 3.2 percent in 2012.

Pregnant Women

- Among pregnant women aged 15 to 44, 5.4 percent were current illicit drug users based on data averaged across 2012 and 2013. This was lower than the rate among women in this age group who were not pregnant (11.4 percent). Among pregnant women aged 15 to 44, the average rate of current illicit drug use in 2012-2013 (5.4 percent) was not significantly different from the rate averaged across 2010-2011 (5.0 percent). Current illicit drug use in 2012-2013 was lower among pregnant women aged 15 to 44 during the third trimester than during the first and second trimesters (2.4 percent vs. 9.0 and 4.8 percent).

- The rate of current illicit drug use in the combined 2012-2013 data was 14.6 percent among pregnant women aged 15 to 17, 8.6 percent among women aged 18 to 25, and 3.2 percent among women aged 26 to 44. These rates were not significantly different from those in the combined 2010-2011 data (20.9 percent among pregnant women aged 15 to 17, 8.2 percent among pregnant women aged 18 to 25, and 2.2 percent among pregnant women aged 26 to 44).

Race/Ethnicity

- In 2013, among persons aged 12 or older, the rate of current illicit drug use was 3.1 percent among Asians, 8.8 percent among Hispanics, 9.5 percent among whites, 10.5 percent among blacks, 12.3 percent among American Indians or Alaska Natives, 14.0 percent among Native Hawaiians or Other Pacific Islanders, and 17.4 percent among persons reporting two or more races.

- There were no statistically significant differences in the rates of current illicit drug use between 2012 and 2013 for any of the racial/ethnic groups. Between 2002 and 2013, the rate of current illicit drug use increased from 8.5 to 9.5 percent for whites. Among blacks, the rate increased from 8.7 percent in 2003 and 2004 to 10.5 percent in 2013 (Figure 2.12).

Education

- Illicit drug use in 2013 varied by the educational status of adults aged 18 or older. The rate of current illicit drug use was lower among college graduates (6.7 percent) than those with some college education but no degree (10.8 percent), high school graduates with no further education (9.9 percent), and those who had not graduated from high school (11.8 percent).

Figure 2.12 Past Month Illicit Drug Use among Persons Aged 12 or Older, by Race/Ethnicity: 2002-2013
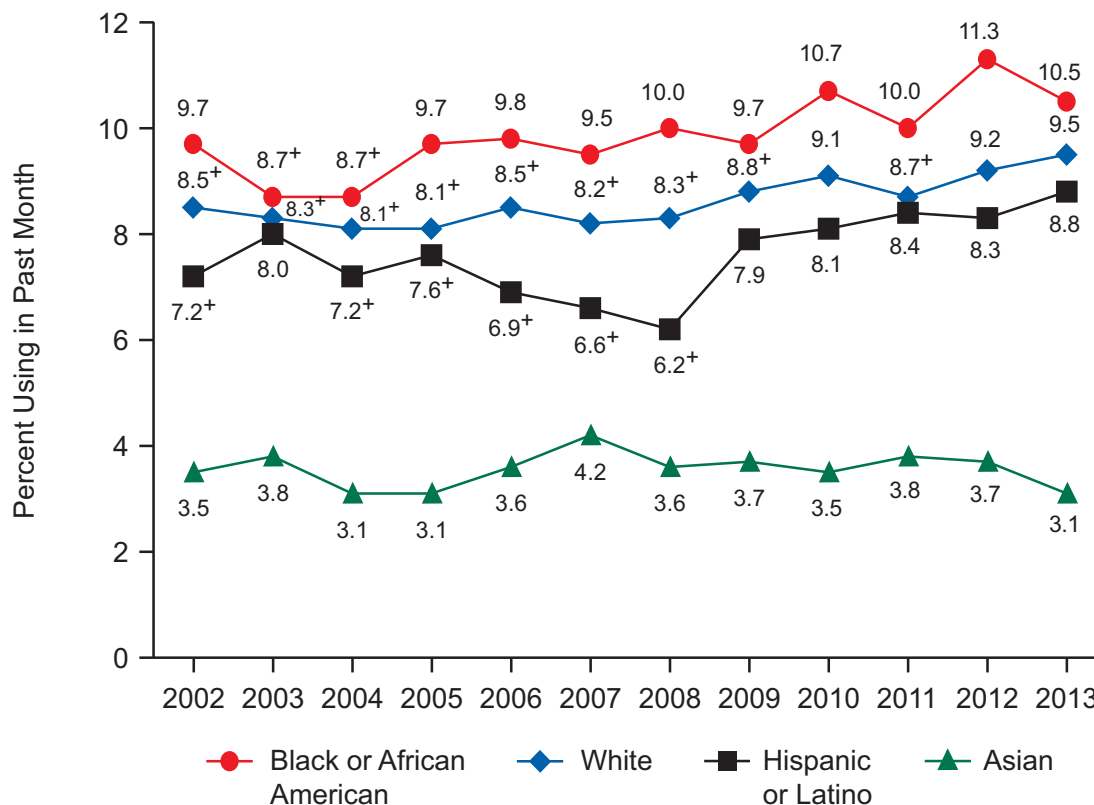
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Note: Sample sizes for American Indians or Alaska Natives, Native Hawaiians or Other Pacific Islanders, and persons of two or more races were too small for reliable trend presentation for these groups.

College Students

- In 2013, the rate of current illicit drug use was 22.3 percent among full-time college students aged 18 to 22. This was similar to the rate among other persons aged 18 to 22 (23.0 percent), which included part-time college students, students in other grades or types of institutions, and nonstudents.

- In 2013, about one quarter of male full-time college students aged 18 to 22 were current illicit drug users (26.0 percent). This rate was higher than the rate of current illicit drug use among female full-time college students aged 18 to 22 (19.2 percent). Similarly, 23.6 percent of male full-time college students aged 18 to 22 were current marijuana users compared with 16.6 percent of female full-time college students aged 18 to 22.

- Among full-time college students aged 18 to 22 in 2013, the rate of current illicit drug use was 9.4 percent for Asians, 19.7 percent for blacks, 21.5 percent for Hispanics, and 25.1 percent for whites.

Employment

- Current illicit drug use differed by employment status in 2013. Among adults aged 18 or older, the rate of current illicit drug use was higher for those who were unemployed (18.2 percent) than for those who were employed full time (9.1 percent), employed part time (13.7 percent), or "other" (6.6 percent) (which includes students, persons keeping house or caring for children full time, retired or disabled persons, or other persons not in the labor force) (Figure 2.13). The percentage of adults employed full time who were current illicit drug users in 2013 was similar to that in 2012 (8.9 percent).

Figure 2.13 Past Month Illicit Drug Use among Persons Aged 18 or Older, by Employment Status: 2012 and 2013
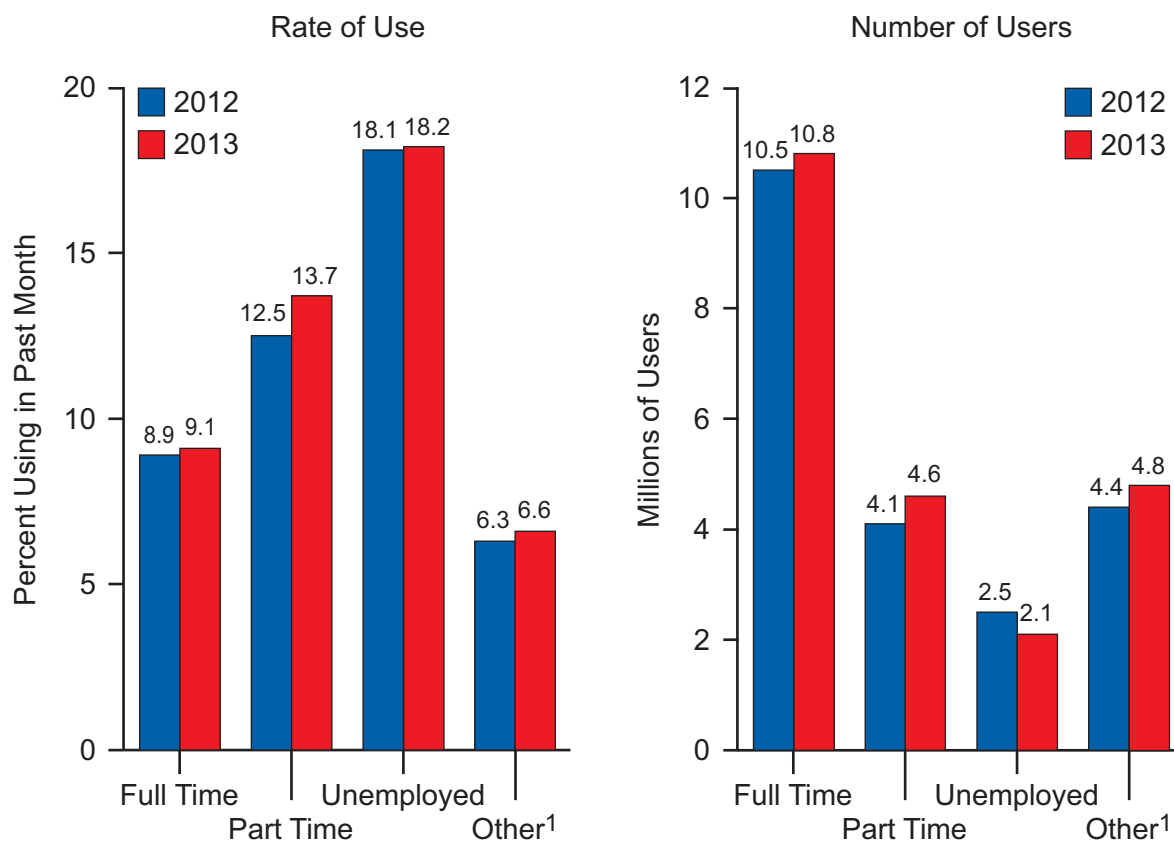
[+]Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

[1]The Other Employment category includes students, persons keeping house or caring for children full time, retired or disabled persons, or other persons not in the labor force.

- Although the rate of current illicit drug use was higher among unemployed persons in 2013 than it was among those who were employed full time, employed part time, or in the "other" employment category, most of these users were employed. Of the 22.4 million current illicit drug users aged 18 or older in 2013, 15.4 million (68.9 percent) were employed either full or part time.

Geographic Area

- Among persons aged 12 or older, the rate of current illicit drug use in 2013 was 11.8 percent in the West, 9.2 percent in the Northeast, 8.7 percent in the Midwest, and 8.3 percent in the South.

- In 2013, the rate of current illicit drug use among persons aged 12 or older was 9.6 percent in large metropolitan areas, 9.8 percent in small metropolitan areas, and 7.8 percent in nonmetropolitan areas (Figure 2.14). Within nonmetropolitan areas, the rate was 8.9 percent in urbanized counties and 6.9 percent in both less urbanized counties and rural counties.

Figure 2.14 Past Month Illicit Drug Use among Persons Aged 12 or Older, by County Type: 2013
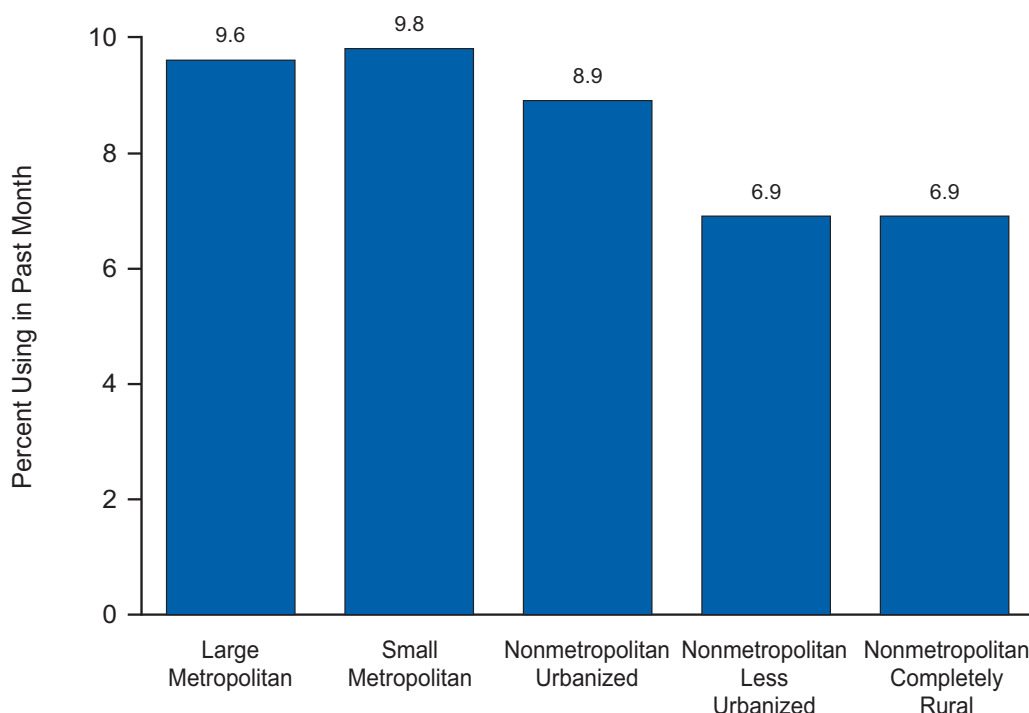
Criminal Justice Populations

- In 2013, an estimated 1.7 million adults aged 18 or older were on parole or other supervised release from prison at some time during the past year. About one quarter (27.4 percent) were current illicit drug users, with 20.4 percent reporting current use of marijuana and 12.1 percent reporting current nonmedical use of psychotherapeutic drugs. These rates were higher than those reported by adults aged 18 or older who were not on parole or other supervised release during the past year (9.3 percent for current illicit drug use, 7.5 percent for current marijuana use, and 2.4 percent for current nonmedical use of psychotherapeutic drugs).

- In 2013, an estimated 4.5 million adults aged 18 or older were on probation at some time during the past year. More than one quarter (31.4 percent) were current illicit drug users, with 23.5 percent reporting current use of marijuana and 12.3 percent reporting current nonmedical use of psychotherapeutic drugs. These rates were higher than those reported by adults who were not on probation during the past year (9.0 percent for current illicit drug use, 7.3 percent for current marijuana use, and 2.3 percent for current nonmedical use of psychotherapeutic drugs).

Frequency of Marijuana Use

- In 2013, 5.7 million persons aged 12 or older used marijuana on a daily or almost daily basis in the past 12 months (i.e., on 300 or more days in that period), which was an increase from the 3.1 million daily or almost daily users in 2006 (Figure 2.15). The number of daily or almost daily users of marijuana in 2013 represented 17.4 percent of past year users.

- In 2013, 8.1 million persons aged 12 or older used marijuana on 20 or more days in the past month, which was an increase from the 5.1 million daily or almost daily past month users in 2005 to 2007 (Figure 2.15). The number of daily or almost daily users in 2013 represented 41.1 percent of past month marijuana users.

Figure 2.15 Daily or Almost Daily Marijuana Use in the Past Year and Past Month among Persons Aged 12 or Older: 2002-2013
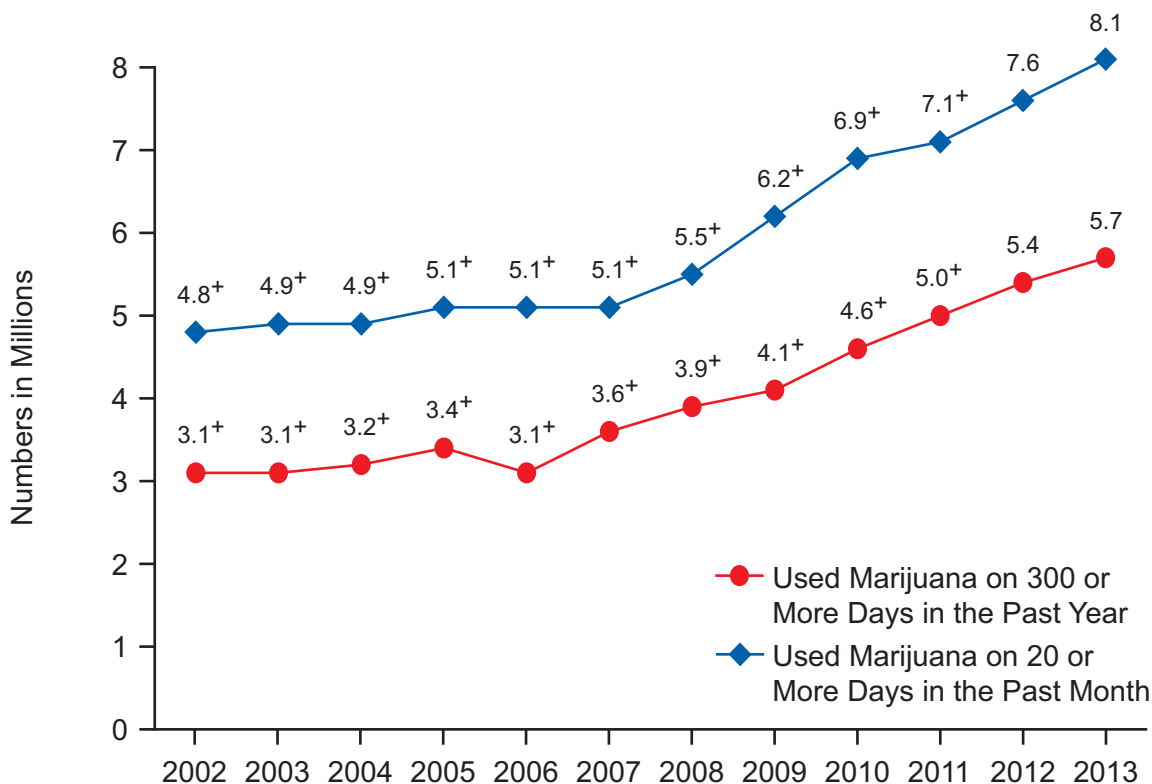
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Association with Cigarette and Alcohol Use

- In 2013, the rate of current illicit drug use among youths aged 12 to 17 who smoked cigarettes in the past month was approximately 9 times the rate among youths who did not smoke cigarettes in the past month (53.9 vs. 6.1 percent). Also, the rate of current marijuana use in 2013 among youths aged 12 to 17 who smoked cigarettes in the past month was about 11 times the rate among youths who did not smoke cigarettes (49.5 vs. 4.6 percent).

- In 2013, the rate of current illicit drug use was associated with the level of past month alcohol use. Among youths aged 12 to 17 who were heavy drinkers (i.e., consumed five or more drinks on the same occasion on each of 5 or more days in the past 30 days), 62.3 percent were current illicit drug users and 57.9 percent were current marijuana users. These rates were higher than the rates among youths who were not current alcohol users (4.9 percent for current illicit drug use and 3.3 percent for current marijuana use). Additionally, among youths aged 12 to 17 who were binge but not heavy alcohol users (i.e., consumed five or more drinks on the same occasion on 1 to 4 days in the past 30 days), 46.6 percent were current illicit drug users and 43.2 percent were current marijuana users (with the marijuana use rate being higher than the 2012 rate of 37.8 percent).

- In 2013, the rate of current illicit drug use among youths aged 12 to 17 who both smoked cigarettes and drank alcohol in the past month was approximately 16 times the rate among those who neither smoked cigarettes nor drank alcohol in the past month (64.5 vs. 3.9 percent). Additionally, the rate of current marijuana use among youths aged 12 to 17 who both smoked cigarettes and drank alcohol in the past month was about 25 times the rate among those who neither smoked cigarettes nor drank alcohol in the past month (59.7 vs. 2.4 percent).

Driving Under the Influence of Illicit Drugs

- In 2013, 9.9 million persons, or 3.8 percent of the population aged 12 or older, reported driving under the influence of illicit drugs during the past year. This rate was lower than the rate in 2002 (4.7 percent), but was similar to the rate in 2012 (3.9 percent). Across age groups, the rate of driving under the influence of illicit drugs in 2013 was highest among young adults aged 18 to 25 (10.6 percent); this rate for young adults was lower than the rate in 2012 (11.9 percent). Additionally, the rate of driving under the influence of illicit drugs during the past year among youths aged 12 to 17 decreased from 2.3 percent in 2012 to 1.9 percent in 2013.

Source of Prescription Drugs

- Past year nonmedical users of psychotherapeutic drugs are asked how they obtained the drugs for their most recent nonmedical use. Rates averaged across 2012 and 2013 show that more than half of the nonmedical users of pain relievers, tranquilizers, stimulants, and sedatives aged 12 or older got the prescription drugs they most recently used "from a friend or relative for free." More than four in five of these nonmedical users who obtained prescription drugs from a friend or relative for free indicated that their friend or relative had obtained the drugs from one doctor.

- Among persons aged 12 or older in 2012-2013 who used pain relievers nonmedically in the past year, 53.0 percent got the pain relievers they most recently used from a friend or relative for free (Figure 2.16). About one in five (21.2 percent) received them through a prescription from one doctor (which was higher than the 18.1 percent in 2010-2011). Another 10.6 percent of these nonmedical users in 2012-2013 bought pain relievers from a friend or relative, and 4.0 percent took pain relievers from a friend or relative without asking. An annual average of 4.3 percent got the pain relievers from a drug dealer or other stranger; 2.6 percent got pain relievers from more than one doctor; 0.1 percent bought pain relievers on the Internet; and 4.3 percent got pain relievers in other ways, including 0.7 percent who stole pain relievers from a doctor's office, clinic, hospital, or pharmacy.

Figure 2.16 Source Where Pain Relievers Were Obtained for Most Recent Nonmedical Use among Past Year Users Aged 12 or Older: 2012-2013
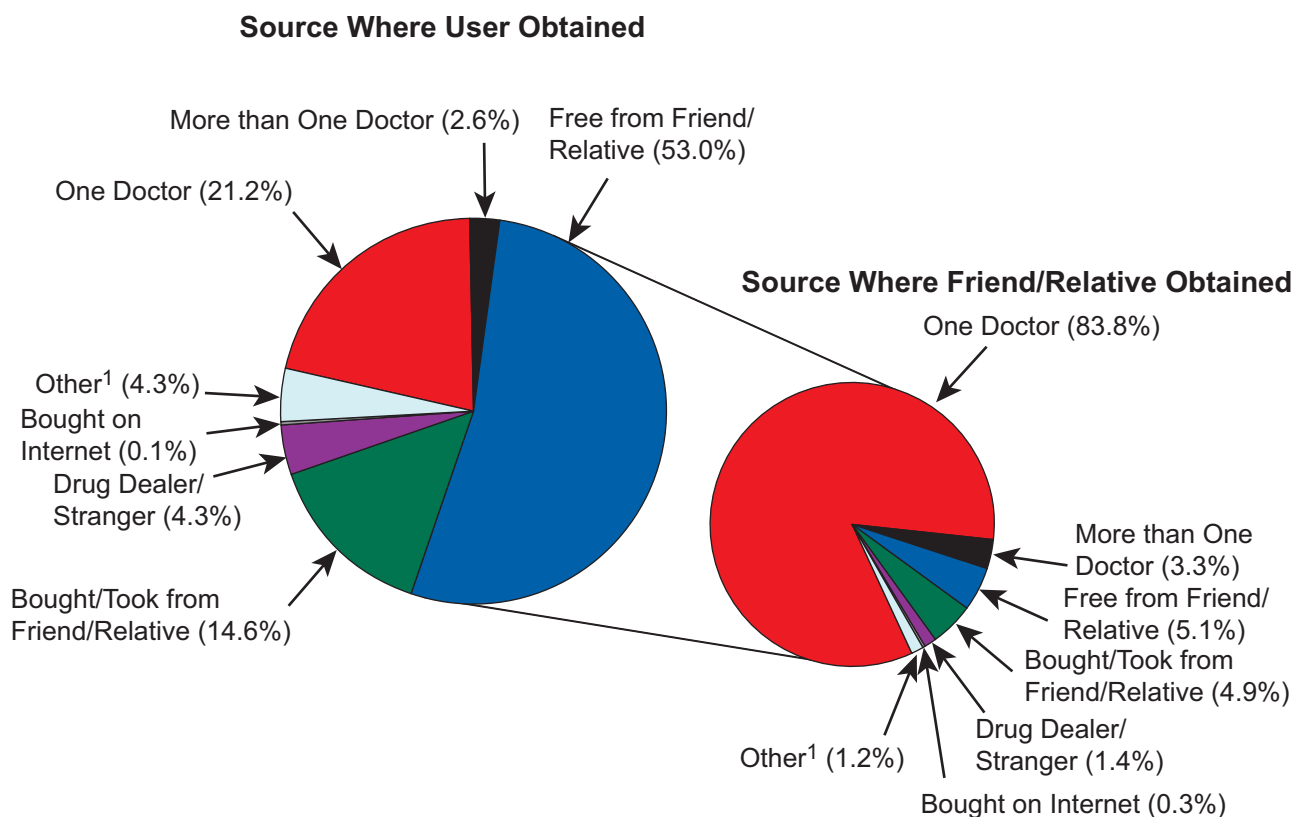
[1] The Other category includes the sources "Wrote Fake Prescription," "Stole from Doctor's Office/Clinic/Hospital/Pharmacy," and "Some Other Way."

Note: The percentages do not add to 100 percent due to rounding.

- Among persons aged 12 or older in 2012-2013 who used pain relievers nonmedically in the past year and indicated that they most recently obtained the drugs from a friend or relative for free in the past year, 83.8 percent reported that their friend or relative obtained the drugs from just one doctor (Figure 2.16). About 1 in 20 (5.1 percent) of these past year nonmedical users of pain relievers reported that the friend or relative got the pain relievers from another friend or relative for free, 4.9 percent reported that the friend or relative bought or took them from a friend or relative (including 3.7 percent who reported that the friend or relative bought the pain relievers from a friend or relative and 1.2 percent who reported that the friend or relative took the pain relievers from another friend or relative without asking), 1.4 percent reported that the friend or relative bought the pain relievers from a drug dealer or other stranger, and 0.3 percent reported that the friend or relative bought the pain relievers on the Internet.

3. Alcohol Use

The National Survey on Drug Use and Health (NSDUH) includes questions about the recency and frequency of consumption of alcoholic beverages, such as beer, wine, whiskey, brandy, and mixed drinks. A "drink" is defined as a can or bottle of beer, a glass of wine or a wine cooler, a shot of liquor, or a mixed drink with liquor in it. Times when the respondent only had a sip or two from a drink are not considered to be consumption. For this report, estimates for the prevalence of alcohol use are reported primarily at three levels defined for both males and females and for all ages as follows:

Current (past month) use - At least one drink in the past 30 days.

Binge use - Five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

Heavy use - Five or more drinks on the same occasion on each of 5 or more days in the past 30 days.

These levels are not mutually exclusive categories of use; heavy use is included in estimates of binge and current use, and binge use is included in estimates of current use.

This chapter is divided into two main sections. Section 3.1 describes trends and patterns of alcohol use among the population aged 12 or older. Section 3.2 is concerned particularly with the use of alcohol by persons aged 12 to 20. These persons are under the legal drinking age in all 50 States and the District of Columbia.

3.1. Alcohol Use among Persons Aged 12 or Older

- Slightly more than half (52.2 percent) of Americans aged 12 or older reported being current drinkers of alcohol in the 2013 survey, which was similar to the rate in 2012 (52.1 percent). This translates to an estimated 136.9 million current drinkers in 2013.

- Nearly one quarter (22.9 percent) of persons aged 12 or older in 2013 were binge alcohol users in the 30 days prior to the survey. This translates to about 60.1 million people. The rate in 2013 was similar to the rate in 2012 (23.0 percent).

- In 2013, heavy drinking was reported by 6.3 percent of the population aged 12 or older, or 16.5 million people. This percentage was similar to the rate of heavy drinking in 2012 (6.5 percent).

Age

- In 2013, rates of current alcohol use were 2.1 percent among persons aged 12 or 13, 9.5 percent for persons aged 14 or 15, 22.7 percent for 16 or 17 year olds, 43.8 percent for those aged 18 to 20, and 69.3 percent for 21 to 25 year olds (Figure 3.1). The estimates for persons aged 14 or 15 and those aged 16 or 17 were lower than those reported in 2012 (11.1 and 24.8 percent, respectively).

- Rates of binge alcohol use in 2013 were 0.8 percent among 12 or 13 year olds, 4.5 percent for 14 or 15 year olds, 13.1 percent for 16 or 17 year olds, 29.1 percent for persons aged 18 to 20, and peaked at 43.3 percent for those aged 21 to 25 (Figure 3.1). The estimates for persons aged 14 or 15, 16 or 17, and 21 to 25 were lower than those reported in 2012 (5.4, 15.0, and 45.1 percent, respectively).

- Rates of heavy alcohol use in 2013 were 0.1 percent among 12 or 13 year olds, 0.7 percent for 14 or 15 year olds, 2.7 percent for 16 or 17 year olds, 8.5 percent for persons aged 18 to 20, and peaked at 13.1 percent for those aged 21 to 25 (Figure 3.1). The estimates for persons aged 18 to 20 and 21 to 25 were lower than those reported in 2012 (10.0 and 14.4 percent, respectively).

Figure 3.1 Current, Binge, and Heavy Alcohol Use among Persons Aged 12 or Older, by Age: 2013
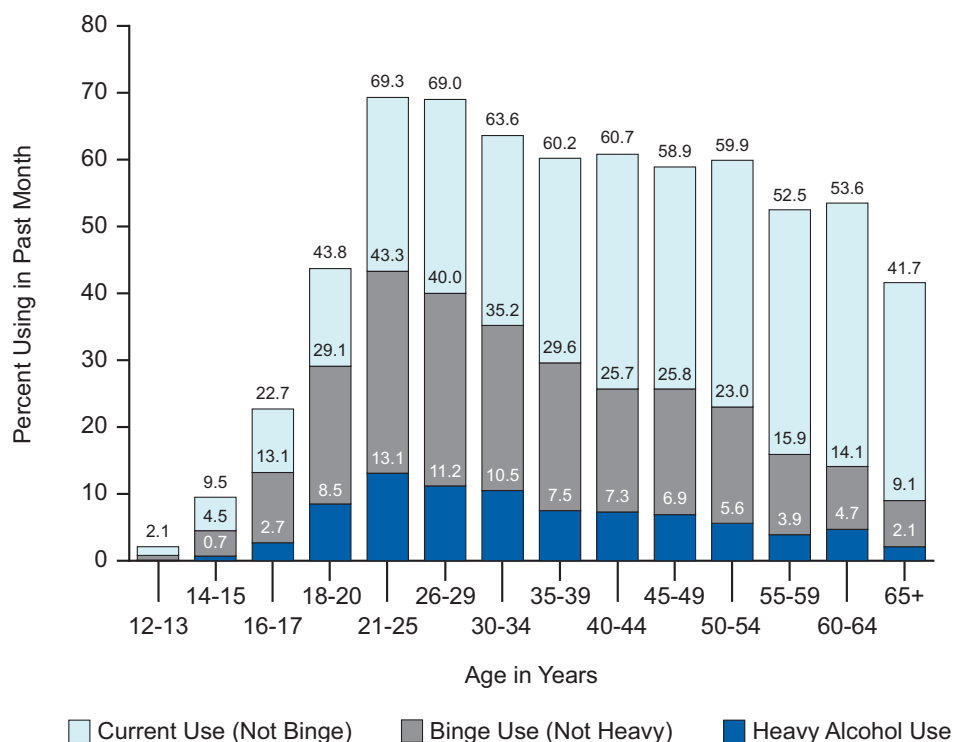
Note: The past month binge alcohol use estimate for 12 or 13 year olds was 0.8 percent, and the past month heavy alcohol use estimate was 0.1 percent.

- The rate of current alcohol use among youths aged 12 to 17 was 11.6 percent in 2013. Youth binge and heavy drinking rates were 6.2 and 1.2 percent, respectively. The rates for current and binge youth alcohol use were lower than those in 2012 (12.9 and 7.2 percent, respectively).

- In 2013, the rate of current alcohol use was 59.6 percent among young adults aged 18 to 25, which was similar to the rate in 2012 (60.2 percent). The rate of binge drinking in 2013 was 37.9 percent for young adults. Heavy alcohol use was reported by 11.3 percent of persons in this age group. The binge and heavy drinking rates were lower than the rates in 2012 (39.5 and 12.7 percent, respectively).

- The prevalence of current, binge, and heavy alcohol use in 2013 was lower among adults aged 65 or older (41.7, 9.1, and 2.1 percent, respectively) than among all other adult age groups (Figure 3.1). These rates among adults aged 65 or older were similar to the current, binge, and heavy drinking rates in this age group in 2012 (41.2, 8.2, and 2.0 percent, respectively).

Gender

- In 2013, an estimated 57.1 percent of males aged 12 or older were current drinkers, which was higher than the rate for females (47.5 percent). Among youths aged 12 to 17, however, the percentage of males who were current drinkers (11.2 percent) was similar to the rate for females (11.9 percent). The rates for male and female youths were lower than those reported in 2012 (12.6 and 13.2 percent, respectively).

- Among young adults aged 18 to 25, an estimated 62.3 percent of males and 56.9 percent of females were current drinkers in 2013. In this age group, 44.4 percent of males and 31.4 percent of females reported binge drinking in 2013 (Figure 3.2). In 2013, the rate of binge drinking among females aged 18 to 25 was lower than the rate reported in 2012 (33.2 percent). The rate of binge alcohol use in 2013 among males in this age group was similar to the rate in 2012 (45.8 percent).

- Among persons aged 26 or older, an estimated 62.2 percent of males and 50.1 percent of females reported current drinking in 2013. In this age group, the rate of binge drinking for males was approximately twice the rate for females (30.7 vs. 14.7 percent).

Pregnant Women

- Among pregnant women aged 15 to 44 in 2012-2013, an annual average of 9.4 percent reported current alcohol use, 2.3 percent reported binge drinking, and 0.4 percent reported heavy drinking. These rates were lower than the rates for nonpregnant women in the same age group (55.4, 24.6, and 5.3 percent, respectively). Current alcohol use in 2012-2013 was lower among pregnant women aged 15 to 44 during the second and third trimesters than during the first trimester (5.0 and 4.4 percent vs. 19.0 percent).

Figure 3.2 Binge Alcohol Use among Adults Aged 18 to 25, by Gender: 2002-2013
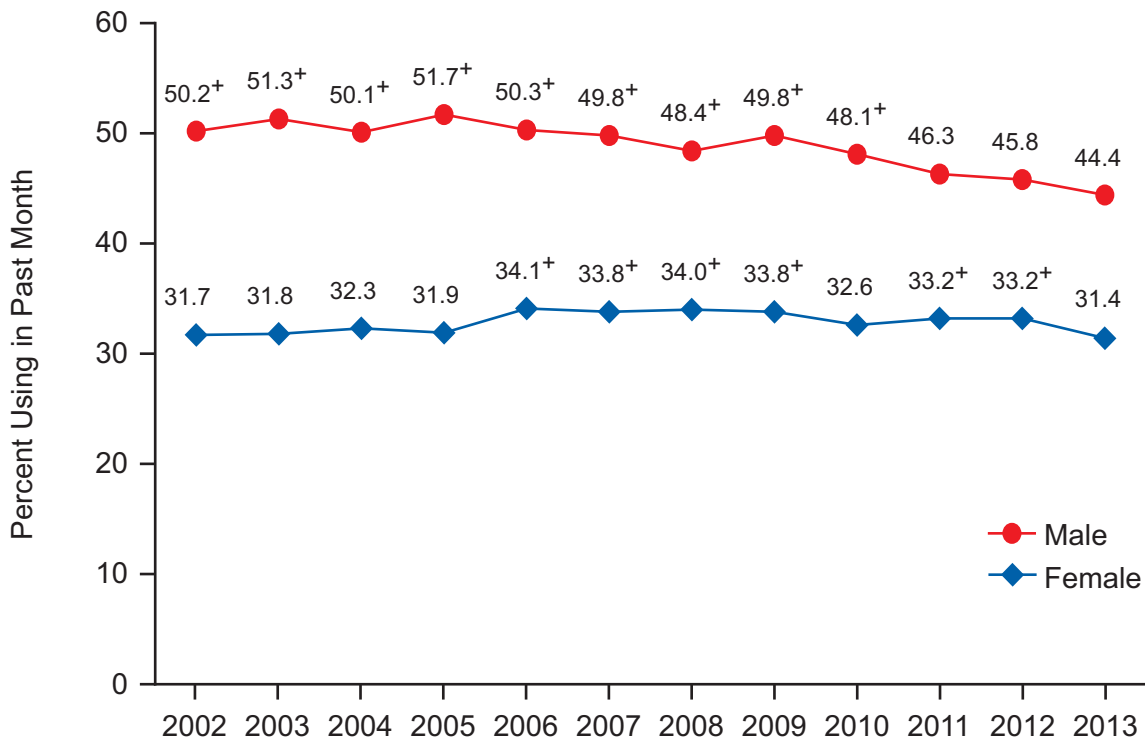
Male figures (red): 50.2+, 51.3+, 50.1+, 51.7+, 50.3+, 49.8+, 48.4+, 49.8+, 48.1+, 46.3, 45.8, 44.4

Female figures (blue): 31.7, 31.8, 32.3, 31.9, 34.1+, 33.8+, 34.0+, 33.8+, 32.6, 33.2+, 33.2+, 31.4

+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Race/Ethnicity

- Among persons aged 12 or older, whites in 2013 were more likely than other racial/ethnic groups to report current use of alcohol (57.7 percent) (Figure 3.3). The rates were 47.4 percent for persons reporting two or more races, 43.6 percent for blacks, 43.0 percent for Hispanics, 38.4 percent for Native Hawaiians or Other Pacific Islanders, 37.3 percent for American Indians or Alaska Natives, and 34.5 percent for Asians.

- The rate of binge alcohol use in 2013 was lowest among Asians (12.4 percent) (Figure 3.3). Rates for other racial/ethnic groups were 19.6 percent for persons reporting two or more races, 20.1 percent for blacks, 23.5 percent for American Indians or Alaska Natives 24.0 percent for whites, 24.1 percent for Hispanics, and 24.7 percent for Native Hawaiians or Other Pacific Islanders.

- Among youths aged 12 to 17 in 2013, rates of current alcohol use were 8.0 percent among Asians, 8.2 percent for Native Hawaiians or Other Pacific Islanders, 9.0 percent for those reporting two or more races, 9.3 percent for American Indians or Alaska Natives, 9.7 percent for blacks, 10.7 percent for Hispanics, and 12.9 percent for whites. The rates for Hispanic and white youths were lower than those reported in 2012 (12.8 and 14.6 percent, respectively).

Figure 3.3 Current, Binge, and Heavy Alcohol Use among Persons Aged 12 or Older, by Race/Ethnicity: 2013
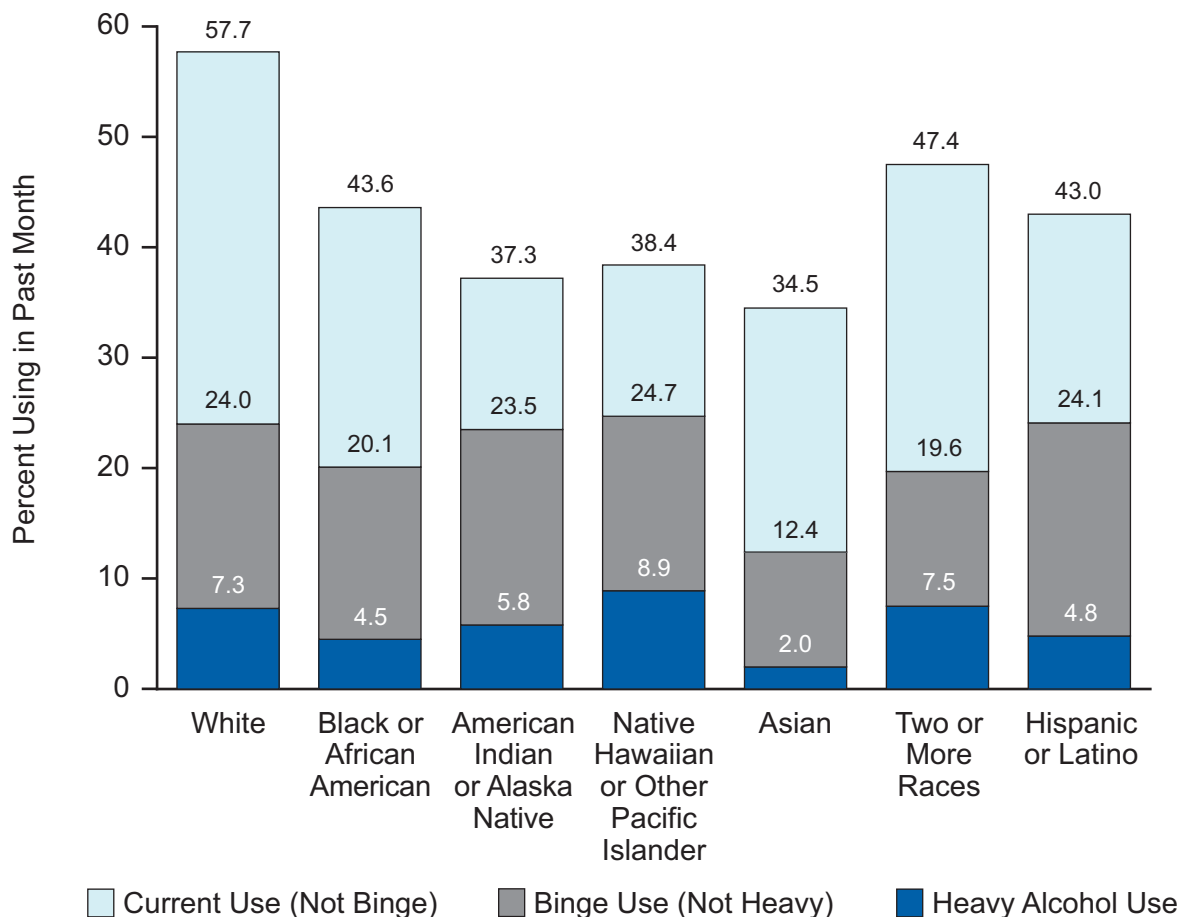
Education

- Among adults aged 18 or older, the rate of past month alcohol use increased with increasing levels of education. Among adults in 2013 with less than a high school education, 36.5 percent were current drinkers. In comparison, 69.2 percent of college graduates were current drinkers.

- Among adults aged 18 or older, rates of binge and heavy alcohol use varied by level of education. Among adults in 2013, those who had graduated from college were less likely than those with some college education but no degree to be binge drinkers (23.1 vs. 26.4 percent) or heavy drinkers (6.0 vs. 7.6 percent).

College Students

- Young adults aged 18 to 22 who were enrolled full time in college were more likely than their peers who were not enrolled full time (i.e., part-time college students and persons not currently enrolled in college) to report current, binge, or heavy drinking. Among full-time college students in 2013, 59.4 percent were current drinkers, 39.0 percent were binge drinkers, and 12.7 percent were heavy drinkers. Among those not enrolled full time in college, these rates were 50.6, 33.4, and 9.3 percent, respectively.

- The pattern of higher rates of current alcohol use, binge alcohol use, and heavy alcohol use among full-time college students compared with rates for others aged 18 to 22 has remained consistent since 2002 (Figure 3.4).

- Among young adults aged 18 to 22, the rate of binge drinking declined somewhat since 2002. In 2002, the binge drinking rate within this age group was 41.0 percent compared with 35.6 percent in 2013. Among full-time college students, the rate decreased over this period from 44.4 to 39.0 percent (Figure 3.4). Among part-time college students and others not in college, the rate decreased from 38.9 to 33.4 percent during the same time period. For both full-time college students and others aged 18 to 22, the rates in 2013 were similar to those in 2012 (40.1 and 35.0 percent, respectively).

Figure 3.4 Binge Alcohol Use among Adults Aged 18 to 22, by College Enrollment: 2002-2013
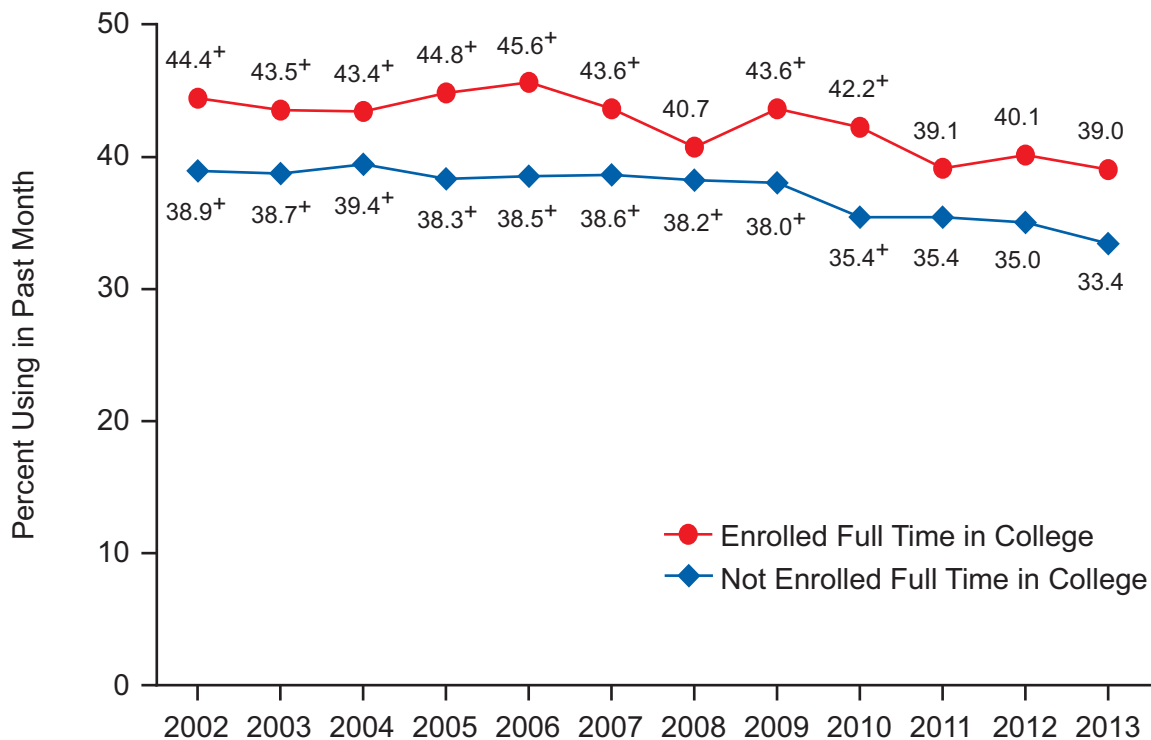
$^+$ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- In 2013, male full-time college students aged 18 to 22 were more likely than their female counterparts to be binge drinkers (44.8 vs. 33.9 percent) as well as heavy drinkers (16.5 vs. 9.3 percent). The rates for current drinking were similar for males and females who were full-time college students (60.8 and 58.2 percent, respectively).

Employment

- The rate of current alcohol use in 2013 was 65.8 percent for full-time employed adults aged 18 or older, which was higher than the rate for unemployed adults (53.8 percent). The rates of binge drinking were similar for adults who were employed full time and those who were unemployed (30.5 and 31.3 percent, respectively).

- Among adults in 2013, most binge and heavy alcohol users were employed. Among the 58.5 million adults who were binge drinkers, 44.5 million (76.1 percent) were employed either full or part time. Among the 16.2 million adults who were heavy drinkers, 12.4 million (76.0 percent) were employed.

Geographic Area

- The rate of past month alcohol use for people aged 12 or older in 2013 was lowest in the South (48.2 percent), followed by the West (50.7 percent), then the Midwest (55.7 percent), then the Northeast (58.0 percent). Rates of binge drinking in these regions were 21.3, 22.2, 25.6, and 23.8 percent, respectively.

- In 2013, the rates of past month alcohol use among persons aged 12 or older in large and small metropolitan areas (54.3 and 51.6 percent, respectively) were higher than in nonmetropolitan areas (46.3 percent). Rates of binge drinking were similar in large and small metropolitan areas (23.3 and 23.1 percent, respectively). However, binge drinking among persons aged 12 or older was less prevalent in nonmetropolitan areas (21.1 percent) than in large metropolitan areas.

- In 2013, roughly 1 in 9 youths aged 12 to 17 were current alcohol users, regardless of whether they were in large metropolitan, small metropolitan, or nonmetropolitan areas (11.7, 11.4, and 11.3 percent, respectively). Among youths aged 12 to 17 in 2013, the rates of binge alcohol use in large and small metropolitan areas (6.2 percent in both areas) were similar to the rate for youths in nonmetropolitan areas (6.6 percent). Youths in nonmetropolitan areas were less likely to be current alcohol drinkers and to be binge alcohol users than they were in 2012 (14.2 and 9.2 percent, respectively).

Association with Illicit Drug and Tobacco Use

- As was the case in prior years, the level of alcohol use was associated with illicit drug use in 2013. Among the 16.5 million heavy drinkers aged 12 or older, 33.7 percent were current illicit drug users. Persons who were not current alcohol users were less likely to have used illicit drugs in the past month (4.3 percent) than those who reported current use of alcohol but no binge or heavy use (7.3 percent), binge use but no heavy use (18.5 percent), or heavy use of alcohol (33.7 percent).

- Alcohol consumption levels also were associated with tobacco use in 2013. Among heavy alcohol users aged 12 or older, 53.1 percent smoked cigarettes in the past month compared with 16.2 percent of non-binge current drinkers and 15.5 percent of persons who did not drink alcohol in the past month. Smokeless tobacco use and cigar use also were more prevalent among heavy drinkers (12.1 and 15.4 percent, respectively) than among non-binge drinkers (2.0 and 3.9 percent) and persons who were not current alcohol users (2.0 and 1.8 percent).

Driving Under the Influence of Alcohol

- In 2013, roughly 1 in 9 persons aged 12 or older (10.9 percent) drove under the influence of alcohol at least once in the past year (Figure 3.5). This corresponds to 28.7 million persons. The 2013 rate was lower than the rate in 2002 (14.2 percent), but was similar to the rate in 2012 (11.2 percent).

Figure 3.5 Driving Under the Influence of Alcohol in the Past Year among Persons Aged 12 or Older: 2002-2013
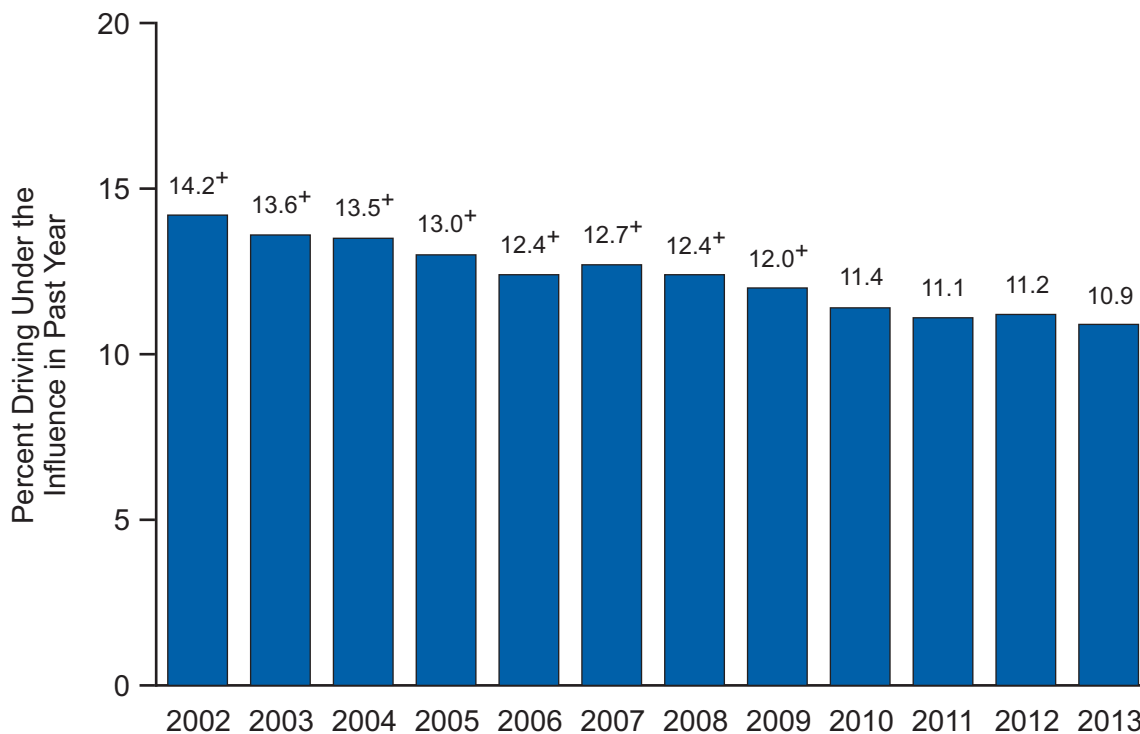
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- Driving under the influence of alcohol among persons aged 16 or older differed by age group in 2013. The rate was highest among persons aged 21 to 25 and persons aged 26 to 29 (19.7 and 20.7 percent, respectively) (Figure 3.6). An estimated 3.8 percent of 16 or 17 year olds and 10.8 percent of 18 to 20 year olds reported driving under the influence of alcohol in the past year.

Figure 3.6 Driving Under the Influence of Alcohol in the Past Year among Persons Aged 16 or Older, by Age: 2013
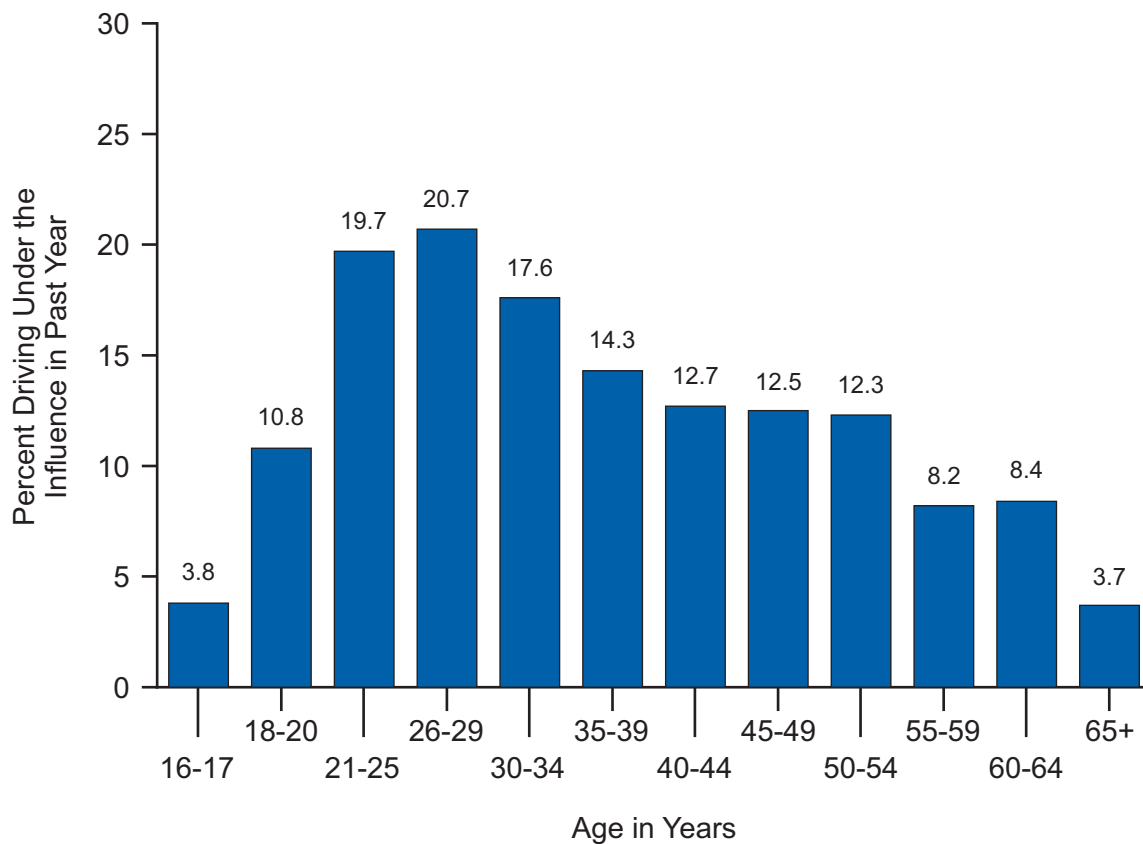
- Among persons aged 12 to 20 and those aged 21 to 25, the rates of driving under the influence of alcohol in 2013 (4.7 and 19.7 percent, respectively) were lower than the rates in 2012 (5.7 and 21.9 percent, respectively). The rates of driving under the influence for those 26 or older were similar in 2012 and 2013 (11.1 and 11.2 percent, respectively).

- Among persons aged 12 or older in 2013, males were more likely than females to drive under the influence of alcohol in the past year (14.1 vs. 7.9 percent).

3.2. Underage Alcohol Use

- In 2013, about 8.7 million persons aged 12 to 20 (22.7 percent of this age group) reported drinking alcohol in the past month. Approximately 5.4 million (14.2 percent) were binge drinkers, and 1.4 million (3.7 percent) were heavy drinkers. All three of these rates were lower than those reported in 2012 (24.3, 15.3, and 4.3 percent, respectively).

- Rates of current, binge, and heavy alcohol use among underage persons declined between 2002 and 2013. The rate of current alcohol use among 12 to 20 year olds decreased from 28.8 percent in 2002 to 22.7 percent in 2013. The binge drinking rate declined from 19.3 to 14.2 percent, and the rate of heavy drinking declined from 6.2 to 3.7 percent between 2002 and 2013.

- Rates of current alcohol use increased with age among underage persons. In 2013, 2.1 percent of persons aged 12 or 13, 9.5 percent of persons aged 14 or 15, 22.7 percent of 16 or 17 year olds, and 43.8 percent of 18 to 20 year olds drank alcohol during the 30 days before they were surveyed (Figure 3.7). This pattern by age has been observed since 2002. The rates in 2013 for youths aged 14 or 15 and those aged 16 or 17 were lower than the rates in 2012 (11.1 and 24.8 percent, respectively).

Figure 3.7 Current Alcohol Use among Persons Aged 12 to 20, by Age: 2002-2013
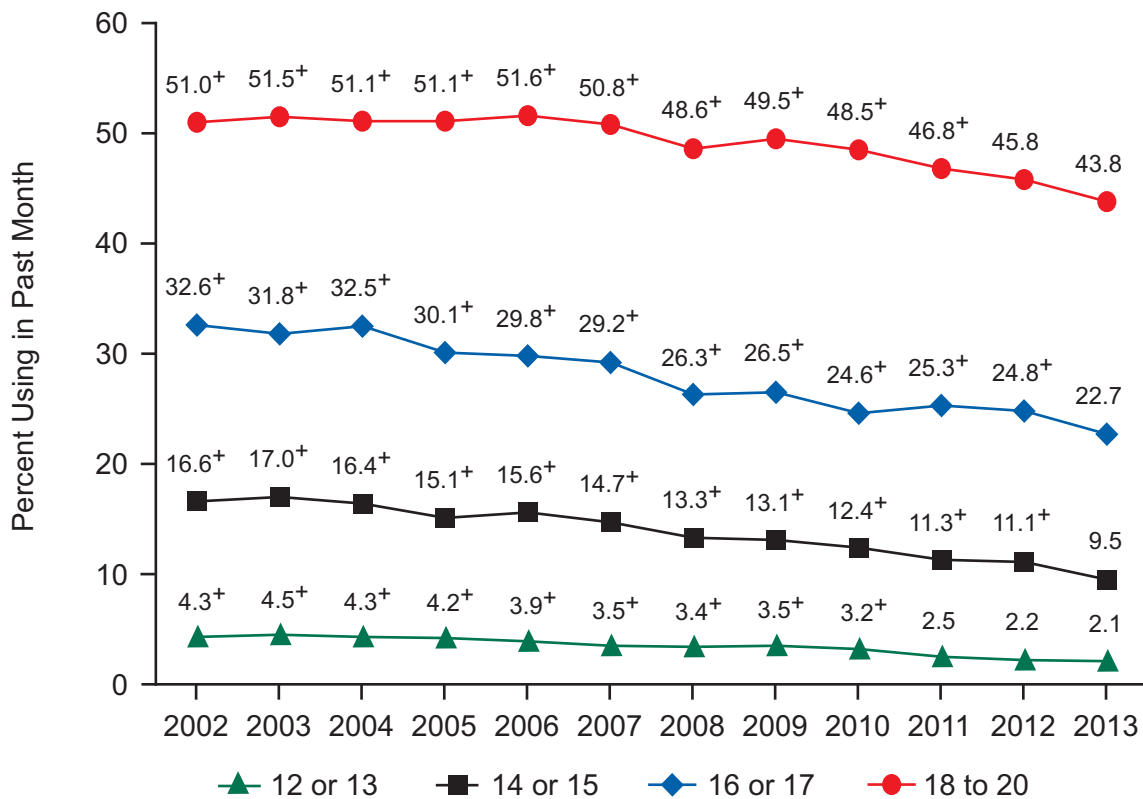

+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- Males and females aged 12 to 20 in 2013 had similar rates of current alcohol use (23.0 and 22.5 percent) (Figure 3.8). However, underage males were more likely than underage females to report binge (15.8 vs. 12.4 percent) or heavy alcohol use (4.6 vs. 2.7 percent).

Figure 3.8 Current, Binge, and Heavy Alcohol Use among Persons Aged 12 to 20, by Gender: 2013
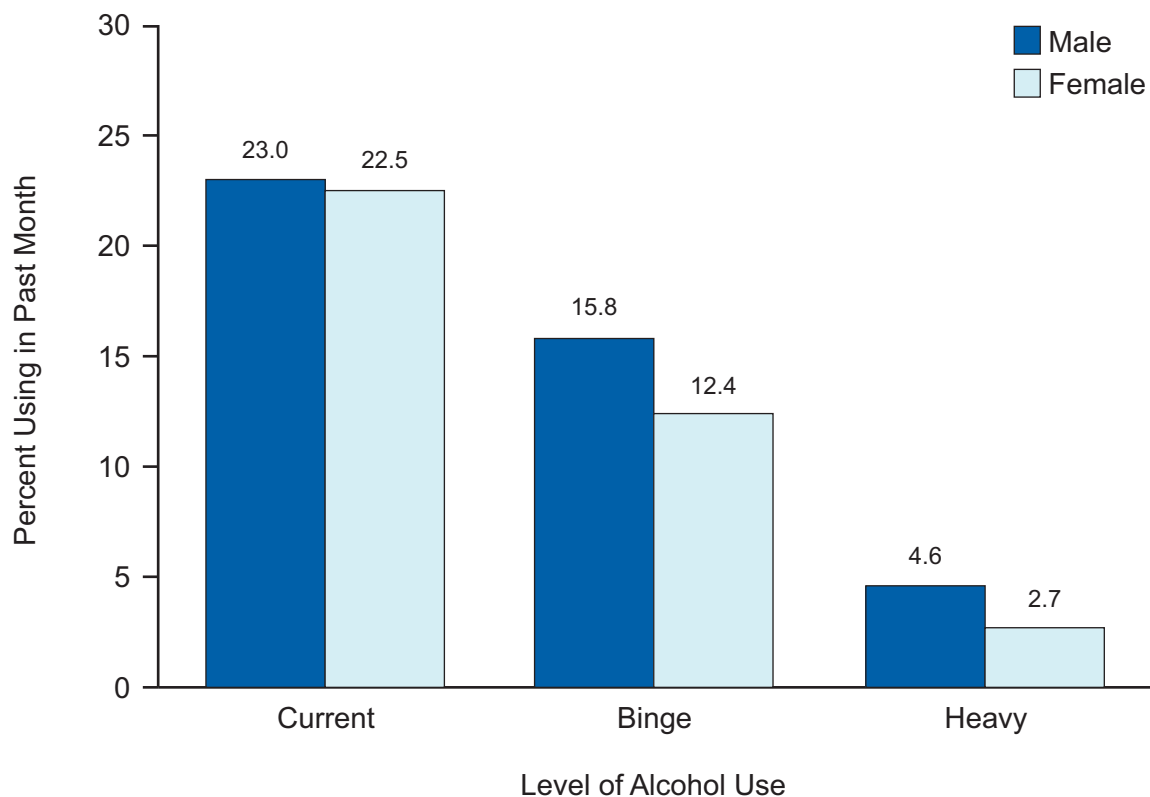
- Among persons aged 12 to 20, past month alcohol use rates in 2013 were 15.2 percent among Asians, 17.8 percent for blacks, 17.8 percent for those reporting two or more races, 17.8 percent for American Indians or Alaska Natives, 20.6 percent for Hispanics, and 25.8 percent for whites. The rates of current alcohol use among Hispanics and whites were lower than those reported in 2012 (23.2 and 27.4 percent, respectively).

- In 2013, among persons aged 12 to 20, binge drinking was reported by 16.8 percent of whites, 13.9 percent of American Indians or Alaska Natives, 13.5 percent of Hispanics, 12.1 percent of Native Hawaiians or Other Pacific Islanders, 11.1 percent of persons reporting two or more races, 8.4 percent of blacks, and 7.6 percent of Asians.

- Across geographic regions in 2013, the rate of current alcohol use among persons aged 12 to 20 was 25.9 percent in the Northeast, 24.5 percent in the Midwest, 22.5 percent in the West, and 20.4 percent in the South. The rate of current alcohol use in the South in 2013 was lower than it was in 2012 (22.3 percent).

- In 2013, the current alcohol use rates among underage persons were 22.7 percent in large metropolitan areas, 23.1 percent in small metropolitan areas, and 21.9 percent in nonmetropolitan areas. The underage current drinking rate in 2013 was lower in large metropolitan areas than the rate reported in 2012 (24.7 percent).

- In 2013, 77.6 percent of current drinkers aged 12 to 20 were with two or more other people the last time they drank alcohol, 16.3 percent were with one other person the last time they drank, and 6.1 percent were alone. The rate of drinking alone the last time that underage persons drank alcohol was highest among youths aged 12 to 14 (14.5 percent), followed by youths aged 15 to 17 (7.8 percent), then by persons aged 18 to 20 (4.8 percent).

- A majority of underage current drinkers in 2013 reported that their last use of alcohol in the past month occurred in a home setting, either in someone else's home (52.2 percent) or their own home (34.2 percent). The rate for drinking at home was higher than it was in 2012 (31.4 percent). In 2013, underage females were more likely than males to have been in a restaurant, bar, or club on their last drinking occasion (8.8 vs. 4.5 percent).

- Among underage current drinkers in 2013, 28.7 percent paid for the alcohol the last time they drank, including 7.8 percent who purchased the alcohol themselves and 20.5 percent who gave money to someone else to purchase it. These rates were similar to those reported in 2012 (28.2, 7.6, and 20.4 percent, respectively). Youths aged 12 to 14 were least likely to report that they paid for the alcohol the last time they drank (6.3 percent), followed by youths aged 15 to 17 (20.8 percent), then by persons aged 18 to 20 (33.6 percent).

- In 2013, among underage current drinkers who did not pay for the alcohol the last time they drank, the most common source was an unrelated person aged 21 or older (36.6 percent). Parents, guardians, or other adult family members provided the last alcohol to 24.5 percent of nonpaying underage drinkers. Other underage persons provided the alcohol on the last occasion for 16.4 percent of nonpaying underage drinkers. Additional sources of alcohol for underage drinkers who did not pay included (a) took the alcohol from home (7.8 percent), (b) took it from someone else's home (2.9 percent), and (c) got it some other way (6.0 percent).

- In 2013, underage current drinkers were more likely than current alcohol users aged 21 or older to use illicit drugs within 2 hours of alcohol use on their last reported drinking occasion (19.9 vs. 5.7 percent). The most commonly reported illicit drug used by underage drinkers in combination with alcohol was marijuana, which was used within 2 hours of alcohol use by 19.5 percent of current underage drinkers (1.6 million persons) on their last drinking occasion.

4. Tobacco Use

        The National Survey on Drug Use and Health (NSDUH) includes a series of questions about the use of tobacco products, including cigarettes, chewing tobacco, snuff, cigars, and pipe tobacco. Cigarette use is defined as smoking "part or all of a cigarette." For analytic purposes, data for chewing tobacco and snuff are combined and termed "smokeless tobacco."

- In 2013, an estimated 66.9 million Americans aged 12 or older were current (past month) users of a tobacco product. This represents 25.5 percent of the population in that age range (Figure 4.1). Also, 55.8 million persons (21.3 percent of the population) were current cigarette smokers; 12.4 million (4.7 percent) smoked cigars; 8.8 million (3.4 percent) used smokeless tobacco; and 2.3 million (0.9 percent) smoked tobacco in pipes.

Figure 4.1 Past Month Tobacco Use among Persons Aged 12 or Older: 2002-2013
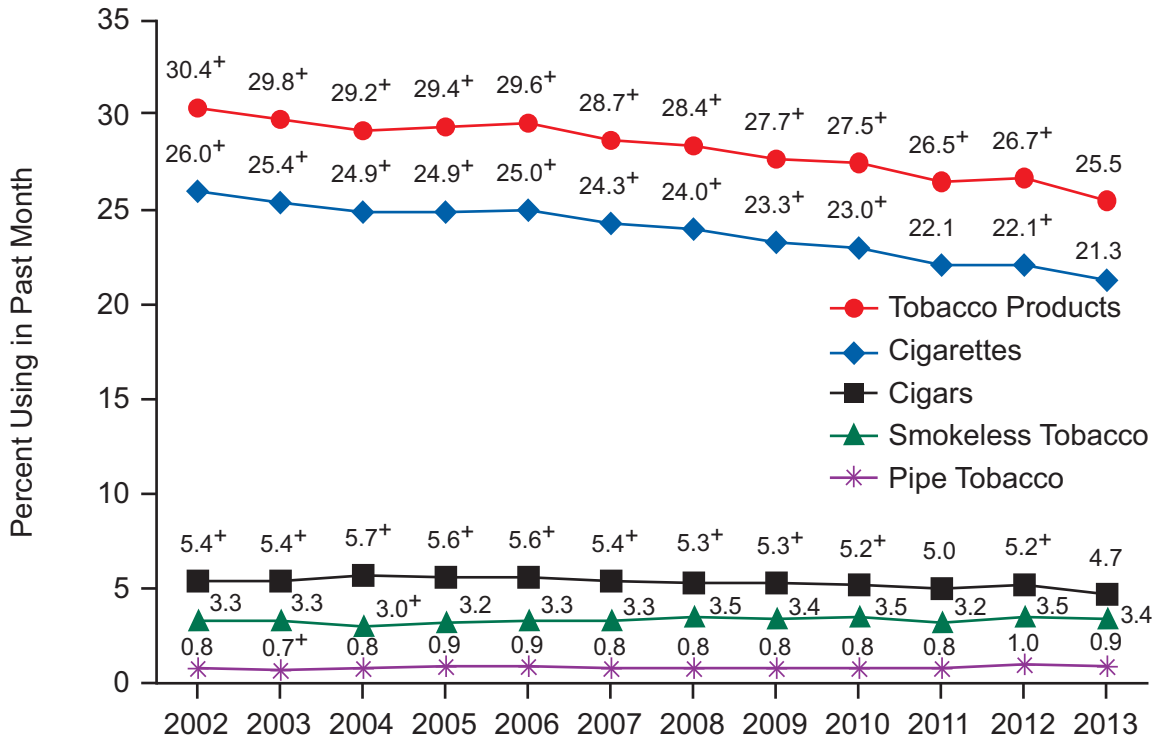
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

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- Between 2002 and 2013, past month use of any tobacco product among persons aged 12 or older decreased from 30.4 to 25.5 percent, and past month cigarette use declined from 26.0 to 21.3 percent (Figure 4.1). Past month cigar use decreased from 5.4 percent in 2002 to 4.7 percent in 2013. Rates of past month use of smokeless tobacco and pipe tobacco were similar in 2002 and 2013.

Age

- In 2013, young adults aged 18 to 25 had the highest rate of current use of a tobacco product (37.0 percent), followed by adults aged 26 or older (25.7 percent), then by youths aged 12 to 17 (7.8 percent). Young adults also had the highest rates of current use of the specific tobacco products. Among young adults, the rates of past month use in 2013 were 30.6 percent for cigarettes, 10.0 percent for cigars, 5.8 percent for smokeless tobacco, and 2.2 percent for pipe tobacco.

- The rate of current use of a tobacco product by young adults aged 18 to 25 declined from 45.3 percent in 2002 to 37.0 percent in 2013. The rate of current cigarette use among young adults also declined from 40.8 percent in 2002 to 30.6 percent in 2013. However, the rates of current use of smokeless tobacco and pipe tobacco by young adults increased from 4.8 percent in 2002 to 5.8 percent in 2013 for smokeless tobacco and from 1.1 percent in 2002 to 2.2 percent in 2013 for pipe tobacco. The rates in 2013 for current use of a tobacco product, cigarettes, smokeless tobacco, and cigars among young adults were similar to the rates in 2012 (38.1, 31.8, 5.5, and 10.7 percent, respectively). However, the rate of pipe tobacco use among young adults in 2013 was higher than the rate in 2012 (1.8 percent).

- The rate of past month tobacco use among 12 to 17 year olds declined from 15.2 percent in 2002 to 7.8 percent in 2013, including a decline from 8.6 percent in 2012 (Figure 4.2). The rate of past month cigarette use among 12 to 17 year olds declined from 13.0 percent in 2002 to 5.6 percent in 2013. The rate of past month cigar use among this age group declined from 4.5 percent in 2002 to 2.3 percent in 2013. The rate of past month smokeless tobacco use among 12 to 17 year olds declined from 2.5 percent in 2007 to 2.0 percent in 2013, which was the same as the rate in 2002.

- Adults aged 21 to 34 had higher rates of current cigarette use than did persons in either older or younger age groups (Figure 4.3). Rates of current cigarette use in 2013 were similar among adults aged 30 to 34 (33.2 percent), those aged 21 to 25 (32.8 percent), and those aged 26 to 29 (32.7 percent). Among adults aged 35 or older in 2013, 19.0 percent smoked cigarettes in the past month.

Gender

- In 2013, current use of a tobacco product among persons aged 12 or older was reported by a higher percentage of males (31.1 percent) than females (20.2 percent). Males also had higher rates of past month use than females of each specific tobacco product: cigarettes (23.6 percent among males vs. 19.0 percent among females), cigars (7.7 vs. 2.0 percent), smokeless tobacco (6.5 vs. 0.4 percent), and pipe tobacco (1.5 vs. 0.3 percent).

Figure 4.2 Past Month Tobacco Use among Youths Aged 12 to 17: 2002-2013

Legend:
- Tobacco Products (red circle)
- Cigarettes (blue diamond)
- Cigars (black square)
- Smokeless Tobacco (green triangle)
- Pipe Tobacco (purple asterisk)

Tobacco Products: 2002: 15.2+, 2003: 14.4+, 2004: 14.4+, 2005: 13.1+, 2006: 12.9+, 2007: 12.4+, 2008: 11.5+, 2009: 11.8+, 2010: 10.7+, 2011: 10.0+, 2012: 8.6+, 2013: 7.8

Cigarettes: 2002: 13.0+, 2003: 12.2+, 2004: 11.9+, 2005: 10.8+, 2006: 10.4+, 2007: 9.9+, 2008: 9.2+, 2009: 9.0+, 2010: 8.4+, 2011: 7.8+, 2012: 6.6+, 2013: 5.6

Cigars: 2002: 4.5+, 2003: 4.5+, 2004: 4.8+, 2005: 4.2+, 2006: 4.1+, 2007: 4.3+, 2008: 3.8+, 2009: 4.0+, 2010: 3.2+, 2011: 3.4+, 2012: 2.6, 2013: 2.3

Smokeless Tobacco: 2002: 2.0, 2003: 2.0, 2004: 2.3, 2005: 2.1, 2006: 2.4+, 2007: 2.5+, 2008: 2.2, 2009: 2.4+, 2010: 2.3+, 2011: 2.1, 2012: 2.1, 2013: 2.0

Pipe Tobacco: 2002: 0.6, 2003: 0.6, 2004: 0.7, 2005: 0.6, 2006: 0.7, 2007: 0.7, 2008: 0.7, 2009: 0.9+, 2010: 0.6, 2011: 0.7, 2012: 0.7, 2013: 0.6

+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Figure 4.3 Past Month Cigarette Use among Persons Aged 12 or Older, by Age: 2013

12-13: 0.9
14-15: 4.3
16-17: 11.4
18-20: 27.1
21-25: 32.8
26-29: 32.7
30-34: 33.2
35-39: 25.6
40-44: 23.4
45-49: 24.4
50-54: 23.1
55-59: 19.6
60-64: 16.4
65+: 10.0

Age in Years

49
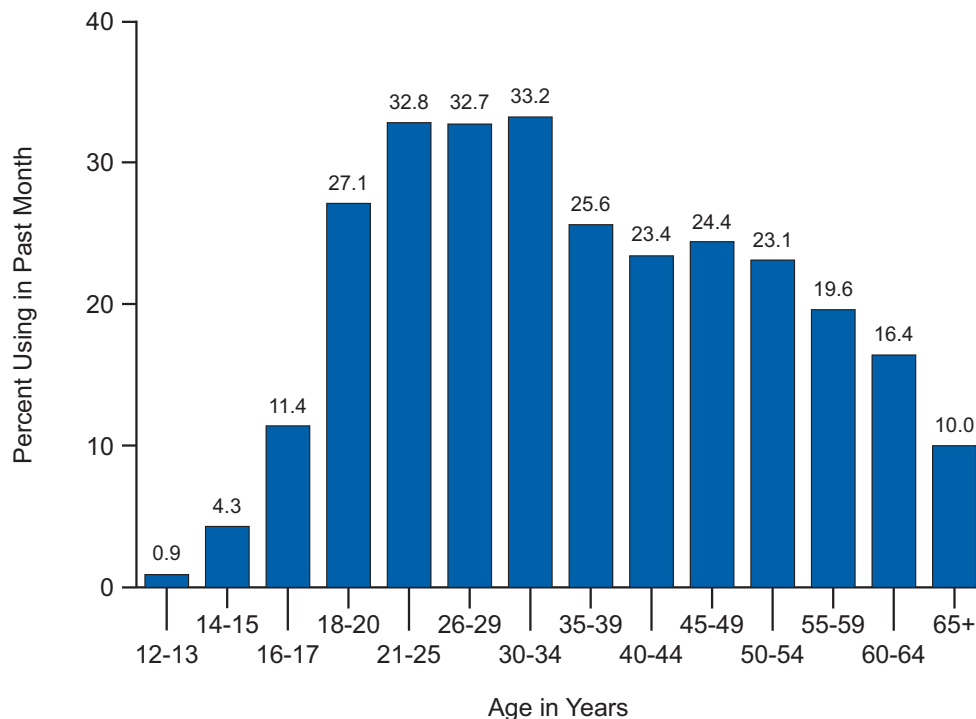
- The rate of any tobacco use among males aged 12 or older declined from 37.0 percent in 2002 to 31.1 percent in 2013. The rate of any tobacco use for females aged 12 or older also declined from 24.3 percent in 2002 to 20.2 percent in 2013. Rates of any tobacco use were similar between 2012 and 2013 for females (20.9 and 20.2 percent, respectively), but declined from 33.0 to 31.1 percent for males.

- Among youths aged 12 to 17, the rates of current cigarette smoking in 2013 were 5.7 percent for males and 5.5 percent for females (Figure 4.4). From 2002 to 2013, the rate of current cigarette smoking among youths decreased for both males (from 12.3 to 5.7 percent) and females (from 13.6 to 5.5 percent). In 2013, the rate for males was lower than the rate in 2012 (6.8 percent), while the rate was similar to the rate in 2012 for females (6.3 percent).

Figure 4.4   Past Month Cigarette Use among Youths Aged 12 to 17, by Gender: 2002-2013
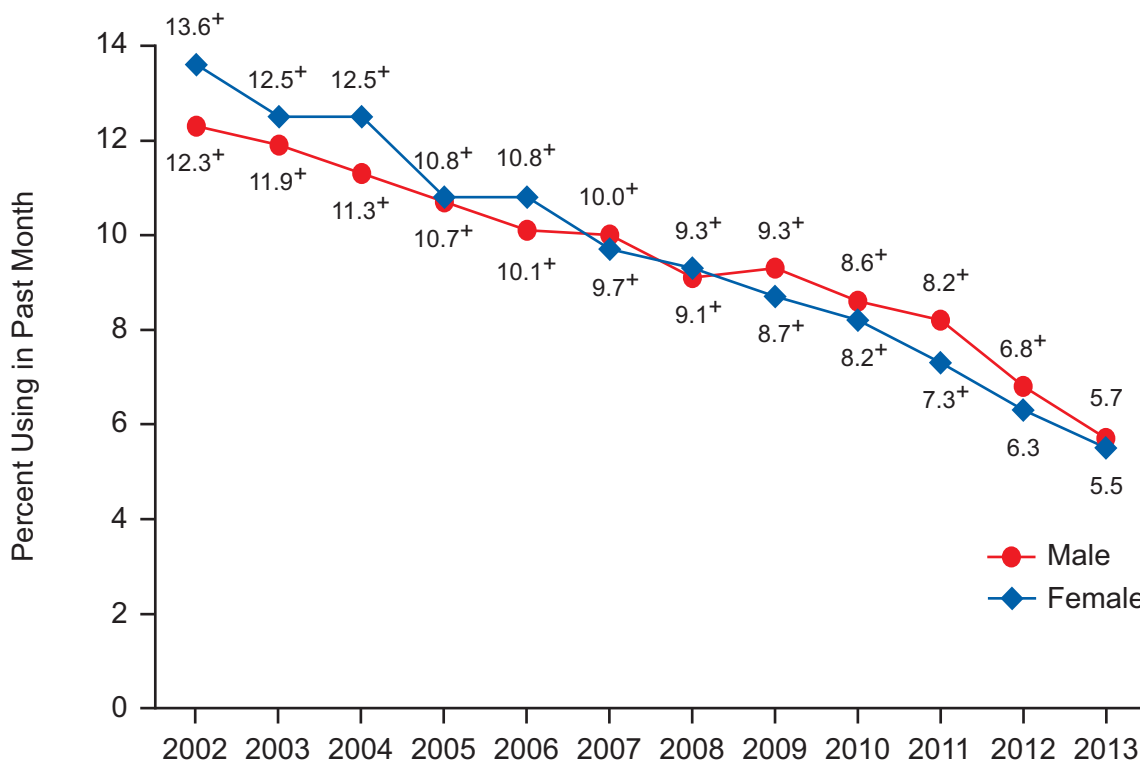
$^{+}$ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The rate of current cigarette smoking among male young adults aged 18 to 25 declined from 44.4 percent in 2002 to 36.3 percent in 2013. Among female young adults, the rate declined from 37.1 percent in 2002 to 24.9 percent in 2013. For females aged 18 to 25, the rate of current cigarette smoking in 2013 was lower than the rate in 2012 (27.1 percent), while the rate for males in 2013 was similar to the rate in 2012 (36.6 percent).

Pregnant Women

- The annual average rate of past month cigarette use in 2012 and 2013 among women aged 15 to 44 who were pregnant was 15.4 percent (Figure 4.5). The rate of current cigarette use among women aged 15 to 44 who were pregnant was lower than that among women who were not pregnant (24.0 percent). This pattern was also evident among women aged 18 to 25 (21.0 vs. 26.2 percent for pregnant and nonpregnant women, respectively) and among women aged 26 to 44 (11.8 vs. 25.4 percent, respectively). Rates of current cigarette use in 2012-2013 among pregnant women aged 15 to 44 were 19.9 percent in the first trimester, 13.4 percent in the second trimester, and 12.8 percent in the third trimester.

- The annual average rates of current cigarette use among women aged 15 to 44 who were not pregnant decreased from 30.7 percent in 2002-2003 to 24.0 percent in 2012-2013 (Figure 4.5). However, the prevalence of cigarette use among pregnant women in this age range did not change significantly during the same time period (18.0 percent in 2002-2003 and 15.4 percent in 2012-2013).

Figure 4.5 Past Month Cigarette Use among Women Aged 15 to 44, by Pregnancy Status: Combined Years 2002-2003 to 2012-2013

$^+$ Difference between this estimate and the 2012-2013 estimate is statistically significant at the .05 level.

Race/Ethnicity

- In 2013, the prevalence of current use of a tobacco product was 40.1 percent for American Indians or Alaska Natives, 31.2 percent for persons reporting two or more races, 27.7 percent for whites, 27.1 percent for blacks, 25.8 percent for Native Hawaiians or Other Pacific Islanders, 18.8 percent for Hispanics, and 10.1 percent for Asians. The rate of current tobacco use among American Indians or Alaska Natives was higher than the rates for all other groups except persons reporting two or more races. The rate of current tobacco use among Asians was lower than the rates among other groups. The rate of current tobacco use in 2013 for whites was lower than the rate in 2012 (29.2 percent). Otherwise, there were no statistically significant changes in past month use of any tobacco product between 2012 and 2013 across racial/ethnic groups.

- The rate of past month cigarette use in 2013 was higher among American Indians or Alaska Natives (36.5 percent) than among persons reporting two or more races (27.1 percent), blacks (23.0 percent), whites (22.7 percent), Native Hawaiians or Other Pacific Islanders (21.1 percent), Hispanics (16.8 percent), and Asians (8.5 percent). Rates of past month cigarette use in 2013 were similar to rates in 2012 across racial/ethnic groups.

- Rates of past month cigar use in 2013 were 6.9 percent for blacks, 6.1 percent for American Indians or Alaska Natives, 5.5 percent for persons reporting two or more races, 4.8 percent for whites, 3.7 percent for Hispanics, 2.1 percent for Native Hawaiians or Other Pacific Islanders, and 2.0 percent for Asians. There were no statistically significant changes in past month cigar use between 2012 and 2013 across racial/ethnic groups, except for whites (5.3 vs. 4.8 percent).

- Rates of past month smokeless tobacco use in 2013 were 5.3 percent for American Indians or Alaska Natives, 4.3 percent for whites, 3.9 percent for Native Hawaiians or Other Pacific Islanders, 3.1 percent for persons reporting two or more races, 1.8 percent for blacks, 1.3 percent for Hispanics, and 0.7 percent for Asians. Rates of past month smokeless tobacco use in 2013 were similar to rates in 2012 across racial/ethnic groups.

Education

- Since 2002, cigarette smoking in the past month has been less prevalent among adults who were college graduates compared with those who completed less education. Among adults aged 18 or older, current cigarette use in 2013 was reported by 33.6 percent of those who had not completed high school, 27.7 percent of high school graduates with no further education, 25.5 percent of persons with some college but no degree, and 11.2 percent of college graduates. These rates by educational attainment were similar to the rates in 2012, except for high school graduates who did not attend college (29.4 percent in 2012).

College Students

- Among young adults aged 18 to 22, full-time college students were less likely to be current cigarette smokers than their peers who were not enrolled full time in college. The same pattern was found among both males and females in this age range.

- The rate of past month cigarette use among full-time college students aged 18 to 22 declined from 32.6 percent in 2002 to 21.0 percent in 2013. The rate among those who were not enrolled full time declined from 45.8 percent in 2002 to 34.4 percent in 2013.

- Among males aged 18 to 22 who were full-time college students, the rate of past month cigarette use in 2013 (25.3 percent) was lower than the rate in 2002 (33.3 percent). Among males aged 18 to 22 who were not enrolled full time in college, the rate of current cigarette use in 2013 (39.5 percent) also was lower than the rate in 2002 (49.5 percent).

- Among females aged 18 to 22 who were full-time college students, the rate of past month cigarette use declined from 32.0 percent in 2002 to 17.2 percent in 2013. Among females aged 18 to 22 who were not enrolled full time in college, the rate of current cigarette use in 2013 (28.6 percent) also was lower than the rate in 2002 (41.7 percent).

Employment

- In 2013, current cigarette smoking was more common among unemployed adults aged 18 or older (40.1 percent) than among adults who were working full time or part time (22.8 and 23.4 percent, respectively). Cigar smoking followed a similar pattern, with 10.9 percent of unemployed adults reporting past month use compared with 5.6 percent of full-time workers and 5.0 percent of part-time workers.

- Current use of smokeless tobacco in 2013 was higher among adults aged 18 or older who were employed full time (4.8 percent) and those who were unemployed (4.9 percent) than among those who were employed part time (2.2 percent) and those in the "other" employment category, which includes persons not in the labor force (1.9 percent).

Geographic Area

- In 2013, current cigarette smoking among persons aged 12 or older was lowest in the West (17.6 percent), followed by the Northeast (19.6 percent), then the South (22.4 percent), then the Midwest (24.6 percent). Use of smokeless tobacco was lowest in the Northeast (2.0 percent), followed by the West (2.7 percent), then the Midwest and South (3.9 and 4.1 percent, respectively).

- Consistent with the findings in previous years since 2002, the rates of use of any tobacco product in 2013 were associated with county type among persons aged 12 or older. The rate of current cigarette use was lowest in large metropolitan areas (19.0 percent), followed by small metropolitan areas (22.4 percent), then by nonmetropolitan areas (26.6 percent). Use of smokeless tobacco in the past month in 2013 among persons aged 12 or older was lowest in

large metropolitan areas (2.1 percent), followed by small metropolitan areas (3.7 percent), then by nonmetropolitan areas (6.7 percent).

Association with Illicit Drug and Alcohol Use

- Use of illicit drugs and alcohol was more common among current cigarette smokers than among nonsmokers in 2013, as in previous years since 2002. Among persons aged 12 or older, 24.1 percent of past month cigarette smokers reported current use of an illicit drug compared with 5.4 percent of persons who were not current cigarette smokers. Among youths aged 12 to 17 who smoked cigarettes in the past month, 53.9 percent also used an illicit drug compared with 6.1 percent of youths who did not smoke cigarettes.

- In 2013, past month alcohol use was reported by 65.2 percent of current cigarette smokers compared with 48.7 percent of those who did not use cigarettes in the past month. This association also was found for binge alcohol use (42.9 percent of current cigarette smokers vs. 17.5 percent of current nonsmokers) and heavy alcohol use (15.7 vs. 3.8 percent, respectively).[3]

Frequency of Cigarette Use

- Among the 55.8 million current cigarette smokers aged 12 or older in 2013, 33.2 million (59.6 percent) used cigarettes daily. The percentage of daily cigarette smokers among past month cigarette users increased with age (19.4 percent of past month cigarette users aged 12 to 17, 43.1 percent of those aged 18 to 25, and 64.9 percent of those aged 26 or older).

- The percentage of current smokers aged 12 or older who used cigarettes daily decreased from 63.4 percent in 2002 to 59.6 percent in 2013. During the same time period, daily cigarette use declined among current smokers aged 12 to 17 (from 31.8 to 19.4 percent), those aged 18 to 25 (from 51.8 to 43.1 percent), and those aged 26 or older (from 68.8 to 64.9 percent).

- In 2013, 41.3 percent of daily smokers aged 12 or older reported smoking 16 or more cigarettes per day (i.e., approximately one pack or more). The percentage of daily smokers who smoked at least one pack of cigarettes per day increased with age, from 11.9 percent among daily smokers aged 12 to 17, to 22.2 percent of those aged 18 to 25, then to 44.6 percent of those aged 26 or older (Figure 4.6).

- The percentage of daily smokers aged 26 or older who smoked one or more packs of cigarettes per day was lower in 2013 (44.6 percent) than in 2002 (56.9 percent). Declines also were seen among daily smokers from 2002 to 2013 for youths aged 12 to 17 (from 21.7 to 11.9 percent) and for young adults aged 18 to 25 (from 39.0 to 22.2 percent).

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[3] Definitions for binge alcohol use and heavy alcohol use are given in the introduction to Chapter 3 in this report.

Figure 4.6 Past Month Smokers of One or More Packs of Cigarettes per Day among Daily Smokers, by Age Group: 2002-2013

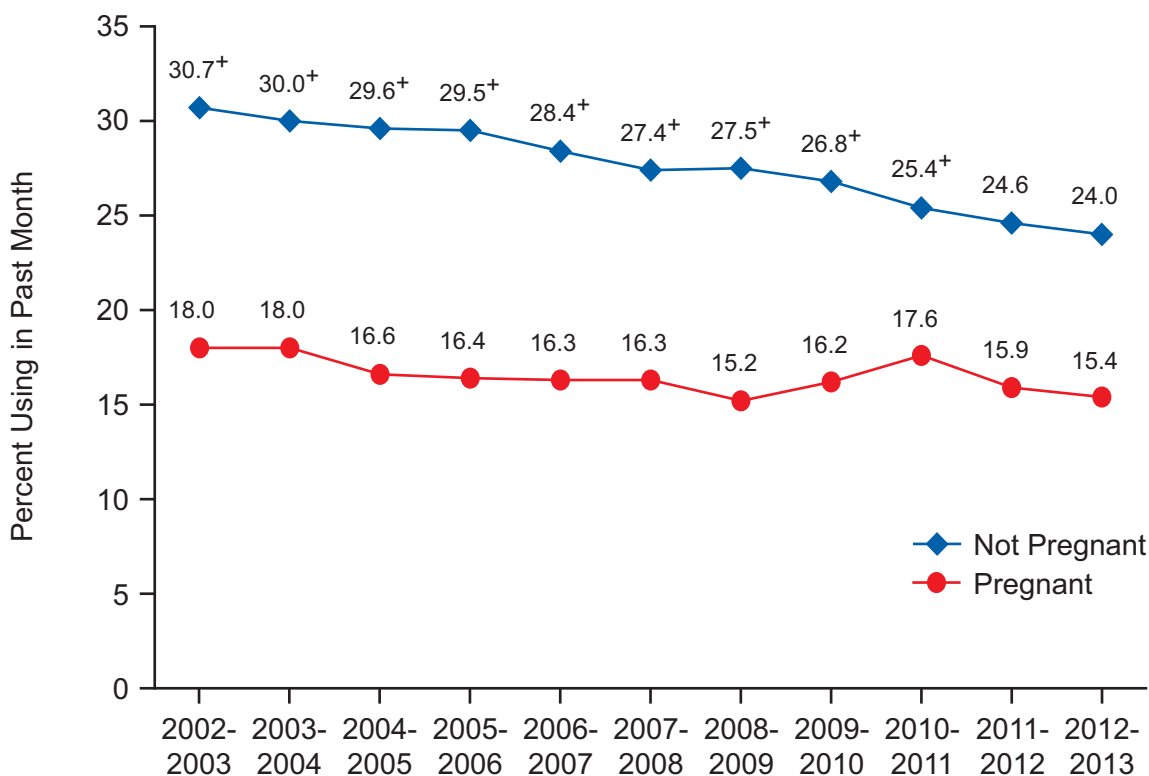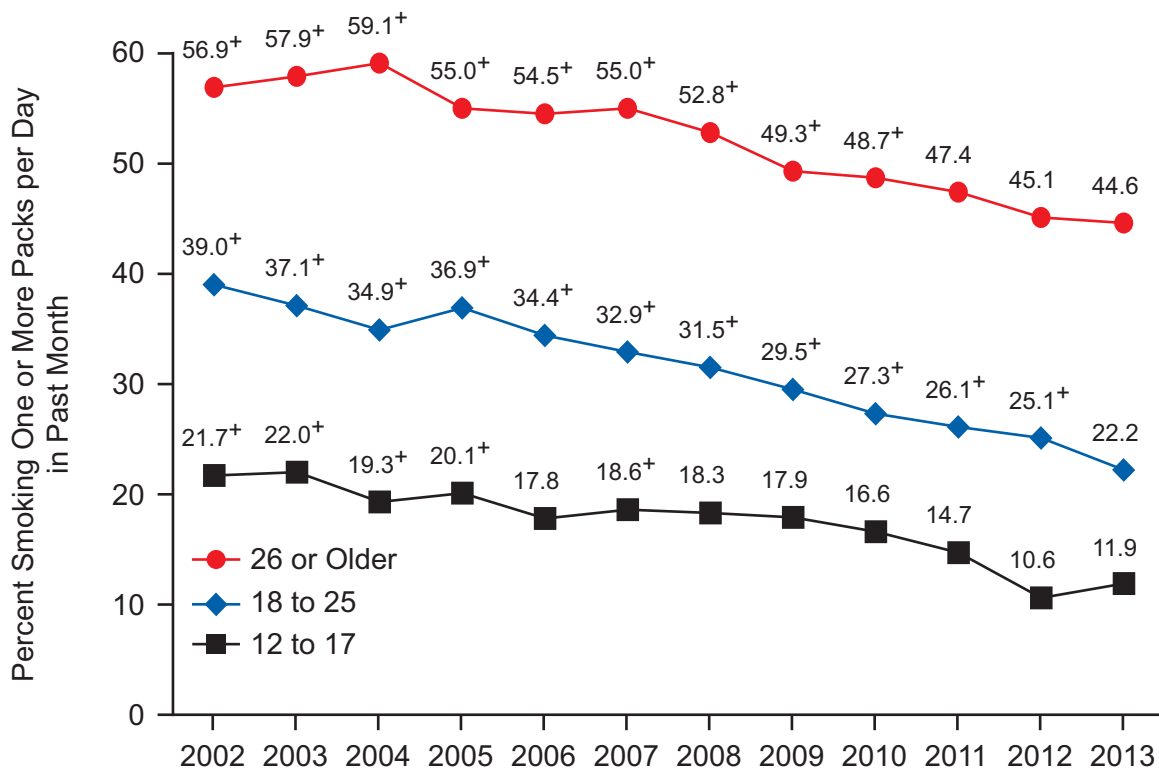$^+$ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

5. Initiation of Substance Use

Estimates of substance use initiation (also known as incidence or first-time use) are often considered leading indicators that can be used to assess the volume of new users by drug or drug category, track emerging patterns of use, and forecast the associated treatment needs in various population subgroups. These estimates can also be useful to target prevention efforts and evaluate prevention programs.

With its large sample size and oversampling of youths aged 12 to 17 and young adults aged 18 to 25, the National Survey on Drug Use and Health (NSDUH) provides estimates of recent (i.e., past year) initiation of use of illicit drugs, tobacco, and alcohol based on reported age and on year and month at first use. Recent initiates are defined as those who reported use of a particular substance for the first time within 12 months preceding the date of interview. There is a caveat to the past year initiation measure worth mentioning. Because survey respondents are aged 12 or older, the past year initiation estimates reflect only a portion of the initiation that occurred at age 11 and none of the initiation that occurred at age 10 or younger. This underestimation primarily affects estimates of initiation for cigarettes, alcohol, and inhalants because they tend to be initiated at a younger age than other substances. See Section B.4.1 in Appendix B for further discussion of the methods and bias in initiation estimates.

This chapter includes estimates of the number and rate of past year initiation of illicit drug, tobacco, and alcohol use among the total population aged 12 or older and by selected age and gender categories from the 2013 NSDUH, comparing with prior years. Also included are initiation estimates that pertain to persons at risk for initiation. Persons at risk for initiation of use of a particular substance are those who never used the substance in their lifetime plus those who used that substance for the first time in the 12 months prior to the interview. In other words, persons at risk are those who had never used as of 12 months prior to the interview date. Some analyses are based on the age at the time of interview, and others focus on the age at the time of first substance use. Readers need to be aware of these alternative estimation approaches when interpreting NSDUH incidence estimates and pay close attention to the approach used in each situation. Titles and notes on figures and associated detailed tables document which method applies.

For trend measurement, initiation estimates for each year (2002 to 2013) are produced independently based on the data from the survey conducted that year. Estimates of trends in incidence based on longer recall periods have not been considered because of concerns about their validity (Gfroerer, Hughes, Chromy, Heller, & Packer, 2004).

Regarding the age at first use estimates, means, as measures of central tendency, are heavily influenced by the presence of extreme values in the data for persons aged 12 or older. To reduce the effect of extreme values, the mean age at initiation was calculated for persons aged 12 to 49, leaving out those few respondents who were past year initiates at age 50 or older. Including data from initiates aged 26 to 49 in this broad age group also can cause instability of estimates of the mean age at initiation among persons aged 12 to 49, but this effect is less than that of including data from initiates aged 50 or older. Nevertheless, caution is needed in interpreting these trends for persons aged 12 to 49. Section B.4.1 in Appendix B also discusses

this issue. Note, however, that this constraint affects only the estimates of mean age at initiation. Other estimates in this chapter, including the numbers and percentages of past year initiates, are not affected by extreme ages at initiation and therefore are reported for all persons aged 12 or older.

Another important consideration in examining incidence estimates across different drug categories is that substance users typically initiate use of different substances at different times in their lives. Thus, the estimates for past year initiation of each specific illicit drug cannot be added to obtain the total number of overall illicit drug initiates because some of the initiates previously had used other drugs. The initiation estimate for any illicit drug represents the past year initiation of use of a specific drug that was not preceded by use of other illicit drugs. For example, a respondent who reported initiating marijuana use in the past 12 months is counted as a marijuana initiate. The same respondent also can be counted as an illicit drug initiate with marijuana as the first drug only if his or her marijuana use initiation was not preceded by use of any other drug (cocaine, heroin, hallucinogens, inhalants, pain relievers, tranquilizers, stimulants, or sedatives).[4] In addition, past year initiates of lysergic acid diethylamide (LSD), phencyclidine (PCP), or Ecstasy use are counted as past year initiates of any hallucinogen use only if they had not previously used other hallucinogens. Similarly, past year initiates of crack cocaine, OxyContin[®], or methamphetamine use are counted as past year initiates for the broader category (i.e., any cocaine, pain relievers, or stimulants, respectively) only if they did not report previous use for the broader category.

Initiation of Illicit Drug Use

- In 2013, an estimated 2.8 million persons aged 12 or older used an illicit drug for the first time within the past 12 months; this averages to about 7,800 new users per day. This estimate was similar to the 2012 estimate of 2.9 million. Over half of initiates (54.1 percent) were younger than age 18 when they first used, and 58.3 percent of new users were female. The 2013 average age at initiation among persons aged 12 to 49 was 19.0 years, which was similar to the 2012 estimate (18.7 years). See Section B.4.1 in Appendix B for a discussion of the effects of older adult initiates on estimates of mean age at first use.

- Of the estimated 2.8 million persons aged 12 or older in 2013 who used illicit drugs for the first time within the past 12 months, a majority reported that their first drug was marijuana (70.3 percent) (Figure 5.1). About 1 in 5 initiated with nonmedical use of psychotherapeutics (20.6 percent, including 12.5 percent with pain relievers, 5.2 percent with tranquilizers, 2.7 percent with stimulants, and 0.2 percent with sedatives). A notable proportion reported inhalants (6.3 percent) as their first illicit drug, and a small proportion used hallucinogens (2.6 percent). The percentage of persons in 2013 reporting marijuana as the first illicit drug in past year initiation was greater than the corresponding percentage in 2012 (70.3 vs. 65.6 percent). The percentage reporting nonmedical use of pain relievers as the first illicit drug was lower in 2013 than in 2012 (12.5 vs. 17.0 percent).

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[4] Initiation for pain relievers, tranquilizers, stimulants, or sedatives refers to first nonmedical use.

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Figure 5.1 First Specific Drug Associated with Initiation of Illicit Drug Use among Past Year Illicit Drug Initiates Aged 12 or Older: 2013

Pain Relievers (12.5%)

Inhalants (6.3%)

Tranquilizers (5.2%)

Stimulants (2.7%)

Hallucinogens (2.6%)
Sedatives (0.2%)
Cocaine (0.1%)

Marijuana (70.3%)
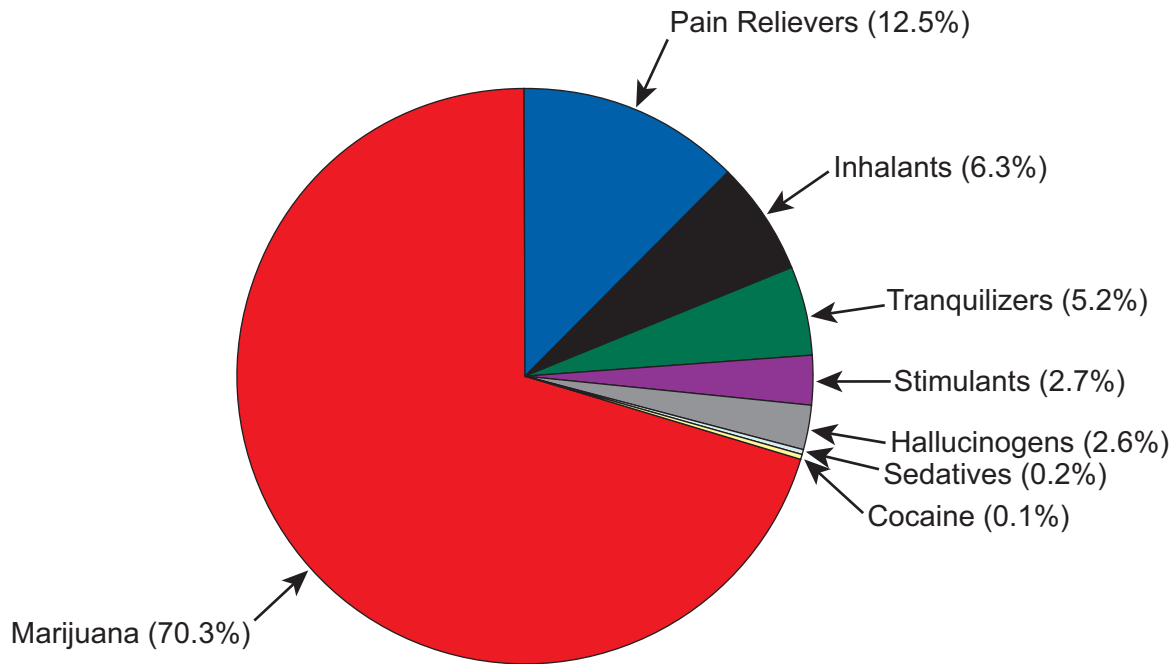
2.8 Million Initiates of Illicit Drugs

Note: The percentages do not add to 100 percent due to rounding or because a small number of respondents initiated multiple drugs on the same day. The first specific drug refers to the one that was used on the occasion of first-time use of any illicit drug.

Comparison, by Drug

- In 2013, the specific illicit drug category with the largest number of recent initiates among persons aged 12 or older was marijuana (2.4 million), followed by nonmedical use of pain relievers (1.5 million), followed by nonmedical use of tranquilizers (1.2 million), followed by Ecstasy (0.8 million), followed by stimulants, cocaine, and inhalants (0.6 million each) (Figure 5.2).

- Among past year initiates aged 12 to 49 in 2013, the average age at first use was 17.1 years for PCP, 18.0 years for marijuana, 19.2 years for inhalants, 19.7 years for LSD, 20.4 years for cocaine, 20.5 years for Ecstasy, 21.6 years for stimulants, 21.7 years for pain relievers, 24.5 years for heroin, 25.0 years for sedatives, and 25.4 years for tranquilizers (Figure 5.3).

Figure 5.2 Past Year Initiates of Specific Illicit Drugs among Persons Aged 12 or Older: 2013
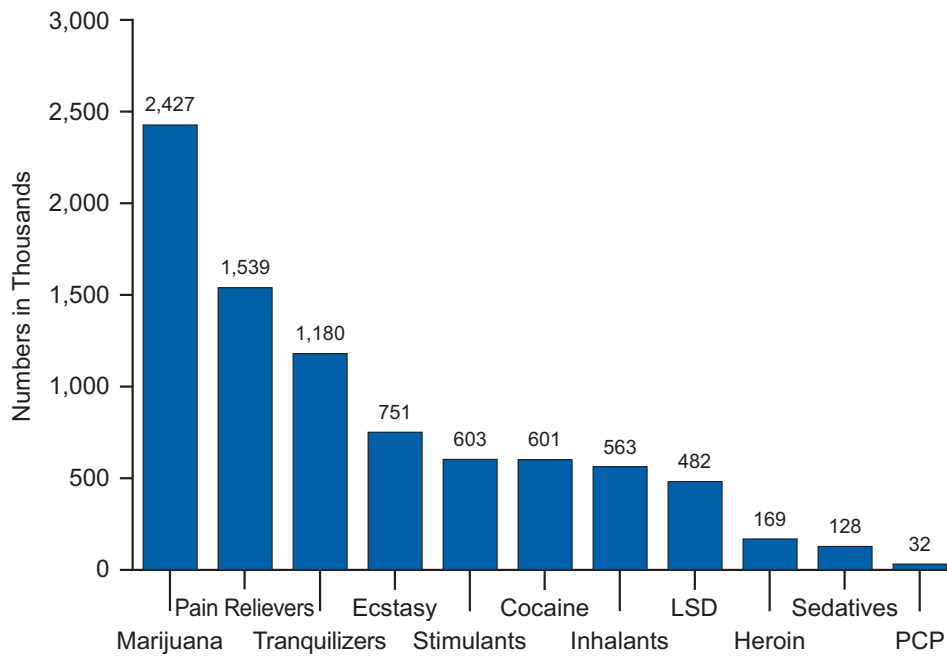
Note: Numbers refer to persons who used a specific drug for the first time in the past year, regardless of whether initiation of other drug use occurred prior to the past year.

Figure 5.3 Mean Age at First Use for Specific Illicit Drugs among Past Year Initiates Aged 12 to 49: 2013
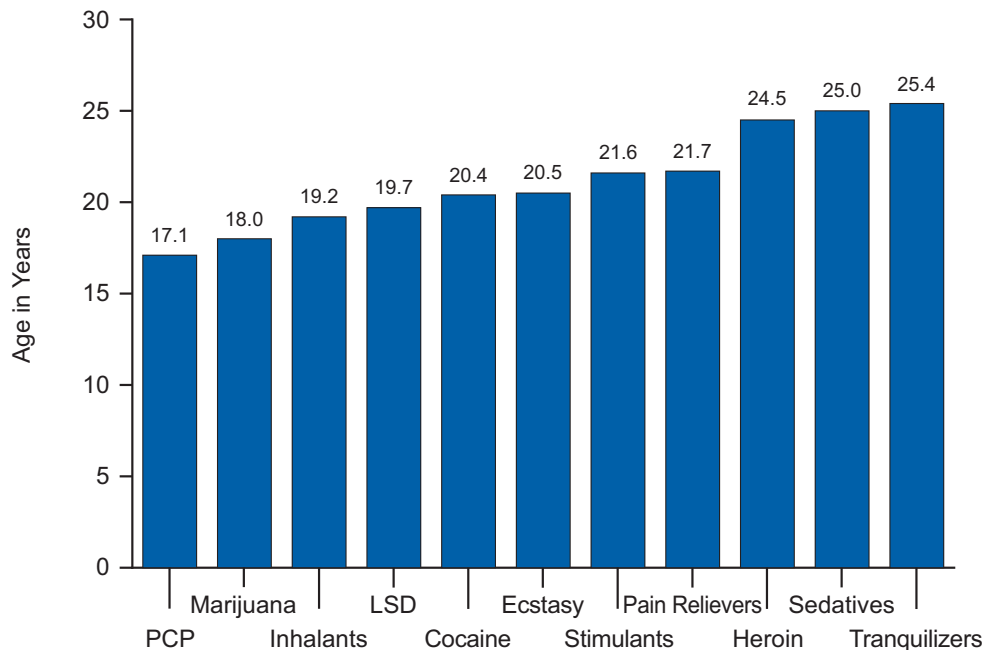
Marijuana

- In 2013, there were 2.4 million persons aged 12 or older who had used marijuana for the first time within the past 12 months; this averages to about 6,600 new users each day. The 2013 estimate was similar to the estimates in 2008 through 2012 (ranging from 2.2 million to 2.6 million), but was higher than the estimates from 2002 through 2007 (ranging from 2.0 million to 2.2 million) (Figure 5.4).

- In 2013, among persons aged 12 or older, an estimated 1.4 million first-time past year marijuana users initiated prior to the age of 18. This estimate was similar to the corresponding estimate in 2012. The estimated 1.4 million persons in 2013 who initiated prior to the age of 18 represented the majority (56.6 percent) of the 2.4 million recent marijuana initiates.

Figure 5.4 Past Year Marijuana Initiates among Persons Aged 12 or Older and Mean Age at First Use of Marijuana among Past Year Marijuana Initiates Aged 12 to 49: 2002-2013
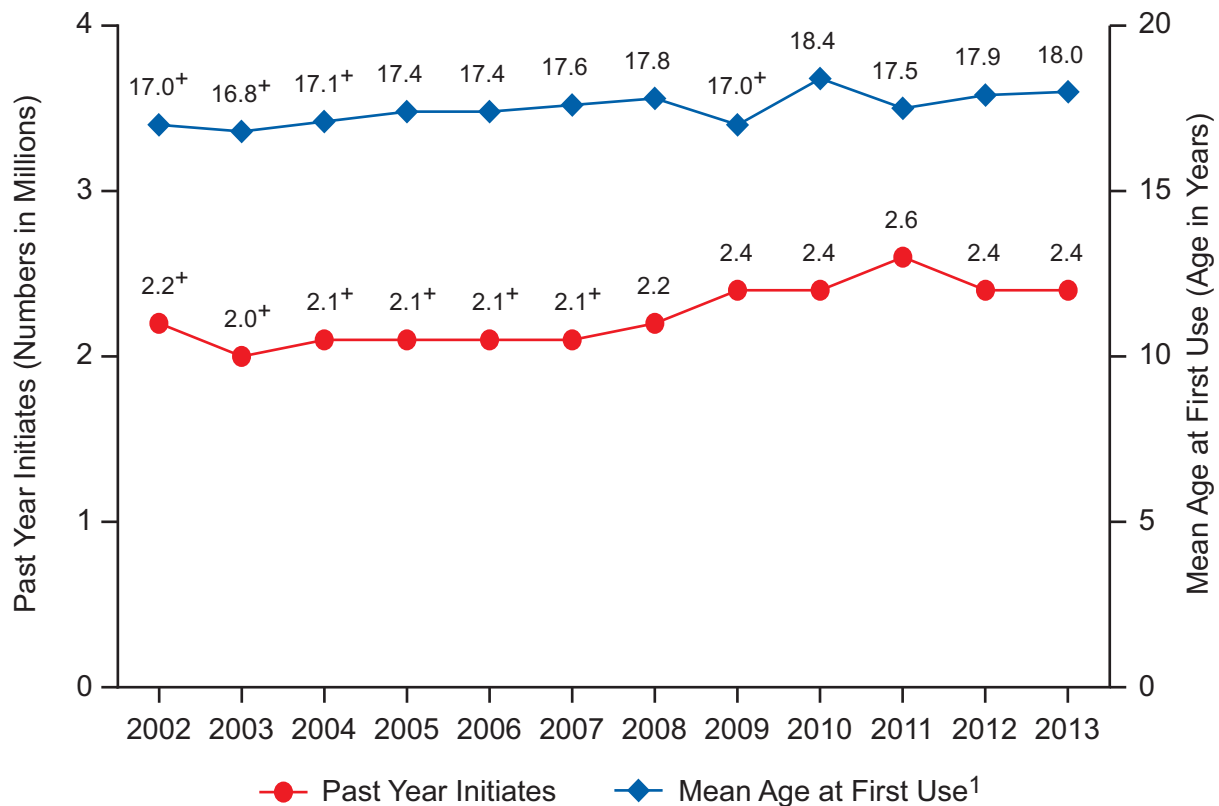
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

[1] Mean-age-at-first-use estimates are for past year initiates aged 12 to 49.

- Among all youths aged 12 to 17, an estimated 4.8 percent had used marijuana for the first time within the past year in 2013, which was similar to the rate in 2012 (5.0 percent). As a percentage of those aged 12 to 17 who had not used marijuana prior to the past year (i.e., those at risk for initiation), the youth marijuana initiation rate in 2013 (5.5 percent) was similar to the rate in 2012 (5.7 percent).

- In 2013, the average age at first marijuana use among recent initiates aged 12 to 49 was 18.0 years, which was similar to the average ages in 2005 through 2008 and 2010 through 2012, but was higher than the average ages in 2002 through 2004 and in 2009 (Figure 5.4). Section B.4.1 in Appendix B discusses the potential instability of estimates of older adult initiation and the impact on estimates of mean age at first use.

- In 2013, among recent initiates aged 12 or older who initiated marijuana use prior to the age of 21, the mean age at first use was 16.2 years, which was similar to the 2012 estimate of 16.3 years.

Cocaine

- In 2013, there were 601,000 persons aged 12 or older who had used cocaine for the first time within the past 12 months; this averages to approximately 1,600 initiates per day. This estimate was similar to the number in 2008 to 2012 (ranging from 623,000 to 724,000). The annual number of cocaine initiates in 2013 was lower than the estimates from 2002 through 2007 (ranging from 0.9 million to 1.0 million).

- The number of initiates of crack cocaine ranged from 209,000 to 353,000 in 2002 to 2008 and declined to 95,000 in 2009. The number of initiates of crack cocaine has been similar each year since 2009 (e.g., 58,000 in 2013).

- In 2013, most (81.9 percent) of the 0.6 million recent cocaine initiates were aged 18 or older when they first used. The average age at first use among recent initiates aged 12 to 49 was 20.4 years. The average age estimates have remained fairly stable since 2002.

Heroin

- In 2013, there were 169,000 persons aged 12 or older who had used heroin for the first time within the past 12 months. This estimated number in 2013 was similar to the numbers in 2002 to 2005 and from 2007 to 2012, but it was higher than the number in 2006 (90,000). The average age at first use among recent heroin initiates aged 12 to 49 in 2013 was 24.5 years, which was similar to the 2012 estimate (23.0 years).

Hallucinogens

- In 2013, there were 1.1 million persons aged 12 or older who had used hallucinogens for the first time within the past 12 months (Figure 5.5). This estimate was similar to the estimates for 2002, 2004 to 2008, and 2010 to 2012 (ranging from 0.9 million to 1.2 million). However, this estimate for 2013 was higher than the 2003 estimate (886,000) and was lower than the 2009 estimate (1.3 million). The average age at first use among recent hallucinogen initiates aged 12 to 49 in 2013 was 19.9 years, which was similar to the 2012 estimate (19.1 years).

- The number of past year initiates of LSD aged 12 or older was 482,000 in 2013, which was similar to the numbers in 2008, 2010, and 2012 (ranging from 381,000 to 421,000), but was higher than the numbers in 2002 to 2007, 2009, and 2011 (ranging from 200,000 to 358,000) (Figure 5.5). The average age at first use among recent LSD initiates aged 12 to 49 in 2013 was 19.7 years, which was similar to the 2012 estimate (19.0 years).

Figure 5.5 Past Year Hallucinogen Initiates among Persons Aged 12 or Older: 2002-2013
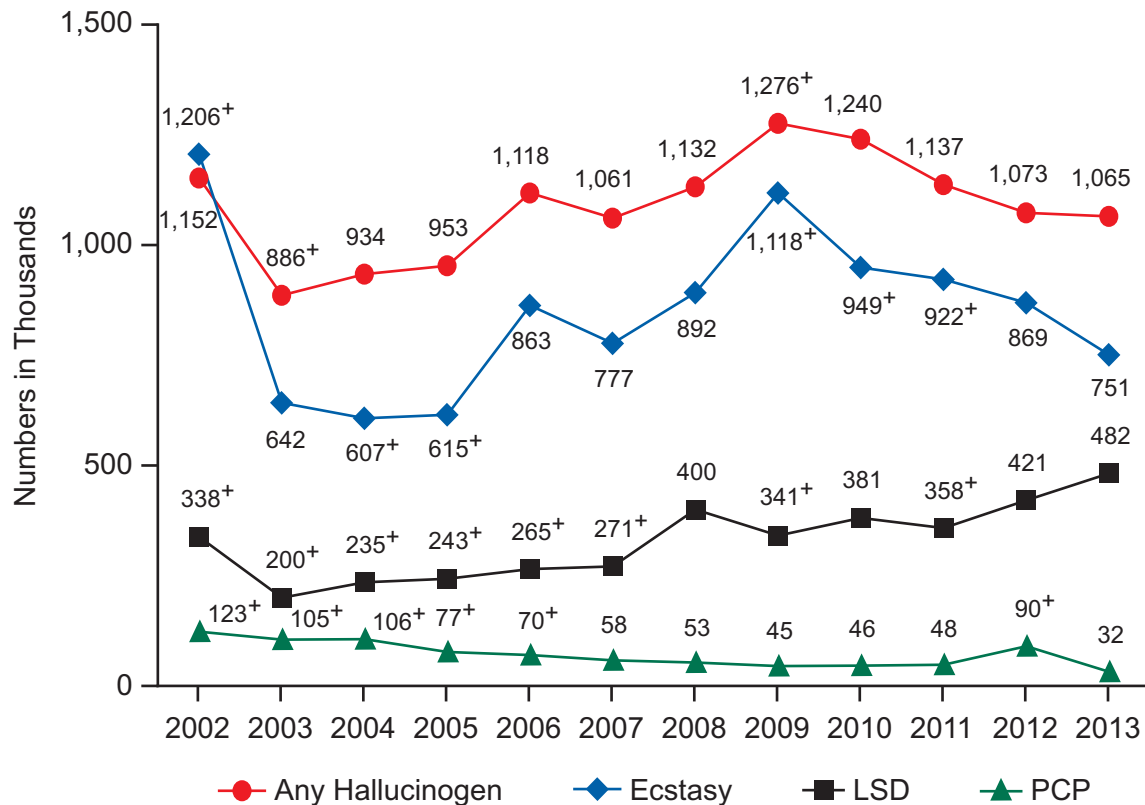
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The number of past year initiates of PCP aged 12 or older was 32,000 in 2013. This number was lower than the numbers from 2002 through 2006 and in 2012 (ranging from 70,000 to 123,000), but was similar to the numbers in 2007 to 2011 (ranging from 45,000 to 58,000). The average age at first use among recent PCP initiates aged 12 to 49 in 2013 was 17.1 years, which was similar to the 2012 estimate (16.6 years). This average age at initiation of PCP has remained fairly stable since 2002.

- The number of past year initiates of Ecstasy was 751,000 in 2013, which was similar to the number in 2012 (869,000), but was lower than the numbers in 2009, 2010, and 2011 (1.1 million, 949,000, and 922,000, respectively) (Figure 5.5). The 2002 estimate of 1.2 million past year initiates declined to 642,000 in 2003, followed by an increase between 2004 and 2013.

- Most (69.4 percent) of the recent Ecstasy initiates in 2013 were aged 18 or older at the time they first used Ecstasy. The number of Ecstasy initiates who first used prior to the age of 18 was 230,000, which was similar to the estimate in 2012 (255,000).

- Among past year initiates aged 12 to 49, the average age at initiation of Ecstasy in 2013 was 20.5 years. This average age at initiation of Ecstasy has remained fairly stable since 2002. In 2013, among recent initiates aged 12 or older who initiated Ecstasy use prior to the age of 21, the mean age at first use was 17.4 years, which was similar to the 2012 estimate of 17.5 years.

Inhalants

- In 2013, there were 563,000 persons aged 12 or older who had used inhalants for the first time within the past 12 months, which was similar to the 2012 estimate of 584,000, but was lower than the numbers in 2002 to 2011 (ranging from 719,000 to 877,000). An estimated 46.8 percent of past year initiates of inhalants in 2013 were younger than age 18 when they first used. The average age at first use among recent initiates aged 12 to 49 was 19.2 years, which was higher than the 2012 estimate of 16.9 years.

Psychotherapeutics

- Nonmedical use of psychotherapeutics includes nonmedical use of any prescription-type pain relievers, tranquilizers, stimulants, or sedatives. Over-the-counter substances are not included. In 2013, there were approximately 2.0 million persons aged 12 or older who used psychotherapeutics nonmedically for the first time within the past year, which averages to about 5,500 initiates per day. The number of new nonmedical users of psychotherapeutics in 2013 was lower than the estimates for prior years from 2002 through 2012 (ranging from 2.3 million to 2.8 million).

- In 2013, the numbers of initiates were 1.5 million for pain relievers, 1.2 million for tranquilizers, 603,000 for stimulants, and 128,000 for sedatives (Figure 5.6).

Figure 5.6 **Past Year Nonmedical Psychotherapeutic Initiates among Persons Aged 12 or Older: 2002-2013**
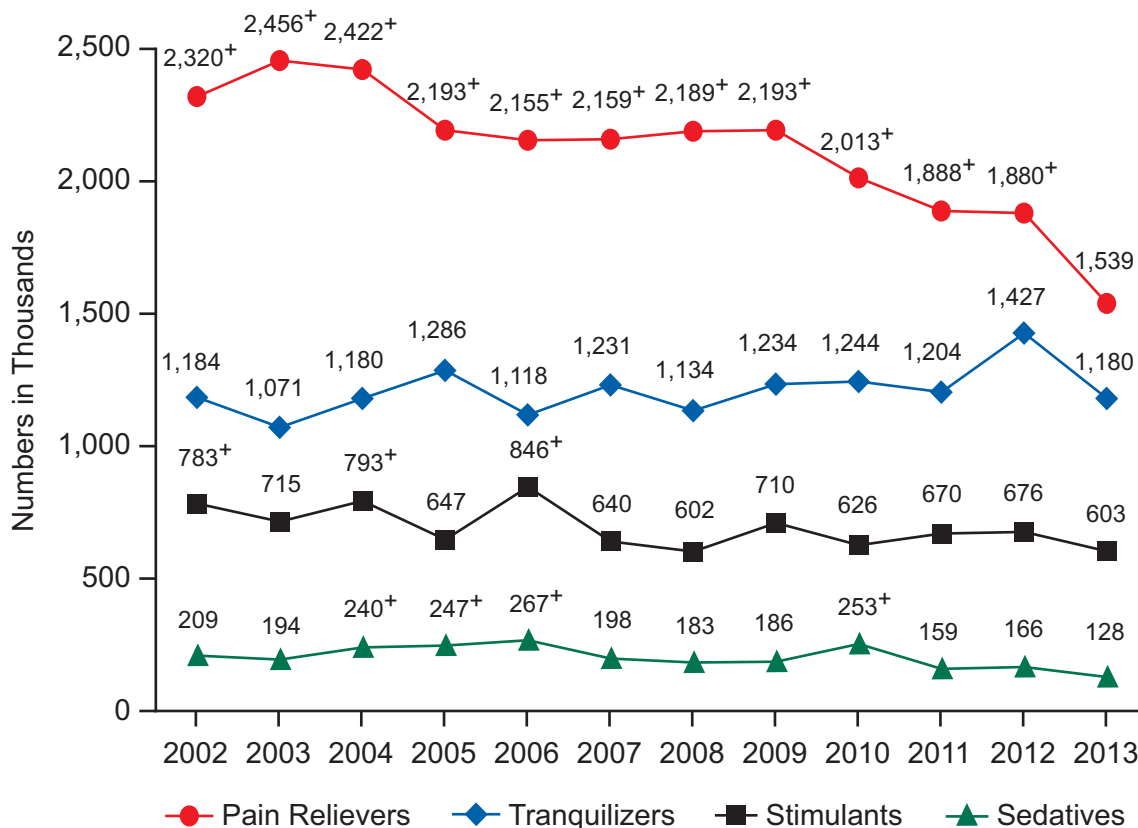
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The number of new nonmedical users of pain relievers in 2013 (1.5 million) was lower than the numbers in 2002 through 2012 (ranging from 1.9 million to 2.5 million) (Figure 5.6). The number of past year initiates for nonmedical use of tranquilizers has been fairly stable from 2002 to 2013 (ranging from 1.1 million to 1.4 million). The number of initiates for nonmedical use of stimulants in 2013 was similar to the numbers in 2003, 2005, and in 2007 to 2012 (ranging from 602,000 to 715,000), but was lower than the numbers in 2002, 2004, and 2006 (ranging from 783,000 to 846,000). The number of initiates for nonmedical use of sedatives in 2013 was similar to the numbers in 2002, 2003, 2007 to 2009, 2011, and 2012 (ranging from 159,000 to 209,000), but was lower than the numbers in 2004 to 2006 and in 2010 (ranging from 240,000 to 267,000).

- In 2013, the average age at first nonmedical use of any psychotherapeutics among recent initiates aged 12 to 49 was 22.4 years. Average ages at first nonmedical use were 21.6 years for stimulants, 21.7 years for pain relievers, 25.0 years for sedatives, and 25.4 years for tranquilizers. All of these 2013 estimates were similar to the corresponding estimates in 2012.

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- The number of recent new users of methamphetamine among persons aged 12 or older was 144,000 in 2013 (Figure 5.7), which was similar to the estimates in 2005 and from 2007 through 2012. However, the number of initiates in 2013 was lower than the estimates in 2002 to 2004 and in 2006 (ranging from 259,000 to 318,000). The average age at first use among new methamphetamine users aged 12 to 49 in 2013 was 18.9 years, which was similar to the corresponding estimates from 2002 to 2012 (ranging from 17.8 to 22.2 years).

Figure 5.7 Past Year Methamphetamine Initiates among Persons Aged 12 or Older and Mean Age at First Use of Methamphetamine among Past Year Methamphetamine Initiates Aged 12 to 49: 2002-2013
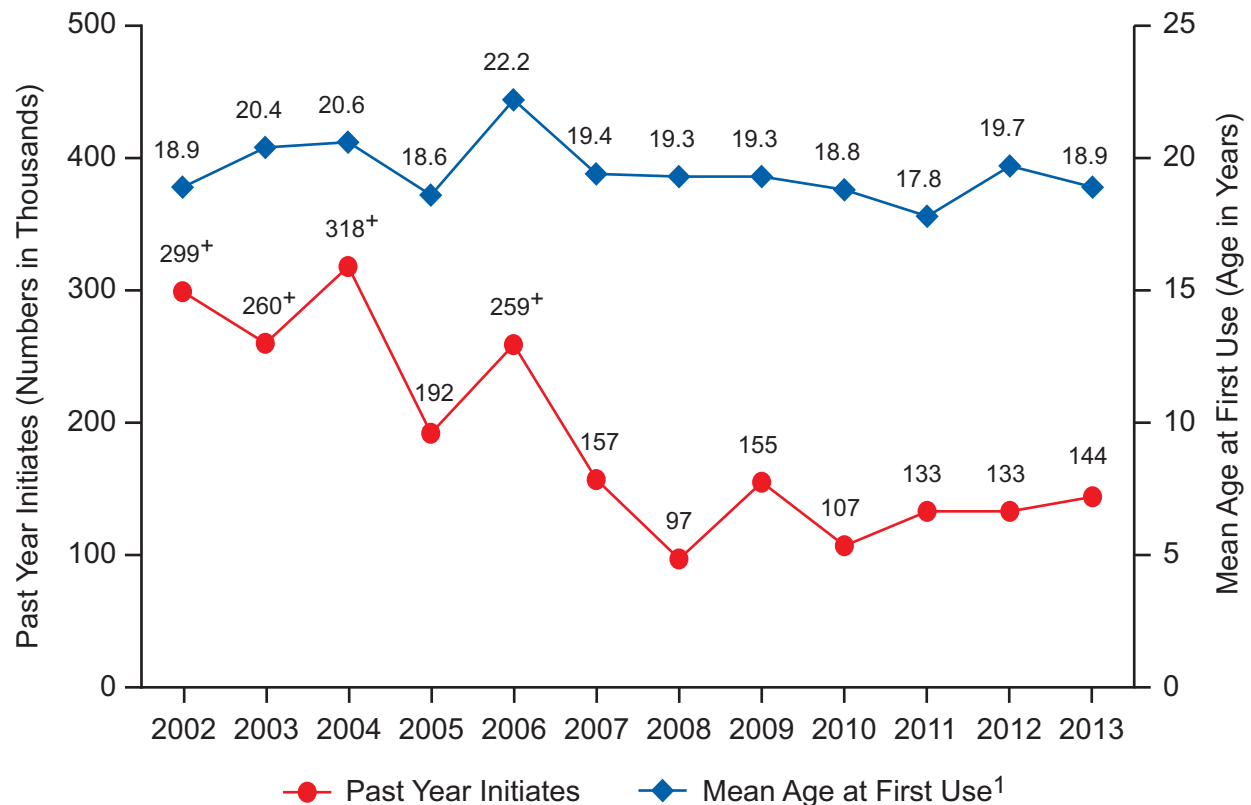
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

[1] Mean-age-at-first-use estimates are for past year initiates aged 12 to 49.

Alcohol

- In 2013, there were 4.6 million persons aged 12 or older who had used alcohol for the first time within the past 12 months; this averages to approximately 12,500 initiates per day.

- In 2013, most (83.5 percent) of the 4.6 million recent alcohol initiates were younger than age 21 at the time of initiation. An estimated 59.1 percent initiated prior to age 18.

- In 2013, the average age at first alcohol use among recent initiates aged 12 to 49 was 17.3 years, which was similar to the 2008, 2010, 2011, and 2012 estimates, but was higher than the estimates in 2002 to 2007 and in 2009 (ranging from 16.4 to 16.9 years). In 2013, the mean age at first use among recent initiates aged 12 or older who initiated use prior to the age of 21 was 16.2 years, which was slightly higher than the 2012 estimate of 16.0 years.

Tobacco

- The number of persons aged 12 or older who smoked cigarettes for the first time within the past 12 months was approximately 2.1 million in 2013, which was lower than the estimates for 2006 and from 2008 through 2012 (ranging from 2.3 million to 2.5 million), but was similar to the estimates from 2002 to 2005 and 2007 (Figure 5.8). The 2013 estimate averages to about 5,700 new cigarette smokers every day. About half of new cigarette smokers in 2013 (50.5 percent) initiated prior to age 18.[5]

- The number of cigarette initiates who were younger than age 18 when they first used was lower in 2013 than in 2002 (1.0 million vs. 1.3 million). However, the number of cigarette initiates who began smoking at age 18 or older increased from 623,000 in 2002 to 1.0 million in 2013.

- In 2013, among recent initiates aged 12 to 49, the average age of first cigarette use was 17.8 years, which was the same as the corresponding average age in 2012.

- Of persons aged 12 or older who had not smoked cigarettes prior to the past year (i.e., those at risk for initiation), the past year initiation rate for cigarettes was 2.0 percent in 2013, which was lower than the rate in 2012 (2.3 percent).

- Among youths aged 12 to 17 who had not smoked cigarettes prior to the past year (i.e., youths at risk for initiation), the first-time cigarette use rate in 2013 was 4.3 percent, which was lower than the 2012 rate (4.8 percent). However, for each gender subgroup, this incidence rate was similar in 2012 and 2013 (4.7 and 4.2 percent, respectively, for male youths; 4.8 and 4.3 percent for female youths) (Figure 5.9). Past year initiation rates in 2013 among males and females aged 12 to 17 who were at risk for initiation of cigarette use were lower than the rates in 2002 to 2011.

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[5] Due to rounding, percentages of past year initiates who initiated prior to age 18 that are calculated from the estimated numbers in Figure 5.8 may differ from the actual percentages.

Figure 5.8 Past Year Cigarette Initiates among Persons Aged 12 or Older, by Age at First Use: 2002-2013
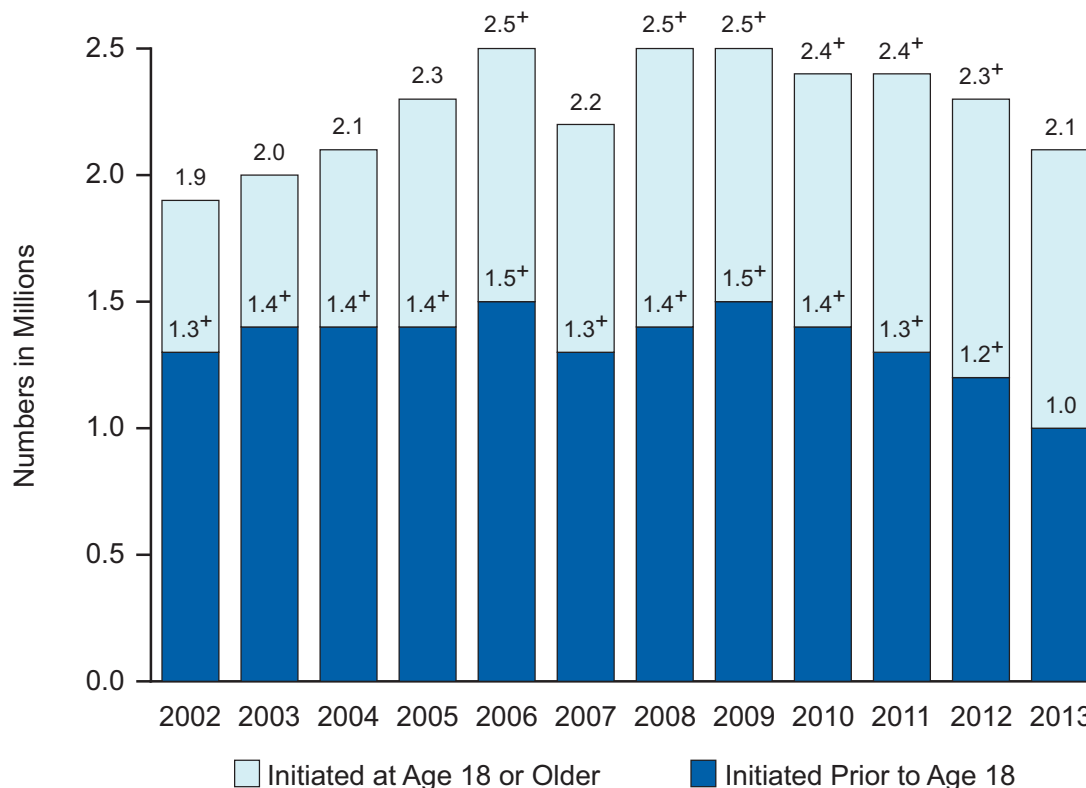
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- In 2013, the number of persons aged 12 or older who had started smoking cigarettes daily within the past 12 months was 813,000 (Figure 5.10). This estimate was similar to the estimates in 2005, 2008, and from 2010 through 2012 (ranging from 778,000 to 965,000), but was lower than the estimates from 2002 through 2004 and in 2006, 2007, and 2009 (ranging from 1.0 million to 1.1 million). Of the new daily smokers in 2013, 33.2 percent, or 270,000 persons, were younger than age 18 when they started smoking daily. This number is equivalent to an average of approximately 700 persons per day under the age of 18 who started smoking cigarettes on a daily basis.

- In 2013, the average age of first daily cigarette smoking among new daily smokers aged 12 to 49 was similar in 2012 and 2013 (19.9 and 19.8 years, respectively). Among male initiates of daily cigarette smoking in this age group, the average age at first daily use also was similar in 2012 and 2013 (19.1 and 19.0 years, respectively). Among female initiates, the 2013 estimate of 21.0 years was the same as the 2012 estimate.

Figure 5.9 Past Year Cigarette Initiation among Youths Aged 12 to 17 Who Had Never Smoked Prior to the Past Year, by Gender: 2002-2013

Past Year Cigarette Initiation among Youths Aged 12 to 17 Who Had Never Smoked Prior to the Past Year, by Gender: 2002-2013
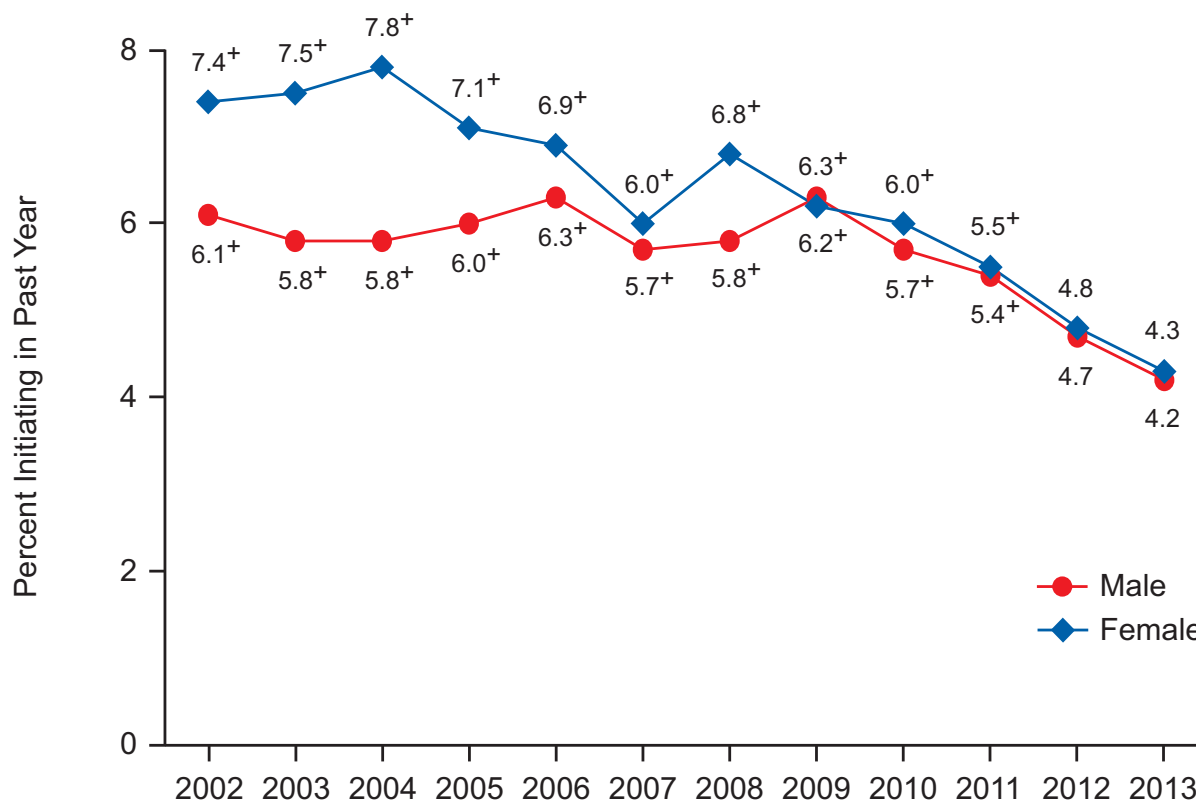
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- In 2013, there were 2.8 million persons aged 12 or older who had used cigars for the first time in the past 12 months, which was similar to the 2012 estimate (2.7 million) (Figure 5.10). However, the 2013 estimate was lower than the estimate in 2005 (3.3 million) and in 2009 (3.1 million). Among past year cigar initiates aged 12 to 49, the average age at first use was 21.6 years in 2013, which was similar to the estimate in 2012 (20.5 years).

- The number of persons aged 12 or older initiating use of smokeless tobacco in the past year was 1.1 million in 2013, which was similar to the estimates in 2011 and 2012 (Figure 5.10). The number of smokeless tobacco initiates in 2013 was higher than the estimates in 2002 and 2003, but was lower than the estimates from 2006 through 2010 (ranging from 1.3 million to 1.5 million). In 2013, about three quarters (73.8 percent) of new initiates were male, and over two fifths (47.9 percent) were younger than age 18. In 2013, the average age at first smokeless tobacco use among recent initiates aged 12 to 49 was 18.4 years, which was similar to the estimate in 2012.

Figure 5.10 Past Year Specific Tobacco Product Initiates among Persons Aged 12 or Older: 2002-2013
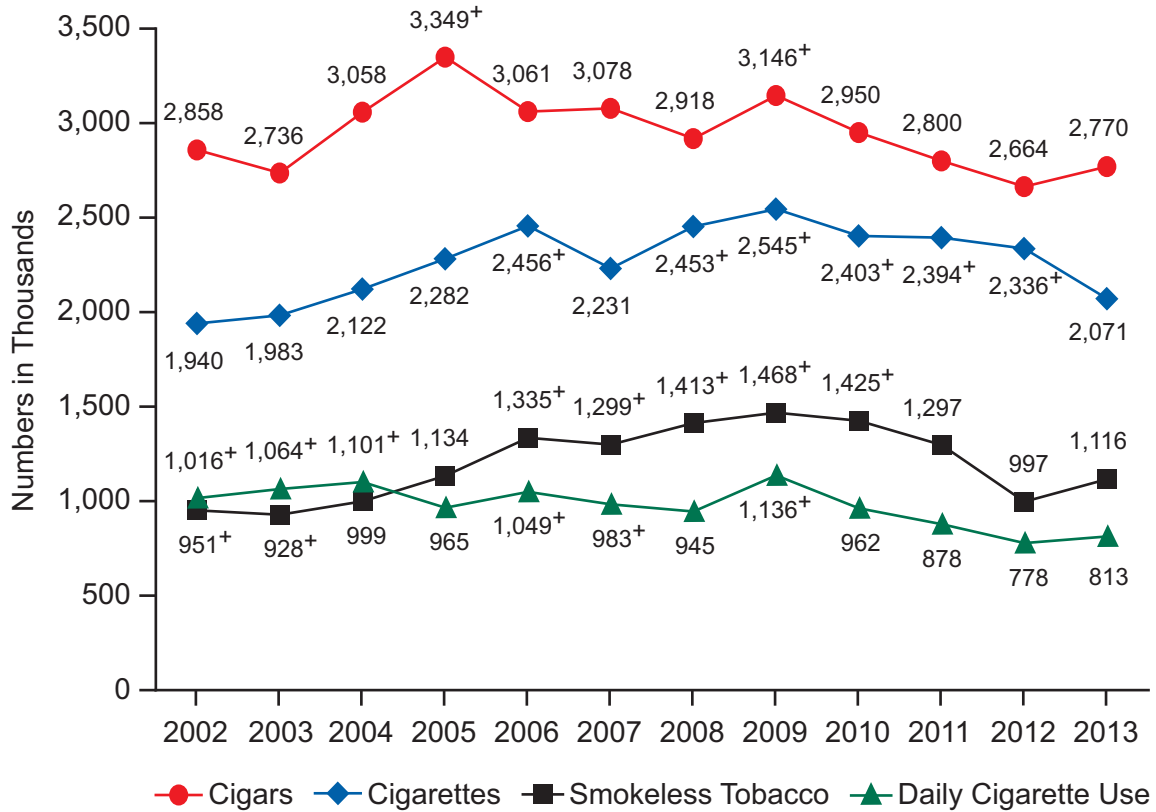
6. Youth Prevention-Related Measures

Research has shown that substance use by adolescents can often be prevented through interventions involving risk and protective factors associated with the onset or escalation of use (Catalano, Hawkins, Berglund, Pollard, & Arthur, 2002). Risk and protective factors include variables that operate at different stages of development and reflect different domains of influence, including the individual, family, peer, school, community, and societal levels (Hawkins, Catalano, & Miller, 1992; Robertson, David, & Rao, 2003). Interventions to prevent substance use generally are designed to ameliorate the influence of risk factors and enhance the effectiveness of protective factors.

The National Survey on Drug Use and Health (NSDUH) includes questions for youths aged 12 to 17 to measure the risk and protective factors that may affect the likelihood that they will engage in substance use. This chapter presents findings on youth prevention-related measures. Where applicable, findings from 2013 are compared with estimates from prior years since 2002. Included in this chapter are measures of the perceived risk of substance use (cigarettes, alcohol, and specific illicit drugs), perceived availability of substances (including being approached by someone selling drugs), perceived parental disapproval of youth substance use, attitudes about peer substance use, involvement in fighting and delinquent behavior, religious involvement and beliefs, exposure to substance use prevention messages and programs, and parental involvement. Also presented are findings on the associations between selected measures of risk and protective factors and substance use from NSDUH. However, the cross-sectional nature of these data precludes making any causal connections between these risk and protective factors and substance use.

Perceived Risk of Substance Use

One factor that can influence whether youths will use tobacco, alcohol, or illicit drugs is the extent to which they believe these substances might cause them harm. NSDUH respondents were asked how much they thought people risk harming themselves physically and in other ways when they use various substances in certain amounts or frequencies. Response choices for these items were "great risk," "moderate risk," "slight risk," or "no risk."

- In 2013, 64.3 percent of youths aged 12 to 17 perceived great risk in smoking one or more packs of cigarettes per day, 62.5 percent perceived great risk in having four or five drinks of an alcoholic beverage nearly every day, and 39.0 percent perceived great risk in having five or more drinks once or twice a week. For marijuana, 39.5 percent of youths perceived great risk in smoking marijuana once or twice a week, and 24.2 percent perceived great risk in smoking marijuana once a month. The percentages of youths who perceived great risk in using other drugs once or twice a week were 79.8 percent for heroin, 78.4 percent for cocaine, and 69.7 percent for LSD.

- The percentages of youths reporting binge alcohol use and the use of cigarettes and marijuana in the past month were lower among those who perceived great risk in using these substances than among those who did not perceive great risk. For instance, in 2013, past month binge drinking (consumption of five or more drinks of an alcoholic beverage on a single occasion on at least 1 day in the past 30 days) was reported by 3.5 percent of youths aged 12 to 17 who perceived great risk from "having five or more drinks of an alcoholic beverage once or twice a week," which was lower than the rate (8.1 percent) for youths who saw moderate, slight, or no risk from having five or more drinks of an alcoholic beverage once or twice a week (Figure 6.1). Past month marijuana use was reported by 0.6 percent of youths who saw great risk in smoking marijuana once a month compared with 9.3 percent of youths who saw moderate, slight, or no risk.

Figure 6.1 Past Month Binge Drinking and Marijuana Use among Youths Aged 12 to 17, by Perceptions of Risk: 2013
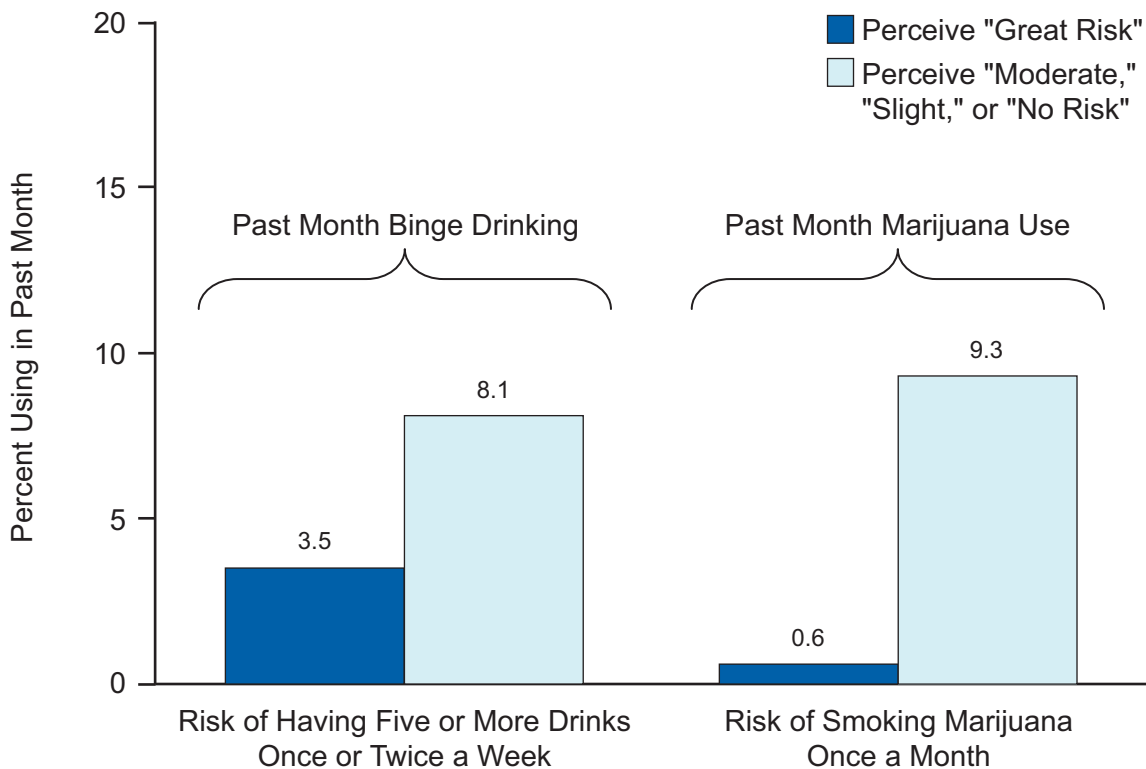
- Trends in substance use often coincide with trends in perceived risk. Increases in perceived risk typically precede or occur simultaneously with decreases in use, and vice versa. For example, the percentage of youths aged 12 to 17 indicating great risk in smoking marijuana once a month decreased from 34.4 percent in 2007 to 24.2 percent in 2013 (Figure 6.2). The rate of youths perceiving great risk in smoking marijuana once or twice a week also decreased from 54.6 percent in 2007 to 39.5 percent in 2013. Consistent with these decreasing trends in the perceived risk of marijuana use, the prevalence of past month marijuana use among youths increased between 2007 (6.7 percent) and 2011 (7.9 percent). Despite the perceived risk of marijuana use among youths continuing to decline between 2011 and 2013, however, the rate of past month marijuana use declined between 2011 and 2013 (7.1 percent). The rate of past month marijuana use among youths in 2013 was similar to that in 2007.

- The proportion of youths aged 12 to 17 who reported perceiving great risk from smoking one or more packs of cigarettes per day increased from 63.1 percent in 2002 to 69.5 percent in 2008 (Figure 6.3). This rate declined between 2009 (65.5 percent) and 2013 (64.3 percent). Consequently, the 2013 rate was similar to the 2002 rate. Although rates of use often increase as perceptions of risk decrease, the rate of past month adolescent cigarette use decreased from 9.0 percent in 2009 to 5.6 percent in 2013. Also, the rate of past month cigarette use among youths in 2013 was lower than that in 2002 (13.0 percent), despite similar percentages of youths perceiving great risk from smoking one or more packs of cigarettes in both of these years.

Figure 6.2 Perceived Great Risk of Marijuana Use among Youths Aged 12 to 17: 2002-2013
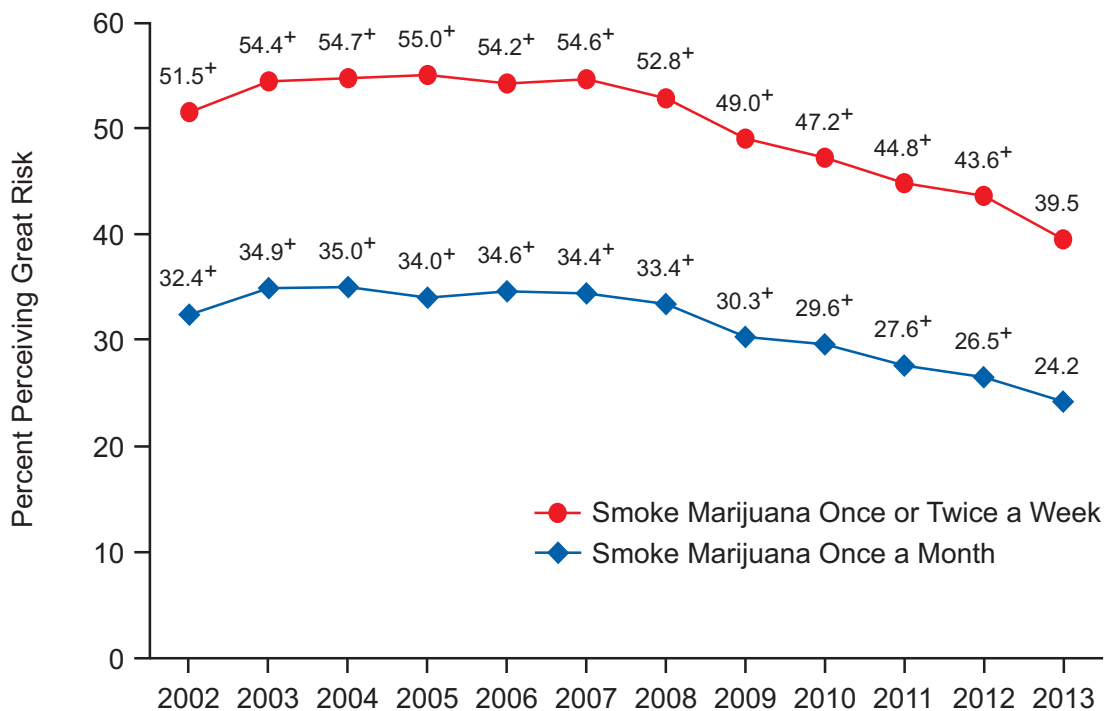
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Figure 6.3 Perceived Great Risk of Cigarette and Alcohol Use among Youths Aged 12 to 17: 2002-2013
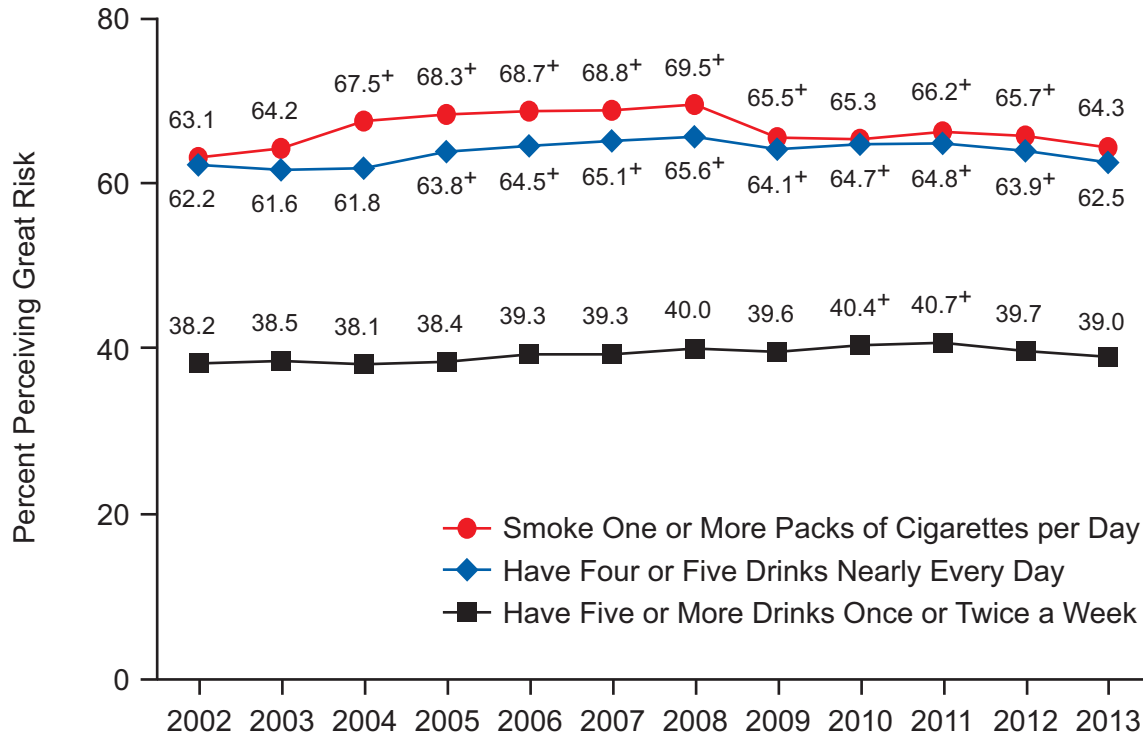
$^{+}$ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The percentage of youths aged 12 to 17 indicating great risk in having four or five drinks of an alcoholic beverage nearly every day increased from 62.2 percent in 2002 to 65.6 percent in 2008 (Figure 6.3). This rate declined between 2009 (64.1 percent) and 2013 (62.5 percent), such that the 2013 rate was similar to the 2002 rate. The percentage of youths perceiving great risk in having five or more drinks of an alcoholic beverage once or twice a week increased from 38.2 percent in 2002 to 40.7 percent in 2011. This rate declined between 2011 and 2013 (39.0 percent). Consistent with the increases in perceived risk of alcohol use among youths aged 12 to 17 between 2002 and 2008, there were decreases during this period in the rate of binge alcohol use (from 10.7 to 8.9 percent) and heavy alcohol use (from 2.5 to 2.0 percent). Although perceived risk of alcohol use peaked in 2008 for both measures of perceived risk, the rate of adolescent alcohol use continued to decline between 2008 and 2013 for both binge alcohol use (to 6.2 percent in 2013) and heavy alcohol use (to 1.2 percent in 2013).

- Between 2002 and 2013, the percentage of youths aged 12 to 17 perceiving great risk from using an illicit drug once or twice a week declined for the following substances: heroin (from 82.5 to 79.8 percent), cocaine (from 79.8 to 78.4 percent), LSD (from 76.2 to 69.7 percent), and marijuana (from 51.5 to 39.5 percent) (Figure 6.4). The rates remained unchanged between 2011 and 2013 for heroin, cocaine, and LSD. For marijuana, the rate in 2013 was lower than the rate in 2011 (44.8 percent). Youths were less likely to perceive great risk for smoking marijuana once or twice a week than for corresponding use of the other listed illicit drugs.

Figure 6.4 Perceived Great Risk of Use of Selected Illicit Drugs Once or Twice a Week among Youths Aged 12 to 17: 2002-2013
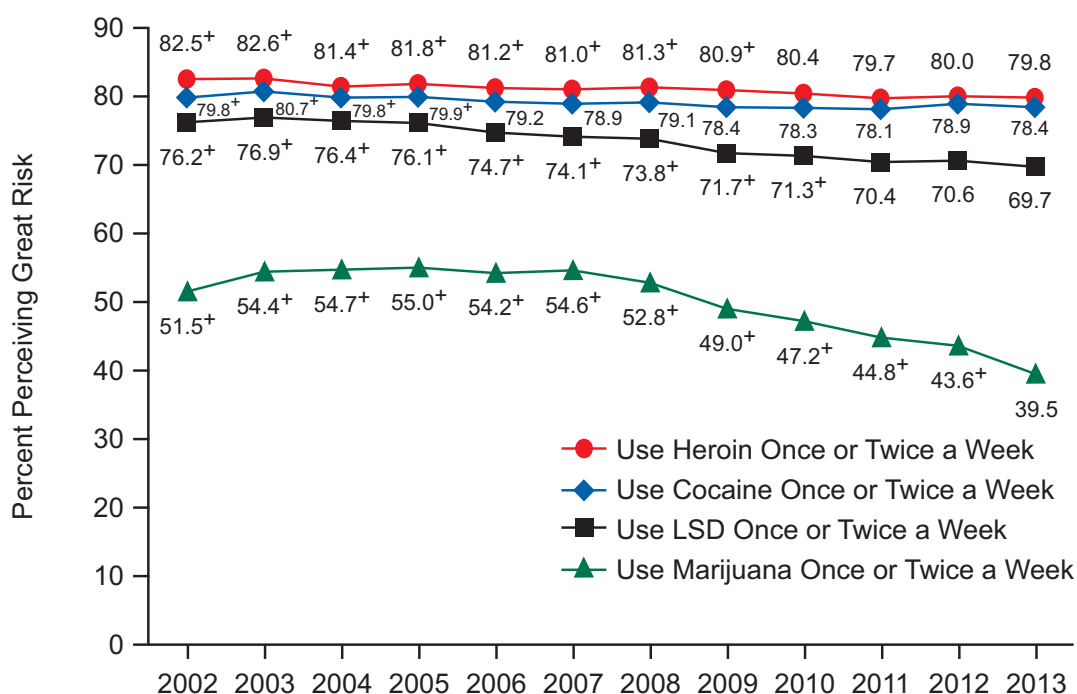
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Perceived Availability

- In 2013, about half (48.6 percent) of youths aged 12 to 17 reported that it would be "fairly easy" or "very easy" for them to obtain marijuana if they wanted some (Figure 6.5). About 1 in 11 (9.1 percent) indicated that heroin would be fairly or very easily available, and 11.3 percent reported so for LSD. Between 2002 and 2013, there were decreases in the perceived easy availability of marijuana (from 55.0 to 48.6 percent), cocaine (from 25.0 to 14.4 percent), crack (from 26.5 to 14.9 percent), LSD (from 19.4 to 11.3 percent), and heroin (from 15.8 to 9.1 percent). There was no change between 2012 and 2013 in the perceived easy availability for marijuana, heroin, or LSD. However, the percentage of youths who perceived that cocaine would be fairly easy or very easy to obtain was lower in 2013 than in 2012 (16.0 percent).

Figure 6.5 Perceived Availability of Selected Illicit Drugs among Youths Aged 12 to 17: 2002-2013
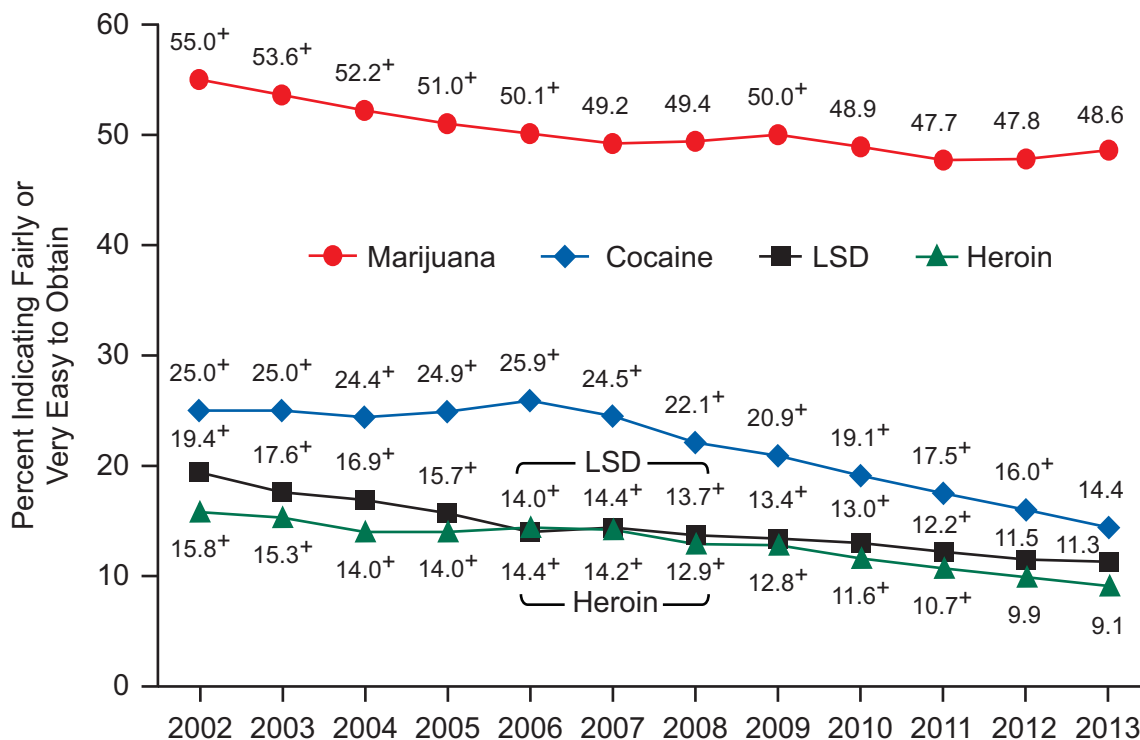
Marijuana: 55.0[+] (2002), 53.6[+] (2003), 52.2[+] (2004), 51.0[+] (2005), 50.1[+] (2006), 49.2 (2007), 49.4 (2008), 50.0[+] (2009), 48.9 (2010), 47.7 (2011), 47.8 (2012), 48.6 (2013)

Cocaine: 25.0[+], 25.0[+], 24.4[+], 24.9[+], 25.9[+], 24.5[+], 22.1[+], 20.9[+], 19.1[+], 17.5[+], 16.0[+], 14.4

LSD: 19.4[+], 17.6[+], 16.9[+], 15.7[+], 14.0[+], 14.4[+], 13.7[+], 13.4[+], 13.0[+], 12.2[+], 11.5, 11.3

Heroin: 15.8[+], 15.3[+], 14.0[+], 14.0[+], 14.4[+], 14.2[+], 12.9[+], 12.8[+], 11.6[+], 10.7[+], 9.9, 9.1

Y-axis: Percent Indicating Fairly or Very Easy to Obtain (0 to 60)

X-axis: 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013

[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- Youths aged 12 to 17 in 2013 who perceived that it was easy to obtain specific illicit drugs were more likely to be past month users of those illicit drugs than were youths who perceived that obtaining specific illicit drugs would be fairly difficult, very difficult, or probably impossible. For example, 15.8 percent of youths who reported that marijuana would be easy to obtain were past month illicit drug users, but only 2.7 percent of those who thought marijuana would be more difficult to obtain were past month users. Similarly, 13.9 percent of youths who reported that marijuana would be easy to obtain were past month marijuana users, but only 1.1 percent of those who thought marijuana would be more difficult to obtain were past month users.

- The percentage of youths who reported that marijuana, cocaine, crack, heroin, and LSD would be easy to obtain generally increased with age in 2013. For instance, 20.5 percent of youths aged 12 or 13 reported it would be fairly or very easy to obtain marijuana compared with 51.2 percent of those aged 14 or 15 and 71.5 percent of those aged 16 or 17. However, the differences in perceived availability between youths aged 14 or 15 and those aged 16 or 17 were not significant for crack and heroin.

- In 2013, about one in eight youths aged 12 to 17 (12.4 percent) indicated that they had been approached by someone selling drugs in the past month. This rate declined between 2002 (16.7 percent) and 2013, although the 2013 rate was similar to the 2012 rate (13.2 percent).

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Perceived Parental Disapproval of Substance Use

- Most youths aged 12 to 17 believed their parents would "strongly disapprove" of them using substances. In 2013, 88.4 percent of youths reported that their parents would strongly disapprove of them trying marijuana or hashish once or twice, which was lower than the rates in 2012 (89.3 percent) and 2002 (89.1 percent). Most youths in 2013 (90.7 percent) reported that their parents would strongly disapprove of them having one or two drinks of an alcoholic beverage nearly every day, which was similar to the rate in 2012 (90.5 percent), but was higher than the rate in 2002 (89.0 percent). In 2013, 93.5 percent of youths reported that their parents would strongly disapprove of them smoking one or more packs of cigarettes per day, which was similar to the rate reported in 2012 (93.1 percent), but was higher than the 89.5 percent reported in 2002.

- Youths aged 12 to 17 who believed their parents would strongly disapprove of them using specific substances were less likely to use these substances than were youths who believed their parents would somewhat disapprove or neither approve nor disapprove. For instance, in 2013, past month cigarette use was reported by 4.0 percent of youths who perceived strong parental disapproval if they were to smoke one or more packs of cigarettes per day compared with 27.8 percent of youths who believed their parents would not strongly disapprove. Also, past month marijuana use was much less prevalent among youths who perceived strong parental disapproval for trying marijuana or hashish once or twice than among those who did not perceive this level of disapproval (4.1 vs. 29.3 percent, respectively).

Attitudes toward Peer Substance Use

- A majority of youths aged 12 to 17 reported that they disapproved of their peers using substances. In 2013, 91.4 percent of youths "strongly" or "somewhat" disapproved of their peers smoking one or more packs of cigarettes per day, which was also the rate in 2012, but was higher than the 87.1 percent in 2002. Also in 2013, 79.2 percent strongly or somewhat disapproved of peers using marijuana or hashish once a month or more, which was lower than the rates reported in 2012 (80.3 percent) and in 2002 (80.4 percent). In addition, 88.7 percent of youths strongly or somewhat disapproved of peers having one or two drinks of an alcoholic beverage nearly every day in 2013, which was also the rate in 2012, but was higher than the 84.7 percent reported in 2002.

- The percentage of youths who reported that they disapproved of their peers using substances decreased with age in 2013. For instance, 92.4 percent of those aged 12 or 13 reported that they strongly or somewhat disapproved of peers using marijuana once a month or more compared with 80.6 percent of those aged 14 or 15 and 65.6 percent of those aged 16 or 17.

- In 2013, youths aged 12 to 17 who strongly or somewhat disapproved of their peers using marijuana once a month or more were less likely to be past month marijuana users than those who neither approved nor disapproved of this behavior from their peers (2.0 vs. 26.2 percent).

Fighting and Delinquent Behavior

- NSDUH includes questions for youths aged 12 to 17 about the number of times they had engaged in fighting or other delinquent behavior in the 12 months prior to the interview. In 2013, 17.7 percent of youths aged 12 to 17 reported that they had gotten into a serious fight at school or at work in the past year; 11.0 percent had taken part in a group-against-group fight; 5.1 percent attacked others in at least one instance with the intent to harm or seriously hurt them; 3.4 percent had carried a handgun at least once; 2.8 percent had, at least once, stolen or tried to steal something worth more than $50; and 2.4 percent sold illegal drugs in the past year. The 2013 rates for taking part in a group-against-group fight and for stealing or trying to steal something worth more than $50 among youths aged 12 to 17 were lower than the 2012 rates.

- Rates of the following behaviors in the past year among youths aged 12 to 17 were lower in 2013 than in 2002: getting into a serious fight at school or work (17.7 vs. 20.6 percent); taking part in a group-against-group fight (11.0 vs. 15.9 percent); attacking others with the intent to harm or seriously hurt them (5.1 vs. 7.8 percent); stealing or trying to steal something worth more than $50 (2.8 vs. 4.9 percent); and selling illegal drugs (2.4 vs. 4.4 percent). Percentages of youths who had carried a handgun in the past year were similar in 2013 and 2002 (3.4 and 3.3 percent).

- Youths aged 12 to 17 who had engaged in fighting or other delinquent behaviors were more likely than other youths to have used illicit drugs in the past month. In 2013, past month illicit drug use was reported by 17.0 percent of youths who had gotten into a serious fight at school or work in the past year compared with 7.1 percent of those who had not engaged in fighting at school or work. An estimated 34.6 percent of youths who had stolen or tried to steal something worth over $50 in the past year used illicit drugs in the past month compared with 8.0 percent of those who had not attempted or had engaged in such theft.

Religious Involvement and Beliefs

- In 2013, 29.8 percent of youths aged 12 to 17 reported that they had attended religious services 25 or more times in the past year; 73.3 percent agreed or strongly agreed with the statement that religious beliefs are a very important part of their lives; and 66.2 percent agreed or strongly agreed with the statement that religious beliefs influence their decision making in life. These rates were lower than the corresponding rates in 2002, but were similar to corresponding rates in 2012. In 2013, 32.0 percent of youths agreed or strongly agreed with the statement that it is important for their friends to share their religious beliefs, which was lower than the 2002 rate (35.8 percent) and the 2012 rate (33.7 percent).

- The rates of past month use of illicit drugs and cigarettes and binge alcohol use were lower among youths aged 12 to 17 who agreed with statements about the importance of religious beliefs than among those who disagreed. In 2013, past month illicit drug use was reported by 6.6 percent of those who agreed or strongly agreed that religious beliefs are a very important part of their lives compared with 14.9 percent of those who disagreed with that statement. Similar differences were found between those two subgroups for the past month use of cigarettes (4.1 vs. 9.8 percent) and past month binge alcohol use (4.8 vs. 10.3 percent).

Exposure to Substance Use Prevention Messages and Programs

- In 2013, approximately one in nine youths aged 12 to 17 (11.5 percent) reported that they had participated in drug, tobacco, or alcohol prevention programs outside of school in the past year. This rate was similar to the 11.9 percent reported in 2012, but was lower than the rate reported in 2002 (12.7 percent). In 2013, youths who did or did not participate in these programs had similar rates of past month use for illicit drugs (8.9 and 8.7 percent), marijuana (7.0 percent for both groups), cigarettes (6.5 and 5.4 percent), and binge alcohol use (5.2 and 6.3 percent).

- In 2013, 72.6 percent of youths aged 12 to 17 reported having seen or heard drug or alcohol prevention messages in the past year from sources outside of school, such as from posters or pamphlets, on the radio, or on television (Figure 6.6). This rate in 2013 was lower than the 75.9 percent reported in 2012 and the 83.2 percent reported in 2002. In 2013, the prevalence of past month use of illicit drugs among those who reported having such exposure (8.4 percent) was lower than the prevalence among those who reported having no such exposure (10.0 percent).

Figure 6.6 Exposure to Substance Use Prevention Messages and Programs among Youths Aged 12 to 17: 2002-2013
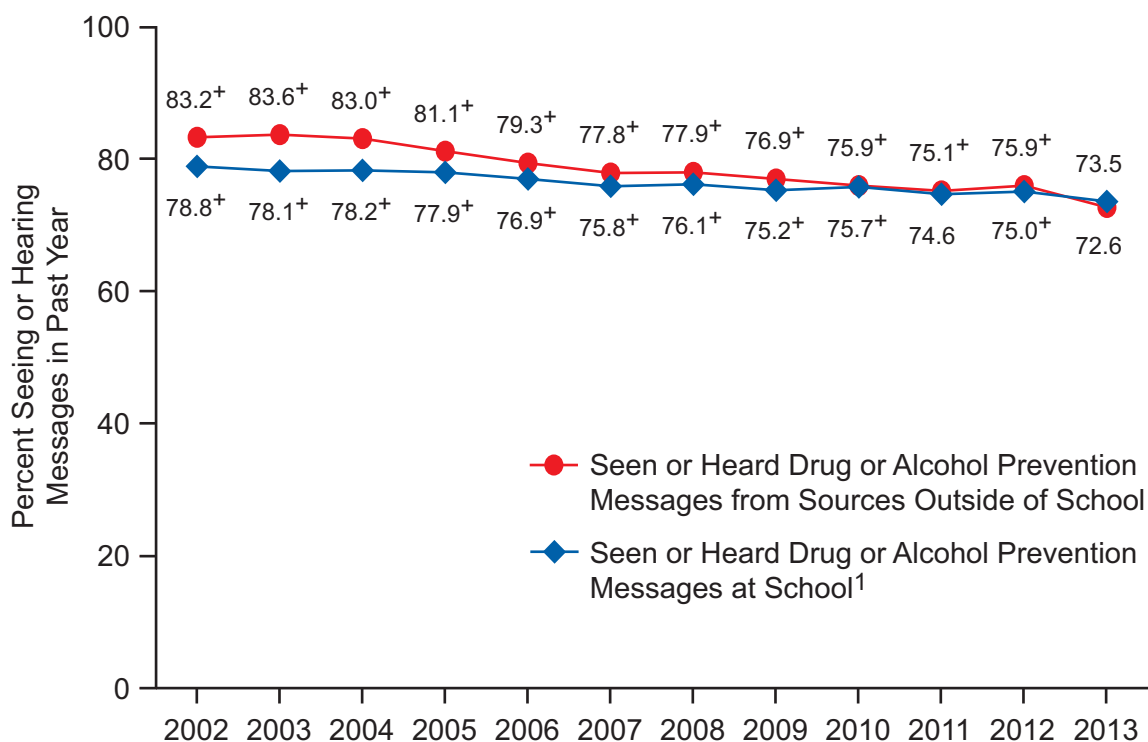
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

[1] Estimates are from youths aged 12 to 17 who were enrolled in school in the past year. Youths who were enrolled in school in the past year included those who were home schooled.

- In 2013, 73.5 percent of youths aged 12 to 17 who were enrolled in school in the past year reported having seen or heard drug or alcohol prevention messages at school, which was lower than the 75.0 percent reported in 2012 and the 78.8 percent reported in 2002 (Figure 6.6). In 2013, the prevalence of past month use of illicit drugs or marijuana was lower among those who reported having such exposure in school (8.4 and 6.7 percent for illicit drugs and marijuana, respectively) than among youths who were enrolled in school but reported having no such exposure (10.2 and 8.7 percent).

Parental Involvement

- Youths aged 12 to 17 were asked several questions related to the extent of support, oversight, and control that they perceived their parents provided or exercised over them in the year prior to the survey interview. In 2013, among youths aged 12 to 17 who were enrolled in school in the past year, 68.4 percent reported that their parents limited the amount of time that they spent out with friends on school nights. This rate in 2013 was lower than the rate reported in 2012 (70.3 percent) and in 2002 (70.7 percent). In 2013, 83.0 percent reported that in the past year their parents always or sometimes checked on whether or not they had completed their homework, and 79.4 percent reported that their parents always or sometimes provided help with their homework. The rate in 2013 for parents checking on whether youths had completed their homework was higher than in 2012 (81.3 percent) and in 2002 (78.4 percent). However, the rate for parents providing help with homework in 2013 was lower than the rate in 2012 (80.6 percent) and the rate in 2002 (81.4 percent).

- In 2013, 88.5 percent of youths aged 12 to 17 reported that their parents always or sometimes made them do chores around the house in the past year, which was also the rate in 2012, but was slightly higher than the rate in 2002 (87.4 percent). In 2013, 85.7 percent of youths reported that their parents always or sometimes let them know that they had done a good job, and 85.7 percent reported that their parents always or sometimes let them know they were proud of something they had done. These percentages in 2013 were similar to those reported in 2012 and 2002. In 2013, 40.8 percent of youths reported that their parents limited the amount of time that they watched television, which was similar to the rate in 2012 (41.0 percent), but was higher than the 36.9 percent reported in 2002.

- In 2013, past month use of illicit drugs and cigarettes and binge alcohol use were lower among youths aged 12 to 17 who reported that their parents always or sometimes engaged in supportive or monitoring behaviors than among youths whose parents seldom or never engaged in such behaviors. For instance, the rate of past month use of any illicit drug in 2013 was 7.3 percent for youths whose parents always or sometimes helped with homework compared with 14.7 percent among youths who indicated that their parents seldom or never helped. Rates of current cigarette smoking and past month binge alcohol use also were lower among youths whose parents always or sometimes helped with homework (4.5 and 5.1 percent, respectively) than among youths whose parents seldom or never helped (10.3 and 11.4 percent).

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7. Substance Dependence, Abuse, and Treatment

The National Survey on Drug Use and Health (NSDUH) includes a series of questions to assess the prevalence of substance use disorders (substance dependence or abuse) in the past 12 months. Substances include alcohol and illicit drugs, such as marijuana, cocaine, heroin, hallucinogens, inhalants, and the nonmedical use of prescription-type psychotherapeutic drugs. These questions are used to classify persons as dependent on or abusing specific substances based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) (American Psychiatric Association [APA], 1994).

The questions related to dependence ask about health and emotional problems associated with substance use, unsuccessful attempts to cut down on use, tolerance, withdrawal, reducing other activities to use substances, spending a lot of time engaging in activities related to substance use, or using the substance in greater quantities or for a longer time than intended. The questions on abuse ask about problems at work, home, and school; problems with family or friends; physical danger; and trouble with the law due to substance use. Dependence is considered to be a more severe substance use problem than abuse because it involves the psychological and physiological effects of tolerance and withdrawal.

This chapter provides estimates from the 2013 NSDUH of the prevalence and patterns of substance use disorders occurring in the past year and compares these estimates against the results from the 2002 through 2012 surveys. It also provides estimates of the prevalence and patterns of the receipt of treatment in the past year for problems related to substance use. This chapter concludes with a discussion of the need for and the receipt of treatment at specialty facilities for problems associated with substance use. Note that the terms "substance use disorders," "substance dependence or abuse," and "alcohol or illicit drug dependence or abuse" are used interchangeably.

7.1   Substance Dependence or Abuse

- In 2013, an estimated 21.6 million persons aged 12 or older were classified with substance dependence or abuse in the past year (8.2 percent of the population aged 12 or older) (Figure 7.1). Of these, 2.6 million were classified with dependence or abuse of both alcohol and illicit drugs, 4.3 million had dependence or abuse of illicit drugs but not alcohol, and 14.7 million had dependence or abuse of alcohol but not illicit drugs. Overall, 17.3 million had alcohol dependence or abuse, and 6.9 million had illicit drug dependence or abuse.

- The annual number of persons with substance dependence or abuse in 2013 (21.6 million) was similar to the number in each year from 2002 through 2012 (ranging from 20.6 million to 22.7 million) (Figure 7.1).

Figure 7.1 Substance Dependence or Abuse in the Past Year among Persons Aged 12 or Older: 2002-2013
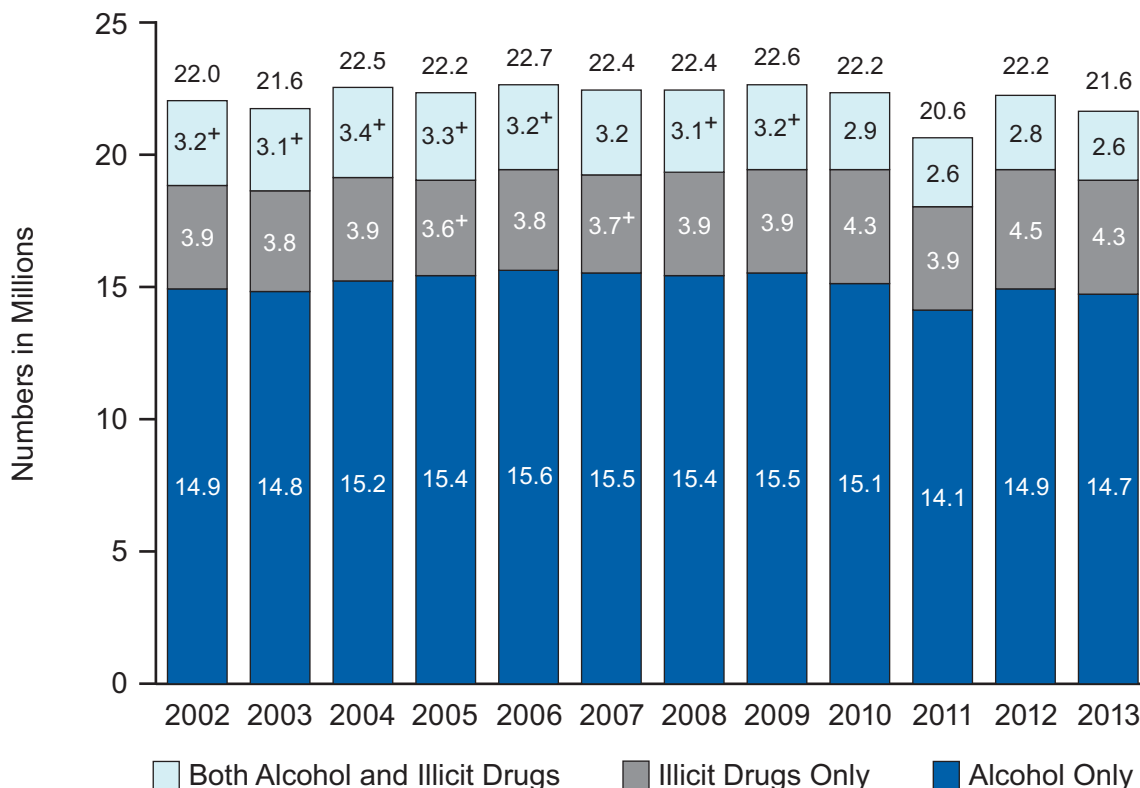
$^+$ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Note: Due to rounding, the stacked bar totals may not add to the overall total.

- The rate of persons aged 12 or older who had substance dependence or abuse in 2013 (8.2 percent) was similar to the rates in 2011 (8.0 percent) and 2012 (8.5 percent), but it was lower than the rate in each year from 2002 through 2010 (ranging from 8.8 to 9.4 percent).

- In 2013, 6.6 percent of the population aged 12 or older had alcohol dependence or abuse, which was similar to the rates in 2011 (6.5 percent) and 2012 (6.8 percent), but it was lower than the rate in each year from 2002 through 2010 (ranging from 7.1 to 7.8 percent).

- The rate of persons aged 12 or older who had illicit drug dependence or abuse in 2013 (2.6 percent) was similar to the rate in 2012 (2.8 percent) and in each year since 2005 (ranging from 2.5 to 2.9 percent), but it was lower than the rates in 2002 to 2004 (ranging from 2.9 to 3.0 percent).

- Marijuana was the illicit drug with the largest number of persons with past year dependence or abuse in 2013, followed by pain relievers, then by cocaine. Of the 6.9 million persons aged 12 or older who were classified with illicit drug dependence or abuse in 2013, 4.2 million persons had marijuana dependence or abuse (representing 1.6 percent of the total population aged 12 or older, and 61.4 percent of all those classified with illicit drug dependence or abuse), 1.9 million persons had pain reliever dependence or abuse, and 855,000 persons had cocaine dependence or abuse (Figure 7.2).

Figure 7.2 Specific Illicit Drug Dependence or Abuse in the Past Year among Persons Aged 12 or Older: 2013

Drug	Numbers in Thousands
Marijuana	4,206
Pain Relievers	1,879
Cocaine	855
Heroin	517
Stimulants	469
Tranquilizers	423
Hallucinogens	277
Inhalants	132
Sedatives	99

Numbers in Thousands
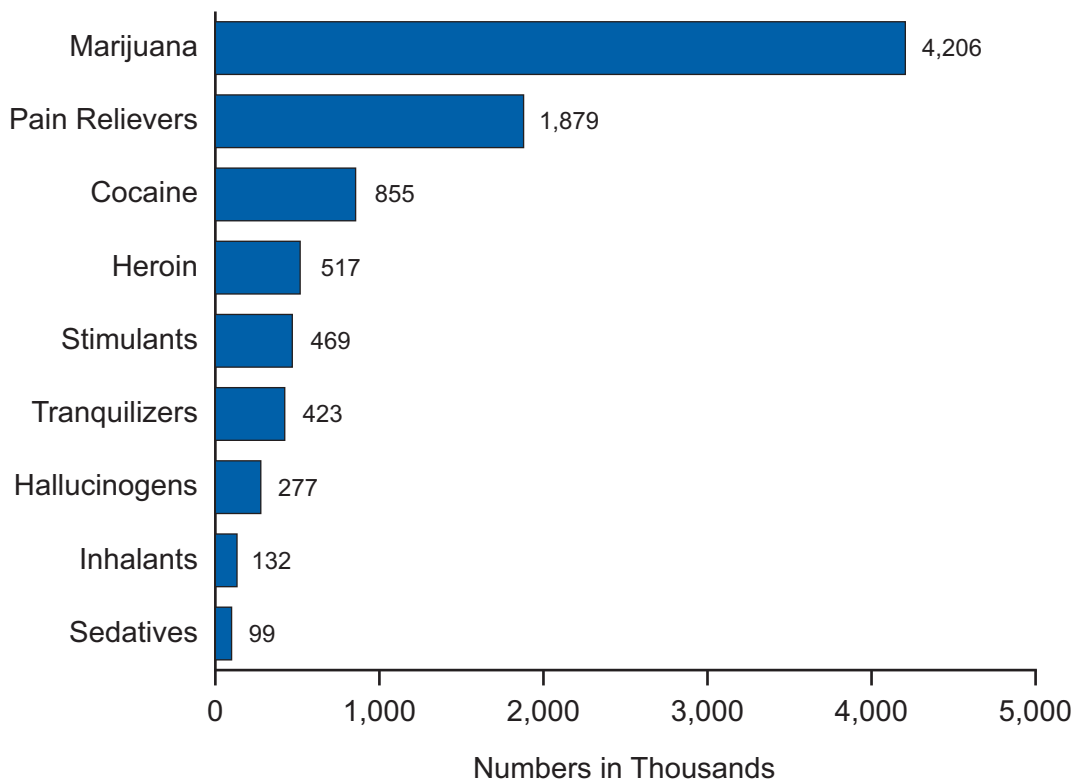
- The number of persons who had marijuana dependence or abuse in 2013 (4.2 million) was similar to the number in 2012 (4.3 million) and in each year from 2002 through 2011 (ranging from 3.9 million to 4.5 million) (Figure 7.3). The rate of marijuana dependence or abuse in 2013 (1.6 percent) was lower than the rates in 2002 (1.8 percent) and 2004 (1.9 percent). Otherwise, the rate in 2013 was similar to the rates in prior years (ranging from 1.6 to 1.8 percent).

- The number of persons who had pain reliever dependence or abuse in 2013 (1.9 million) was similar to the number in 2012 (2.1 million) and in each year from 2006 through 2011 (ranging from 1.6 million to 1.9 million) (Figure 7.3). However, the number in 2013 was higher than the numbers in 2002 to 2005 (ranging from 1.4 million to 1.5 million).

Figure 7.3 Illicit Drug Dependence or Abuse in the Past Year among Persons Aged 12 or Older: 2002-2013
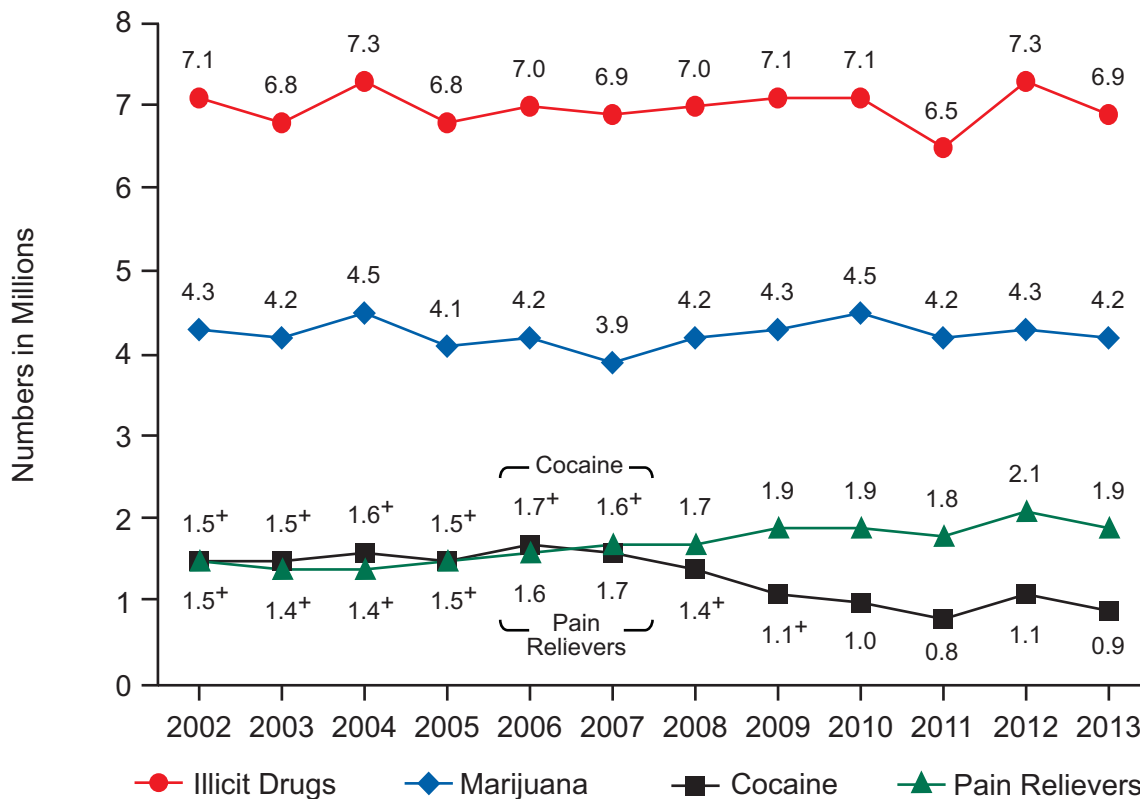
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The rate of pain reliever dependence or abuse in 2013 (0.7 percent) was higher than the rate in 2004 (0.6 percent). However, the rate in 2013 was similar to the rates in 2012 (0.8 percent), 2002, 2003, and from 2005 through 2011 (ranging from 0.6 to 0.8 percent).

- The rate and the number of persons who had cocaine dependence or abuse in 2013 (0.3 percent and 855,000) were similar to those in 2010 to 2012 (ranging from 0.3 to 0.4 percent and from 821,000 to 1.1 million). However, the rate and the number in 2013 were lower than those in 2002 to 2009 (ranging from 0.4 to 0.7 percent and from 1.1 million to 1.7 million).

- The number of persons who had heroin dependence or abuse in 2013 (517,000) was similar to the numbers in 2009 to 2012 (ranging from 361,000 to 467,000), but it was higher than the numbers in 2002 to 2008 (ranging from 189,000 to 324,000). The rate of persons who had heroin dependence or abuse in 2013 (0.2 percent) was similar to the rate in 2006 and in 2009 to 2012 (ranging from 0.1 to 0.2 percent), but it was higher than the rate of 0.1 percent in 2002 through 2005, 2007, and 2008.

Age at First Use

- In 2013, among adults aged 18 or older, age at first use of marijuana was associated with illicit drug dependence or abuse. Among those who first tried marijuana at age 14 or younger, 11.5 percent were classified with illicit drug dependence or abuse, which was higher than the 2.6 percent of adults who had first used marijuana at age 18 or older.

- Among adults, age at first use of alcohol was associated with alcohol dependence or abuse. In 2013, among adults aged 18 or older who first tried alcohol at age 14 or younger, 15.4 percent were classified with alcohol dependence or abuse, which was higher than the 3.8 percent of adults who had first used alcohol at age 18 or older.

- Adults aged 21 or older who had first used alcohol before age 21 were more likely than adults who had their first drink at age 21 or older to be classified with alcohol dependence or abuse. In particular, adults aged 21 or older who had first used alcohol at age 14 or younger were more likely to be classified with alcohol dependence or abuse than adults who had their first drink at age 21 or older (14.8 vs. 2.3 percent) (Figure 7.4).

Figure 7.4 Alcohol Dependence or Abuse in the Past Year among Adults Aged 21 or Older, by Age at First Use of Alcohol: 2013
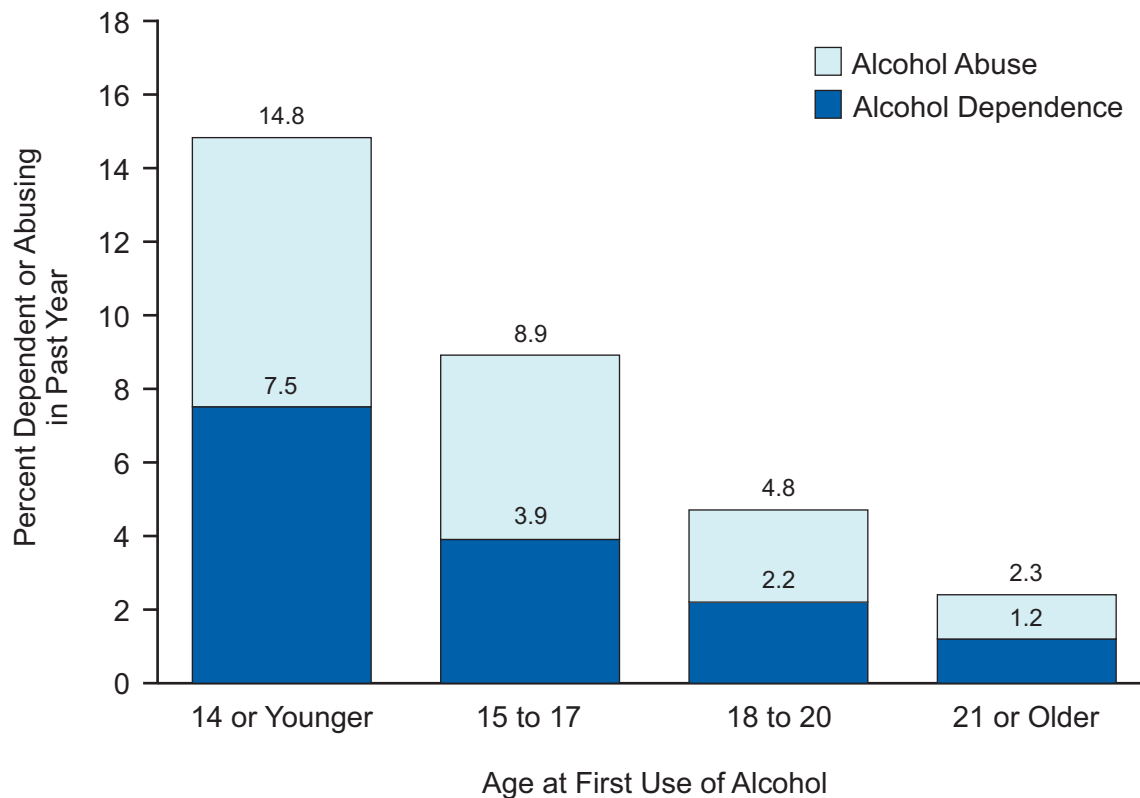
Age

- Rates of substance dependence or abuse were associated with age. In 2013, the rate of substance dependence or abuse among adults aged 18 to 25 (17.3 percent) was higher than that among adults aged 26 or older (7.0 percent), followed by youths aged 12 to 17 (5.2 percent). From 2002 to 2013, the rate decreased for youths aged 12 to 17 (from 8.9 to 5.2 percent) (Figure 7.5) and for young adults aged 18 to 25 (from 21.7 to 17.3 percent).

- The rate of alcohol dependence or abuse among youths aged 12 to 17 was 2.8 percent in 2013, which was lower than the rates of 3.4 percent in 2012 and 5.9 percent in 2002 (Figure 7.5). Among young adults aged 18 to 25, the rate of alcohol dependence or abuse was 13.0 percent in 2013, which also was lower than the rates of 14.3 percent in 2012 and 17.7 percent in 2002. Among adults aged 26 or older, the rates were not significantly different between 2012 (5.9 percent) and 2013 (6.0 percent) and between 2002 (6.2 percent) and 2013.

Figure 7.5 Alcohol and Illicit Drug Dependence or Abuse among Youths Aged 12 to 17: 2002-2013
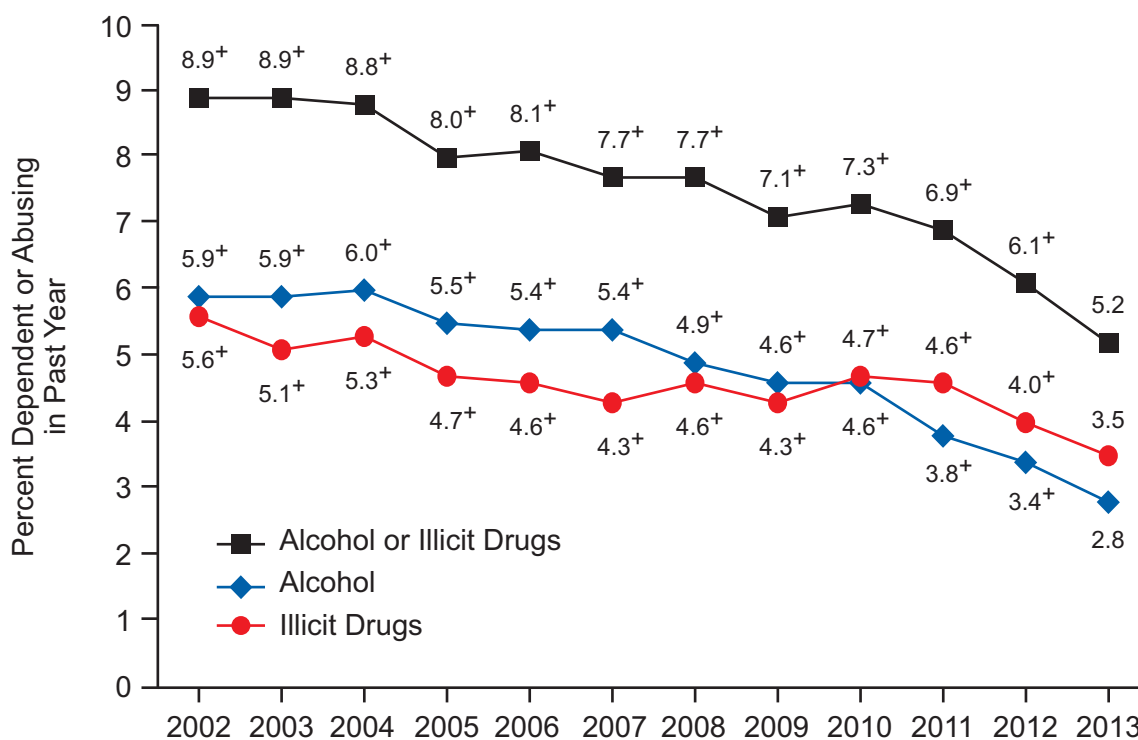
$^+$ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

- The rate of illicit drug dependence or abuse among youths aged 12 to 17 was 3.5 percent in 2013, which was lower than the rates in 2012 (4.0 percent), 2011 (4.6 percent), 2010 (4.7 percent), and 2002 (5.6 percent) (Figure 7.5). Among young adults aged 18 to 25, the rate of illicit drug dependence or abuse was 7.4 percent in 2013, which was similar to the rates in 2012 (7.8 percent), 2011 (7.5 percent), and 2010 (7.9 percent). Among adults aged 26 or older, the rate of illicit drug dependence or abuse remained stable between 2012 (1.8 percent) and 2013 (1.7 percent) and between 2002 (1.8 percent) and 2013.

Gender

- As was the case from 2002 through 2012, the rate of substance dependence or abuse for males aged 12 or older in 2013 was greater than the rate for females (10.8 vs. 5.8 percent) (Figure 7.6). Among youths aged 12 to 17, however, the rate of substance dependence or abuse among males in 2013 (5.3 percent) was similar to the rate among their female counterparts (5.2 percent).

Figure 7.6 Substance Dependence or Abuse in the Past Year, by Age and Gender: 2013
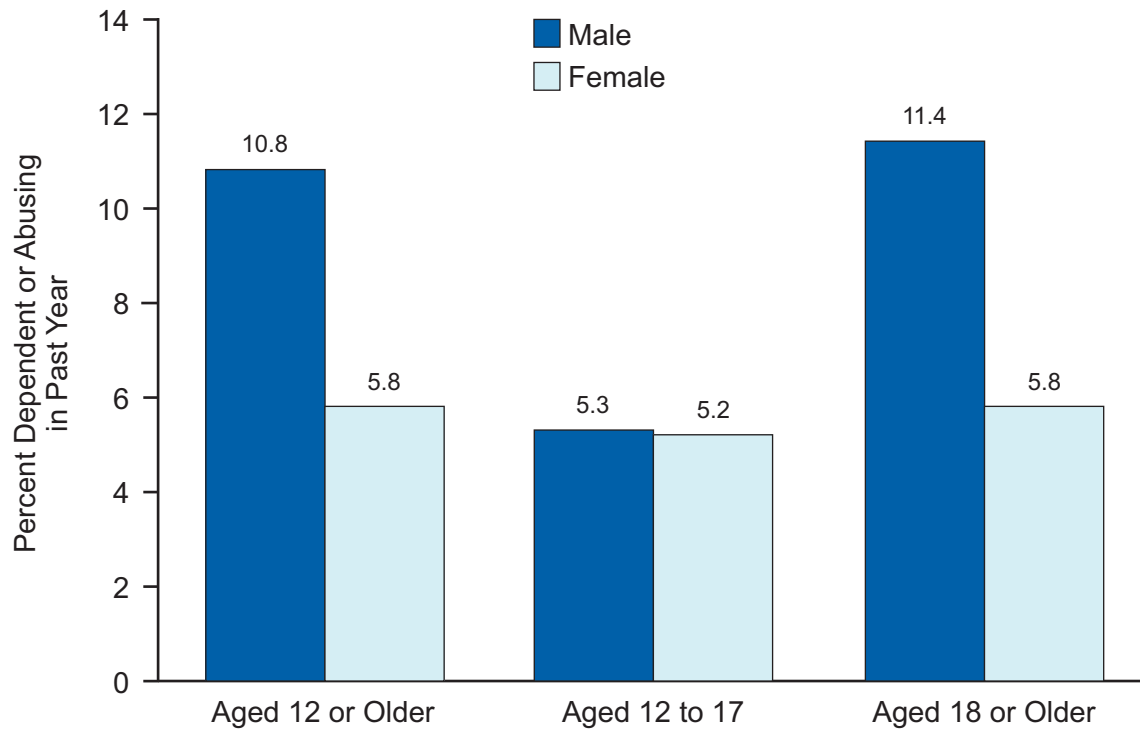
Race/Ethnicity

- <mark>In 2013, among persons aged 12 or older, the rate of substance dependence or abuse was 4.6 percent among Asians, 7.4 percent among blacks, 8.4 percent among whites, 8.6 percent among Hispanics, 10.9 percent among persons reporting two or more races, 11.3 percent among Native Hawaiians or Other Pacific Islanders, and 14.9 percent among American Indians or Alaska Natives. Except for Native Hawaiians or Other Pacific Islanders, the rate for Asians was lower than the rates for the other racial/ethnic groups.</mark>

Education

- In 2013, rates of illicit drug or alcohol dependence or abuse among adults aged 26 or older were not associated with levels of educational attainment.[6] Among this group, rates of illicit drug or alcohol dependence or abuse were 6.4 percent for those who graduated from high school but had no further education, 7.2 percent for college graduates, 7.3 percent for those who did not graduate from high school, and 7.4 percent for those with some college education but no degree.

- Among adults aged 26 or older in 2013, rates of alcohol dependence or abuse also were not associated with levels of educational attainment. Rates of alcohol dependence or abuse for this age group were 5.4 percent for those who graduated from high school but had no further education, 5.7 percent for those who did not graduate from high school, 5.9 percent for those with some college education but no degree, and 6.6 percent for college graduates.

- <mark>However, rates of illicit drug dependence or abuse were associated with levels of educational attainment among adults aged 26 or older in 2013. Adults aged 26 or older who were college graduates had a lower rate of illicit drug dependence or abuse (0.9 percent) than those who did not graduate from high school (2.5 percent), those with some college education but no degree (2.1 percent), and those who graduated from high school but had no further education (1.9 percent).</mark>

Employment

- Rates of substance dependence or abuse were associated with current employment status in 2013. A higher percentage of unemployed adults aged 18 or older were classified with dependence or abuse (15.2 percent) than were full-time employed adults (9.5 percent) or part-time employed adults (9.3 percent).

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[6] Unlike other sections that present estimates among adults aged 18 or older, this section focuses on the associations between educational attainment and substance use disorders among adults aged 26 or older. Age is associated with both educational attainment and substance use disorders among adults aged 18 to 25. Many 18 year olds are still in high school. Many 18 to 22 year olds have some college education but have not yet received a college degree. College graduates generally are aged 22 or older. Moreover, in the United States, it is illegal to drink alcohol before age 21. The prevalence of alcohol use disorders among adults under the age of 21 often is lower than that among adults aged 21 to 25. Focusing on adults aged 26 or older minimizes the potential confounding effect of age on the associations between educational attainment and substance use disorders.

- Over half of the adults aged 18 or older with substance dependence or abuse were employed full time in 2013. Of the 20.3 million adults who were classified with dependence or abuse, 11.3 million (55.7 percent) were employed full time.

Criminal Justice Populations

- In 2013, adults aged 18 or older who were on parole or a supervised release from jail during the past year had a higher rate of illicit drug or alcohol dependence or abuse (34.3 percent) than their counterparts who were not on parole or supervised release during the past year (8.4 percent).

- In 2013, probation status was associated with substance dependence or abuse. The rate of substance dependence or abuse was 35.0 percent among adults who were on probation during the past year, which was higher than the rate among adults who were not on probation during the past year (8.0 percent).

Geographic Area

- In 2013, rates of illicit drug or alcohol dependence or abuse among persons aged 12 or older were 8.9 percent in the West, 8.3 percent in the Northeast, 8.2 percent in the Midwest, and 7.8 percent in the South.

- Rates for illicit drug or alcohol dependence or abuse among persons aged 12 or older in 2013 were similar in large metropolitan areas (8.6 percent) and small metropolitan areas (8.4 percent), but were higher than in nonmetropolitan areas (6.6 percent).

7.2   Past Year Treatment for a Substance Use Problem

Estimates described in this section refer to treatment received for illicit drug or alcohol use, or for medical problems associated with the use of illicit drugs or alcohol. This includes treatment received in the past year at any location, such as a hospital (inpatient), rehabilitation facility (outpatient or inpatient), mental health center, emergency room, private doctor's office, prison or jail, or a self-help group, such as Alcoholics Anonymous or Narcotics Anonymous. Persons could report receiving treatment at more than one location. Note that the definition of treatment in this section is different from the definition of specialty treatment described in Section 7.3. Specialty treatment includes treatment only at a hospital (inpatient), a rehabilitation facility (inpatient or outpatient), or a mental health center.

Individuals who reported receiving substance use treatment but were missing information on whether the treatment was specifically for alcohol use or illicit drug use were not counted in estimates of either illicit drug use treatment or alcohol use treatment; however, they were counted in estimates for "drug or alcohol use" treatment.

- In 2013, 4.1 million persons aged 12 or older (1.5 percent of the population) received treatment for a problem related to the use of alcohol or illicit drugs. Of these, 1.3 million received treatment for the use of both alcohol and illicit drugs, 0.9 million received treatment for the use of illicit drugs but not alcohol, and 1.4 million received treatment for the use of alcohol but not illicit drugs. (Note that estimates by substance do not sum to the total number of persons receiving treatment because the total includes persons who reported receiving treatment but did not report for which substance the treatment was received.)

- The rate and the number of persons in the population aged 12 or older receiving any substance use treatment within the past year remained stable between 2012 (1.5 percent and 4.0 million) and 2013 (1.5 percent and 4.1 million). The rate and number of persons receiving any substance use treatment within the past year in 2002 were 1.5 percent and 3.5 million. The rate in 2002 was similar to that in 2013, but the number of persons who received substance use treatment in 2002 was lower than that in 2013.

- In 2013, among the 4.1 million persons aged 12 or older who received treatment for alcohol or illicit drug use in the past year, 2.3 million persons received treatment at a self-help group, and 1.8 million received treatment at a rehabilitation facility as an outpatient (Figure 7.7). The numbers of persons who received treatment at other locations were 1.2 million at a mental health center as an outpatient, 1.0 million at a rehabilitation facility as an inpatient, 879,000 at a hospital as an inpatient, 770,000 at a private doctor's office, 603,000 at an emergency room, and 263,000 at a prison or jail. None of these estimates changed significantly between 2012 and 2013. The number of persons receiving treatment at a private doctor's office was lower in 2002 (523,000) than in 2013.

- In 2013, 2.5 million persons aged 12 or older reported receiving treatment for alcohol use during their most recent treatment in the past year, 845,000 persons received treatment for marijuana use, and 746,000 persons received treatment for pain relievers (Figure 7.8). Estimates for receiving treatment for the use of other drugs were 584,000 for cocaine, 526,000 for heroin, 461,000 for stimulants, 376,000 for tranquilizers, and 303,000 for hallucinogens. None of these estimates changed significantly between 2012 and 2013.

- The numbers of persons aged 12 or older who received their most recent treatment in the past year for alcohol, marijuana, cocaine, hallucinogens, inhalants, and sedatives were similar in 2002 and 2013. However, the number of persons who received treatment for tranquilizers increased from 2002 (197,000 persons) to 2013 (376,000 persons). The number who received treatment for heroin increased from 277,000 persons in 2002 to 526,000 persons in 2013. The number who received treatment for nonmedical use of prescription pain relievers increased from 2002 (360,000 persons) to 2013 (746,000 persons) (Figure 7.9). The number who received treatment for stimulants increased from 268,000 persons in 2002 to 461,000 persons in 2013. (Note that respondents could indicate that they received treatment for more than one substance during their most recent treatment.)

Figure 7.7 Locations Where Past Year Substance Use Treatment Was Received among Persons Aged 12 or Older: 2013

Location	Numbers in Thousands
Self-Help Group	2,292
Outpatient Rehabilitation	1,753
Outpatient Mental Health Center	1,176
Inpatient Rehabilitation	1,042
Hospital Inpatient	879
Private Doctor's Office	770
Emergency Room	603
Prison or Jail	263
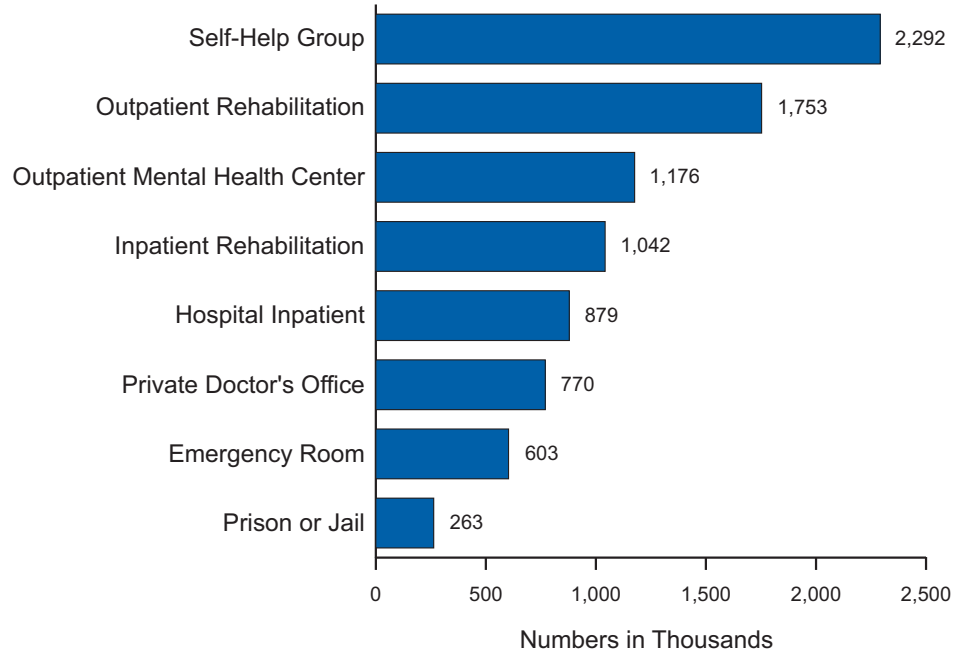
Figure 7.8 Substances for Which Most Recent Treatment Was Received in the Past Year among Persons Aged 12 or Older: 2013

Substance	Numbers in Thousands
Alcohol	2,513
Marijuana	845
Pain Relievers	746
Cocaine	584
Heroin	526
Stimulants	461
Tranquilizers	376
Hallucinogens	303

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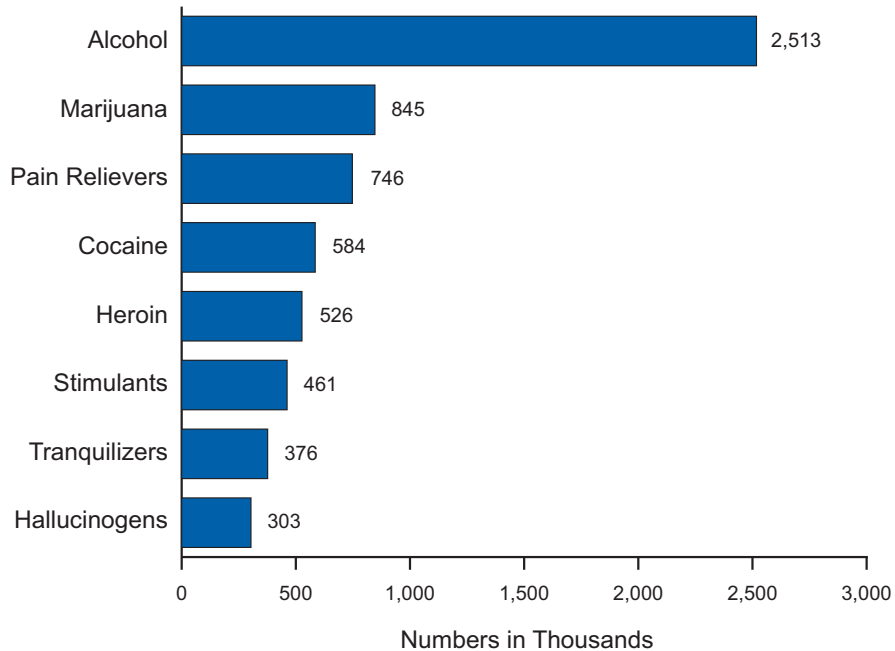
Figure 7.9 Received Most Recent Treatment in the Past Year for the Use of Pain Relievers among Persons Aged 12 or Older: 2002-2013
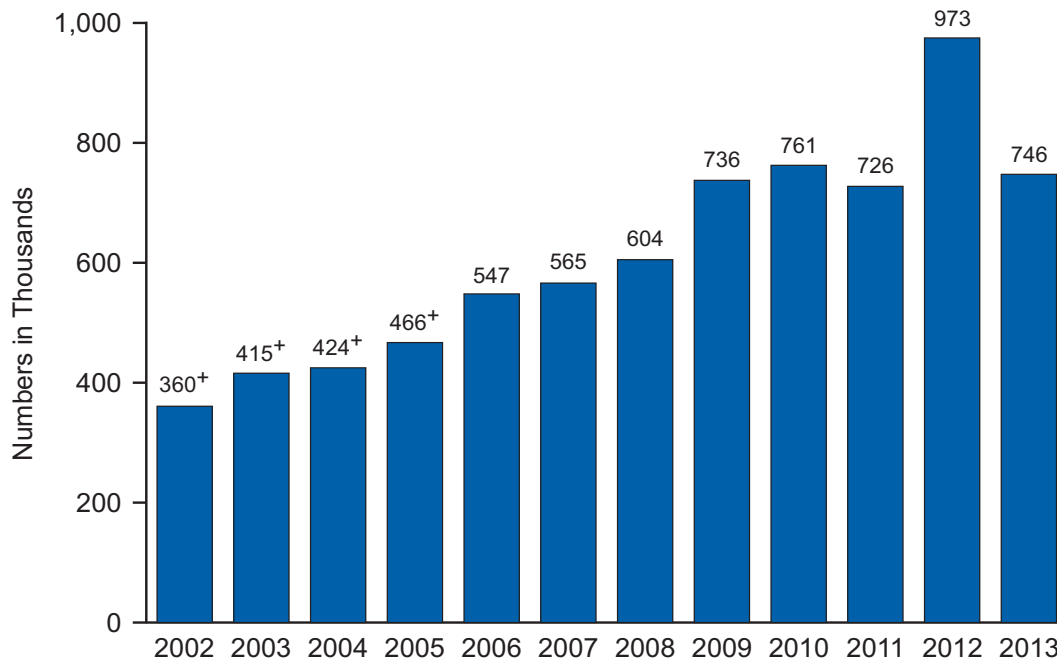
+ Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

7.3   Need for and Receipt of Specialty Treatment

This section discusses the need for and receipt of treatment for a substance use problem at a "specialty" treatment facility. Specialty treatment is defined as treatment received at any of the following types of facilities: hospitals (inpatient only), drug or alcohol rehabilitation facilities (inpatient or outpatient), or mental health centers. It does not include treatment at an emergency room, private doctor's office, self-help group, prison or jail, or hospital as an outpatient. An individual is defined as needing treatment for an alcohol or drug use problem if he or she met the DSM-IV (APA, 1994) diagnostic criteria for alcohol or illicit drug dependence or abuse in the past 12 months or if he or she received specialty treatment for alcohol use or illicit drug use in the past 12 months.

In this section, an individual needing treatment for an illicit drug use problem is defined as receiving treatment for his or her drug use problem only if he or she reported receiving specialty treatment for illicit drug use in the past year. Thus, an individual who needed treatment for illicit drug use but received specialty treatment only for alcohol use in the past year or who received treatment for illicit drug use only at a facility not classified as a specialty facility was not counted as receiving treatment for illicit drug use. Similarly, an individual who needed treatment for an alcohol use problem was counted as receiving alcohol use treatment only if the treatment was received for alcohol use at a specialty treatment facility. Individuals who reported

receiving specialty substance use treatment but were missing information on whether the treatment was specifically for alcohol use or drug use were not counted in estimates of specialty drug use treatment or in estimates of specialty alcohol use treatment; however, they were counted in estimates for "drug or alcohol use" treatment.

In addition to questions about symptoms of substance use problems that are used to classify respondents' need for treatment based on DSM-IV criteria, NSDUH includes questions asking respondents about their perceived need for treatment (i.e., whether they felt they needed treatment or counseling for illicit drug use or alcohol use). In this report, estimates for perceived need for treatment are discussed only for persons who were classified as needing treatment (based on DSM-IV criteria) but did not receive treatment at a specialty facility. Similarly, estimates for whether a person made an effort to get treatment are discussed only for persons who felt the need for treatment and did not receive it.

Illicit Drug or Alcohol Use Treatment and Treatment Need

- In 2013, 22.7 million persons aged 12 or older needed treatment for an illicit drug or alcohol use problem (8.6 percent of persons aged 12 or older). The number in 2013 was similar to the numbers in 2002 to 2012 (ranging from 21.6 million to 23.6 million). The rate in 2013 was similar to the rates in 2011 (8.4 percent) and 2012 (8.9 percent), but it was lower than the rates in 2002 to 2010 (ranging from 9.2 to 9.8 percent).

- In 2013, 2.5 million persons (0.9 percent of persons aged 12 or older and 10.9 percent of those who needed treatment) received treatment at a specialty facility for an illicit drug or alcohol problem. The number in 2013 was similar to the numbers in 2002 (2.3 million) and in 2004 through 2012 (ranging from 2.3 million to 2.6 million), and it was higher than the number in 2003 (1.9 million). The rate in 2013 was not different from the rates in 2002 to 2012 (ranging from 0.8 to 1.0 percent).

- In 2013, 20.2 million persons (7.7 percent of the population aged 12 or older) needed treatment for an illicit drug or alcohol use problem but did not receive treatment at a specialty facility in the past year. The number in 2013 was similar to the numbers in 2002 to 2012 (ranging from 19.3 million to 21.1 million). The rate in 2013 was similar to the rates in 2010 to 2012 (ranging from 7.5 to 8.1 percent), but it was lower than the rates in 2002 to 2009 (ranging from 8.3 to 8.8 percent).

- Of the 2.5 million persons aged 12 or older who received specialty substance use treatment in 2013, 875,000 received treatment for alcohol use only, 936,000 received treatment for illicit drug use only, and 547,000 received treatment for both alcohol and illicit drug use. These estimates in 2013 were similar to the estimates in 2012 and 2002.

- Among persons in 2013 who received their most recent substance use treatment at a specialty facility in the past year, 41.7 percent reported using private health insurance as a source of payment for their most recent specialty treatment, 40.6 percent reported using their "own savings or earnings," 29.0 percent reported using Medicaid, 29.0 percent reported using public assistance other than Medicaid, 26.8 percent reported using Medicare, and 23.0 percent reported using funds from family members. None of these estimates changed significantly between 2012 and 2013.

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- In 2013, among the 20.2 million persons aged 12 or older who were classified as needing substance use treatment but not receiving treatment at a specialty facility in the past year, 908,000 persons (4.5 percent) reported that they perceived a need for treatment for their illicit drug or alcohol use problem (Figure 7.10). Of these 908,000 persons who felt they needed treatment but did not receive treatment in 2013, 316,000 (34.8 percent) reported that they made an effort to get treatment, and 592,000 (65.2 percent) reported making no effort to get treatment. These estimates were stable between 2012 and 2013.

- The rate and the number of youths aged 12 to 17 who needed treatment for an illicit drug or alcohol use problem in 2013 (5.4 percent and 1.3 million) were lower than those in 2012 (6.3 percent and 1.6 million), 2011 (7.0 percent and 1.7 million), 2010 (7.5 percent and 1.8 million), and 2002 (9.1 percent and 2.3 million). Of the 1.3 million youths who needed treatment in 2013, 122,000 received treatment at a specialty facility (about 9.1 percent of the youths who needed treatment), leaving about 1.2 million who needed treatment for a substance use problem but did not receive it at a specialty facility.

Figure 7.10 Past Year Perceived Need for and Effort Made to Receive Specialty Treatment among Persons Aged 12 or Older Needing But Not Receiving Treatment for Illicit Drug or Alcohol Use: 2013

Did Not Feel They Needed Treatment

95.5%

Felt They Needed Treatment and Did Not Make an Effort

2.9%

1.6%

Felt They Needed Treatment and Did Make an Effort
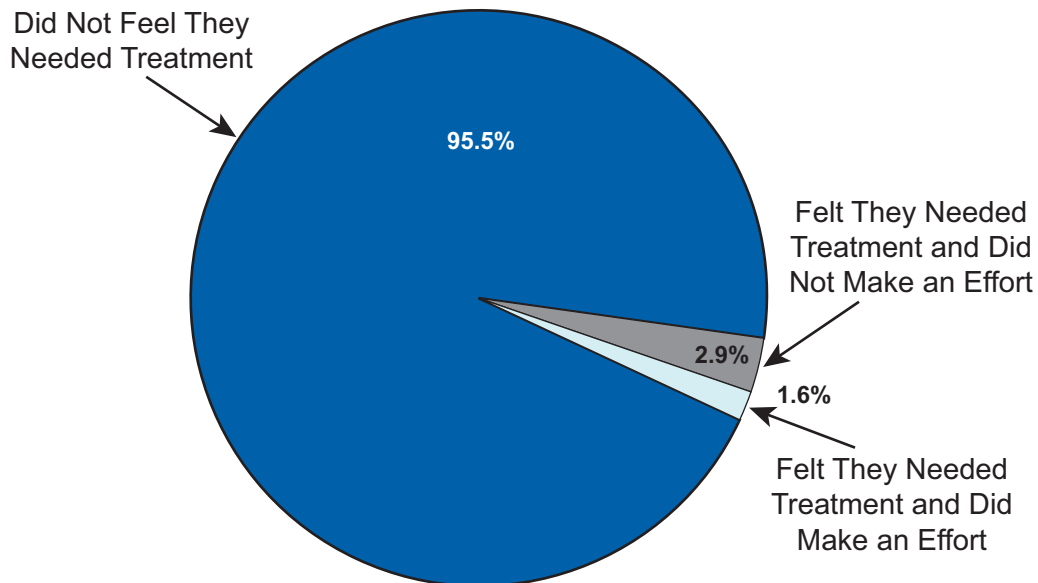
20.2 Million Needing But Not Receiving Treatment for Illicit Drug or Alcohol Use

- Based on 2010-2013 combined data, commonly reported reasons for not receiving illicit drug or alcohol use treatment among persons aged 12 or older who needed and perceived a need for treatment but did not receive treatment at a specialty facility were (a) not ready to stop using (40.3 percent), (b) no health coverage and could not afford cost (31.4 percent), (c) possible negative effect on job (10.7 percent), (d) concern that receiving treatment might cause neighbors/community to have a negative opinion (10.1 percent), (e) not knowing where to go for treatment (9.2 percent), and (f) no program having type of treatment (8.0 percent).

- Based on 2010-2013 combined data, among persons aged 12 or older who needed but did not receive illicit drug or alcohol use treatment, felt a need for treatment, and made an effort to receive treatment, commonly reported reasons for not receiving treatment were (a) no health coverage and could not afford cost (37.3 percent), (b) not ready to stop using (24.5 percent), (c) did not know where to go for treatment (9.0 percent), (d) had health coverage but did not cover treatment or did not cover cost (8.2 percent), and (e) no transportation or inconvenient (8.0 percent) (Figure 7.11).

Figure 7.11 Reasons for Not Receiving Substance Use Treatment among Persons Aged 12 or Older Who Needed and Made an Effort to Get Treatment But Did Not Receive Treatment and Felt They Needed Treatment: 2010-2013 Combined
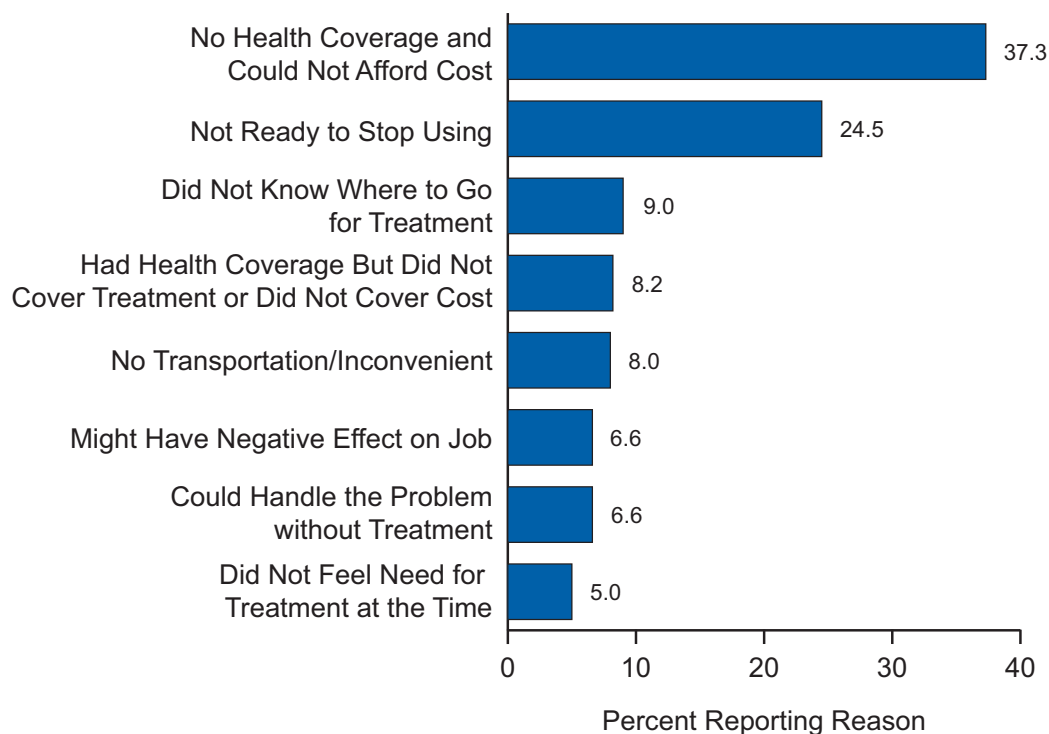
Illicit Drug Use Treatment and Treatment Need

- In 2013, the number of persons aged 12 or older needing treatment for an illicit drug use problem was 7.6 million (2.9 percent of the total population). The number in 2013 was similar to the number in each year from 2002 through 2012 (ranging from 7.2 million to 8.1 million). The rate of persons needing treatment for an illicit drug use problem in 2013 was lower than the rates in 2002 (3.3 percent) and 2004 (3.3 percent), but it was similar to the rates in 2012 and 2003 (3.1 percent in each year) and in 2005 to 2011 (ranging from 2.8 to 3.2 percent).

- Of the 7.6 million persons aged 12 or older who needed treatment for an illicit drug use problem in 2013, 1.5 million (0.6 percent of the total population and 19.5 percent of persons who needed treatment) received treatment at a specialty facility for an illicit drug use problem in the past year. The number in 2013 was similar to the numbers in 2012 (1.5 million), 2002 (1.4 million), and in 2004 to 2011 (ranging from 1.2 million to 1.6 million), but it was higher than the number in 2003 (1.1 million). The rate in 2013 was similar to the rates in 2002 to 2012 (ranging from 0.5 to 0.6 percent).

- There were 6.1 million persons (2.3 percent of the total population) who needed but did not receive treatment at a specialty facility for an illicit drug use problem in 2013. The number in 2013 was similar to the numbers in 2002 to 2012 (ranging from 5.8 million to 6.6 million). The rate in 2013 was similar to the rates in 2006 to 2012 (ranging from 2.3 to 2.5 percent), but it was lower than the rates in 2002 to 2005 (ranging from 2.6 to 2.8 percent).

- Of the 6.1 million persons aged 12 or older who needed but did not receive specialty treatment for illicit drug use in 2013, 395,000 (6.4 percent) reported that they perceived a need for treatment for their illicit drug use problem, and 5.7 million did not perceive a need for treatment. The number of persons in 2013 who needed treatment for an illicit drug use problem but did not perceive a need for treatment was similar to the number in 2012 (5.9 million). However, the number of persons who needed treatment and perceived a need for treatment for an illicit drug problem in 2013 was lower than the number in 2012 (588,000 persons).

- Of the 395,000 persons aged 12 or older in 2013 who felt a need for treatment for use of illicit drugs, 148,000 reported that they made an effort to get treatment, and 247,000 reported making no effort to get treatment. These estimates in 2013 for making or not making an effort to get treatment were similar to those in 2012.

- In 2013, among youths aged 12 to 17, 908,000 persons (3.6 percent) needed treatment for an illicit drug use problem, but only 90,000 received treatment at a specialty facility (10.0 percent of youths aged 12 to 17 who needed treatment), leaving 817,000 youths who needed treatment but did not receive it at a specialty facility. These estimates in 2013 were similar to those in 2012, except that the number and the rate of youths who needed treatment for an illicit drug use problem in 2013 were lower than those in 2012 (1.0 million and 4.2 percent).

- Among persons aged 12 or older who needed but did not receive illicit drug use treatment and felt they needed treatment (based on 2010-2013 combined data), the commonly reported reasons for not receiving treatment were (a) no health coverage and could not afford cost (42.1 percent), (b) not ready to stop using (27.5 percent), (c) concern that receiving treatment might cause neighbors/community to have negative opinion (15.9 percent), (d) possible negative effect on job (15.2 percent), (e) not knowing where to go for treatment (12.8 percent), and (f) having health coverage that did not cover treatment or did not cover the cost (9.6 percent).

Alcohol Use Treatment and Treatment Need

- In 2013, the number of persons aged 12 or older needing treatment for an alcohol use problem was 18.0 million (6.9 percent of the population aged 12 or older). The number in 2013 was similar to the numbers in 2010 to 2012 (ranging from 17.4 million to 18.6 million) and in 2002, 2003, and 2008 (ranging from 18.2 million to 19.1 million). However, the number in 2013 was lower than the numbers in 2004 to 2007 and in 2009 (ranging from 19.4 million to 19.6 million). The rate in 2013 (6.9 percent) was similar to the rates in 2011 (6.8 percent) and 2012 (7.0 percent), but it was lower than the rates in 2002 to 2010 (ranging from 7.3 to 8.0 percent).

- Among the 18.0 million persons aged 12 or older who needed treatment for an alcohol use problem in 2013, 1.4 million (0.5 percent of the total population and 7.9 percent of the persons who needed treatment for an alcohol use problem) received alcohol use treatment at a specialty facility. The number and the rate of the need and receipt of treatment at a specialty facility for an alcohol use problem in 2013 did not change significantly since 2002 (ranging from 1.3 million to 1.7 million and from 0.5 to 0.7 percent).

- The number of persons aged 12 or older who needed but did not receive treatment at a specialty facility for an alcohol use problem in 2013 (16.6 million) was similar to the numbers in 2002 (17.1 million), 2003 (16.9 million), and from 2008 to 2012 (ranging from 15.9 million to 17.7 million), but it was lower than the numbers from 2004 to 2007 (ranging from 17.8 million to 18.0 million). The rate in 2013 (6.3 percent of the population aged 12 or older) was similar to the rates in 2010 to 2012 (ranging from 6.2 to 6.7 percent), but it was lower than the rates in 2002 to 2009 (ranging from 7.0 to 7.4 percent).

- Among the 16.6 million persons aged 12 or older who needed but did not receive specialty treatment for an alcohol use problem in 2013, 554,000 persons (3.3 percent) felt they needed treatment for their alcohol use problem. The number and rate in 2013 were similar to those in 2012 (665,000 persons and 4.0 percent) and 2002 (761,000 persons and 4.5 percent). Of the 554,000 persons in 2013 who perceived a need for treatment for an alcohol use problem but did not receive specialty treatment, 353,000 did not make an effort to get treatment, and 201,000 made an effort but were unable to get treatment.

- The number and the rate of youths aged 12 to 17 who needed treatment for an alcohol use problem in 2013 (735,000 and 3.0 percent) were lower than those in 2012 (889,000 and 3.6 percent). Of the youths in 2013 who needed treatment for an alcohol use problem, only 73,000 received treatment at a specialty facility (0.3 percent of all youths and 10.0 percent of youths who needed treatment). These estimates were similar to those in 2012. The number and the rate of youths who needed but did not receive treatment for an alcohol use problem in 2013 (662,000 and 2.7 percent) were lower than those in 2012 (814,000 and 3.3 percent).

- Among persons aged 12 or older who needed but did not receive alcohol use treatment and felt they needed treatment (based on 2010-2013 combined data), commonly reported reasons for not receiving treatment were (a) not ready to stop using (50.5 percent), (b) no health coverage and could not afford cost (26.4 percent), (c) not finding a program that offered the type of treatment (7.6 percent), (d) not knowing where to go for treatment (7.3 percent), (e) possible negative effect on job (7.1 percent), (f) no transportation or inconvenient (7.0 percent), (g) could handle the problem without treatment (6.8 percent), and (h) having health coverage that did not cover treatment or did not cover cost (6.7 percent).

8. Comparison of Trends in Substance Use among Youths and Young Adults

Previous chapters in this report presented findings from the 2013 National Survey on Drug Use and Health (NSDUH) that describe trends and demographic differences for the incidence and prevalence of use for a variety of substances. In this chapter, comparisons are presented of NSDUH trend results with substance use results from other surveys of youths and young adults.

Description of NSDUH and Other Data Sources

Conducted since 1971 and previously named the National Household Survey on Drug Abuse (NHSDA), the survey underwent several methodological improvements in 2002 that have affected prevalence estimates (see Chapter 1). As a result, the 2002 through 2013 estimates are not comparable with estimates from 2001 and earlier surveys. Therefore, the primary focus of this report is on comparisons of measures of substance use across subgroups of the U.S. population in 2013, changes between 2012 and 2013, and changes between 2002 and 2013. An important step in the analysis and interpretation of NSDUH or any other survey data is to compare the results with those from other data sources. This can be difficult because the other surveys typically have different purposes, definitions, and designs. Research has established that surveys of substance use and other sensitive topics often produce inconsistent results because of different methods that are used. Thus, it is important to understand that conflicting results often reflect differing methodologies, not incorrect results. Despite this limitation, comparisons can be very useful. Consistency across surveys can confirm or support conclusions about trends and patterns of use, and inconsistent results can point to areas for further study. Further discussion of this issue is included in Appendix C, along with descriptions of methods and results from other sources of substance use data.

Unfortunately, few additional data sources are available to compare with NSDUH results. One established source is Monitoring the Future (MTF), a study sponsored by the National Institute on Drug Abuse (NIDA). MTF surveys students in the 8th, 10th, and 12th grades in classrooms during the spring of each year. MTF also collects data by mail from a subsample of adults who had participated earlier in the study as 12th graders. Further details about MTF are available on the MTF Web site at http://www.monitoringthefuture.org/. Historically, NSDUH rates of youth substance use have been lower than those of MTF. Although the two surveys occasionally have shown different trends in youth substance use over a short time period, these two sources of youth behavior have shown very similar long-term trends in prevalence. NSDUH and MTF rates of substance use generally have been similar among young adults, and the two sources also have shown similar trends for this age group.

Another source of data on trends in the use of drugs among youths is the Youth Risk Behavior Survey (YRBS), sponsored by the Centers for Disease Control and Prevention (CDC). The YRBS interviews students in the 9th through 12th grades in classrooms every other year during February through May (Brener et al., 2013). The most recent survey was completed in 2013 (Kann et al., 2014). Generally, the YRBS has shown higher prevalence rates but similar

trends when compared with NSDUH and MTF. However, trend comparisons between the YRBS and NSDUH or MTF can be less straightforward because of the different periodicity (i.e., biennially instead of annually) and ages covered, the limited number of drug use questions, and smaller sample size in the YRBS.

Comparison of NSDUH, MTF, and YRBS Trends for Youths

A comparison of NSDUH and MTF estimates among youths for 2002 to 2013 is shown in Tables 8.1 through 8.3 at the end of this chapter for several substances that are defined similarly in the two surveys. For comparison purposes, MTF data on 8th and 10th graders are combined to give an age range close to 12 to 17 years, the standard youth age group for NSDUH. Table C.1 in Appendix C provides comparisons according to the MTF definitions for youths who are in school. The NSDUH results in Tables 8.1 through 8.3 are remarkably consistent with MTF trends for youths, as discussed in the following paragraphs.

Both surveys showed decreases between 2002 and 2013 in the percentages of youths who used cocaine, Ecstasy, inhalants, alcohol, and cigarettes in the past month (Table 8.3). For youth alcohol and cigarette use in the past month, both surveys showed lower rates in 2013 compared with all other years from 2002 to 2012. Although the MTF rate has been consistently higher than the NSDUH rate because of methodological differences between the surveys, the relative changes over time have been similar. For example, NSDUH data for past month alcohol use showed a 15 percent decline between 2010 and 2013 (from 13.6 to 11.6 percent), and the MTF data showed a 16 percent decrease during those years (from 21.4 to 18.0 percent) (Figure 8.1).

There have been instances where the two surveys showed differing trends from 1 year to the next, but these discrepancies usually "correct" themselves with 1 or 2 more years of data, pointing to the need to use caution in the interpretation of 1-year shifts in prevalence levels. For example, 2010 MTF data indicated a leveling or possible increase in current cigarette use among youths, in contrast to the 2010 NSDUH data, which showed a lower rate in 2010 compared with rates in 2002 to 2008. The 2012 and 2013 MTF estimates, however, showed a continuing decline, consistent with the NSDUH trend in youth smoking. Over the long term, the two surveys showed consistent decreases in the prevalence of smoking among youths (Figure 8.2). During the 4-year period from 2010 to 2013, NSDUH showed a 33 percent decline (from 8.4 to 5.6 percent) and MTF showed a 35 percent decline (from 10.4 to 6.8 percent) in current cigarette use.

For current marijuana use, both surveys showed declines from 2002 to 2006 and increases from 2008 to 2011 (Figure 8.3). The estimate of current marijuana use was lower in NSDUH in 2012 than in 2011, but the MTF change was not statistically significant over that period. However, rates of current marijuana use remained similar between 2012 and 2013 in both NSDUH and MTF.

Figure 8.1 Past Month Alcohol Use among Youths in NSDUH and MTF: 2002-2013
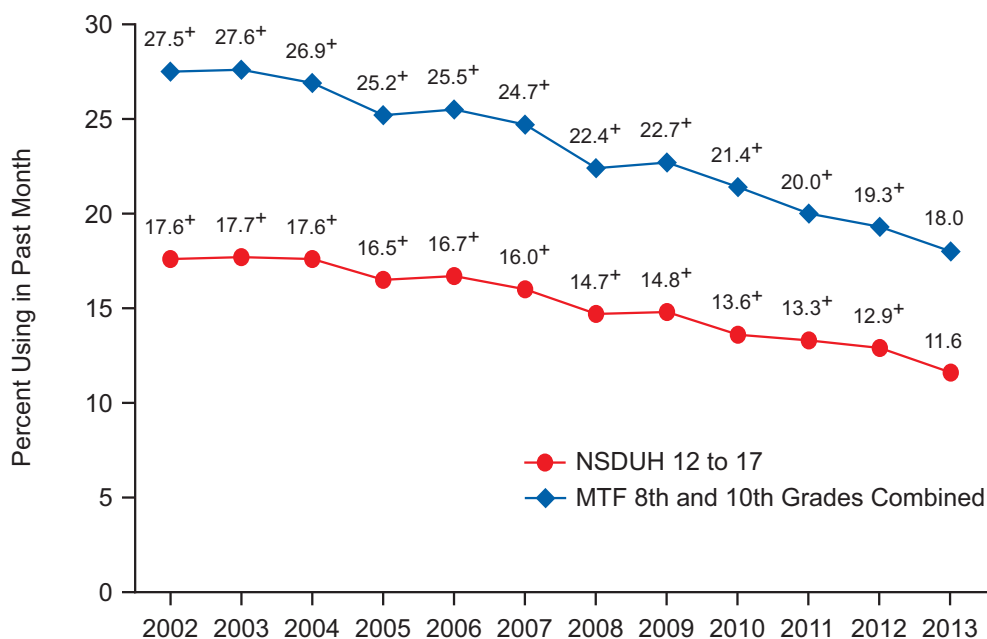
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.

[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Figure 8.2 Past Month Cigarette Use among Youths in NSDUH and MTF: 2002-2013

MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.

[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

Figure 8.3 Past Month Marijuana Use among Youths in NSDUH and MTF: 2002-2013
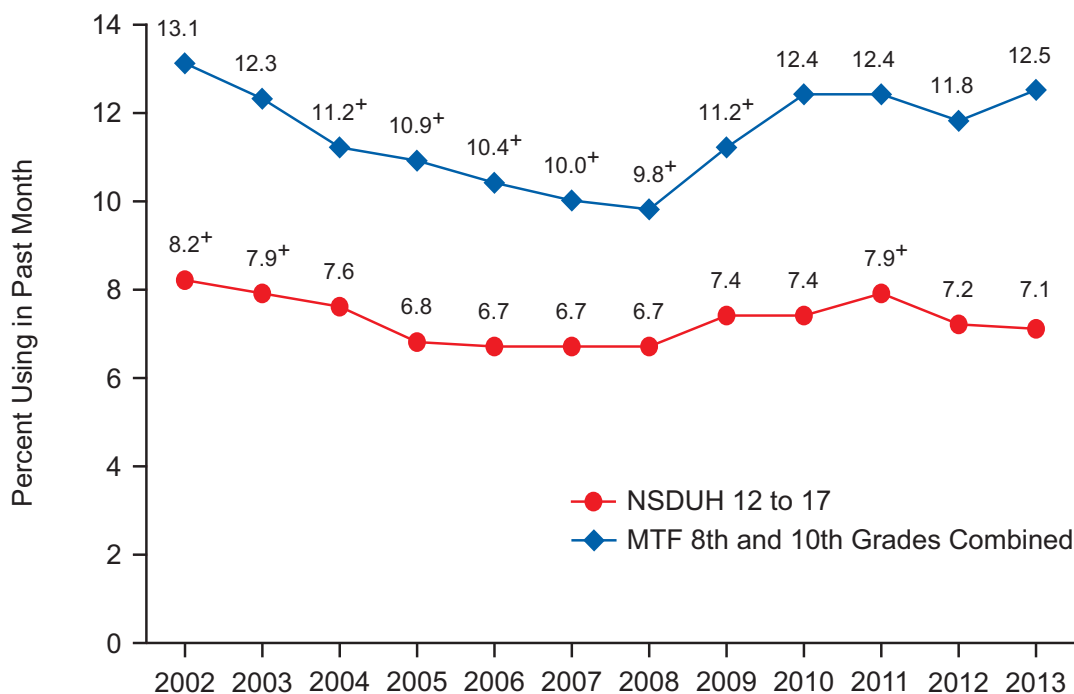
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.

NSDUH and MTF data showed generally consistent trends for past month use of Ecstasy, with decreases in use from 2002 to the middle of the decade, then increases in use from 2007 to 2010, declines between 2010 and 2012, and no change between 2012 and 2013. For past month use of cocaine, both surveys showed declines between 2013 and 2002 to 2008. Rates of past month use of inhalants also were lower in both surveys in 2013 than in 2002 to 2011, although NSDUH showed a continued decline from 2012 to 2013 that was not shown in MTF. For LSD, most rates of current use in 2002 to 2012 were similar to the rates in 2013 for both surveys.

NSDUH and MTF also collect data on perceived risk of harm. The extent to which youths believe that substances might cause them harm can influence whether or not they will use these substances. Declining levels of perceived risk among youths historically have been associated with subsequent increases in rates of use. Among youths aged 12 to 17, the percentage reporting in NSDUH that they thought there was a great risk of harm in smoking marijuana once or twice a week declined from 43.6 percent in 2012 to 39.5 percent in 2013. MTF data for combined 8th and 10th graders showed a similar decline in perceived great risk of harm of regular marijuana use over this time period, from 58.9 to 53.8 percent.

For the substances for which information on current use was collected in the YRBS, including alcohol, cigarettes, marijuana, and cocaine, the YRBS trend results between 2001 and 2013 were consistent with NSDUH and MTF (see the link for the Youth Online interactive data tables at http://www.cdc.gov/HealthyYouth/yrbs/; Grunbaum et al., 2002). YRBS data for the combined grades 9 through 12 showed decreases in past month alcohol use (47.1 percent in

2001[7] and 34.9 percent in 2013) and cigarette use (28.5 percent in 2001 and 15.7 percent in 2013). YRBS showed a decline in past month marijuana use between 2001 (23.9 percent) and 2007 (19.7 percent) and an increase between 2007 and 2013 (23.4 percent). This increase between 2007 and 2013 was consistent with the increase in MTF across that same period. The prevalence of current marijuana use also increased between 2007 and 2011 both for NSDUH (from 6.7 to 7.9 percent) and YRBS (from 19.7 to 23.1 percent). However, the prevalence in NSDUH among youths declined between 2011 and 2013, such that the rates in 2007 and 2013 were similar for NSDUH. All three surveys showed no significant change in rates of current marijuana use between their most recent pair of survey years (2012 and 2013 for NSDUH and MTF; 2011 and 2013 for YRBS).

Although changes in NSDUH survey methodology preclude direct comparisons of recent estimates with estimates before 2002, it is important to put the recent trends in context by reviewing longer term trends in use. NSDUH data (prior to the design changes in 1999 and 2002) on youths aged 12 to 17 and MTF data on high school seniors showed substantial increases in youth illicit drug use during the 1970s, reaching a peak in the late 1970s. Both surveys then showed declines throughout the 1980s until about 1992, when rates reached a low point. These trends were driven by the trend in marijuana use (Figure 8.4). With the start of annual data collection in NSDUH in 1991, along with the biennial YRBS and the annual 8th and 10th grade samples in MTF, trends among youths are well documented since the low point that occurred in the early 1990s. Although they employ different survey designs and cover different age groups, the three surveys are consistent in showing increasing rates of marijuana use during the early to mid-1990s, reaching a peak in the late 1990s (but lower than in the late 1970s). This peak in the late 1990s was followed by declines in use after the turn of the 21st century and fairly stable rates in the most recent years.

As noted in Chapter 2 of this report, NSDUH data indicated that nonmedical use of prescription drugs among youths aged 12 to 17 in 2013 was the second most prevalent illicit drug use category, with marijuana being first. The most prevalent category of misused prescription drugs among youths in 2013 was pain relievers.

NSDUH and MTF both collect data on misuse of prescription drugs, but they use somewhat different definitions and questioning strategies. For example, NSDUH defines misuse as use of prescription drugs that were not prescribed for the respondent or use of these drugs only for the experience or feeling they caused; MTF defines misuse as use not under a doctor's orders. MTF also does not estimate overall prescription drug misuse. However, MTF asks questions about "narcotics other than heroin," a category that is similar in coverage to the pain reliever category in NSDUH. Also, MTF data on misuse of narcotics other than heroin are reported only for 12th graders because of concerns about the validity of estimates for 8th and 10th graders (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2014).

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[7] Estimates for the 2001 YRBS are not shown in Tables 8.1 and 8.3 for consistency with the new NSDUH baseline in 2002.

Figure 8.4 Past Month Marijuana Use among Youths in NSDUH, MTF, and YRBS: 1971-2013
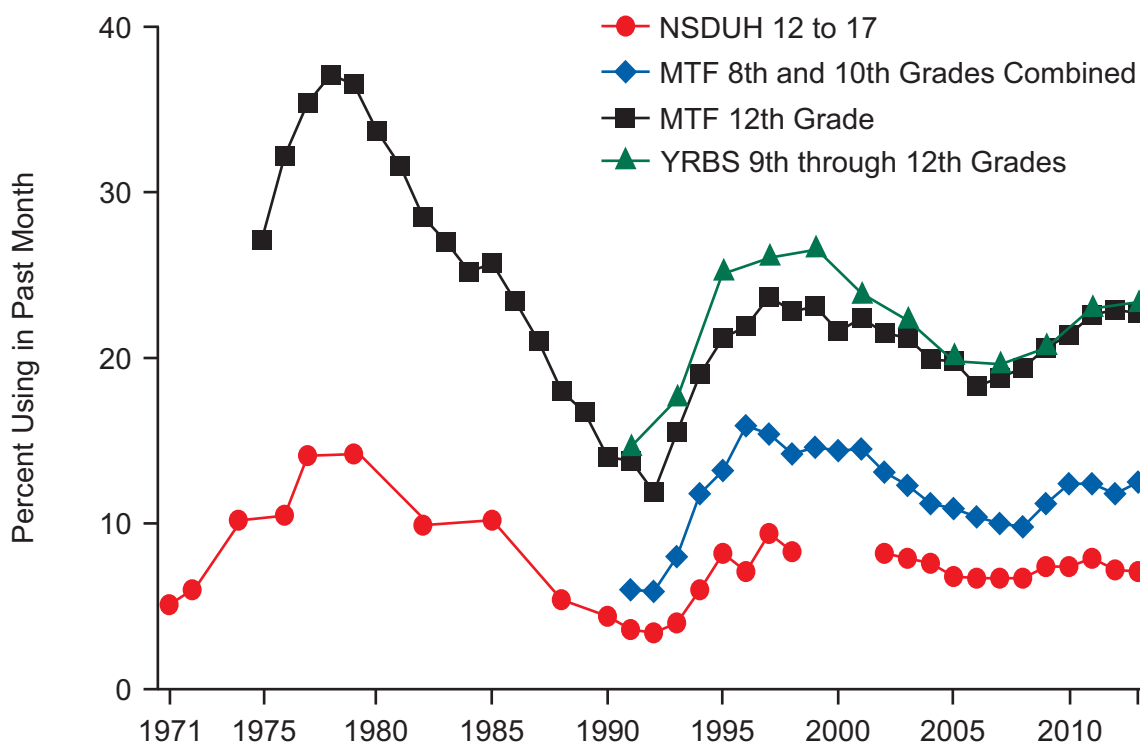
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health; YRBS = Youth Risk Behavior Survey.

Note: NSDUH data for youths aged 12 to 17 are not presented for 1999 to 2001 because of design changes in the survey. These design changes preclude direct comparisons of estimates from 2002 to 2013 with estimates prior to 1999.

In addition, as has been the case with NSDUH trends, methodological changes in MTF have sometimes resulted in discontinuities. For the data on narcotics other than heroin, there was a questionnaire change in the 2002 MTF that resulted in increased reporting of misuse of narcotics other than heroin, such that estimates prior to 2002 are not strictly comparable with estimates for 2002 and beyond.

Figure 8.5 shows NSDUH data for past year misuse of pain relievers from 2002 to 2013 for youths aged 12 to 17 and MTF data for 12th graders. Both surveys showed lower rates of nonmedical use in 2013 compared with rates in 2002 to 2011. The rate of nonmedical use of pain relievers in 2013 in the past year among 12 to 17 year olds in NSDUH was 4.6 percent and ranged from 5.9 to 7.7 percent in 2002 to 2011. The rate in 2012 among 12 to 17 year olds in NSDUH also was lower than the rate in 2013. In MTF, the rate for nonmedical use of narcotics other than heroin in the past year was 7.1 percent in 2013 and ranged from 8.7 to 9.5 percent in 2002 to 2011. The rates among 12th graders did not differ from 2011 to 2012 and from 2012 to 2013; see Johnston, O'Malley, Bachman, and Schulenberg (2013) for a comparison of rates between 2011 and 2012.

Figure 8.5 <mark>Past Year Nonmedical Pain Reliever Use among Youths in NSDUH and MTF: 2002-2013</mark>
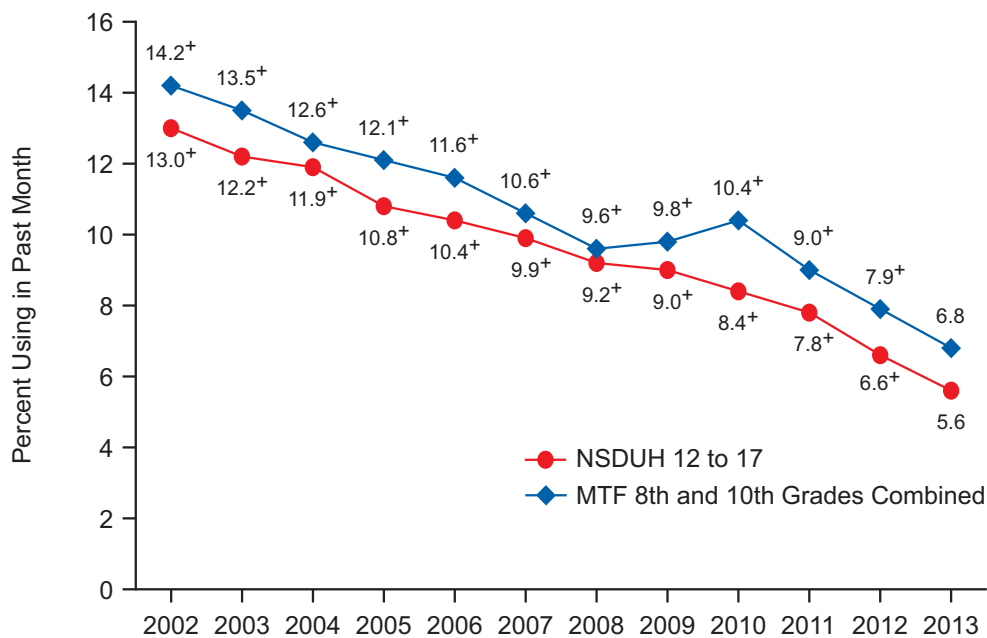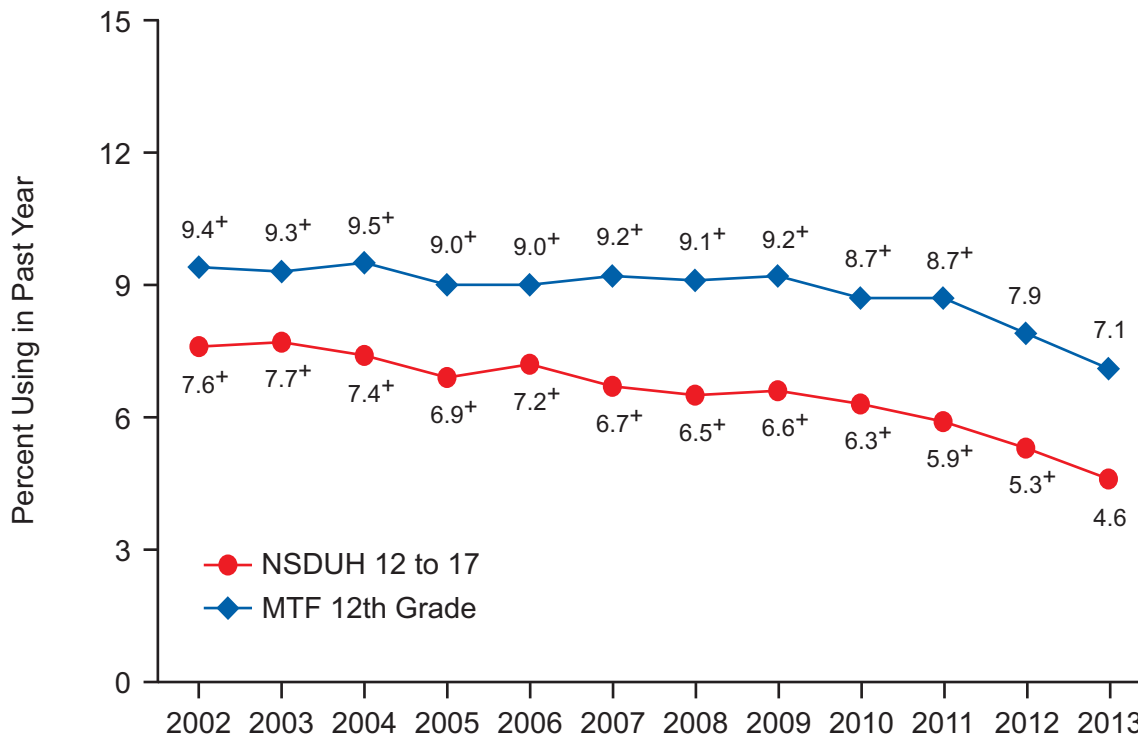

MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.
Note: Data for MTF are for "narcotics other than heroin."

Comparison of NSDUH and MTF Trends for Young Adults

MTF follow-up data on persons aged 19 to 24 provide the closest match on age to estimates for NSDUH young adults aged 18 to 25. As shown in Tables 8.4 to 8.6, data for young adults showed similar trends in NSDUH and MTF, although not as consistent as for the youth data. Potential reasons for differences from the data for youths are the relatively smaller MTF sample size for young adults and possible bias in the MTF sample due to noncoverage of school dropouts and a low overall response rate; the MTF response rate for young adults is affected by nonresponse by schools, by students in the 12th grade survey, and by young adults in the follow-up mail survey.

Both surveys showed an increase in past month marijuana use among young adults from 2008 to 2013 (from 16.6 to 19.1 percent in NSDUH; from 17.3 to 21.6 percent in MTF) (Table 8.6). Both surveys showed declines in past month cigarette use between 2002 and 2013, with NSDUH showing a decline from 40.8 to 30.6 percent and MTF showing a decline from 31.4 to 20.2 percent. Both surveys showed no significant change in rates of past month cigarette use among young adults between 2012 and 2013. There also was no significant change between 2012 and 2013 in the rate of current alcohol use among young adults in either survey. Both

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surveys showed declines in past year and past month cocaine use from 2002 to 2013, with no significant changes in rates between 2012 and 2013 (Tables 8.5 and 8.6, respectively). Similarly, past year Ecstasy use among young adults increased between 2007 and 2010 and remained steady in 2011 through 2013, according to both NSDUH and MTF.

As was the case for youths aged 12 to 17, NSDUH data indicated that nonmedical use of prescription drugs among young adults aged 18 to 25 in 2013 was the second most prevalent illicit drug use category (see Chapter 2). Both NSDUH and MTF indicated lower rates of past year nonmedical use of pain relievers in 2013 than in 2003 to 2010 among young adults (Figure 8.6). The rate of past year nonmedical use among young adults aged 18 to 25 in NSDUH for 2013 (8.8 percent) also was lower than the rate in 2002 and showed continued declines since 2010. Trend data for adults aged 19 to 24 in MTF showed similar rates in 2011 to 2013.

Figure 8.6 Past Year Nonmedical Pain Reliever Use among Young Adults in NSDUH and MTF: 2002-2013
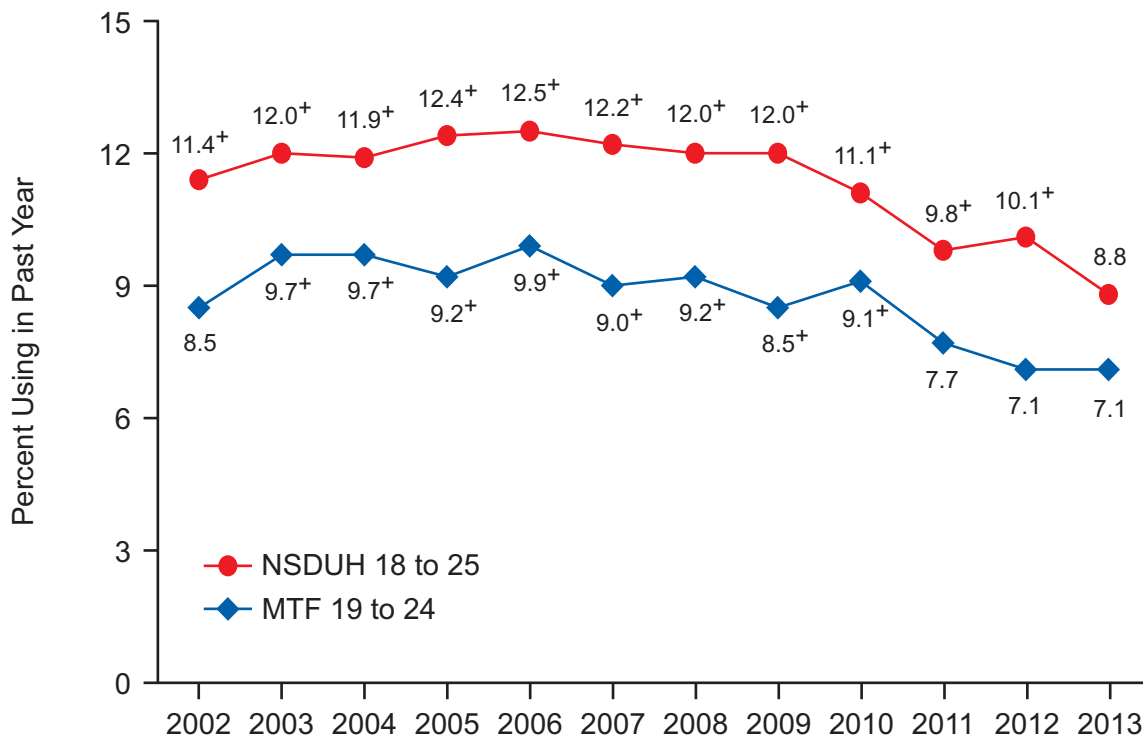
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.
[+] Difference between this estimate and the 2013 estimate is statistically significant at the .05 level.
Note: Data for MTF are for "narcotics other than heroin."

Table 8.1 Comparison of NSDUH, MTF, and YRBS Lifetime Prevalence Estimates among Youths: Percentages, 2002-2013

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana												
NSDUH	20.6[a]	19.6[a]	19.0[a]	17.4	17.3	16.2	16.6	17.1	17.1	17.5[a]	17.0	16.4
MTF	29.0[a]	27.0	25.7	25.3	23.8[a]	22.6[a]	22.3[a]	24.0[a]	25.4	25.5	24.5[a]	26.2
YRBS	--	40.2	--	38.4	--	38.1	--	36.8[a]	--	39.9	--	40.7
Cocaine												
NSDUH	2.7[a]	2.6[a]	2.4[a]	2.3[a]	2.2[a]	2.2[a]	1.9[a]	1.6[a]	1.5[a]	1.3[a]	1.1	0.9
MTF	4.9[a]	4.4[a]	4.4[a]	4.5[a]	4.1[a]	4.2[a]	3.8[a]	3.6[a]	3.2	2.8	2.6	2.5
YRBS	--	8.7[a]	--	7.6[a]	--	7.2[a]	--	6.4	--	6.8[a]	--	5.5
Ecstasy												
NSDUH	3.3[a]	2.4[a]	2.1[a]	1.6	1.9[a]	1.8	2.1[a]	2.3[a]	2.5[a]	2.4[a]	2.0[a]	1.5
MTF	5.5[a]	4.3	3.6	3.4	3.5	3.8	3.4	3.9	4.9[a]	4.6[a]	3.5	3.8
YRBS	--	11.1[a]	--	6.3	--	5.8	--	6.7	--	8.2[a]	--	6.6
LSD												
NSDUH	2.7[a]	1.6[a]	1.2[a]	1.1[a]	0.9	0.8	1.1	1.0	0.9	0.9	1.0	0.9
MTF	3.8[a]	2.8[a]	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.0	2.1
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Inhalants												
NSDUH	10.5[a]	10.7[a]	11.0[a]	10.5[a]	10.1[a]	9.6[a]	9.3[a]	9.3[a]	8.3[a]	7.5[a]	6.5[a]	5.3
MTF	14.4[a]	14.3[a]	14.9[a]	15.1[a]	14.7[a]	14.6[a]	14.3[a]	13.6[a]	13.3[a]	11.6[a]	10.9[a]	9.8
YRBS	--	12.1[a]	--	12.4[a]	--	13.3[a]	--	11.7[a]	--	11.4[a]	--	8.9
Alcohol												
NSDUH	43.4[a]	42.9[a]	42.0[a]	40.6[a]	40.4[a]	39.5[a]	38.6[a]	38.4[a]	35.4[a]	34.5[a]	32.4[a]	30.8
MTF	57.0[a]	55.8[a]	54.1[a]	52.1[a]	51.0[a]	50.3[a]	48.6[a]	47.9[a]	47.0[a]	44.6[a]	41.8[a]	40.0
YRBS	--	74.9[a]	--	74.3[a]	--	75.0[a]	--	72.5[a]	--	70.8[a]	--	66.2
Cigarettes												
NSDUH	33.3[a]	31.0[a]	29.2[a]	26.7[a]	25.9[a]	23.7[a]	23.1[a]	22.3[a]	20.5[a]	19.1[a]	17.4[a]	15.7
MTF	39.4[a]	35.7[a]	34.3[a]	32.4[a]	30.4[a]	28.4[a]	26.1[a]	26.4[a]	26.5[a]	24.4[a]	21.6[a]	20.3
YRBS	--	58.4[a]	--	54.3[a]	--	50.3[a]	--	46.3[a]	--	44.7[a]	--	41.1

MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health; YRBS = Youth Risk Behavior Survey.

-- Not available.

NOTE: NSDUH data are for youths aged 12 to 17. Some 2006 to 2010 NSDUH estimates may differ from previously published estimates due to updates (see Section B.3 in Appendix B of this report).

NOTE: MTF data are simple averages of estimates for 8th and 10th graders. MTF data for 8th and 10th graders are reported in Johnston et al. (2014), as are the MTF design effects used for variance estimation.

NOTE: Statistical tests for the YRBS were conducted using the "Youth Online" tool at http://www.cdc.gov/HealthyYouth/yrbs/. Results of testing for statistical significance in this table may differ from published YRBS reports of change.

[a] Difference between this estimate and 2013 estimate is statistically significant at the .05 level.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013.
National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2013.
Centers for Disease Control and Prevention, Youth Risk Behavior Survey, 2003, 2005, 2007, 2009, 2011, and 2013.

Table 8.2 Comparison of NSDUH, MTF, and YRBS Past Year Prevalence Estimates among Youths: Percentages, 2002-2013

| Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana												
NSDUH	15.8[a]	15.0[a]	14.5[a]	13.3	13.2	12.5[a]	13.1	13.7	14.0	14.2	13.5	13.4
MTF	22.5	20.5	19.7[a]	19.4[a]	18.5[a]	17.5[a]	17.4[a]	19.3[a]	20.6	20.7	19.7[a]	21.3
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Cocaine												
NSDUH	2.1[a]	1.8[a]	1.6[a]	1.7[a]	1.6[a]	1.5[a]	1.2[a]	1.0[a]	1.0[a]	0.9[a]	0.7[a]	0.5
MTF	3.2[a]	2.8[a]	2.9[a]	2.9[a]	2.6[a]	2.7[a]	2.4[a]	2.2[a]	1.9	1.7	1.6	1.5
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Ecstasy												
NSDUH	2.2[a]	1.3[a]	1.2[a]	1.0	1.2[a]	1.3[a]	1.4[a]	1.7[a]	1.9[a]	1.7[a]	1.2	0.9
MTF	3.9[a]	2.6	2.1	2.2	2.1	2.5	2.3	2.5	3.6[a]	3.1[a]	2.1	2.4
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
LSD												
NSDUH	1.3[a]	0.6	0.6	0.6	0.4[a]	0.5	0.7	0.6	0.6	0.6	0.6	0.6
MTF	2.1[a]	1.5	1.4	1.4	1.3	1.5	1.6	1.5	1.6	1.5	1.3	1.4
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Inhalants												
NSDUH	4.4[a]	4.5[a]	4.6[a]	4.5[a]	4.4[a]	3.9[a]	4.0[a]	3.9[a]	3.6[a]	3.3[a]	2.6[a]	1.9
MTF	6.8[a]	7.1[a]	7.8[a]	7.8[a]	7.8[a]	7.5[a]	7.4[a]	7.1[a]	6.9[a]	5.8[a]	5.2[a]	4.4
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Alcohol												
NSDUH	34.6[a]	34.3[a]	33.9[a]	33.3[a]	33.0[a]	31.9[a]	31.0[a]	30.5[a]	28.7[a]	27.8[a]	26.3[a]	24.6
MTF	49.4[a]	48.3[a]	47.5[a]	45.3[a]	44.7[a]	44.1[a]	42.3[a]	41.6[a]	40.7[a]	38.4[a]	36.1[a]	34.6
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Cigarettes												
NSDUH	20.3[a]	19.0[a]	18.4[a]	17.3[a]	17.0[a]	15.7[a]	15.1[a]	15.1[a]	14.2[a]	13.2[a]	11.8[a]	10.3
MTF	--	--	--	--	--	--	--	--	--	--	--	--
YRBS	--	--	--	--	--	--	--	--	--	--	--	--

MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health; YRBS = Youth Risk Behavior Survey.

-- Not available.

NOTE: NSDUH data are for youths aged 12 to 17. Some 2006 to 2010 NSDUH estimates may differ from previously published estimates due to updates (see Section B.3 in Appendix B of this report).

NOTE: MTF data are simple averages of estimates for 8th and 10th graders. MTF data for 8th and 10th graders are reported in Johnston et al. (2014), as are the MTF design effects used for variance estimation.

NOTE: Statistical tests for the YRBS were conducted using the "Youth Online" tool at http://www.cdc.gov/HealthyYouth/yrbs/. Results of testing for statistical significance in this table may differ from published YRBS reports of change.

[a] Difference between this estimate and 2013 estimate is statistically significant at the .05 level.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013.
National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2013.
Centers for Disease Control and Prevention, Youth Risk Behavior Survey, 2003, 2005, 2007, 2009, 2011, and 2013.

Table 8.3 Comparison of NSDUH, MTF, and YRBS Past Month Prevalence Estimates among Youths: Percentages, 2002-2013

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana												
NSDUH	8.2[a]	7.9[a]	7.6	6.8	6.7	6.7	6.7	7.4	7.4	7.9[a]	7.2	7.1
MTF	13.1	12.3	11.2[a]	10.9[a]	10.4[a]	10.0[a]	9.8[a]	11.2[a]	12.4	12.4	11.8	12.5
YRBS	--	22.4	--	20.2[a]	--	19.7[a]	--	20.8[a]	--	23.1	--	23.4
Cocaine												
NSDUH	0.6[a]	0.6[a]	0.5[a]	0.6[a]	0.4[a]	0.4[a]	0.4[a]	0.3	0.2	0.3	0.1	0.2
MTF	1.4[a]	1.1[a]	1.3[a]	1.3[a]	1.3[a]	1.1[a]	1.0[a]	0.9	0.8	0.8	0.7	0.7
YRBS	--	4.1	--	3.4	--	3.3	--	2.8	--	3.0	--	--
Ecstasy												
NSDUH	0.5[a]	0.4[a]	0.3	0.3	0.3[a]	0.3	0.4[a]	0.5[a]	0.5[a]	0.4[a]	0.3	0.2
MTF	1.6[a]	0.9	0.8	0.8	1.0	0.9	1.0	1.0	1.5[a]	1.1	0.8	0.9
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
LSD												
NSDUH	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1[a]	0.2
MTF	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.7	0.6	0.4	0.6
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Inhalants												
NSDUH	1.2[a]	1.3[a]	1.2[a]	1.2[a]	1.3[a]	1.2[a]	1.1[a]	1.0[a]	1.1[a]	0.9[a]	0.8[a]	0.5
MTF	3.1[a]	3.2[a]	3.5[a]	3.2[a]	3.2[a]	3.2[a]	3.1[a]	3.0[a]	2.8[a]	2.5[a]	2.1	1.8
YRBS	--	--	--	--	--	--	--	--	--	--	--	--
Alcohol												
NSDUH	17.6[a]	17.7[a]	17.6[a]	16.5[a]	16.7[a]	16.0[a]	14.7[a]	14.8[a]	13.6[a]	13.3[a]	12.9[a]	11.6
MTF	27.5[a]	27.6[a]	26.9[a]	25.2[a]	25.5[a]	24.7[a]	22.4[a]	22.7[a]	21.4[a]	20.0[a]	19.3[a]	18.0
YRBS	--	44.9[a]	--	43.3[a]	--	44.7[a]	--	41.8[a]	--	38.7[a]	--	34.9
Cigarettes												
NSDUH	13.0[a]	12.2[a]	11.9[a]	10.8[a]	10.4[a]	9.9[a]	9.2[a]	9.0[a]	8.4[a]	7.8[a]	6.6[a]	5.6
MTF	14.2[a]	13.5[a]	12.6[a]	12.1[a]	11.6[a]	10.6[a]	9.6[a]	9.8[a]	10.4[a]	9.0[a]	7.9[a]	6.8
YRBS	--	21.9[a]	--	23.0[a]	--	20.0[a]	--	19.5[a]	--	18.1	--	15.7

MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health; YRBS = Youth Risk Behavior Survey.

-- Not available.

NOTE: NSDUH data are for youths aged 12 to 17. Some 2006 to 2010 NSDUH estimates may differ from previously published estimates due to updates (see Section B.3 in Appendix B of this report).

NOTE: MTF data are simple averages of estimates for 8th and 10th graders. MTF data for 8th and 10th graders are reported in Johnston et al. (2014), as are the MTF design effects used for variance estimation.

NOTE: Statistical tests for the YRBS were conducted using the "Youth Online" tool at http://www.cdc.gov/HealthyYouth/yrbs/. Results of testing for statistical significance in this table may differ from published YRBS reports of change.

[a] Difference between this estimate and 2013 estimate is statistically significant at the .05 level.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013.
National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2013.
Centers for Disease Control and Prevention, Youth Risk Behavior Survey, 2003, 2005, 2007, 2009, 2011, and 2013.

Table 8.4 Comparison of NSDUH and MTF <mark>Lifetime Prevalence</mark> Estimates among Young Adults: Percentages, 2002-2013

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana												
NSDUH	53.8[a]	53.9[a]	52.8	52.4	52.5	50.9	50.8	52.6	51.4	51.9	52.2	51.9
MTF	56.1[a]	56.4[a]	55.6	54.4	53.8	53.9	53.0	53.8	53.2	53.1	53.0	53.3
Cocaine												
NSDUH	15.4[a]	15.0[a]	15.2[a]	15.1[a]	15.7[a]	15.0[a]	14.5[a]	14.9[a]	13.4[a]	12.4	12.3	11.6
MTF	12.9[a]	14.5[a]	14.3[a]	12.6[a]	13.6[a]	12.4[a]	12.2[a]	12.2[a]	10.9[a]	10.3[a]	9.2	8.7
Ecstasy												
NSDUH	15.1[a]	14.8[a]	13.8[a]	13.7[a]	13.4	12.8	12.2	12.5	12.4	12.3	12.9	12.8
MTF	16.0[a]	16.6[a]	14.9[a]	12.4[a]	11.5	9.5	10.1	9.3	10.2	9.9	9.8	10.1
LSD												
NSDUH	15.9[a]	14.0[a]	12.1[a]	10.5[a]	9.0[a]	7.3[a]	6.6	6.9	6.4	6.0	5.9	6.5
MTF	13.9[a]	13.8[a]	10.4[a]	7.9[a]	6.7	5.9	5.6	5.3	5.7	5.4	5.3	5.7
Inhalants												
NSDUH	15.7[a]	14.9[a]	14.0[a]	13.3[a]	12.5[a]	11.3[a]	10.5[a]	10.8[a]	10.0[a]	9.1[a]	8.4[a]	7.5
MTF	11.7[a]	11.4[a]	10.6[a]	9.3[a]	9.7[a]	7.5	8.4[a]	7.7	6.8	6.0	6.7	6.1
Alcohol												
NSDUH	86.7[a]	87.1[a]	86.2[a]	85.7[a]	86.5[a]	85.2[a]	85.6[a]	85.8[a]	85.7[a]	84.3	84.4	83.8
MTF	88.4[a]	87.6[a]	87.2[a]	87.1[a]	87.0[a]	86.0[a]	86.4[a]	85.7[a]	84.9[a]	84.4[a]	82.5	82.0
Cigarettes												
NSDUH	71.2[a]	70.2[a]	68.7[a]	67.3[a]	66.6[a]	64.8[a]	64.4[a]	63.8[a]	62.3[a]	61.0[a]	59.5[a]	57.9
MTF	--	--	--	--	--	--	--	--	--	--	--	--
<mark>**Pain Relievers**[1]</mark>												
NSDUH	22.1[a]	23.7[a]	24.3[a]	25.5[a]	25.5[a]	24.9[a]	24.6[a]	24.5[a]	23.9[a]	22.2[a]	22.4[a]	20.8
MTF	--	17.3[a]	17.7[a]	16.9[a]	17.9[a]	17.8[a]	17.8[a]	17.2[a]	16.6[a]	16.0	14.7	14.5

NSDUH = National Survey on Drug Use and Health; MTF = Monitoring the Future.

-- Not available.

NOTE: NSDUH data are for persons aged 18 to 25. Some 2006 to 2010 NSDUH estimates may differ from previously published estimates due to updates (see Section B.3 in Appendix B of this report).

NOTE: MTF data were calculated for persons aged 19 to 24 using simple averages of modal age groups 19-20, 21-22, and 23-24 (source data at http://www.monitoringthefuture.org/pubs.html). Estimates may differ from those published previously due to rounding. For the 19 to 24 age group in the MTF data, significance tests were performed assuming independent samples between years an odd number of years apart because two distinct cohorts a year apart were monitored longitudinally at 2-year intervals. Although appropriate for comparisons of 2002, 2004, 2006, 2008, 2010, and 2012 estimates with 2013 estimates, this assumption results in conservative tests for comparisons of 2003, 2005, 2007, 2009, and 2011 data with 2013 estimates because it does not take into account covariances that are associated with repeated observations from the longitudinal samples. Estimates of covariances were not available.

[a] Difference between this estimate and 2013 estimate is statistically significant at the .05 level.

[1] MTF data are for "narcotics other than heroin."

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2013.

Table 8.5 Comparison of NSDUH and MTF <mark>Past Year Prevalence</mark> Estimates among Young Adults: Percentages, 2002-2013

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana												
NSDUH	29.8[a]	28.5[a]	27.8[a]	28.0[a]	28.1[a]	27.5[a]	27.8[a]	30.8	30.0[a]	30.8	31.5	31.6
MTF	34.2	33.0[a]	31.6[a]	31.4[a]	30.9[a]	31.0[a]	30.9[a]	32.2[a]	31.7[a]	33.7	32.8[a]	35.5
Cocaine												
NSDUH	6.7[a]	6.6[a]	6.6[a]	6.9[a]	6.9[a]	6.4[a]	5.6[a]	5.3[a]	4.7	4.6	4.6	4.4
MTF	6.5[a]	7.3[a]	7.8[a]	6.9[a]	7.0[a]	6.3[a]	6.0[a]	5.7[a]	4.7	4.8	4.1	3.9
Ecstasy												
NSDUH	5.8[a]	3.7	3.1[a]	3.1[a]	3.8	3.5	3.9	4.3	4.4	4.1	4.1	4.0
MTF	8.0[a]	5.3	3.3[a]	3.4[a]	3.6[a]	2.8[a]	3.8	3.5[a]	4.7	4.4	5.2	5.3
LSD												
NSDUH	1.8	1.1[a]	1.0[a]	1.0[a]	1.2[a]	1.1[a]	1.5[a]	1.6[a]	1.6[a]	1.7	1.8	2.0
MTF	2.4	1.5[a]	1.2[a]	1.1[a]	1.5[a]	1.4[a]	1.9	2.1	1.8	2.2	1.9	2.6
Inhalants												
NSDUH	2.2[a]	2.1[a]	2.1[a]	2.1[a]	1.8[a]	1.6	1.6	1.9[a]	1.8[a]	1.5	1.4	1.4
MTF	2.2[a]	1.5[a]	2.3[a]	1.6[a]	1.8[a]	1.1	1.7[a]	1.2	1.7[a]	0.9	1.5[a]	0.7
Alcohol												
NSDUH	77.9	78.1[a]	78.0[a]	77.9	78.8[a]	77.9	78.0[a]	78.7[a]	78.6[a]	77.0	77.4	76.8
MTF	83.9[a]	82.3[a]	83.1[a]	82.8[a]	83.2[a]	82.8[a]	82.5[a]	82.0[a]	80.5	80.6	79.0	78.6
Cigarettes												
NSDUH	49.0[a]	47.6[a]	47.5[a]	47.2[a]	47.0[a]	45.2[a]	45.1[a]	45.3[a]	43.2[a]	42.3[a]	41.0[a]	39.5
MTF	41.8[a]	40.8[a]	41.4[a]	40.2[a]	37.1[a]	36.2[a]	35.4[a]	35.0[a]	33.0[a]	32.6	29.3	30.4
<mark>Pain Relievers[1]</mark>												
NSDUH	11.4[a]	12.0[a]	11.9[a]	12.4[a]	12.5[a]	12.2[a]	12.0[a]	12.0[a]	11.1[a]	9.8[a]	10.1[a]	8.8
MTF	8.5	9.7[a]	9.7[a]	9.2[a]	9.9[a]	9.0[a]	9.2[a]	8.5[a]	9.1[a]	7.7	7.1	7.1

NSDUH = National Survey on Drug Use and Health; MTF = Monitoring the Future.

NOTE: NSDUH data are for persons aged 18 to 25. Some 2006 to 2010 NSDUH estimates may differ from previously published estimates due to updates (see Section B.3 in Appendix B of this report).

NOTE: MTF data were calculated for persons aged 19 to 24 using simple averages of modal age groups 19-20, 21-22, and 23-24 (source data at http://www.monitoringthefuture.org/pubs.html). Estimates may differ from those published previously due to rounding. For the 19 to 24 age group in the MTF data, significance tests were performed assuming independent samples between years an odd number of years apart because two distinct cohorts a year apart were monitored longitudinally at 2-year intervals. Although appropriate for comparisons of 2002, 2004, 2006, 2008, 2010, and 2012 estimates with 2013 estimates, this assumption results in conservative tests for comparisons of 2003, 2005, 2007, 2009, and 2011 data with 2013 estimates because it does not take into account covariances that are associated with repeated observations from the longitudinal samples. Estimates of covariances were not available.

[a] Difference between this estimate and 2013 estimate is statistically significant at the .05 level.

[1] MTF data are for "narcotics other than heroin." In 2002, MTF question text was changed in half of the sample by updating the example list of narcotics other than heroin. To be consistent with MTF data for 2003 and later years, MTF data for 2002 past year use of narcotics other than heroin are based on the half sample that received the new question text.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2013.

Table 8.6 Comparison of NSDUH and MTF Past Month Prevalence Estimates among Young Adults: Percentages, 2002-2013

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana												
NSDUH	17.3[a]	17.0[a]	16.1[a]	16.6[a]	16.3[a]	16.5[a]	16.6[a]	18.2	18.5	19.0	18.7	19.1
MTF	19.8	19.9	18.2[a]	17.0[a]	17.0[a]	17.5[a]	17.3[a]	18.5[a]	17.8[a]	20.1	19.8	21.6
Cocaine												
NSDUH	2.0[a]	2.2[a]	2.1[a]	2.6[a]	2.2[a]	1.7[a]	1.6[a]	1.4	1.5[a]	1.4	1.1	1.1
MTF	2.5[a]	2.6[a]	2.4[a]	2.1	2.4[a]	1.9	1.9	1.8	1.5	1.5	1.3	1.5
Ecstasy												
NSDUH	1.1	0.7	0.7	0.8	1.0	0.7	0.9	1.1	1.2	0.9	1.0	0.9
MTF	1.6	1.0	0.8	0.6	0.9	0.3[a]	0.9	0.7	1.2	0.9	1.3	1.2
LSD												
NSDUH	0.1[a]	0.2	0.3	0.2	0.2[a]	0.2	0.3	0.3	0.3	0.3	0.3	0.3
MTF	0.4	0.2[a]	0.2[a]	0.2[a]	0.3	0.3	0.5	0.3	0.5	0.5	0.4	0.5
Inhalants												
NSDUH	0.5[a]	0.4	0.4	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3
MTF	0.8[a]	0.3	0.4	0.3	0.4	0.3	0.6	0.2	0.2	0.2	0.3	0.2
Alcohol												
NSDUH	60.5	61.4[a]	60.5	60.9	62.0[a]	61.3[a]	61.1[a]	61.8[a]	61.4[a]	60.7	60.2	59.6
MTF	67.7[a]	66.3	67.3[a]	66.8	67.0	67.4[a]	67.4[a]	68.1[a]	65.8	65.8	66.0	64.9
Cigarettes												
NSDUH	40.8[a]	40.2[a]	39.5[a]	39.0[a]	38.5[a]	36.2[a]	35.7[a]	35.8[a]	34.3[a]	33.5[a]	31.8	30.6
MTF	31.4[a]	29.5[a]	30.2[a]	28.7[a]	26.7[a]	25.7[a]	24.3[a]	23.5[a]	21.8	21.3	18.7	20.2
Pain Relievers[1]												
NSDUH	4.1[a]	4.7[a]	4.7[a]	4.7[a]	5.0[a]	4.6[a]	4.5[a]	4.8[a]	4.4[a]	3.6	3.8[a]	3.3
MTF	--	3.4	3.4	3.7[a]	3.6[a]	3.5	3.7[a]	3.2	3.5	2.9	2.9	2.7

NSDUH = National Survey on Drug Use and Health; MTF = Monitoring the Future.

-- Not available.

NOTE: NSDUH data are for persons aged 18 to 25. Some 2006 to 2010 NSDUH estimates may differ from previously published estimates due to updates (see Section B.3 in Appendix B of this report).

NOTE: MTF data were calculated for persons aged 19 to 24 using simple averages of modal age groups 19-20, 21-22, and 23-24 (source data at http://www.monitoringthefuture.org/pubs.html). Estimates may differ from those published previously due to rounding. For the 19 to 24 age group in the MTF data, significance tests were performed assuming independent samples between years an odd number of years apart because two distinct cohorts a year apart were monitored longitudinally at 2-year intervals. Although appropriate for comparisons of 2002, 2004, 2006, 2008, 2010, and 2012 estimates with 2013 estimates, this assumption results in conservative tests for comparisons of 2003, 2005, 2007, 2009, and 2011 data with 2013 estimates because it does not take into account covariances that are associated with repeated observations from the longitudinal samples. Estimates of covariances were not available.

[a] Difference between this estimate and 2013 estimate is statistically significant at the .05 level.

[1] MTF data are for "narcotics other than heroin."

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2013.

Appendix A: Description of the Survey

A.1   Sample Design

The sample design for the 2013 National Survey on Drug Use and Health (NSDUH)[8] was an extension of a coordinated 5-year design providing estimates for all 50 States plus the District of Columbia initially for the years 2005 through 2009, then continuing through 2013. The respondent universe for NSDUH is the civilian, noninstitutionalized population aged 12 years old or older residing within the United States. The survey covers residents of households (persons living in houses/townhouses, apartments, condominiums; civilians living in housing on military bases, etc.) and persons in noninstitutional group quarters (e.g., shelters, rooming/boarding houses, college dormitories, migratory workers' camps, halfway houses). Excluded from the survey are persons with no fixed household address (e.g., homeless and/or transient persons not in shelters), active-duty military personnel, and residents of institutional group quarters, such as correctional facilities, nursing homes, mental institutions, and long-term hospitals.

The coordinated design for 2005 through 2009 included a 50 percent overlap in second-stage units (area segments) within each successive 2-year period from 2005 through 2009. The 2010 through 2013 NSDUHs continued the 50 percent overlap by retaining half of the second-stage units from the previous survey. Because the coordinated design enabled estimates to be developed by State in all 50 States plus the District of Columbia, States may be viewed as the first level of stratification and as a variable for reporting estimates.

For the 50-State design, 8 States were designated as large sample States (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas) with target sample sizes of 3,600. In 2013, the actual sample sizes in these States ranged from 3,503 to 3,729. For the remaining 42 States and the District of Columbia, the target sample size was 900. Sample sizes in these States ranged from 852 to 953 in 2013. This approach ensured there was sufficient sample in every State to support State estimation by either direct methods or small area estimation (SAE)[9] while at the same time providing adequate precision for national estimates.

States were first stratified into a total of 900 State sampling regions (SSRs) (48 regions in each large sample State and 12 regions in each small sample State). These regions were contiguous geographic areas designed to yield approximately the same number of interviews.[10] Unlike the 1999 through 2001 NHSDAs and the 2002 through 2004 NSDUHs in which the first-stage sampling units were clusters of census blocks called area segments, the first stage

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[8] Prior to 2002, the survey was known as the National Household Survey on Drug Abuse (NHSDA).
[9] SAE is a hierarchical Bayes modeling technique used to make State-level estimates for 25 measures related to substance use and mental health. For more details, see "2011-2012 NSDUH: Model-Based Prevalence Estimates (50 States and the District of Columbia)" (Tables 1 to 26, by Age Group) at http://www.samhsa.gov/data/NSDUH/2k12State/NSDUHsae2012/Index.aspx.
[10] Sampling areas were defined using 2000 census geography. Counts of dwelling units (DUs) and population totals were obtained from the 2000 decennial census data supplemented with revised population projections from Nielsen Claritas.

of selection for the 2005 through 2013 NSDUHs was census tracts.[11] This stage was included to contain sample segments within a single census tract to the extent possible.[12]

Within each SSR, 48 census tracts were selected with probability proportional to population size. Within sampled census tracts, adjacent census blocks were combined to form the second-stage sampling units or area segments. One area segment was selected within each sampled census tract with probability proportional to population size. Although only 24 segments were needed to support the coordinated 2005 through 2009 5-year sample, an additional 24 segments were selected to support any supplemental studies that the Substance Abuse and Mental Health Services Administration (SAMHSA) may have chosen to field. These 24 segments constituted the reserve sample and were available for use in 2010, 2011, 2012, and 2013. Eight reserve sample segments per SSR were fielded during the 2013 survey year. Four of these segments were retained from the 2012 survey, and four were selected for use in the 2013 survey.

These sampled segments were allocated equally into four separate samples, one for each 3-month period (calendar quarter) during the year. That is, a sample of addresses was selected from two segments in each calendar quarter so that the survey was relatively continuous in the field. In each of the area segments, a listing of all addresses was made, from which a national sample of 227,075 addresses was selected. Of the selected addresses, 190,067 were determined to be eligible sample units. In these sample units (which can be either households or units within group quarters), sample persons were randomly selected using an automated screening procedure programmed in a handheld computer carried by the interviewers. The number of sample units completing the screening was 160,325. Youths aged 12 to 17 years and young adults aged 18 to 25 years were oversampled at this stage, with 12 to 17 year olds sampled at an actual rate of 87.5 percent and 18 to 25 year olds at a rate of 68.5 percent on average, when they were present in the sampled households or group quarters. Similarly, persons in age groups 26 or older were sampled at rates of 23.4 percent or less, with persons in the eldest age group (50 years or older) sampled at a rate of 8.3 percent on average. The overall population sampling rates were 0.090 percent for 12 to 17 year olds, 0.064 percent for 18 to 25 year olds, 0.017 percent for 26 to 34 year olds, 0.015 percent for 35 to 49 year olds, and 0.007 percent for those 50 or older. Nationwide, 88,742 persons were selected. Consistent with previous surveys in this series, the final respondent sample of 67,838 persons was representative of the U.S. general population (since 1991, the civilian, noninstitutionalized population) aged 12 or older. In addition, State samples were representative of their respective State populations. More detailed information on the disposition of the national screening and interview sample can be found in Appendix B. More information about the sample design can be found in the 2013 NSDUH sample design report (Center for Behavioral Health Statistics and Quality [CBHSQ], 2014b).

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[11] Census tracts are relatively permanent statistical subdivisions of counties and parishes and provide a stable set of geographic units across decennial census periods.

[12] Some census tracts had to be aggregated in order to meet the minimum DU requirement of 150 DUs in urban areas and 100 DUs in rural areas.

A.2   Data Collection Methodology

The data collection method used in NSDUH involves in-person interviews with sample persons, incorporating procedures to increase respondents' cooperation and willingness to report honestly about their illicit drug use behavior. Confidentiality is stressed in all written and oral communications with potential respondents. Respondents' names are not collected with the data, and computer-assisted interviewing (CAI) methods are used to provide a private and confidential setting to complete the interview.

Introductory letters are sent to sampled addresses, followed by an interviewer visit. When contacting a dwelling unit (DU), the field interviewer (FI) asks to speak with an adult resident (aged 18 or older) of the household who can serve as the screening respondent. Using a handheld computer, the FI completes a 5-minute procedure with the screening respondent that involves listing all household members along with their basic demographic data. The computer uses the demographic data in a preprogrammed selection algorithm to select zero to two sample persons, depending on the composition of the household. This selection process is designed to provide the necessary sample sizes for the specified population age groupings. In areas where a third or more of the households contain Spanish-speaking residents, the initial introductory letters written in English are mailed with a Spanish version on the back. All interviewers carry copies of this letter in Spanish. If the interviewer is not certified bilingual, he or she will use preprinted Spanish cards to attempt to find someone in the household who speaks English and who can serve as the screening respondent or who can translate for the screening respondent. If no one is available, the interviewer will schedule a time when a Spanish-speaking interviewer can come to the address. In households where a language other than Spanish is encountered, another language card is used to attempt to find someone who speaks English to complete the screening.

The NSDUH interview can be completed in English or Spanish, and both versions have the same content. If the sample person prefers to complete the interview in Spanish, a certified bilingual interviewer is sent to the address to conduct the interview. Because the interview is not translated into any other language, if a sample person does not speak English or Spanish, the interview is not conducted.

Immediately after the completion of the screener, interviewers attempt to conduct the NSDUH interview with each sample person in the household. The interviewer requests that the sampled respondent identify a private area in the home to conduct the interview away from other household members. The interview averages about an hour and includes a combination of CAPI (computer-assisted personal interviewing, in which the interviewer reads the questions) and ACASI (audio computer-assisted self-interviewing).

The NSDUH interview consists of core and noncore (i.e., supplemental) sections. A core set of questions critical for basic trend measurement of prevalence estimates remains in the survey every year and comprises the first part of the interview. Noncore questions, or modules, that can be revised, dropped, or added from year to year make up the remainder of the interview. The core consists of initial demographic items (which are interviewer-administered) and self-administered questions pertaining to the use of tobacco, alcohol, marijuana, cocaine, crack cocaine, heroin, hallucinogens, inhalants, pain relievers, tranquilizers,

stimulants, and sedatives. Topics in the remaining noncore self-administered sections include (but are not limited to) injection drug use, perceived risks of substance use, substance dependence or abuse, arrests, treatment for substance use problems, pregnancy and health care issues, and mental health issues. Noncore demographic questions (which are interviewer-administered and follow the ACASI questions) address such topics as immigration, current school enrollment, employment and workplace issues, health insurance coverage, and income. In practice, some of the noncore portions of the interview have remained in the survey, relatively unchanged, from year to year (e.g., current health insurance coverage, employment).

Thus, the interview begins in CAPI mode with the FI reading the questions from the computer screen and entering the respondent's replies into the computer. The interview then transitions to the ACASI mode for the sensitive questions. In this mode, the respondent can read the questions silently on the computer screen and/or listen to the questions read through headphones and enter his or her responses directly into the computer. At the conclusion of the ACASI section, the interview returns to the CAPI mode with the FI completing the questionnaire. Each respondent who completes a full interview is given a $30 cash incentive as a token of appreciation for his or her time.

No personal identifying information about the respondent is captured in the CAI record. FIs transmit the completed interview data to RTI in Research Triangle Park, North Carolina. Screening and interview data are encrypted while they reside on laptops and mobile computers. Data are transmitted back to RTI on a regular basis using either a direct dial-up connection or the Internet. All data are encrypted while in transit across dial-up or Internet connections. In addition, the screening and interview data are transmitted back to RTI in separate data streams and are kept physically separate (on different devices) before transmission occurs.

After the data are transmitted to RTI, certain cases are selected for verification. The respondents are contacted by RTI to verify the quality of an FI's work based on information that respondents provide at the end of screening (if no one is selected for an interview at the DU or the entire DU is ineligible for the study) or at the end of the interview. For the screening, the adult DU member who served as the screening respondent provides his or her first name and telephone number to the FI, who enters the information into a handheld computer and transmits the data to RTI. For completed interviews, respondents write their home telephone number and mailing address on a quality control form and seal the form in a preaddressed envelope that FIs mail back to RTI. All contact information is kept completely separate from the answers provided during the screening or interview.

Samples of respondents who completed screenings or interviews are randomly selected for verification. These cases are called by telephone interviewers who ask scripted questions designed to determine the accuracy and quality of the data collected. Any cases discovered to have a problem or discrepancy are flagged and routed to a small specialized team of telephone interviewers who recontact respondents for further investigation of the issue(s). Depending on the amount of an FI's work that cannot be verified through telephone verification, including bad telephone numbers (e.g., incorrect number, disconnected, not in service), a field verification may be conducted. Field verification involves another FI returning to the sampled DU to verify the accuracy and quality of the data in person. If the verification procedures identify situations in which an FI has falsified data, the FI is terminated. All cases completed that quarter by the

falsifying FI are verified and reworked by the FI conducting the field verification. Any cases completed by the falsifying FI in earlier quarters of the same year are also verified. All cases from earlier quarters identified as falsified or unresolvable are removed and not reworked. Examples of unresolvable cases include those for which verifiers were never able to make contact with a resident of the DU, residents who refused to verify their data, previous residents who had moved, or residents who reported accurate roster data for the DU but did not recall speaking to an FI.

A.3   Data Processing

Data that FIs transmit to RTI are processed to create a raw data file in which no logical editing of the data has been done. The raw data file consists of one record for each transmitted interview. Cases are eligible to be treated as final respondents only if they provided data on lifetime use of cigarettes and at least 9 out of 13 of the other substances in the core section of the questionnaire. Even though editing and consistency checks are done by the CAI program during the interview, additional, more complex edits and consistency checks are completed at RTI. Additionally, statistical imputation is used to replace missing or ambiguous values after editing for some key variables. Analysis weights are created so that estimates will be representative of the target population. Details of the editing, imputation, and weighting procedures for 2013 will appear in the *2013 NSDUH Methodological Resource Book*, which is in process. Until that volume becomes available, refer to the *2012 NSDUH Methodological Resource Book* (CBHSQ, 2014a).

A.3.1   Data Coding and Logical Editing

With the exception of industry and occupation data, coding of written answers that respondents or interviewers typed was performed at RTI for the 2013 NSDUH. These written answers include mentions of drugs that respondents had used or other responses that did not fit a previous response option (subsequently referred to as "OTHER, Specify" data). Written responses in "OTHER, Specify" data were assigned numeric codes through computer-assisted survey procedures and the use of a secure Web site that allowed for coding and review of the data. The computer-assisted procedures entailed a database check for a given "OTHER, Specify" variable that contained typed entries and the associated numeric codes. If an exact match was found between the typed response and an entry in the system, the computer-assisted procedures assigned the appropriate numeric code. Typed responses that did not match an existing entry were coded through the Web-based coding system. Data on the industries in which respondents worked and respondents' occupations were assigned numeric industry and occupation codes by staff at the U.S. Census Bureau.

As noted above, the CAI program included checks that alerted respondents or interviewers when an entered answer was inconsistent with a previous answer in a given module. In this way, the inconsistency could be resolved while the interview was in progress. However, not every inconsistency was resolved during the interview, and the CAI program did not include checks for every possible inconsistency that might have occurred in the data.

Therefore, the first step in processing the raw NSDUH data was logical editing of the data. Logical editing involved using data from within a respondent's record to (a) reduce the

amount of item nonresponse (i.e., missing data) in interview records, including identification of items that were legitimately skipped; (b) make related data elements consistent with each other; and (c) identify ambiguities or inconsistencies to be resolved through statistical imputation procedures (see Section A.3.2).

For example, if respondents reported that they never used a given drug, the CAI logic skipped them out of all remaining questions about use of that drug. In the editing procedures, the skipped variables were assigned codes to indicate that the respondents were lifetime nonusers. Similarly, respondents were instructed in the prescription psychotherapeutics modules (i.e., pain relievers, tranquilizers, stimulants, and sedatives) not to report the use of over-the-counter (OTC) drugs. Therefore, if a respondent's only report of lifetime use of a particular type of "prescription" psychotherapeutic drug was for an OTC drug, the respondent was logically inferred never to have been a nonmedical user of the prescription drugs in that psychotherapeutic category.

In addition, respondents could report that they were lifetime users of a drug but not provide specific information on when they last used it. In this situation, a temporary "indefinite" value for the most recent period of use was assigned to the edited recency-of-use variable (e.g., "Used at some point in the lifetime LOGICALLY ASSIGNED"), and a final, specific value was statistically imputed. The editing procedures for key drug use variables also involved identifying inconsistencies between related variables so that these inconsistencies could be resolved through statistical imputation. For example, if a respondent reported last using a drug more than 12 months ago and also reported first using it at his or her current age, both of those responses could not be true. In this example, the inconsistent period of most recent use was replaced with an "indefinite" value, and the inconsistent age at first use was replaced with a missing data code. These indefinite or missing values were subsequently imputed through statistical procedures to yield consistent data for the related measures, as discussed in the next section.

A.3.2 Statistical Imputation

For some key variables that still had missing or ambiguous values after editing, statistical imputation was used to replace these values with appropriate response codes. For example, a response is ambiguous if the editing procedures assigned a respondent's most recent use of a drug to "Used at some point in the lifetime," with no definite period within the lifetime. In this case, the imputation procedure assigns a value for when the respondent last used the drug (e.g., in the past 30 days, more than 30 days ago but within the past 12 months, more than 12 months ago). Similarly, if a response is completely missing, the imputation procedures replace missing values with nonmissing ones.

For most variables, missing or ambiguous values are imputed in NSDUH using a methodology called predictive mean neighborhoods (PMN), which was developed specifically for the 1999 survey and has been used in all subsequent survey years. PMN allows for the following: (1) the ability to use covariates to determine donors is greater than that offered in the hot-deck imputation procedure, (2) the relative importance of covariates can be determined by standard modeling techniques, (3) the correlations across response variables can be accounted for by making the imputation multivariate, and (4) sampling weights can be easily incorporated in the models. The PMN method has some similarity with the predictive mean matching method of

Rubin (1986) except that, for the donor records, Rubin used the observed variable value (not the predictive mean) to compute the distance function. Also, the well-known method of nearest neighbor imputation is similar to PMN, except that the distance function is in terms of the original predictor variables and often requires somewhat arbitrary scaling of discrete variables. PMN is a combination of a model-assisted imputation methodology and a random nearest neighbor hot-deck procedure. The hot-deck procedure within the PMN method ensures that missing values are imputed to be consistent with nonmissing values for other variables. Whenever feasible, the imputation of variables using PMN is multivariate, in which imputation is accomplished on several response variables at once. Variables imputed using PMN are the core demographic variables, core drug use variables (recency of use, frequency of use, and age at first use), income, health insurance, and noncore demographic variables for work status, immigrant status, and the household roster. Table A.1 at the end of this appendix summarizes the distribution of weighted statistical imputation rates of these variables by interview section.

In the modeling stage of PMN, the model chosen depends on the nature of the response variable. In the 2013 NSDUH, the models included binomial logistic regression, multinomial logistic regression, Poisson regression, time-to-event (survival) regression, and ordinary linear regression, where the models incorporated the sampling design weights.

In general, hot-deck imputation replaces an item nonresponse (missing or ambiguous value) with a recorded response that is donated from a "similar" respondent who has nonmissing data. For random nearest neighbor hot-deck imputation, the missing or ambiguous value is replaced by a responding value from a donor randomly selected from a set of potential donors. Potential donors are those defined to be "close" to the unit with the missing or ambiguous value according to a predefined function called a distance metric. In the hot-deck procedure of PMN, the set of candidate donors (the "neighborhood") consists of respondents with complete data who have a predicted mean close to that of the item nonrespondent. The predicted means are computed both for respondents with and without missing data, which differs from Rubin's method where predicted means are not computed for the donor respondent (Rubin, 1986). In particular, the neighborhood consists of either the set of the closest 30 respondents or the set of respondents with a predicted mean (or means) within 5 percent of the predicted mean(s) of the item nonrespondent, whichever set is smaller. If no respondents are available who have a predicted mean (or means) within 5 percent of the item nonrespondent, the respondent with the predicted mean(s) closest to that of the item nonrespondent is selected as the donor.

In the univariate case (where only one variable is imputed using PMN), the neighborhood of potential donors is determined by calculating the relative distance between the predicted mean for an item nonrespondent and the predicted mean for each potential donor, then choosing those means defined by the distance metric. The pool of donors is restricted further to satisfy logical constraints whenever necessary (e.g., age at first crack use must not be less than age at first cocaine use).

Whenever possible, missing or ambiguous values for more than one response variable are considered together. In this (multivariate) case, the distance metric is a Mahalanobis distance, which takes into account the correlation between variables (Manly, 1986), rather than a Euclidean distance. The Euclidean distance is the square root of the sum of squared differences between each element of the predictive mean vector for the respondent and the predictive mean

vector for the nonrespondent. The Mahalanobis distance standardizes the Euclidean distance by the variance-covariance matrix, which is appropriate for random variables that are correlated or have heterogeneous variances. Whether the imputation is univariate or multivariate, only missing or ambiguous values are replaced, and donors are restricted to be logically consistent with the response variables that are not missing. Furthermore, donors are restricted to satisfy "likeness constraints" whenever possible. That is, donors are required to have the same values for variables highly correlated with the response. For example, donors for the age at first use variable are required to be of the same age as recipients, if at all possible. If no donors are available who meet these conditions, these likeness constraints can be loosened. Further details on the PMN methodology are provided by Singh, Grau, and Folsom (2002).

Although statistical imputation could not proceed separately within each State due to insufficient pools of donors, information about each respondent's State of residence was incorporated in the modeling and hot-deck steps. For most drugs, respondents were separated into three "State usage" categories as follows: respondents from States with high usage of a given drug were placed in one category, respondents from States with medium usage into another, and the remainder into a third category. This categorical "State rank" variable was used as one set of covariates in the imputation models. In addition, eligible donors for each item nonrespondent were restricted to be of the same State usage category (i.e., the same "State rank") as the nonrespondent.

In the 2013 NSDUH, the majority of variables that underwent statistical imputation required less than 5 percent of their records to be logically assigned or statistically imputed. Variables for measures that are highly sensitive or that may not be known to younger respondents (e.g., family income) often have higher rates of item nonresponse. In addition, certain variables that are subject to a greater number of skip patterns and consistency checks (e.g., frequency of use in the past 12 months and past 30 days) often require greater amounts of imputation.

A.3.3 Development of Analysis Weights

The general approach to developing and calibrating analysis weights involved developing design-based weights as the product of the inverse of the selection probabilities at each selection stage. Since 2005, NSDUH has used a four-stage sample selection scheme in which an extra selection stage of census tracts was added before the selection of a segment. Thus, the design-based weights, d_k, incorporate an extra layer of sampling selection to reflect the sample design change. Adjustment factors, $a_k(\lambda)$, then were applied to the design-based weights to adjust for nonresponse, to poststratify to known population control totals, and to control for extreme weights when necessary. In view of the importance of State-level estimates with the 50-State design, it was necessary to control for a much larger number of known population totals. Several other modifications to the general weight adjustment strategy that had been used in past surveys also were implemented for the first time beginning with the 1999 CAI sample.

Weight adjustments were based on a generalization of Deville and Särndal's (1992) logit model. This generalized exponential model (GEM) (Folsom & Singh, 2000) incorporates unit-specific bounds $(\ell_k, u_k), k \in s,$ for the adjustment factor $a_k(\lambda)$ as follows:

$$a_k(\lambda) = \frac{\ell_k(u_k - c_k) + u_k(c_k - \ell_k)\exp(A_k x_k'\lambda)}{(u_k - c_k) + (c_k - \ell_k)\exp(A_k x_k'\lambda)},$$

where c_k are prespecified centering constants, such that $\ell_k < c_k < u_k$ and $A_k = (u_k - \ell_k)/(u_k - c_k)(c_k - \ell_k)$. The variables ℓ_k, c_k, and u_k are user-specified bounds, and λ is the column vector of p model parameters corresponding to the p covariates x. The λ parameters are estimated by solving

$$\sum_s x_k d_k a_k(\lambda) - \tilde{T}_x = 0,$$

where $\tilde{T}_x$ denotes control totals that could be either nonrandom, as is generally the case with poststratification, or random, as is generally the case for nonresponse adjustment.

The final weights $w_k = d_k a_k(\lambda)$ minimize the distance function $\Delta(w, d)$ defined as

$$\Delta(w, d) = \sum_{k \in s} \frac{d_k}{A_k} \left\{ (a_k - \ell_k)\log\frac{a_k - \ell_k}{c_k - \ell_k} + (u_k - a_k)\log\frac{u_k - a_k}{u_k - c_k} \right\}.$$

This general approach was used at several stages of the weight adjustment process, including (1) adjustment of household weights for nonresponse at the screener level, (2) poststratification of household weights to meet population controls for various household-level demographics by State, (3) adjustment of household weights for extremes, (4) poststratification of selected person weights, (5) adjustment of responding person weights for nonresponse at the questionnaire level, (6) poststratification of responding person weights, and (7) adjustment of responding person weights for extremes.

Every effort was made to include as many relevant State-specific covariates (typically defined by demographic domains within States) as possible in the multivariate models used to calibrate the weights (nonresponse adjustment and poststratification steps). Because further subdivision of State samples by demographic covariates often produced small cell sample sizes, it was not possible to retain all State-specific covariates (even after meaningful collapsing of covariate categories) and still estimate the necessary model parameters with reasonable precision. Therefore, a hierarchical structure was used in grouping States with covariates defined at the national level, at the census division level within the Nation, at the State group within the census division, and, whenever possible, at the State level. In every case, the controls for the total population within a State and the five age groups (12 to 17, 18 to 25, 26 to 34, 35 to 49, 50 or older) within a State were maintained except that, in the last step of poststratification of person weights, six age groups (12 to 17, 18 to 25, 26 to 34, 35 to 49, 50 to 64, 65 or older) were used. Census control totals by age, race, gender, and Hispanic origin were required for the civilian, noninstitutionalized population of each State. Beginning with the 2002 NSDUH, the Population Estimates Branch of the U.S. Census Bureau has produced the necessary population estimates for the same year as each NSDUH survey in response to a special request.

Census control totals for the 2013 NSDUH weights were based on population estimates from the 2010 decennial census as for the 2011 and 2012 NSDUHs, whereas the control totals for the 2010 NSDUH weights were still based on the 2000 census. This shift to the 2010 census data for the 2011 NSDUH could have affected comparisons between substance use estimates in 2011 and onward and those from prior years. Section B.4.3 in Appendix B of the 2011 NSDUH national findings report (CBHSQ, 2012b) discusses the results of an investigation using data from 2010 and 2011 that assessed the effects of using control totals based on the 2010 census instead of the 2000 census for estimating substance use in 2010.

Consistent with the surveys from 1999 onward, control of extreme weights through separate bounds for adjustment factors was incorporated into the GEM calibration processes for both nonresponse and poststratification. This is unlike the traditional method of winsorization in which extreme weights are truncated at prespecified levels and the trimmed portions of weights are distributed to the nontruncated cases. In GEM, it is possible to set bounds around the prespecified levels for extreme weights. Then the calibration process provides an objective way of deciding the extent of adjustment (or truncation) within the specified bounds. A step was included to poststratify the household-level weights to obtain census-consistent estimates based on the household rosters from all screened households. An additional step poststratified the selected person sample to conform to the adjusted roster estimates. This additional step takes advantage of the inherent two-phase nature of the NSDUH design. The respondent poststratification step poststratified the respondent person sample to external census data (defined within the State whenever possible, as discussed above).

For certain populations of interest, 2 years of NSDUH data were combined to obtain annual averages. The person-level weights for estimates based on the annual averages were obtained by dividing the analysis weights for the 2 specific years by a factor of 2.

Table A.1 Weighted Statistical Imputation Rates (Percentages) for the 2013 NSDUH, by Interview Section

Interview Section	Number of Variables	Mean	Minimum	25th Percentile	75th Percentile	Maximum
Core Demographics	14	2.19	0.03	0.53	3.27	3.36
Core Drug Use[1]	98	1.69	0.01	0.18	2.17	9.50
Income and Health Insurance	17	1.86	0.27	0.37	2.10	10.20
Other Noncore Demographics[2]	12	0.20	0.05	0.10	0.27	0.38

[1] Core drug use variables do not include initiation variables beyond age at first use because these additional questions are asked only if respondents first used within 1 year of their current age.

[2] Other noncore demographic variables include work status, immigrant status, and household roster variables.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Appendix B: Statistical Methods and Measurement

B.1   Target Population

The estimates of drug use prevalence from the National Survey on Drug Use and Health (NSDUH) are designed to describe the target population of the survey—the civilian, noninstitutionalized population aged 12 or older living in the United States. This population includes almost 98 percent of the total U.S. population aged 12 or older. However, it excludes some small subpopulations that may have very different drug use patterns. For example, the survey excludes active military personnel, who have been shown to have significantly lower rates of illicit drug use. The survey also excludes two groups that have been shown to have higher rates of illicit drug use: persons living in institutional group quarters, such as prisons and residential drug use treatment centers, and homeless persons not living in a shelter. Readers are reminded to consider the exclusion of these subpopulations when interpreting results. Appendix C describes other surveys that provide data for some of these populations.

B.2   Sampling Error and Statistical Significance

This report includes national estimates that were drawn from a set of tables referred to as "detailed tables" that are available at http://www.samhsa.gov/data/. The national estimates, along with the associated standard errors (SEs, which are the square roots of the variances), were computed for all detailed tables using a multiprocedure package, SUDAAN® Software for Statistical Analysis of Correlated Data. This software accounts for the complex survey design of NSDUH in estimating the SEs (RTI International, 2012). The final, nonresponse-adjusted, and poststratified analysis weights were used in SUDAAN to compute unbiased design-based drug use estimates.

The sampling error of an estimate is the error caused by the selection of a sample instead of conducting a census of the population. The sampling error may be reduced by selecting a large sample and/or by using efficient sample design and estimation strategies, such as stratification, optimal allocation, and ratio estimation. The use of probability sampling methods in NSDUH allows estimation of sampling error from the survey data. SEs have been calculated using SUDAAN for all estimates presented in this report using a Taylor series linearization approach that takes into account the effects of NSDUH's complex design features. The SEs are used to identify unreliable estimates and to test for the statistical significance of differences between estimates.

B.2.1   Variance Estimation for Totals

The variances and SEs of estimates of means and proportions can be calculated reasonably well in SUDAAN using a Taylor series linearization approach. Estimates of means or proportions, $\hat{p}_d$, such as drug use prevalence estimates for a domain d, can be expressed as a ratio estimate:

$$\hat{p}_d = \frac{\hat{Y}_d}{\hat{N}_d},$$

where $\hat{Y}_d$ is a linear statistic estimating the number of substance users in the domain d and $\hat{N}_d$ is a linear statistic estimating the total number of persons in domain d (including both users and nonusers). The SUDAAN software package is used to calculate direct estimates of $\hat{Y}_d$ and $\hat{N}_d$ (and, therefore, $\hat{p}_d$) and also can be used to estimate their respective SEs. A Taylor series approximation method implemented in SUDAAN provides the estimate for the SE of $\hat{p}_d$.

When the domain size, $\hat{N}_d$, is free of sampling error, an estimate of the SE for the total number of substance users is

$$\text{SE}(\hat{Y}_d) = \hat{N}_d \text{SE}(\hat{p}_d).$$

This approach is theoretically correct when the domain size estimates, $\hat{N}_d$, are among those forced to match their respective U.S. Census Bureau population estimates through the weight calibration process. In these cases, $\hat{N}_d$ is not subject to a sampling error induced by the NSDUH design. Section A.3.3 in Appendix A contains further information about the weight calibration process. In addition, more detailed information about the weighting procedures for 2013 will appear in the *2013 NSDUH Methodological Resource Book*, which is in process. Until that volume becomes available, refer to the *2012 NSDUH Methodological Resource Book* (Center for Behavioral Health Statistics and Quality [CBHSQ], 2014a).

For estimated domain totals, $\hat{Y}_d$, where $\hat{N}_d$ is not fixed (i.e., where domain size estimates are not forced to match the U.S. Census Bureau population estimates), this formulation still may provide a good approximation if it can be assumed that the sampling variation in $\hat{N}_d$ is negligible relative to the sampling variation in $\hat{p}_d$. This is a reasonable assumption for many cases in this study.

For some subsets of domain estimates, the above approach can yield an underestimate of the SE of the total when $\hat{N}_d$ was subject to considerable variation. Because of this underestimation, alternatives for estimating SEs of totals were implemented. Since the 2005 NSDUH report, a "mixed" method approach has been implemented for all detailed tables to improve the accuracy of SEs and to better reflect the effects of poststratification on the variance of total estimates. This approach assigns the methods of SE calculation to domains (i.e., subgroups for which the estimates were calculated) within tables so that all estimates among a select set of domains with fixed $\hat{N}_d$ were calculated using the formula above, and all other estimates were calculated directly in SUDAAN, regardless of what the other estimates are within the same table. The set of domains considered controlled (i.e., those with a fixed $\hat{N}_d$) was

restricted to main effects and two-way interactions in order to maintain continuity between years. Domains consisting of three-way interactions may be controlled in a single year but not necessarily in preceding or subsequent years. The use of such SEs did not affect the SE estimates for the corresponding proportions presented in the same sets of tables because all SEs for means and proportions are calculated directly in SUDAAN. As a result of the use of this mixed-method approach, the SEs for the total estimates within many detailed tables were calculated differently from those in NSDUH reports prior to the 2005 report.

Table B.1 at the end of this appendix contains only a partial list of domains with a fixed $\hat{N}_d$ that were used in the weight calibration process. However, the list does include all of the domains that were used in computing SEs for estimates produced in this report and in the 2013 detailed tables. This table includes both the main effects and two-way interactions and may be used to identify the method of SE calculation employed for estimates of totals. For example, Table 1.23 in the 2013 detailed tables presents estimates of illicit drug use among persons aged 18 or older within the domains of gender, Hispanic origin and race, education, and current employment. Estimates among the total population (age main effect), males and females (age by gender interaction), and Hispanics and non-Hispanics (age by Hispanic origin interaction) were treated as controlled in this table, and the formula above was used to calculate the SEs. The SEs for all other estimates, including white and black or African American (age by Hispanic origin by race interaction) were calculated directly from SUDAAN. Estimates presented in this report for racial groups are for non-Hispanics. Thus, the domain for whites by age group in the weight calibration process in Table B.1 is a two-way interaction. However, published estimates for whites by age group in this report and in the 2013 detailed tables actually represent a three-way interaction: white by Hispanic origin (i.e., not Hispanic) by age group.

B.2.2 Suppression Criteria for Unreliable Estimates

As has been done in past NSDUH reports, direct estimates from NSDUH that are designated as unreliable are not shown in this report and are noted by asterisks (*) in figures containing such estimates. The criteria used to define unreliability of direct estimates from NSDUH are based on the prevalence (for proportion estimates), relative standard error (RSE) (defined as the ratio of the SE over the estimate), nominal (actual) sample size, and effective sample size for each estimate. These suppression criteria for various NSDUH estimates are summarized in Table B.2 at the end of this appendix.

Proportion estimates $(\hat{p})$, or rates, within the range $[0 < \hat{p} < 1]$, and the corresponding estimated numbers of users were suppressed if

$$\text{RSE}[-\ln(\hat{p})] > .175 \text{ when } \hat{p} \leq .5$$

or

$$\text{RSE}[-\ln(1-\hat{p})] > .175 \text{ when } \hat{p} > .5 .$$

Using a first-order Taylor series approximation to estimate $\text{RSE}[-\ln(\hat{p})]$ and $\text{RSE}[-\ln(1-\hat{p})]$, the following equation was derived and used for computational purposes when applying a suppression rule dependent on effective sample size:

$$\frac{\text{SE}(\hat{p})/\hat{p}}{-\ln(\hat{p})} > .175 \text{ when } \hat{p} \le .5$$

or

$$\frac{\text{SE}(\hat{p})/(1-\hat{p})}{-\ln(1-\hat{p})} > .175 \text{ when } \hat{p} > .5 .$$

The separate formulas for $\hat{p} \le .5$ and $\hat{p} > .5$ produce a symmetric suppression rule; that is, if $\hat{p}$ is suppressed, $1-\hat{p}$ will be suppressed as well (see Figure B.1 following Table B.2). When $.05 < \hat{p} < .95,$ the symmetric properties of the rule produce a local minimum effective sample size of 50 at $\hat{p} = .2$ and at $\hat{p} = .8$. Using the minimum effective sample size for the suppression rule would mean that estimates of $\hat{p}$ between .05 and .95 would be suppressed if their corresponding effective sample sizes were less than 50. Within this same interval, a local maximum effective sample size of 68 is found at $\hat{p} = .5$. To simplify requirements and maintain a conservative suppression rule, estimates of $\hat{p}$ between .05 and .95 were suppressed if they had an effective sample size below 68.

In addition, a minimum nominal sample size suppression criterion ($n = 100$) that protects against unreliable estimates caused by small design effects and small nominal sample sizes was employed; Table B.2 shows a formula for calculating design effects. Prevalence estimates also were suppressed if they were close to 0 or 100 percent (i.e., if $\hat{p} < .00005$ or if $\hat{p} \ge .99995$).

Beginning with the 1991 survey, the suppression rule for proportions based on $\text{RSE}[-\ln(\hat{p})]$ described previously replaced a rule in which data were suppressed whenever $\text{RSE}(\hat{p}) > .5$. This rule was changed because the rule prior to 1991 imposed a very stringent application for suppressing estimates when $\hat{p}$ is small but imposed a very lax application for large $\hat{p}$. The new rule ensured a more uniformly stringent application across the whole range of $\hat{p}$ (i.e., from 0 to 1). The previous rule also was asymmetric in the sense that suppression only occurred in terms of $\hat{p}$. That is, there was no complementary rule for $(1-\hat{p})$, which the current NSDUH suppression criteria for proportions take into account.

Estimates of totals were suppressed if the corresponding prevalence rates were suppressed. Estimates of means that are not bounded between 0 and 1 (e.g., mean of age at first use) were suppressed if the RSEs of the estimates were larger than .5 or if the nominal sample size was smaller than 10 respondents. This rule was based on an empirical examination of the estimates of mean age of first use and their SEs for various empirical sample sizes. Although arbitrary, a sample size of 10 appeared to provide sufficient precision and still allow reporting by year of first use for many substances.

B.2.3 Statistical Significance of Differences

This section describes the methods used to compare prevalence estimates in this report. Customarily, the observed difference between estimates is evaluated in terms of its statistical significance. Statistical significance is based on the *p* value of the test statistic and refers to the probability that a difference as large as that observed would occur because of random variability in the estimates if there were no difference in the prevalence estimates for the population groups being compared. The significance of observed differences in this report is reported at the .05 level. When comparing prevalence estimates, the null hypothesis (no difference between prevalence estimates) was tested against the alternative hypothesis (there is a difference in prevalence estimates) using the standard difference in proportions test expressed as

$$Z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\text{var}(\hat{p}_1) + \text{var}(\hat{p}_2) - 2\,\text{cov}(\hat{p}_1, \hat{p}_2)}},$$

where $\hat{p}_1$ = first prevalence estimate, $\hat{p}_2$ = second prevalence estimate, $\text{var}(\hat{p}_1)$ = variance of first prevalence estimate, $\text{var}(\hat{p}_2)$ = variance of second prevalence estimate, and $\text{cov}(\hat{p}_1, \hat{p}_2)$ = covariance between $\hat{p}_1$ and $\hat{p}_2$. In cases where significance tests between years were performed, the prevalence estimate from the earlier year becomes the first estimate, and the prevalence estimate from the later year becomes the second estimate (e.g., 2012 is the first estimate and 2013 the second).

Under the null hypothesis, *Z* is asymptotically distributed as a standard normal random variable. Therefore, calculated values of *Z* can be referred to the unit normal distribution to determine the corresponding probability level (i.e., *p* value). Because the covariance term between the two estimates is not necessarily zero, SUDAAN was used to compute estimates of *Z* along with the associated *p* values using the analysis weights and accounting for the sample design as described in Appendix A. A similar procedure and formula for *Z* were used for estimated totals. Whenever it was necessary to calculate the SE outside of SUDAAN (i.e., when domains were forced by the weighting process to match their respective U.S. Census Bureau population estimates), the corresponding test statistics also were computed outside of SUDAAN.

When comparing population subgroups across three or more levels of a categorical variable, log-linear chi-square tests of independence of the subgroups and the prevalence variables were conducted using SUDAAN in order to first control the error level for multiple comparisons. If Shah's Wald *F* test (transformed from the standard Wald chi-square) indicated overall significant differences, the significance of each particular pairwise comparison of interest was tested using SUDAAN analytic procedures to properly account for the sample design (RTI International, 2012). Using the published estimates and SEs to perform independent *t* tests for the difference of proportions usually will provide the same results as tests performed in SUDAAN. However, where the significance level is borderline, results may differ for two reasons: (1) the covariance term is included in SUDAAN tests, whereas it is not included in independent *t* tests; and (2) the reduced number of significant digits shown in the published estimates may cause rounding errors in the independent *t* tests.

A caution in interpreting trends in totals (e.g., estimated numbers of users) is that respondents with large analysis weights can greatly influence the estimated total in a given year when the number of persons in the population with the characteristic of interest is relatively small. As discussed in Chapter 2, for example, the number of persons aged 12 or older who were past year heroin users in 2013 (681,000) was higher than the numbers in most years from 2002 to 2008, but it was not significantly different from the number in 2006 (580,000). The estimate for 2006 was determined to be affected by large analysis weights for a small number of heroin users and suggests that the estimated numbers of past year and past month heroin users in 2006 were statistical anomalies. This finding also underscores the importance of reviewing trends across a larger range of years especially for outcome measures that correspond to a relatively small proportion of the total population (e.g., 681,000 past year heroin users from a population of more than 260 million people aged 12 or older in 2013).

As part of a comparative analysis discussed in Chapter 8, prevalence estimates from the Monitoring the Future (MTF) study, sponsored by the National Institute on Drug Abuse (NIDA), were presented for recency measures of selected substances (see Tables 8.1 to 8.6). The analyses focused on prevalence estimates for 8th and 10th graders and prevalence estimates for young adults aged 19 to 24 for 2002 through 2013. Estimates for the 8th and 10th grade students were calculated using MTF data as the simple average of the 8th and 10th grade estimates. Estimates for young adults aged 19 to 24 were calculated using MTF data as the simple average of three modal age groups: 19 and 20 years, 21 and 22 years, and 23 and 24 years. Published results were not available from NIDA for significant differences in prevalence estimates between years for these subgroups, so testing was performed using information that was available.

For the 8th and 10th grade average estimates, tests of differences were performed between 2013 and the 11 prior years. Estimates for persons in grade 8 and grade 10 were considered independent, simplifying the calculation of variances for the combined grades. Across years, the estimates for 2013 involved samples independent of those in 2002 to 2011. For 2012 and 2013, however, the sample of schools overlapped 50 percent, creating a covariance in the estimates. Design effects published in Johnston et al. (2013) for adjacent and nonadjacent year testing were used.

For the 19- to 24-year-old age group, tests of differences were done assuming independent samples between years an odd number of years apart because two distinct cohorts a year apart were monitored longitudinally at 2-year intervals. This is appropriate for comparisons of 2002, 2004, 2006, 2008, 2010, and 2012 data with 2013 data. However, this assumption results in conservative tests for comparisons of 2003, 2005, 2007, 2009, and 2011 data with 2013 data because testing did not take into account covariances associated with repeated observations from the longitudinal samples. Estimates of covariances were not available.

Complete details on testing between NSDUH and MTF can be found in Section B.2.3 in Appendix B of the 2010 national findings report (CBHSQ, 2011). This discussion also includes variance estimation in the MTF data for testing between adjacent survey years.

B.3   Other Information on Data Accuracy

The accuracy of survey estimates can be affected by nonresponse, coding errors, computer processing errors, errors in the sampling frame, reporting errors, and other errors not due to sampling. These types of "nonsampling errors" and their impact are reduced through data editing, statistical adjustments for nonresponse, close monitoring and periodic retraining of interviewers, and improvement in quality control procedures.

Although these types of errors often can be much larger than sampling errors, measurement of most of these errors is difficult. However, some indication of the effects of some types of these errors can be obtained through proxy measures, such as response rates, and from other research studies.

B.3.1   Screening and Interview Response Rate Patterns

In 2013, respondents continued to receive a $30 incentive in an effort to maximize response rates. The weighted screening response rate (SRR) is defined as the weighted number of successfully screened households[13] divided by the weighted number of eligible households (as defined in Table B.3), or

$$SRR = \frac{\sum w_{hh} complete_{hh}}{\sum w_{hh} eligible_{hh}},$$

where w_{hh} is the inverse of the unconditional probability of selection for the household and excludes all adjustments for nonresponse and poststratification defined in Section A.3.3 of Appendix A. Of the 190,067 eligible households sampled for the 2013 NSDUH, 160,325 were screened successfully, for a weighted screening response rate of 83.9 percent (Table B.3). At the person level, the weighted interview response rate (IRR) is defined as the weighted number of respondents divided by the weighted number of selected persons (see Table B.4), or

$$IRR = \frac{\sum w_i complete_i}{\sum w_i selected_i},$$

where w_i is the inverse of the probability of selection for the person and includes household-level nonresponse and poststratification adjustments (adjustments 1, 2, and 3 in Section A.3.3 of Appendix A). To be considered a completed interview, a respondent must provide enough data to pass the usable case rule.[14] In the 160,325 screened households, a total of 88,742 sample persons were selected, and completed interviews were obtained from 67,838 of these sample persons, for a weighted IRR of 71.7 percent (Table B.4). A total of 15,717 sample persons (20.9 percent) were classified as refusals or parental refusals, 2,622 (3.0 percent) were not available or never at

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[13] A successfully screened household is one in which all screening questionnaire items were answered by an adult resident of the household and either zero, one, or two household members were selected for the NSDUH interview.

[14] The usable case rule requires that a respondent answer "yes" or "no" to the question on lifetime use of cigarettes and "yes" or "no" to at least nine additional lifetime use questions.

home, and 2,565 (4.4 percent) did not participate for various other reasons, such as physical or mental incompetence or language barrier (see Table B.4, which also shows the distribution of the selected sample by interview code and age group). Among demographic subgroups, the weighted IRR was higher among 12 to 17 year olds (82.0 percent), females (73.3 percent), blacks (78.8 percent), persons in the South (73.3 percent), and residents of small metropolitan areas (73.4 percent) than among other related groups (Table B.5).

The overall weighted response rate, defined as the product of the weighted screening response rate and weighted interview response rate or

$$ORR = SRR \times IRR$$

was 60.2 percent in 2013. Nonresponse bias can be expressed as the product of the nonresponse rate $(1 - R)$ and the difference between the characteristic of interest between respondents and nonrespondents in the population $(P_r - P_{nr})$. By maximizing NSDUH response rates, it is hoped that the bias due to the difference between the estimates from respondents and nonrespondents is minimized. Drug use surveys are particularly vulnerable to nonresponse because of the difficult nature of accessing heavy drug users. However, in a study that matched 1990 census data to 1990 NHSDA nonrespondents,[15] it was found that populations with low response rates did not always have high drug use rates. For example, although some populations were found to have low response rates and high drug use rates (e.g., residents of large metropolitan areas and males), other populations had low response rates and low drug use rates (e.g., older adults and high-income populations). Therefore, many of the potential sources of bias tend to cancel each other in estimates of overall prevalence (Gfroerer, Lessler, & Parsley, 1997a).

B.3.2 Inconsistent Responses and Item Nonresponse

Among survey participants, item response rates were generally very high for most drug use items. However, respondents could give inconclusive or inconsistent information about whether they ever used a given drug (i.e., "yes" or "no") and, if they had used a drug, when they last used it; the latter information is needed to identify those lifetime users of a drug who used it in the past year or past month. In addition, respondents could give inconsistent responses to items such as when they first used a drug compared with their most recent use of a drug. These missing or inconsistent responses first are resolved where possible through a logical editing process. Additionally, missing or inconsistent responses are imputed using statistical methodology. These imputation procedures in NSDUH are based on responses to multiple questions, so that the maximum amount of information is used in determining whether a respondent is classified as a user or nonuser, and if the respondent is classified as a user, whether the respondent is classified as having used in the past year or the past month. For example, ambiguous data on the most recent use of cocaine are statistically imputed based on a respondent's data for use (or most recent use) of tobacco products, alcohol, inhalants, marijuana, hallucinogens, and nonmedical use of prescription psychotherapeutic drugs. Nevertheless, editing and imputation of missing responses are potential sources of measurement error. For more information on editing and statistical imputation, see Sections A.3.1 and A.3.2 of

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[15] Prior to 2002, NSDUH was known as the National Household Survey on Drug Abuse (NHSDA).

Appendix A. Details of the editing and imputation procedures for 2013 also will appear in the *2013 NSDUH Methodological Resource Book,* which is in process. Until that volume becomes available, refer to the *2012 NSDUH Methodological Resource Book* (CBHSQ, 2014a).

B.3.3   Data Reliability

A reliability study was conducted as part of the 2006 NSDUH to assess the reliability of responses to the NSDUH questionnaire. An interview/reinterview method was employed in which 3,136 individuals were interviewed on two occasions during 2006 generally 5 to 15 days apart; the initial interviews in the reliability study were a subset of the main study interviews. The reliability of the responses was assessed by comparing the responses of the first interview with the responses from the reinterview. Responses from the first interview and reinterview that were analyzed for response consistency were raw data that had been only minimally edited for ease of analysis and had not been imputed (see Sections A.3.1 and A.3.2 in this report).

This section summarizes the results for the reliability of selected variables related to substance use and demographic characteristics. Reliability is expressed by estimates of Cohen's kappa (κ) (Cohen, 1960), which can be interpreted according to benchmarks proposed by Landis and Koch (1977, p. 165): (a) *poor* agreement for kappas less than 0.00, (b) *slight* agreement for kappas of 0.00 to 0.20, (c) *fair* agreement for kappas of 0.21 to 0.40, (d) *moderate* agreement for kappas of 0.41 to 0.60, (e) *substantial* agreement for kappas of 0.61 to 0.80, and (f) *almost perfect* agreement for kappas of 0.81 to 1.00.

The kappa values for the lifetime and past year substance use variables (marijuana use, alcohol use, and cigarette use) all showed almost perfect response consistency, ranging from 0.82 for past year marijuana use to 0.93 for lifetime marijuana use and past year cigarette use. The value obtained for the substance dependence or abuse measure in the past year showed substantial agreement (0.67), while the substance abuse treatment variable showed almost perfect consistency in both the lifetime (0.89) and past year (0.87). The variables for age at first use of marijuana and perceived great risk of smoking marijuana once a month showed substantial agreement (0.74 and 0.68, respectively). The demographic variables showed almost perfect agreement, ranging from 0.95 for current enrollment in school to 1.00 for gender. For further information on the reliability of a wide range of measures contained in NSDUH, see the complete methodology report (Chromy et al., 2010).

B.3.4   Validity of Self-Reported Substance Use

Most substance use prevalence estimates, including those produced for NSDUH, are based on self-reports of use. Although studies generally have supported the validity of self-report data, it is well documented that these data may be biased (underreported or overreported). The bias varies by several factors, including the mode of administration, the setting, the population under investigation, and the type of drug (Aquilino, 1994; Brener et al., 2006; Harrison & Hughes, 1997; Tourangeau & Smith, 1996; Turner, Lessler, & Gfroerer, 1992). NSDUH utilizes widely accepted methodological practices for increasing the accuracy of self-reports, such as encouraging privacy through audio computer-assisted self-interviewing (ACASI) and providing assurances that individual responses will remain confidential. Comparisons using these methods within NSDUH have shown that they reduce reporting bias (Gfroerer, Eyerman, & Chromy,

2002). Various procedures have been used to validate self-report data, such as biological specimens (e.g., urine, hair, saliva), proxy reports (e.g., family member, peer), and repeated measures (e.g., recanting) (Fendrich, Johnson, Sudman, Wislar, & Spiehler, 1999). However, these procedures often are impractical or too costly for general population epidemiological studies (SRNT Subcommittee on Biochemical Verification, 2002).

A study cosponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) and the National Institute on Drug Abuse (NIDA) examined the validity of NSDUH self-report data on drug use among persons aged 12 to 25. The study found that it is possible to collect urine and hair specimens with a relatively high response rate in a general population survey, and that most youths and young adults reported their recent drug use accurately in self-reports (Harrison, Martin, Enev, & Harrington, 2007). However, there were some reporting differences in either direction, with some respondents not reporting use but testing positive, and some reporting use but testing negative. Technical and statistical problems related to the hair tests precluded presenting comparisons of self-reports and hair test results, while small sample sizes for self-reports and positive urine test results for opiates and stimulants precluded drawing conclusions about the validity of self-reports of these drugs. Further, inexactness in the window of detection for drugs in biological specimens and biological factors affecting the window of detection could account for some inconsistency between self-reports and urine test results.

B.3.5 Revised Estimates for 2006 to 2010

During regular data collection and processing checks for the 2011 NSDUH, data errors were identified. These errors resulted from fraudulent cases submitted by field interviewers and affected the data for Pennsylvania (2006 to 2010) and Maryland (2008 and 2009). Although all fraudulent interview cases were removed from the data files, the affected screening cases were not removed because they were part of the assigned sample. Instead, these screening cases were assigned a final screening code of 39 ("Fraudulent Case") and treated as incomplete with unknown eligibility. The screening eligibility status for these cases then was imputed. Those cases that were imputed to be eligible were treated as unit nonrespondents for weighting purposes; however, these cases were not treated differently from other unit nonrespondents in the weighting process in 2006 to 2010 (see Section A.3.3 in Appendix A).

Table B.3 in Appendix B of the 2011 national findings report (CBHSQ, 2012b) presents screening results for 2010, the last year that was affected by these errors. Cases that were imputed to be eligible are classified with a final code of 39 ("Fraudulent Case"; see Table B.3 in this report). The cases that were imputed to be ineligible did not contribute to the weights and were reported as "Other, Ineligible" in the affected years. Because any cases with falsified data were treated either as ineligible or as unit nonrespondents at the screening level, they were excluded from the interview data (see Table B.4). However, some estimates for 2006 to 2010 in the 2013 national findings report and the 2013 detailed tables, as well as other new reports, may differ from corresponding estimates found in some previous reports or tables.

These errors had minimal impact on the national estimates and no effect on direct estimates for the other 48 States and the District of Columbia. In reports where model-based small area estimation techniques are used, estimates for all States may be affected, even though the errors were concentrated in only two States. In reports that do not use model-based estimates,

the only estimates appreciably affected are estimates for Pennsylvania, Maryland, the mid-Atlantic division, and the Northeast region.

The 2013 national findings report and detailed tables do not include State-level or model-based estimates. However, they do include estimates for the mid-Atlantic division and the Northeast region. Single-year estimates based on 2006 to 2010 data and estimates based on pooled data including any of these years may differ from previously published estimates. Tables and estimates based only on data since 2011 are unaffected by these data errors.

Caution is advised when comparing data from older reports with data from more recent reports that are based on corrected data files. As discussed previously, comparisons of estimates for Pennsylvania, Maryland, the mid-Atlantic division, and the Northeast region are of most concern, while comparisons of national data or data for other States and regions are essentially still valid. CBHSQ within SAMHSA has produced a selected set of corrected versions of reports and tables. In particular, CBHSQ has released a set of modified detailed tables that include revised 2006 to 2010 estimates for the mid-Atlantic division and the Northeast region for certain key measures. CBHSQ does not recommend making comparisons between unrevised 2006 to 2010 estimates and estimates based on data for 2011 and subsequent years for the geographic areas of greatest concern.

B.4   Measurement Issues

B.4.1   Incidence

In epidemiological studies, incidence is defined as the number of new cases of a disease occurring within a specific period of time. Similarly, in substance use studies, incidence refers to the first use of a particular substance.

In the 2004 NSDUH national findings report (Office of Applied Studies [OAS], 2005), a new measure related to incidence was introduced and since then has become the primary focus of Chapter 5 in this national findings report series. The incidence measure is termed as "past year initiation" and refers to respondents whose date of first use of a substance was within the 12 months prior to their interview date. This measure is determined by self-reported past year use, age at first use, year and month of recent new use, and the interview date.

Since 1999, the survey questionnaire has allowed for collection of year and month of first use for recent initiates (i.e., persons who used a particular substance for the first time in a given survey year). Month, day, and year of birth also are obtained directly or are imputed for item nonrespondents as part of the data postprocessing. Additionally, the computer-assisted interviewing (CAI) instrument records and provides the date of the interview. By imputing a day of first use within the year and month of first use, a specific date of first use can be used for estimation purposes.

Past year initiation among persons using a substance in the past year can be viewed as an indicator variable defined as follows:

$$I_{(\text{Past Year Initiate})} \text{ if } [(\text{MM/DD/YYYY})_{\text{Interview}} - (\text{MM/DD/YYYY})_{\text{First Use of Substance}}] \leq 365 \, ,$$

where (MM/DD/YYYY)_{Interview} denotes the month, day, and year of the interview, and (MM/DD/YYYY)_{First Use of Substance} denotes the date of first use. The total number of past year initiates can be used in the estimation of different percentages. Denominators for these percentages vary according to whether rates are being estimated for (a) all persons in the population (or all persons in a subgroup of the population, such as persons in a given age group); (b) persons who are at risk for initiation because they have not used the substance of interest prior to the past 12 months; or (c) past year users of the substance. The detailed tables show all three of these percentages. Chapter 5 in this report includes additional information on these percentages that are reported for NSDUH.

Calculation of estimates of past year initiation do not take into account whether a respondent initiated substance use while a resident of the United States. This method of calculation allows for direct comparability with other standard measures of substance use because the populations of interest for the measures will be the same (i.e., both measures examine all possible respondents and are not restricted to those initiating substance use only in the United States).

One important note for incidence estimates is the relationship between main categories and subcategories of substances (e.g., illicit drugs would be a main category, and inhalants and marijuana would be subcategories in relation to illicit drugs). For most measures of substance use, any member of a subcategory is by necessity a member of the main category (e.g., if a respondent is a past month user of a particular drug, then he or she is also a past month user of illicit drugs in general). However, this is not the case with regard to incidence statistics. Because an individual can only be an initiate of a particular substance category (main or sub) a single time, a respondent with lifetime use of multiple substances may not, by necessity, be included as a past year initiate of a main category, even if he or she were a past year initiate for a particular subcategory because his or her first initiation of other substances within the main category could have occurred earlier.

In addition to estimates of the number of persons initiating use of a substance in the past year, estimates of the mean age of past year initiates of these substances are computed. Unless specified otherwise, estimates of the mean age at initiation in the past 12 months have been restricted to persons aged 12 to 49 so that the mean age estimates reported are not influenced by those few respondents who were past year initiates and were aged 50 or older. As a measure of central tendency, means are influenced heavily by the presence of extreme values in the data, and this constraint should increase the utility of these results to health researchers and analysts by providing a better picture of the substance use initiation behaviors among the civilian, noninstitutionalized population in the United States. This constraint was applied only to estimates of mean age at first use and does not affect estimates of the numbers of new users or the incidence rates.

Although past year initiates aged 26 to 49 are assumed not to be as likely as past year initiates aged 50 or older to influence mean ages at first use, caution still is advised in interpreting trends in these means. Sampling error in initiation estimates for persons aged 26 to 49 can affect year-to-year interpretation of trends (see Section B.2). Consequently, review of substance initiation trends across a larger range of years is especially advised for this age group.

For example, the estimated number of persons aged 26 to 49 who were past year initiates of marijuana increased from 49,000 in 2009 to 210,000 in 2010, or an apparent fourfold increase in the space of a single year (Table B.6). The estimated number of past year marijuana initiates aged 26 to 49 in 2010 was not significantly different from the numbers in 2011 to 2013. Except for 2009, the estimated numbers of past year marijuana initiates in this age group since 2004 were not significantly different from the number in 2013.

In addition, the mean age at first use of marijuana among past year marijuana initiates aged 26 to 49 was higher in 2010 than in 2013, but the means in 2011 and 2012 were not significantly different from the mean in 2013 (Table B.7). Since 2002, only the mean age at first use of marijuana in 2010 (36.3 years) was significantly different from the mean in 2013 (31.2 years) for past year marijuana initiates in this age group. The mean age at first use for any illicit drug among past year initiates aged 26 to 49 in 2013 (35.4 years) was greater than the means in 2004 and 2009 (31.6 and 31.7 years, respectively), but it was not significantly different from the means in other years. Again, these findings indicate the importance of examining substance initiation trends across a larger range of years for this age group. Except for the differences that were indicated, trends in the mean age at initiation for marijuana and any illicit drug among initiates aged 26 to 49 have been fairly stable since 2002.

Similarly, the mean age at first use of inhalants among past year initiates aged 12 to 49 was higher in 2013 than in 2012 (19.2 vs. 16.9 years) (see Chapter 5). In comparison, the median ages at first use for inhalants, which are less susceptible to the influence of extreme values, were 18 years for past year initiates aged 12 to 49 in 2013 and 16 years for those in 2012. Thus, the higher mean in 2013 could be explained by the effect of extreme values on the age at first use in 2013. This finding also underscores the importance of reviewing mean ages at first use across a larger range of years. Anomalous 1-year shifts in the mean age at first use typically "correct" themselves with 1 or 2 additional years of data.

Because NSDUH is a survey of persons aged 12 years old or older at the time of the interview, younger individuals in the sample dwelling units are not eligible for selection into the NSDUH sample. Some of these younger persons may have initiated substance use during the past year. As a result, past year initiate estimates suffer from undercoverage if a reader assumes that these estimates reflect all initial users instead of reflecting only those above the age of 11. For earlier years, data can be obtained retrospectively based on the age at and date of first use. As an example, persons who were 12 years old on the date of their interview in the 2013 survey may report having initiated use of cigarettes between 1 and 2 years ago; these persons would have been past year initiates reported in the 2012 survey had persons who were 11 years old on the date of the 2012 interview been allowed to participate in the survey. Similarly, estimates of past year use by younger persons (age 10 or younger) can be derived from the current survey, but they apply to initiation in prior years and not the survey year.

To get an impression of the potential undercoverage in the current year, reports of substance use initiation reported by persons aged 12 or older were estimated for the years in which these persons would have been 1 to 11 years younger. These estimates do not necessarily reflect behavior by persons 1 to 11 years younger in the current survey. Instead, the data for the 11 year olds reflect initiation in the year prior to the current survey, the data for the 10 year olds reflect behavior between the 12th and 23rd months prior to this year's survey, and so on. A very

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rough way to adjust for the difference in the years that the estimate pertains to without considering changes in the population is to apply an adjustment factor to each age-based estimate of past year initiates. This adjustment factor can be based on a ratio of lifetime users aged 12 to 17 in the current survey year to the same estimate for the prior applicable survey year. To illustrate the calculation, consider past year use of alcohol. In the 2013 survey, 101,441 persons who were 12 years old were estimated to have initiated use of alcohol between 1 and 2 years earlier. These persons would have been past year initiates in the 2012 survey conducted on the same dates had the 2012 survey covered younger persons. The estimated number of lifetime users currently aged 12 to 17 was 7,669,220 for 2013 and 8,067,487 for 2012, indicating fewer overall initiates of alcohol use among persons aged 17 or younger in 2013. Thus, an adjusted estimate of initiation of alcohol use by persons who were 11 years old in 2013 is given by

$$\text{(Estimated Past Year Initates Aged 11)}_{2012} \times \frac{\text{(Estimated Lifetime Users Aged 12 to 17)}_{2013}}{\text{(Estimated Lifetime Users Aged 12 to 17)}_{2012}}.$$

This yielded an adjusted estimate of 96,433 persons 11 years old on a 2013 survey date and initiating use of alcohol in the past year:

$$101,441 \times \frac{7,669,220}{8,067,487} = 96,433.$$

A similar procedure was used to adjust the estimated number of past year initiates among persons who would have been 10 years old on the date of the interview in 2011 and for younger persons in earlier years. The overall adjusted estimate for past year initiates of alcohol use by persons 11 years of age or younger on the date of the interview was 161,183, or about 3.5 percent of the estimate based on past year initiation only by persons aged 12 or older (161,183 ÷ 4,558,527 = 0.0354). Based on similar analyses, the estimated undercoverage of past year initiates was 2.3 percent for cigarettes, 1.1 percent for marijuana, and 13.4 percent for inhalants.

The undercoverage of past year initiates aged 11 or younger also affects the mean age at first use estimate. An adjusted estimate of the mean age at first use was calculated using a weighted estimate of the mean age at first use based on the current survey and the numbers of persons aged 11 or younger in the past year obtained in the aforementioned analysis for estimating undercoverage of past year initiates. Analysis results showed that the mean age at first use was changed from 17.3 to 17.0 for alcohol, from 17.8 to 17.6 for cigarettes, from 18.0 to 17.9 for marijuana, and from 19.2 to 17.7 for inhalants. The decreases reported above are comparable with results generated in prior survey years.

B.4.2 Illicit Drug and Alcohol Dependence and Abuse

The 2013 NSDUH CAI instrumentation included questions that were designed to measure alcohol and illicit drug dependence and abuse. For these substances,[16] dependence and

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[16] Substances include alcohol, marijuana, cocaine, heroin, hallucinogens, inhalants, pain relievers, tranquilizers, stimulants, and sedatives.

abuse questions were based on the criteria in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) (American Psychiatric Association [APA], 1994). Specifically, for marijuana, hallucinogens, inhalants, and tranquilizers, a respondent was defined as having dependence if he or she met three or more of the following six dependence criteria:

1. Spent a great deal of time over a period of a month getting, using, or getting over the effects of the substance.

2. Used the substance more often than intended or was unable to keep set limits on the substance use.

3. Needed to use the substance more than before to get desired effects or noticed that the same amount of substance use had less effect than before.

4. Inability to cut down or stop using the substance every time tried or wanted to.

5. Continued to use the substance even though it was causing problems with emotions, nerves, mental health, or physical problems.

6. The substance use reduced or eliminated involvement or participation in important activities.

For alcohol, cocaine, heroin, pain relievers, sedatives, and stimulants, a seventh withdrawal criterion was added. The seventh withdrawal criterion is defined by a respondent reporting having experienced a certain number of withdrawal symptoms that vary by substance (e.g., having trouble sleeping, cramps, hands tremble). A respondent was defined as having dependence if he or she met three or more of seven dependence criteria for these substances.

For each illicit drug and alcohol, a respondent was defined as having abused that substance if he or she met one or more of the following four abuse criteria and was determined not to be dependent on the respective substance in the past year:

1. Serious problems at home, work, or school caused by the substance, such as neglecting your children, missing work or school, doing a poor job at work or school, or losing a job or dropping out of school.

2. Used the substance regularly and then did something that might have put you in physical danger.

3. Use of the substance caused you to do things that repeatedly got you in trouble with the law.

4. Had problems with family or friends that were probably caused by using the substance and continued to use the substance even though you thought the substance use caused these problems.

Criteria used to determine whether a respondent was asked about the dependence and abuse questions during the interview included the core substance use questions, the frequency of substance use questions (for alcohol and marijuana only), and the noncore substance use questions (for cocaine, heroin, and stimulants, including methamphetamine). Missing or

incomplete responses in the core substance use and frequency of substance use questions were imputed. However, the imputation process did not take into account reported data in the noncore (i.e., substance dependence and abuse) CAI modules because of the complexity of doing this and to avoid disrupting trends for imputed variables as a result of any changes to the noncore questions. Very infrequently, this may result in responses to the dependence and abuse questions that are inconsistent with the imputed substance use or frequency of substance use.

For alcohol and marijuana, respondents were asked the dependence and abuse questions if they reported substance use on more than 5 days in the past year, or if they reported any substance use in the past year but did not report their frequency of past year use (i.e., they had missing frequency data). These missing frequency data were subsequently imputed after data collection processing. Therefore, inconsistencies could have occurred where the imputed frequency of use response indicated less frequent use than required for respondents to be asked the dependence and abuse questions originally (i.e., the imputed frequency value was 5 or fewer days). For alcohol, for example, about 40,000 respondents were past year alcohol users in 2013. Of these, fewer than 100 respondents were missing their frequency data, but were still asked the alcohol dependence and abuse questions; however, their final imputed frequency of use indicated that they used alcohol on 5 or fewer days in the past year.

For cocaine, heroin, and stimulants, respondents were asked the dependence and abuse questions if they reported past year use in a core drug module or past year use in the noncore special drugs module. Thus, the CAI logic allowed some respondents to be asked the dependence and abuse questions for these drugs even if they did not report past year use in the corresponding core module. For cocaine, for example, fewer than 1,400 respondents in 2013 were asked the questions about cocaine dependence and abuse because they reported past year use of cocaine or crack in the core section of the interview. Fewer than 10 additional respondents were asked these questions because they reported past year use of cocaine with a needle in the special drugs module despite not having previously reported past year use of cocaine or crack.

In 2005, two new questions were added to the noncore special drugs module about past year methamphetamine use: "Have you ever, even once, used methamphetamine?" and "Have you ever, even once, used a needle to inject methamphetamine?" In 2006, an additional follow-up question was added to the noncore special drugs module confirming prior responses about methamphetamine use: "Earlier, the computer recorded that you have never used methamphetamine. Which answer is correct?" The responses to these new questions were used in the skip logic for the stimulant dependence and abuse questions. Based on the decisions made during the methamphetamine analysis,[17] respondents who indicated past year methamphetamine use solely from these new special drug use questions (i.e., did not indicate methamphetamine use from the core drug module or other questions in the special drugs module) were categorized as NOT having past year stimulant dependence or abuse regardless of how they answered the dependence and abuse questions. Furthermore, if these same respondents were categorized as not having past year dependence or abuse of any other psychotherapeutic drug (e.g., pain relievers, tranquilizers, or sedatives), then they were categorized as NOT having past year dependence or abuse of psychotherapeutics. Also, if these respondents were not classified as having dependence

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[17] See Section B.4.8 in the *Results from the 2008 National Survey on Drug Use and Health: National Findings* (OAS, 2009) for the methamphetamine analysis decisions.

or abuse for other substances (e.g., alcohol, marijuana, other illicit drugs), then they were categorized as not having dependence or abuse for illicit drugs, illicit drugs or alcohol, or illicit drugs and alcohol.

In 2008, questionnaire logic for determining hallucinogen, stimulant, and sedative dependence or abuse was modified. The revised skip logic used information collected in the noncore special drugs module in addition to that collected in questions from the core drug modules. Respondents were asked about hallucinogen dependence and abuse if they additionally reported in the special drugs module using ketamine, dimethyltryptamine (DMT), alpha-methyltryptamine (AMT), Foxy, or *Salvia divinorum*; stimulant dependence and abuse if they additionally reported nonmedical use of Adderall[®]; and sedative dependence and abuse if they additionally reported nonmedical use of Ambien[®]. Complying with the previous decision to exclude respondents whose methamphetamine use was based solely on responses to noncore questions from being classified as having stimulant dependence or abuse, respondents who indicated past year use or nonmedical use of hallucinogens, stimulants, or sedatives based solely on these special drug questions were categorized as NOT having past year dependence or abuse of the relevant substance regardless of how they answered the dependence and abuse questions.

Respondents might have provided ambiguous information about past year use of any individual substance, in which case these respondents were not asked the dependence and abuse questions for that substance. Subsequently, these respondents could have been imputed to be past year users of the respective substance. In this situation, the dependence and abuse data were unknown; thus, these respondents were classified as not having dependence or abuse of the respective substance. However, such a respondent never actually was asked the dependence and abuse questions.

Table B.1 Demographic and Geographic Domains Forced to Match Their Respective U.S. Census Bureau Population Estimates through the Weight Calibration Process, 2013

Main Effects	Two-Way Interactions
Age Group 12-17 18-25 26-34 35-49 50-64 65 or Older All Combinations of Groups Listed Above[1] **Gender** Male Female **Hispanic Origin** Hispanic or Latino Not Hispanic or Latino **Race[2]** White Black or African American **Geographic Region** Northeast Midwest South West **Geographic Division** New England Middle Atlantic East North Central West North Central South Atlantic East South Central West South Central Mountain Pacific	**Age Group × Gender** (e.g., Males Aged 12 to 17) **Age Group × Hispanic Origin** (e.g., Hispanics or Latinos Aged 18 to 25) **Age Group × Race** (e.g., Whites Aged 26 or Older) **Age Group × Geographic Region** (e.g., Persons Aged 12 to 25 in the Northeast) **Age Group × Geographic Division** (e.g., Persons Aged 65 or Older in New England) **Gender × Hispanic Origin** (e.g., Not Hispanic or Latino Males) **Hispanic Origin × Race** (e.g., Not Hispanic or Latino Whites)

[1] Combinations of the age groups (including but not limited to 12 or older, 18 or older, 26 or older, 35 or older, and 50 or older) also were forced to match their respective U.S. Census Bureau population estimates through the weight calibration process.

[2] Unlike racial/ethnic groups discussed elsewhere in this report, race domains in this table include Hispanics in addition to persons who were not Hispanic.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table B.2 Summary of 2013 NSDUH Suppression Rules

Estimate	Suppress if:
Prevalence Rate, $\hat{p}$, with Nominal Sample Size, n, and Design Effect, *deff* $\left(deff = \dfrac{n[\mathrm{SE}(\hat{p})]^2}{\hat{p}(1-\hat{p})} \right)$	(1) The estimated prevalence rate, $\hat{p}$, is $< .00005$ or $\geq .99995$, or (2) $\dfrac{\mathrm{SE}(\hat{p}) \,/\, \hat{p}}{-\ln(\hat{p})} > .175$ when $\hat{p} \leq .5$, or $\dfrac{\mathrm{SE}(\hat{p}) \,/\, (1-\hat{p})}{-\ln(1-\hat{p})} > .175$ when $\hat{p} > .5$, or (3) *Effective $n < 68$*, where *Effective* $n = \dfrac{n}{deff} = \dfrac{\hat{p}(1-\hat{p})}{\left[\mathrm{SE}(\hat{p})\right]^2}$, or (4) $n < 100$. Note: The rounding portion of this suppression rule for prevalence rates will produce some estimates that round at one decimal place to 0.0 or 100.0 percent but are not suppressed from the tables.
Estimated Number (Numerator of $\hat{p}$)	The estimated prevalence rate, $\hat{p}$, is suppressed. Note: In some instances when $\hat{p}$ is not suppressed, the estimated number may appear as a 0 in the tables. This means that the estimate is greater than 0 but less than 500 (estimated numbers are shown in thousands).
Mean Age at First Use, $\bar{x}$, with Nominal Sample Size, n	(1) $\mathrm{RSE}(\bar{x}) > .5$, or (2) $n < 10$.

deff = design effect; RSE = relative standard error; SE = standard error.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Figure B.1 Required Effective Sample in the 2013 NSDUH as a Function of the Proportion Estimated
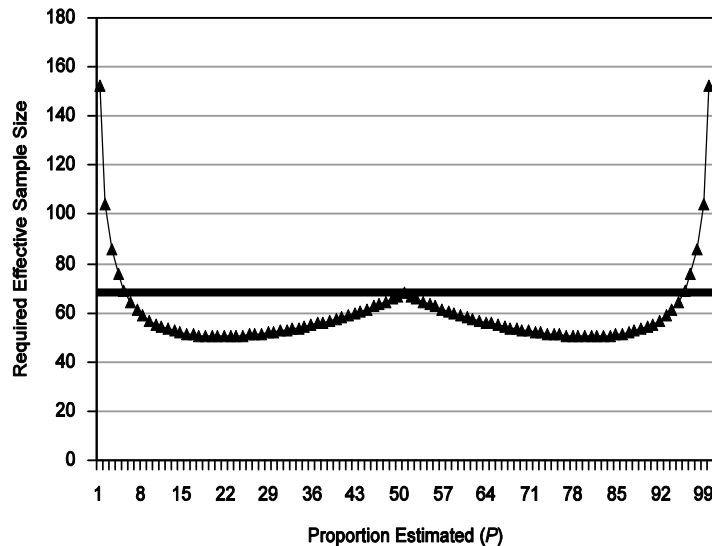
Table B.3 Weighted Percentages and Sample Sizes for 2012 and 2013 NSDUHs, by Final Screening Result Code

Final Screening Result Code	Sample Size 2012	Sample Size 2013	Weighted Percentage 2012	Weighted Percentage 2013
TOTAL SAMPLE	214,274	227,075	100.00	100.00
Ineligible Cases	35,688	37,008	16.57	15.96
Eligible Cases	178,586	190,067	83.43	84.04
INELIGIBLES	35,688	37,008	16.57	15.96
10 - Vacant	19,257	19,839	51.50	51.74
13 - Not a Primary Residence	8,520	8,220	27.46	24.52
18 - Not a Dwelling Unit	2,496	2,617	6.52	6.70
22 - All Military Personnel	352	374	0.97	0.90
Other, Ineligible[1]	5,063	5,958	13.55	16.13
ELIGIBLE CASES	178,586	190,067	83.43	84.04
Screening Complete	153,873	160,325	86.07	83.93
30 - No One Selected	92,991	98,431	50.99	50.51
31 - One Selected	33,455	34,424	19.12	18.38
32 - Two Selected	27,427	27,470	15.96	15.04
Screening Not Complete	24,713	29,742	13.93	16.07
11 - No One Home	3,029	3,244	1.62	1.56
12 - Respondent Unavailable	457	473	0.26	0.27
14 - Physically or Mentally Incompetent	597	598	0.32	0.30
15 - Language Barrier - Hispanic	48	96	0.03	0.06
16 - Language Barrier - Other	748	821	0.50	0.52
17 - Refusal	16,807	21,086	9.39	11.39
21 - Other, Access Denied[2]	2,359	2,549	1.37	1.40
24 - Other, Eligible	14	24	0.01	0.01
27 - Segment Not Accessible	0	0	0.00	0.00
33 - Screener Not Returned	90	73	0.05	0.04
39 - Fraudulent Case	563	776	0.37	0.50
44 - Electronic Screening Problem	1	2	0.00	0.00

[1] Examples of "Other, Ineligible" cases are those in which all residents lived in the dwelling unit for less than half of the calendar quarter and dwelling units that were listed in error.

[2] "Other, Access Denied" includes all dwelling units to which the field interviewer was denied access, including locked or guarded buildings, gated communities, and other controlled access situations.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012 and 2013.

Table B.4 Weighted Percentages and Sample Sizes for 2012 and 2013 NSDUHs, by Final Interview Code

Final Interview Code	12+ Sample Size 2012	12+ Sample Size 2013	12+ Weighted Percentage 2012	12+ Weighted Percentage 2013	12-17 Sample Size 2012	12-17 Sample Size 2013	12-17 Weighted Percentage 2012	12-17 Weighted Percentage 2013	18+ Sample Size 2012	18+ Sample Size 2013	18+ Weighted Percentage 2012	18+ Weighted Percentage 2013
TOTAL	87,656	88,742	100.00	100.00	27,147	27,630	100.00	100.00	60,509	61,112	100.00	100.00
70 - Interview Complete	68,309	67,838	73.04	71.69	22,492	22,532	82.84	81.95	45,817	45,306	72.00	70.61
71 - No One at Dwelling Unit	1,147	1,101	1.26	1.15	192	172	0.67	0.53	955	929	1.33	1.22
72 - Respondent Unavailable	1,445	1,521	1.75	1.81	276	314	1.00	1.15	1,169	1,207	1.83	1.88
73 - Break-Off	21	23	0.05	0.03	0	4	0.00	0.01	21	19	0.06	0.04
74 - Physically/ Mentally Incompetent	1,023	1,012	1.95	1.95	274	284	1.16	1.03	749	728	2.04	2.04
75 - Language Barrier - Hispanic	116	105	0.17	0.16	9	5	0.02	0.02	107	100	0.18	0.17
76 - Language Barrier - Other	419	409	1.24	1.12	30	29	0.15	0.13	389	380	1.36	1.22
77 - Refusal	11,488	12,606	18.63	19.90	900	1,016	3.37	3.62	10,588	11,590	20.25	21.62
78 - Parental Refusal	2,787	3,111	0.97	1.04	2,787	3,111	10.06	10.95	0	0	0.00	0.00
91 - Fraudulent Case	158	93	0.22	0.17	44	18	0.17	0.10	114	75	0.22	0.18
Other[1]	743	923	0.73	0.96	143	145	0.56	0.52	600	778	0.75	1.01

[1] "Other" includes eligible person moved, data not received from field, too dangerous to interview, access to building denied, computer problem, and interviewed wrong household member.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012 and 2013.

**Table B.5 Response Rates and Sample Sizes for 2012 and 2013 NSDUHs, by Demographic Characteristics**

Demographic Characteristic	Selected Persons 2012	Selected Persons 2013	Completed Interviews 2012	Completed Interviews 2013	Weighted Response Rate 2012	Weighted Response Rate 2013
TOTAL	87,656	88,742	68,309	67,838	73.04%	71.69%
AGE IN YEARS						
12-17	27,147	27,630	22,492	22,532	82.84%	81.95%
18-25	28,639	28,921	22,762	22,458	79.26%	77.34%
26 or Older	31,870	32,191	23,055	22,848	70.76%	69.45%
GENDER						
Male	42,942	43,823	32,869	32,840	71.24%	69.97%
Female	44,714	44,919	35,440	34,998	74.71%	73.30%
RACE/ETHNICITY						
Hispanic	13,906	14,369	11,168	11,278	74.95%	74.03%
White	56,374	56,577	43,165	42,305	72.19%	70.47%
Black	10,074	10,304	8,433	8,561	79.06%	78.76%
All Other Races	7,302	7,492	5,543	5,694	67.06%	66.23%
REGION						
Northeast	18,301	18,334	13,773	13,661	69.59%	68.75%
Midwest	24,499	24,842	19,142	18,822	74.27%	71.54%
South	26,279	26,758	20,886	20,782	74.22%	73.32%
West	18,577	18,808	14,508	14,573	72.75%	71.48%
COUNTY TYPE						
Large Metropolitan	39,096	40,266	29,918	30,126	71.21%	70.40%
Small Metropolitan	30,250	30,100	23,859	23,290	75.23%	73.38%
Nonmetropolitan	18,310	18,376	14,532	14,422	75.05%	72.82%

NOTE: Estimates are based on demographic information obtained from screener data and are not consistent with estimates on demographic characteristics presented in the 2012 and 2013 sets of detailed tables.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012 and 2013.

Table B.6 Past Year Initiates of Marijuana and Any Illicit Drug among Persons Aged 12 or Older, Aged 26 or Older, or Aged 26 to 49: Numbers in Thousands, 2002-2013

Drug/Age Group	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana, Aged 12 or Older	2,196[a]	1,973[b]	2,142[a]	2,114[a]	2,061[b]	2,089[b]	2,224	2,379	2,439	2,617	2,398	2,427
Marijuana, Aged 26 or Older	90[a]	88[a]	176	252	126	134	159	49[b]	247	182	177	210
Marijuana, Aged 26 to 49	90	56[b]	127	122	126	121	155	49[b]	210	138	139	178
Any Illicit Drug, Aged 12 or Older	2,656	2,627	2,784	2,908	2,785	2,672	2,905	3,136	2,982	3,083	2,883	2,848
Any Illicit Drug, Aged 26 or Older	268	324	479	579	415	326	419	433	457	368	339	389
Any Illicit Drug, Aged 26 to 49	251	209	333	379	405	250	350	205	366	270	280	325

*Low precision; no estimate reported.

[a] Difference between estimate and 2013 estimate is statistically significant at the .05 level.

[b] Difference between estimate and 2013 estimate is statistically significant at the .01 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013.

Table B.7 Mean Age at First Use of Marijuana and Any Illicit Drug among Past Year Initiates Aged 26 to 49, 2002-2013

Drug	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Marijuana	31.2	29.6	29.5	30.4	29.1	32.4	32.6	32.2	36.3[a]	29.5	33.1	31.2
Any Illicit Drug	34.8	32.8	31.6[a]	34.0	33.9	32.9	35.1	31.7[a]	37.2	33.0	35.0	35.4

*Low precision; no estimate reported.

[a] Difference between estimate and 2013 estimate is statistically significant at the .05 level.

[b] Difference between estimate and 2013 estimate is statistically significant at the .01 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2013.

Appendix C: Other Sources of Data

There are sources of substance use data other than the National Survey on Drug Use and Health (NSDUH). It is useful to consider the results of these other studies when discussing NSDUH data because no single source of data can fully cover all issues associated with substance use in the United States. Each data source can contribute to a broader understanding of substance use and the relationships of substance use to other issues of interest. This appendix briefly describes several of these other data systems and presents selected comparisons with NSDUH results. In addition, this appendix describes other sources of data specifically for receipt of substance abuse treatment services. Populations covered by other sources of data for substance abuse treatment may overlap with the population covered by NSDUH, but also may include populations not covered by NSDUH (e.g., persons receiving treatment in facilities as an inpatient or resident for an extended period, persons entering treatment as an inpatient after having been incarcerated). Some of the surveys on substance use included in this appendix also include populations not covered by NSDUH.

When evaluating the information presented here, it is important to consider and understand the methodological differences between the different surveys and the impact that these differences could have on estimates of the presence of substance use. Several studies have compared NSDUH estimates with estimates from other studies and have evaluated how differences may have been affected by differences in survey methodology (Batts et al., 2014; Center for Behavioral Health Statistics and Quality [CBHSQ], 2012a; Gfroerer, Wright, & Kopstein, 1997b; Grucza, Abbacchi, Przybeck, & Gfroerer, 2007; Hennessy & Ginsberg, 2001; Miller et al., 2004; Pemberton et al., 2013). These comparisons suggest that the goals and approaches of surveys are often different, making comparisons between them difficult. Some methodological differences that have been identified as affecting comparisons include populations covered, sampling methods, modes of data collection, questionnaires, and estimation methods.

C.1 Other National Surveys of Substance Use

Behavioral Risk Factor Surveillance System (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS)—a State-based system of health surveys—collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. The BRFSS surveys are cross-sectional telephone surveys conducted by State health departments with technical and methodological assistance from the Centers for Disease Control and Prevention (CDC). Every year, States conduct monthly telephone surveys of adults (aged 18 or older) in households using random-digit-dialing (RDD) methods; unlike NSDUH, BRFSS excludes persons living in group quarters (e.g., dormitories).

Currently, the questionnaire has three parts: (1) a core questionnaire, (2) optional modules, and (3) State-added questions. The core questionnaire consists of a standard set of questions asked by all States every year and includes questions on demographic characteristics, alcohol use, and tobacco use. Questions about lifetime depression have been included in the core

since 2011. Optional modules consist of questions on specific topics that States can elect to include. Although the modules are optional, CDC standards require that States use them without modification. Optional modules include mental health topics, such as anxiety, depression, or psychological distress. However, the number of States administering optional modules can vary from year to year, and the content of these modules can vary over time. For example, 12 States and Puerto Rico administered the anxiety and depression module in 2010, but only 2 States did so in 2011. States also may include State-added questions at their own expense. However, these questions are not part of the official BRFSS questionnaire. Development of these questions and analysis of data from them are not supported by the CDC.

Since 1994, BRFSS has collected data from all 50 States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands using a computer-assisted telephone interviewing (CATI) design. More than 400,000 adults are interviewed each year. Prior to 2011, the sample included only households with landline telephones, and the weighting methodology included a poststratification step. Beginning with the 2011 BRFSS, the sample was expanded to include households with only cellular telephones in addition to those that were covered by landline phones, and the weighting methodology replaced the poststratification step with raking in order to incorporate more demographic variables (e.g., education level, home ownership) as well as telephone source (landline or cellular telephone). These changes were recognized as having the potential to produce shifts in prevalence estimates in 2011 and subsequent years relative to estimates in prior years that were based on the previous methodology (CDC, 2012). The CDC has since concluded that the BRFSS 2011 prevalence data should be considered a baseline year because of these methodological changes.

National estimates obtained through the BRFSS online analysis tool or in publications that cite BRFSS data typically are presented as medians.[18] BRFSS includes questions on alcohol consumption and tobacco use. However, definitions of binge alcohol use and current cigarette use differ between NSDUH and BRFSS. Since 2006, BRFSS has used a lower threshold for binge alcohol use for females (four or more drinks on an occasion) than for males (five or more drinks on an occasion), whereas NSDUH uses the same criterion for males and females (i.e., consumption of five or more drinks on an occasion). Current cigarette users in BRFSS are defined as adults who have smoked 100 or more cigarettes in their lifetime and who report that they currently smoke cigarettes. In NSDUH, current cigarette use is defined as any cigarette use in the 30 days prior to the interview.

These differences in definitions and methodological differences can affect the comparability of estimates between BRFSS and NSDUH. For example, the prevalence of current cigarette use among adults in NSDUH in 2012 was 23.8 percent, and the median BRFSS prevalence for the 50 States and the District of Columbia was 19.6 percent. Although BRFSS data are presented as medians and NSDUH estimates are not, BRFSS rates of binge drinking were somewhat lower than the NSDUH estimates among adults aged 18 or older in 2012, despite the lower threshold for women (e.g., for females: 11.4 percent for BRFSS and 16.8 percent for NSDUH). The use of audio computer-assisted self-interviewing (ACASI) in NSDUH, which is considered to be more anonymous than CATI in BRFSS and yields higher reporting of sensitive

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[18] The BRFSS online analysis tool is available by clicking on the "Prevalence Data and Data Analysis Tools" link at http://www.cdc.gov/brfss/.

behaviors, may explain lower binge alcohol use rates in combined 1999 and 2000 BRFSS data than in corresponding NSDUH data (Miller et al., 2004).[19] Response rates also have been higher in NSDUH than BRFSS, which could result in differential nonresponse bias patterns in the two surveys.

For further details, see the CDC Web site at http://www.cdc.gov/brfss/.

Monitoring the Future (MTF)

The Monitoring the Future (MTF) study is an ongoing study of substance use trends and related attitudes among America's secondary school students, college students, and adults through age 50. The MTF provides information on the use of alcohol, illicit drugs, and tobacco. The study is conducted annually by the Institute for Social Research at the University of Michigan through grants awarded by the National Institute on Drug Abuse (NIDA). The MTF and NSDUH are the Federal Government's largest and primary tools for tracking youth substance use. The MTF is composed of three substudies: (a) an annual survey of high school seniors that was initiated in 1975; (b) ongoing panel studies of representative samples from each graduating class (i.e., 12th graders) that have been conducted by mail since 1976; and (c) annual surveys of 8th and 10th graders that were initiated in 1991. Each spring, students in the 8th, 10th, and 12th grades complete a self-administered, machine-readable questionnaire during a regular class period. Approximately 50,000 students in about 420 public and private secondary schools are surveyed annually for the cross-sectional study, and approximately 2,400 persons who participated in the survey of 12th graders are followed longitudinally. The latest MTF was conducted in 2013.

Comparisons between the MTF estimates and estimates based on students sampled in NSDUH generally have shown NSDUH substance use prevalence levels to be lower than MTF estimates (see Table C.1 at the end of this appendix and CBHSQ, 2012a).[20] The lower prevalences in NSDUH may be due to more underreporting in the household setting as compared with the MTF school setting and some overreporting in the school settings. However, findings presented in Chapter 8 of this report generally show parallel trends in the prevalence of substance use in NSDUH and MTF for both the annual cross-sectional data for youths and the longitudinal data for young adults.

The population of inference for the MTF school-based data collection is adolescents who were in the 8th, 10th, and 12th grades; therefore, the MTF does not survey dropouts. The MTF also does not include students who were absent from school on the day of the survey, although they are part of the population of inference. NSDUH has shown that dropouts and adolescents who frequently were absent from school have higher rates of illicit drug use (CBHSQ, 2012a; Gfroerer et al., 1997b). In October 2012, the percentages of persons who were not currently enrolled in school and had not graduated from high school were 1.7 percent for adolescents aged 14 or 15, 2.9 percent for those aged 16 or 17, 7.1 percent for persons aged 18 or 19, and

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[19] NSDUH and BRFSS in 1999 and 2000 used a threshold of five or more drinks for both males and females; see the BRFSS online analysis tool at http://www.cdc.gov/brfss/.
[20] To examine estimates that are comparable with MTF data, NSDUH estimates presented in Table C.1 are based on data collected in the first 6 months of the survey year and are subset to ages 12 to 20.

6.6 percent for those aged 20 or 21.[21] Depending on the effects of the exclusion of dropouts and frequent absentees, data from MTF may not generalize to the population of adolescents as a whole, especially for older adolescents.

For further details, see the MTF Web site at http://www.monitoringthefuture.org/.

National Comorbidity Survey (NCS)

The National Comorbidity Survey (NCS) was sponsored by the National Institute of Mental Health (NIMH), NIDA, and the W.T. Grant Foundation. It was designed to measure in the general population the prevalence of the illnesses described in the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition revised (DSM-III-R) (American Psychiatric Association [APA], 1987). The first wave of the NCS, conducted from 1990 to 1992, was a household survey of persons in the continental United States (i.e., excluding Alaska and Hawaii) that collected data from 8,098 respondents aged 15 to 54 in a face-to-face interview using paper-and-pencil interviewing (PAPI). These responses were weighted to produce nationally representative estimates. A random sample of 4,414 respondents also was administered an additional module that captured information on nicotine dependence. The interviews took place between 1990 and 1992. The NCS used a modified version of the Composite International Diagnostic Interview (the University of Michigan-CIDI) to generate DSM-III-R diagnoses.

There have been several follow-ups to and replications of the original NCS, including a 10-year follow-up of the baseline sample (NCS-2), a replication study conducted in 2001 to 2003 with a newly recruited nationally representative sample of 9,282 respondents aged 18 or older (NCS-R) (Kessler et al., 2004), and an adolescent sample of adolescents aged 13 to 17 (NCS-A) in 2001 to 2004 that included 904 adolescents from households that participated in the NCS-R and 9,244 respondents from a nationally representative sample of 320 schools (Kessler et al., 2009). As for the NCS, the samples for the NCS-2, NCS-R, and NCS-A excluded Alaska and Hawaii.

The NCS provides information on the use of alcohol, illicit drugs, and tobacco and on substance dependence or abuse. The NCS-R used an updated version of the CIDI that was designed to capture diagnoses of substance abuse or dependence using DSM-IV criteria (APA, 1994). Interviews were conducted using computer-assisted personal interviewing (CAPI). It should be noted that in several NCS-R studies (e.g., Kessler, Chiu, Demler, Merikangas, & Walters, 2005), the diagnosis for abuse also includes those who meet the diagnosis for dependence. In contrast, NSDUH follows DSM-IV guidelines and limits the definition of abuse to persons who do not meet the criteria for dependence. To make the NCS definition of abuse comparable with that of NSDUH, the rate for dependence must be subtracted from the rate for abuse. Rates of alcohol dependence or abuse and rates of illicit drug dependence or abuse were generally lower in NCS-R than in NSDUH (Kessler et al., 2005).

For further details, see the NCS Web site at http://www.hcp.med.harvard.edu/ncs/.

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[21] These data were taken from the U.S. Census Bureau's Current Population Survey (CPS) and were available (at the time of publication) at http://www.census.gov/ by clicking on the "People" heading, selecting "School Enrollment," then selecting the detailed tables for "School Enrollment in the United States: 2012." Rates cited in this appendix are from the Census Bureau's Table 1 for all races and for both males and females.

National Health and Nutrition Examination Survey (NHANES)

The National Health and Nutrition Examination Survey (NHANES) has assessed the health and nutritional status of children and adults in the United States since the 1960s through the use of both survey and physical examination components. It is sponsored by the National Center for Health Statistics (NCHS) and began as a series of periodic surveys in which several years of data were combined into a single data release. Since 1999, it has been a continuous survey, with interview data collected each year for approximately 5,000 persons of all ages. The target population for NHANES is the civilian, noninstitutionalized population from birth onward. Data for 2011-2012 are the most currently available for public use; 2 years of data are combined to protect respondent confidentiality.

NHANES interviews are conducted in respondents' homes. NHANES also collects physical health measurements and data on sensitive topics through ACASI in mobile examination centers (MECs), which travel to locations throughout the United States. The NHANES MEC interview includes questions on alcohol, illicit drug, and tobacco use.

Both NSDUH and NHANES use complex cluster sample designs that affect the precision of estimates. In addition, the smaller sample sizes for NHANES (i.e., 5,000 per year vs. 67,500 per year for NSDUH) are likely to yield estimates that are less precise than those in NSDUH. The sources of nonresponse and coverage bias also differ for the two surveys. For example, NHANES respondents have to travel to a MEC to respond to the substance use items, which may eliminate homebound respondents or affect the participation of respondents with limited access to transportation.

The most recently available substance use estimates from NHANES were based on combined data from 1999 to 2004 and indicated that 13.0 percent of youths aged 12 to 17 had smoked cigarettes in the past 30 days, 21.1 percent had used alcohol in the past 30 days, and 10.4 percent were past month binge alcohol users. An estimated 21.1 percent of youths had ever tried marijuana, and 2.4 percent had ever used cocaine (Fryar, Merino, Hirsch, & Porter, 2009). NSDUH estimates for youths aged 12 to 17 in 2002 to 2004 ranged from 11.9 to 13.0 percent for past month use of cigarettes, from 17.6 to 17.7 percent for past month alcohol use, and from 10.6 to 11.1 percent for past month binge alcohol use. Lifetime use of marijuana in 2002 to 2004 among youths ranged from 19.0 to 20.6 percent, and lifetime use of cocaine ranged from 2.4 to 2.7 percent.

For further details, see the NHANES Web site at http://www.cdc.gov/nchs/nhanes.htm.

National Health Interview Survey (NHIS)

The National Health Interview Survey (NHIS) is a continuous, nationally representative sample survey that collects data using personal household interviews through CAPI. The survey is sponsored by the NCHS and provides national estimates of the health status, access to care and insurance, health service utilization, and health behaviors of the civilian, noninstitutionalized population, including cigarette smoking and alcohol use among persons aged 18 or older. NHIS data have been collected since 1957. In 2012, there were three core components of the survey: the Family Core, which collects information from all family members aged 18 or older in each

household; the Sample Adult Core, which collects information from one adult aged 18 or older in each family; and the Sample Child Core, which collects information on youths under age 18 from a knowledgeable family member, usually a parent, in households with a child. In 2012, NHIS sample sizes were 108,131 persons for the Family Core, 34,525 adults for the Sample Adult Core, and 13,275 children for the Sample Child Core (NCHS, Office of Information Services, 2013).

The NHIS estimates of substance use for adults are not strictly comparable with NSDUH estimates. For example, in the NHIS, consumption of five or more drinks on at least 1 day is measured for the past year, whereas the reference period for NSDUH is the past 30 days. As for BRFSS, adults in the NHIS are defined as current cigarette users if they smoked at least 100 cigarettes in their lifetime and also reported that they currently smoke (Schoenborn, Adams, & Peregoy, 2013).

For further details, see the NCHS Web site at http://www.cdc.gov/nchs/nhis.htm.

National Longitudinal Alcohol Epidemiologic Survey (NLAES) and National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)

The National Longitudinal Alcohol Epidemiologic Survey (NLAES) was conducted in 1991 and 1992 by the U.S. Bureau of the Census for the National Institute on Alcohol Abuse and Alcoholism (NIAAA). Face-to-face, interviewer-administered interviews using paper-and-pencil questionnaires were conducted with 42,862 respondents aged 18 or older in households in the contiguous United States. Despite the survey name, the design was cross-sectional.

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) was a longitudinal study conducted in 2001 and 2002, also by the U.S. Bureau of the Census for NIAAA, using CAPI. The NESARC sample was designed to make inferences for persons aged 18 or older in the civilian, noninstitutionalized population of the United States, including Alaska, Hawaii, and the District of Columbia, and including persons living in noninstitutional group quarters. The first wave was conducted in 2001 and 2002, with a final sample size of 43,093 respondents aged 18 or older. The second wave was conducted in 2004 and 2005, in which 34,653 Wave 1 respondents were reinterviewed (Grant & Dawson, 2006; NIAAA, 2010). A 1-year data collection period for NESARC-III began in 2012 with a new cohort of approximately 46,500 adults.

NESARC contains assessments of drug use, dependence, and abuse and associated mental disorders. NESARC included an extensive set of questions, based on DSM-IV criteria (APA, 1994), designed to assess the presence of symptoms of alcohol and drug dependence and abuse in persons' lifetimes and during the prior 12 months. In addition, DSM-IV diagnoses of major mental disorders were generated using the Alcohol Use Disorder and Associated Disabilities Interview Schedule-version 4 (AUDADIS-IV), which is a structured diagnostic interview that captures major DSM-IV axis I and axis II disorders.

Research indicates that (a) prevalence estimates for substance use were generally higher in NSDUH than in NESARC; (b) rates of past year substance use disorder (SUD) for cocaine and heroin use were higher in NSDUH than in NESARC; (c) rates of past year SUD for use of

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alcohol, marijuana, and hallucinogens were similar between NSDUH and NESARC; and (d) prevalence estimates for past year SUD conditional on past year use were substantially lower in NSDUH for the use of marijuana, hallucinogens, and cocaine (Grucza et al., 2007). A number of methodological factors might have contributed to such discrepancies, including privacy and anonymity. Questions about sensitive topics in NSDUH are self-administered, while similar questions are interviewer administered in NESARC, which may have resulted in higher use estimates in NSDUH. In addition, differences in SUD diagnostic instrumentation may have resulted in higher SUD prevalence among past year substance users in NESARC.

For further details about NLAES, see Stinson et al. (1998). For an overview of NESARC findings, see Caetano (2006).

National Longitudinal Study of Adolescent Health (Add Health)

The National Longitudinal Study of Adolescent Health (Add Health) was conducted to measure the effects of family, peer group, school, neighborhood, religious institution, and community influences on health risks, such as tobacco, drug, and alcohol use. Add Health was initiated in 1994 and supported by grants from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) with cofunding from 23 other Federal agencies and foundations.

The study began in 1994-1995 (Wave I) with an in-school questionnaire administered to a nationally representative sample of 90,000 students in grades 7 to 12 in 144 schools and followed up with an in-home interview. In Wave I, the students were administered brief, machine-readable questionnaires during a regular class period. Interviews also were conducted with about 20,000 students and their parents in the students' homes using a combined CAPI and ACASI design. In Wave II, conducted in 1996, about 15,000 students in grades 8 to 12 were interviewed a second time in their homes. In Wave III in 2001-2002, about 15,000 of the original Add Health respondents, then aged 18 to 26, were reinterviewed to investigate how adolescent experiences and behaviors are related to outcomes during the transition to adulthood. Wave IV was conducted in 2007-2008 when the approximately 15,000 respondents were aged 24 to 32. The study provides information on the use of alcohol, illicit drugs, and tobacco.

For further details, see the Add Health Web site at
http://www.cpc.unc.edu/projects/addhealth.

Partnership Attitude Tracking Study (PATS)

The Partnership Attitude Tracking Study (PATS), an annual national research study that tracks attitudes about illegal drugs, is sponsored by the Partnership at Drugfree.org and the MetLife Foundation. PATS consists of two nationally representative samples—a teenage sample for students in grades 9 through 12 and a parent sample. Adolescents complete self-administered, machine-readable questionnaires during a regular class period. The latest PATS surveys of teenagers and parents were conducted in 2012. The 2012 survey of adolescents included questions about use of cigarettes, alcohol, and illicit drugs. In 2012, 3,884 teenagers were surveyed nationwide in the 24th wave of the survey conducted since 1987, and 817 parents or

caregivers of children in grades 9 to 12 were surveyed (Partnership at Drugfree.org & MetLife Foundation, 2013).

In general, NSDUH estimates of substance use prevalence for adolescents are lower than PATS estimates for youths in that age group. In 2012, for example, PATS estimates of marijuana use among adolescents in grades 9 through 12 were 45 percent for lifetime use and 24 percent for use in the past month (Partnership at Drugfree.org & MetLife Foundation, 2013). In 2012, corresponding estimates of lifetime marijuana use in NSDUH were 23.8 percent for 10th graders and 38.5 percent for 12th graders (Table C.1). Rates of past month marijuana use in NSDUH were 10.9 percent for 10th graders and 15.5 percent for 12th graders. The differences in prevalence estimates may be due to the different study designs. The youth portion of PATS is a school-based survey, which, similar to other school-based surveys (e.g., MTF), may elicit more reporting of illicit drug use than the home-based NSDUH.

For further details, see the Partnership at Drugfree.org Web site at http://www.drugfree.org/.

Youth Risk Behavior Survey (YRBS)

Since 1991, the Youth Risk Behavior Survey (YRBS) has been a component of the CDC's Youth Risk Behavior Surveillance System (YRBSS), which measures the prevalence of six priority health risk behavior categories: (a) behaviors that contribute to unintentional injuries and violence; (b) tobacco use; (c) alcohol and other drug use; (d) sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including human immunodeficiency virus infection; (e) unhealthy dietary behaviors; and (f) physical inactivity. The YRBSS includes national, State, territorial, tribal, and local school-based surveys of high school students conducted every 2 years. The national school-based survey uses a three-stage cluster sample design to produce a nationally representative sample of students in grades 9 through 12 who attend public and private schools. The State and local surveys use a two-stage cluster sample design to produce representative samples of public school students in grades 9 through 12 in their jurisdictions. The YRBS is conducted during the spring, with students completing a self-administered, machine-readable questionnaire during a regular class period. For the 2013 national YRBS (the latest that has been conducted), 13,583 usable questionnaires were obtained in 148 schools.

In general, the YRBS school-based survey has found higher rates of substance use for youths than those found in NSDUH (Table C.2).[22] The lower prevalence rates in NSDUH are likely due to the differences in study design. As in the case of comparisons with estimates from the MTF, the lower prevalences in NSDUH may be due to more underreporting in the household setting, as compared with the YRBS school setting, and some overreporting in the school settings.

Similar to other school-based surveys, the population of inference for the YRBS is the population of adolescents who are in school, specifically those in the 9th through 12th grades. Consequently, the YRBS does not include data from dropouts. The YRBS makes follow-up

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[22] To examine estimates that are comparable with YRBS data, NSDUH estimates presented in Table C.2 are based on data collected in the first 6 months of the survey year and are subset to ages 12 to 20.

attempts to obtain data from youths who were absent on the day of survey administration, but nevertheless does not obtain complete coverage of these youths. For these reasons, YRBS data are not intended to be used for making inferences about the adolescent population of the United States as a whole.

For further details, see the CDC Web site at http://www.cdc.gov/HealthyYouth/yrbs /.

C.2   Substance Abuse Treatment Data Sources

The Substance Abuse and Mental Health Services Administration's (SAMHSA's) Behavioral Health Services Information System (BHSIS, formerly the Drug and Alcohol Services Information System, or DASIS) includes three components that provide national- and State-level information on the numbers and characteristics of individuals admitted to substance abuse treatment programs and that describe the facilities that deliver care to those individuals. The core of BHSIS is the Inventory of Behavioral Health Services (I-BHS), a continually updated, comprehensive listing of all known substance abuse and mental health treatment facilities; further details about I-BHS are not included in this section. The two other components of BHSIS are described in this section: the National Survey of Substance Abuse Treatment Services (N-SSATS) and the Treatment Episode Data Set (TEDS).

National Survey of Substance Abuse Treatment Services (N-SSATS)

The National Survey of Substance Abuse Treatment Services (N-SSATS) started in 2000 and is an annual survey of all known drug and alcohol abuse treatment facilities in the United States and U.S. jurisdictions. The 2012 N-SSATS facility universe totaled 19,316 facilities. About 17 percent of the facilities in 2012 were found to be ineligible because they had closed or did not provide substance abuse treatment or detoxification. Of the remaining eligible facilities, more than 14,000 (93 percent) completed the survey. The 2012 N-SSATS employed three sequential data collection modes: a secure Web-based questionnaire, a paper questionnaire sent by mail upon request to facilities that had not responded to the Web-based questionnaire, and a telephone interview for facilities that had not responded to the Web or paper questionnaire. The percentage of facilities responding via the Web increased from 44 percent in 2007 to 81 percent in 2012 (CBHSQ, 2013).

In N-SSATS, facilities provide information on the characteristics of the treatment facility, including (but not limited to) client payment sources, services provided, and hospital and residential capacity. N-SSATS also collects data from facilities on the number of clients in treatment on the survey reference date (i.e., the last working day of March in the survey year, such as March 30, 2012) and the percentages of clients in treatment on the reference date for abuse of alcohol and other drugs, alcohol abuse only, other drug abuse only, and co-occurring substance abuse and mental health disorders. Average counts of the number of persons in treatment for alcohol or illicit drug abuse on a single day were about 1.2 million based on N-SSATS data from 2007 to 2009. Corresponding average single-day counts from NSDUH were about 1.4 million based on the questionnaire item asking about treatment on October 1st and

1.2 million based on the item about currently being in treatment at the time of the interview.[23] Compared with data reported by facilities in N-SSATS, NSDUH respondents were more likely to report treatment only for alcohol and were less likely to report treatment only for illicit drugs (Batts et al., 2014).

As noted previously, N-SSATS collects data on substance abuse treatment utilization from facilities. In contrast, NSDUH estimates of treatment utilization are based on self-reports of treatment from respondents in the general population. The validity of N-SSATS data on treatment utilization depends on the accuracy of the reports provided by the person(s) responding on behalf of the facility just as the validity of NSDUH estimates on the receipt of substance abuse treatment depends on accurate respondent self-reports. Also, N-SSATS counts of clients who received treatment cover clients who may be outside of the NSDUH target population (e.g., homeless persons not living in shelters, active-duty military personnel). In addition, N-SSATS percentages of clients receiving treatment both for alcohol and other drugs, only alcohol, and only other drugs are based on responses to a single question that asks a facility staff member to assign these percentages to each category. In contrast, NSDUH respondents who reported receiving treatment at a specialty facility are asked about the substances for which they received treatment.

For further details, see the SAMHSA Web site at http://www.samhsa.gov/data/.

Treatment Episode Data Set (TEDS)

The Treatment Episode Data Set (TEDS) is a compilation of data on the demographic characteristics and substance abuse problems of those aged 12 or older who are admitted for substance abuse treatment, based on administrative data that are routinely collected by State substance abuse agencies (SSAs) for substance abuse treatment. SSAs report data to TEDS for approximately 2 million annual admissions to treatment in the United States and Puerto Rico primarily from facilities that receive some public funding. The TEDS system consists of two major components—the Admissions Data Set and the Discharge Data Set. The TEDS Admissions Data Set includes annual client-level data on substance abuse treatment admissions since 1992. The TEDS Discharge Data Set can be linked at the record level to admissions and includes information from clients discharged in 2000 and later. The most current TEDS data at the time this report was written were the 2012 admissions data and the 2011 discharge data.

The TEDS Admissions Data Set consists of a Minimum Data Set collected by all States and a Supplemental Data Set collected by some States. The Minimum Data Set consists of 19 items that include demographic information; primary, secondary, and tertiary substance problems at admission; source of referral; number of prior treatment episodes; and service type at admission. Supplemental Data Set items consist of 17 items that include psychiatric, social, and economic measures. The TEDS Discharge Data Set consists of items on service type at discharge, reason for discharge (e.g., completed treatment, transferred to another program or

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[23] Counts of the number of persons in treatment on a single day in N-SSATS were based on reports of the number of persons in treatment on the last working day of March. Corresponding NSDUH estimates were based on data from respondents from the 2008 to 2010 NSDUHs who reported that they were enrolled in a specialty substance use treatment program on October 1st of the year prior to the interview or those from the 2007 to 2009 NSDUHs who were in specialty substance use treatment at the time of the interview (Batts et al., 2014).

facility, dropped out), and length of stay (LOS). LOS is calculated by subtracting the admission date from the discharge date (or date of last contact). Based on linked admissions and discharge data, the average number of persons who received treatment in the past year based on TEDS data from 2007 to 2009 was about 22 percent lower than the average from 2005 to 2010 in NSDUH for treatment in a specialty facility (1.9 million vs. 2.4 million). The single-day count of persons in treatment from TEDS was about 0.5 million, which was lower than the single-day counts for N-SSATS (1.2 million) and NSDUH (1.2 million to 1.4 million, depending on the questions that were used; see the N-SSATS section in this appendix).[24] Thus, TEDS may underestimate the number of persons in treatment on a single day (Batts et al., 2014).

Although TEDS includes data for a sizable proportion of admissions to substance abuse treatment, it does not include all admissions. Because TEDS is a compilation of data from State administrative systems, the scope of facilities included in TEDS is affected by differences in State reporting requirements, licensure, certification, and accreditation practices, as well as disbursement of public funds. Many SSAs require facilities that receive public funding (including Federal block grant funds) for substance abuse treatment services to report data to the SSA, whereas others require all facilities that are licensed or certified by the State to report TEDS data. States also vary in terms of the specific admissions that are reported to TEDS (e.g., all admissions to eligible facilities that report to TEDS versus admissions financed by public funds).

For further details, see the SAMHSA Web site at http://www.samhsa.gov/data/.

C.3   Surveys of Populations Not Covered by NSDUH

Department of Defense Health Related Behaviors Survey of Active Duty Military Personnel

The 2011 Department of Defense Health Related Behaviors Survey of Active Duty Military Personnel (HRB survey) was updated extensively since the last iteration of the survey in 2008. For the first time, the survey was administered using a Web-based individual self-administered questionnaire rather than through an onsite group administration of paper-and-pencil questionnaires. Because of this change in survey administration, the 2011 sample was no longer clustered geographically. The questionnaire also was revised to allow use of skip logic to reduce respondent burden and additional alignment with questions in national surveys of civilian populations, such as the NHIS. For example, current cigarette use was defined in the 2011 HRB survey based on the NHIS definition of persons having smoked 100 or more cigarettes in their lifetime and now smoking on some days or every day; the NSDUH definition of current cigarette use is any use of cigarettes in the past 30 days. The 2011 HRB survey sample consisted of 39,877 active-duty, nondeployed service members in the Army, Navy, Marine Corps, Air Force, and Coast Guard (Barlas, Higgins, Pflieger, & Diecker, 2013). The survey provides information

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[24] The numbers of persons in TEDS who received treatment were derived from linked admissions and discharge data or from adjusted admissions data for States that did not submit discharge data. Multiple admissions that were linked by a single unique identifier represented one person. Three States (Alabama, Alaska, and Georgia) and the District of Columbia were not included in the TEDS data because they did not report TEDS data or reported incomplete data. For comparison purposes, data from these States were excluded from NSDUH data on average numbers who received treatment in the past year. However, single-day counts for persons in treatment from N-SSATS and NSDUH included data from these States (Batts et al., 2014).

about the use of alcohol, illicit drugs, and tobacco. Because of changes to procedures for sampling, data collection (including questionnaire changes), weighting, data processing, and analysis, estimates from the 2011 HRB survey are not directly comparable with estimates from prior HRB survey administrations. Consequently, the 2011 HRB survey represents a new baseline.

In administrations of this survey prior to 2011, comparisons with NSDUH data have consistently shown that, even after accounting for demographic differences between the military and civilian populations, the military personnel had higher rates of heavy alcohol use than their civilian counterparts, similar rates of cigarette use, and lower rates of illicit drug use (Bray et al., 2009). Published comparisons of rates of heavy alcohol use, binge alcohol use, and cigarette use between military personnel and civilians based on 2011 HRB survey data were not adjusted for demographic differences between the populations other than to limit the civilian data to persons aged 18 to 65, thus affecting the conclusions that can be drawn from comparisons between the HRB and civilian data sources.

National Inmate Survey (NIS)

The National Inmate Surveys were conducted in 2007 (NIS-1) and in 2008-2009 (NIS-2). They fulfill the requirements of the Prison Rape Elimination Act of 2003 (P.L. 108-79) for the Bureau of Justice Statistics (BJS) to provide a list of prisons and jails according to the prevalence of sexual victimization. BJS added a companion survey on drug and alcohol use and treatment to both the NIS-1 and NIS-2. Inclusion of the companion survey on substance use and treatment was designed to prevent facility staff from knowing whether inmates were selected to receive the survey on sexual victimization or the companion survey and also was intended to provide more recent information on substance use and related issues among correctional populations in the United States compared with the Surveys of Inmates in State and Federal Correctional Facilities (see below).

The NIS used a two-stage probability sample design first to select State and Federal correctional facilities, then to select inmates within sampled facilities. This resulted in a sample representing approximately 10 percent of the 1,260 State and 192 Federal adult confinement facilities identified in the 2005 Census of State and Federal Adult Correctional Facilities. At least one facility in every State was selected; Federal facilities were grouped together and treated like a State for sampling purposes. The sample design also ensured a sufficient number of women in the sample. Samples were restricted to confinement facilities (i.e., institutions in which fewer than 50 percent of the inmates were regularly permitted to leave for work, study, or treatment without being accompanied by facility staff). The NIS samples also excluded community-based facilities, such as halfway houses, group homes, and work release centers. Inmates aged 18 or older within sampled facilities were randomly selected for the interview.

The NIS-1 was conducted in 146 State and Federal prisons and in 282 local jails between April and August 2007. Overall NIS-1 response rates for both survey forms were 72 percent for prison inmates and 67 percent for jail inmates. A total of 7,754 prison or jail inmates completed the drug and alcohol survey for the NIS-1. The NIS-2 was conducted in 167 State and Federal prisons and 286 jails between October 2008 and August 2009. NIS-2 response rates were

71 percent for prison inmates and 68 percent for jail inmates. A total of 5,015 prison or jail inmates completed the drug and alcohol survey for the NIS-2.

The interviews used CAPI for general background information at the beginning of the interview and ACASI for the remainder. Respondents completed the ACASI portion of the interview in private, with the interviewer either leaving the room or moving away from the computer. Sampled inmates were randomly assigned to receive the sexual victimization survey or the companion survey on substance use and treatment. Substance use questions were based on items from past inmate surveys conducted by BJS, such as the 2004 Survey of Inmates in State Correctional Facilities (SISCF), and included questions about lifetime and first use of drugs or alcohol, being under the influence of drugs or alcohol at the time of their current offense, substance use prior to being admitted to the facility, problems associated with substance use, and treatment for use of drugs or alcohol.

For further details about the NIS, see BJS's "All Data Collections" Web page at http://bjs.ojp.usdoj.gov/index.cfm?ty=dca. Results from the drug and alcohol use and treatment surveys are expected in 2015. Upon release of the findings, data will be made available at the National Archive of Criminal Justice Data (http://www.icpsr.umich.edu/NACJD/).

Surveys of Inmates in State and Federal Correctional Facilities (SISCF, SIFCF)

The Survey of Inmates in State Correctional Facilities (SISCF) and the Survey of Inmates in Federal Correctional Facilities (SIFCF) have provided nationally representative data on State prison inmates and sentenced Federal inmates held in federally owned and operated facilities. The Survey of State Inmates was conducted in 1974, 1979, 1986, 1991, 1997, and 2004, and the Survey of Federal Inmates in 1991, 1997, and 2004. The U.S. Census Bureau conducted the 2004 SISCF for the BJS and the SIFCF for BJS and the Federal Bureau of Prisons. Both surveys provide information about current offense and criminal history; family background and personal characteristics; prior drug and alcohol use and treatment; gun possession; and prison treatment, programs, and services. The surveys are the only national source of detailed information on criminal offenders, particularly special populations such as drug and alcohol users and offenders who have mental health problems. Systematic random sampling was used to select the inmates, and the SISCF and SIFCF in 2004 were administered through CAPI. In 2004, 14,499 State prisoners in 287 State prisons and 3,686 Federal prisoners in 39 Federal prisons were interviewed.

Prior drug use among State prisoners remained stable on all measures between 1997 and 2004, while the percentage of Federal inmates who reported prior drug use rose on most measures (Mumola & Karberg, 2006). For the first time, half of Federal inmates reported drug use in the month before their offense. In 2004, measures of drug dependence and abuse based on criteria in DSM-IV (APA, 1994) were introduced, and 53 percent of the State and 45 percent of Federal prisoners met the DSM-IV criteria for drug abuse or dependence. The survey results indicate substantially higher rates of drug use among State and Federal prisoners as compared with NSDUH's rates for the general household population.

For further details, see BJS's "All Data Collections" Web page at http://bjs.ojp.usdoj.gov/index.cfm?ty=dca.

Table C.1 Use of Specific Substances in Lifetime, Past Year, and Past Month among 8th, 10th, and 12th Graders in MTF and NSDUH: Percentages, 2012 and 2013

Drug/Current Grade Level	MTF Lifetime (2012)	MTF Lifetime (2013)	NSDUH Lifetime (2012)	NSDUH Lifetime (2013)	MTF Past Year (2012)	MTF Past Year (2013)	NSDUH Past Year (2012)	NSDUH Past Year (2013)	MTF Past Month (2012)	MTF Past Month (2013)	NSDUH Past Month (2012)	NSDUH Past Month (2013)
Marijuana												
8th Grade	15.2	16.5	7.8	6.8	11.4	12.7	5.9	5.6	6.5	7.0	3.0	2.5
10th Grade	33.8	35.8	23.8	24.5	28.0	29.8	19.6	19.7	17.0	18.0	10.9	11.4
12th Grade	45.2	45.5	38.5	38.1	36.4	36.4	29.1	31.1	22.9	22.7	15.5	17.4
Cocaine												
8th Grade	1.9	1.7	0.3	0.2	1.2	1.0	0.2	0.1	0.5	0.5	0.0	0.1
10th Grade	3.3	3.3	1.2	1.0	2.0	1.9	0.9	0.6	0.8	0.8	0.2	0.0
12th Grade	4.9	4.5	3.9	3.1	2.7	2.6	2.1	1.7	1.1	1.1	0.3	0.2
Inhalants												
8th Grade	11.8	10.8	7.8	6.4	6.2[a]	5.2	3.5	2.5	2.7	2.3	1.1	0.9
10th Grade	9.9	8.7	8.6	6.5	4.1	3.5	3.7[a]	1.8	1.4	1.3	1.1	0.6
12th Grade	7.9	6.9	6.8	5.3	2.9	2.5	2.5[a]	1.1	0.9	1.0	0.4	0.1
Cigarettes												
8th Grade	15.5	14.8	10.3	9.0	--	--	7.0	5.6	4.9	4.5	3.1	2.1
10th Grade	27.7[a]	25.7	24.8	22.5	--	--	16.7	15.4	10.8[a]	9.1	8.5	8.8
12th Grade	39.5	38.1	37.1	35.0	--	--	26.5	24.9	17.1	16.3	17.8	16.9
Alcohol												
8th Grade	29.5	27.8	20.4	18.9	23.6	22.1	15.7	13.8	11.0	10.2	7.1	5.4
10th Grade	54.0	52.1	44.7	44.3	48.5	47.1	38.8	36.8	27.6	25.7	17.8	17.7
12th Grade	69.4	68.2	62.2	61.7	63.5	62.0	53.5	52.6	41.5[a]	39.2	32.7	30.7

MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.

-- Not available.

NOTE: NSDUH data have been drawn from January to June of each survey year and subset to persons aged 12 to 20 to be more comparable with MTF data.

[a] Difference between this estimate and the 2013 estimate within the same survey is statistically significant at the .05 level.
[b] Difference between this estimate and the 2013 estimate within the same survey is statistically significant at the .01 level.

Sources: National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2012 and 2013. SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012 and 2013 (January-June).

Table C.2 Lifetime and Past Month Substance Use among Students in Grades 9 to 12 in YRBS and NSDUH: Percentages, 2005, 2007, 2009, 2011, and 2013

Substance/ Period of Use	YRBS (2005)	YRBS (2007)	YRBS (2009)	YRBS (2011)	YRBS (2013)	NSDUH (2005)	NSDUH (2007)	NSDUH (2009)	NSDUH (2011)	NSDUH (2013)
Marijuana										
Lifetime Use	38.4	38.1	36.8[a]	39.9	40.7	28.1	26.4	27.8	29.3[a]	27.1
Past Month Use	20.2[a]	19.7[b]	20.8[a]	23.1	23.4	11.2	10.9	12.0	13.3	12.1
Cocaine										
Lifetime Use	7.6[b]	7.2[a]	6.4	6.8[a]	5.5	3.8[b]	3.8[b]	2.9[b]	2.3[a]	1.6
Past Month Use	3.4	3.3	2.8	3.0	--	0.8[b]	0.6[b]	0.4	0.5[a]	0.2
Ecstasy										
Lifetime Use	6.3	5.8	6.7	8.2[a]	6.6	2.8	2.9	3.3	4.3[b]	3.1
Past Month Use	--	--	--	--	--	0.4	0.4	0.8[b]	0.7[a]	0.3
Inhalants										
Lifetime Use	12.4[b]	13.3[b]	11.7[b]	11.4[b]	8.9	12.0[b]	10.7[b]	10.1[b]	8.1[b]	6.0
Past Month Use	--	--	--	--	--	1.1[b]	1.1[b]	0.6	0.6	0.4
Cigarettes										
Lifetime Use	54.3[b]	50.3[b]	46.3[b]	44.7[a]	41.1	39.0[b]	35.2[b]	33.7[b]	31.3[b]	25.3
Past Month Use	23.0[b]	20.0[b]	19.5[b]	18.1	15.7	17.0[b]	15.5[b]	14.9[b]	14.5[b]	10.4
Alcohol										
Lifetime Use	74.3[b]	75.0[b]	72.5[b]	70.8[b]	66.2	57.5[b]	57.6[b]	56.5[b]	52.4[b]	47.8
Past Month Use	43.3[b]	44.7[b]	41.8[b]	38.7[b]	34.9	26.0[b]	26.3[b]	25.8[b]	23.7[b]	20.1

NSDUH = National Survey on Drug Use and Health; YRBS = Youth Risk Behavior Survey.

-- Not available.

NOTE: NSDUH data have been drawn from January to June of each survey year and subset to persons aged 12 to 20 to be more comparable with YRBS data. Some 2007 and 2009 NSDUH estimates may differ from previously published estimates due to updates (see Section B.3 in Appendix B of this report).

NOTE: Statistical tests for the YRBS were conducted using the "Youth Online" tool at http://www.cdc.gov/HealthyYouth/yrbs/. Results of testing for statistical significance in this table may differ from published YRBS reports of change.

[a] Difference between this estimate and the 2013 estimate within the same survey is statistically significant at the .05 level.
[b] Difference between this estimate and the 2013 estimate within the same survey is statistically significant at the .01 level.

Sources: Centers for Disease Control and Prevention, Youth Risk Behavior Survey, 2005, 2007, 2009, 2011, and 2013. SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, January-June for 2005, 2007, 2009, 2011, and 2013.

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Appendix E: List of Contributors

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