Results from the 2012
National Survey on Drug Use and Health:
Summary of National Findings

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Center for Behavioral Health Statistics and Quality

Acknowledgments

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Highlights

This report presents the first information from the 2012 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 2012, an estimated 23.9 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 9.2 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 increased from 8.1 percent in 2008 to 9.2 percent in 2012. The rate in 2012 was similar to the rates in 2009 to 2011 (ranging from 8.7 to 8.9 percent), but it was higher than the rates in the years from 2002 to 2008 (ranging from 7.9 to 8.3 percent).

- Marijuana was the most commonly used illicit drug. In 2012, there were 18.9 million past month users. Between 2007 and 2012, the rate of current use increased from 5.8 to 7.3 percent, and the number of users increased from 14.5 million to 18.9 million.

- Daily or almost daily use of marijuana (used on 20 or more days in the past month) increased from 5.1 million persons in 2007 to 7.6 million persons in 2012.

- In 2012, there were 1.6 million current cocaine users aged 12 or older, comprising 0.6 percent of the population. These estimates were similar to the number and rate in 2011 (1.4 million persons and 0.5 percent), but they were lower than in 2003 to 2007 (e.g., 2.4 million persons and 1.0 percent in 2006).

- The number of past year heroin users increased between 2007 (373,000) and 2012 (669,000).

- An estimated 1.1 million persons aged 12 or older in 2012 (0.4 percent) used hallucinogens in the past month. These estimates were similar to the estimates in 2002 to 2011.

- The percentage of persons aged 12 or older who used prescription-type psychotherapeutic drugs nonmedically in the past month in 2012 (2.6 percent) was similar to the percentage in 2011 (2.4 percent) and all years from 2002 through 2010.

- The number of past month methamphetamine users decreased between 2006 and 2012, from 731,000 (0.3 percent) to 440,000 (0.2 percent).

- Among youths aged 12 to 17, the current illicit drug use rate was similar in 2011 (10.1 percent) and 2012 (9.5 percent). The rate declined from 11.6 percent in 2002 to 9.3 percent in 2008, increased to 10.1 percent in 2009, and remained at 10.1 percent in 2010 and 2011.

- The rate of current marijuana use among youths aged 12 to 17 decreased from 8.2 percent in 2002 to 6.7 percent in 2006, remained unchanged at 6.7 percent in 2007 and 2008, then increased to 7.9 percent in 2011. The rate declined to 7.2 percent in 2012.

- Among youths aged 12 to 17, the rate of current nonmedical use of prescription-type drugs declined from 4.0 percent in 2002 to 2.8 percent in 2012. The rate of nonmedical pain reliever use declined during this period from 3.2 to 2.2 percent among youths.

- The rate of current use of illicit drugs among young adults aged 18 to 25 increased from 19.7 percent in 2008 to 21.3 percent in 2012, driven largely by an increase in marijuana use (from 16.6 percent in 2008 to 18.7 percent in 2012).

- Among young adults aged 18 to 25, the rate of current nonmedical use of prescription-type drugs in 2012 was 5.3 percent, which was similar to the rates in 2010 and 2011, but it was lower than the rate in the years from 2003 to 2007 (ranging from 5.9 to 6.5 percent).

- There was a decrease from 2005 to 2012 in the use of cocaine among young adults aged 18 to 25, from 2.6 to 1.1 percent.

- Among adults aged 50 to 64, the rate of current illicit drug use increased during the past decade. For adults aged 50 to 54, the rate increased from 3.4 percent in 2002 to 7.2 percent in 2012. Among those aged 55 to 59, the rate of current illicit drug use increased from 1.9 percent in 2002 to 6.6 percent in 2012. Among those aged 60 to 64, the rate increased from 1.1 percent in 2003 to 3.6 percent in 2012. These trends partially reflect the aging into these age groups of members of the baby boom cohort (i.e., persons born between 1946 and 1964), whose rates of illicit drug use have been higher than those of older cohorts.

- Among unemployed adults aged 18 or older in 2012, 18.1 percent were current illicit drug users, which was higher than the rates of 8.9 percent for those who were employed full time and 12.5 percent for those who were employed part time. However, most illicit drug users were employed. Of the 21.5 million current illicit drug users aged 18 or older in 2012, 14.6 million (67.9 percent) were employed either full or part time.

- In 2012, 10.3 million persons aged 12 or older reported driving under the influence of illicit drugs during the past year. This corresponds to 3.9 percent of the population aged 12 or older, which was higher than the rate in 2011 (3.7 percent). The rate had declined steadily between 2002 and 2011, from 4.7 to 3.7 percent, before increasing in 2012. In 2012, the rate was highest among young adults aged 18 to 25 (11.9 percent).

- Among persons aged 12 or older in 2011-2012 who used pain relievers nonmedically in the past 12 months, 54.0 percent got the drug they used most recently from a friend or relative for free, and 10.9 percent bought the drug from a friend or relative. Another 19.7 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 0.2 percent bought them on the Internet.

Alcohol Use

- Slightly more than half (52.1 percent) of Americans aged 12 or older reported being current drinkers of alcohol in the 2012 survey, which was similar to the rate in 2011 (51.8 percent). This translates to an estimated 135.5 million current drinkers in 2012.

- In 2012, nearly one quarter (23.0 percent) of persons aged 12 or older were binge alcohol users in the past 30 days. This translates to about 59.7 million people. The rate in 2012 was similar to the estimate in 2011 (22.6 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 2012, heavy drinking was reported by 6.5 percent of the population aged 12 or older, or 17.0 million people. This rate was similar to the rate of heavy drinking in 2011 (6.2 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 2012, the rate of binge drinking was 39.5 percent, and the rate of heavy drinking was 12.7 percent. These rates were similar to the corresponding rates in 2011 (39.8 and 12.1 percent, respectively).

- The rate of current alcohol use among youths aged 12 to 17 was 12.9 percent in 2012. Youth binge and heavy drinking rates in 2012 were 7.2 and 1.3 percent, respectively. These rates were all similar to those reported in 2011 (13.3, 7.4, and 1.5 percent, respectively).

- In 2012, an estimated 11.2 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, when it was 14.2 percent, but it was similar to the rate in 2011 (11.1 percent). Among persons aged 18 to 25, the rate of driving under the influence of alcohol decreased steadily between 2002 and 2011 (from 26.6 to 18.6 percent), but it did not change from 2011 to 2012 (18.4 percent).

- An estimated 9.3 million underage persons (aged 12 to 20) were current drinkers in 2012, including 5.9 million binge drinkers and 1.7 million heavy drinkers.

- Past month, binge, and heavy drinking rates among underage persons declined between 2002 and 2012. Past month alcohol use declined from 28.8 to 24.3 percent, binge drinking declined from 19.3 to 15.3 percent, and heavy drinking declined from 6.2 to 4.3 percent.

- In 2012, 54.4 percent of current underage drinkers reported that their last use of alcohol occurred in someone else's home, and 31.4 percent reported that it had occurred in their own home. Among current underage drinkers, 28.2 percent paid for the alcohol the last time they drank, including 7.6 percent who purchased the alcohol themselves and 20.4 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, 23.0 percent got it from a parent, guardian, or other adult family member, and 18.8 percent got it from another person younger than 21 years old.

Tobacco Use

- In 2012, an estimated 69.5 million Americans aged 12 or older were current (past month) users of a tobacco product. This represents 26.7 percent of the population in that age range. Also, 57.5 million persons (22.1 percent of the population) were current cigarette smokers; 13.4 million (5.2 percent) smoked cigars; 9.0 million (3.5 percent) used smokeless tobacco; and 2.5 million (1.0 percent) smoked tobacco in pipes.

- Between 2002 and 2012, past month use of any tobacco product among persons aged 12 or older decreased from 30.4 to 26.7 percent, and past month cigarette use declined from 26.0 to 22.1 percent. Rates of past month use of cigars and smokeless tobacco in 2012 were similar to corresponding rates in 2002. However, past month pipe tobacco use increased from 0.8 percent in 2002 to 1.0 percent in 2012.

- The rate of past month tobacco use among 12 to 17 year olds declined from 15.2 percent in 2002 to 8.6 percent in 2012, including a decline from 2011 (10.0 percent) to 2012. The rate of past month cigarette use among 12 to 17 year olds also declined between 2002 and 2012, from 13.0 to 6.6 percent, including a decline between 2011 (7.8 percent) and 2012.

- Among youths aged 12 to 17 who smoked cigarettes in the past month, 54.6 percent also used an illicit drug, compared with only 6.4 percent of youths who did not smoke cigarettes.

Initiation of Substance Use (Incidence, or First-Time Use) within the Past 12 Months

- In 2012, an estimated 2.9 million persons aged 12 or older used an illicit drug for the first time within the past 12 months. This averages to about 7,900 initiates per day and was similar to the estimate for 2011 (3.1 million). A majority of these past year illicit drug initiates reported that their first drug was marijuana (65.6 percent). More than 1 in 4 initiated with nonmedical use of prescription drugs (26.0 percent, including 17.0 percent with pain relievers, 4.1 percent with tranquilizers, 3.6 percent with stimulants, and 1.3 percent with sedatives). In 2012, 6.3 percent of initiates reported inhalants as their first illicit drug, and 2.0 percent used hallucinogens as their first drug.

- In 2012, the illicit drug categories with the largest number of past year initiates were marijuana use (2.4 million) and nonmedical use of pain relievers (1.9 million). These estimates were similar to the numbers in 2011. However, the number of marijuana initiates increased between 2007 (2.1 million) and 2012 (2.4 million).

- The number of past year initiates of methamphetamine was 133,000 in 2012. This number was lower than the estimates in 2002 to 2004, which ranged from 260,000 to 318,000.

- The number of past year initiates of Ecstasy was 869,000 in 2012, which was similar to the numbers in 2010 (949,000) and 2011 (922,000), but it was lower than the number in 2009 (1.1 million). The number had increased from 615,000 in 2005 to 1.1 million in 2009.

- The number of past year cocaine initiates declined from 1.0 million in 2002 to 639,000 in 2012. The number of crack cocaine initiates declined from 337,000 to 84,000 during this period.

- In 2012, there were 156,000 persons aged 12 or older who used heroin for the first time within the past year, which was similar to the estimates from 2007 to 2011. However, this was an increase from the annual numbers of initiates during 2003 (92,000) and 2006 (90,000).

- Most (81.4 percent) of the 4.6 million past year alcohol initiates in 2012 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 2.3 million in 2012, which was similar to the estimate in 2011 (2.4 million), but it was higher than the estimate for 2002 (1.9 million). About half of new smokers in 2012 were younger than 18 when they first smoked cigarettes (51.4 percent or 1.2 million). The number of new smokers who began smoking at age 18 or older increased from 623,000 in 2002 to 1.1 million in 2012.

- In 2012, an estimated 778,000 persons aged 12 or older began smoking cigarettes daily within the past 12 months, including 257,000 persons who were under age 18 when they started smoking daily. The annual number of new daily smokers declined from about 1.1 million in 2009 to 778,000 in 2012.

- The number of persons aged 12 or older who used smokeless tobacco for the first time within the past year was 1.0 million, which was lower than in 2009 (1.5 million) and in 2011 (1.3 million).

Youth Prevention-Related Measures

- 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 43.6 percent in 2012.

- Between 2002 and 2008, the percentage of youths who reported great risk in smoking one or more packs of cigarettes per day increased from 63.1 to 69.5 percent. However, the percentage dropped to 65.5 percent in 2009 and remained steady between 2009 and 2012 (65.7 percent).

- About half (47.8 percent) of youths aged 12 to 17 reported in 2012 that it would be "fairly easy" or "very easy" for them to obtain marijuana if they wanted some. One in six reported it would be easy to get cocaine (16.0 percent), 11.5 percent indicated that LSD would be easily available, and 9.9 percent reported easy availability for heroin. Between 2002 and 2012, there were declines in perceived availability for all four of these drugs.

- A majority of youths aged 12 to 17 (89.3 percent) in 2012 reported that their parents would strongly disapprove of their trying marijuana once or twice. 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 (4.3 vs. 31.0 percent).

- In 2012, 75.9 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). 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 to 75.0 percent.

Substance Dependence, Abuse, and Treatment

- In 2012, an estimated 22.2 million persons aged 12 or older (8.5 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, 2.8 million were classified with dependence or abuse of both alcohol and illicit drugs, 4.5 million had dependence or abuse of illicit drugs but not alcohol, and 14.9 million had dependence or abuse of alcohol but not illicit drugs.

- The annual number of persons with substance dependence or abuse in 2012 (22.2 million) was similar to the number in each of the years from 2002 to 2010 (ranging from 21.6 million to 22.7 million), but it was higher than the number in 2011 (20.6 million).

- The specific illicit drugs with the largest numbers of persons with past year dependence or abuse in 2012 were marijuana (4.3 million), pain relievers (2.1 million), and cocaine (1.1 million). The number of persons with marijuana dependence or abuse did not change between 2002 and 2012. Between 2004 and 2012, the number with pain reliever dependence or abuse increased from 1.4 million to 2.1 million, and between 2006 and 2012, the number with cocaine dependence or abuse declined from 1.7 million to 1.1 million.

- The number of persons with heroin dependence or abuse in 2012 (467,000) was approximately twice the number in 2002 (214,000).

- In 2012, adults aged 21 or older who had first used alcohol at age 14 or younger were more than 7 times as likely to be classified with alcohol dependence or abuse than adults who had their first drink at age 21 or older (15.2 vs. 2.1 percent).

- Between 2002 and 2012, the percentage of youths aged 12 to 17 with substance dependence or abuse declined from 8.9 to 6.1 percent.

- 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 2012, 23.1 million persons aged 12 or older needed treatment for an illicit drug or alcohol use problem (8.9 percent of persons aged 12 or older). Of these, 2.5 million (1.0 percent of persons aged 12 or older and 10.8 percent of those who needed treatment) received treatment at a specialty facility. Thus, 20.6 million persons (7.9 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 20.6 million persons aged 12 or older in 2012 who were classified as needing substance use treatment but did not receive treatment at a specialty facility in the past year, 1.1 million persons (5.4 percent) reported that they felt they needed treatment for their illicit drug or alcohol use problem. Of these 1.1 million persons who felt they needed treatment, 347,000 (31.3 percent) reported that they made an effort to get treatment. Based on combined 2009-2012 data, the primary reason for not receiving treatment among this group of persons was a lack of insurance coverage and inability to pay the cost (38.2 percent).

1. Introduction

This report presents a first look at results from the 2012 National Survey on Drug Use and Health (NSDUH), 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 2011 and 2012 and from 2002 to 2012, as well as differences across population subgroups in 2012. 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 2013.

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 the Substance Abuse and Mental Health Services Administration (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 2012 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. 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

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

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 153,873 addresses, and 68,309 completed interviews were obtained. The survey was conducted from January through December 2012. Weighted response rates for household screening and for interviewing were 86.1 and 73.0 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 2012, 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 2012 estimates with estimates from prior surveys. The most important change was the addition of a $30 incentive payment 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 2012.

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; for the 2011 and 2012 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 in 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. Section B.4.3 in Appendix B provides a summary of the results of an investigation of the effect of the change on 2011 estimates, and additional details for this investigation are provided in Section B.4.3 in Appendix B of the 2011 national findings report for NSDUH (CBHSQ, 2012c).

This change in control totals does not affect comparisons between 2011 and 2012 because the control totals for each of these years were based on the 2010 census. However, some trends between 2012 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, and examines trends in illicit drug use among older adults, including the impact of the aging baby boom cohort. 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 on the SAMHSA Web site (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 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 2012 estimates are significantly different from 2011 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 2012. 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 2012 national findings report and the 2012 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, Other Pacific Islander, Asian, Other). Respondents choosing both Native Hawaiian 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 new 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 2012 detailed tables.

Other NSDUH Reports and Data

Other reports using the 2012 NSDUH data and focusing on specific topics of interest will be made available on SAMHSA's Web site. In particular, data on mental health will be discussed in a separate report to be released later this year: *Results from the 2012 National Survey on Drug Use and Health: Mental Health Findings*. State-level estimates for substance use and mental health for 2011-2012 are scheduled to be released later this year as well.

Figure 1.1 U.S. Census Bureau Regions
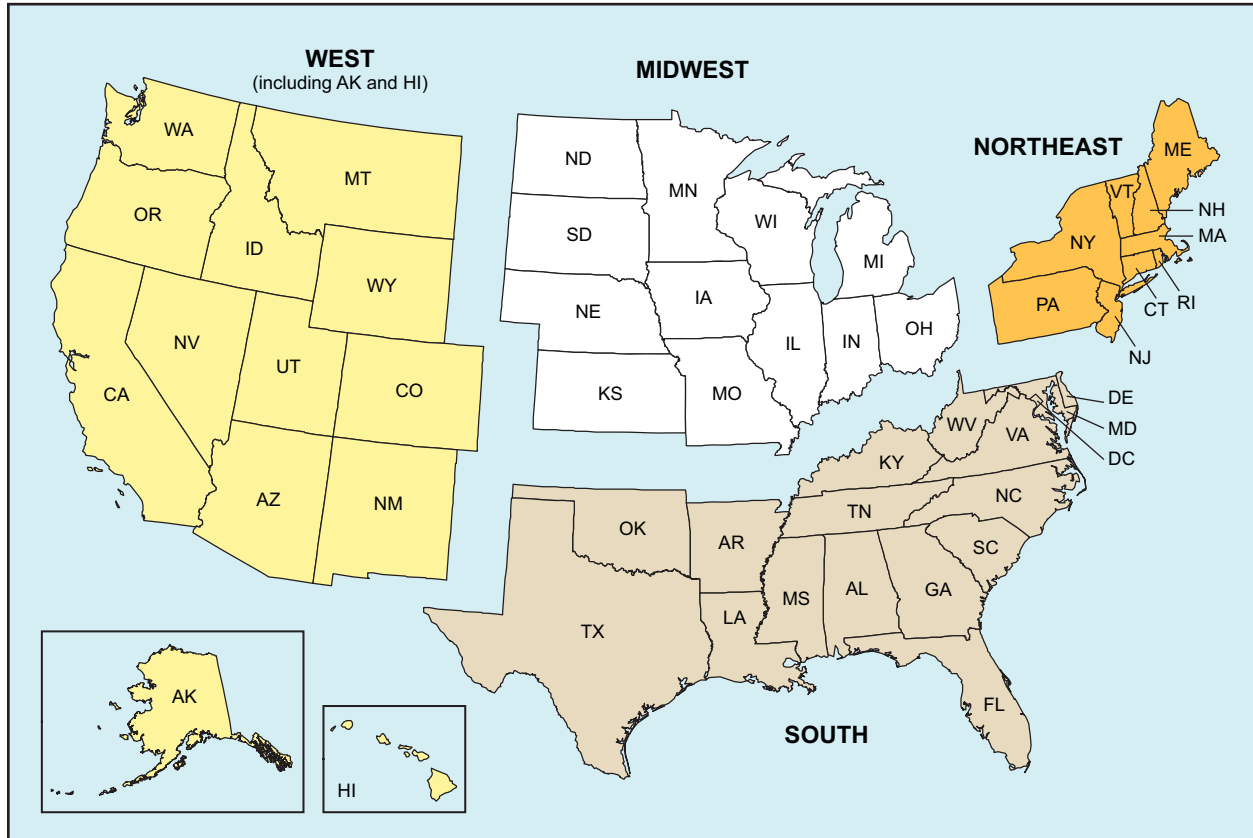
The detailed tables, other descriptive reports and in-depth analytic reports focusing on specific issues or populations, and methodological information on NSDUH are all available at http://www.samhsa.gov/data/. In addition, CBHSQ makes public use data files available through the Substance Abuse and Mental Health Data Archive (SAMHDA) at http://www.datafiles.samhsa.gov. Currently, files are available from the 1979 to 2011 surveys. The 2012 NSDUH public use file will be available by the end of 2013. 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) where the data are not directly available, but estimates by State and other restricted variables that are specified by the user are public use. 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 2012, an estimated 23.9 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). This estimate represents 9.2 percent of the population aged 12 or older.

- The overall rate of current illicit drug use among persons aged 12 or older in 2012 (9.2 percent) was similar to the rates in 2009 to 2011 (ranging from 8.7 to 8.9 percent), but it was higher than the rates in the years from 2002 to 2008 (Figure 2.2).

- In 2012, marijuana was the most commonly used illicit drug, with 18.9 million users. It was used by 79.0 percent of current illicit drug users. About two thirds (62.8 percent) of illicit drug users used only marijuana in the past month. Also, in 2012, 8.9 million persons aged 12 or older were current users of illicit drugs other than marijuana (or 37.2 percent of illicit drug users aged 12 or older). Current use of other drugs but not marijuana was reported by 21.0 percent, and 16.2 percent of illicit drug users reported using both marijuana and other drugs.

Figure 2.1 Past Month Illicit Drug Use among Persons Aged 12 or Older: 2012
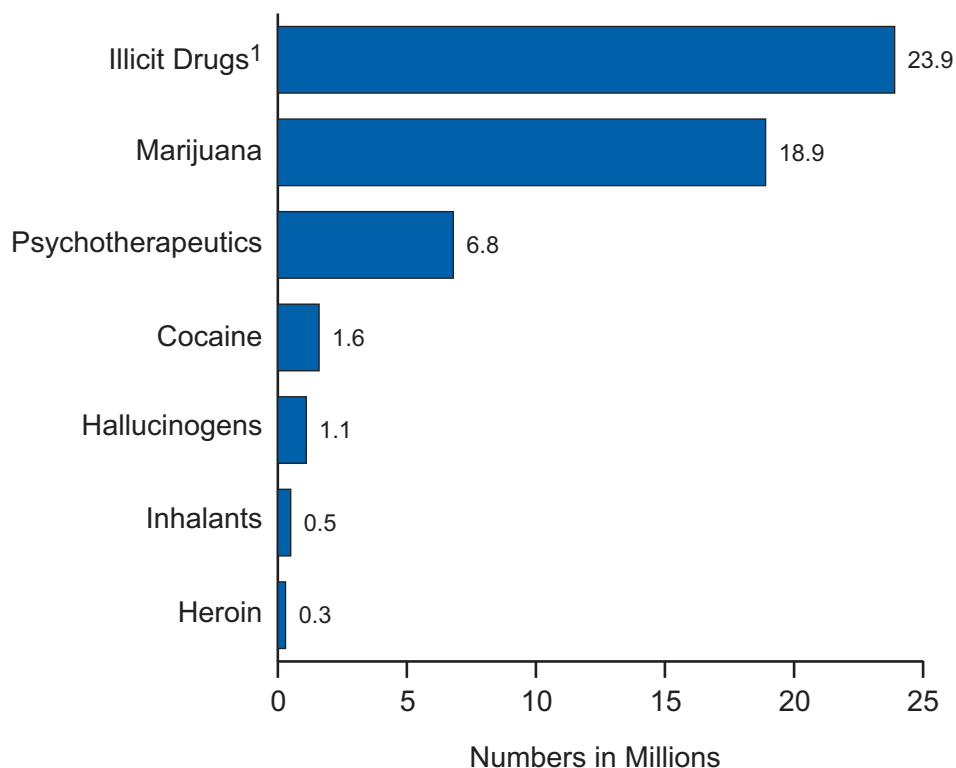
Drug	Numbers in Millions
Illicit Drugs[1]	23.9
Marijuana	18.9
Psychotherapeutics	6.8
Cocaine	1.6
Hallucinogens	1.1
Inhalants	0.5
Heroin	0.3

Numbers in Millions

[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 2012 (18.9 million or 7.3 percent) were similar to the estimates for 2011 (18.1 million or 7.0 percent). The 2012 rate of current marijuana use also was similar to the rate in 2010 (6.9 percent), but it was higher than rates from 2002 to 2009. Between 2007 and 2012, for example, the rate of use increased from 5.8 to 7.3 percent, and the number of users increased from 14.5 million to 18.9 million.

- An estimated 8.9 million persons aged 12 or older (3.4 percent) were current users of illicit drugs other than marijuana in 2012. The majority of these users (6.8 million persons or 2.6 percent of the population) were nonmedical users of psychotherapeutic drugs, including 4.9 million users of pain relievers, 2.1 million users of tranquilizers, 1.2 million users of stimulants, and 270,000 users of sedatives.

- The percentage of persons aged 12 or older who were current nonmedical users of psychotherapeutic drugs in 2012 (2.6 percent) was similar to the percentage in 2011 (2.4 percent) and all years from 2002 through 2010 (ranging from 2.5 to 2.9 percent) (Figure 2.2). The number of persons aged 12 or older who were current nonmedical users of psychotherapeutic drugs in 2012 (6.8 million) was higher than the number in 2011 (6.1 million), but it was similar to the numbers in 2005 to 2010.

Figure 2.2 Past Month Use of Selected Illicit Drugs among Persons Aged 12 or Older: 2002-2012
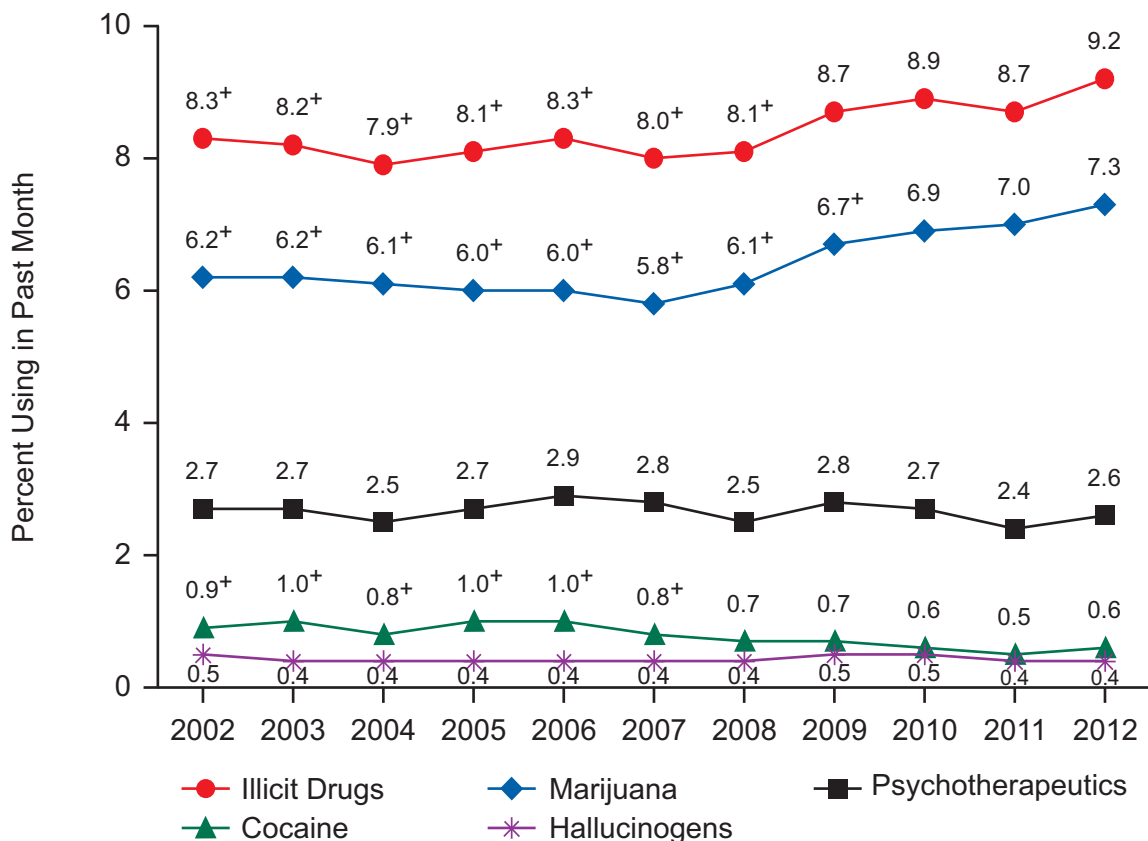
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- The number and percentage of persons aged 12 or older who were current nonmedical users of pain relievers in 2012 (4.9 million or 1.9 percent) were similar to those in 2011 (4.5 million or 1.7 percent) and in 2007 to 2010 (ranging from 4.7 million to 5.3 million and from 1.9 to 2.1 percent) (Figure 2.3).

- The number of persons aged 12 or older who were current nonmedical users of the pain reliever OxyContin® declined from 566,000 in 2010 to 358,000 in 2012.

- The number and percentage of persons aged 12 or older who were current nonmedical users of stimulants in 2012 (1.2 million or 0.5 percent) were similar to those in 2011 (970,000 or 0.4 percent), 2010 (1.1 million or 0.4 percent), and 2009 (1.3 million or 0.5 percent).

- The number and percentage of persons aged 12 or older who were current users of methamphetamine in 2012 (440,000 or 0.2 percent) were similar to those in 2011 (439,000 or 0.2 percent) and in 2007 to 2010 (ranging from 314,000 to 530,000 and from 0.1 to 0.2 percent). However, the number and percentage in 2012 were lower than in 2006 (731,000 or 0.3 percent).

Figure 2.3 Past Month Nonmedical Use of Types of Psychotherapeutic Drugs among Persons Aged 12 or Older: 2002-2012
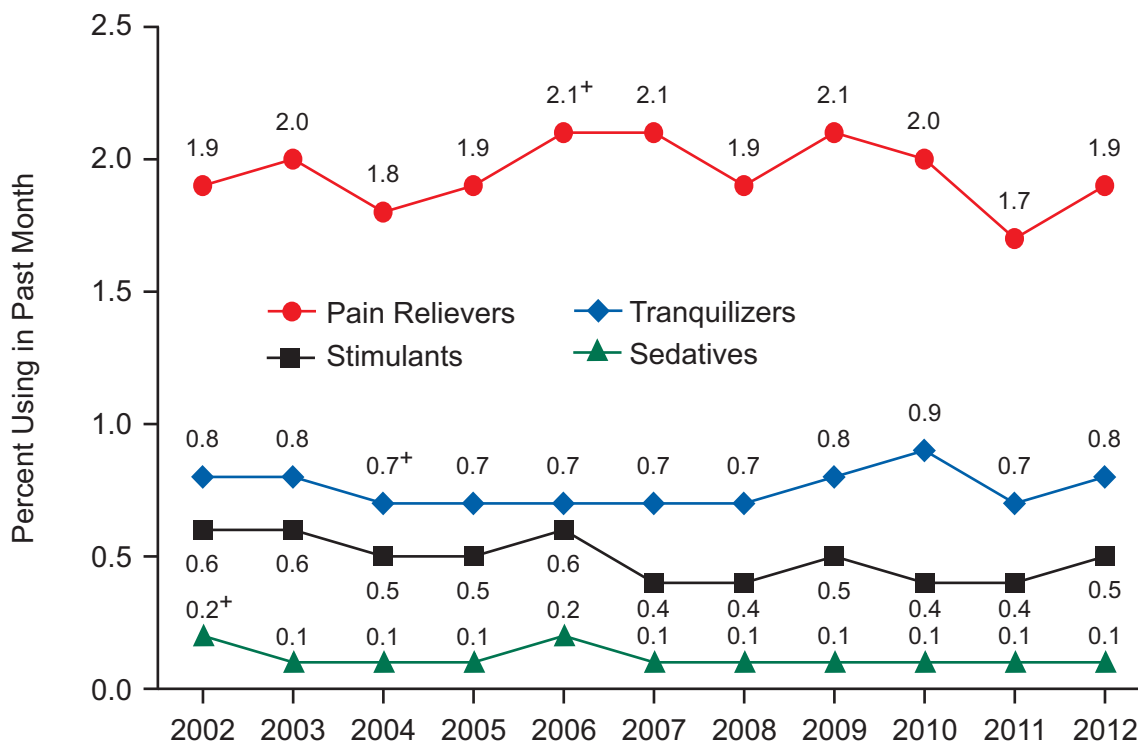
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- The number and percentage of persons aged 12 or older who were current users of cocaine in 2012 (1.6 million or 0.6 percent) were similar to those in 2011 (1.4 million or 0.5 percent) and in 2008 to 2010 (ranging from 1.5 million to 1.9 million and from 0.6 to 0.7 percent), but they were lower than those from 2003 through 2007 (ranging from 2.0 million to 2.4 million and from 0.8 to 1.0 percent) (Figure 2.2). The percentage of persons in 2012 who were current users of cocaine also was lower than the percentage in 2002 (0.9 percent), but the numbers of current users in 2012 and 2002 were similar (1.6 million and 2.0 million, respectively).

- The number and percentage of persons aged 12 or older who were current heroin users in 2012 (335,000 or 0.1 percent) were similar to those in 2011 (281,000 or 0.1 percent), but they were higher than those in 2002 through 2005 (166,000 or 0.1 percent in 2002; 119,000 or 0.1 percent in 2003; 166,000 or 0.1 percent in 2004; and 136,000 or 0.1 percent in 2005), 2007 (161,000 or 0.1 percent), and 2009 (193,000 or 0.1 percent) (Figure 2.4). Recent increases in the use of heroin were also evident in the estimate of past year heroin use.

- The number and percentage of persons aged 12 or older who were current users of hallucinogens in 2012 (1.1 million or 0.4 percent) were similar to those in 2002 to 2011 (Figure 2.2).

Figure 2.4 Past Month and Past Year Heroin Use among Persons Aged 12 or Older: 2002-2012
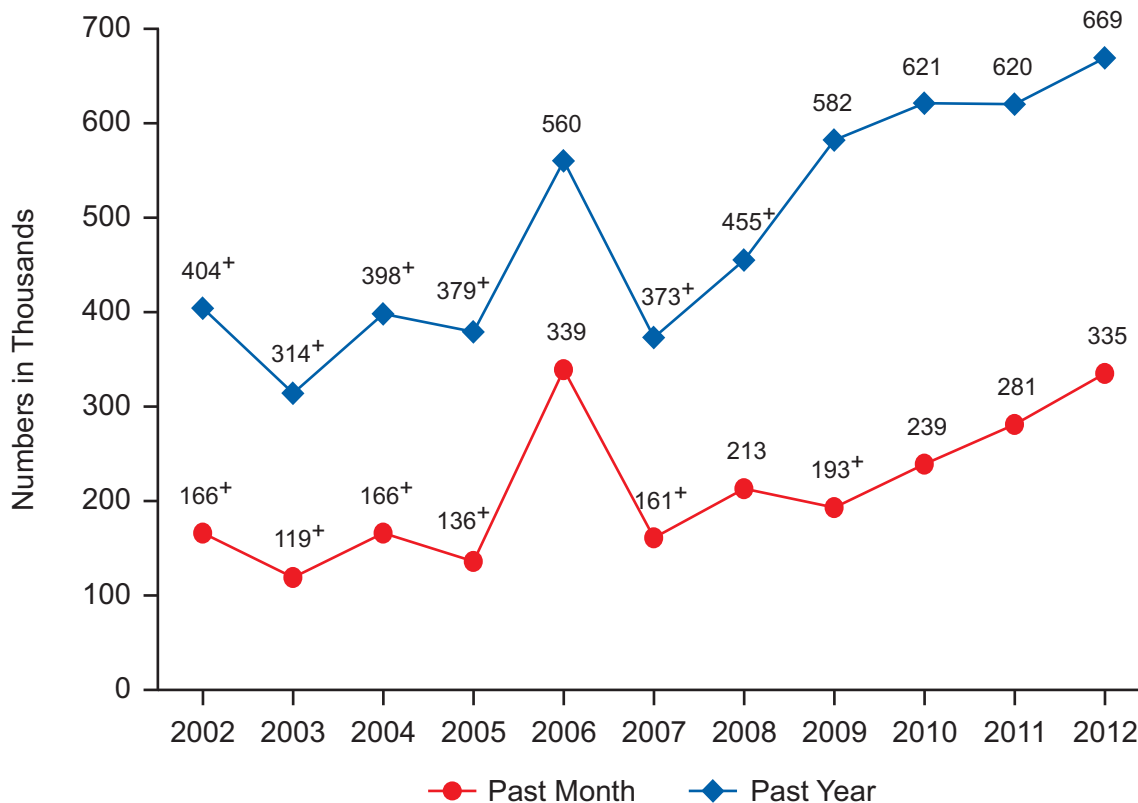
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Age

- In 2012, the rate of current illicit drug use varied by age. Among youths aged 12 to 17 in 2012, the rate increased from 3.5 percent at ages 12 or 13 to 8.2 percent at ages 14 or 15 to 16.6 percent at ages 16 or 17 (Figure 2.5). The highest rate of current illicit drug use was among 18 to 20 year olds (23.9 percent), with the next highest rate occurring among 21 to 25 year olds (19.7 percent). Thereafter, the rate generally declined with age, although not all declines between consecutive age groups were significant.

- In 2012, adults aged 26 or older were less likely to be current users of illicit drugs (7.0 percent) than youths aged 12 to 17 (9.5 percent) or young adults aged 18 to 25 (21.3 percent) (Figure 2.6). However, the number and percentage of current illicit drug users among adults aged 26 or older increased from 12.6 million (6.3 percent) in 2011 to 14.1 million (7.0 percent) in 2012. Additionally, in 2012 there were more current users of illicit drugs aged 26 or older (14.1 million) than users aged 12 to 17 (2.4 million) and users aged 18 to 25 (7.4 million) combined.

Figure 2.5 Past Month Illicit Drug Use among Persons Aged 12 or Older, by Age: 2011 and 2012

+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Figure 2.6 Past Month Illicit Drug Use among Persons Aged 12 or Older, by Age: 2002-2012

+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

18

Youths Aged 12 to 17

- In 2012, 9.5 percent of youths aged 12 to 17 were current illicit drug users (Figure 2.7). This rate was similar to the rates of current illicit drug use among 12 to 17 years olds in 2005 to 2011, but it was lower than the rates from 2002 to 2004.

- In 2012, 7.2 percent of youths aged 12 to 17 were current users of marijuana, 2.8 percent were current nonmedical users of psychotherapeutic drugs, 0.8 percent were current users of inhalants, 0.6 percent were current users of hallucinogens, and 0.1 percent were current users of cocaine.

- Among youths aged 12 to 17, the specific types of illicit drugs used in the past month varied by age in 2012 (Figure 2.8). Among 12 or 13 year olds, 1.7 percent used psychotherapeutic drugs nonmedically (with 1.5 percent using pain relievers nonmedically), 1.2 percent used marijuana, and 0.9 percent used inhalants. Among 14 or 15 year olds, 6.1 percent used marijuana, 2.5 percent used psychotherapeutic drugs nonmedically (with 2.2 percent using pain relievers nonmedically), 0.7 percent used inhalants, and 0.5 percent used hallucinogens. Among 16 or 17 year olds, 14.0 percent used marijuana, 4.0 percent used psychotherapeutic drugs nonmedically (with 3.1 percent using pain relievers nonmedically), 1.2 percent used hallucinogens, 0.7 percent used inhalants, and 0.2 percent used cocaine. The percentage of youths aged 16 or 17 in 2012 who were current users of cocaine was lower than in 2011 (0.5 percent).

- The rate of current illicit drug use among 12 to 17 year olds declined between 2002 (11.6 percent) and 2008 (9.3 percent), increased to 10.1 percent in 2009, and remained at 10.1 percent in 2010 and 2011 (Figure 2.7). The rate in 2012 (9.5 percent) was similar to these rates since 2009. Current marijuana use declined from 8.2 percent in 2002 to 6.7 percent in 2008, then increased to 7.9 percent in 2011 before decreasing again to 7.2 percent in 2012. Current nonmedical use of psychotherapeutic drugs declined from 4.0 percent in 2002 and 2003 to 2.8 percent in 2011 and 2012. This includes a decrease in the prevalence of current nonmedical use of pain relievers from 3.2 percent in 2002 and 2003 to 2.2 percent in 2012.

Young Adults Aged 18 to 25

- In 2012, the rate of current illicit drug use was higher among young adults aged 18 to 25 (21.3 percent) than among youths aged 12 to 17 (9.5 percent) and adults aged 26 or older (7.0 percent) (Figure 2.6). Among young adults aged 18 to 25, the 2012 rate was similar to the rates in 2009 to 2011 (ranging from 21.4 to 21.6 percent), but it was higher than the rates in 2004 to 2008 (ranging from 19.4 to 20.1 percent) and in 2002 (20.2 percent) (Figure 2.9).

- Among young adults aged 18 to 25, the 2012 rate of current marijuana use (18.7 percent) was similar to rates in 2009 to 2011 (ranging from 18.2 to 19.0 percent), but it 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: 2002-2012
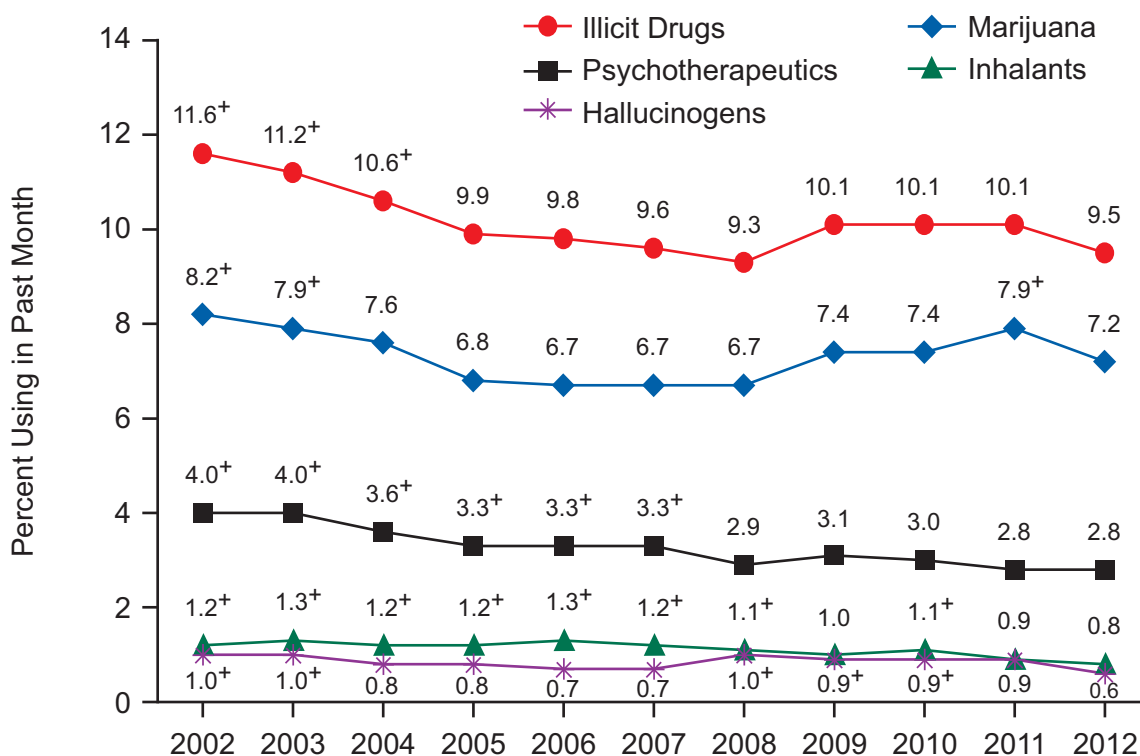
$^+$ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Figure 2.8 Past Month Use of Selected Illicit Drugs among Youths Aged 12 to 17: 2012
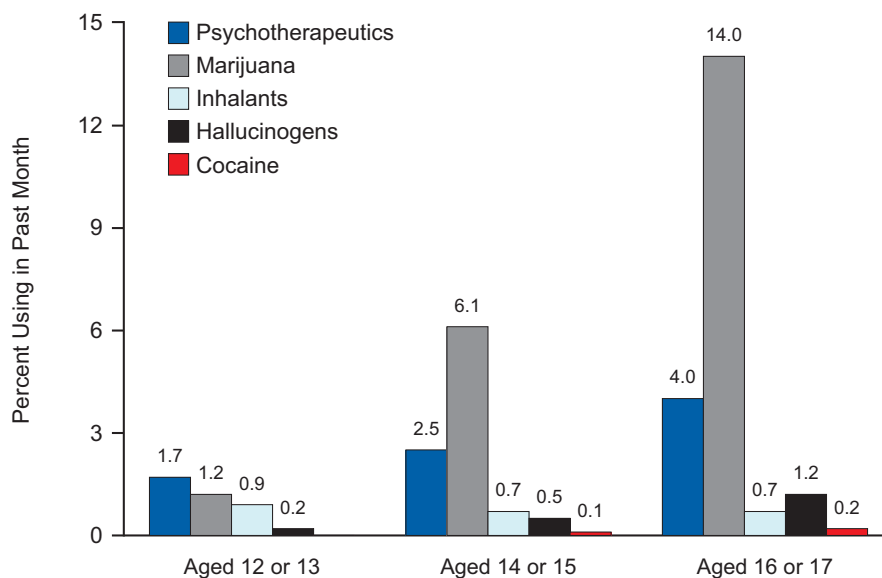
Note: The estimated prevalence of past month cocaine users aged 12 or 13 rounds to less than 0.1 percent and is not shown.

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Figure 2.9 Past Month Use of Selected Illicit Drugs among Young Adults Aged 18 to 25: 2002-2012

+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- In 2012, the rate of current nonmedical use of psychotherapeutic drugs among young adults aged 18 to 25 was 5.3 percent, which was similar to the rates in 2010 and 2011, but it was lower than the rates in 2003 to 2007 (Figure 2.9). The rate of current nonmedical use of pain relievers among young adults in 2012 (3.8 percent) was similar to the 2011 rate (3.6 percent), but it was lower than the rates between 2003 (4.7 percent) and 2010 (4.4 percent).

- In 2012, 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 and 2011, but it was lower than the rates from 2002 through 2008 and 2010 (Figure 2.9).

Adults Aged 26 or Older

- In 2012, the rate of current illicit drug use among adults aged 26 or older was 7.0 percent, including rates of 5.3 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 (0.6 percent), hallucinogens (0.2 percent), heroin (0.1 percent), and inhalants (0.1 percent). The 2012 rate of current illicit drug use was higher than the rate in 2011 and in 2002 through 2009. The 2012 rate of current marijuana use was similar to the rates in 2010 and 2011 (4.8 percent in each year), but it was higher than the rates from 2002 through 2009.

- Among adults aged 50 to 64, the rate of current illicit drug use has increased during the past decade. For adults aged 50 to 54, the rate increased from 3.4 percent in 2002 to 7.2 percent in 2012 (Figure 2.10). Among those aged 55 to 59, the rate of current illicit drug use increased from 1.9 percent in 2002 to 6.6 percent in 2012. Among those aged 60 to 64, the rate increased from 1.1 percent in 2003 to 3.6 percent in 2012. These patterns and trends partially reflect the aging into these age groups of members of the baby boom cohort, whose rates of illicit drug use have been higher than those of older cohorts. The baby boom cohort refers to persons born in the United States after World War II between 1946 and 1964 (Han, Gfroerer, & Colliver, 2009a). Chapter 8 discusses additional trends in marijuana use and nonmedical use of prescription psychotherapeutic drugs among this age group.

Gender

- In 2012, as in prior years, the rate of current illicit drug use among persons aged 12 or older was higher for males (11.6 percent) than for females (6.9 percent). Males were more likely than females to be current users of several different illicit drugs, including marijuana (9.6 vs. 5.0 percent), nonmedical users of psychotherapeutic drugs (2.8 vs. 2.4 percent), cocaine (1.0 vs. 0.3 percent), and hallucinogens (0.6 vs. 0.3 percent).

Figure 2.10 Past Month Illicit Drug Use among Adults Aged 50 to 64: 2002-2012
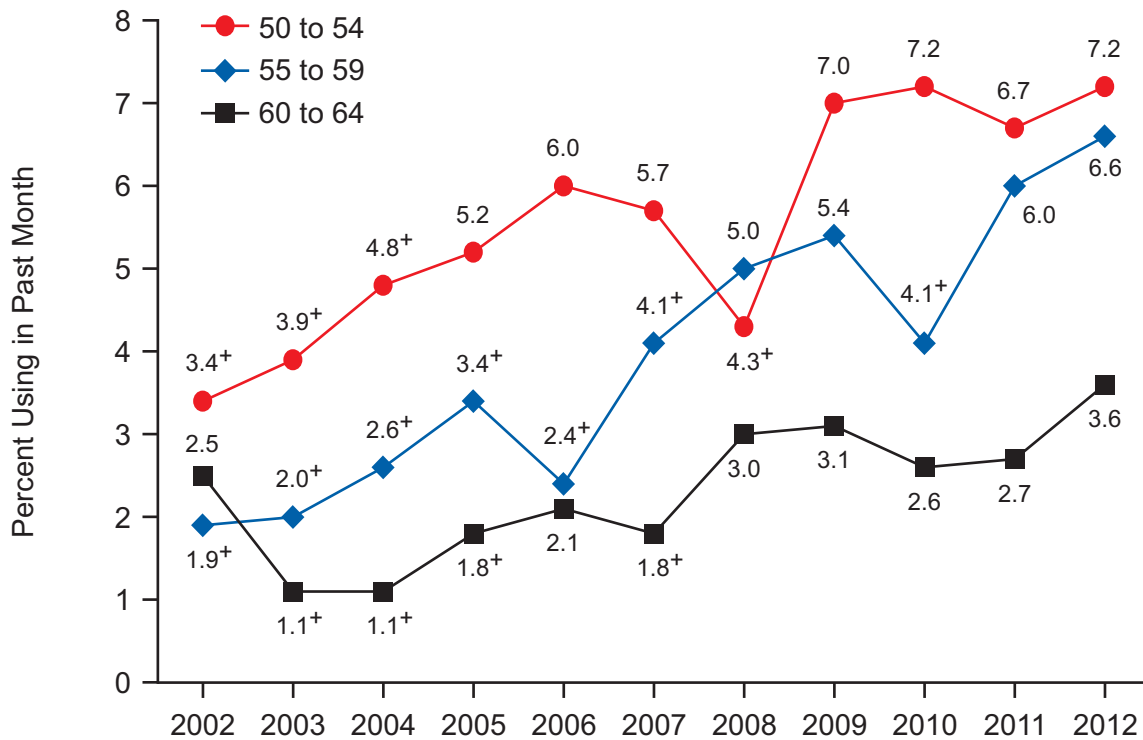
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- In 2012, the rates of current illicit drug use were similar among males and females aged 12 to 17 (9.6 and 9.5 percent, respectively). This pattern represents a change from 2011, when the prevalence of current illicit drug use was higher for males than for females in this age group (10.8 vs. 9.3 percent). In 2012, females aged 12 to 17 were more likely than males to be current nonmedical users of psychotherapeutic drugs (3.2 vs. 2.4 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 2009 (8.4 percent); rates remained stable after 2009 (8.4 percent in 2010 and 9.0 percent in 2011) before decreasing in 2012 to 7.5 percent (Figure 2.11). Among females aged 12 to 17, the rate of current marijuana use changed little between 2002 (7.2 percent) and 2004 (7.1 percent), then declined to 5.8 percent in 2007 before increasing in 2012 to 7.0 percent.

Pregnant Women

- Among pregnant women aged 15 to 44, 5.9 percent were current illicit drug users based on data averaged across 2011 and 2012. This was lower than the rate among women in this age group who were not pregnant (10.7 percent). Among pregnant women aged 15 to 44, the average rate of current illicit drug use in 2011-2012 (5.9 percent) was not significantly different from the rate averaged across 2009-2010 (4.4 percent).

Figure 2.11 Past Month Marijuana Use among Youths Aged 12 to 17, by Gender: 2002-2012
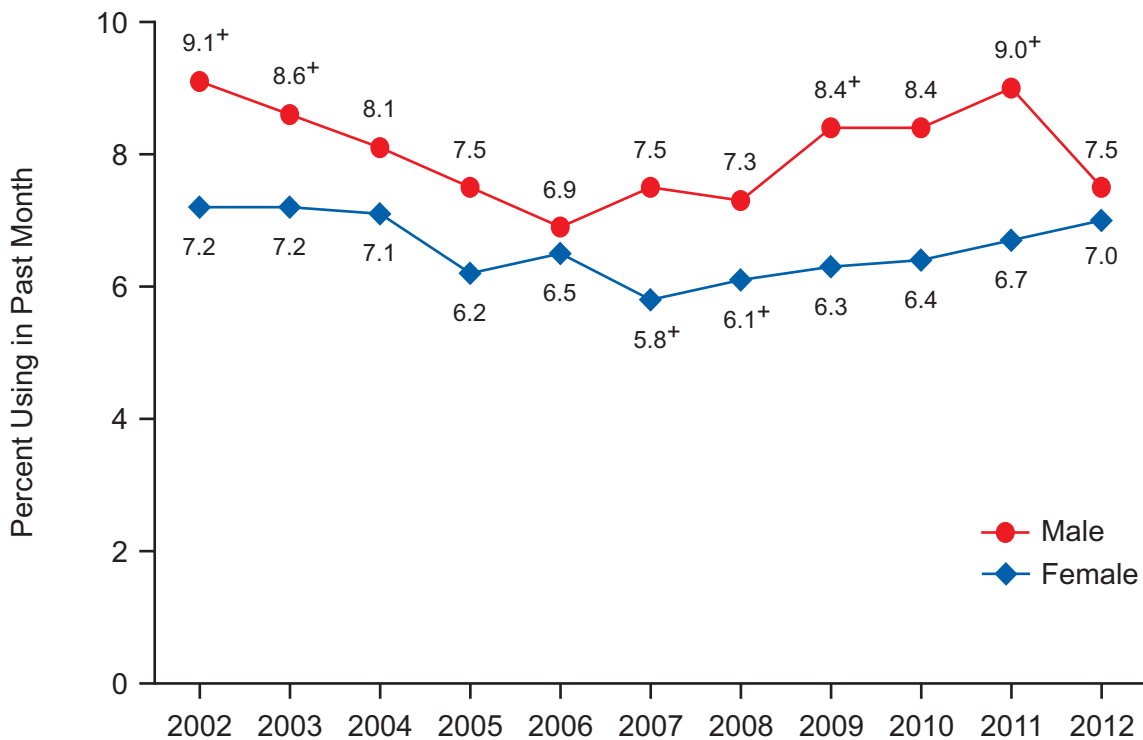
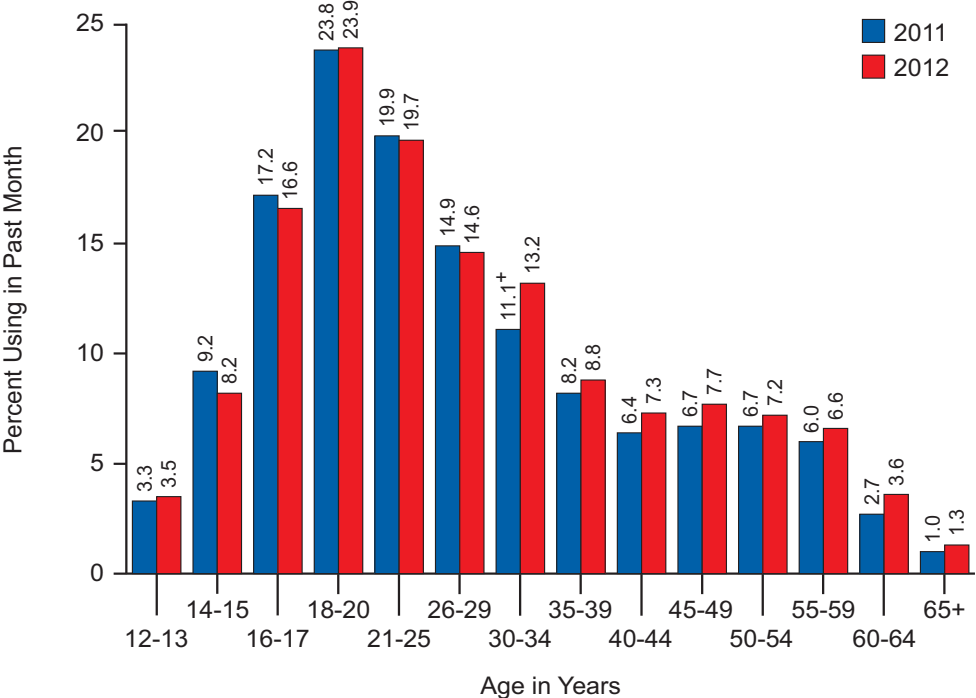[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- The rate of current illicit drug use in the combined 2011-2012 data was 18.3 percent among pregnant women aged 15 to 17, 9.0 percent among pregnant women aged 18 to 25, and 3.4 percent among pregnant women aged 26 to 44. These rates were not significantly different from those in the combined 2009-2010 data (15.7 percent among pregnant women aged 15 to 17, 7.4 percent among pregnant women aged 18 to 25, and 1.9 percent among pregnant women aged 26 to 44).

Race/Ethnicity

- In 2012, among persons aged 12 or older, the rate of current illicit drug use was 3.7 percent among Asians, 7.8 percent among Native Hawaiians or Other Pacific Islanders, 8.3 percent among Hispanics, 9.2 percent among whites, 11.3 percent among blacks, 12.7 percent among American Indians or Alaska Natives, and 14.8 percent among persons of two or more races.

- There were no statistically significant differences in the rates of current illicit drug use between 2011 and 2012 or between 2002 and 2012 for any of the racial/ethnic groups, except for whites and blacks. Between 2002 and 2012, the current illicit drug use rate increased from 8.5 to 9.2 percent for whites and from 9.7 to 11.3 percent for blacks (Figure 2.12).

Education

- Illicit drug use in 2012 varied by the educational status of adults aged 18 or older. The rate of current illicit drug use was lower among college graduates (6.6 percent) than those with some college education (10.2 percent), high school graduates who did not attend college (9.8 percent), and those who had not graduated from high school (11.1 percent). Additionally, the 2012 rate of current illicit drug use among college graduates aged 18 or older was higher than the 2011 rate of 5.4 percent.

College Students

- In 2012, the rate of current use of illicit drugs was 22.0 percent among full-time college students aged 18 to 22. This was similar to the rate among other persons aged 18 to 22 (24.0 percent), which included part-time college students, students in other grades or types of institutions, and nonstudents.

- In 2012, about one quarter (24.9 percent) of male full-time college students aged 18 to 22 were current users of illicit drugs. This rate was higher than the rate of current illicit drug use among female full-time college students aged 18 to 22 (19.4 percent). Similarly, 23.5 percent of male full-time college students aged 18 to 22 were current marijuana users compared with 16.1 percent of female full-time college students aged 18 to 22.

- Among full-time college students aged 18 to 22 in 2012, the rate of current illicit drug use was 13.2 percent for Asians, 20.6 percent for Hispanics, 22.7 percent for whites, and 25.6 percent for blacks.

Figure 2.12 Past Month Illicit Drug Use among Persons Aged 12 or Older, by Race/Ethnicity: 2002-2012
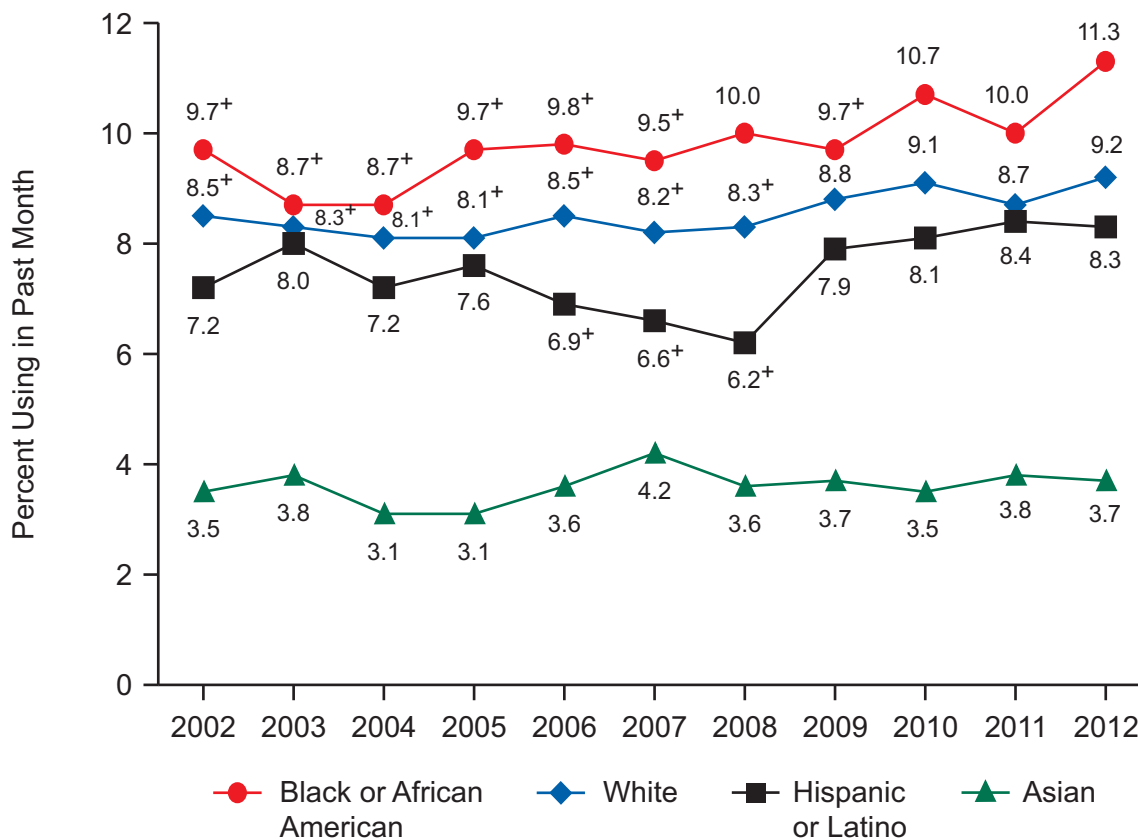
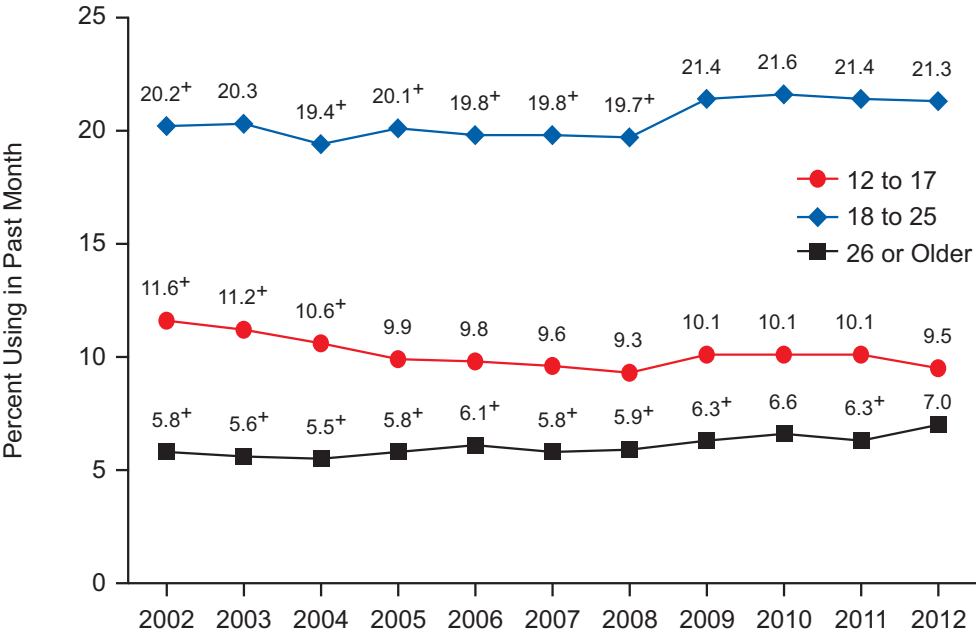*+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.*

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.

Employment

• Current illicit drug use differed by employment status in 2012. Among adults aged 18 or older, the rate of current illicit drug use was higher for those who were unemployed (18.1 percent) than for those who were employed full time (8.9 percent), employed part time (12.5 percent), or "other" (6.3 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 increased between 2011 (8.0 percent) and 2012 (8.9 percent).

• Although the rate of current illicit drug use was higher among unemployed persons in 2012 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 21.5 million current illicit drug users aged 18 or older in 2012, 14.6 million (67.9 percent) were employed either full or part time.

Figure 2.13 Past Month Illicit Drug Use among Persons Aged 18 or Older, by Employment Status: 2011 and 2012
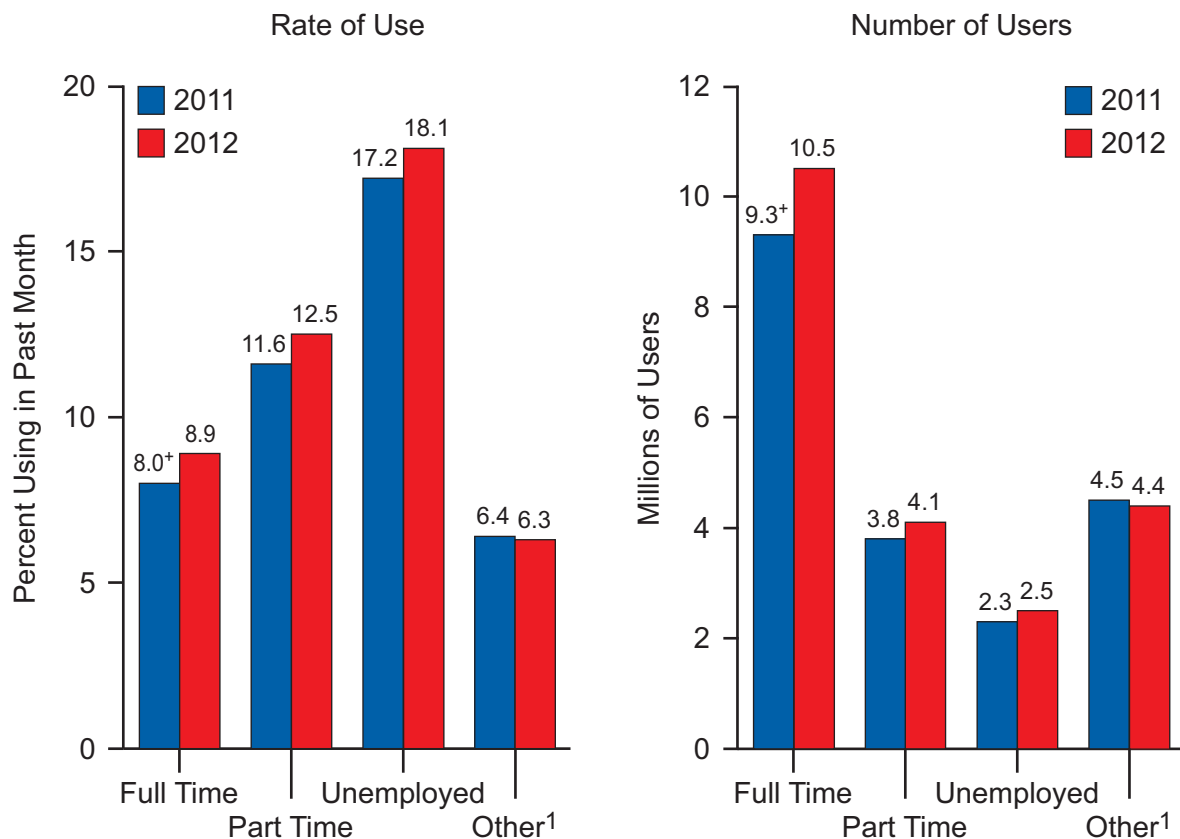
Rate of Use

Number of Users

+Difference between this estimate and the 2012 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.

Geographic Area

• Among persons aged 12 or older, the rate of current illicit drug use in 2012 was 11.7 percent in the West, 9.6 percent in the Northeast, 8.6 percent in the Midwest, and 7.7 percent in the South.

• In 2012, the rate of current illicit drug use among persons aged 12 or older was 9.9 percent in large metropolitan areas, 9.2 percent in small metropolitan areas, and 6.8 percent in nonmetropolitan areas (Figure 2.14). Within nonmetropolitan areas, the rate was 8.3 percent in urbanized counties, 5.9 percent in less urbanized counties, and 4.8 percent in completely rural counties.

Figure 2.14 Past Month Illicit Drug Use among Persons Aged 12 or Older, by County Type: 2012
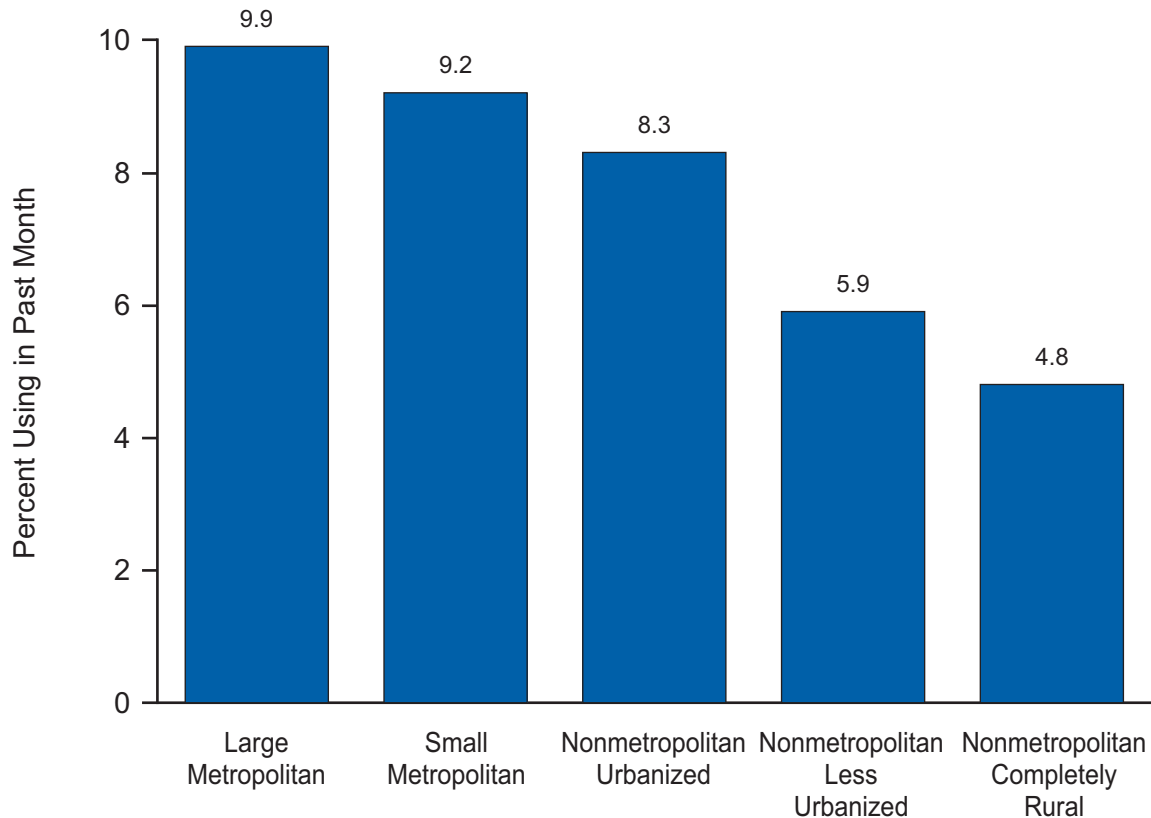
Criminal Justice Populations

- In 2012, an estimated 1.5 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 of these (25.6 percent) were current illicit drug users, with 18.1 percent reporting current use of marijuana and 7.0 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 supervised release during the past year (9.0 percent for illicit drug use, 7.2 percent for marijuana use, and 2.6 percent for nonmedical use of psychotherapeutic drugs).

- In 2012, an estimated 5.0 million adults aged 18 or older were on probation at some time during the past year. More than one quarter (30.2 percent) were current illicit drug users, with 25.1 percent reporting current use of marijuana and 10.1 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 (8.7 percent for illicit drug use, 6.9 percent for marijuana use, and 2.4 percent for nonmedical use of psychotherapeutic drugs).

Frequency of Marijuana Use

- In 2012, 5.4 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 marijuana users in 2006 (Figure 2.15). The number of daily or almost daily users of marijuana in 2012 represented 17.0 percent of past year users.

- In 2012, 7.6 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 2007 (Figure 2.15). The number of daily or almost daily users in 2012 represented 40.3 percent of past month marijuana users.

Association with Cigarette and Alcohol Use

- In 2012, the rate of current illicit drug use among youths aged 12 to 17 who smoked cigarettes in the past month was approximately 8.5 times higher than the rate among those who did not smoke cigarettes in the past month (54.6 vs. 6.4 percent).

Figure 2.15 Daily or Almost Daily Marijuana Use in the Past Year and Past Month among Persons Aged 12 or Older: 2002-2012
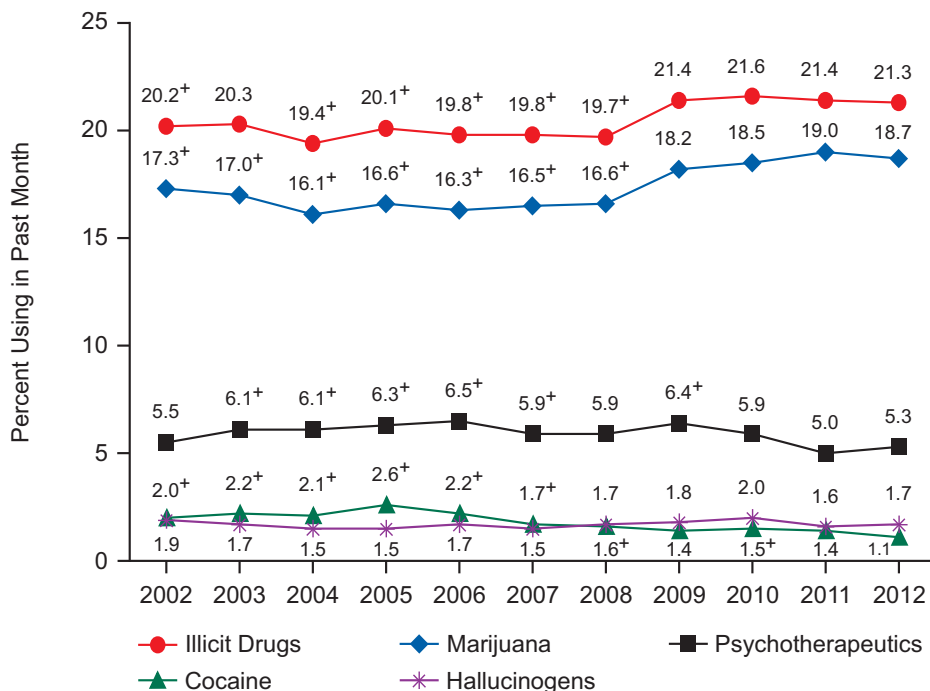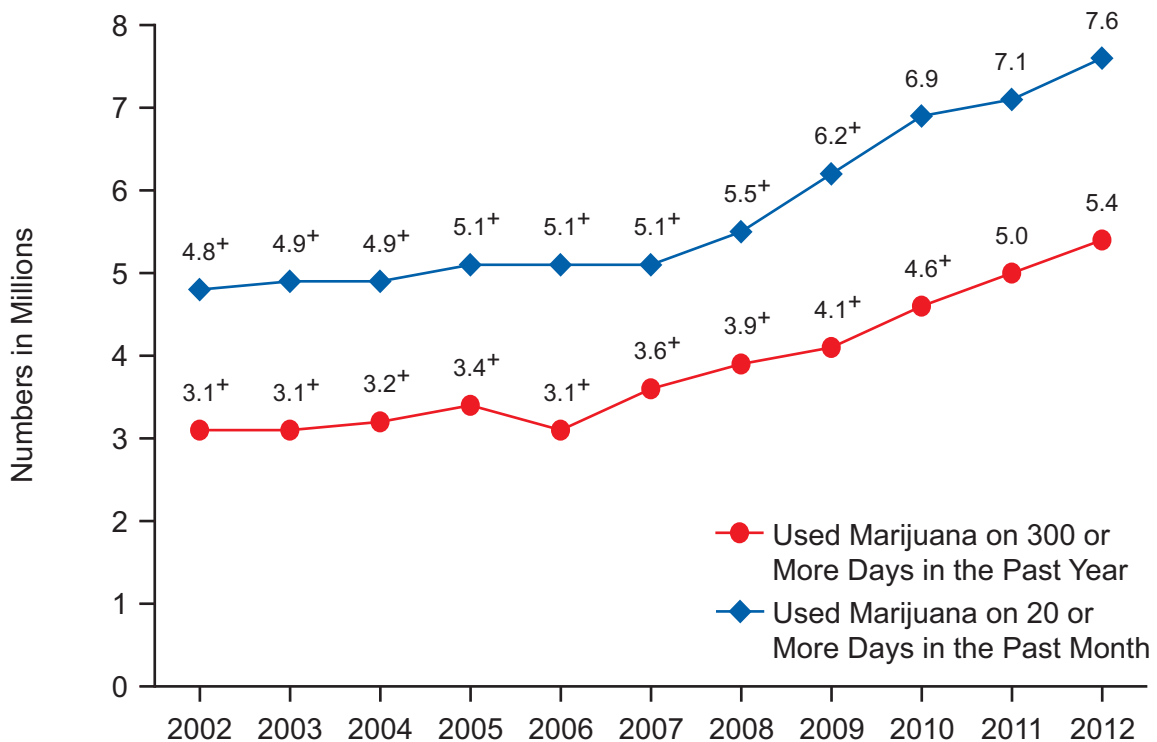

$^+$ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- In 2012, 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), 67.9 percent were current illicit drug users, which was higher than the rate among those who were not current alcohol users (5.2 percent). 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), 42.1 percent were current illicit drug users.

- In 2012, 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 15 times higher than the rate among those who neither smoked cigarettes nor drank alcohol in the past month (61.1 vs. 4.0 percent). However, the 2012 rate of current illicit drug use among youths aged 12 to 17 who both smoked cigarettes and drank alcohol decreased from the 2011 rate of 68.7 percent.

Driving Under the Influence of Illicit Drugs

- In 2012, 10.3 million persons or 3.9 percent of the population aged 12 or older reported driving under the influence of illicit drugs during the past year. The 2012 rate was lower than the 2002 rate (4.7 percent), but it was higher than the 2011 rate (3.7 percent). Across age groups, the rate of driving under the influence of illicit drugs in 2012 was highest among young adults aged 18 to 25 (11.9 percent); this rate for young adults was similar to the rate in 2011 (11.6 percent). Additionally, the rate of driving under the influence of illicit drugs during the past year among adults aged 26 or older increased from 2.4 percent in 2011 to 2.8 percent in 2012.

Source of Prescription Drugs

- Past year nonmedical users of psychotherapeutic drugs are asked how they obtained the drugs they most recently used nonmedically. Rates averaged across 2011 and 2012 show that more than one 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." About 4 in 5 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 2011-2012 who used pain relievers nonmedically in the past year, 54.0 percent got the pain relievers they most recently used from a friend or relative for free (Figure 2.16). Nearly 1 in 5 (19.7 percent) received them through a prescription from one doctor (which was higher than the 17.3 percent in 2009-2010). Another 10.9 percent bought them from a friend or relative. In addition, 4.0 percent of these nonmedical users in 2011-2012 took pain relievers from a friend or relative without asking. An annual average of 4.3 percent got pain relievers from a drug dealer or other stranger; 1.8 percent got pain relievers from more than one doctor; 0.8 percent stole pain relievers from a doctor's office, clinic, hospital, or pharmacy (which was higher than the 0.2 percent in 2009-2010); and 0.2 percent bought the pain relievers on the Internet.

- Among persons aged 12 or older in 2011-2012 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, 82.2 percent of the friends or relatives obtained the drugs from just one doctor (Figure 2.16). About 1 in 20 of these past year nonmedical users of pain relievers (5.4 percent) reported that the friend or relative got the pain relievers from another friend or relative for free, 4.1 percent reported that the friend or relative bought the pain relievers from a friend or relative, 1.4 percent reported that the friend or relative bought the pain relievers from a drug dealer or other stranger (which was lower than the 2.3 percent in 2009-2010), 1.3 percent reported that the friend or relative took the pain relievers from another friend or relative without asking, and 0.2 percent reported that the friend or relative bought the pain relievers on the Internet.

Figure 2.16 Source Where Pain Relievers Were Obtained for Most Recent Nonmedical Use among Past Year Users Aged 12 or Older: 2011-2012

Source Where User Obtained

More than One Doctor (1.8%)
Free from Friend/Relative (54.0%)
One Doctor (19.7%)
Other[1] (5.1%)
Bought on Internet (0.2%)
Drug Dealer/Stranger (4.3%)
Bought/Took from Friend/Relative (14.9%)

Source Where Friend/Relative Obtained

One Doctor (82.2%)
More than One Doctor (3.6%)
Free from Friend/Relative (5.4%)
Bought/Took from Friend/Relative (5.4%)
Drug Dealer/Stranger (1.4%)
Bought on Internet (0.2%)
Other[1] (1.8%)

[1] The Other category includes the sources "Wrote Fake Prescription," "Stole from Doctor's Office/Clinic/Hospital/Pharmacy," and "Some Other Way."

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 (52.1 percent) of Americans aged 12 or older reported being current drinkers of alcohol in the 2012 survey, which was similar to the rate in 2011 (51.8 percent). This translates to an estimated 135.5 million current drinkers in 2012.

- Nearly one quarter (23.0 percent) of persons aged 12 or older in 2012 were binge alcohol users in the 30 days prior to the survey. This translates to about 59.7 million people. The rate in 2012 was similar to the rate in 2011 (22.6 percent).

- In 2012, heavy drinking was reported by 6.5 percent of the population aged 12 or older, or 17.0 million people. This percentage was similar to the rate of heavy drinking in 2011 (6.2 percent).

Age

- In 2012, rates of current alcohol use were 2.2 percent among persons aged 12 or 13, 11.1 percent of persons aged 14 or 15, 24.8 percent of 16 or 17 year olds, 45.8 percent of those aged 18 to 20, and 69.2 percent of 21 to 25 year olds (Figure 3.1). These estimates were similar to the rates reported in 2011.

- The prevalence of current, binge, and heavy alcohol use was lower among adults aged 65 or older (41.2, 8.2, and 2.0 percent, respectively) than among all other adult age groups (Figure 3.1).

- Rates of binge alcohol use in 2012 were 0.9 percent among 12 or 13 year olds, 5.4 percent among 14 or 15 year olds, 15.0 percent among 16 or 17 year olds, 30.5 percent among persons aged 18 to 20, and peaked at 45.1 percent among those aged 21 to 25. These rates were similar to those in 2011 (1.1, 5.7, 15.0, 31.2, and 45.4 percent, respectively).

Figure 3.1 Current, Binge, and Heavy Alcohol Use among Persons Aged 12 or Older, by Age: 2012
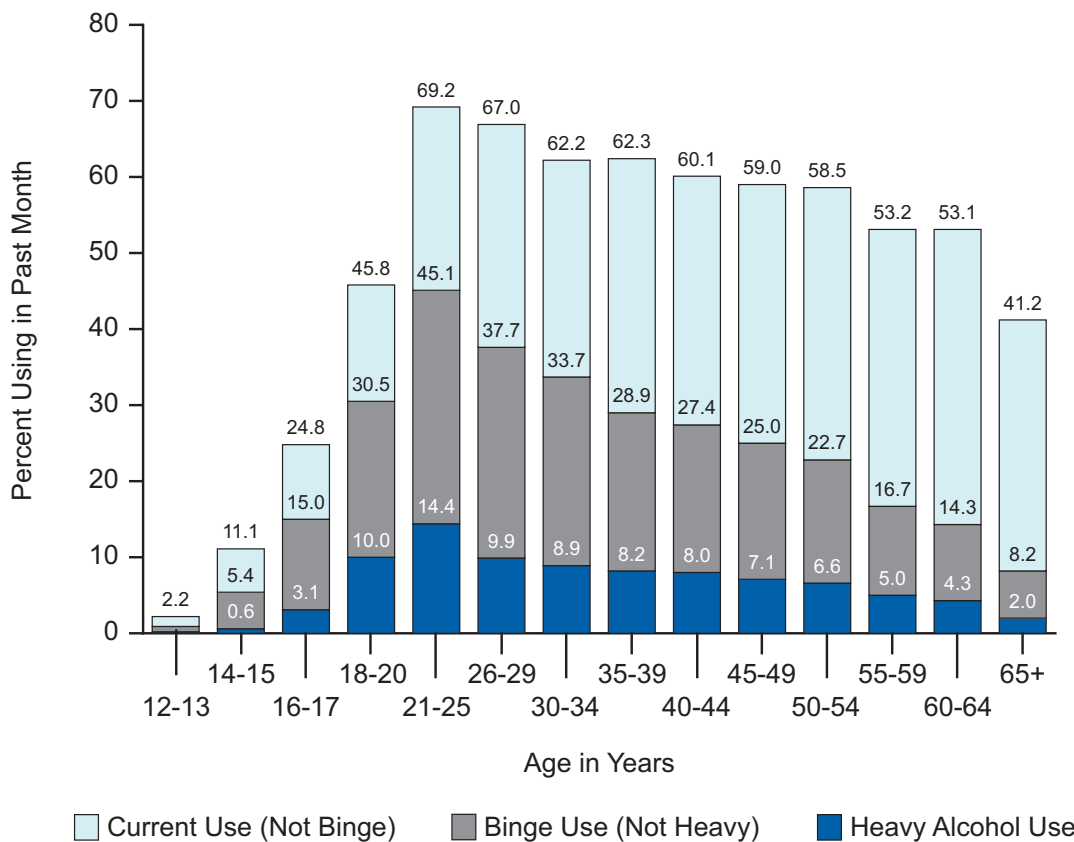
Note: The past month binge alcohol use estimate for 12 or 13 year olds is 0.9 percent, and the past month heavy alcohol use estimate is 0.2 percent.

- The rate of binge drinking in 2012 was 39.5 percent for young adults aged 18 to 25. Heavy alcohol use was reported by 12.7 percent of persons aged 18 to 25. These rates were similar to the rates in 2011 (39.8 and 12.1 percent, respectively).

- The rate of binge drinking among persons aged 65 or older in 2012 was 8.2 percent, and the rate of heavy drinking was 2.0 percent. These rates were similar to the binge and heavy drinking rates in this age group in 2011 (8.3 and 1.7 percent, respectively).

- The rate of current alcohol use among youths aged 12 to 17 was 12.9 percent in 2012. Youth binge and heavy drinking rates were 7.2 and 1.3 percent, respectively. These rates were all similar to those reported in 2011 (13.3, 7.4, and 1.5 percent, respectively).

Gender

- In 2012, an estimated 56.5 percent of males aged 12 or older were current drinkers, which was higher than the rate for females (47.9 percent). However, among youths aged 12 to 17, the percentage of males who were current drinkers (12.6 percent) was similar to the rate for females (13.2 percent).

- Among young adults aged 18 to 25, an estimated 62.9 percent of males and 57.5 percent of females were current drinkers in 2012. In this age group, 45.8 percent of males and 33.2 percent of females reported binge drinking in 2012 (Figure 3.2). The rate of binge drinking among males aged 18 to 25 was lower in 2012 than in the years from 2002 to 2010. Among females in this age group, however, the rate in 2012 was similar to the rates in the years from 2002 to 2011.

- Among persons aged 26 or older, an estimated 61.2 percent of males and 50.4 percent of females reported current drinking in 2012.

Pregnant Women

- Among pregnant women aged 15 to 44 in 2011-2012, an annual average of 8.5 percent reported current alcohol use, 2.7 percent reported binge drinking, and 0.3 percent reported heavy drinking. These rates were lower than the rates for nonpregnant women in the same age group (55.5, 24.7, and 5.2 percent, respectively).

Race/Ethnicity

- Among persons aged 12 or older, whites and persons reporting two or more races in 2012 were more likely than other racial/ethnic groups to report current use of alcohol (57.4 and 51.9 percent, respectively). The rates were 43.2 percent for blacks, 41.8 percent for Hispanics, 41.7 percent for American Indians or Alaska Natives, and 36.9 percent for Asians (Figure 3.3).

Figure 3.2 Binge Alcohol Use among Adults Aged 18 to 25, by Gender: 2002-2012
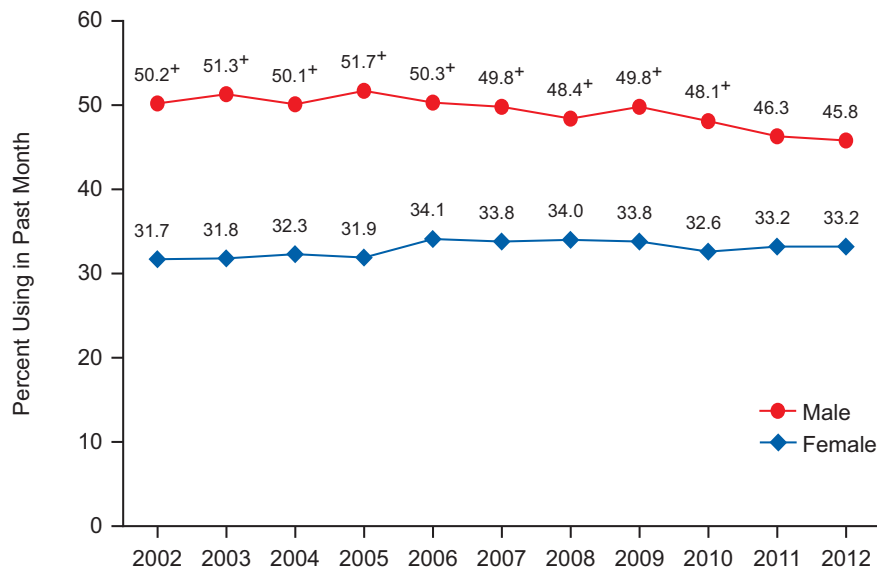
$^{+}$ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Figure 3.3 Current, Binge, and Heavy Alcohol Use among Persons Aged 12 or Older, by Race/Ethnicity: 2012
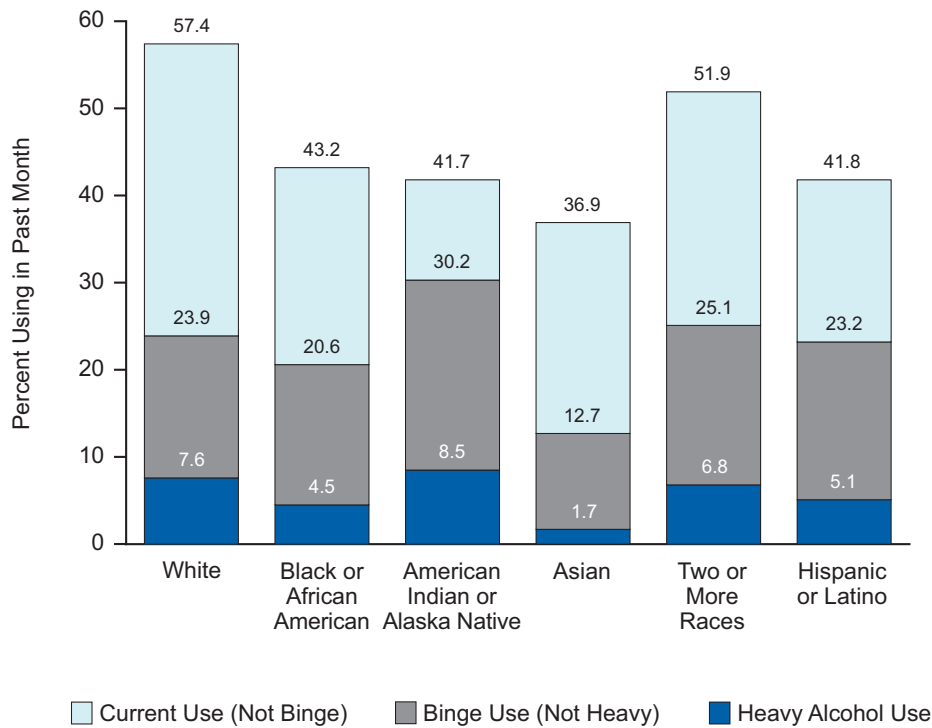
Note: Due to low precision, estimates for Native Hawaiians or Other Pacific Islanders are not shown.

- The rate of binge alcohol use was lowest among Asians (12.7 percent) (Figure 3.3). Rates for other racial/ethnic groups were 20.6 percent for blacks, 23.2 percent for Hispanics, 23.9 percent for whites, 25.1 percent for persons reporting two or more races, and 30.2 percent for American Indians or Alaska Natives.

- Among youths aged 12 to 17 in 2012, Asians had lower rates of current alcohol use than any other racial/ethnic group (4.9 percent). Rates of current alcohol use for youths in other racial/ethnic groups were 9.3 percent for blacks, 10.0 percent for American Indians or Alaska Natives, 11.7 percent for those reporting two or more races, 12.8 percent for Hispanics, and 14.6 percent for whites.

Education

- Among adults aged 18 or older, the rate of past month alcohol use increased with increasing levels of education. Among adults in 2012 with less than a high school education, 36.6 percent were current drinkers. In comparison, 68.6 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 2012, those who had graduated from college were less likely than those with some college education to be binge drinkers (22.1 vs. 26.4 percent) or heavy drinkers (5.9 vs. 7.9 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 2012, 60.3 percent were current drinkers, 40.1 percent were binge drinkers, and 14.4 percent were heavy drinkers. Among those not enrolled full time in college, these rates were 51.9, 35.0, and 10.7 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 37.1 percent in 2012. Among full-time college students, the rate decreased over this period from 44.4 to 40.1 percent (Figure 3.4). Among part-time college students and others not in college, the rate decreased from 38.9 to 35.0 percent during the same time period.

- In 2012, male full-time college students aged 18 to 22 were more likely than their female counterparts to be binge drinkers (45.5 vs. 35.3 percent). The rate of binge drinking among male full-time college students in 2012 was lower than in 2002 to 2007. Among female full-time college students, the rate of binge drinking in 2012 was lower than the rates only in 2002 and 2006.

Figure 3.4 Binge Alcohol Use among Adults Aged 18 to 22, by College Enrollment: 2002-2012
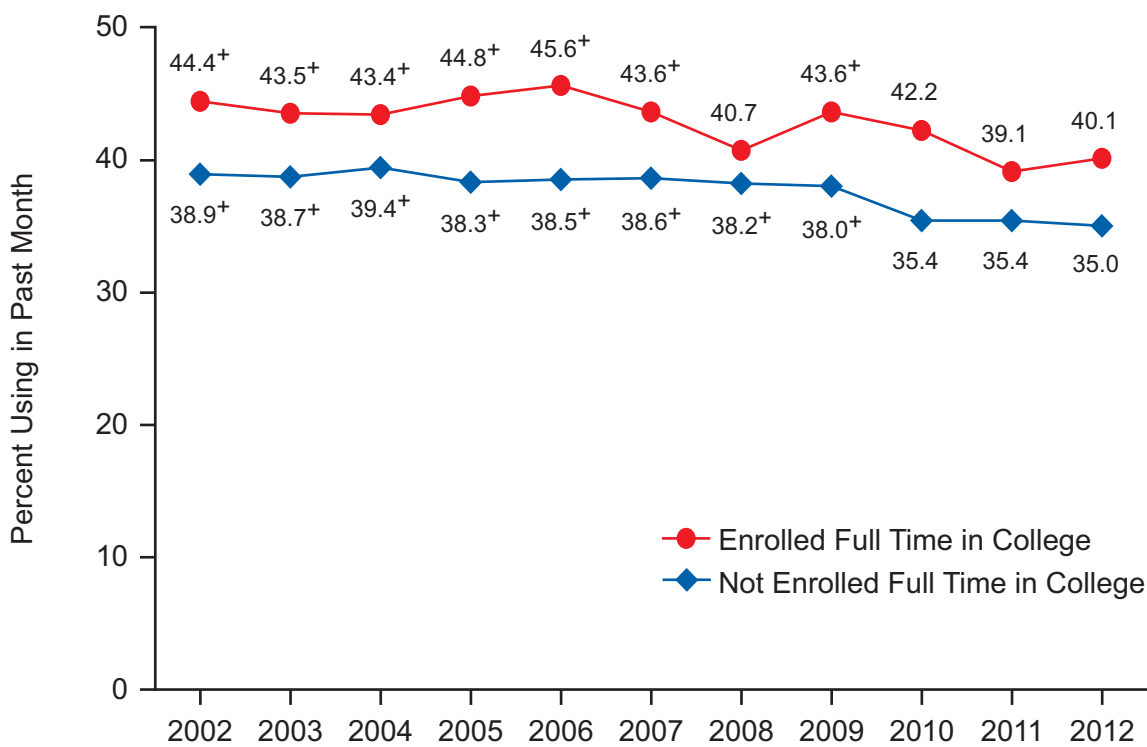
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Employment

- The rate of current alcohol use was 64.8 percent for full-time employed adults aged 18 or older in 2012, which was higher than the rate for unemployed adults (54.9 percent). The rates of binge drinking were similar for adults who were employed full time and those who were unemployed (29.9 and 32.0 percent, respectively).

- Among adults in 2012, most binge and heavy alcohol users were employed. Among the 57.9 million adults who were binge drinkers, 43.6 million (75.4 percent) were employed either full or part time. Among the 16.7 million adults who were heavy drinkers, 12.5 million (74.7 percent) were employed.

Geographic Area

- The rate of past month alcohol use for people aged 12 or older in 2012 was lowest in the South (48.3 percent), followed by the West (50.7 percent), then the Midwest (55.4 percent), then the Northeast (57.7 percent).

- In 2012, the rates of past month alcohol use among persons aged 12 or older in large and small metropolitan areas (53.5 and 53.1 percent, respectively) were higher than in nonmetropolitan areas (45.6 percent). Rates of binge drinking were similar in large and small metropolitan areas (23.4 and 22.9 percent, respectively). However, binge drinking among persons aged 12 or older was less prevalent in nonmetropolitan areas (21.4 percent) than in large metropolitan areas.

- Among youths aged 12 to 17 in 2012, the rates of binge alcohol use in large metropolitan and small metropolitan areas (6.9 and 6.8 percent, respectively) were lower than the rate for youths in nonmetropolitan areas (9.2 percent).

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 2012. Among the 17.0 million heavy drinkers aged 12 or older, 31.0 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 (4.2 percent) than those who reported (a) current use of alcohol but no binge or heavy use (7.1 percent), (b) binge use but no heavy use (18.5 percent), or (c) heavy use of alcohol (31.0 percent).

- Alcohol consumption levels also were associated with tobacco use. Among heavy alcohol users aged 12 or older, 53.4 percent smoked cigarettes in the past month compared with 16.6 percent of non-binge current drinkers and 16.0 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 (12.5 and 17.3 percent, respectively) than among non-binge drinkers (2.1 and 4.2 percent) and persons who were not current alcohol users (2.0 and 2.2 percent).

Driving Under the Influence of Alcohol

- In 2012, an estimated 11.2 percent of persons aged 12 or older drove under the influence of alcohol at least once in the past year (Figure 3.5). This percentage has decreased since 2002, when it was 14.2 percent, but was similar to the rate in 2011 (11.1 percent). The 2012 estimate corresponds to 29.1 million persons.

- Driving under the influence of alcohol among persons aged 16 or older differed by age group in 2012. The rate was highest among persons aged 21 to 25 (21.9 percent) (Figure 3.6). An estimated 4.7 percent of 16 or 17 year olds and 12.8 percent of 18 to 20 year olds reported driving under the influence of alcohol in the past year. Beyond age 25, these rates showed a general decline with increasing age.

- Among persons aged 18 to 25, the rate of driving under the influence of alcohol decreased steadily from 2002, when it was 26.6 percent, to 2011, when it was 18.6 percent. There was no change in this rate between 2011 and 2012 (18.6 and 18.4 percent, respectively).

- Among persons aged 12 or older, males were more likely than females (14.6 vs. 7.9 percent) to drive under the influence of alcohol in the past year.

Figure 3.5 Driving Under the Influence of Alcohol in the Past Year among Persons Aged 12 or Older: 2002-2012

Bar chart showing Percent Driving Under the Influence in Past Year by year:

Year	Percent
2002	14.2[+]
2003	13.6[+]
2004	13.5[+]
2005	13.0[+]
2006	12.4[+]
2007	12.7[+]
2008	12.4[+]
2009	12.0[+]
2010	11.4
2011	11.1
2012	11.2
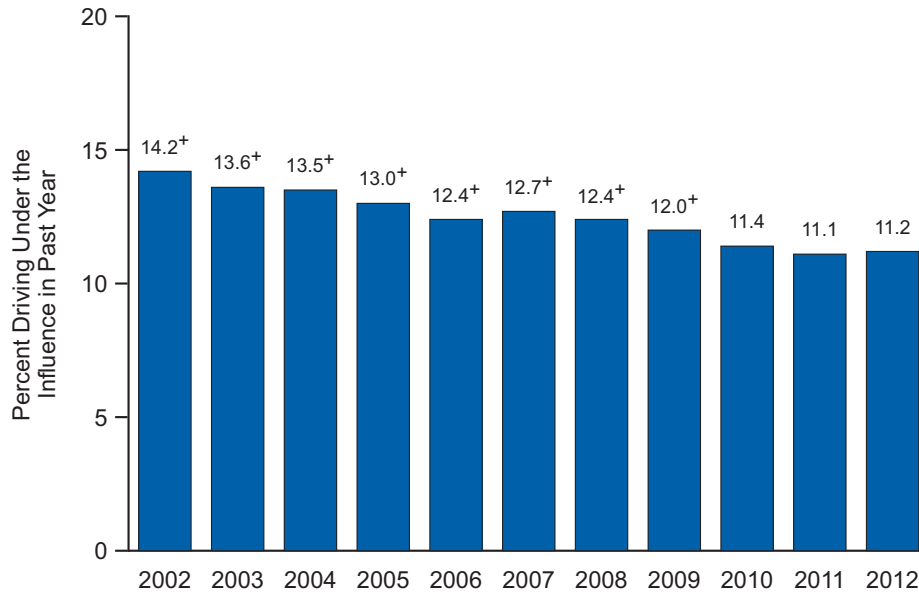
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Figure 3.6 Driving Under the Influence of Alcohol in the Past Year among Persons Aged 16 or Older, by Age: 2012

Bar chart showing Percent Driving Under the Influence in Past Year by Age in Years:

Age in Years	Percent
16-17	4.7
18-20	12.8
21-25	21.9
26-29	19.6
30-34	16.3
35-39	12.8
40-44	13.7
45-49	12.8
50-54	12.1
55-59	9.3
60-64	8.0
65+	3.9

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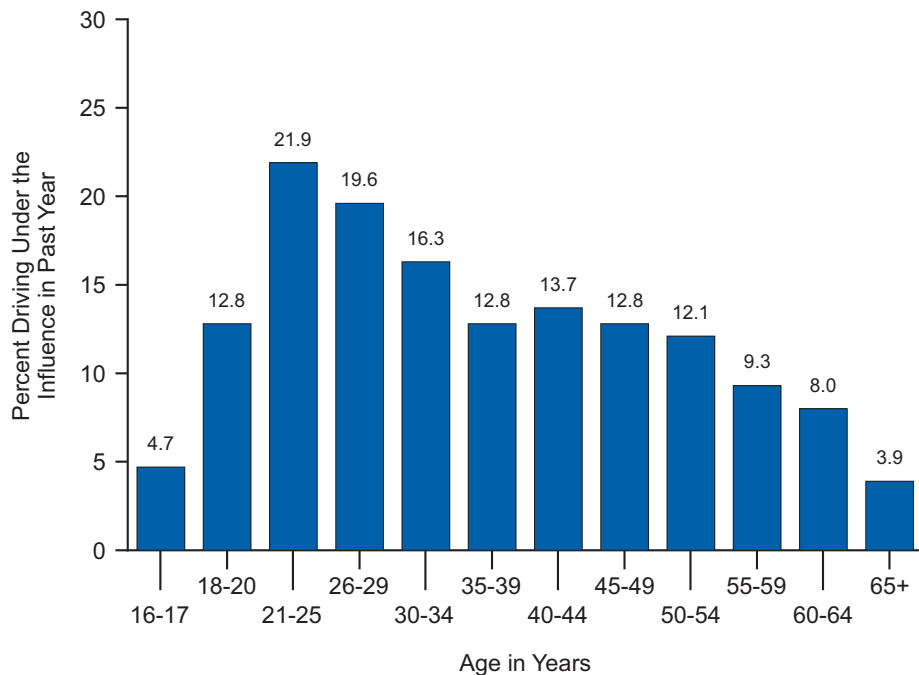
3.2.   Underage Alcohol Use

- In 2012, about 9.3 million persons aged 12 to 20 (24.3 percent of this age group) reported drinking alcohol in the past month. Approximately 5.9 million (15.3 percent) were binge drinkers, and 1.7 million (4.3 percent) were heavy drinkers.

- Rates of current, binge, and heavy alcohol use among underage persons declined between 2002 and 2012. The rate of current alcohol use among 12 to 20 year olds decreased from 28.8 percent in 2002 to 24.3 percent in 2012. The binge drinking rate declined from 19.3 to 15.3 percent, and the rate of heavy drinking declined from 6.2 to 4.3 percent.

- Rates of current alcohol use increased with age among underage persons. In 2012, 2.2 percent of persons aged 12 or 13, 11.1 percent of persons aged 14 or 15, 24.8 percent of 16 or 17 year olds, and 45.8 percent of 18 to 20 year olds drank alcohol during the 30 days before they were surveyed. This pattern by age has been observed since 2002 (Figure 3.7).

Figure 3.7 Current Alcohol Use among Persons Aged 12 to 20, by Age: 2002-2012
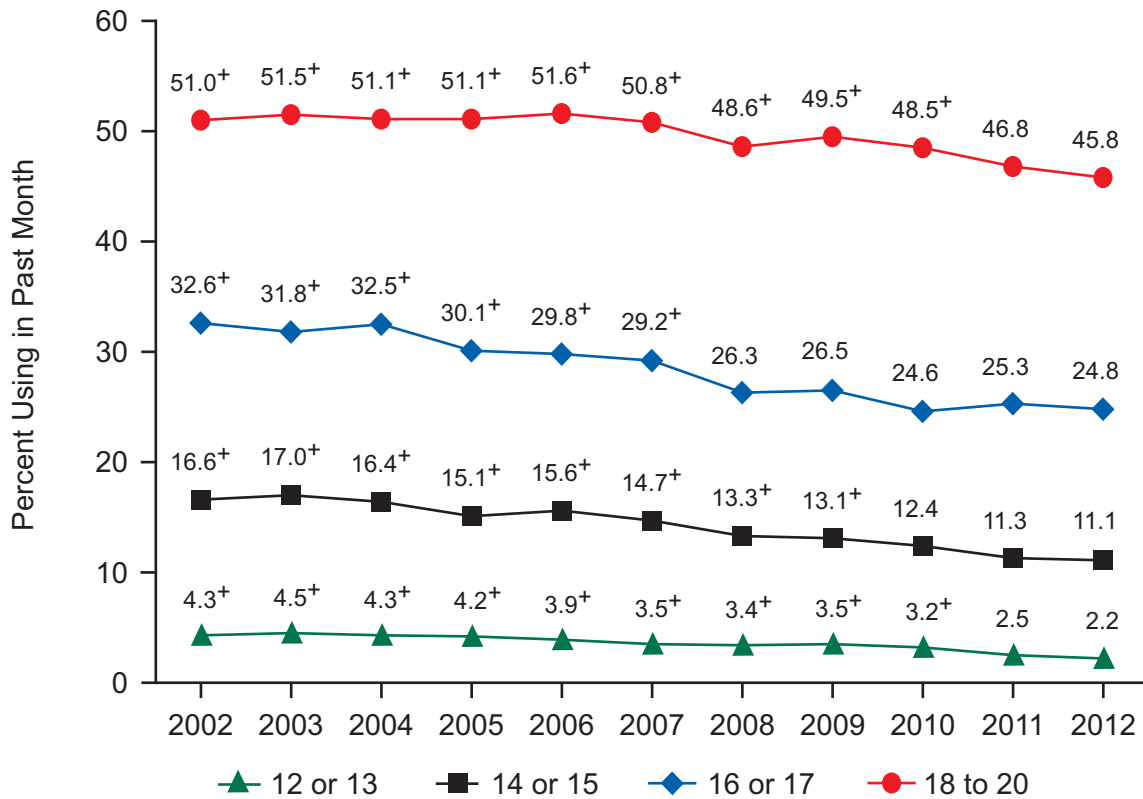
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- Males and females aged 12 to 20 in 2012 had similar rates of current alcohol use (24.7 and 24.0 percent) (Figure 3.8). However, underage males were more likely than underage females to report binge (16.5 vs. 14.0 percent) or heavy alcohol use (5.2 vs. 3.4 percent).

Figure 3.8 Current, Binge, and Heavy Alcohol Use among Persons Aged 12 to 20, by Gender: 2012
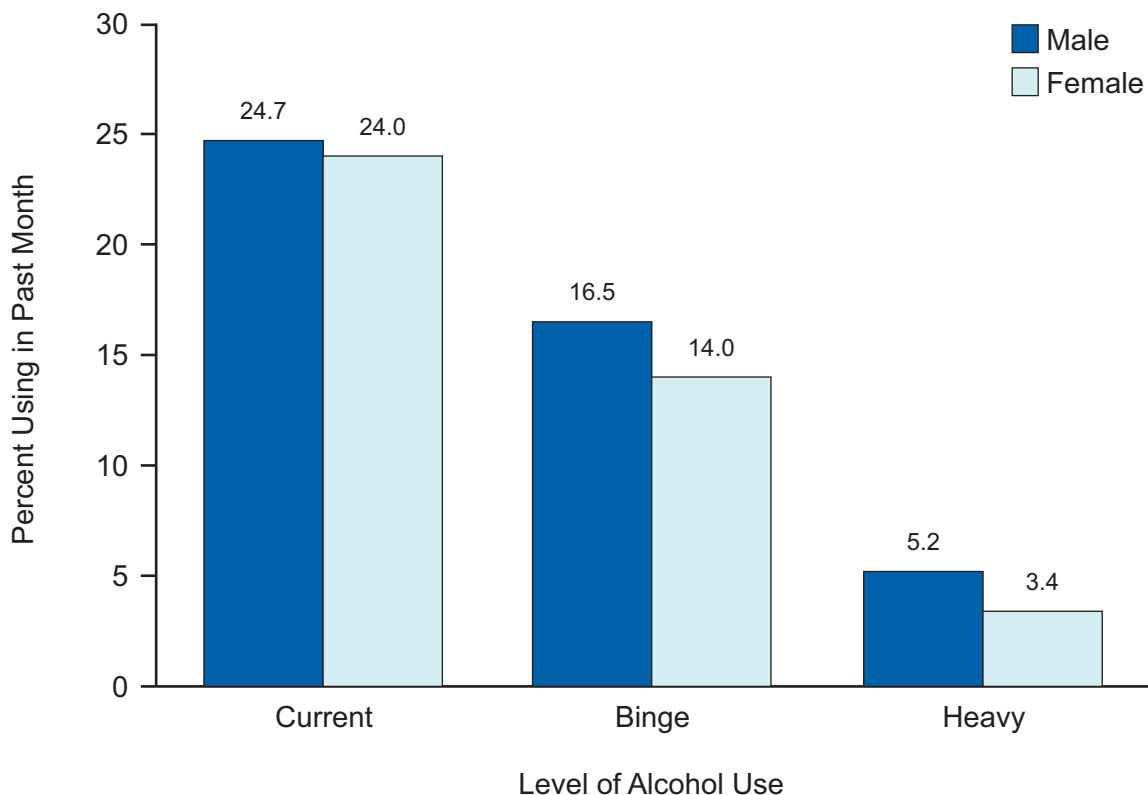
- Among persons aged 12 to 20, past month alcohol use rates in 2012 were 13.8 percent among Asians, 18.0 percent among blacks, 21.7 percent among those reporting two or more races, 22.3 percent among American Indians or Alaska Natives, 23.2 percent among Hispanics, and 27.4 percent among whites.

- In 2012, among persons aged 12 to 20, binge drinking was reported by 18.2 percent of whites, 18.1 percent of American Indians or Alaska Natives, 14.2 percent of Hispanics, and 13.8 percent of persons reporting two or more races. Blacks and Asians in this age group were less likely than underage persons in other racial/ethnic groups to report binge drinking (8.5 and 7.8 percent, respectively).

- Across geographic regions in 2012, the rate of current alcohol use among persons aged 12 to 20 was higher in the Northeast (28.3 percent) than in the Midwest (24.4 percent), West (24.5 percent), and South (22.3 percent).

- In 2012, the current alcohol use rates among underage persons were 24.7 percent in large metropolitan areas, 24.4 percent in small metropolitan areas, and 22.6 percent in nonmetropolitan areas.

- In 2012, 81.1 percent of current drinkers aged 12 to 20 were with two or more other people the last time they drank alcohol, 13.5 percent were with one other person the last time they drank, and 5.5 percent were alone.

- A majority of underage current drinkers in 2012 reported that their last use of alcohol in the past month occurred in a home setting, either in someone else's home (54.4 percent) or their own home (31.4 percent). The rate for drinking at someone else's home in 2012 was lower than the rate in 2011 (57.0 percent), while the rate for drinking at home was higher than it was in 2011 (28.2 percent). In 2012, underage females were more likely than males to have been in a restaurant, bar, or club on their last drinking occasion (8.1 vs. 5.6 percent).

- Among underage current drinkers in 2012, 28.2 percent paid for the alcohol the last time they drank, including 7.6 percent who purchased the alcohol themselves and 20.4 percent who gave money to someone else to purchase it. In 2012, the percentage of underage drinkers who gave money to someone else to purchase the last alcohol they drank was lower than in 2011 (20.4 vs. 22.4 percent).

- In 2012, 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 23.0 percent of nonpaying underage drinkers. Other underage persons provided the alcohol on the last occasion for 18.8 percent of nonpaying underage drinkers. Additional sources of alcohol for underage drinkers who did not pay included (a) took the alcohol from home (6.3 percent), (b) took it from someone else's home (3.2 percent), and (c) got it some other way (6.8 percent).

- In 2012, 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 (20.6 vs. 5.8 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 19.8 percent of current underage drinkers (1.8 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 2012, an estimated 69.5 million Americans aged 12 or older were current (past month) users of a tobacco product. This represents 26.7 percent of the population in that age range. Also, 57.5 million persons (22.1 percent of the population) were current cigarette smokers; 13.4 million (5.2 percent) smoked cigars; 9.0 million (3.5 percent) used smokeless tobacco; and 2.5 million (1.0 percent) smoked tobacco in pipes (Figure 4.1).

- The rate of current use of any tobacco product among persons aged 12 or older in 2012 (26.7 percent) was similar to the rate in 2011 (26.5 percent) and 2010 (27.5 percent), but was lower than the rate in 2009 (27.7 percent) (Figure 4.1). The rate of current use of cigarettes also was similar from 2010 to 2012, but declined from 23.3 percent in 2009 to 22.1 percent in 2012. Current use rates of cigars, smokeless tobacco, and pipe tobacco in 2012 remained similar to the corresponding rates in 2011 and 2010.

Figure 4.1   Past Month Tobacco Use among Persons Aged 12 or Older: 2002-2012
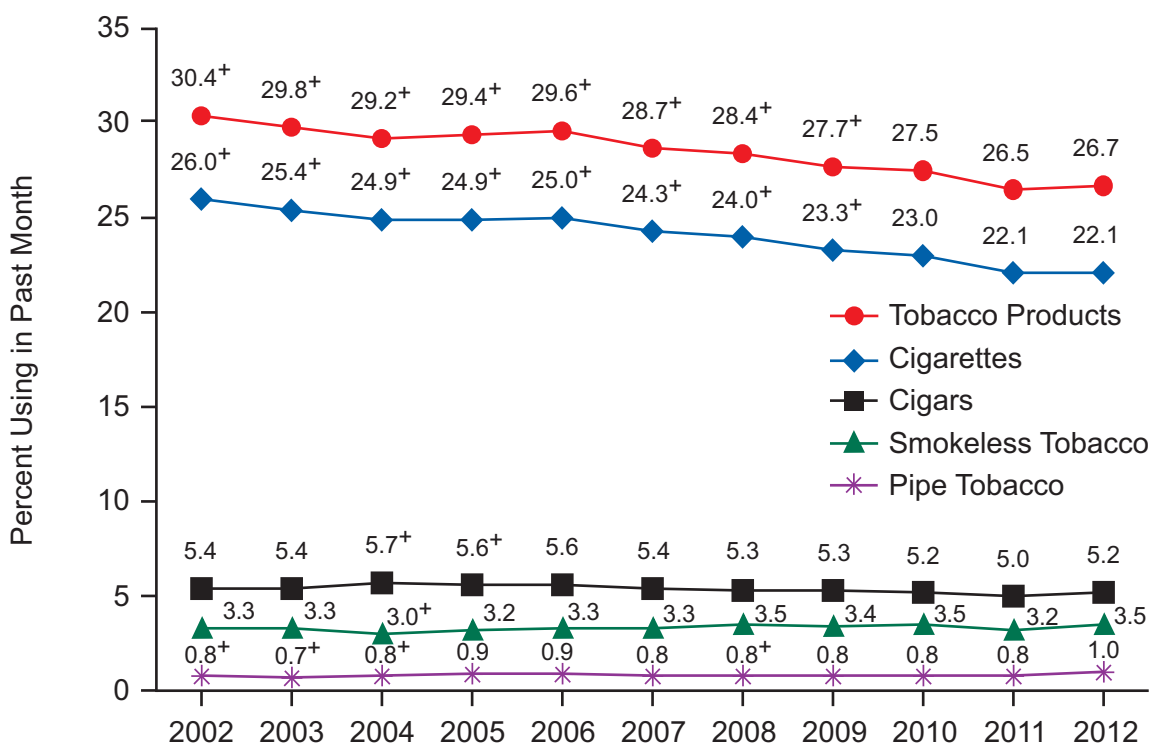
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

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- Between 2002 and 2012, past month use of any tobacco product among persons aged 12 or older decreased from 30.4 to 26.7 percent, and past month cigarette use declined from 26.0 to 22.1 percent (Figure 4.1). However, past month pipe tobacco use increased from 0.8 percent in 2002 to 1.0 percent in 2012. Rates of past month use of cigars and smokeless tobacco were similar in 2002 and 2012.

Age

- In 2012, young adults aged 18 to 25 had the highest rate of current use of a tobacco product (38.1 percent) compared with youths aged 12 to 17 (8.6 percent) and adults aged 26 or older (27.0 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 2012 were 31.8 percent for cigarettes, 10.7 percent for cigars, 5.5 percent for smokeless tobacco, and 1.8 percent for pipe tobacco.

- The rate of current use of a tobacco product by young adults declined from 45.3 percent in 2002 to 39.5 percent in 2011, then to 38.1 percent in 2012. The rate of current cigarette use among young adults also declined from 40.8 percent in 2002 to 33.5 percent in 2011, and it declined further to 31.8 percent in 2012. However, the rate of current use of pipe tobacco by young adults increased from 1.1 percent in 2002 to 1.8 percent in 2012.

- The rate of past month tobacco use among 12 to 17 year olds declined from 15.2 percent in 2002 to 8.6 percent in 2012, including a decline from 2011 (10.0 percent) to 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 7.8 percent in 2011 and to 6.6 percent in 2012. The rate of past month smokeless tobacco use among 12 to 17 year olds remained steady between 2002 and 2012 (2.0 and 2.1 percent, respectively).

- Across age groups, current cigarette use in 2012 was highest among persons aged 21 to 25 (34.1 percent), those aged 26 to 29 (33.4 percent), and those aged 30 to 34 (31.9 percent) (Figure 4.3). Among those aged 35 or older in 2012, 20.1 percent smoked cigarettes in the past month.

Gender

- In 2012, current use of a tobacco product among persons aged 12 or older was reported by a higher percentage of males (33.0 percent) than females (20.9 percent). Males also had higher rates of past month use than females of each specific tobacco product: cigarettes (24.6 percent among males vs. 19.8 percent among females), cigars (8.5 vs. 2.0 percent), smokeless tobacco (6.7 vs. 0.4 percent), and pipe tobacco (1.6 vs. 0.4 percent).

- The rate of any tobacco use among males aged 12 or older declined from 37.0 percent in 2002 to 33.0 percent in 2012. The rate of any tobacco use for females aged 12 or older also declined from 24.3 percent in 2002 to 20.9 percent in 2012. Rates of any tobacco use were similar between 2011 and 2012 for both males and females.

Figure 4.2   Past Month Tobacco Use among Youths Aged 12 to 17: 2002-2012
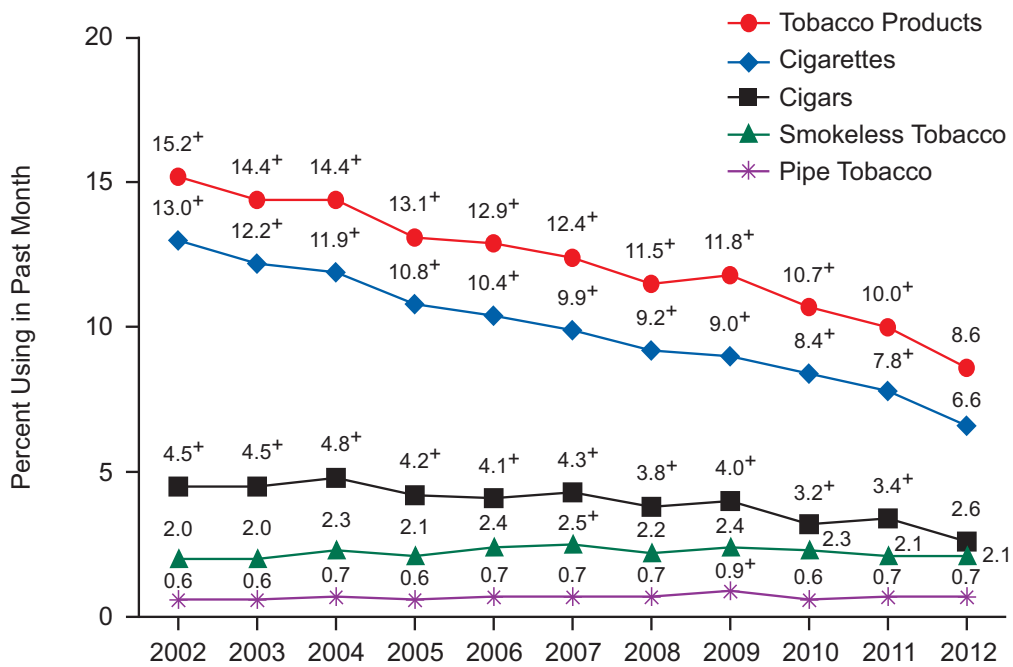
Legend: Tobacco Products; Cigarettes; Cigars; Smokeless Tobacco; Pipe Tobacco

Tobacco Products: 15.2+, 14.4+, 14.4+, 13.1+, 12.9+, 12.4+, 11.5+, 11.8+, 10.7+, 10.0+, 8.6

Cigarettes: 13.0+, 12.2+, 11.9+, 10.8+, 10.4+, 9.9+, 9.2+, 9.0+, 8.4+, 7.8+, 6.6

Cigars: 4.5+, 4.5+, 4.8+, 4.2+, 4.1+, 4.3+, 3.8+, 4.0+, 3.2+, 3.4+, 2.6

Smokeless Tobacco: 2.0, 2.0, 2.3, 2.1, 2.4, 2.5+, 2.2, 2.4, 2.3, 2.1, 2.1

Pipe Tobacco: 0.6, 0.6, 0.7, 0.6, 0.7, 0.7, 0.7, 0.9+, 0.6, 0.7, 0.7

Years: 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012

Y-axis: Percent Using in Past Month

+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Figure 4.3   Past Month Cigarette Use among Persons Aged 12 or Older, by Age: 2012

Values by age group:
12-13: 1.2
14-15: 4.6
16-17: 13.6
18-20: 28.2
21-25: 34.1
26-29: 33.4
30-34: 31.9
35-39: 26.7
40-44: 24.3
45-49: 26.0
50-54: 24.5
55-59: 21.5
60-64: 16.9
65+: 10.0

Y-axis: Percent Using in Past Month
X-axis: Age in Years
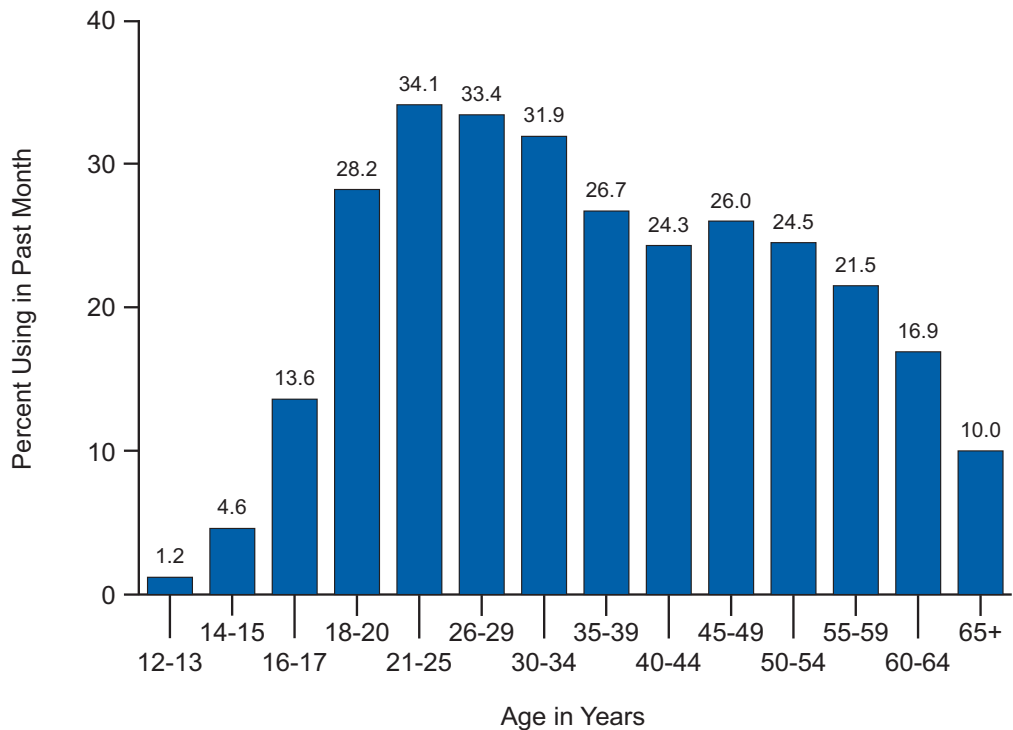
- Among youths aged 12 to 17, the rates of current cigarette smoking in 2012 were similar for males (6.8 percent) and females (6.3 percent) (Figure 4.4). These rates in 2012 were lower than the corresponding rates in 2011 (8.2 percent for males and 7.3 percent for females). From 2002 to 2012, the rate of current cigarette smoking among youths decreased for both males (from 12.3 to 6.8 percent) and females (from 13.6 to 6.3 percent).

Figure 4.4 Past Month Cigarette Use among Youths Aged 12 to 17, by Gender: 2002-2012
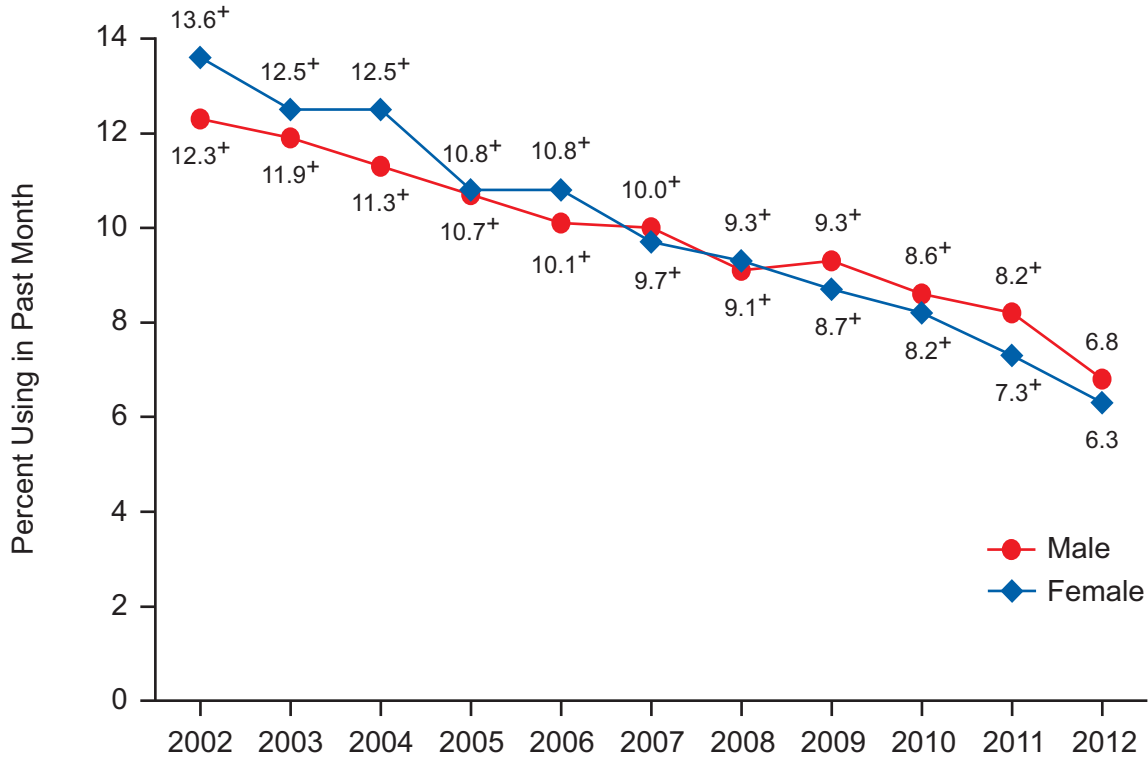
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- The rate of current cigarette smoking among male young adults aged 18 to 25 declined from 40.4 percent in 2009 to 36.6 percent in 2012. Among female young adults, the rate declined from 31.3 percent in 2009 to 27.1 percent in 2012. Between 2002 and 2012, current cigarette use among young adults declined for both males (from 44.4 to 36.6 percent) and females (from 37.1 to 27.1 percent).

Pregnant Women

- About one in six pregnant women aged 15 to 44 (15.9 percent) had smoked cigarettes in the past month, based on combined 2011 and 2012 data (Figure 4.5). This rate of past month cigarette use among women who were pregnant was lower than that among women who were not pregnant (24.6 percent). This pattern was also evident among women aged 18 to 25 (20.9 vs. 28.2 percent for pregnant and nonpregnant women, respectively) and among women aged 26 to 44 (12.5 vs. 25.2 percent, respectively).

- 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 24.6 percent in 2011-2012 (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 15.9 percent in 2011-2012).

Figure 4.5 Past Month Cigarette Use among Women Aged 15 to 44, by Pregnancy Status: Combined Years 2002-2003 to 2011-2012
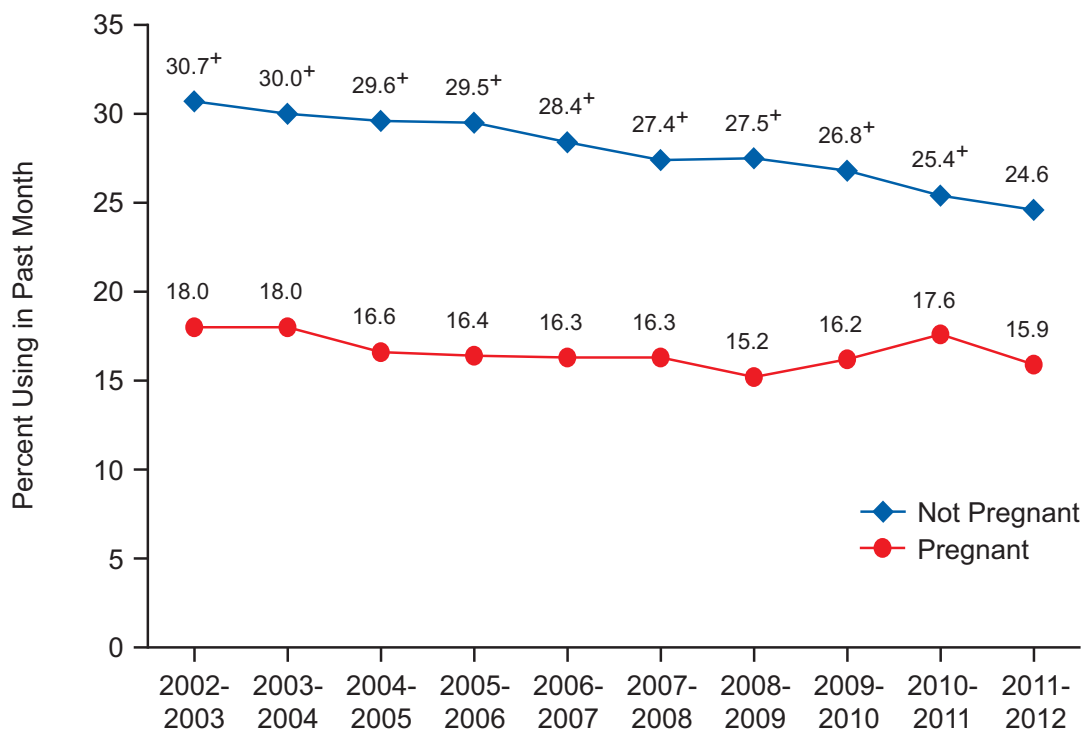
$^+$ Difference between this estimate and the 2011-2012 estimate is statistically significant at the .05 level.

Race/Ethnicity

- In 2012, the prevalence of current use of a tobacco product among persons aged 12 or older was 10.8 percent for Asians, 19.2 percent for Hispanics, 27.2 percent for blacks, 29.2 percent for whites, 37.3 percent for persons who reported two or more races, and 48.4 percent for American Indians or Alaska Natives. There were no statistically significant changes in past month use of a tobacco product between 2011 and 2012 for any of these racial/ethnic groups.

- In 2012, current cigarette smoking among youths aged 12 to 17 and young adults aged 18 to 25 was more prevalent among whites than blacks (8.2 vs. 4.1 percent for youths and 36.6 vs. 26.2 percent for young adults).

- Among Hispanics, the rate of current cigarette smoking among young adults aged 18 to 25 decreased from 28.4 percent in 2011 to 25.0 percent in 2012. The rates of current cigarette smoking in 2012 were 4.8 percent among youths aged 12 to 17 and 17.0 percent among those aged 26 or older, which were similar to the corresponding rates in 2011.

- Among Asians, the rate of current cigarette smoking among young adults aged 18 to 25 decreased from 22.7 percent in 2011 to 16.3 percent in 2012. The rates of current cigarette smoking in 2012 were 1.7 percent among youths aged 12 to 17 and 9.1 percent among those aged 26 or older, which were similar to the corresponding rates in 2011.

Education

- Since 2002, cigarette smoking in the past month has been less prevalent among adults who were college graduates compared with those with less education. Among adults aged 18 or older, current cigarette use in 2012 was reported by 33.7 percent of those who had not completed high school, 29.4 percent of high school graduates who did not attend college, 25.5 percent of persons with some college, and 11.5 percent of college graduates. These rates were similar to the 2011 rates by educational attainment.

College Students

- Among young adults 18 to 22 years old, 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 rates of past month cigarette use among full-time college students declined from 32.6 percent in 2002 to 21.3 percent in 2012 and declined from 45.8 percent in 2002 to 37.2 percent in 2012 among those not enrolled full time.

- Among males aged 18 to 22 who were full-time college students, the rate of past month cigarette use in 2012 (24.5 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 cigarette use in 2012 (41.8 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 18.4 percent in 2012. Among females aged 18 to 22 who were not enrolled full time in college, the rate of cigarette use in 2012 (32.0 percent) also was lower than the rate in 2002 (41.7 percent).

Employment

- In 2012, 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 (23.9 and 22.7 percent, respectively). Cigar smoking followed a similar pattern, with 9.1 percent of unemployed adults reporting past month use compared with 5.8 percent of full-time workers and 6.0 percent of part-time workers.

- Current use of smokeless tobacco in 2012 was higher among adults aged 18 or older who were employed full time (4.8 percent) than among those who were unemployed (3.6 percent), those who were employed part time (2.8 percent), and those in the "other" employment category, which includes persons not in the labor force (2.0 percent). These rates were similar to the 2011 smokeless tobacco use rates among adults for most of these employment categories, except that the rate among adults with full-time employment increased from 4.3 percent in 2011 to 4.8 percent in 2012.

Geographic Area

- In 2012, current cigarette smoking among persons aged 12 or older was lower in the West (19.1 percent) and the Northeast (20.9 percent) than in the South (23.1 percent) and the Midwest (24.7 percent). Use of smokeless tobacco was lowest in the Northeast (2.0 percent), followed by the West (2.7 percent), then the South and Midwest (4.1 and 4.5 percent, respectively).

- Consistent with the findings in previous years since 2002, the rates of use of any tobacco product in 2012 were associated with county type among persons aged 12 or older. The rate of current cigarette use was 19.9 percent in large metropolitan areas, 23.2 percent in small metropolitan areas, and 27.4 percent in nonmetropolitan areas. Use of smokeless tobacco in the past month in 2012 among persons aged 12 or older was lowest in large metropolitan areas (2.1 percent). In small metropolitan areas, the current smokeless tobacco use rate was 3.9 percent; in nonmetropolitan areas, it was 7.1 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 2012, as in previous years since 2002. Among persons aged 12 or older, 23.0 percent of past month cigarette smokers reported current use of an illicit drug compared with 5.2 percent of persons who were not current cigarette smokers. Among youths aged 12 to 17 who smoked cigarettes in the past month, 54.6 percent also used an illicit drug compared with 6.4 percent of youths who did not smoke cigarettes.

- Past month alcohol use was reported by 65.4 percent of current cigarette smokers compared with 48.3 percent of those who did not use cigarettes in the past month. This association also was found for binge alcohol use (43.6 percent of current cigarette smokers vs. 17.1 percent of current nonsmokers) and heavy alcohol use (15.8 vs. 3.9 percent, respectively).

Frequency of Cigarette Use

- Among the 57.5 million current cigarette smokers aged 12 or older in 2012, 34.9 million (60.7 percent) used cigarettes daily. The percentage of daily cigarette smokers among past month cigarette users increased with age (22.0 percent of past month cigarette users aged 12 to 17, 45.1 percent of those aged 18 to 25, and 66.0 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 60.7 percent in 2012. During the same time period, daily cigarette use declined among current smokers aged 12 to 17 (from 31.8 to 22.0 percent), those aged 18 to 25 (from 51.8 to 45.1 percent), and those aged 26 or older (from 68.8 to 66.0 percent).

- About two out of five daily smokers aged 12 or older (41.9 percent) 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 10.6 percent among daily smokers aged 12 to 17, to 25.1 percent of those aged 18 to 25, then to 45.1 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 2012 (45.1 percent) than in 2002 (56.9 percent). Declines also were seen among daily smokers from 2002 to 2012 for youths aged 12 to 17 (from 21.7 to 10.6 percent) and for young adults aged 18 to 25 (from 39.0 to 25.1 percent).

Figure 4.6 Past Month Smokers of One or More Packs of Cigarettes per Day among Daily Smokers, by Age Group: 2002-2012
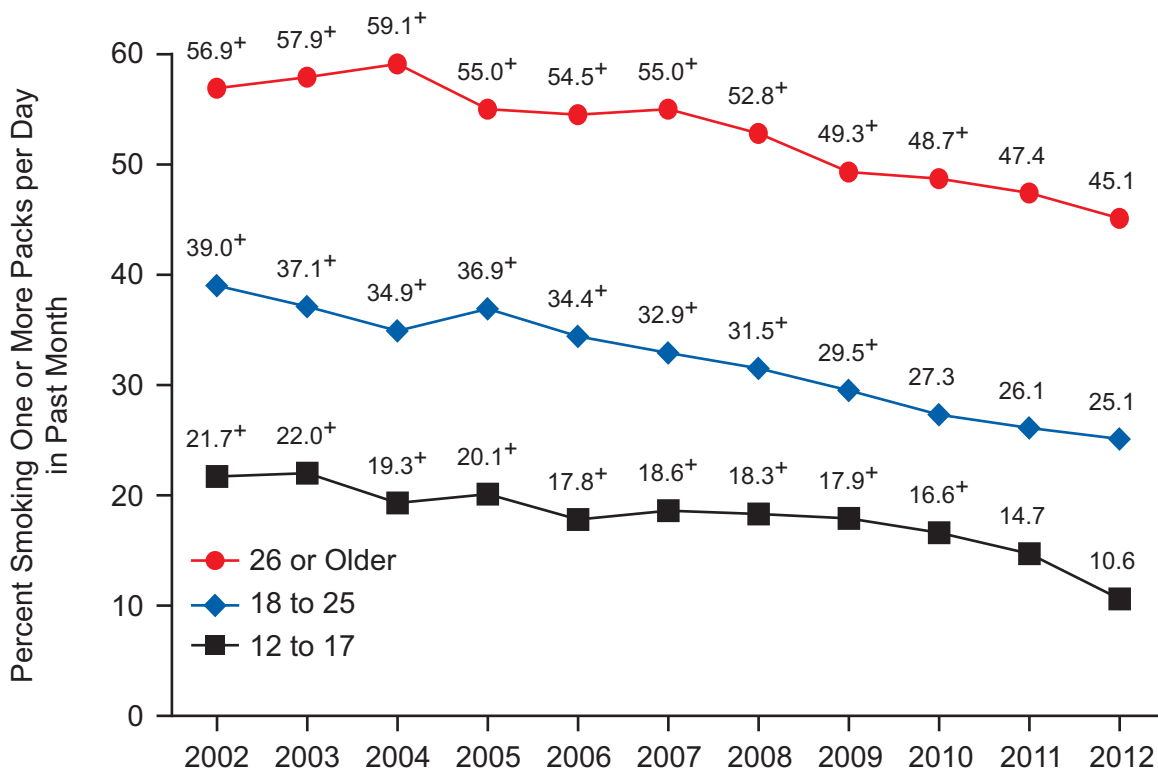
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

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 2012 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 2012) 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).[2] 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 2012, about 2.9 million persons aged 12 or older used an illicit drug for the first time within the past 12 months; this averages to about 7,900 new users per day. This estimate was not significantly different from the number in 2011 (3.1 million). Over half of initiates (55.1 percent) were younger than age 18 when they first used, and 53.7 percent of new users were female. The 2012 average age at initiation among persons aged 12 to 49 was 18.7 years, which was similar to the 2011 estimate (18.1 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 2.9 million persons aged 12 or older in 2012 who used illicit drugs for the first time within the past 12 months, a majority reported that their first drug was marijuana (65.6 percent) (Figure 5.1). More than 1 in 4 initiated with nonmedical use of psychotherapeutics (26.0 percent, including 17.0 percent with pain relievers, 4.1 percent with tranquilizers, 3.6 percent with stimulants, and 1.3 percent with sedatives). A notable proportion reported inhalants (6.3 percent) as their first illicit drug, and a small proportion used hallucinogens (2.0 percent). All of the above 2012 percentages of first illicit drug use were similar to the corresponding percentages in 2011.

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

Figure 5.1 First Specific Drug Associated with Initiation of Illicit Drug Use among Past Year Illicit Drug Initiates Aged 12 or Older: 2012

Pain Relievers (17.0%)

Inhalants (6.3%)

Tranquilizers (4.1%)

Stimulants (3.6%)

Hallucinogens (2.0%)

Sedatives (1.3%)

Cocaine (0.1%)

Heroin (0.1%)

Marijuana (65.6%)

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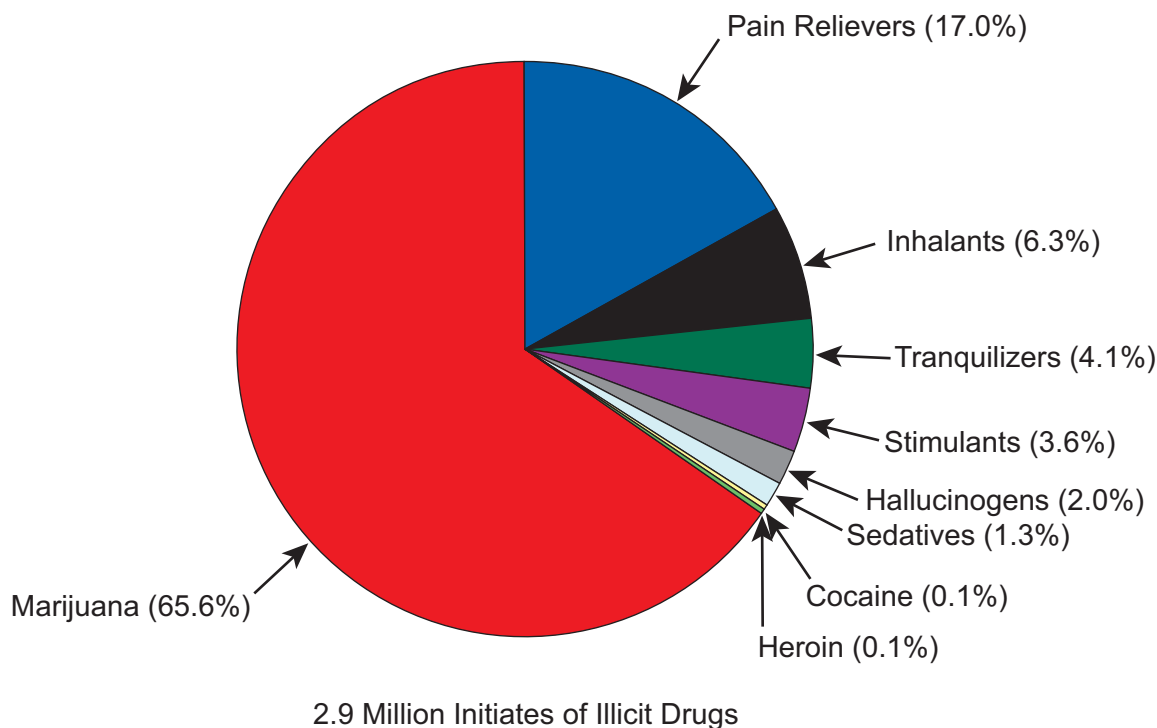
Note: The percentages do not add to 100 percent due to rounding or because a small number of respondents initiated multiple drugs on the same day. The first specific drug refers to the one that was used on the occasion of first-time use of any illicit drug.

Comparison, by Drug

- In 2012, the specific illicit drug category with the largest number of recent initiates among persons aged 12 or older was marijuana use (2.4 million), followed by nonmedical use of pain relievers (1.9 million), then nonmedical use of tranquilizers (1.4 million), followed by Ecstasy use (0.9 million), then use of stimulants, cocaine, and inhalants (0.6 million to 0.7 million) (Figure 5.2).

- Among persons aged 12 to 49 in 2012, the average age at first use was 16.6 years for PCP, 16.9 years for inhalants, 17.9 years for marijuana, 19.0 years for LSD, 20.0 years for cocaine, 20.3 years for Ecstasy, 22.1 years for stimulants, 22.3 years for pain relievers, 23.0 years for heroin, 23.6 years for tranquilizers, and 26.2 years for sedatives (Figure 5.3).

Figure 5.2 Past Year Initiates of Specific Illicit Drugs among Persons Aged 12 or Older: 2012
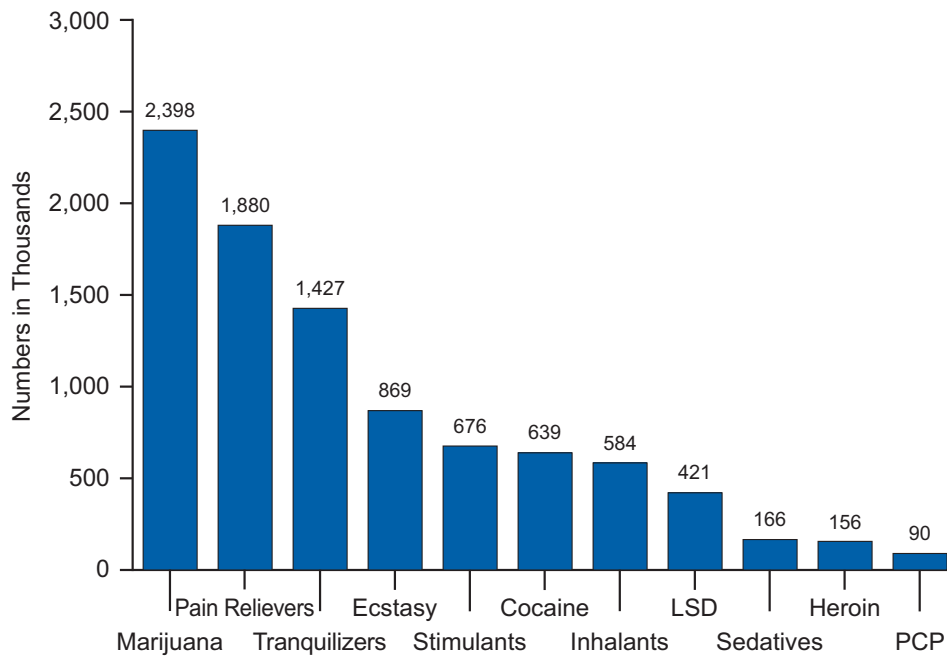
Note: Numbers refer to persons who used a specific drug for the first time in the past year, regardless of whether initiation of other drug use occurred prior to the past year.

Figure 5.3 Mean Age at First Use for Specific Illicit Drugs among Past Year Initiates Aged 12 to 49: 2012

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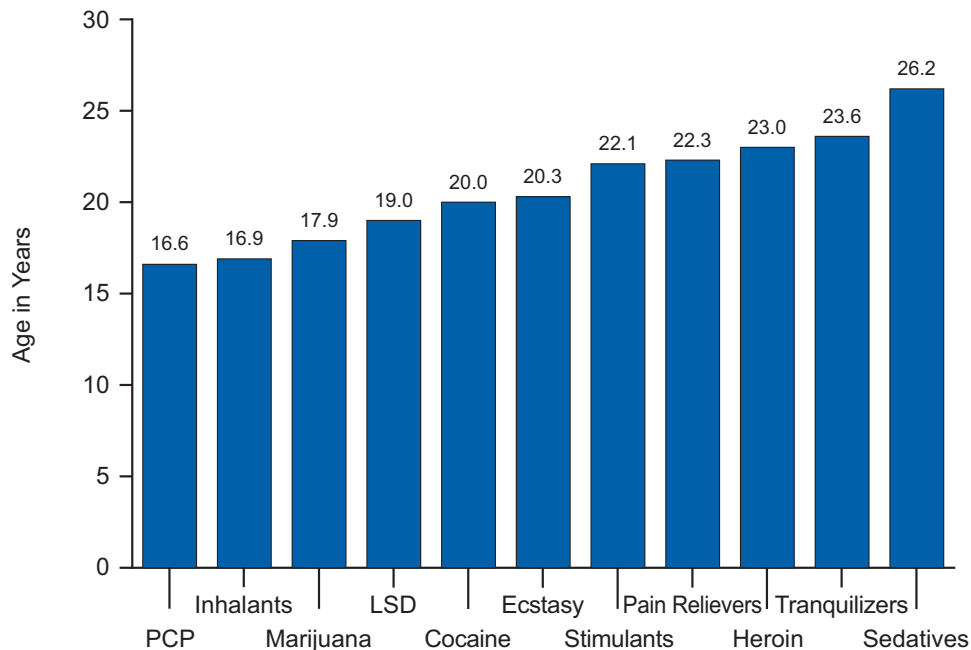
Marijuana

- In 2012, 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 2012 estimate was similar to the estimates in 2008 through 2011 (ranging from 2.2 million to 2.6 million), but was higher than the estimates in 2003, 2004, 2006, and 2007 (ranging from 2.0 million to 2.1 million) (Figure 5.4).

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: 2002-2012
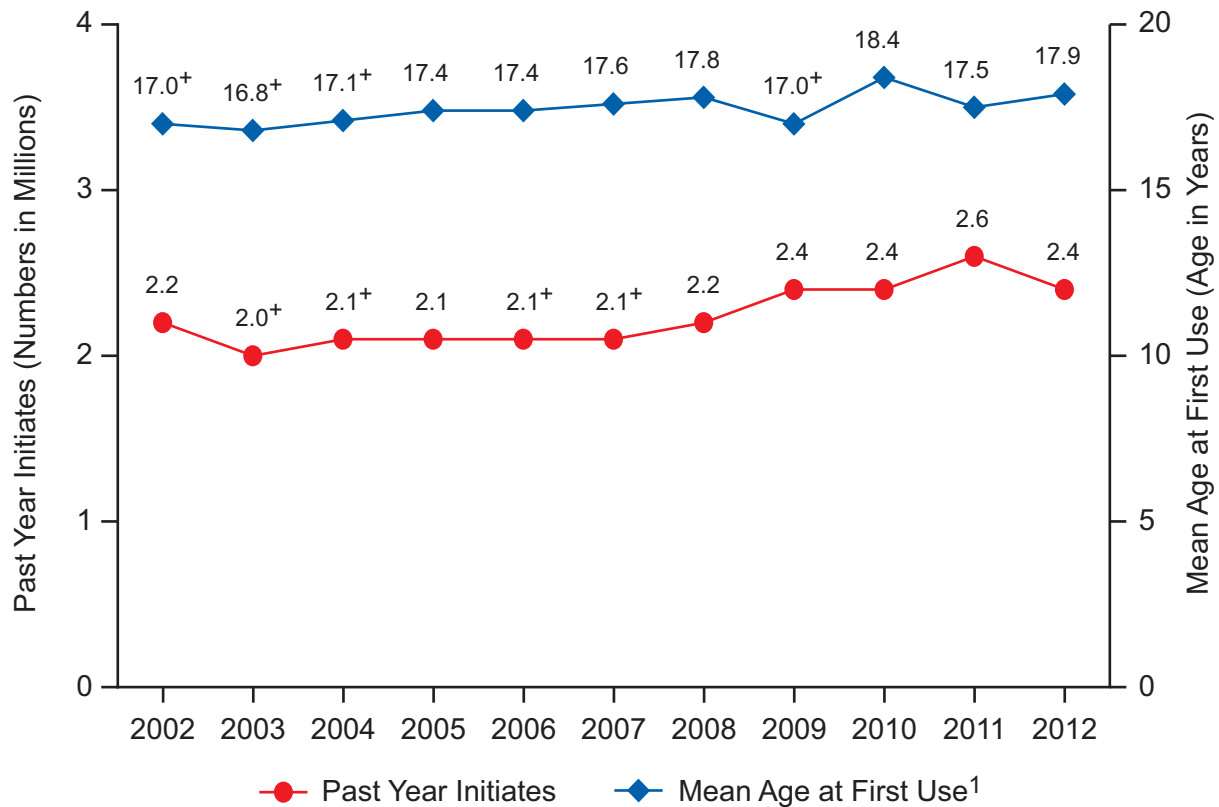
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

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

- In 2012, 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 2011 (1.5 million). The estimated 1.4 million persons in 2012 who initiated prior to the age of 18 represented the majority (57.3 percent) of the 2.4 million recent marijuana initiates.

- Among all youths aged 12 to 17, an estimated 5.0 percent had used marijuana for the first time within the past year in 2012, which was similar to the rate in 2011 (5.5 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 2012 (5.7 percent) was similar to the rate in 2011 (6.3 percent).

- In 2012, the average age at first marijuana use among recent initiates aged 12 to 49 was 17.9 years, which was similar to the average ages in 2011 (17.5 years), 2010, and 2005 through 2008, 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 2012, among recent initiates aged 12 or older who initiated marijuana use prior to the age of 21, the mean age at first use was 16.3 years, which was similar to the 2011 estimate.

Cocaine

- In 2012, there were 639,000 persons aged 12 or older who had used cocaine for the first time within the past 12 months; this averages to approximately 1,800 initiates per day. This estimate was similar to the number in 2008 to 2011 (ranging from 623,000 to 724,000). The annual number of cocaine initiates declined from 0.9 million or 1.0 million in 2002 through 2007 to 639,000 in 2012.

- 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., 84,000 in 2012).

- In 2012, most (76.2 percent) of the 0.6 million recent cocaine initiates were 18 or older when they first used. The average age at first use among recent initiates aged 12 to 49 was 20.0 years. The average age estimates have remained fairly stable since 2002.

Heroin

- In 2012, there were 156,000 persons aged 12 or older who had used heroin for the first time within the past 12 months. This estimated number in 2012 was similar to the numbers in 2002, 2004, 2005, and 2007 to 2011 (ranging from 106,000 to 187,000), but was higher than the numbers in 2003 and 2006 (92,000 and 90,000, respectively). The 2012 average age at first use among recent heroin initiates aged 12 to 49 was 23.0 years, which was similar to the 2011 estimate (22.1 years).

Hallucinogens

- In 2012, 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 2011 (ranging from 0.9 million to 1.2 million). However, this estimate for 2012 was higher than the 2003 estimate (886,000) and was lower than the estimates in 2009 and 2010 (1.3 million and 1.2 million, respectively).

Figure 5.5 Past Year Hallucinogen Initiates among Persons Aged 12 or Older: 2002-2012
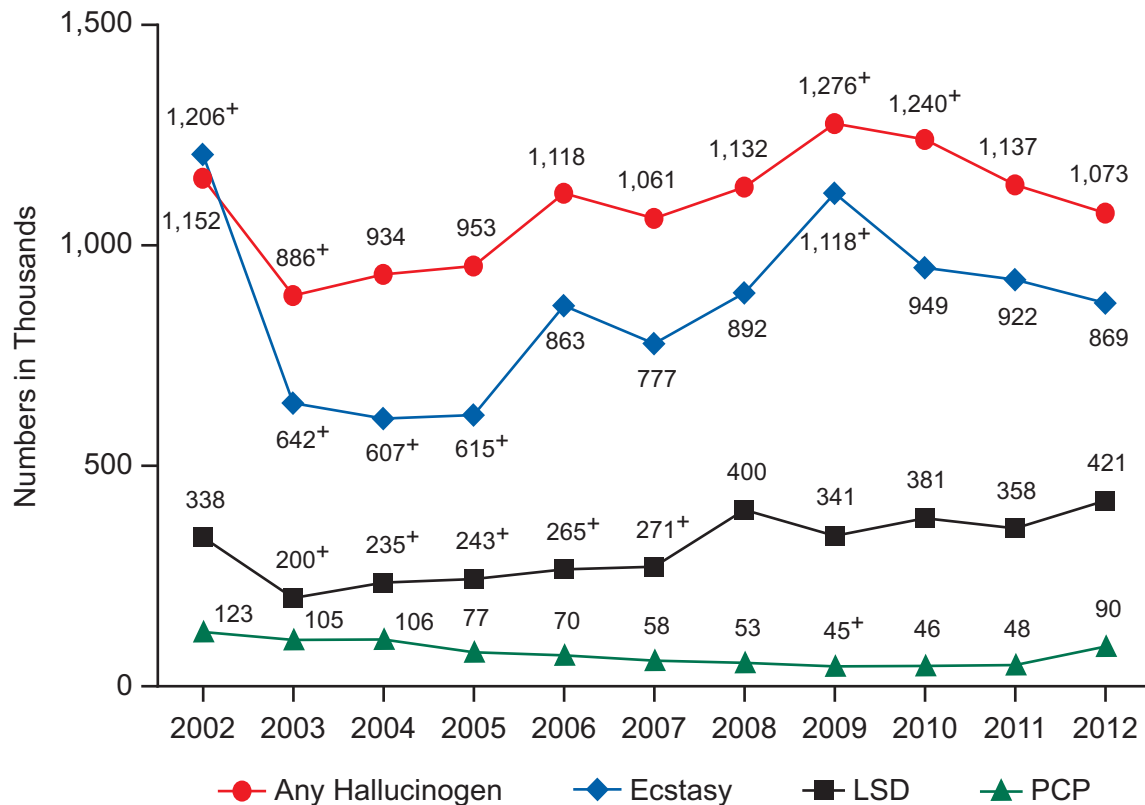
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- The number of past year initiates of LSD aged 12 or older was 421,000 in 2012, which was similar to the numbers in 2002 and in 2008 to 2011 (ranging from 338,000 to 400,000), but was higher than the numbers in 2003 to 2007 (ranging from 200,000 to 271,000) (Figure 5.5).

- The number of past year initiates of PCP aged 12 or older was 90,000 in 2012. This number was higher than the 2009 estimate (45,000), but was similar to the estimates from 2002 to 2008 (ranging from 53,000 to 123,000) and also was similar to the 2010 and 2011 estimates (46,000 and 48,000, respectively).

- The number of past year initiates of Ecstasy was 869,000 in 2012, which was similar to the numbers in 2010 and 2011 (949,000 and 922,000, respectively), but was lower than the number in 2009 (1.1 million) (Figure 5.5). The 2002 estimate of 1.2 million initiates declined to 642,000 in 2003, then increased between 2005 (615,000) and 2012 (869,000).

- Most (70.7 percent) of the recent Ecstasy initiates in 2012 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 255,000, which was lower than the estimate in 2011 (357,000).

- Among past year initiates aged 12 to 49, the average age at initiation of Ecstasy in 2012 was 20.3 years. This average age at initiation of Ecstasy has remained fairly stable since 2002.

Inhalants

- In 2012, there were 584,000 persons aged 12 or older who had used inhalants for the first time within the past 12 months, which was lower than the numbers in 2002 to 2011 (ranging from 719,000 to 877,000). An estimated 62.5 percent of past year initiates of inhalants in 2012 were younger than age 18 when they first used. The average age at first use among recent initiates aged 12 to 49 was similar in 2011 and 2012 (16.4 and 16.9 years, respectively).

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 2012, there were approximately 2.4 million persons aged 12 or older who used psychotherapeutics nonmedically for the first time within the past year, which averages to about 6,700 initiates per day. The number of new nonmedical users of psychotherapeutics in 2012 was similar to estimates for 2002, 2003, and 2005 through 2011 (ranging from 2.3 million to 2.6 million), but was lower than the 2004 estimate (2.8 million).

- The number of new nonmedical users of pain relievers in 2012 (1.9 million) was similar to the estimates in 2007, 2010, and 2011, but was lower than the numbers in 2002 through 2006 and in 2008 and 2009 (ranging from 2.2 million to 2.5 million). In 2012, the numbers of initiates were 1.4 million for tranquilizers, 676,000 for stimulants, and 166,000 for sedatives.

- In 2012, the average age at first nonmedical use of any psychotherapeutics among recent initiates aged 12 to 49 was 22.9 years. Average ages at first nonmedical use were 22.1 years for stimulants, 22.3 years for pain relievers, 23.6 years for tranquilizers, and 26.2 years for sedatives. All of these 2012 estimates were similar to the corresponding estimates in 2011.

- In 2012, the number of new nonmedical users of OxyContin® aged 12 or older was 372,000, which was similar to the 2011 estimate of 483,000, but was lower than the 2010 estimate (600,000). The average age at first use of OxyContin® among past year initiates aged 12 to 49 was similar in 2011 and 2012 (22.8 and 22.0 years, respectively).

- The number of recent new users of methamphetamine among persons aged 12 or older was 133,000 in 2012 (Figure 5.6), which also was the 2011 estimate and was similar to the 2010 estimate (107,000). However, the number of initiates in 2012 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 2012 was 19.7 years, which was similar to the corresponding estimates from 2002 to 2011 (ranging from 17.8 to 22.2 years).

Figure 5.6 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: 2002-2012
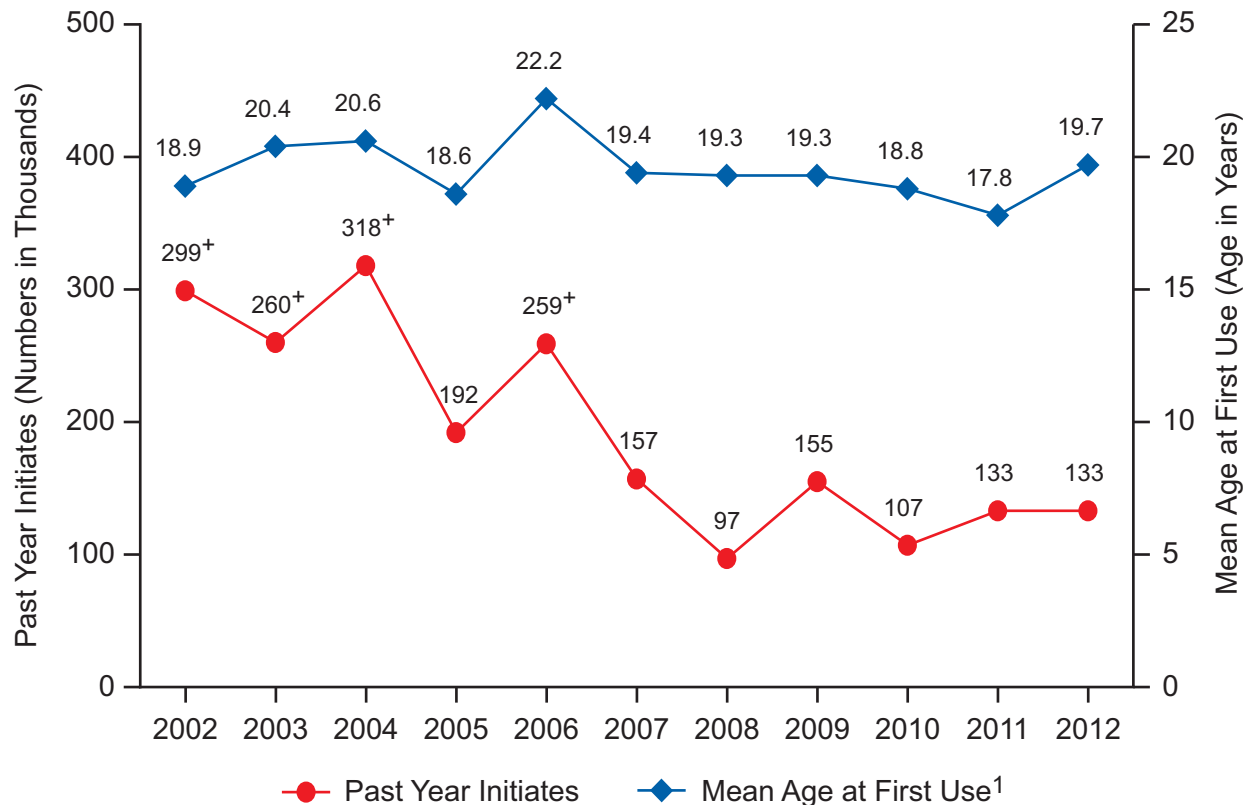
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.
[1] Mean-age-at-first-use estimates are for past year initiates aged 12 to 49.

Alcohol

- In 2012, 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 12,600 initiates per day.

- In 2012, most (81.4 percent) of the 4.6 million recent alcohol initiates were younger than age 21 at the time of initiation. Approximately 58.3 percent initiated prior to age 18.

- In 2012, the average age at first alcohol use among recent initiates aged 12 to 49 was 17.4 years, which was similar to the 2008, 2010, and 2011 estimates, but was higher than the estimates in 2002 to 2007 and in 2009 (ranging from 16.4 to 16.9 years). The mean age at first use among recent initiates aged 12 or older who initiated use prior to the age of 21 was 16.0 years, which was similar to the 2011 estimate of 15.9 years.

Tobacco

- The number of persons aged 12 or older who smoked cigarettes for the first time within the past 12 months was approximately 2.3 million in 2012, which was similar to the estimates from 2004 through 2011 (ranging from 2.1 million to 2.5 million), but was higher than the estimates for 2002 and 2003 (1.9 million and 2.0 million, respectively) (Figure 5.7). The 2012 estimate averages to about 6,400 new cigarette smokers every day. About half of new cigarette smokers in 2012 (51.4 percent) initiated prior to age 18.

- In 2002 and 2012, the numbers of cigarette initiates who were younger than age 18 when they first used were similar (1.3 million and 1.2 million, respectively). However, the number of cigarette initiates who began smoking at age 18 or older increased from 623,000 in 2002 to 1.1 million in 2012.

Figure 5.7 Past Year Cigarette Initiates among Persons Aged 12 or Older, by Age at First Use: 2002-2012
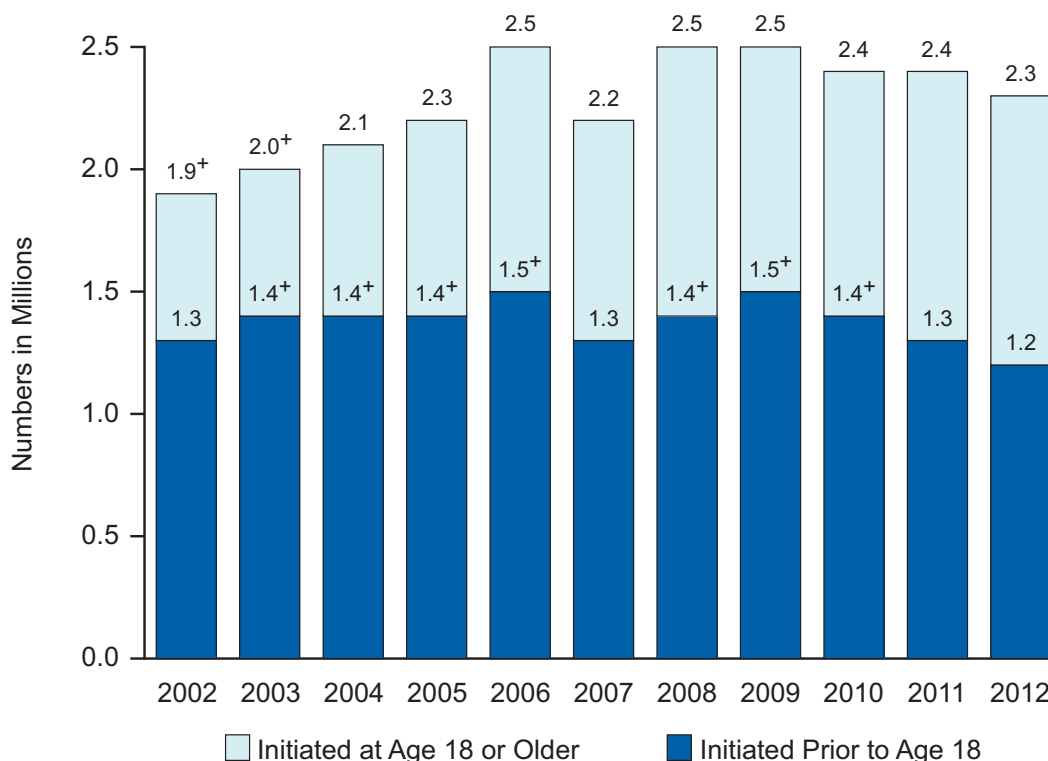
$^+$ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

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- In 2012, among recent initiates aged 12 to 49, the average age of first cigarette use was 17.8 years, which was higher than the corresponding average age in 2011 (17.2 years).

- Of those 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 2.3 percent in 2012, which was similar to the rate in 2011 (2.4 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 incidence rate in 2012 was 4.8 percent, which was lower than the 2011 rate (5.5 percent). However, past year initiation rates in 2012 of 4.7 percent for males aged 12 to 17 and 4.8 percent for females in this age group who had never smoked prior to the past year were not significantly different from corresponding rates in 2011 (5.4 percent for males and 5.5 percent for females) (Figure 5.8). Past year initiation rates in 2012 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 2010.

Figure 5.8 Past Year Cigarette Initiation among Youths Aged 12 to 17 Who Had Never Smoked Prior to the Past Year, by Gender: 2002-2012
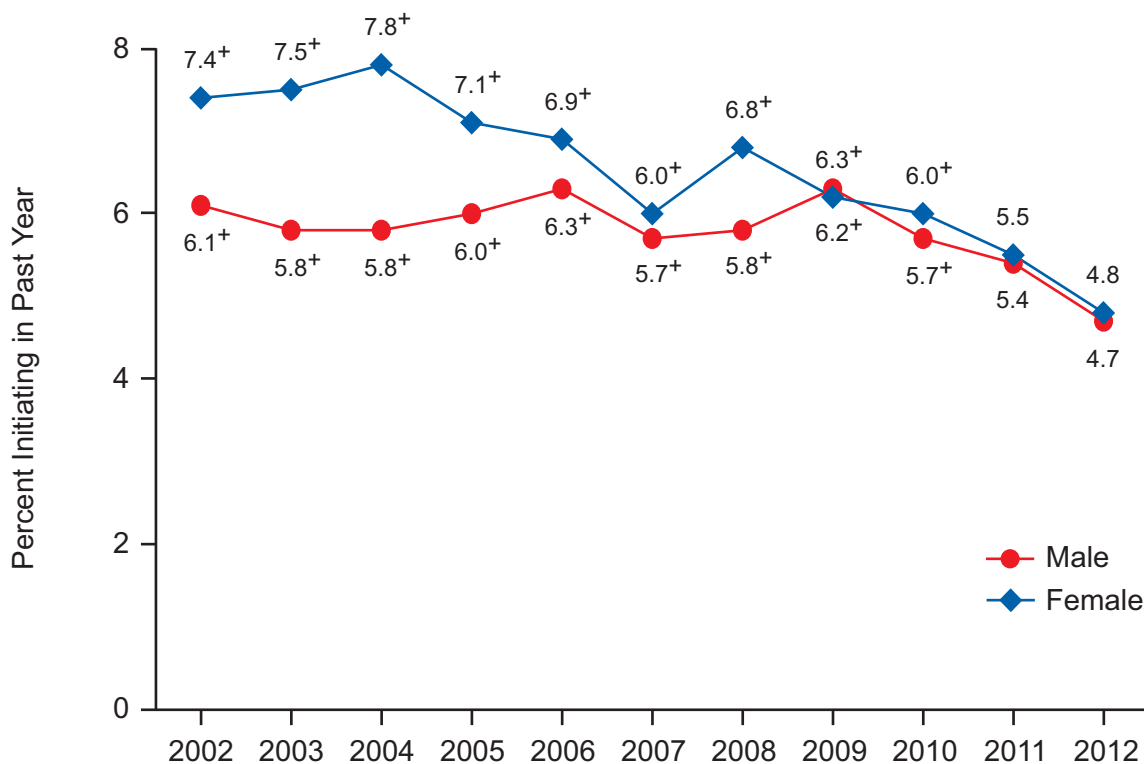
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- In 2012, the number of persons aged 12 or older who had started smoking cigarettes daily within the past 12 months was 778,000 (Figure 5.9). This estimate was similar to the 2011 estimate (878,000), but was lower than the estimates from 2002 through 2010 (ranging from 0.9 million to 1.1 million). Of the new daily smokers in 2012, 33.0 percent, or 257,000 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.

- The average age of first daily cigarette smoking among new daily smokers aged 12 to 49 was similar in 2011 and 2012 (19.1 and 19.9 years, respectively). Among males, the average age at first daily use was similar in 2011 and 2012 (19.2 and 19.1 years, respectively). Among females, the estimates for those 2 years also were similar (19.0 and 21.0 years, respectively).

Figure 5.9 Past Year Specific Tobacco Product Initiates among Persons Aged 12 or Older: 2002-2012
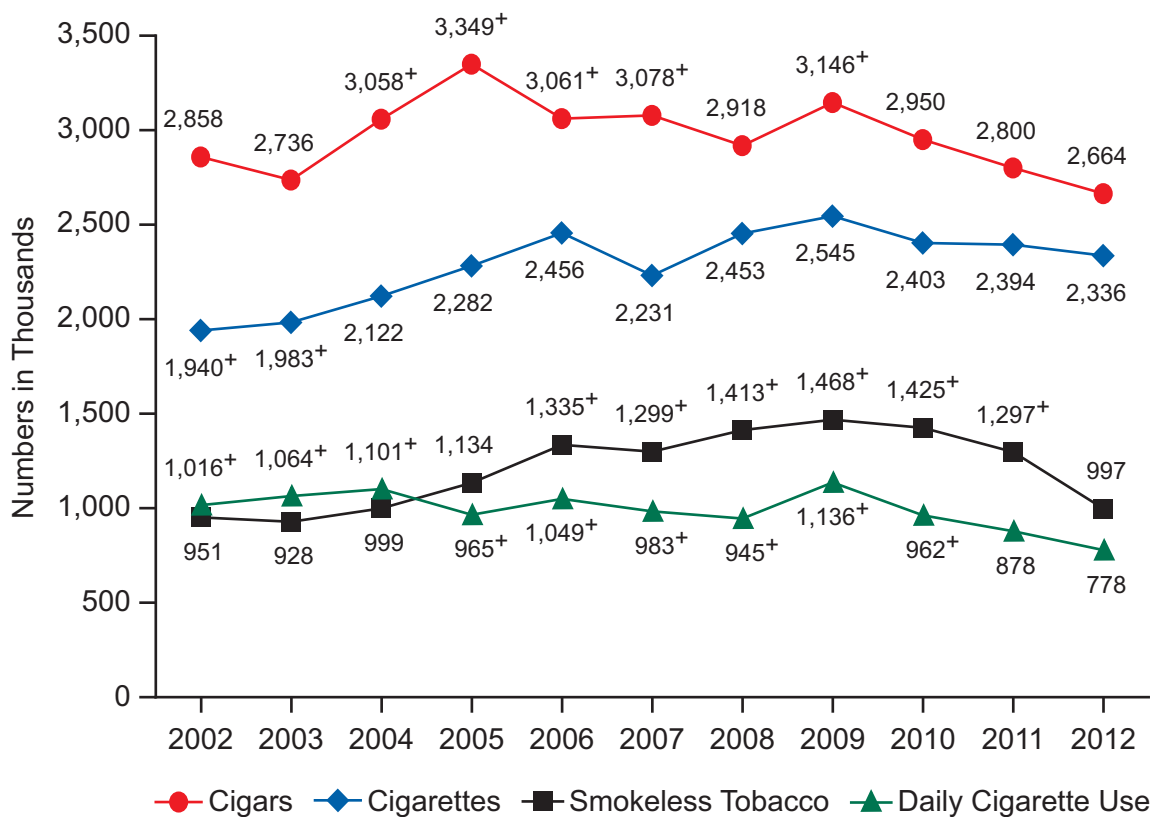
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- In 2012, there were 2.7 million persons aged 12 or older who had used cigars for the first time in the past 12 months, which was similar to the 2011 estimate (2.8 million) (Figure 5.9). However, the 2012 estimate was lower than the estimates from 2004 through 2007 and for 2009 (ranging from 3.1 million to 3.3 million). Among past year cigar initiates aged 12 to 49, the average age at first use was 20.5 years in 2012, which was similar to the estimate in 2011 (19.6 years).

- The number of persons aged 12 or older initiating use of smokeless tobacco in the past year was 1.0 million in 2012, which was similar to the estimates from 2002 through 2005 (ranging from 0.9 million to 1.1 million), but was lower than the estimates from 2006 through 2011 (ranging from 1.3 million to 1.5 million) (Figure 5.9). In 2012, about three quarters (74.2 percent) of new initiates were male, and over two fifths (46.3 percent) were younger than age 18.

- In 2012, the average age at first smokeless tobacco use among recent initiates aged 12 to 49 was 18.8 years, which was similar to the estimates from 2002 to 2011 (ranging from 18.0 to 19.8 years).

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 2012 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 2012, 65.7 percent of youths aged 12 to 17 perceived great risk in smoking one or more packs of cigarettes per day, 63.9 percent perceived great risk in having four or five drinks of an alcoholic beverage nearly every day, and 39.7 percent perceived great risk in having five or more drinks once or twice a week. For marijuana, 43.6 percent of youths perceived great risk in smoking marijuana once or twice a week, and 26.5 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 80.0 percent for heroin, 78.9 percent for cocaine, and 70.6 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 2012, 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 4.0 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 (9.5 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 1.0 percent of youths who saw great risk in smoking marijuana once a month compared with 9.6 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: 2012
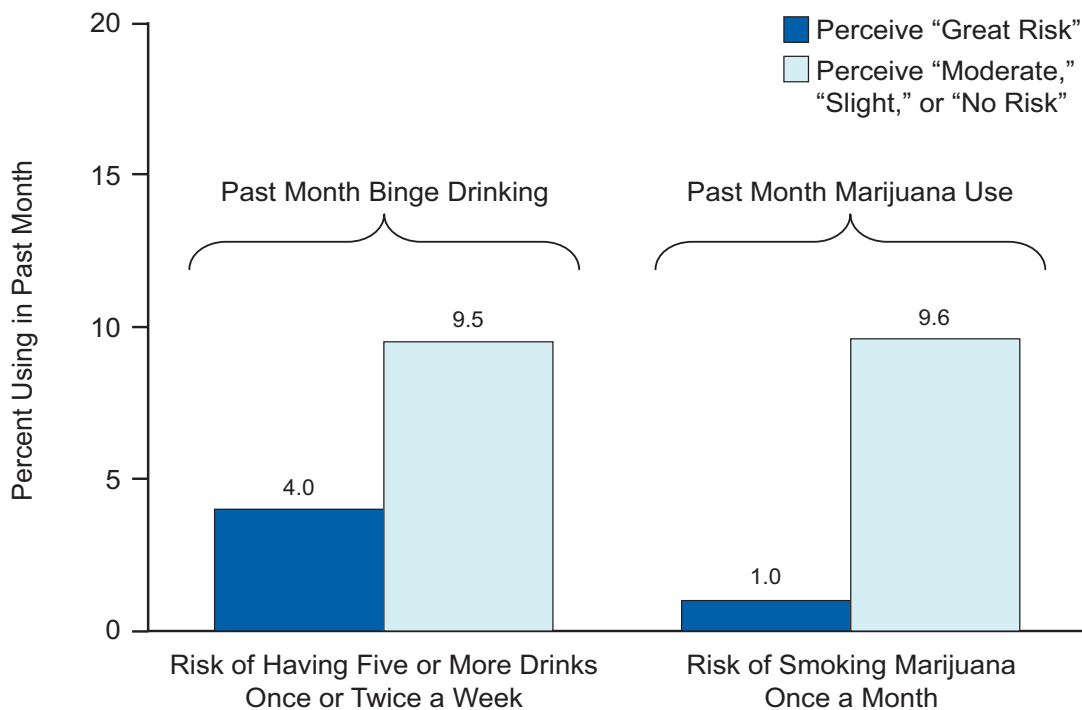
- Trends in substance use often coincide with trends in perceived risk. Increases in perceived risk typically precede or occur simultaneously with decreases in use, and vice versa. For example, the percentage of youths aged 12 to 17 indicating great risk in smoking marijuana once a month decreased from 34.4 percent in 2007 to 26.5 percent in 2012 (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 43.6 percent in 2012. 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). However, the rate declined between 2011 and 2012 (7.2 percent).

Figure 6.2 Perceived Great Risk of Marijuana Use among Youths Aged 12 to 17: 2002-2012
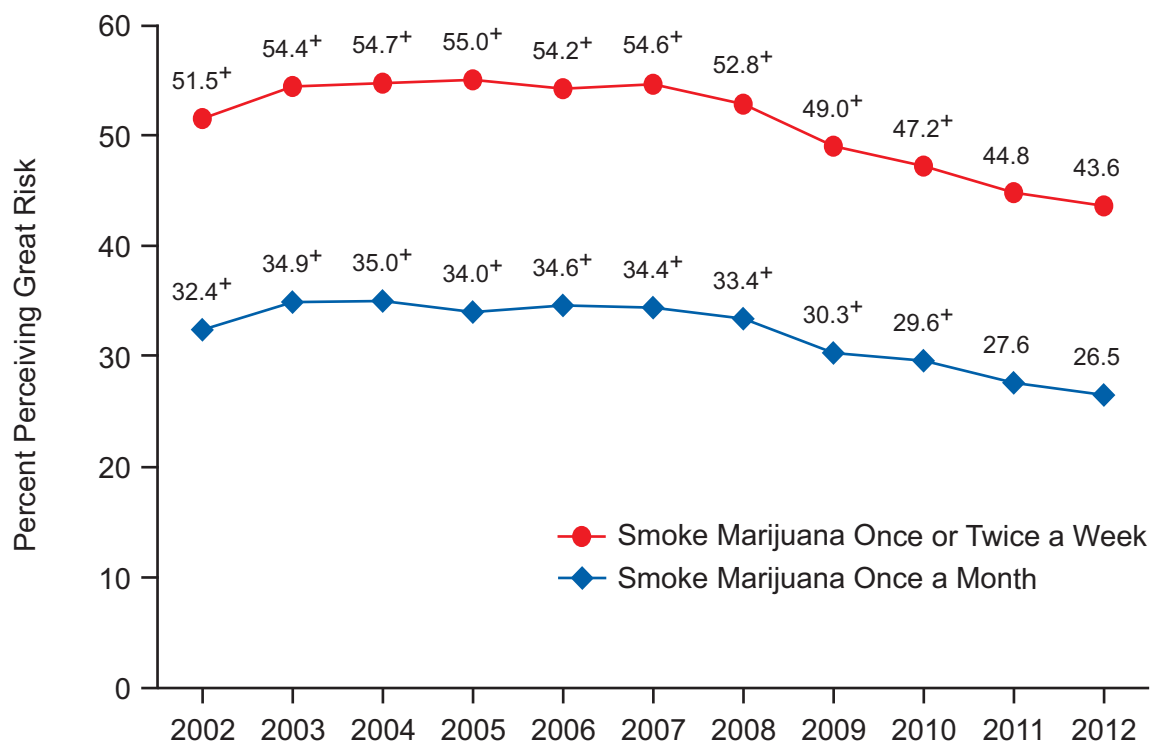
$^+$ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- 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, then declined to 65.5 percent in 2009; this rate remained unchanged between 2009 and 2012 (65.7 percent) (Figure 6.3). Although rates of use often decrease as perceptions of risk increase, the rate of past month adolescent cigarette smoking decreased from 13.0 percent in 2002 to 6.6 percent in 2012.

- 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; this rate remained unchanged between 2009 (64.1 percent) and 2012 (63.9 percent) (Figure 6.3). 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 39.7 percent in 2012. Consistent with the increases in perceived risk among youths aged 12 to 17 between 2002 and 2008, there were decreases between 2002 and 2009 in the rate of binge alcohol use (from 10.7 to 8.9 percent). Although perceived risk among youths was unchanged between 2009 and 2012, the rates of binge and past month heavy alcohol use declined (from 8.9 to 7.2 percent and from 2.1 to 1.3 percent, respectively).

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Figure 6.3 Perceived Great Risk of Cigarette and Alcohol Use among Youths Aged 12 to 17: 2002-2012
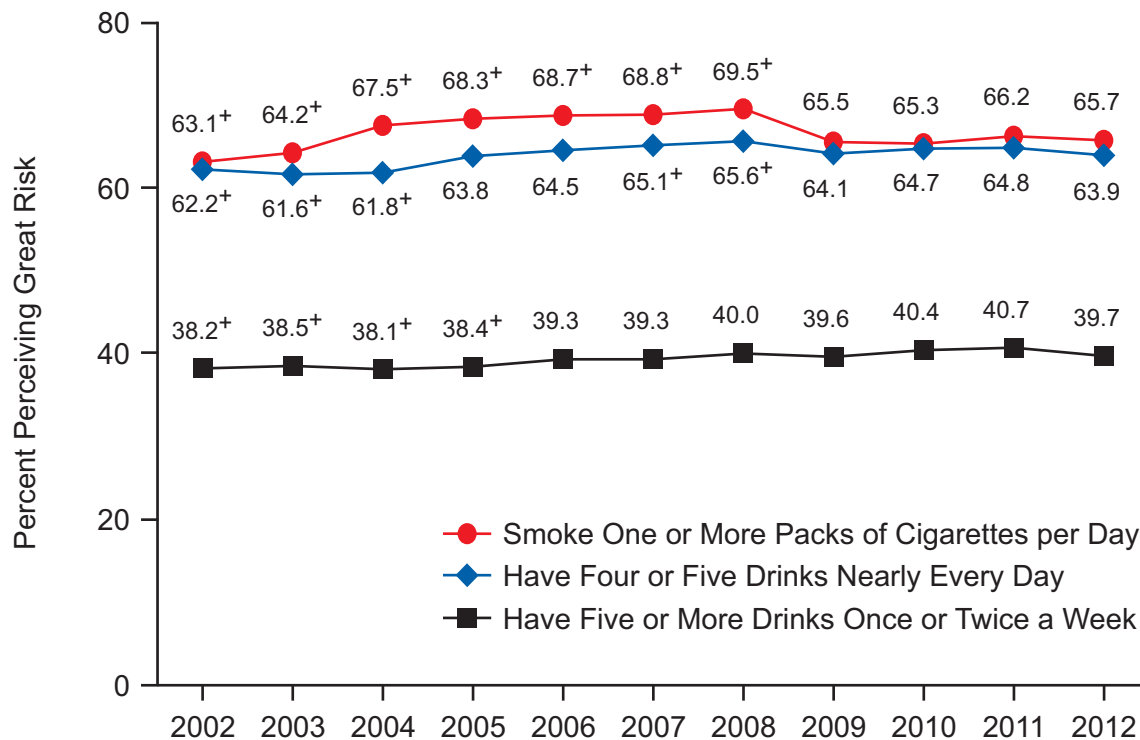
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- Between 2003 and 2012, 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 82.6 to 80.0 percent), cocaine (from 80.7 to 78.9 percent), LSD (from 76.9 to 70.6 percent), and marijuana (from 54.4 to 43.6 percent) (Figure 6.4). The rates remained unchanged between 2011 and 2012 for heroin, cocaine, LSD, and marijuana. 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.

Perceived Availability

- In 2012, about half (47.8 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 10 (9.9 percent) indicated that heroin would be fairly or very easily available, and 11.5 percent reported so for LSD. Between 2002 and 2012, there were decreases in the perceived easy availability of marijuana (from 55.0 to 47.8 percent), cocaine (from 25.0 to 16.0 percent), crack (from 26.5 to 16.7 percent), LSD (from 19.4 to 11.5 percent), and heroin (from 15.8 to 9.9 percent).

Figure 6.4 Perceived Great Risk of Use of Selected Illicit Drugs Once or Twice a Week among Youths Aged 12 to 17: 2002-2012
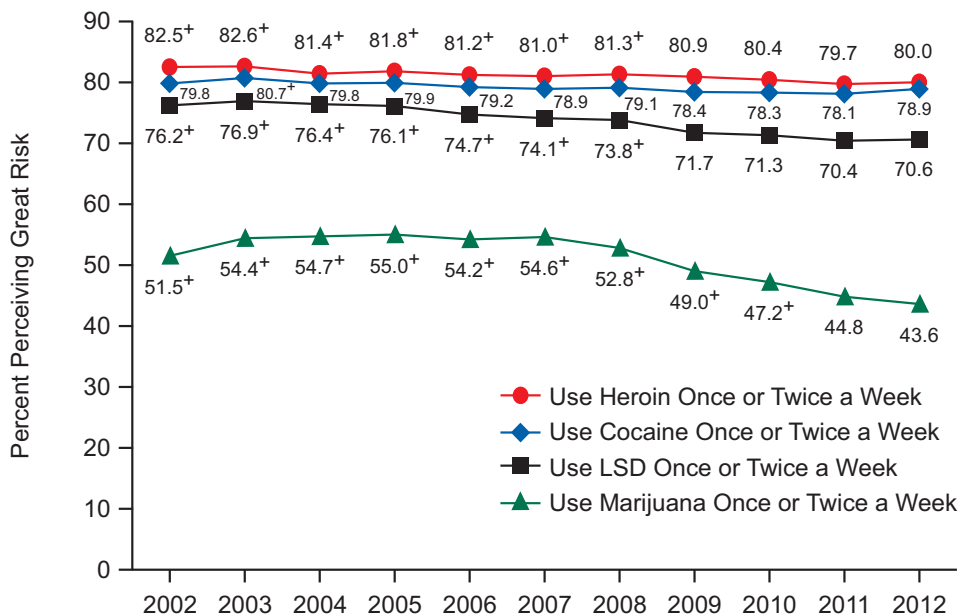
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Figure 6.5 Perceived Availability of Selected Illicit Drugs among Youths Aged 12 to 17: 2002-2012
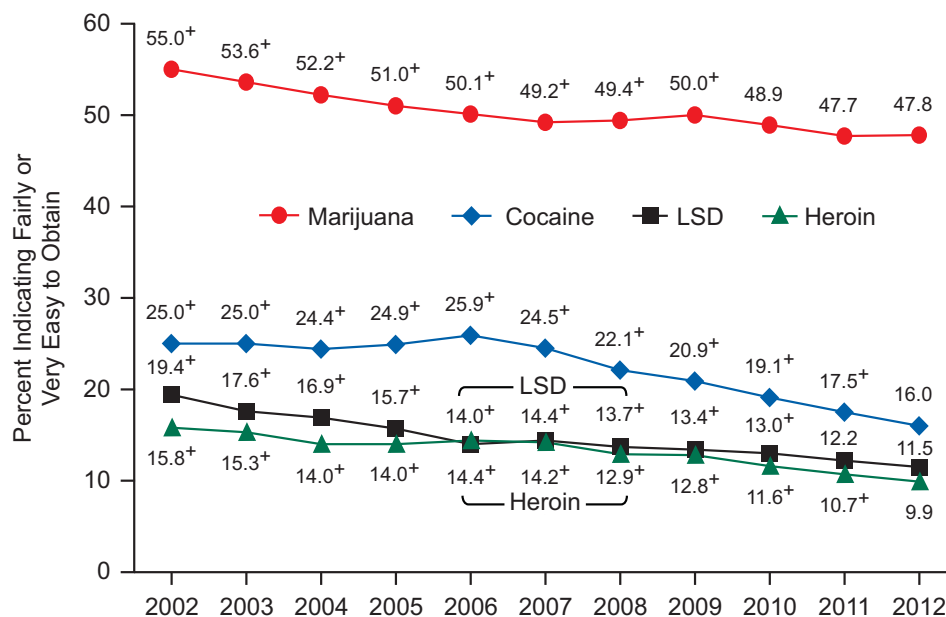
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- Youths aged 12 to 17 in 2012 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, 17.4 percent of youths who reported that marijuana would be easy to obtain were past month illicit drug users, but only 2.9 percent of those who thought marijuana would be more difficult to obtain were past month users. Similarly, 14.4 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 increased with age in 2012. For instance, 19.5 percent of those aged 12 or 13 said it would be fairly or very easy to obtain marijuana compared with 50.1 percent of those aged 14 or 15 and 71.0 percent of those aged 16 or 17.

- In 2012, 13.2 percent of youths aged 12 to 17 indicated that they had been approached by someone selling drugs in the past month. This rate declined between 2002 (16.7 percent) and 2012, although the 2012 rate was similar to the 2011 rate (13.8 percent).

Perceived Parental Disapproval of Substance Use

- Most youths aged 12 to 17 believed their parents would "strongly disapprove" of their using substances. In 2012, 89.3 percent of youths reported that their parents would strongly disapprove of their trying marijuana or hashish once or twice, which also was the rate in 2011 and was similar to the 89.1 percent reported in 2002. Most youths in 2012 (90.5 percent) reported that their parents would strongly disapprove of their having one or two drinks of an alcoholic beverage nearly every day, which also was the rate in 2011, but was higher than the rate in 2002 (89.0 percent). In 2012, 93.1 percent of youths reported that their parents would strongly disapprove of their smoking one or more packs of cigarettes per day, which was similar to the rate reported in 2011 (93.2 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 their 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 2012, past month cigarette use was reported by 4.6 percent of youths who perceived strong parental disapproval if they were to smoke one or more packs of cigarettes per day compared with 31.9 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 (4.3 vs. 31.0 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 2012, 91.4 percent of youths "strongly" or "somewhat" disapproved of their peers smoking one or more packs of cigarettes per day, which was similar to the rate of 91.0 percent in 2011, but was higher than the 87.1 percent in 2002. Also in 2012, 80.3 percent strongly or somewhat disapproved of peers using marijuana or hashish once a month or more, which also was the rate reported in 2011 and was similar to the 80.4 percent reported in 2002. 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 2012, which was similar to the rate of 88.1 percent in 2011, but was higher than the 84.7 percent reported in 2002.

- In 2012, 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. 28.3 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 2012, 18.3 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; 11.8 percent had taken part in a group-against-group fight; 5.6 percent attacked others in at least one instance with the intent to harm or seriously hurt them; 3.5 percent had carried a handgun at least once; 3.5 percent had, at least once, stolen or tried to steal something worth more than $50; and 2.7 percent sold illegal drugs in the past year. The 2012 rates for fighting or other delinquent behaviors among youths aged 12 to 17 were similar to the 2011 rates.

- Rates of the following behaviors in the past year among youths aged 12 to 17 were lower in 2012 than in 2002: getting into a serious fight at school or work (18.3 vs. 20.6 percent); taking part in a group-against-group fight (11.8 vs. 15.9 percent); attacking others with the intent to harm or seriously hurt them (5.6 vs. 7.8 percent); stealing or trying to steal something worth more than $50 (3.5 vs. 4.9 percent); and selling illegal drugs (2.7 vs. 4.4 percent). Percentages of youths who had carried a handgun in the past year were similar in 2012 and 2002 (3.5 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 2012, past month illicit drug use was reported by 17.5 percent of youths who had gotten into a serious fight at school or work in the past year compared with 7.6 percent of those who had not engaged in fighting at school or work. An estimated 43.8 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 8.2 percent of those who had not attempted or engaged in such theft.

Religious Involvement and Beliefs

- In 2012, 30.4 percent of youths aged 12 to 17 reported that they had attended religious services 25 or more times in the past year; 74.4 percent agreed or strongly agreed with the statement that religious beliefs are a very important part of their lives; and 33.7 percent agreed or strongly agreed with the statement that it is important for their friends to share their religious beliefs. These rates were similar to corresponding rates in 2011.

- Percentages in 2012 for youths aged 12 to 17 were lower than in 2002 for attending religious services 25 or more times in the past year (30.4 vs. 33.0 percent); agreeing or strongly agreeing that religious beliefs are a very important part of their lives (74.4 vs. 78.2 percent); and agreeing or strongly agreeing that it is important for their friends to share their religious beliefs (33.7 vs. 35.8 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 2012, past month illicit drug use was reported by 7.3 percent of those who agreed or strongly agreed that religious beliefs are a very important part of their lives compared with 15.6 percent of those who disagreed with that statement. Similar differences were found between those two subgroups for the past month use of cigarettes (5.0 vs. 10.9 percent) and past month binge alcohol use (5.8 vs. 11.3 percent).

Exposure to Substance Use Prevention Messages and Programs

- In 2012, approximately one in eight youths aged 12 to 17 (11.9 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 11.7 percent reported in 2011, but was lower than the rate reported in 2002 (12.7 percent). In 2012, youths who did or did not participate in these programs had similar rates of past month use for illicit drugs (9.5 percent for both groups), marijuana (6.7 and 7.3 percent), cigarettes (7.2 and 6.4 percent), and binge alcohol use (7.8 and 7.1 percent).

- In 2012, 75.9 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. This rate in 2012 was similar to the 75.1 percent reported in 2011, but was lower than the 83.2 percent reported in 2002 (Figure 6.6). In 2012, the prevalence of past month use of illicit drugs among those who reported having such exposure (9.4 percent) was not significantly different from the prevalence among those who reported having no such exposure (10.0 percent).

- In 2012, 75.0 percent of youths aged 12 to 17 enrolled in school in the past year reported having seen or heard drug or alcohol prevention messages at school, which was similar to the 74.6 percent reported in 2011, but was lower than the 78.8 percent reported in 2002 (Figure 6.6). In 2012, the prevalence of past month use of illicit drugs or marijuana was lower among those who reported having such exposure in school (8.9 and 6.7 percent for illicit drugs and marijuana, respectively) than among youths who were enrolled in school but reported having no such exposure (12.3 and 9.7 percent).

Figure 6.6 Exposure to Substance Use Prevention Messages and Programs among Youths Aged 12 to 17: 2002-2012
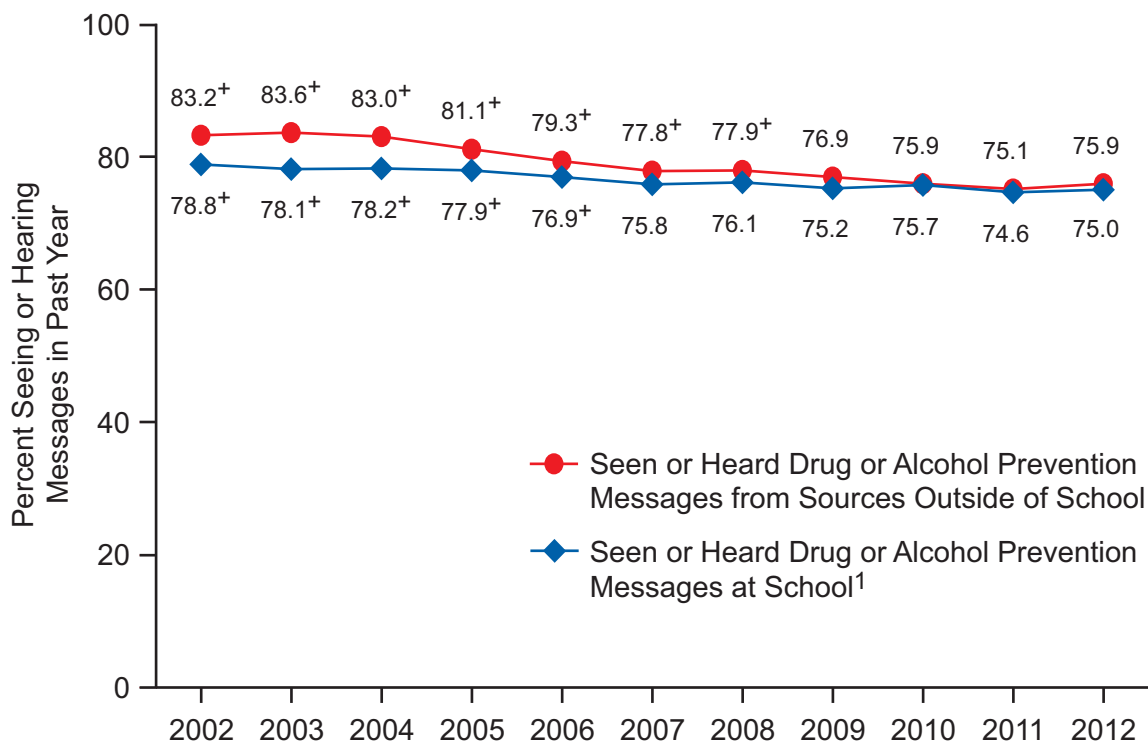
Parental Involvement

• 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 2012, among youths aged 12 to 17 who were enrolled in school in the past year, 70.3 percent reported that their parents limited the amount of time that they spent out with friends on school nights. This rate in 2012 was similar to the rate reported in 2011 (69.9 percent) and also in 2002 (70.7 percent). In 2012, 81.3 percent reported that in the past year their parents always or sometimes checked on whether or not they had completed their homework, and 80.6 percent reported that their parents always or sometimes provided help with their homework. Both of these rates reported in 2012 were similar to the rates in 2011 (81.1 and 80.4 percent, respectively). The rate in 2012 for parents checking on whether youths had completed their homework was higher than in 2002 (78.4 percent). However, the rate for parents providing help with homework in 2012 was similar to the rate in 2002 (81.4 percent).

- In 2012, 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 similar to the rate in 2011 (88.4 percent), but was slightly higher than the rate in 2002 (87.4 percent). In 2012, 85.6 percent of youths reported that their parents always or sometimes let them know that they had done a good job, and 85.8 percent reported that their parents always or sometimes let them know they were proud of something they had done. These percentages in 2012 were similar to those reported in 2011 and 2002. In 2012, 41.0 percent of youths reported that their parents limited the amount of time that they watched television, which was similar to the rate in 2011 (40.5 percent), but was higher than the 36.9 percent reported in 2002.

- In 2012, 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 2012 was 7.6 percent for youths whose parents always or sometimes helped with homework compared with 18.1 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 (5.1 and 5.9 percent, respectively) than among youths whose parents seldom or never helped (12.8 and 13.4 percent).

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 of the prevalence and patterns of substance use disorders occurring in the past year from the 2012 NSDUH and compares these estimates against the results from the 2002 through 2011 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.

7.1.   Substance Dependence or Abuse

- In 2012, an estimated 22.2 million persons aged 12 or older were classified with substance dependence or abuse in the past year (8.5 percent of the population aged 12 or older) (Figure 7.1). Of these, 2.8 million were classified with dependence or abuse of both alcohol and illicit drugs, 4.5 million had dependence or abuse of illicit drugs but not alcohol, and 14.9 million had dependence or abuse of alcohol but not illicit drugs. Overall, 17.7 million had alcohol dependence or abuse, and 7.3 million had illicit drug dependence or abuse.

- The annual number of persons with substance dependence or abuse in 2012 (22.2 million) was similar to the number in each of the years from 2002 to 2010 (22.0 million in 2002, 21.6 million in 2003, 22.5 million in 2004, 22.2 million in 2005, 22.7 million in 2006, 22.4 million in 2007, 22.4 million in 2008, 22.6 million in 2009, and 22.2 million in 2010), but it was higher than the number in 2011 (20.6 million).

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Figure 7.1 Substance Dependence or Abuse in the Past Year among Persons Aged 12 or Older: 2002-2012
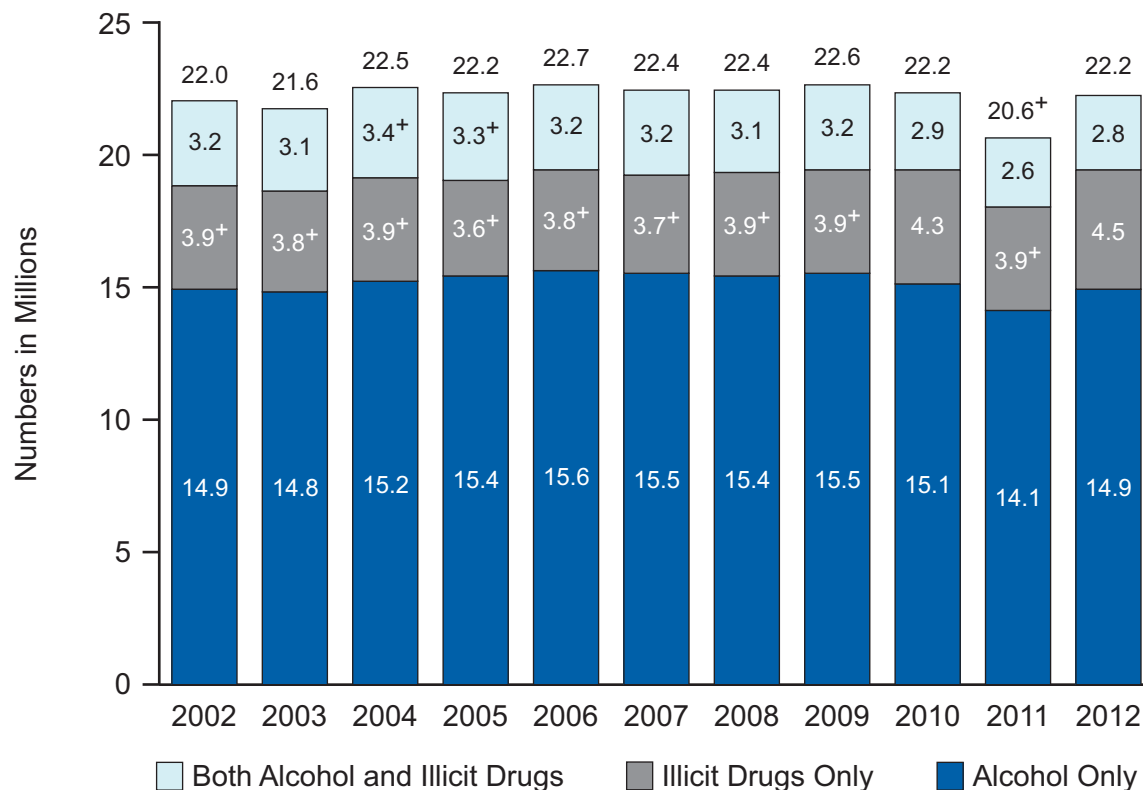
	Both Alcohol and Illicit Drugs	Illicit Drugs Only	Alcohol Only	Total
2002	3.2	3.9+	14.9	22.0
2003	3.1	3.8+	14.8	21.6
2004	3.4+	3.9+	15.2	22.5
2005	3.3+	3.6+	15.4	22.2
2006	3.2	3.8+	15.6	22.7
2007	3.2	3.7+	15.5	22.4
2008	3.1	3.9+	15.4	22.4
2009	3.2	3.9+	15.5	22.6
2010	2.9	4.3	15.1	22.2
2011	2.6	3.9+	14.1	20.6+
2012	2.8	4.5	14.9	22.2

$^+$ Difference between this estimate and the 2012 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 2012 (8.5 percent) was lower than the rate in each year from 2002 through 2006 (9.4 percent in 2002, 9.1 percent in 2003, 9.4 percent in 2004, 9.1 percent in 2005, and 9.2 percent in 2006), was similar to the rate in each year from 2007 through 2010 (9.0 percent in 2007, 2008, and 2009 and 8.8 percent in 2010), and was higher than the rate in 2011 (8.0 percent).

- In 2012, 6.8 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 in 2010 (7.1 percent) and was lower than the rate in each year from 2002 through 2009 (7.7 percent in 2002, 7.5 percent in 2003, 7.8 percent in 2004, 7.7 percent in 2005 and 2006, 7.5 percent in 2007, 7.4 percent in 2008, and 7.5 percent in 2009).

- The rate of persons aged 12 or older who had illicit drug dependence or abuse in 2012 (2.8 percent) was similar to the rate in each year from 2002 to 2010 (3.0 percent in 2002, 2.9 percent in 2003, 3.0 percent in 2004, 2.8 percent in 2005, 2.9 percent in 2006, and 2.8 percent in 2007, 2008, 2009, and 2010), but it was higher than the rate in 2011 (2.5 percent).

- Marijuana was the illicit drug with the largest number of persons with past year dependence or abuse in 2012, followed by pain relievers, then by cocaine. Of the 7.3 million persons aged 12 or older classified with illicit drug dependence or abuse in 2012, 4.3 million persons had marijuana dependence or abuse (representing 1.7 percent of the total population aged 12 or older, and 58.9 percent of all those classified with illicit drug dependence or abuse), 2.1 million persons had pain reliever dependence or abuse, and 1.1 million 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: 2012
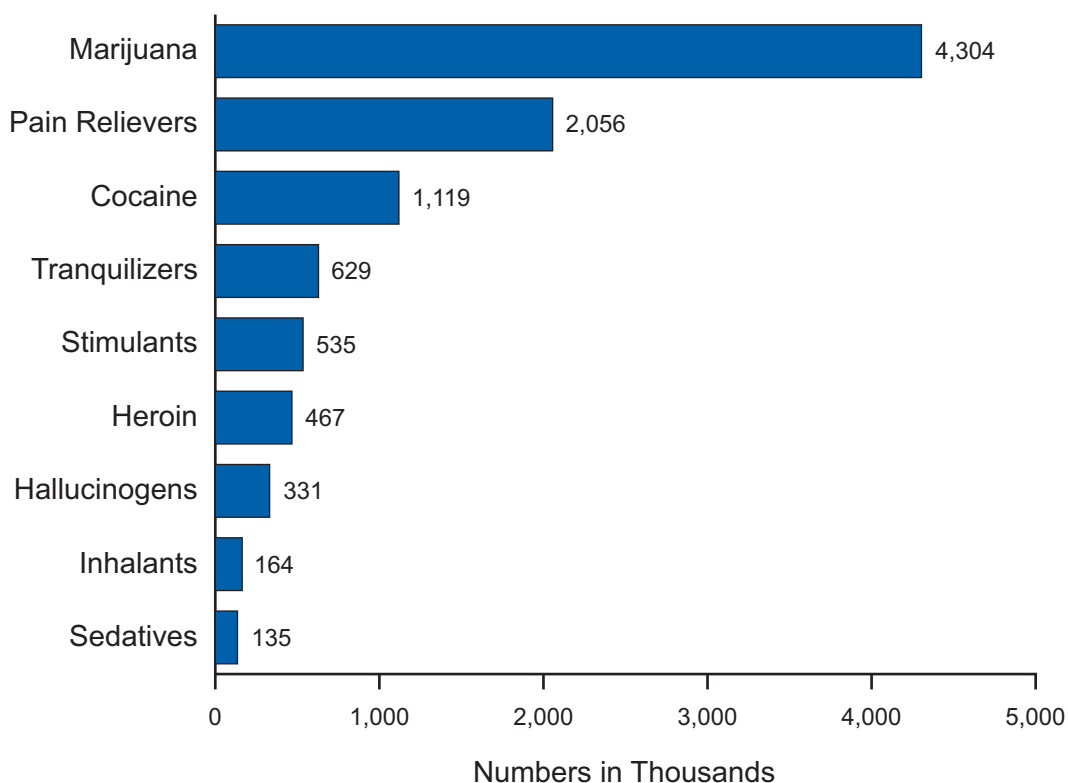
- The number of persons who had marijuana dependence or abuse remained similar between 2002 (4.3 million) and 2012 (4.3 million) and between 2011 (4.2 million) and 2012 (Figure 7.3). The rate of marijuana dependence or abuse in 2012 (1.7 percent) was similar to the rate in each year from 2005 through 2011 (ranging from 1.6 to 1.8 percent).

- The number of persons who had pain reliever dependence or abuse in 2012 (2.1 million) was similar to the number in each year from 2007 through 2011 (1.7 million in 2007 and 2008, 1.9 million in 2009 and 2010, and 1.8 million in 2011) and was higher than the number in each year from 2002 through 2006 (1.5 million in 2002, 1.4 million in 2003 and 2004, 1.5 million in 2005, and 1.6 million in 2006).

Figure 7.3 Illicit Drug Dependence or Abuse in the Past Year among Persons Aged 12 or Older: 2002-2012
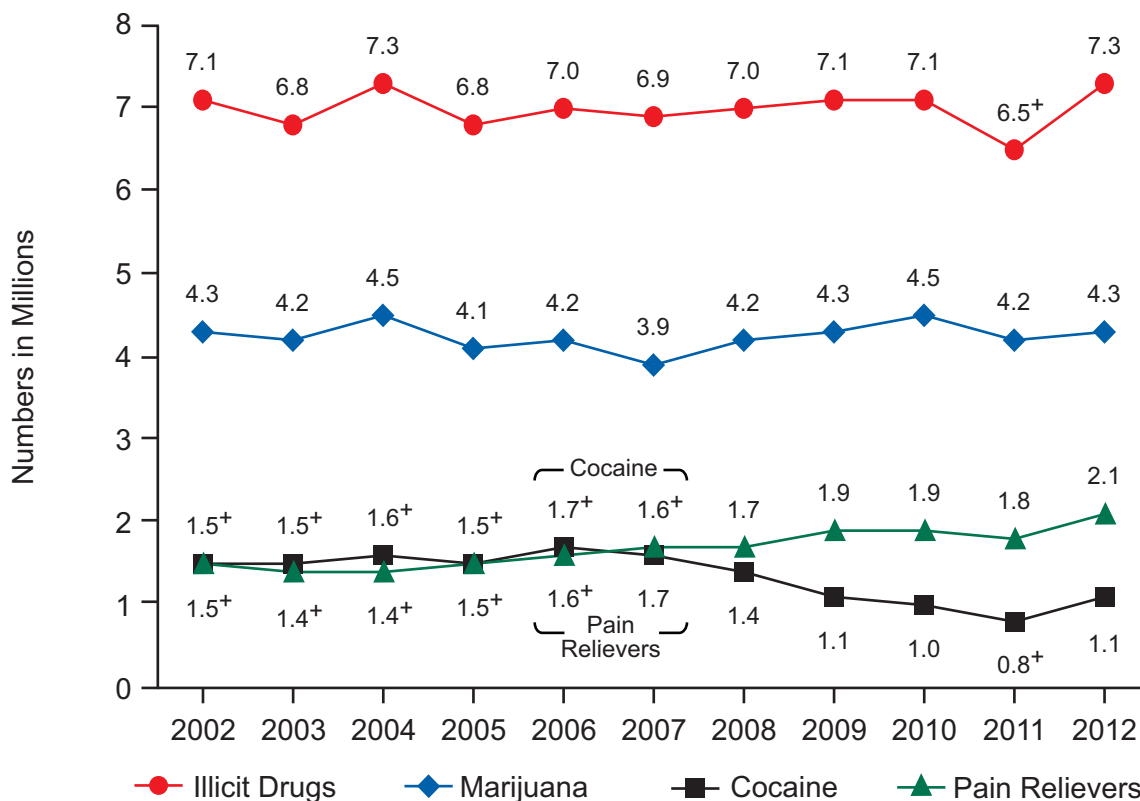
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- The rate of pain reliever dependence or abuse in 2012 (0.8 percent) was similar to the rate in 2002 (0.6 percent) and in each year from 2006 through 2011 (0.7 percent in 2006, 2007, 2008, and 2009; 0.8 percent in 2010; and 0.7 percent in 2011) and was higher than the rate in each year from 2003 through 2005 (0.6 percent in 2003, 2004, and 2005).

- The rate and the number of persons who had cocaine dependence or abuse in 2012 (0.4 percent and 1.1 million) were higher than those in 2011 (0.3 percent and 821,000) and were similar to those in 2009 (0.4 percent and 1.1 million) and 2010 (0.4 percent and 1.0 million). However, the rate and the number in 2012 were lower than those in each year from 2002 through 2007 (0.6 percent and 1.5 million in 2002, 0.6 percent and 1.5 million in 2003, 0.7 percent and 1.6 million in 2004, 0.6 percent and 1.5 million in 2005, 0.7 percent and 1.7 million in 2006, and 0.6 percent and 1.6 million in 2007).

- The rate and the number of persons who had heroin dependence or abuse were stable between 2011 (0.2 percent and 426,000) and 2012 (0.2 percent and 467,000). However, the numbers of persons with heroin dependence or abuse in 2011 and 2012 were approximately twice those in 2002 (214,000) and 2003 (189,000).

Age at First Use

- In 2012, 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, 13.2 percent were classified with illicit drug dependence or abuse, which was higher than the 2.2 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 2012, among adults aged 18 or older who first tried alcohol at age 14 or younger, 16.1 percent were classified with alcohol dependence or abuse, which was higher than the 3.6 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 than 7 times as likely to be classified with alcohol dependence or abuse than adults who had their first drink at age 21 or older (15.2 vs. 2.1 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: 2012

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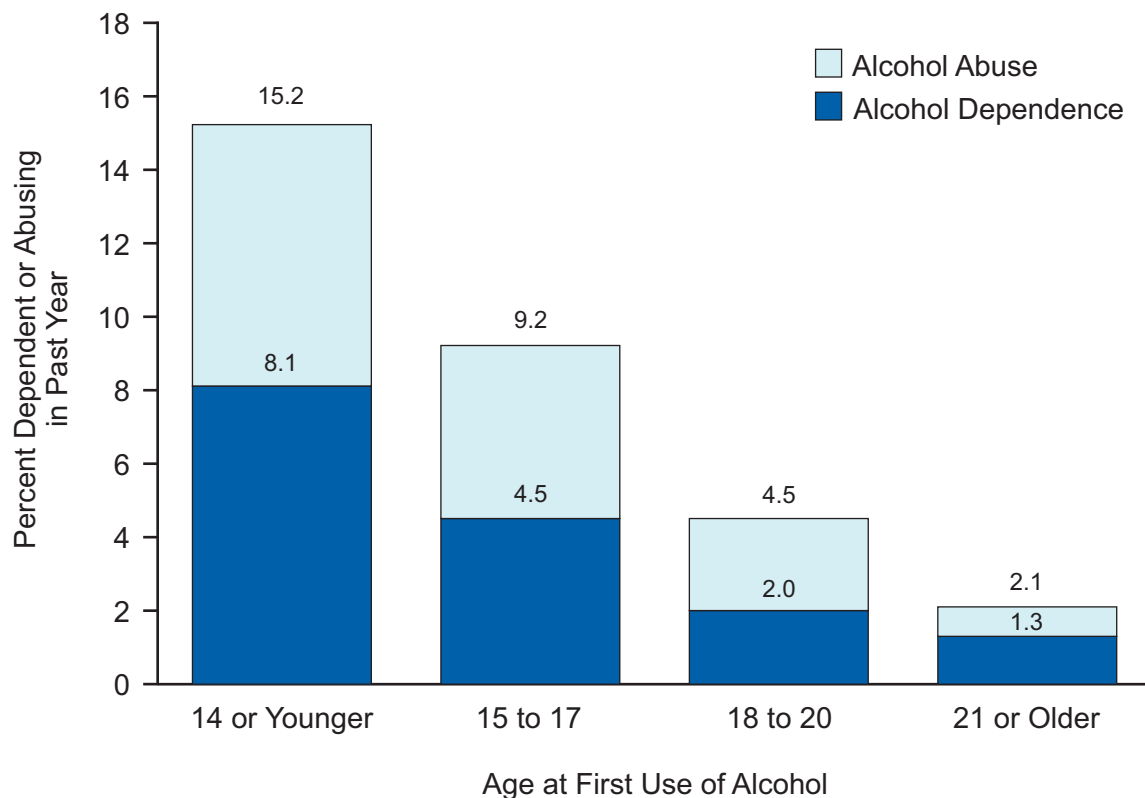
Age

- Rates of substance dependence or abuse were associated with age. In 2012, the rate of substance dependence or abuse among adults aged 18 to 25 (18.9 percent) was higher than that among youths aged 12 to 17 (6.1 percent) and among adults aged 26 or older (7.0 percent). From 2002 to 2012, the rate decreased for youths aged 12 to 17 (from 8.9 to 6.1 percent) (Figure 7.5) and for young adults aged 18 to 25 (from 21.7 to 18.9 percent).

- The rate of alcohol dependence or abuse among youths aged 12 to 17 was 3.4 percent in 2012, which was similar to the rate of 3.8 percent in 2011, but declined from 4.6 percent in 2010 and from 5.9 percent in 2002 (Figure 7.5). Among young adults aged 18 to 25, the rate of alcohol dependence or abuse was 14.3 percent in 2012, which also was similar to the rate of 14.4 percent in 2011. However, the rate in 2012 declined from 2010 (15.7 percent) and 2002 (17.7 percent). Among adults aged 26 or older, the rate has been stable since 2010 (5.9 percent in 2010, 5.4 percent in 2011, and 5.9 percent in 2012) and between 2002 (6.2 percent) and 2012.

Figure 7.5 Alcohol and Illicit Drug Dependence or Abuse among Youths Aged 12 to 17: 2002-2012
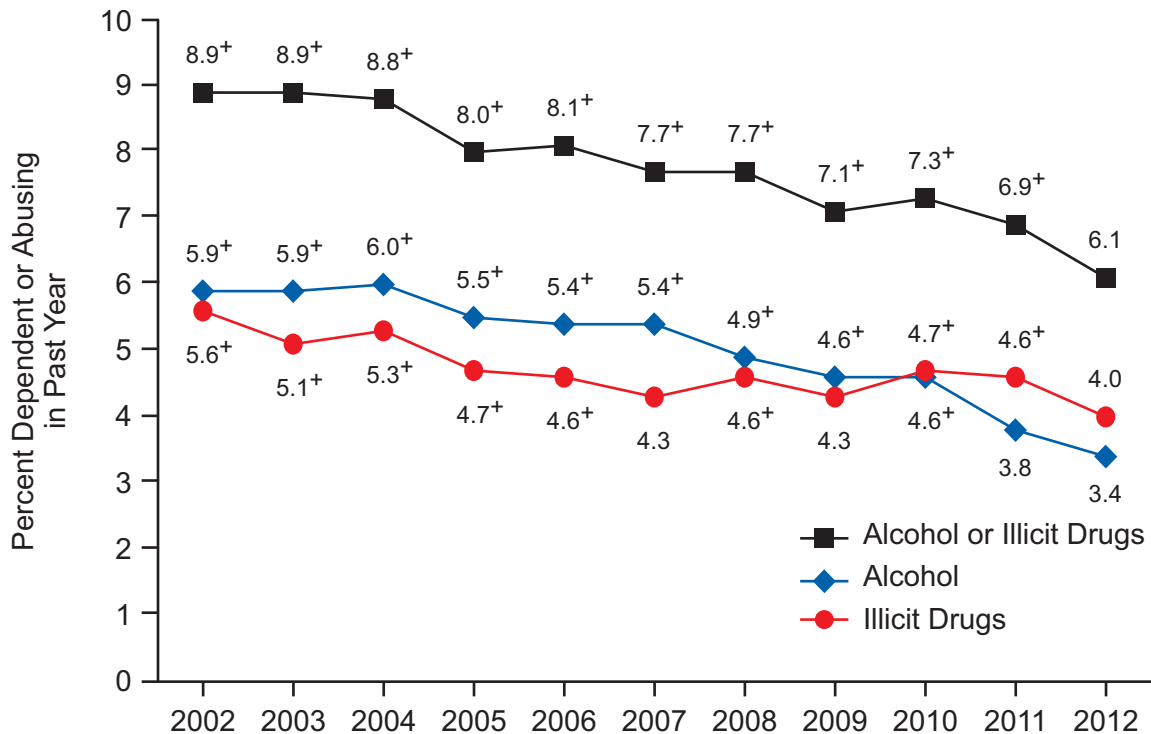
$^+$ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

- The rate of illicit drug dependence or abuse among youths aged 12 to 17 was 4.0 percent in 2012, which was lower than the rates in 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 7.8 percent in 2012, which was similar to the rates in 2011 (7.5 percent), 2010 (7.9 percent), and 2002 (8.2 percent). Among adults aged 26 or older, the rate of illicit drug dependence or abuse increased between 2011 (1.4 percent) and 2012 (1.8 percent), but the rate in 2012 was similar to the rate in 2010 (1.7 percent) and 2002 (1.8 percent).

Gender

- As was the case from 2002 through 2011, the rate of substance dependence or abuse for males aged 12 or older in 2012 was about twice the rate for females. For males in 2012, the rate was 11.5 percent (Figure 7.6). For females, it was 5.7 percent in 2012. Among youths aged 12 to 17, however, the rate of substance dependence or abuse among males was not different from the rate among females in 2012 (6.1 percent for each).

Figure 7.6 Substance Dependence or Abuse in the Past Year, by Age and Gender: 2012
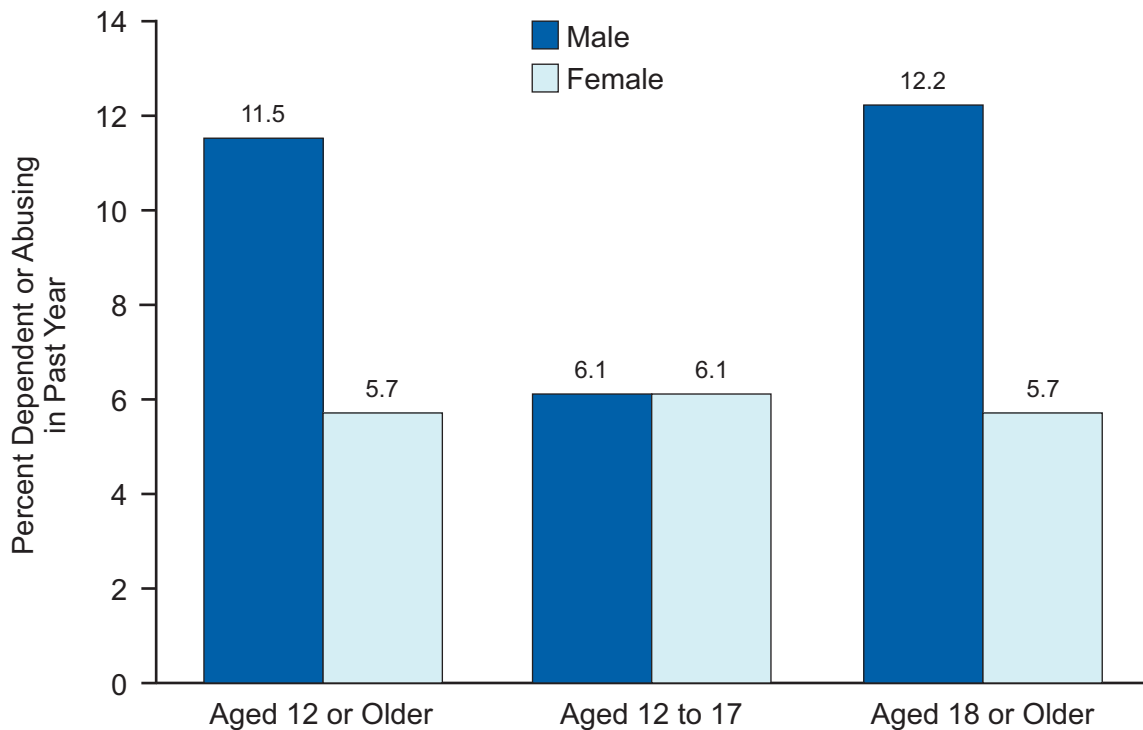
Race/Ethnicity

- In 2012, among persons aged 12 or older, the rate of substance dependence or abuse was lower among Asians (3.2 percent) and Native Hawaiians or Other Pacific Islanders (5.4 percent) than among other racial/ethnic groups. The rates for the other racial/ethnic groups were 8.7 percent for whites, 8.8 percent for Hispanics, 8.9 percent for blacks, 10.1 percent for persons reporting two or more races, and 21.8 percent for American Indians or Alaska Natives.

Education

- Rates of substance dependence or abuse were associated with level of education in 2012. Among adults aged 18 or older, those who graduated from a college or university had a lower rate of substance dependence or abuse (7.2 percent) than those who did not graduate from high school (10.3 percent), those with some college education (9.7 percent), and those who graduated from high school but did not have any college education (8.8 percent).

Employment

- Rates of substance dependence or abuse were associated with current employment status in 2012. A higher percentage of unemployed adults aged 18 or older were classified with dependence or abuse (16.9 percent) than were full-time employed adults (9.1 percent) or part-time employed adults (10.3 percent).

- About half of the adults aged 18 or older with substance dependence or abuse were employed full time in 2012. Of the 20.7 million adults classified with dependence or abuse, 10.7 million (51.9 percent) were employed full time.

Criminal Justice Populations

- In 2012, 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 (34.0 percent) than their counterparts who were not on parole or supervised release during the past year (8.6 percent).

- In 2012, probation status was associated with substance dependence or abuse. The rate of substance dependence or abuse was 37.0 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 (8.2 percent).

Geographic Area

- In 2012, rates of substance dependence or abuse for persons aged 12 or older were 9.3 percent in the West, 8.8 percent in the Midwest, 8.3 percent in the Northeast, and 8.0 percent in the South.

- Rates for substance dependence or abuse among persons aged 12 or older in 2012 were similar in large metropolitan counties (8.7 percent) and small metropolitan counties (8.8 percent), but were higher than in nonmetropolitan counties (7.4 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 2012, 4.0 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, 1.2 million received treatment for the use of both alcohol and illicit drugs, 1.0 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 was stable between 2011 (1.5 percent and 3.8 million) and 2012 (1.5 percent and 4.0 million) and between 2002 (1.5 percent and 3.5 million) and 2012.

- In 2012, among the 4.0 million persons aged 12 or older who received treatment for alcohol or illicit drug use in the past year, 2.1 million persons received treatment at a self-help group, and 1.5 million received treatment at a rehabilitation facility as an outpatient (Figure 7.7). The numbers of persons who received treatment at other locations were 1.0 million at a rehabilitation facility as an inpatient, 1.0 million at a mental health center as an outpatient, 861,000 at a hospital as an inpatient, 735,000 at a private doctor's office, 597,000 at an emergency room, and 388,000 at a prison or jail. None of these estimates changed significantly between 2011 and 2012 or between 2002 and 2012.

Figure 7.7 Locations Where Past Year Substance Use Treatment Was Received among Persons Aged 12 or Older: 2012
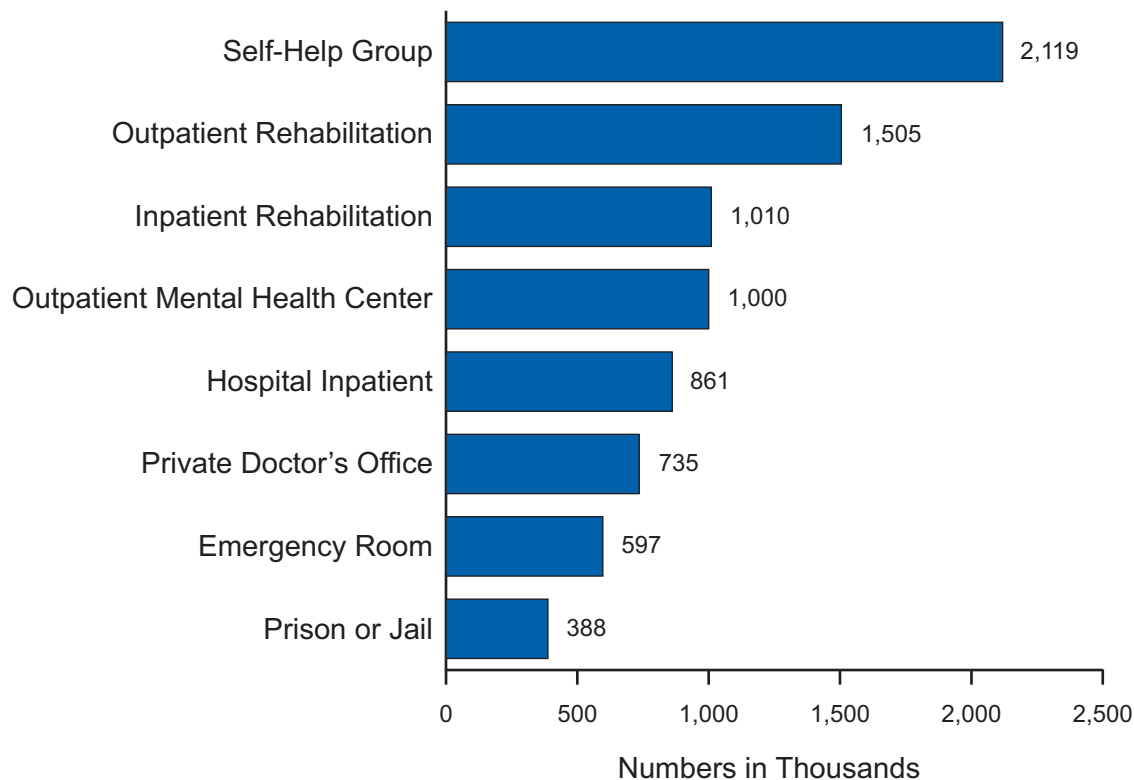
- In 2012, 2.4 million persons aged 12 or older reported receiving treatment for alcohol use during their most recent treatment in the past year, 973,000 persons received treatment for pain relievers, and 957,000 persons received treatment for marijuana use (Figure 7.8). Estimates for receiving treatment for the use of other drugs were 658,000 for cocaine, 458,000 for tranquilizers, 450,000 for heroin, 366,000 for hallucinogens, and 357,000 for stimulants. None of these estimates changed significantly between 2011 and 2012, except that the number of persons who received the most recent treatment for nonmedical use of pain relievers increased from 726,000 persons in 2011 to 973,000 persons in 2012 and between 2002 (360,000 persons) and 2012 (Figure 7.9).

- The numbers of persons aged 12 or older who received the most recent treatment in the past year for marijuana, cocaine, hallucinogens, and stimulants were stable between 2002 and 2012. However, the number of persons who received treatment for tranquilizers increased from 2002 (197,000 persons) to 2012 (458,000 persons), and the number who received treatment for heroin increased from 2002 (277,000 persons) to 2012 (450,000 persons). (Note that respondents could indicate that they received treatment for more than one substance during their most recent treatment.)

Figure 7.8 Substances for Which Most Recent Treatment Was Received in the Past Year among Persons Aged 12 or Older: 2012

Substance	Numbers in Thousands
Alcohol	2,395
Pain Relievers	973
Marijuana	957
Cocaine	658
Tranquilizers	458
Heroin	450
Hallucinogens	366
Stimulants	357
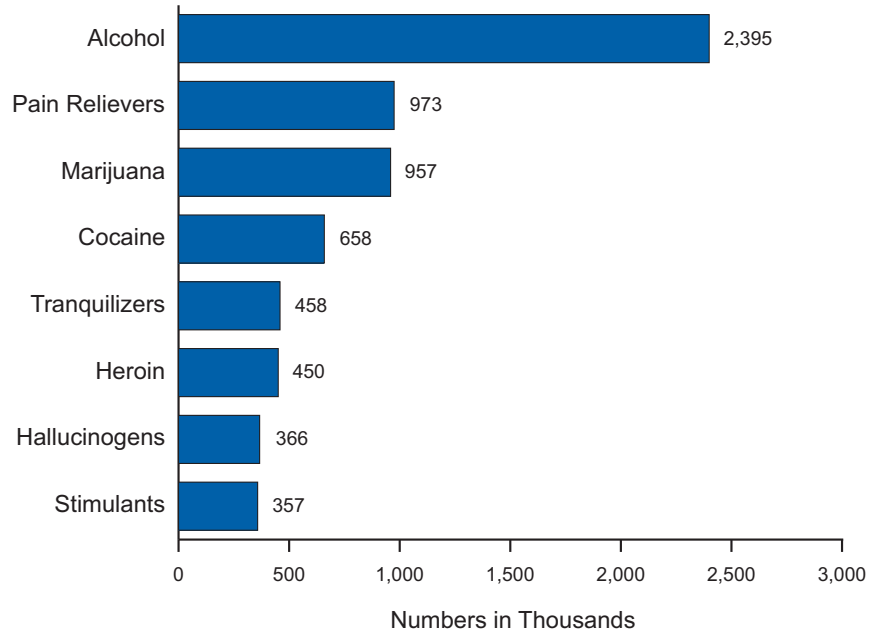
Figure 7.9 Received Most Recent Treatment in the Past Year for the Use of Pain Relievers among Persons Aged 12 or Older: 2002-2012
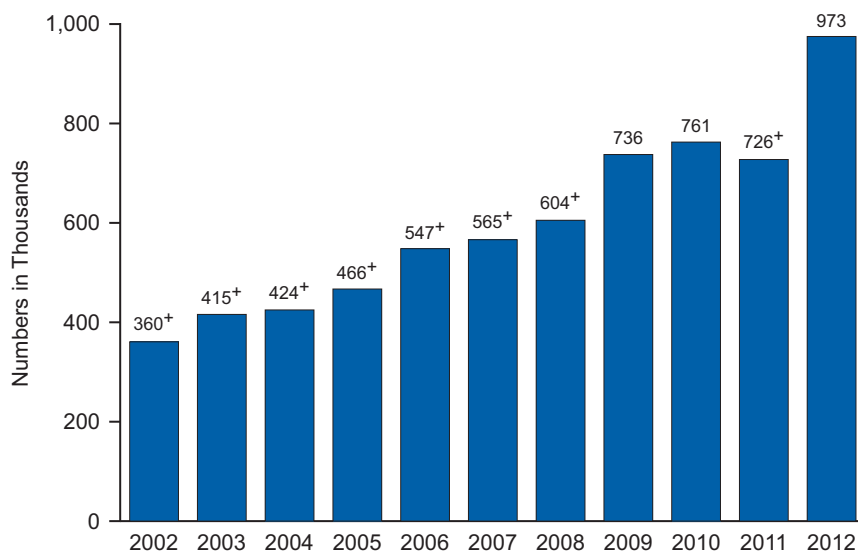
Year	Numbers in Thousands
2002	360[+]
2003	415[+]
2004	424[+]
2005	466[+]
2006	547[+]
2007	565[+]
2008	604[+]
2009	736
2010	761
2011	726[+]
2012	973

[+] Difference between this estimate and the 2012 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 2012, 23.1 million persons aged 12 or older needed treatment for an illicit drug or alcohol use problem (8.9 percent of persons aged 12 or older). The number in 2012 was similar to the number in each year from 2002 to 2010 (ranging from 22.2 million to 23.6 million), but it was higher than the number in 2011 (21.6 million). The rate in 2012 was similar to the rate in 2003 and the rate in each year from 2007 through 2010 (ranging from 9.2 to 9.4 percent), was lower than the rate in 2002 and the rate in each year from 2004 through 2006 (ranging from 9.5 to 9.8 percent), and was higher than the rate in 2011 (8.4 percent).

- In 2012, 2.5 million persons (1.0 percent of persons aged 12 or older and 10.8 percent of those who needed treatment) received treatment at a specialty facility. The rate and the number in 2012 were not different from the rates and numbers in 2002 and in each year from 2004 through 2011 (ranging from 0.9 to 1.0 percent and from 2.3 million to 2.6 million), but they were higher than those in 2003 (0.8 percent and 1.9 million).

- In 2012, 20.6 million persons (7.9 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 2012 was similar to the number in each year from 2002 through 2010 (ranging from 20.3 million to 21.1 million) and was higher than the number in 2011 (19.3 million). The rate in 2012 was similar to the rate in each year from 2009 through 2011 (ranging from 7.5 to 8.3 percent), but was lower than the rate in each year from 2002 through 2008 (ranging from 8.4 to 8.8 percent).

- Of the 2.5 million persons aged 12 or older who received specialty substance use treatment in 2012, 859,000 received treatment for alcohol use only, 899,000 received treatment for illicit drug use only, and 633,000 received treatment for both alcohol and illicit drug use. These estimates were similar to the estimates for 2011 and 2002.

- Among persons in 2012 who received their most recent substance use treatment at a specialty facility in the past year, 50.2 percent reported using their "own savings or earnings" as a source of payment for their most recent specialty treatment, 41.0 percent reported using private health insurance, 30.2 percent reported using public assistance other than Medicaid, 28.7 percent reported using Medicaid, 24.7 percent reported using funds from family members, and 24.1 percent reported using Medicare. None of these estimates changed significantly between 2011 and 2012.

- The number of persons aged 12 or older in 2012 who were classified as needing substance abuse treatment but not receiving treatment in a specialty facility in the past year was greater than the number in 2011 (20.6 million vs. 19.3 million).

- Of the 20.6 million persons aged 12 or older in 2012 who were classified as needing substance use treatment but not receiving treatment at a specialty facility in the past year, 1.1 million persons (5.4 percent) reported that they perceived a need for treatment for their illicit drug or alcohol use problem (Figure 7.10). Of these 1.1 million persons who felt they needed treatment but did not receive treatment in 2012, 347,000 (31.3 percent) reported that they made an effort to get treatment, and 760,000 (68.7 percent) reported making no effort to get treatment. These estimates were stable between 2011 and 2012.

- The rate and the number of youths aged 12 to 17 who needed treatment for an illicit drug or alcohol use problem in 2012 (6.3 percent and 1.6 million) were lower than those in 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 1.6 million youths who needed treatment in 2012, 157,000 received treatment at a specialty facility (about 10.0 percent of the youths who needed treatment), leaving about 1.4 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: 2012

Did Not Feel They
Needed Treatment

94.6%

Felt They Needed
Treatment and Did
Not Make an Effort

3.7%

1.7%

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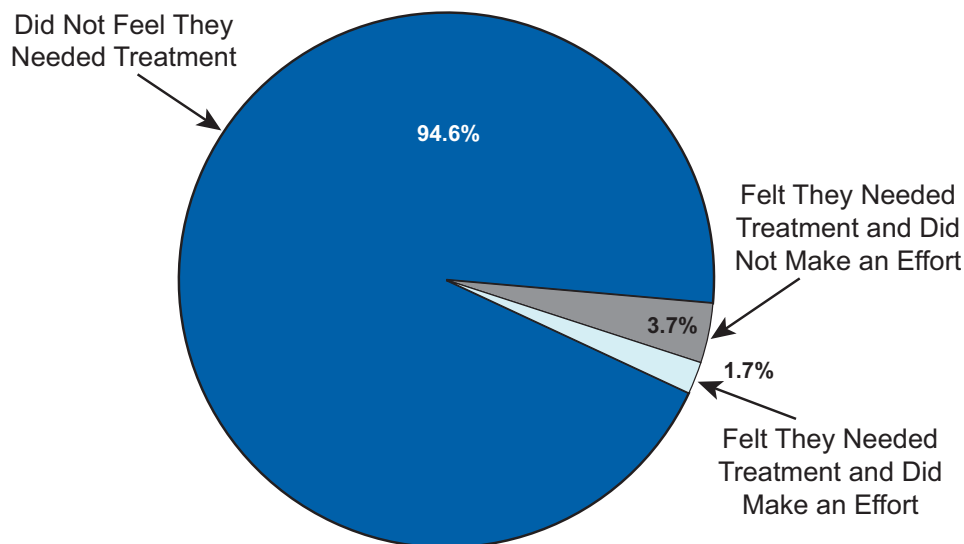
20.6 Million Needing But Not Receiving
Treatment for Illicit Drug or Alcohol Use

- Based on 2009-2012 combined data, the six most often 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 (40.4 percent), (b) no health coverage and could not afford cost (34.0 percent), (c) possible negative effect on job (12.0 percent), (d) concern that receiving treatment might cause neighbors/community to have a negative opinion (11.6 percent), (e) not knowing where to go for treatment (9.1 percent), and (f) had health coverage but did not cover treatment or did not cover cost (7.9 percent).

- Based on 2009-2012 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, the most often reported reasons for not receiving treatment were (a) no health coverage and could not afford cost (38.2 percent), (b) not ready to stop using (26.3 percent), (c) had health coverage but did not cover treatment or did not cover cost (10.1 percent), (d) might have negative effect on job (9.5 percent), (e) did not know where to go for treatment (8.9 percent), (f) no transportation or inconvenient (8.2 percent), (g) might cause neighbors/community to have a negative opinion (7.9 percent), and (h) did not have time for treatment (7.1 percent) (Figure 7.11).

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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: 2009-2012 Combined
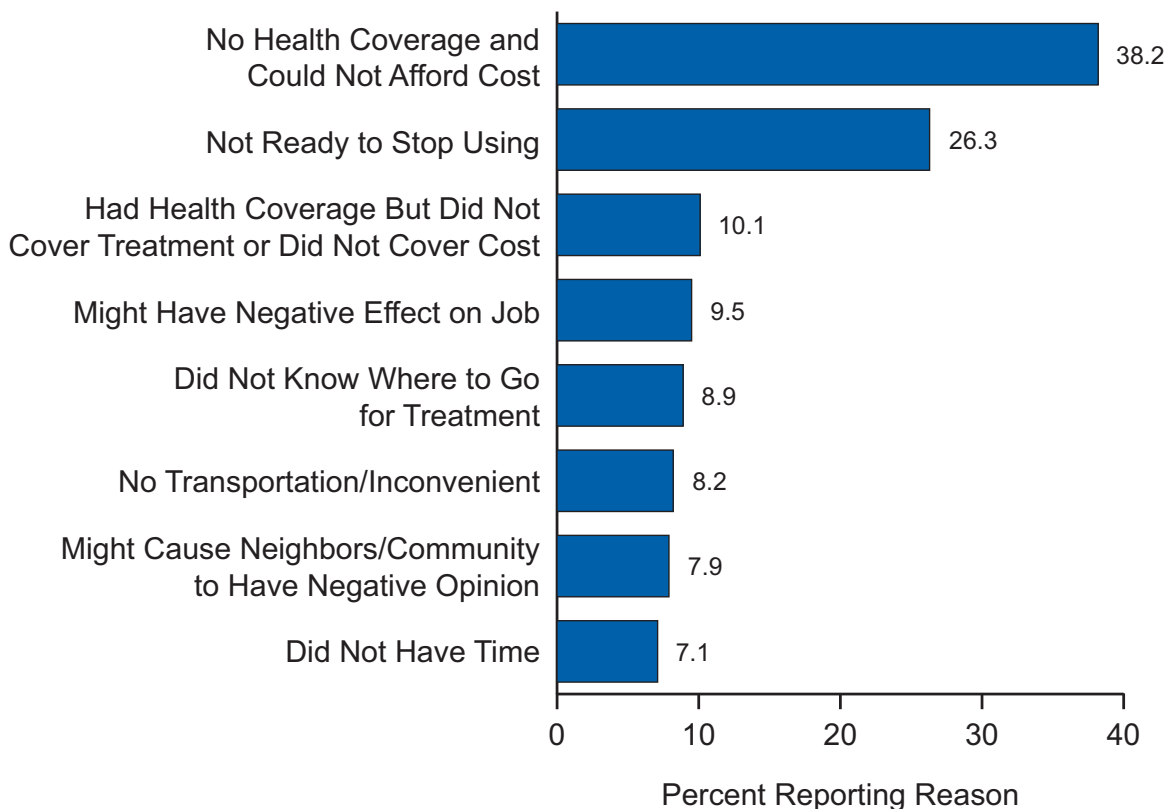
Reason	Percent
No Health Coverage and Could Not Afford Cost	38.2
Not Ready to Stop Using	26.3
Had Health Coverage But Did Not Cover Treatment or Did Not Cover Cost	10.1
Might Have Negative Effect on Job	9.5
Did Not Know Where to Go for Treatment	8.9
No Transportation/Inconvenient	8.2
Might Cause Neighbors/Community to Have Negative Opinion	7.9
Did Not Have Time	7.1

Percent Reporting Reason

Illicit Drug Use Treatment and Treatment Need

- In 2012, the number of persons aged 12 or older needing treatment for an illicit drug use problem was 8.0 million (3.1 percent of the total population). The number in 2012 was similar to the number in 2002 and the number in each year from 2004 through 2010 (ranging from 7.6 million to 8.1 million) and was higher than the numbers in 2003 (7.3 million) and 2011 (7.2 million). The rate of persons needing treatment for an illicit drug use problem in 2012 was similar to the rate in each year from 2002 through 2010 (ranging from 3.0 to 3.3 percent) and was higher than the rate in 2011 (2.8 percent).

- Of the 8.0 million persons aged 12 or older who needed treatment for an illicit drug use problem in 2012, 1.5 million (0.6 percent of the total population and 19.1 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 2012 was similar to the number in 2002 and the number in each year between 2004 and 2007 and each year from 2009 through 2011 (ranging from 1.3 million to 1.6 million), but it was higher than the numbers in 2003 (1.1 million) and in 2008 (1.2 million). The rate in 2012 was similar to the rate in 2002 and the rate in each year from 2004 to 2011 (ranging from 0.5 to 0.6 percent), but it was higher than rate in 2003 (0.5 percent).

- There were 6.5 million persons (2.5 percent of the total population) who needed but did not receive treatment at a specialty facility for an illicit drug use problem in 2012. The number in 2012 was similar to the number in each year from 2002 through 2010 (ranging from 6.2 million to 6.6 million), but was higher than the number in 2011 (5.8 million). The rate in 2012 was similar to the rates in 2002 and 2003 and the rate in each year from 2005 through 2010 (ranging from 2.5 to 2.7 percent), was lower than the rate in 2004 (2.8 percent), and was higher than the rate in 2011 (2.3 percent).

- Of the 6.5 million persons aged 12 or older who needed but did not receive specialty treatment for illicit drug use in 2012, 588,000 (9.0 percent) reported that they perceived a need for treatment for their illicit drug use problem, and 5.9 million did not perceive a need for treatment. The number of persons who needed treatment for an illicit drug use problem but did not perceive the need in 2012 was similar to the number in 2010 (6.0 million), but was higher than the number in 2011 (5.3 million).

- Of the 588,000 persons who felt a need for treatment in 2012, 204,000 reported that they made an effort to get treatment, and 385,000 reported making no effort to get treatment. These estimates were similar to the estimates in 2010 and 2011, except that the number making no effort to get treatment was higher than in 2010 (201,000 persons).

- Among youths aged 12 to 17, there were 1.0 million persons (4.2 percent) who needed treatment for an illicit drug use problem in 2012. Of this group, only 121,000 received treatment at a specialty facility (11.6 percent of youths aged 12 to 17 who needed treatment), leaving 920,000 youths who needed treatment but did not receive it at a specialty facility.

- Among persons aged 12 or older who needed but did not receive illicit drug use treatment and felt they needed treatment (based on 2009-2012 combined data), the most often reported reasons for not receiving treatment were (a) no health coverage and could not afford cost (44.8 percent), (b) not ready to stop using (30.5 percent), (c) concern that receiving treatment might cause neighbors/community to have negative opinion (15.2 percent), (d) possible negative effect on job (14.1 percent), (e) not knowing where to go for treatment (10.6 percent), and (f) having health coverage that did not cover treatment or did not cover cost (9.0 percent).

Alcohol Use Treatment and Treatment Need

- In 2012, the number of persons aged 12 or older needing treatment for an alcohol use problem was 18.3 million (7.0 percent of the population aged 12 or older). The number in 2012 was similar to the number in each year since 2002 (ranging from 17.4 million to 19.4 million), except that it was lower than the number in 2006 (19.6 million). The percentage in 2012 was lower than the percentage in each year from 2002 through 2009 (ranging from 7.6 to 8.0 percent) and was similar to the percentages in 2010 (7.3 percent) and 2011 (6.8 percent).

- Among the 18.3 million persons aged 12 or older who needed treatment for an alcohol use problem in 2012, 1.5 million (0.6 percent of the total population and 8.2 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 2012 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 2012 (16.8 million) was similar to the number in each year since 2002 (ranging from 15.9 million to 17.8 million), except that it was lower than the number in 2006 (18.0 million). The rate in 2012 (6.5 percent of the population aged 12 or older) was similar to the rates in 2010 (6.7 percent) and 2011 (6.2 percent) and was lower than the rate in each year from 2002 through 2009 (ranging from 7.0 to 7.4 percent).

- Among the 16.8 million persons aged 12 or older who needed but did not receive specialty treatment for an alcohol use problem in 2012, 665,000 persons (4.0 percent) felt they needed treatment for their alcohol use problem. The number and rate in 2012 were similar to those reported in 2011 (505,000 persons and 3.2 percent) and in 2002 (761,000 persons and 4.5 percent). Of the 665,000 persons in 2012 who perceived a need for treatment for an alcohol use problem but did not receive specialty treatment, 490,000 did not make an effort to get treatment, and 174,000 made an effort but were unable to get treatment.

- In 2012, there were 889,000 youths aged 12 to 17 (3.6 percent) who needed treatment for an alcohol use problem. Of this group, only 76,000 received treatment at a specialty facility (0.3 percent of all youths and 8.5 percent of youths who needed treatment), leaving about 814,000 youths (3.3 percent) who needed but did not receive treatment.

- Among persons aged 12 or older who needed but did not receive alcohol use treatment and felt they needed treatment (based on 2009-2012 combined data), the most commonly reported reasons for not receiving treatment were (a) not ready to stop using (49.5 percent), (b) no health coverage and could not afford cost (30.3 percent), (c) possible negative effect on job (10.6 percent), (d) not knowing where to go for treatment (8.9 percent), (e) concern that receiving treatment might cause neighbors/community to have negative opinion (8.6 percent), (f) having health coverage that did not cover treatment or did not cover cost (8.4 percent), and (g) could handle the problem without treatment (8.1 percent).

8. Discussion of Trends in Substance Use among Youths, Young Adults, and Older Adults

Previous chapters in this report presented findings from the 2012 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. This chapter expands upon previous chapters by discussing, in more depth, trends for specific age groups of particular interest in recent years due to changes in rates of use. For youths and young adults, a comparison of NSDUH trend results with results from other surveys of youth and young adult substance use is presented. For older adults, an assessment is presented of the current impact on trends because of the aging baby boom and other cohorts.

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 2012 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 2012, changes between 2011 and 2012, and changes between 2002 and 2012. 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, and it 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). YRBS surveys students in the 9th through 12th grades in classrooms every other year during the spring (Eaton et al., 2012). The most recent survey was completed in 2011. 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 and Young Adults

A comparison of NSDUH and MTF estimates for 2002 to 2012 is shown in Tables 8.1 through 8.6 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 MTF definitions. 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. The NSDUH results are remarkably consistent with MTF trends for both youths and young adults, as discussed in the following paragraphs.

Both surveys showed decreases between 2002 and 2012 in the percentages of youths who used marijuana, cocaine, Ecstasy, LSD, inhalants, alcohol, and cigarettes in the past month (Table 8.3). For youth alcohol use, both surveys showed no significant change between 2011 and 2012, but a decline between 2009 and 2012. Although the MTF rate has been consistently higher than the NSDUH rate because of differences in methodologies used, the relative changes over time have been similar. For example, NSDUH data for past month alcohol use showed a 13 percent decline between 2009 and 2012 (from 14.8 to 12.9 percent), and the MTF data showed a 15 percent decrease during those years (Figure 8.1). Over the long term, however, the two surveys have shown remarkably consistent trends in past month alcohol use.

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 continuing decline (Center for Behavioral Health Statistics and Quality [CBHSQ], 2011). The 2011 and 2012 MTF estimates, however, showed a continuing decline, consistent with the NSDUH trend in youth smoking. Over the long term, the two surveys showed consistent trends (Figure 8.2). During the 4-year period from 2009 to 2012, NSDUH showed a 27 percent decline and MTF showed a 19 percent decline in current cigarette use. Both surveys showed decreases in current cigarette use between 2011 and 2012.

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. NSDUH and

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Figure 8.1 Past Month Alcohol Use among Youths in NSDUH and MTF: 2002-2012
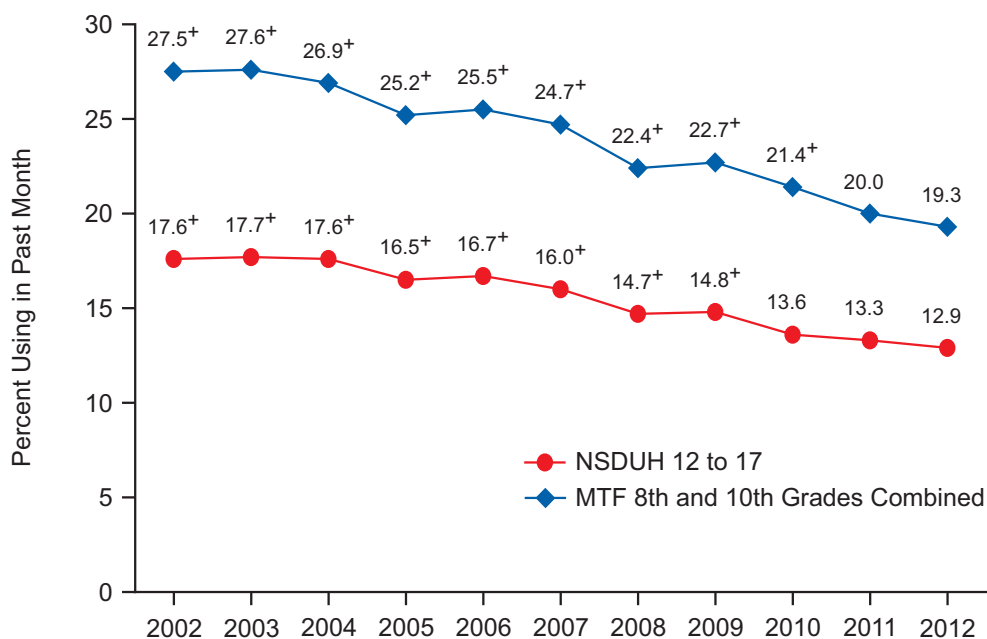
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Figure 8.2 Past Month Cigarette Use among Youths in NSDUH and MTF: 2002-2012
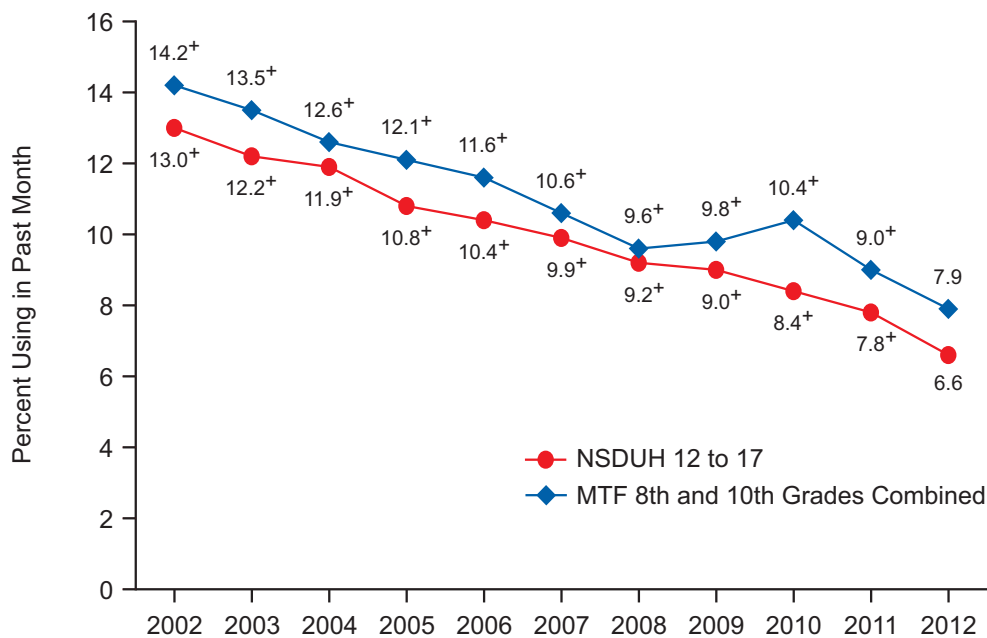
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

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Figure 8.3 Past Month Marijuana Use among Youths in NSDUH and MTF: 2002-2012
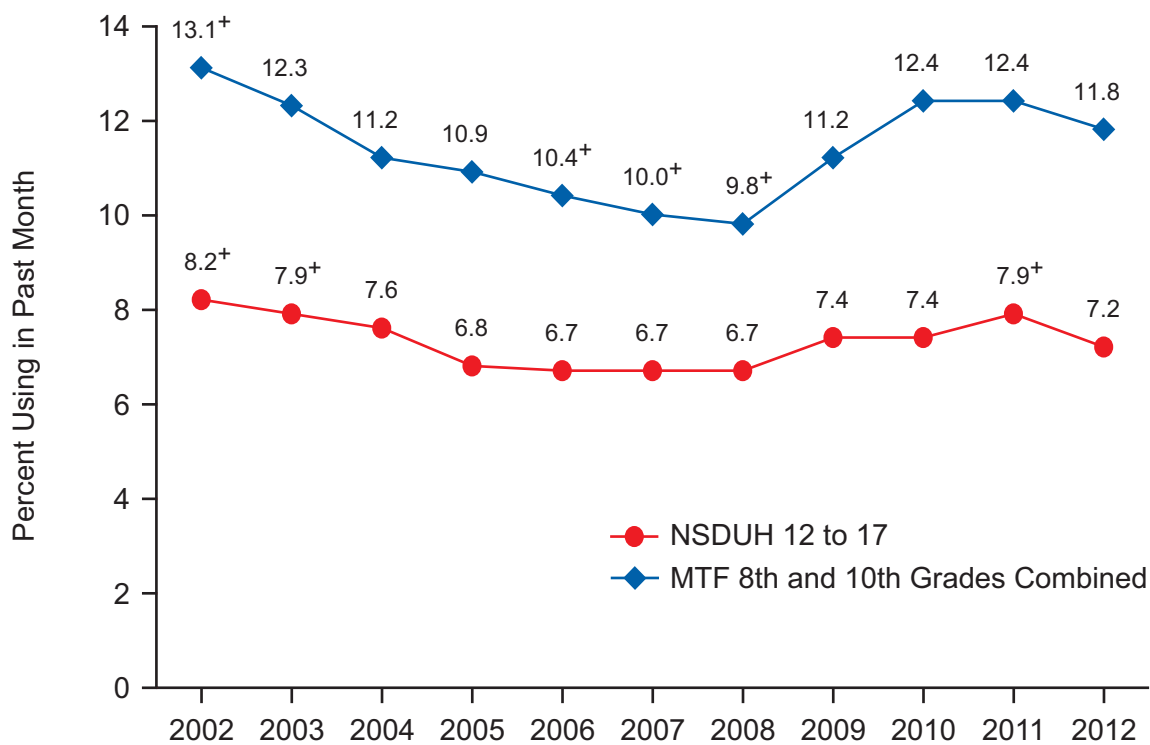
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.
[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

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, and declines between 2010 and 2012. Both surveys indicated declines in past month use of cocaine, LSD, and inhalants between 2008 and 2012.

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 54.6 percent in 2007 to 43.6 percent in 2012. 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 69.4 to 58.9 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 2011 were consistent with NSDUH and MTF (see 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 and 38.7 percent in 2011) and cigarette use (28.5 percent in 2001 and 18.1 percent in 2011). 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 2011 (23.1 percent). This increase was consistent with the NSDUH and MTF increases during that period (CHBSQ, 2012c).

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 (Figure 8.4). 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. 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 increases in the most recent years.

Figure 8.4 Past Month Marijuana Use among Youths in NSDUH, MTF, and YRBS: 1971-2012
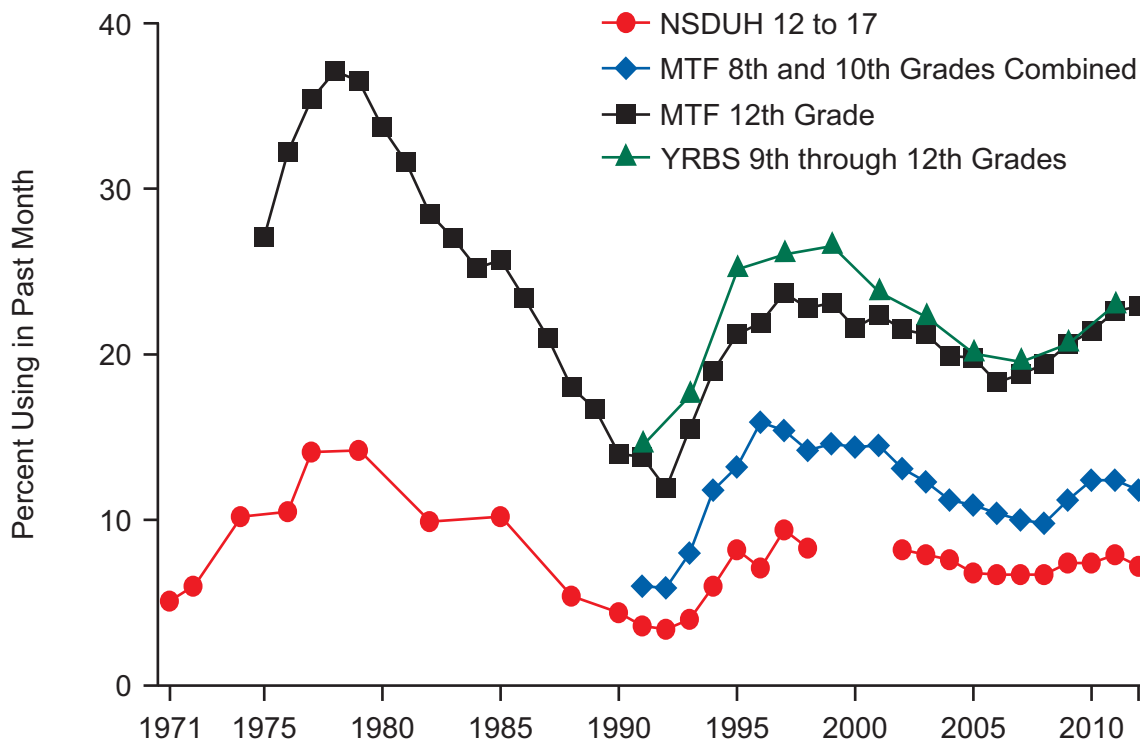
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health; YRBS = Youth Risk Behavior Survey.

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 2012 with estimates prior to 1999.

Data on young adults also showed similar trends in NSDUH and MTF, although not as consistent as for the youth data (Tables 8.4 to 8.6). 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 2012 (16.6 to 18.7 percent in NSDUH; 17.3 to 19.8 percent in MTF) (Table 8.6). Both surveys showed declines in cigarette use between 2002 and 2012, with NSDUH showing a decline from 40.8 to 31.8 percent and MTF showing a decline from 31.4 to 18.7 percent. Both surveys also showed a decrease in rates of current cigarette use among young adults between 2011 and 2012. There was no significant change between 2002 and 2012 in the rate of current alcohol use among young adults in either survey. Both surveys showed declines in past year and past month cocaine use from 2002 to 2012, with no significant changes in rates between 2011 and 2012 (Tables 8.5 and 8.6, respectively). Similarly, past year and past month Ecstasy use among young adults increased between 2007 and 2010 and remained steady in 2011 and 2012, according to both NSDUH and MTF. Both surveys indicated declines in past year nonmedical use of pain relievers between 2010 and 2012 among young adults (Figure 8.5). The rate of past month nonmedical use of pain relievers for this age group also decreased between 2010 and 2012 in the NSDUH data, but these rates were not significantly different in the MTF data.

Trends in Marijuana and Nonmedical Prescription Drug Use, by Age Group and Birth Cohort among Older Adults

As noted in Chapter 2 of this report, NSDUH data indicate that the rates of current illicit drug use among persons aged 50 to 64 increased from 2002 to 2012 (see Figure 2.10). Much of this increase can be attributed to the aging of the baby boom cohort (born between 1946 and 1964) into the 50 or older age group. This cohort, particularly those born after 1950, had much higher rates of illicit drug use as teenagers and young adults than older cohorts. This generational shift in drug use is still evident in the most recent data.

In 2012, only 19.3 percent of persons aged 65 or older (i.e., born before 1948) had ever used illicit drugs in their lifetime, while the lifetime rates of use were 47.6 percent for those aged 60 to 64 (born in 1948 to 1952) and were above 50 percent for each age group from ages 20 to 59 (born after 1952). By 2012, the 50 to 64 age group consisted entirely of the baby boom cohort. A previous study revealed that increases from 2002 to 2007 in past year illicit drug use among older adults were driven by the aging of the baby boom cohort (Han et al., 2009a). The members of this cohort began to reach age 50 in 1996, and the 50 to 59 age group consisted entirely of baby boomers in 2007.

The 2012 results and Han et al. (2009a) both show that marijuana and prescription psychotherapeutic drugs used nonmedically were the most commonly used illicit drugs among adults aged 50 or older in the past year (Figure 8.6). This section examines the trends in the past year use of those drugs from 2002 to 2012 by the standard 5-year age groups (plus persons aged 65 or older) published in NSDUH detailed tables (focusing on 5-year time intervals to allow an

Figure 8.5 Past Year Nonmedical Pain Reliever Use among Youths and Young Adults in NSDUH and MTF: 2002-2012
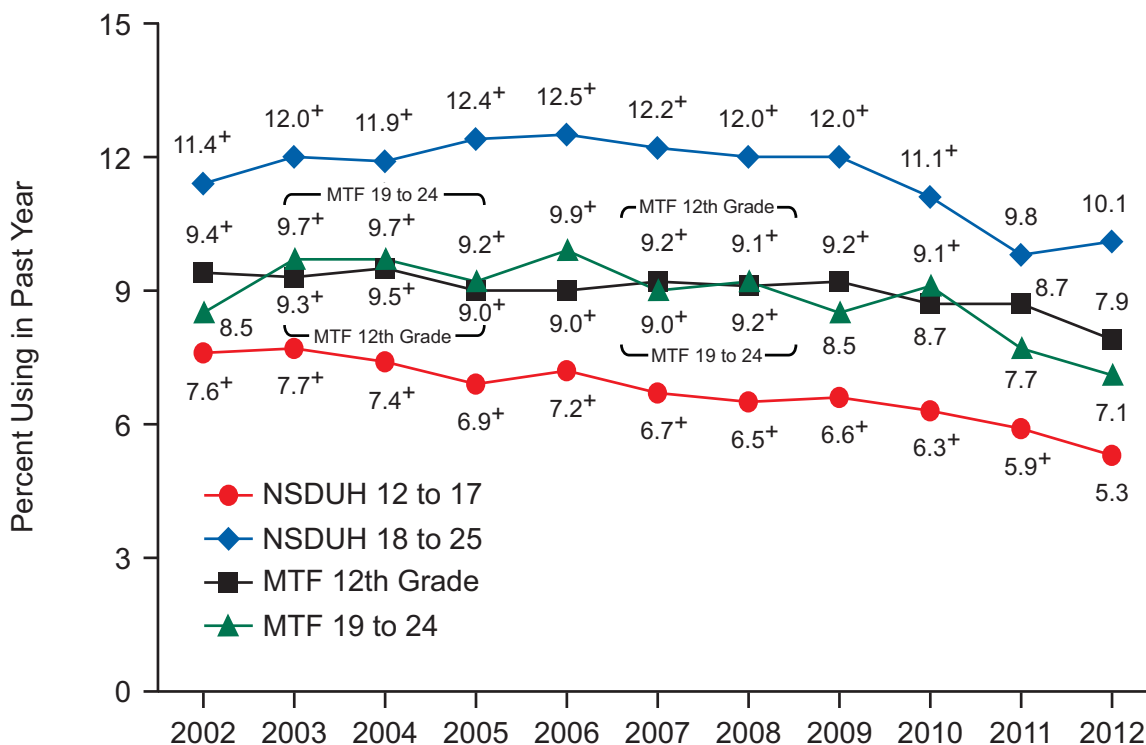
MTF = Monitoring the Future; NSDUH = National Survey on Drug Use and Health.

[+] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Note: Data for MTF are for "narcotics other than heroin."

examination of trends by birth cohorts). To capture information on relationships between birth cohorts and estimates for adults aged 50 or older from 2002 through 2012, the analysis includes data for adults aged 40 or older.

The age group graph in Figure 8.7 shows the estimated rates of past year marijuana use by 5-year age groups for 2002, 2007, and 2012. Rates increased between 2002 and 2012 for adults aged 50 to 54, those aged 55 to 59, and those aged 60 to 64. The rate also increased between 2007 and 2012 for adults aged 60 to 64.

The birth cohort graph in Figure 8.7 examines trends in past year marijuana use among adults aged 40 or older by focusing on the year in which they were born. For example, the trend for adults born in 1958 to 1962 corresponds to the rates in the age group graph for 40 to 44 year olds in 2002, 45 to 49 year olds in 2007, and 50 to 54 year olds in 2012.

Figure 8.6 Past Year Illicit Drug Use among Persons Aged 50 or Older: 2012
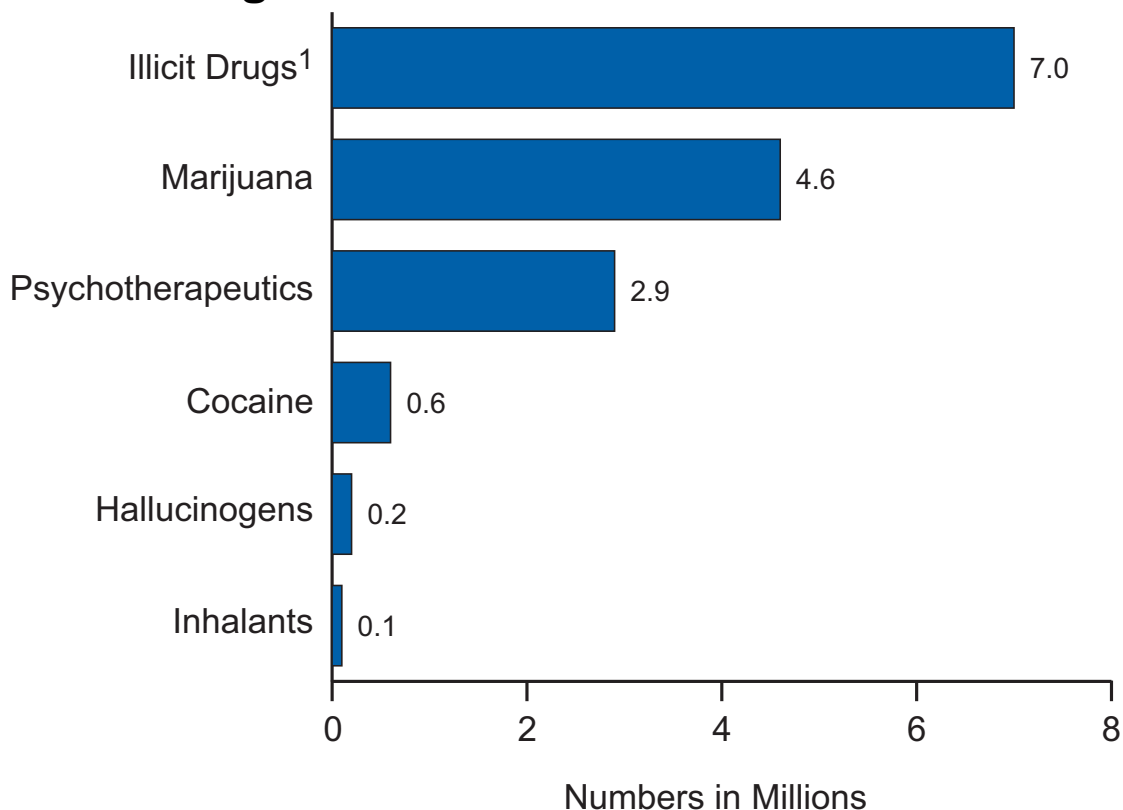
Figure 8.6 Past Year Illicit Drug Use among Persons Aged 50 or Older: 2012

[1] Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

Note: The estimated number of past year heroin users aged 50 or older rounds to fewer than 0.1 million persons and is not shown.

These comparisons showed no increases in use within any of these birth cohorts, which was consistent with the findings from the earlier study assessing trends from 2002 through 2007 (Han et al., 2009a). Thus, the increases in marijuana use in adults aged 50 to 54 and those aged 55 to 59 appear to be largely due to the aging of the baby boom birth cohort. In contrast to the trends for these two age groups, the rate among adults aged 60 to 64 was 2.4 percent in 2002 and 1.9 percent in 2007, then increased to 4.4 percent in 2012. Again, these findings suggest that the aging of the baby boom cohort into this age group affected the trend. All persons aged 60 to 64 in 2002 (i.e., born approximately in 1938 to 1942) were born prior to the baby boom years. Persons in this age group in 2007 include persons born prior to the baby boom (i.e., approximately 1943 to 1945) and those who were born in the first 2 years of the baby boom (i.e., 1946 or 1947). By 2012, the 60 to 64 age group approximately consisted of adults born in 1948 to 1952 and consisted entirely of adults who were part of the baby boom cohort.

Figure 8.7 Past Year Marijuana Use by Age among Persons Aged 40 or Older and by Birth Cohort among Persons Born between 1943 and 1962: 2002, 2007, and 2012
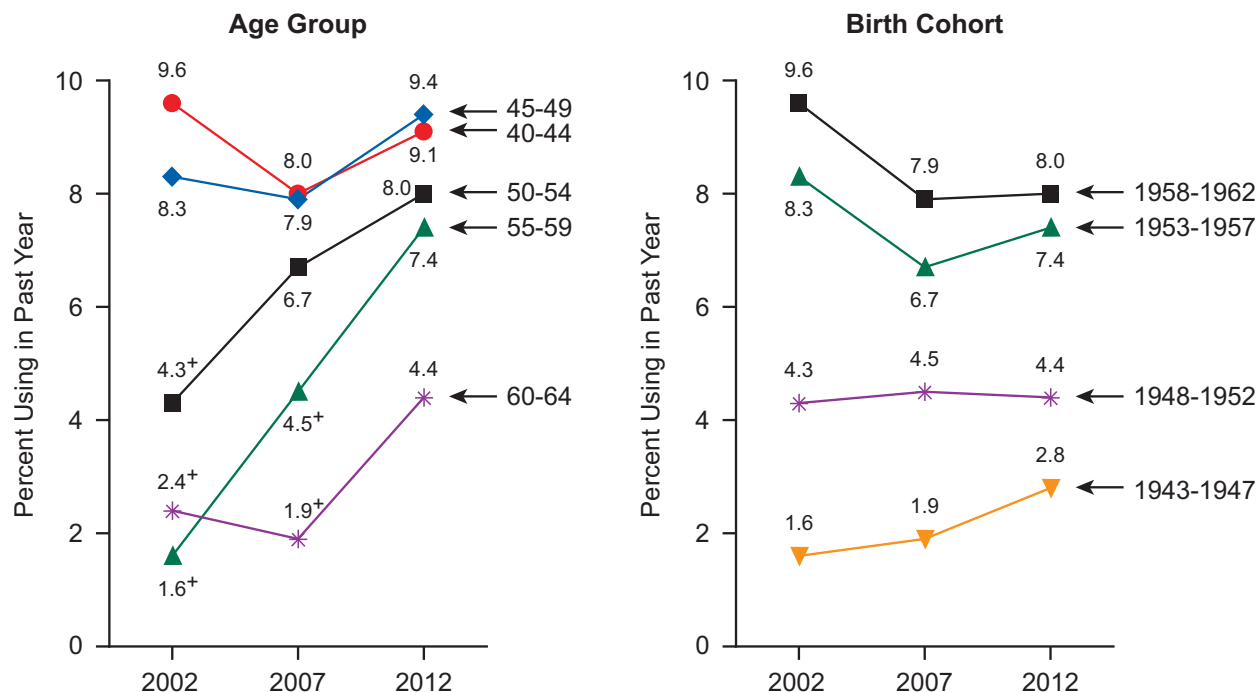
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Note: The 2012 estimate for the 1943-1947 birth cohort is based on data from respondents aged 65 to 69.

Trends in the nonmedical use of prescription drugs among adults aged 50 to 54 and those aged 55 to 59 also were consistent with the aging of the baby boom cohort (Figure 8.8). Comparisons of rates within birth cohorts in Figure 8.8 showed no overall changes between 2002 and 2012. In contrast to the marijuana trends, there was no increase in nonmedical prescription drug use among persons aged 60 to 64.

The continuing increases in illicit drug use among adults aged 50 or older have important implications for substance use treatment and for the health care delivery system in general. The higher rates of use, coupled with the increasing size of the older adult population in the United States as the baby boom cohort ages, suggest a greater need for health care providers to consider illicit drug use among their older patients while also diagnosing and treating their health problems. Additionally, it has been projected that the number of adults aged 50 or older who would need alcohol or drug treatment would increase from 2.8 million (annual average) in 2002 to 2006 to 5.7 million in 2020 (Han, Gfroerer, Colliver, & Penne, 2009b). The results of the 2012 NSDUH are consistent with this projection, showing an estimated 4.0 million older adults currently needing substance use treatment, including 0.4 million persons needing treatment only for illicit drugs, 3.2 million needing treatment only for alcohol, and 0.4 million needing treatment for both alcohol and illicit drugs.

Figure 8.8 Past Year Nonmedical Prescription Drug Use by Age among Persons Aged 40 or Older and by Birth Cohort among Persons Born between 1943 and 1962: 2002, 2007, and 2012
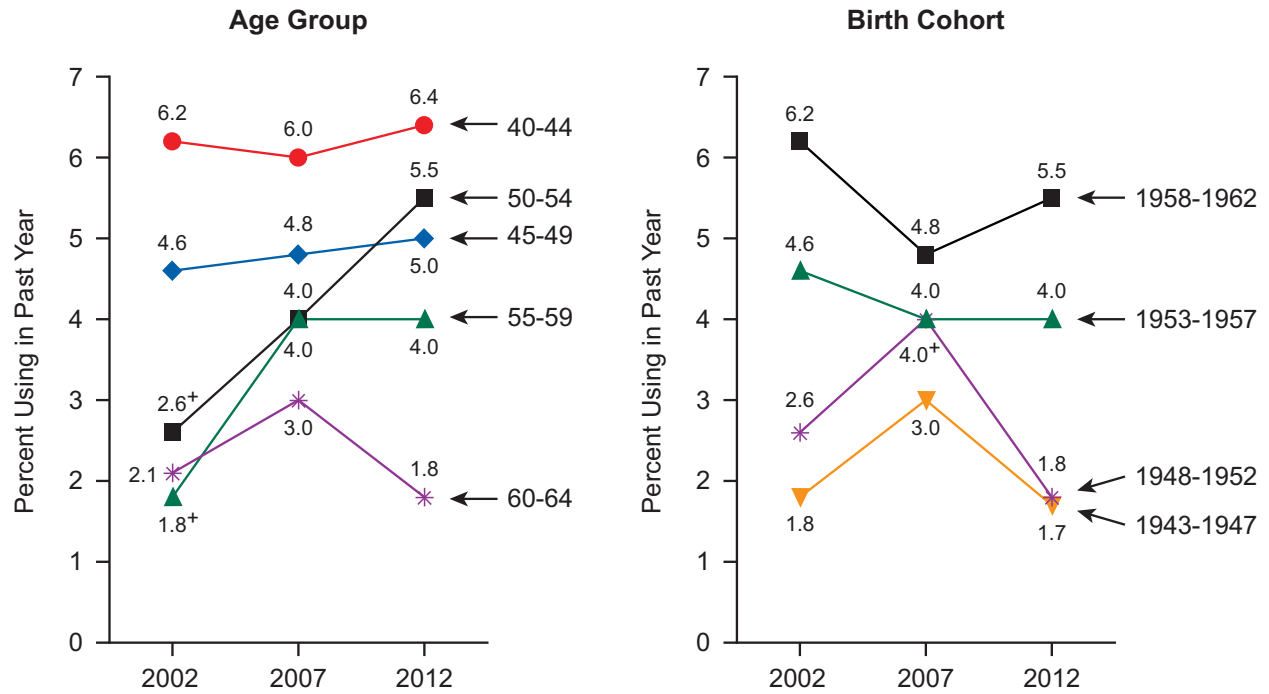
+ Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Note: The 2012 estimate for the 1943-1947 birth cohort is based on data from respondents aged 65 to 69.

Table 8.1 Comparison of NSDUH and MTF Lifetime Prevalence Estimates among Youths: Percentages, 2002-2012

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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	17.0
MTF	29.0[a]	27.0[a]	25.7	25.3	23.8	22.6[a]	22.3[a]	24.0	25.4	25.5	24.5
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
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
Ecstasy											
NSDUH	3.3[a]	2.4[a]	2.1	1.6[a]	1.9	1.8	2.1	2.3[a]	2.5[a]	2.4[a]	2.0
MTF	5.5[a]	4.3[a]	3.6	3.4	3.5	3.8	3.4	3.9	4.9[a]	4.6[a]	3.5
LSD											
NSDUH	2.7[a]	1.6[a]	1.2	1.1	0.9	0.8	1.1	1.0	0.9	0.9	1.0
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
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
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	10.9
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
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
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
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

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

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, O'Malley, Bachman, and Schulenberg (2013), as are the MTF design effects used for variance estimation.

[a] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2012. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2012.

Table 8.2 Comparison of NSDUH and MTF Past Year Prevalence Estimates among Youths: Percentages, 2002-2012

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
MTF	22.5[a]	20.5	19.7	19.4	18.5	17.5[a]	17.4[a]	19.3	20.6	20.7	19.7
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	0.7
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
Ecstasy											
NSDUH	2.2[a]	1.3	1.2	1.0	1.2	1.3	1.4	1.7[a]	1.9[a]	1.7[a]	1.2
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
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
MTF	2.1[a]	1.5	1.4	1.4	1.3	1.5	1.6	1.5	1.6	1.5	1.3
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
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	5.2
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
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
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
MTF	--	--	--	--	--	--	--	--	--	--	--

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

-- 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, O'Malley, Bachman, and Schulenberg (2013), as are the MTF design effects used for variance estimation.

[a] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2012. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2012.

Table 8.3 Comparison of NSDUH and MTF Past Month Prevalence Estimates among Youths: Percentages, 2002-2012

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
MTF	13.1[a]	12.3	11.2	10.9	10.4[a]	10.0[a]	9.8[a]	11.2	12.4	12.4	11.8
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[a]	0.2[a]	0.3[a]	0.1
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
Ecstasy											
NSDUH	0.5[a]	0.4	0.3	0.3	0.3	0.3	0.4	0.5[a]	0.5[a]	0.4	0.3
MTF	1.6[a]	0.9	0.8	0.8	1.0	0.9	1.0	1.0	1.5[a]	1.1[a]	0.8
LSD											
NSDUH	0.2[a]	0.2[a]	0.2	0.1	0.1	0.1	0.2[a]	0.1	0.2	0.1	0.1
MTF	0.7[a]	0.6[a]	0.6	0.6	0.6	0.6[a]	0.6[a]	0.5	0.7[a]	0.6[a]	0.4
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	1.1[a]	0.9	0.8
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
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	13.3	12.9
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	19.3
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
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

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

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, O'Malley, Bachman, and Schulenberg (2013), as are the MTF design effects used for variance estimation.

[a] Difference between this estimate and the 2012 estimate is statistically significant at the .05 level.

Sources: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2012. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2012.

Table 8.4 Comparison of NSDUH and MTF Lifetime Prevalence Estimates among Young Adults: Percentages, 2002-2012

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Marijuana											
NSDUH	53.8[a]	53.9[a]	52.8	52.4	52.5	50.9	50.8[a]	52.6	51.4	51.9	52.2
MTF	56.1[a]	56.4[a]	55.6[a]	54.4	53.8	53.9	53.0	53.8	53.2	53.1	53.0
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
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	9.2
Ecstasy											
NSDUH	15.1[a]	14.8[a]	13.8	13.7	13.4	12.8	12.2	12.5	12.4	12.3	12.9
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
LSD											
NSDUH	15.9[a]	14.0[a]	12.1[a]	10.5[a]	9.0[a]	7.3[a]	6.6	6.9[a]	6.4	6.0	5.9
MTF	13.9[a]	13.8[a]	10.4[a]	7.9[a]	6.7[a]	5.9	5.6	5.3	5.7	5.4	5.3
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	8.4
MTF	11.7[a]	11.4[a]	10.6[a]	9.3[a]	9.7[a]	7.5	8.4	7.7	6.8	6.0	6.7
Alcohol											
NSDUH	86.7[a]	87.1[a]	86.2[a]	85.7[a]	86.5[a]	85.2	85.6[a]	85.8[a]	85.7[a]	84.3	84.4
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
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
MTF	--	--	--	--	--	--	--	--	--	--	--
Pain Relievers[1]											
NSDUH	22.1	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	22.4
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

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

-- 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 2003, 2005, 2007, 2009, and 2011 estimates with 2012 estimates, this assumption results in conservative tests for comparisons of 2002, 2004, 2006, 2008, and 2010 data with 2012 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 the 2012 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, 2002-2012. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2012.

Table 8.5 Comparison of NSDUH and MTF Past Year Prevalence Estimates among Young Adults: Percentages, 2002-2012

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
MTF	34.2	33.0	31.6	31.4	30.9	31.0	30.9	32.2	31.7	33.7	32.8
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
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
Ecstasy											
NSDUH	5.8[a]	3.7	3.1[a]	3.1[a]	3.8	3.5[a]	3.9	4.3	4.4	4.1	4.1
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
LSD											
NSDUH	1.8	1.1[a]	1.0[a]	1.0[a]	1.2[a]	1.1[a]	1.5	1.6	1.6	1.7	1.8
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
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
MTF	2.2	1.5	2.3	1.6	1.8	1.1	1.7	1.2	1.7	0.9	1.5
Alcohol											
NSDUH	77.9	78.1	78.0	77.9	78.8[a]	77.9	78.0	78.7[a]	78.6[a]	77.0	77.4
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
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
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[a]	29.3
Pain Relievers[1]											
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	10.1
MTF	8.5	9.7[a]	9.7[a]	9.2[a]	9.9[a]	9.0[a]	9.2[a]	8.5	9.1[a]	7.7	7.1

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

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 2003, 2005, 2007, 2009, and 2011 estimates with 2012 estimates, this assumption results in conservative tests for comparisons of 2002, 2004, 2006, 2008, and 2010 data with 2012 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 the 2012 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, 2002-2012. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2012.

Table 8.6 Comparison of NSDUH and MTF Past Month Prevalence Estimates among Young Adults: Percentages, 2002-2012

Substance/ Survey	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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
MTF	19.8	19.9	18.2	17.0[a]	17.0[a]	17.5[a]	17.3[a]	18.5	17.8[a]	20.1	19.8
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
MTF	2.5[a]	2.6[a]	2.4[a]	2.1[a]	2.4[a]	1.9	1.9	1.8	1.5	1.5	1.3
Ecstasy											
NSDUH	1.1	0.7[a]	0.7[a]	0.8	1.0	0.7[a]	0.9	1.1	1.2	0.9	1.0
MTF	1.6	1.0	0.8	0.6[a]	0.9	0.3[a]	0.9	0.7	1.2	0.9	1.3
LSD											
NSDUH	0.1[a]	0.2[a]	0.3	0.2[a]	0.2[a]	0.2[a]	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
Inhalants											
NSDUH	0.5	0.4	0.4	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4
MTF	0.8	0.3	0.4	0.3	0.4	0.3	0.6	0.2	0.2	0.2	0.3
Alcohol											
NSDUH	60.5	61.4	60.5	60.9	62.0[a]	61.3	61.1	61.8[a]	61.4	60.7	60.2
MTF	67.7	66.3	67.3	66.8	67.0	67.4	67.4	68.1	65.8	65.8	66.0
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
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[a]	21.3[a]	18.7
Pain Relievers[1]											
NSDUH	4.1	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
MTF	--	3.4	3.4	3.7	3.6	3.5	3.7	3.2	3.5	2.9	2.9

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

-- 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 2003, 2005, 2007, 2009, and 2011 estimates with 2012 estimates, this assumption results in conservative tests for comparisons of 2002, 2004, 2006, 2008, and 2010 data with 2012 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 the 2012 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, 2002-2012. National Institute on Drug Abuse, Monitoring the Future Study, University of Michigan, 2002-2012.

Appendix A: Description of the Survey

A.1   Sample Design

The sample design for the 2012 National Survey on Drug Use and Health (NSDUH)[3] 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 2012. 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, 2011, and 2012 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 2012, the actual sample sizes in these States ranged from 3,544 to 3,687. For the remaining 42 States and the District of Columbia, the target sample size was 900. Sample sizes in these States ranged from 829 to 976 in 2012. This approach ensured there was sufficient sample in every State to support State estimation by either direct methods or small area estimation (SAE)[4] while at the same time maintaining efficiency 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.[5] 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 of

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[3] Prior to 2002, the survey was known as the National Household Survey on Drug Abuse (NHSDA).
[4] 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 the *State Estimates of Substance Use and Mental Disorders from the 2009-2010 National Surveys on Drug Use and Health* (Hughes, Muhuri, Sathe, & Spagnola, 2012).
[5] 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 counts from Nielsen Claritas.

selection for the 2005 through 2012 NSDUHs was census tracts.[6] This stage was included to contain sample segments within a single census tract to the extent possible.[7]

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, and 2012. Eight reserve sample segments per SSR were fielded during the 2012 survey year. Four of these segments were retained from the 2011 survey, and four were selected for use in the 2012 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 214,274 addresses was selected. Of the selected addresses, 178,586 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 153,873. 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 87.3 percent and 18 to 25 year olds at a rate of 69.8 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 44.6 percent or less, with persons in the eldest age group (50 years or older) sampled at a rate of 8.6 percent on average. The overall population sampling rates were 0.09 percent for 12 to 17 year olds, 0.07 percent for 18 to 25 year olds, 0.02 percent for 26 to 34 year olds, 0.01 percent for 35 to 49 year olds, and 0.01 percent for those 50 or older. Nationwide, 87,656 persons were selected. Consistent with previous surveys in this series, the final respondent sample of 68,309 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 2012 NSDUH sample design report by Morton, Martin, Shook-Sa, Chromy, and Hirsch (2013).

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

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[6] Census tracts are relatively permanent statistical subdivisions of counties and parishes and provide a stable set of geographic units across decennial census periods.
[7] 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.

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 the selected respondent to 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 payment 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 interview, 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 verifications involve 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 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 2012 will appear in the *2012 NSDUH Methodological Resource Book*, which is in process. Until that volume becomes available, refer to the *2011 NSDUH Methodological Resource Book* (RTI International, 2013).

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 2012 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 2012 NSDUH, the models included binomial logistic regression, multinomial logistic regression, Poisson 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 2012 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 $(l_k, u_k), k \in s,$ for the adjustment factor $a_k(\lambda)$ as follows:

$$a_k(\lambda) = \frac{l_k(u_k - c_k) + u_k(c_k - l_k)\exp(A_k x_k^{/}\lambda)}{(u_k - c_k) + (c_k - l_k)\exp(A_k x_k^{/}\lambda)},$$

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 2012 NSDUH weights were based on population estimates from the 2010 decennial census as for the 2011 NSDUH, 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 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.

In developing the person-level analysis weights for the 2011 NSDUH, the lower bounds in GEM were inadvertently allowed to be less than 1 in the DU nonresponse and the person nonresponse adjustment steps for the East North Central division. Normally, the lower bounds for nonresponse adjustments in GEM are required to be at least 1. To assess the potential impact on estimates because of this deviation from the normal practice of bound setting, estimates were compared using the weights that included this error and newly calculated weights that did not include this error. The impact of this correction on substance use estimates was minimal. Therefore, this report and the 2012 detailed tables include the same 2011 estimates that were based on the original person-level analysis weights from the 2011 NSDUH. Additional quality control checks were added in GEM to reduce the reoccurrence of this event.

Table A.1 Weighted Statistical Imputation Rates (Percentages) for the 2012 NSDUH, by Interview Section

Interview Section	Number of Variables	Mean	Minimum	25th Percentile	75th Percentile	Maximum
Core Demographics	12	2.16	0.01	0.24	3.55	3.73
Core Drug Use[1]	98	1.95	0.01	0.12	2.68	10.71
Income and Health Insurance	20	1.56	0.21	0.37	1.40	9.96
Other Noncore Demographics[2]	12	0.13	0.01	0.07	0.20	0.34

[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, 2012.

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, 2008). 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

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

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 2012 will appear in the *2012 NSDUH Methodological Resource Book*, which is in process. Until that volume becomes available, refer to the *2011 NSDUH Methodological Resource Book* (RTI International, 2013).

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 2012 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 2012 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 2012 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

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

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

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

where $\hat{p}_1$ = first prevalence estimate, $\hat{p}_2$ = second prevalence estimate, $\mathrm{var}(\hat{p}_1)$ = variance of first prevalence estimate, $\mathrm{var}(\hat{p}_2)$ = variance of second prevalence estimate, and $\mathrm{cov}(\hat{p}_1, \hat{p}_2)$ = 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., 2011 is the first estimate and 2012 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, 2008). 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.

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 2012. 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 2012 and the 10 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 2012 involved samples independent of those in 2002 to 2010. For 2011 and 2012, 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 2003, 2005, 2007, 2009, and 2011 data with 2012 data. However, this assumption results in conservative tests for comparisons of 2002, 2004, 2006, 2008, and 2010 data with 2012 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 (Center for Behavioral Health Statistics and Quality [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 2012, 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[8] 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 178,586 eligible households sampled for the 2012 NSDUH, 153,873 were screened successfully, for a weighted screening response rate of 86.1 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.[9] In the 153,873 screened households, a total of 87,656 sample persons were selected, and completed interviews were obtained from 68,309 of these sample persons, for a weighted IRR of 73.0 percent (Table B.4). A total of 14,275 (19.6 percent) sample persons were classified as refusals or parental refusals, 2,592 (3.0 percent) were not available or never at home, and 2,480 (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 (82.8 percent), females (74.7 percent), blacks (79.1 percent), persons in the Midwest (74.3 percent), and residents of small metropolitan areas (75.2 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

$$ORR = SRR \times IRR$$

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[8] 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.
   [9] 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.

was 62.9 percent in 2012. 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,[10] 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 Appendix A. Details of the editing and imputation procedures for 2012 also will appear in the *2012 NSDUH Methodological Resource Book*, which is in process. Until that volume becomes available, refer to the *2011 NSDUH Methodological Resource Book* (RTI International, 2013).

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

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

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, 2012c) 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 are reported as "Other, Ineligible" in Table B.3. 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 2012 national findings report and the 2012 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 2012 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 pooled 2009 and 2010 data 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 above, 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 is producing 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, $t_{fu,d,i}$, 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:

$$I_{(Past\ Year\ Initiate)}(i) = \begin{cases} 1 & \text{if } (DOI_i MOI_i YOI_i - t_{fu,d,i}) \le 365 \\ 0 & \text{otherwise} \end{cases},$$

where DOI_i, MOI_i, and YOI_i denote the day, month, and year of the interview, respectively, and $t_{fu,d,i}$ 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 estimate of 49,000 persons aged 26 to 49 who were past year initiates of marijuana in 2009 was significantly different from the estimate of 138,000 past year initiates in this age group in 2011 (CBHSQ, 2012c), but it was not significantly different from the estimate of 139,000 past year initiates in 2012 (Table B.6). The estimate of 210,000 past year marijuana initiates aged 26 to 49 in 2010 was not significantly different from the numbers in 2011 or 2012. 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 2011 (CBHSQ, 2012c), but the means in 2010 and 2011 were not

significantly different from the mean in 2012 (Table B.7). Since 2002, only the mean age at first use of marijuana in 2004 (29.5 years) was significantly different from the mean in 2012 (33.1 years) for past year marijuana initiates in this age group. However, the corresponding mean in 2011 was the same as in 2004, but it was not significantly different from the mean in 2012. The mean age at first use for any illicit drug among past year initiates aged 26 to 49 in 2012 was greater than the means in 2004 and 2009, but it was not significantly different from the means in other years.

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 2012 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 2011 survey had persons who were 11 years old on the date of the 2011 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 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 2012 survey, 72,063 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 2011 survey conducted on the same dates had the 2011 survey covered younger persons. The estimated number of lifetime users currently aged 12 to 17 was 8,067,487 for 2012 and 8,610,370 for 2011, indicating fewer overall initiates of alcohol use among persons aged 17 or younger in 2012. Thus, an adjusted estimate of initiation of alcohol use by persons who were 11 years old in 2012 is given by

$$(Estimated\ Past\ Year\ Initiates\ Aged\ 11)_{2011} \times \frac{(Estimated\ Lifetime\ Users\ Aged\ 12\ to\ 17)_{2012}}{(Estimated\ Lifetime\ Users\ Aged\ 12\ to\ 17)_{2011}}.$$

This yielded an adjusted estimate of 67,519 persons 11 years old on a 2012 survey date and initiating use of alcohol in the past year:

$$72,063 \times \frac{8,067,487}{8,610,370} = 67,519 \; .$$

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 2010 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 150,620, or about 3.3 percent of the estimate based on past year initiation only by persons aged 12 or older (150,620 ÷ 4,589,405 = 0.0328). Based on similar analyses, the estimated undercoverage of past year initiates was 3.2 percent for cigarettes, 1.1 percent for marijuana, and 18.8 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 17.4 to 17.1 for alcohol, from 17.8 to 17.5 for cigarettes, from 17.9 to 17.8 for marijuana, and from 16.9 to 15.4 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 2012 NSDUH CAI instrumentation included questions that were designed to measure alcohol and illicit drug dependence and abuse. For these substances,[11] dependence and 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.

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

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 41,000 respondents were past year alcohol users in 2012. Of these, fewer than 100 respondents (about 0.2 percent) 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, about 1,500 respondents in 2012 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,[12] 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 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.

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[12] 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.

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.

B.4.3 Impact of Decennial Census Effects on NSDUH Substance Use Estimates

As discussed in Section A.3.3 in Appendix A, the person-level weights in NSDUH were calibrated to population estimates (or control totals) obtained from the U.S. Census Bureau. For the weights in 2002 through 2010, annually updated control totals based on the 2000 census were used. Beginning with the 2011 weights, however, the control totals from the Census Bureau were based on the 2010 census. As a result, there was a possibility that the change from the 2000 to the 2010 census as the basis for updating NSDUH control totals could result in demographic and geographic shifts in the U.S. population that were not accounted for in population estimates that were made during the period between the censuses (i.e., in the annually updated 2000 census-based control totals provided by the Census Bureau for the years 2002 to 2010). This is because for the years between each decennial census, the Census Bureau produces annual national-level postcensal population estimates, based on the most recent census data, applying adjustments to account for births to U.S.-resident women, deaths of U.S. residents, and net international migration.[13] With this estimation method, the postcensal estimates made for the years immediately following a census are likely to be more accurate (e.g., 2002 postcensal estimates) than those for years that are farther from the last census (e.g., 2009 postcensal estimates).

SAMHSA conducted a study to compare estimates from the 2011 NSDUH with estimates for 2010 to examine whether the results and significance tests varied depending on whether analysis weights for 2010 were poststratified to population control totals based on the 2010 census ("2010 [New]") or based on the 2000 census ("2010 [Old]"), which represent the official NSDUH estimates for 2010. This evaluation was based on the premise that any difference between estimates based on these two weights could solely be attributed to the "census effect" because the underlying data were the same. When results of statistical testing differed (e.g., if the difference between 2010 [Old] vs. 2011 was significant but the difference between 2010 [New] vs. 2011 was not), caution would be advised in interpreting trends in substance use estimates from 2011 onward with estimates from prior years. Additional details about the methods and results for this study are included in Section B.4.3 in Appendix B of the national findings report for the 2011 NSDUH (CBHSQ, 2012c). For tables comparing substance use estimates from this evaluation, see http://www.samhsa.gov/data/NSDUH/NSDUHCensusEffects/Index.aspx.

Because both the 2011 and 2012 NSDUH estimates are based on weights that were poststratified to population control totals that were in turn based on projections from the 2010 census, 2-year trend comparisons between 2011 and 2012 are not subject to census effects.

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[13] For details on how the Census Bureau creates the postcensal estimates, see http://www.census.gov/popest/methodology/2011-nat-st-co-meth.pdf.

However, cautions about trends between 2010 (or earlier years) and 2011 because of census effects also could carry over to trends between 2012 and years prior to 2011.

Because of changes in population sizes with the 2011 data based on the 2010 census control totals, especially for particular subgroups (e.g., increases in the number of persons reporting two or more races based on the 2010 census), caution is advised when comparing differences in estimated numbers between years prior to 2011 and those since 2011. Although the impact of the population changes is smaller for estimated percentages than for numbers of persons, some caution also is advised when comparing percentages between years prior to 2011 and those since 2011. In particular, a general result of the evaluation was that the 2010 (New) percentages for most estimates were lower than the 2010 (Old) estimates. The implication is that the *2011* estimates (percentages) may have been higher if weights based on the *2000* census had been used. If data since 2011 (including 2012) show an upward trend, then in most cases, confidence can be placed in that trend. If data since 2011 data show a decreasing trend, however, then less confidence can be placed in the trend because these downward trends since 2011 may be somewhat overstated.

For overall and subgroup estimates of underage drinking among persons aged 12 to 20 (i.e., past month alcohol use, binge alcohol use, and heavy alcohol use), for example, the 2010 (New) estimates tended to be lower than the 2010 (Old) estimates. In some situations, this resulted in the 2010 (Old) and 2011 estimates being significantly different, but the 2010 (New) and 2011 estimates were not. Therefore, the use of 2010 census-based control totals since 2011 may overstate some decreases in underage drinking between previous years and years since 2011.

Similarly, among young adults aged 18 to 25, most 2010 (New) estimates for the rates of use of different types of drugs, cigarettes, or alcohol were slightly lower than (but still significantly different from) the 2010 (Old) estimates. Again, this would imply that caution should be applied when interpreting some differences in illicit drug, alcohol, and cigarette use estimates between years since 2011 and previous years because of the risk of overstating decreases and understating increases since 2011. Despite these caveats, comparisons between 2010 and 2011 appeared to be valid for estimates of past month use among young adults because there were no situations where the use the 2010 (Old) and 2010 (New) data affected whether the difference between the 2010 and 2011 estimates was statistically significant.

The evaluation summarized in this section focused specifically on measures of substance use that are used in the NSDUH national findings reports and detailed tables. A separate analysis was conducted to evaluate the impact of the weighting changes on mental health estimates and was described in Section B.4.5 in Appendix B of the mental health findings report for the 2011 NSDUH (CBHSQ, 2012d).

Table B.1 Demographic and Geographic Domains Forced to Match Their Respective U.S. Census Bureau Population Estimates through the Weight Calibration Process, 2012

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, 2012.

Table B.2 Summary of 2012 NSDUH Suppression Rules

Estimate	Suppress if:
Prevalence Rate, $\hat{p}$, with Nominal Sample Size, n, and Design Effect, *deff* $\left(deff = \dfrac{n[SE(\hat{p})]^2}{\hat{p}(1-\hat{p})} \right)$	(1) The estimated prevalence rate, $\hat{p}$, is $< .00005$ or $\geq .99995$, or (2) $\dfrac{SE(\hat{p}) \ / \ \hat{p}}{-\ln(\hat{p})} > .175$ when $\hat{p} \leq .5$, or $\dfrac{SE(\hat{p}) \ / \ (1-\hat{p})}{-\ln(1-\hat{p})} > .175$ when $\hat{p} > .5$, or (3) *Effective* $n < 68$, where *Effective* $n = \dfrac{n}{deff} = \dfrac{\hat{p}(1-\hat{p})}{\left[SE(\hat{p})\right]^2}$, 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, $\overline{x}$, with Nominal Sample Size, n	(1) $RSE(\overline{x}) > .5$, 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, 2012.

Figure B.1 Required Effective Sample in the 2012 NSDUH as a Function of the Proportion Estimated
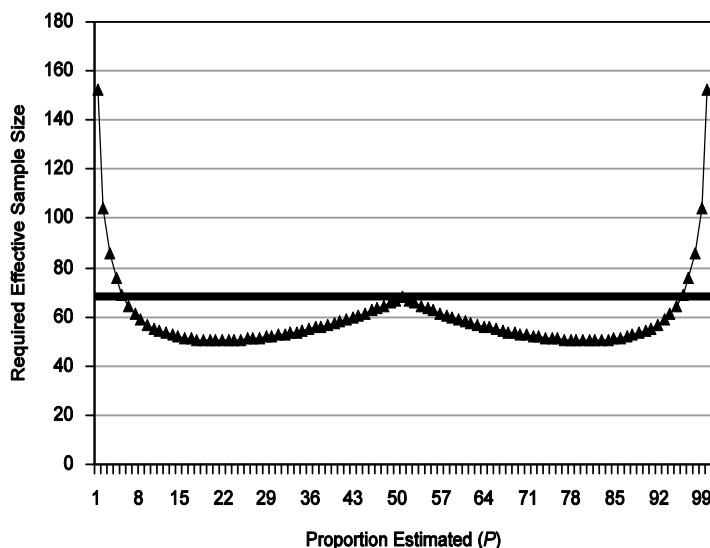
Table B.3 Weighted Percentages and Sample Sizes for 2011 and 2012 NSDUHs, by Final Screening Result Code

Final Screening Result Code	Sample Size 2011	Sample Size 2012	Weighted Percentage 2011	Weighted Percentage 2012
TOTAL SAMPLE	216,521	214,274	100.00	100.00
Ineligible Cases	37,228	35,688	16.86	16.57
Eligible Cases	179,293	178,586	83.14	83.43
INELIGIBLES	37,228	35,688	16.86	16.57
10 - Vacant	20,585	19,257	54.28	51.50
13 - Not a Primary Residence	8,612	8,520	24.71	27.46
18 - Not a Dwelling Unit	2,730	2,496	6.79	6.52
22 - All Military Personnel	370	352	0.96	0.97
Other, Ineligible[1]	4,931	5,063	13.26	13.55
ELIGIBLE CASES	179,293	178,586	83.14	83.43
Screening Complete	156,048	153,873	86.98	86.07
30 - No One Selected	94,342	92,991	51.82	50.99
31 - One Selected	34,246	33,455	19.37	19.12
32 - Two Selected	27,460	27,427	15.79	15.96
Screening Not Complete	23,245	24,713	13.02	13.93
11 - No One Home	3,124	3,029	1.71	1.62
12 - Respondent Unavailable	579	457	0.32	0.26
14 - Physically or Mentally Incompetent	513	597	0.27	0.32
15 - Language Barrier - Hispanic	66	48	0.04	0.03
16 - Language Barrier - Other	598	748	0.38	0.50
17 - Refusal	15,589	16,807	8.72	9.39
21 - Other, Access Denied[2]	2,080	2,359	1.24	1.37
24 - Other, Eligible	13	14	0.01	0.01
27 - Segment Not Accessible	0	0	0.00	0.00
33 - Screener Not Returned	87	90	0.04	0.05
39 - Fraudulent Case	595	563	0.30	0.37
44 - Electronic Screening Problem	1	1	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, 2011 and 2012.

Table B.4 Weighted Percentages and Sample Sizes for 2011 and 2012 NSDUHs, by Final Interview Code

Final Interview Code	12+ Sample Size 2011	12+ Sample Size 2012	12+ Weighted Percentage 2011	12+ Weighted Percentage 2012	12-17 Sample Size 2011	12-17 Sample Size 2012	12-17 Weighted Percentage 2011	12-17 Weighted Percentage 2012	18+ Sample Size 2011	18+ Sample Size 2012	18+ Weighted Percentage 2011	18+ Weighted Percentage 2012
TOTAL	88,536	87,656	100.00	100.00	27,911	27,147	100.00	100.00	60,625	60,509	100.00	100.00
70 - Interview Complete	70,109	68,309	74.38	73.04	23,549	22,492	84.95	82.84	46,560	45,817	73.22	72.00
71 - No One at Dwelling Unit	1,159	1,147	1.36	1.26	227	192	0.72	0.67	932	955	1.43	1.33
72 - Respondent Unavailable	1,758	1,445	2.06	1.75	337	276	1.19	1.00	1,421	1,169	2.16	1.83
73 - Break-Off	31	21	0.04	0.05	6	0	0.01	0.00	25	21	0.05	0.06
74 - Physically/ Mentally Incompetent	1,003	1,023	2.01	1.95	219	274	0.74	1.16	784	749	2.15	2.04
75 - Language Barrier - Hispanic	114	116	0.20	0.17	7	9	0.03	0.02	107	107	0.22	0.18
76 - Language Barrier - Other	383	419	1.12	1.24	17	30	0.08	0.15	366	389	1.24	1.36
77 - Refusal	10,773	11,488	17.25	18.63	890	900	2.81	3.37	9,883	10,588	18.83	20.25
78 - Parental Refusal	2,538	2,787	0.89	0.97	2,538	2,787	9.02	10.06	0	0	0.00	0.00
91 - Fraudulent Case	29	158	0.05	0.22	7	44	0.05	0.17	22	114	0.05	0.22
Other[1]	639	743	0.64	0.73	114	143	0.37	0.56	525	600	0.66	0.75

[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, 2011 and 2012.

Table B.5 Response Rates and Sample Sizes for 2011 and 2012 NSDUHs, by Demographic Characteristics

Demographic Characteristic	Selected Persons 2011	Selected Persons 2012	Completed Interviews 2011	Completed Interviews 2012	Weighted Response Rate 2011	Weighted Response Rate 2012
TOTAL	88,536	87,656	70,109	68,309	74.38%	73.04%
AGE IN YEARS						
12-17	27,911	27,147	23,549	22,492	84.95%	82.84%
18-25	28,589	28,639	23,083	22,762	80.48%	79.26%
26 or Older	32,036	31,870	23,477	23,055	71.96%	70.76%
GENDER						
Male	43,436	42,942	33,779	32,869	72.49%	71.24%
Female	45,100	44,714	36,330	35,440	76.14%	74.71%
RACE/ETHNICITY						
Hispanic	13,441	13,906	10,993	11,168	77.58%	74.95%
White	57,389	56,374	44,629	43,165	73.42%	72.19%
Black	10,607	10,074	8,979	8,433	79.78%	79.06%
All Other Races	7,099	7,302	5,508	5,543	67.74%	67.06%
REGION						
Northeast	17,251	18,301	13,090	13,773	69.86%	69.59%
Midwest	24,570	24,499	19,258	19,142	73.92%	74.27%
South	28,122	26,279	22,980	20,886	76.88%	74.22%
West	18,593	18,577	14,781	14,508	74.41%	72.75%
COUNTY TYPE						
Large Metropolitan	38,889	39,096	30,113	29,918	72.75%	71.21%
Small Metropolitan	31,671	30,250	25,457	23,859	75.84%	75.23%
Nonmetropolitan	17,976	18,310	14,539	14,532	76.98%	75.05%

NOTE: Estimates are based on demographic information obtained from screener data and are not consistent with estimates on demographic characteristics presented in the 2011 and 2012 sets of detailed tables.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2011 and 2012.

Table B.6 Past Year Initiates of Marijuana and Any Illicit Drug among Persons Aged 26 or Older or Aged 26 to 49: Numbers in Thousands, 2002-2012

Drug/Age Group	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Marijuana, Aged 26 or Older	90	88	176	252	126	134	159	49[a]	247	182	177
Marijuana, Aged 26 to 49	90	56	127	122	126	121	155	49	210	138	139
Any Illicit Drug, Aged 26 or Older	268	324	479	579	415	326	419	433	457	368	339
Any Illicit Drug, Aged 26 to 49	251	209	333	379	405	250	350	205	366	270	280

* Low precision; no estimate reported.

[a] Difference between estimate and 2012 estimate is statistically significant at the .05 level.

[b] Difference between estimate and 2012 estimate is statistically significant at the .01 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2012.

Table B.7 Mean Age at First Use of Marijuana and Any Illicit Drug among Past Year Initiates Aged 26 to 49, 2002-2012

Drug	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Marijuana	31.2	29.6	29.5[a]	30.4	29.1	32.4	32.6	32.2	36.3	29.5	33.1
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

* Low precision; no estimate reported.

[a] Difference between estimate and 2012 estimate is statistically significant at the .05 level.

[b] Difference between estimate and 2012 estimate is statistically significant at the .01 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2012.

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 (Center for Behavioral Health Statistics and Quality [CBHSQ], 2012a; CBHSQ, in press; 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; persons living in group quarters (e.g., dormitories) are excluded. 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 350,000 adults are interviewed each year. Beginning with the 2011 BRFSS, the sample design also covers households with only cellular telephones, and the weighting methodology incorporates more demographic variables (e.g., education level, home ownership). 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.[14] 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 2011 was 23.6 percent, and the median BRFSS prevalence for the 50 States and the District of Columbia was 21.2 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 2011, despite the lower threshold for women (e.g., for females: 12.6 percent for BRFSS and 16.7 percent for NSDUH). The use of audio computer-assisted self-interviewing (ACASI) in NSDUH, which is considered to be more anonymous and yields higher reporting of sensitive behaviors, was offered as an explanation for lower binge alcohol use rates in combined 1999 and 2000 BRFSS data than in corresponding NSDUH data (Miller et al., 2004).[15] Because BRFSS uses CATI, it may yield lower reports of some sensitive behaviors than NSDUH, which employs face-to-face data collection with ACASI for questions about these behaviors. 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 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 initiated in 1975; (b) ongoing panel studies of representative samples from

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

[15] 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/.

each graduating class (i.e., 12th graders) that have been conducted by mail since 1976; and (c) annual surveys of 8th and 10th graders 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 2012. The MTF provides information on the use of alcohol, illicit drugs, and tobacco.

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).[16] 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 MTF does not survey dropouts or include students who were absent from school on the day of the survey. 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). The population of inference for the MTF school-based data collection is adolescents who were in the 8th, 10th, and 12th grades. In October 2011, the percentages of persons who were not currently enrolled in school and had not graduated from high school were 1.3 percent for adolescents aged 14 or 15, 2.8 percent for those aged 16 or 17, 6.4 percent for persons aged 18 or 19, and 8.6 percent for those aged 20 or 21.[17] 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 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.

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[16] 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.

[17] 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: 2011." Rates cited in this appendix are from the Census Bureau's Table 1 for all races and for both males and females.

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 current 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/.

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 regardless of age. Data for 2009-2010 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 nationwide sample survey that collects data using personal household interviews through an interviewer-administered CAPI system. The survey is sponsored by the NCHS and provides national estimates of the health status and 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 2011, data were derived from 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 2011, NHIS data were based on 101,875 persons in the Family Core, 33,014 adults in the Sample Adult Core, and 12,850 children in the Sample Child Core (NCHS, Division of Health Interview Statistics, 2012).

However, NHIS estimates of substance use for adults are not strictly comparable with NSDUH estimates. For example, 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 were conducted with 42,862 respondents aged 18 or older 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.

The study 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 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 with their teacher remaining in the room. 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 are likely to 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)

The Youth Risk Behavior Survey (YRBS) is 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. The latest YRBS was conducted in 2011. For the 2011 national YRBS, 15,425 usable questionnaires were obtained in 158 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).[18] 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 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).

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[18] 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.

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

The National Survey of Substance Abuse Treatment Services (N-SSATS) is an annual survey of all known drug and alcohol abuse treatment facilities in the United States and U.S. jurisdictions. The 2011 N-SSATS facility universe totaled 17,376 facilities. About 12 percent of the facilities in 2011 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 (94 percent) completed the survey. The 2011 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 79 percent in 2011 (CBHSQ, 2012b).

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 31, 2011) 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 the 2008 to 2010 NSDUHs 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.[19] 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 (CBHSQ, in press).

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.

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[19] 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 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 who were in specialty substance use treatment at the time of the interview (CBHSQ, in press).

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 2010 admissions data and the 2009 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 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 2005 to 2010 was about 22 percent lower than the average from the corresponding years 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 to 1.4 million, depending on the questions that were used; see the N-SSATS section in this appendix).[20] Thus, TEDS may underestimate the number of persons in treatment on a single day (CBHSQ, in press).

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

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[20] 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 (CHBSQ, in press).

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 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.

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 Bureau of Justice Statistics (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, 2011 and 2012

Drug/Current Grade Level	MTF Lifetime (2011)	MTF Lifetime (2012)	MTF Past Year (2011)	MTF Past Year (2012)	MTF Past Month (2011)	MTF Past Month (2012)	NSDUH Lifetime (2011)	NSDUH Lifetime (2012)	NSDUH Past Year (2011)	NSDUH Past Year (2012)	NSDUH Past Month (2011)	NSDUH Past Month (2012)
Marijuana												
8th Grade	16.4	15.2	12.5	11.4	7.2	6.5	8.7	7.8	6.6	5.9	3.3	3.0
10th Grade	34.5	33.8	28.8	28.0	17.6	17.0	27.5	23.8	23.2[a]	19.6	11.3	10.9
12th Grade	45.5	45.2	36.4	36.4	22.6	22.9	39.8	38.5	30.5	29.1	18.0	15.5
Cocaine												
8th Grade	2.2	1.9	1.4	1.2	0.8[a]	0.5	0.4	0.3	0.2	0.2	0.0	0.0
10th Grade	3.3	3.3	1.9	2.0	0.7	0.8	1.9	1.2	1.4	0.9	0.5	0.2
12th Grade	5.2	4.9	2.9	2.7	1.1	1.1	3.5	3.9	2.4	2.1	0.9	0.3
Inhalants												
8th Grade	13.1	11.8	7.0	6.2	3.2[a]	2.7	8.9	7.8	4.1	3.5	1.2	1.1
10th Grade	10.1	9.9	4.5	4.1	1.7	1.4	9.5	8.6	3.5	3.7	0.5	1.1
12th Grade	8.1	7.9	3.2	2.9	1.0	0.9	6.7	6.8	1.8	2.5	0.1	0.4
Cigarettes												
8th Grade	18.4[b]	15.5	--	--	6.1[a]	4.9	11.5	10.3	7.6	7.0	3.5	3.1
10th Grade	30.4[b]	27.7	--	--	11.8	10.8	28.2	24.8	19.6	16.7	11.4[a]	8.5
12th Grade	40.0	39.5	--	--	18.7	17.1	42.4[a]	37.1	30.8[a]	26.5	21.8[a]	17.8
Alcohol												
8th Grade	33.1[b]	29.5	26.9[b]	23.6	12.7[a]	11.0	22.9	20.4	16.0	15.7	6.0	7.1
10th Grade	56.0	54.0	49.8	48.5	27.2	27.6	48.6	44.7	41.0	38.8	19.9	17.8
12th Grade	70.0	69.4	63.5	63.5	40.0	41.5	64.5	62.2	56.9	53.5	34.5	32.7

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 2012 estimate within the same survey is statistically significant at the .05 level.

[b] Difference between this estimate and the 2012 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, 2011 and 2012. SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2011 and 2012 (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, and 2011

Substance/ Period of Use	YRBS (2005)	YRBS (2007)	YRBS (2009)	YRBS (2011)	NSDUH (2005)	NSDUH (2007)	NSDUH (2009)	NSDUH (2011)
Marijuana								
Lifetime Use	38.4	38.1	36.8[a]	39.9	28.1	26.4[b]	27.8	29.3
Past Month Use	20.2[a]	19.7[b]	20.8[a]	23.1	11.2[b]	10.9[b]	12.0	13.3
Cocaine								
Lifetime Use	7.6	7.2	6.4	6.8	3.8[b]	3.8[b]	2.9	2.3
Past Month Use	3.4	3.3	2.8	3.0	0.8	0.6	0.4	0.5
Ecstasy								
Lifetime Use	6.3[b]	5.8[b]	6.7[a]	8.2	2.8[b]	2.9[b]	3.3[b]	4.3
Past Month Use	--	--	--	--	0.4[a]	0.4[a]	0.8	0.7
Inhalants								
Lifetime Use	12.4	13.3[b]	11.7	11.4	12.0[b]	10.7[b]	10.1[b]	8.1
Past Month Use	--	--	--	--	1.1[a]	1.1[a]	0.6	0.6
Cigarettes								
Lifetime Use	54.3[b]	50.3[b]	46.3	44.7	39.0[b]	35.2[b]	33.7[a]	31.3
Past Month Use	23.0[b]	20.0	19.5	18.1	17.0[b]	15.5	14.9	14.5
Alcohol								
Lifetime Use	74.3	75.0[b]	72.5	70.8	57.5[b]	57.6[b]	56.5[b]	52.4
Past Month Use	43.3[b]	44.7[b]	41.8[b]	38.7	26.0[a]	26.3[b]	25.8[a]	23.7

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 2011 estimate within the same survey is statistically significant at the .05 level.
[b] Difference between this estimate and the 2011 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, and 2011. SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, January-June for 2005, 2007, 2009, and 2011.

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Appendix E: List of Contributors

This National Survey on Drug Use and Health (NSDUH) report was prepared by the Center for Behavioral Health Statistics and Quality (CBHSQ), Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services (HHS), and by RTI International (a trade name of Research Triangle Institute), Research Triangle Park, North Carolina. Work by RTI was performed under Contract No. HHSS283201000003C.

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