

NSDUH DATA REVIEW

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Risk and Protective Factors and Estimates of Substance Use Initiation: Results from the 2016 National Survey on Drug Use and Health

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Abstract

Background. Risk factors are typically associated with an increased likelihood of substance use, and protective factors are typically associated with a decreased likelihood of substance use. Efforts to prevent substance use generally aim to reduce the influence of risk factors and to enhance the effectiveness of protective factors. One major goal of substance use prevention programs is to prevent or delay the initiation of substance use (i.e., first use).

Methods. This report presents results from the 2016 National Survey on Drug Use and Health (NSDUH) for people aged 12 or older regarding the perceived harmfulness of using cigarettes, alcohol, and specific illicit drugs as well as the perceived availability of substances. Estimates are presented for specific age groups. Estimates of the perceived great risk of harm associated with the use of marijuana, cocaine, alcohol, and cigarettes also are presented according to whether people initiated use of these substances in the past year. In addition, the report presents estimates for youth-specific protective factors, such as perceptions about parents strongly disapproving of youth substance use. Finally, this report presents the estimated numbers of individuals who initiated substance use in the past year and the average age at first use among people who initiated use in the past year (i.e., past year initiates). Statistically significant differences are noted for estimates in the report.

Results. Although more than 4 out of 5 people aged 12 or older in 2016 perceived great risk of harm from weekly use of cocaine, heroin, or lysergic acid diethylamide (LSD), only about one third of people perceived great risk of harm from weekly marijuana use. An estimated 68.3 percent of people also perceived great risk from having four or five drinks of alcohol nearly every day, and 72.8 percent perceived great risk from smoking one or more packs of cigarettes per day. Perceptions of risk from substance use varied across age groups. For example, about 2 out of 5 youths aged 12 to 17 perceived great risk from weekly marijuana use compared with about 1 in 6 young adults aged 18 to 25. For marijuana and cocaine, people who had never used these substances were most likely to perceive great risk of harm from using the substance. For cigarettes and alcohol, people who used in the past year, including those who initiated use in the past year and those who initiated use

more than a year ago and continued to use in the past year, were less likely than people who last used more than a year ago or who never used to perceive great risk from using those substances.

The illicit drugs with the largest number of recent initiates aged 12 or older in 2016 were marijuana (2.6 million new users), prescription pain relievers (2.1 million new misusers), prescription tranquilizers (1.4 million new misusers), prescription stimulants (1.4 million new misusers), hallucinogens (1.2 million new users), and cocaine (1.1 million new users). The number of people in 2016 who initiated marijuana use in the past year was higher than the numbers in 2002 through 2008, but the numbers of recent marijuana use initiates were similar in 2009 to 2016. For cocaine, the number of recent initiates in 2016 was higher than the numbers in 2008 to 2014 and had risen to levels that were comparable with the numbers in the early 2000s. Similar numbers of people in 2015 and 2016 also were recent initiates of cocaine use. For heroin, the number of past year initiates in 2016 was similar to the numbers of recent initiates in 2007 to 2015.

Among people aged 12 or older in 2016, there were 4.6 million new users of alcohol, 1.8 million people who tried a cigarette for the first time in the past year, and 1.2 million people who first used smokeless tobacco in the past year. The number of people in 2016 who smoked part or all of a cigarette for the first time in the past year was lower than the numbers in 2004 to 2014, but it was similar to the number in 2015.

Conclusions. Findings from NSDUH on risk perceptions and initiation of substance use are useful to the Substance Abuse and Mental Health Services Administration for gauging the overall effectiveness of prevention efforts or policies on a broad national level. However, these NSDUH data are not intended to be used to evaluate the effectiveness of individual prevention programs or policies. Because NSDUH is a cross-sectional study, its data also cannot be used to track changes in respondents' perceptions of risk of harm from substance use over their lifetime and directly relate these changes to specific chronological events, such as the initiation of substance use.

Introduction

Substance use is a major public health problem in the United States. In 2016, for example, 10.6 percent of people aged 12 years or older used illicit drugs in the past month, and 7.5 percent had a substance use disorder in the past year.¹ Nevertheless, many individuals do not engage in substance use. Whether someone engages in substance use is associated with several risk factors that are typically correlated with an increased likelihood of substance use (e.g., perception of low risk of harm from using a substance, easy availability of substances) and protective factors that are typically associated with a decreased likelihood of substance use (e.g., exposure to prevention messages).² Risk and protective factors include variables that reflect different domains of influence, including the individual, family, peer, school, community, and society.^{3,4,5} Interventions to prevent substance use are commonly designed to reduce the influence of risk factors and enhance the effectiveness of protective factors. One goal of substance use prevention programs is to prevent or delay the initiation (i.e., first use) of substance use. Multiple studies have found associations between early initiation of alcohol or illicit drug use (e.g., in adolescence) and an increased likelihood of developing substance use disorders, although there are competing explanations for the underlying reasons for the associations.^{6,7,8} Information on trends in initiation also can provide information on the long-term effectiveness of programs or policies as a whole to prevent substance use (i.e., but not the effectiveness of individual programs or policies).

The National Survey on Drug Use and Health (NSDUH) provides information on risk and protective factors that are related to the likelihood that individuals will initiate or continue to engage in substance use. The survey also collects information on the initiation of use of illicit drugs, alcohol, and tobacco in the past year, as well as information on the age at first use of these substances.

This report summarizes findings from the 2016 National Survey on Drug Use and Health (NSDUH) for substance use prevention issues and the initiation of substance use in the United States.

This report contains the first findings from the 2016 NSDUH for substance use prevention issues, including the perceived risk of harm from substance use and the perceived availability of substances. The report also presents findings for the

initiation of substance use in the United States. Estimates for initiation include the number of individuals who used a substance for the first time in the past year and the average age at first use among people who initiated use in the past year. Comprehensive 2016 NSDUH detailed tables that show additional substance use-related outcomes, including data for various subpopulations covered in NSDUH, are available separately at <https://www.samhsa.gov/data/>.⁹

Survey Background

NSDUH is an annual survey of the civilian, noninstitutionalized population of the United States aged 12 years old or older.¹⁰ The survey is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) within the U.S. Department of Health and Human Services (HHS). The survey covers residents of households and individuals in noninstitutional group quarters (e.g., shelters, boarding houses, college dormitories, migratory workers' camps, halfway houses). The survey excludes people with no fixed address (e.g., homeless people not in shelters), military personnel on active duty, and residents of institutional group quarters, such as jails, nursing homes, mental institutions, and long-term care hospitals.

NSDUH employs a stratified multistage area probability sample that is designed to be representative of both the nation as a whole and for each of the 50 states and the District of Columbia. The 2016 NSDUH annual target sample size of 67,500 interviews was distributed across three age groups, with 25 percent allocated to adolescents aged 12 to 17, 25 percent allocated to young adults aged 18 to 25, and 50 percent allocated to adults aged 26 or older. From 2002 through 2013, the NSDUH sample was allocated equally across these three age groups. Although the sample design changed in 2014, NSDUH had the same total target sample size per year of 67,500 interviews between 2002 and 2016.¹¹

NSDUH is a face-to-face household interview survey that is conducted in two phases: the screening phase and the interview phase. The interviewer conducts a screening of the sampled household with an adult resident (aged 18 or older) in order to determine whether zero, one, or two residents aged 12 or older should be selected for the interview.¹² NSDUH collects data using audio computer-assisted self-interviewing (ACASI) in which respondents read or listen to the questions on headphones, then enter their answers directly into a NSDUH laptop computer. ACASI is designed to encourage accurate reporting of information by providing

respondents with a highly private and confidential mode for responding to questions about illicit drug use, mental health, and other sensitive behaviors. NSDUH also uses computer-assisted personal interviewing (CAPI) in which interviewers read less sensitive questions to respondents and enter the respondents' answers into a NSDUH laptop computer.

*This report is based on data from
67,942 completed interviews from 2016 NSDUH
respondents aged 12 or older.*

In 2016, screening was completed at 135,188 addresses, and 67,942 completed interviews were obtained, including 17,109 interviews from adolescents aged 12 to 17 and 50,833 interviews from adults aged 18 or older. Weighted response rates for household screening and for interviewing were 77.9 and 68.4 percent, respectively, for an overall response rate of 53.3 percent for people aged 12 or older. The weighted interview response rates were 77.0 percent for adolescents and 67.6 percent for adults.¹³ Further details about the 2016 NSDUH design and methods can be found on the web at <https://www.samhsa.gov/data/>.¹⁴

Data Presentation and Interpretation

One of NSDUH's strengths is the stability in the sample and survey designs. This stability allows for the examination of trends across time. However, the benefit of using NSDUH data to assess trends has to be balanced with the periodic need to revise NSDUH content to address changes in society and emerging issues. Consequently, the NSDUH questionnaire underwent a partial redesign in 2015 to improve the quality of the NSDUH data and to address the changing needs of policymakers and researchers with regard to substance use and mental health issues. New baselines were started in 2015 for estimates that were affected by changes to the 2015 NSDUH questionnaire.

Trends are presented in this report for estimates from the 2016 NSDUH that are assumed to have remained comparable with estimates from 2015 and prior years.^{15,16} These include comparisons of 2016 estimates with those from prior years for youths' perceptions of parental disapproval of youth substance use, youths' disapproval of peers' substance use, youths' exposure to substance use prevention messages, and the initiation of the use of substances that were not affected by the 2015 questionnaire changes. When new baselines started in 2015, estimates are discussed only for 2016. All trends that are

presented in the report compare 2016 estimates with estimates from 3 or more prior years. Most trend analyses focus on percentages because the percentages take into account any changes in the size of the total population and facilitate the comparison of estimates across years;¹⁷ however, trend analyses for the initiation of substance use focus on the *number* of people who initiated substance use in the past year rather than on percentages. Therefore, care should be taken in interpreting increases over time in the estimated number of past year initiates because some of these increases could reflect growth in the size of the population.

*Trends are presented in this report for
2016 estimates that remained comparable with
estimates from prior years.*

Most 2016 estimates in this report are presented for individuals aged 12 or older, adolescents aged 12 to 17, young adults aged 18 to 25, and adults aged 26 or older. However, some estimates are presented only for adolescents aged 12 to 17 because questions on the perceptions of parental disapproval of substance use, youths' disapproval of peers' substance use, and exposure to substance use prevention messages were asked only of adolescents.

All estimates (e.g., percentages and numbers) presented in the report are derived from NSDUH survey data that are subject to sampling errors. The estimates have met the criteria for statistical reliability. Estimates that do not meet these criteria for reliability have been suppressed and are not shown.¹⁸ Where trends are presented, this report compares estimates in 2016 with estimates in each of the years from 2002 to 2015. Statistical tests also have been conducted for comparisons that appear in the text of the report. Statistically significant differences are described using terms such as "higher," "lower," "increased," or "decreased." Statements use terms such as "similar," "remained steady," or "stable" when a difference is not statistically significant. Analyses of long-term trends in this report summarize whether the 2016 estimates are generally different from or similar to estimates in most or all previous years,¹⁹ while minimizing discussion of anomalous differences between any 2 years that can occur due to these estimates being based on samples.^{20,21} Graphics and tables contain estimates that support the statements in this report, and supplementary tables of estimates (including standard errors) are included in Appendix A.

Perceived Risk from Substance Use

One factor that can influence whether individuals will use tobacco, alcohol, or illicit drugs is the extent to which they believe these substances might cause them harm. In 2016, 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." For many of these substances, respondents were asked about their perceived risk of harm from using substances once a month (i.e., monthly use) or once or twice a week (i.e., weekly use). As mentioned previously, only estimates from 2016 are presented for perceived risk because a new baseline was established in 2015, and trends are presented only when the 2016 estimates can be compared with estimates from 3 or more prior years.

Figure 1 presents the percentages of people aged 12 or older in 2016 who perceived great risk of harm from each of the substance use measures. However, caution should be used when comparing perceptions of risk across certain substances because of variations in the content of questions.²² For substances where the same quantity and frequency of use were used, comparing risk perceptions across substances becomes more straightforward. For example, respondents were asked about the perceived risk of harm associated with any use of the following drugs once or twice a week: marijuana, cocaine, heroin, and lysergic acid diethylamide (LSD). Therefore, it is appropriate to note that in 2016, the percentage of individuals aged 12 or older who perceived great risk of harm from using these drugs once or twice a week was higher for

heroin (94.1 percent) than for cocaine (87.1 percent), LSD (83.9 percent), or marijuana (34.0 percent).

Perceived Risk from Marijuana Use

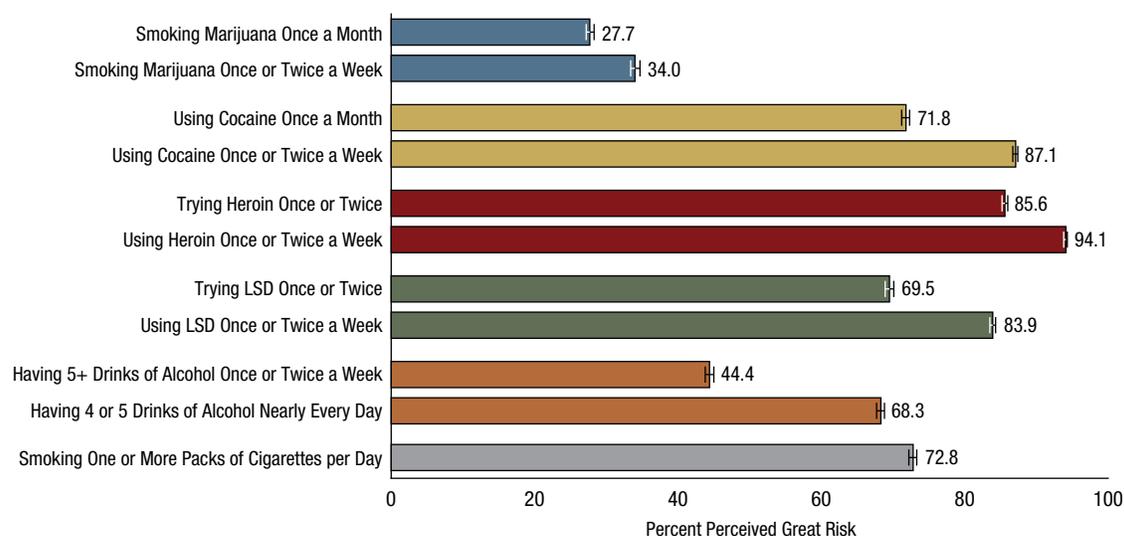
In 2016, 27.7 percent of individuals aged 12 or older perceived great risk of harm from smoking marijuana once a month (i.e., monthly marijuana use), and 34.0 percent perceived great risk from smoking marijuana once or twice a week (i.e., weekly marijuana use) (Figure 1). Perceptions of risk varied by age, with young adults aged 18 to 25 being less likely than adolescents aged 12 to 17 or adults aged 26 or older to perceive great risk from smoking marijuana monthly or weekly (Figure 2).

In 2016, 27.1 percent of adolescents aged 12 to 17 perceived great risk of harm from monthly marijuana use, and about 2 in 5 adolescents perceived great risk from weekly marijuana use (40.0 percent) (Figure 2). An estimated 13.5 percent of young adults aged 18 to 25 in 2016 perceived great risk from monthly marijuana use, and 17.2 percent perceived great risk from weekly marijuana use. Among adults aged 26 or older, 30.2 percent indicated there was a great risk from smoking marijuana monthly, and 36.1 percent indicated there was a great risk from smoking marijuana weekly.

Perceived Risk from Cocaine Use

In 2016, most individuals aged 12 or older perceived great risk of harm from using cocaine either once a month or once or twice a week (71.8 and 87.1 percent, respectively) (Figure 1). Perceptions of risk varied by age, with adolescents aged 12 to 17 being less likely than young adults aged 18 to 25 or adults aged 26 or older to perceive great risk from using

Figure 1. Perceived Great Risk from Substance Use among People Aged 12 or Older: Percentages, 2016



LSD = lysergic acid diethylamide.

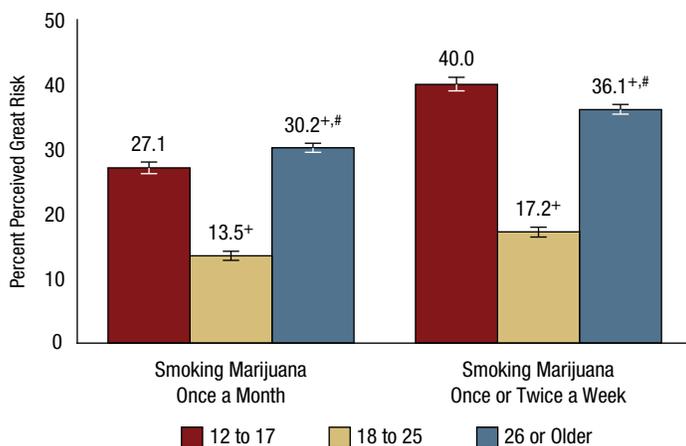
cocaine either monthly or weekly (Figure 3). Additional data on age groups that can be found in the 2016 detailed tables indicate that the percentage of adolescents who perceived great risk from monthly cocaine use ranged from 46.8 percent of adolescents aged 12 or 13 to 65.3 percent of those aged 16 or 17.⁹ The percentage of adolescents who perceived great risk from weekly cocaine use ranged from 73.9 percent of those aged 12 or 13 to 85.4 percent of those aged 16 or 17. Therefore, the lower likelihood of adolescents than adults to perceive great risk of harm from cocaine use may reflect a general lack of knowledge about cocaine among adolescents, especially among younger adolescents.

In 2016, more than half of adolescents perceived great risk of harm from monthly cocaine use (56.4 percent), and about 4 out of 5 adolescents (80.6 percent) perceived great risk from weekly cocaine use (Figure 3). In 2016, 64.8 percent of young adults aged 18 to 25 perceived great risk from monthly cocaine use, and 83.6 percent perceived great risk from weekly cocaine use. About 3 out of 4 adults aged 26 or older in 2016 indicated there was a great risk from monthly cocaine use (74.7 percent), and 88.4 percent indicated there was a great risk from weekly cocaine use.

Perceived Risk from Heroin Use

In 2016, most individuals aged 12 or older perceived great risk of harm from trying heroin once or twice (85.6 percent) or from using heroin weekly (94.1 percent) (Figure 1). Perceptions of risk varied by age group, with adolescents aged 12 to 17 being less likely than young adults aged 18

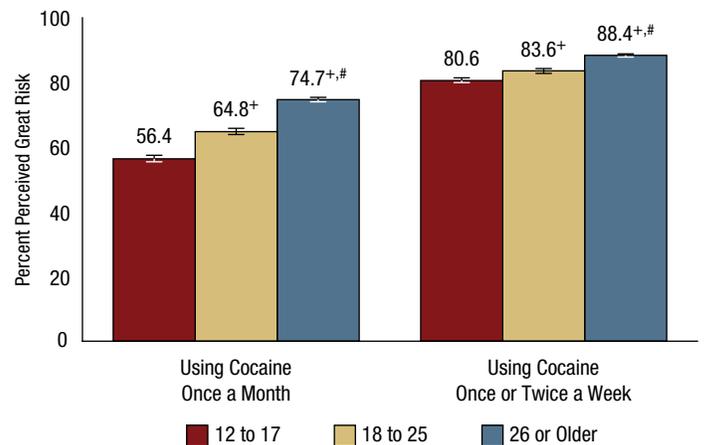
Figure 2. Perceived Great Risk from Smoking Marijuana among People Aged 12 or Older, by Age Group: Percentages, 2016



⁺ Difference between this estimate and the estimate for youths aged 12 to 17 is statistically significant at the .05 level.
[#] Difference between this estimate and the estimate for young adults aged 18 to 25 is statistically significant at the .05 level.

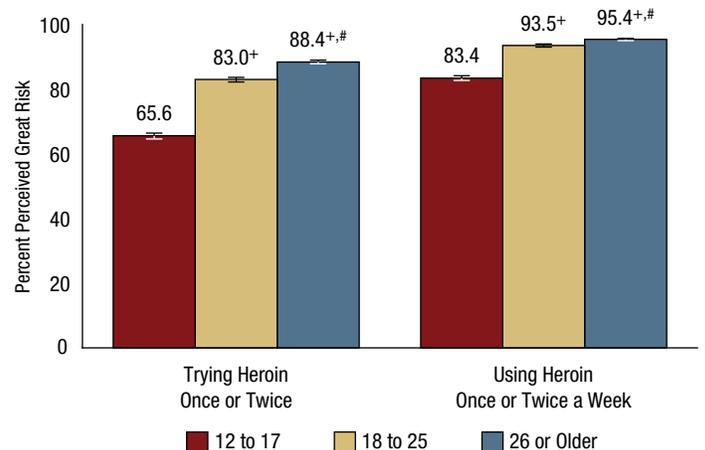
to 25 or adults aged 26 or older to perceive great risk from trying heroin once or twice or using it weekly (Figure 4). As with risk perceptions for cocaine use, younger adolescents aged 12 or 13 were less likely than older adolescents to perceive great risk from heroin use (e.g., 53.3 percent of 12 or 13 year olds perceived great risk from trying heroin once or twice vs. 76.4 percent of 16 or 17 year olds).⁹ Thus, the lower likelihood of adolescents than adults to perceive great risk of harm from heroin use may be attributable to a general lack of knowledge about heroin among adolescents, especially among younger adolescents.

Figure 3. Perceived Great Risk from Using Cocaine among People Aged 12 or Older, by Age Group: Percentages, 2016



⁺ Difference between this estimate and the estimate for youths aged 12 to 17 is statistically significant at the .05 level.
[#] Difference between this estimate and the estimate for young adults aged 18 to 25 is statistically significant at the .05 level.

Figure 4. Perceived Great Risk from Heroin Use among People Aged 12 or Older, by Age Group: Percentages, 2016



⁺ Difference between this estimate and the estimate for youths aged 12 to 17 is statistically significant at the .05 level.
[#] Difference between this estimate and the estimate for young adults aged 18 to 25 is statistically significant at the .05 level.

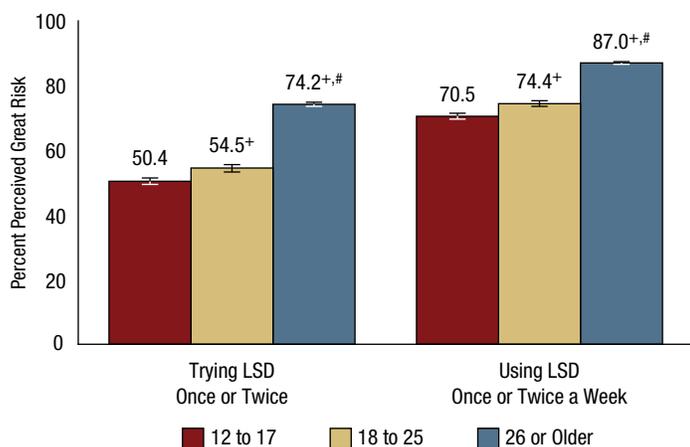
The lower perceptions of the risk of harm from heroin use among adolescents relative to older age groups were most evident in the percentage who perceived great risk of harm from trying heroin once or twice. In 2016, 65.6 percent of adolescents aged 12 to 17 perceived great risk from trying heroin once or twice (Figure 4). In comparison, 83.0 percent of young adults aged 18 to 25 and 88.4 percent of adults aged 26 or older in 2016 perceived great risk from trying heroin once or twice. An estimated 83.4 percent of adolescents perceived great risk from weekly heroin use compared with 93.5 percent of young adults and 95.4 percent of adults aged 26 or older.

Perceived Risk from LSD Use

In 2016, most individuals aged 12 or older perceived great risk of harm from trying LSD once or twice (69.5 percent) or from using LSD weekly (83.9 percent) (Figure 1). Perceptions of risk varied by age, with adolescents aged 12 to 17 and young adults aged 18 to 25 being less likely than adults aged 26 or older to perceive great risk from trying LSD once or twice or using it weekly (Figure 5).

In 2016, about half of adolescents (50.4 percent) perceived great risk of harm from trying LSD once or twice, and 70.5 percent perceived great risk of harm from weekly LSD use (Figure 5). About half of young adults aged 18 to 25 (54.5 percent) perceived great risk of harm from trying LSD once or twice, and about 3 out of 4 (74.4 percent) perceived great risk of harm from weekly LSD use. Among adults aged 26 or older, about 3 out of 4 (74.2 percent) perceived great risk from trying LSD once or twice, and 87.0 percent perceived great risk from using LSD weekly.

Figure 5. Perceived Great Risk from LSD Use among People Aged 12 or Older, by Age Group: Percentages, 2016



LSD = lysergic acid diethylamide.

⁺ Difference between this estimate and the estimate for youths aged 12 to 17 is statistically significant at the .05 level.

[#] Difference between this estimate and the estimate for young adults aged 18 to 25 is statistically significant at the .05 level.

Perceived Risk from Binge Alcohol Use

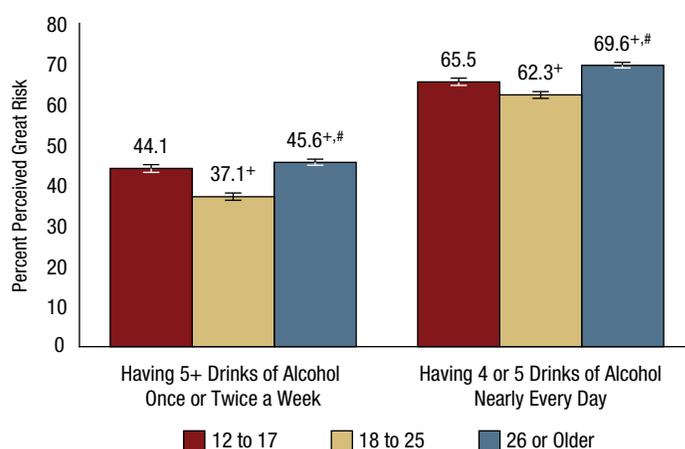
In 2016, about 2 out of 3 individuals aged 12 or older perceived great risk of harm from having four or five drinks of alcohol nearly every day (68.3 percent), and 44.4 percent perceived great risk from having five or more drinks of alcohol once or twice a week (Figure 1). For brevity, these levels of alcohol consumption are subsequently referred to as "binge alcohol use" or "binge drinking" in this section.²³ Thus, despite the well-documented health problems and increased risk for serious injuries that are associated with excessive alcohol use,²⁴ less than half of those aged 12 or older in 2016 perceived great risk from weekly binge alcohol use.

Perceptions of risk from binge alcohol use varied by age in 2016. Percentages of people who perceived great risk of harm from binge drinking once or twice a week were lowest among young adults aged 18 to 25 (37.1 percent), followed by adolescents aged 12 to 17 (44.1 percent), then by adults aged 26 or older (45.6 percent) (Figure 6). Similarly, young adults were least likely to perceive great risk from binge drinking nearly every day (62.3 percent), followed by adolescents (65.5 percent), then by adults aged 26 or older (69.6 percent).

Perceived Risk from Smoking a Pack or More of Cigarettes Daily

In 2016, 72.8 percent of individuals aged 12 or older perceived great risk of harm from smoking one or more packs of cigarettes per day (Figure 1). Perceptions of risk varied by age, with adults aged 26 or older being more likely than adolescents aged 12 to 17 and young adults aged 18 to

Figure 6. Perceived Great Risk from Alcohol Use among People Aged 12 or Older, by Age Group: Percentages, 2016



⁺ Difference between this estimate and the estimate for youths aged 12 to 17 is statistically significant at the .05 level.

[#] Difference between this estimate and the estimate for young adults aged 18 to 25 is statistically significant at the .05 level.

25 to perceive great risk from smoking one or more packs of cigarettes per day (Figure 7). Nevertheless, about two thirds or more of people in each age group perceived great risk from smoking a pack or more of cigarettes per day.

About 2 out of 3 adolescents and young adults perceived great risk from smoking one or more packs of cigarettes per day (69.3 and 68.6 percent, respectively) (Figure 7). Nearly three fourths of adults aged 26 or older (73.9 percent) perceived great risk from smoking one or more packs of cigarettes per day.

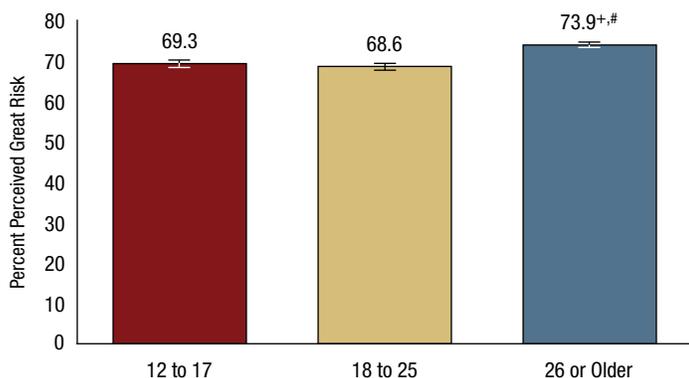
Perceived Availability of Specific Drugs

Many studies have demonstrated that the availability of drugs (i.e., ease of obtaining drugs) is associated with drug initiation and use.^{2,3,25} Perceptions of drug availability are also important because they may affect how prevention programs are structured, such as in states with laws related to marijuana use that can directly affect availability.²⁶

In 2016, NSDUH respondents were asked how easy it would be for them to obtain substances if they wanted some; they were given the response options of "very easy," "fairly easy," "fairly difficult," "very difficult," or "probably impossible." This section provides estimates for people in different age groups who thought it would be "fairly easy" or "very easy" to obtain the substance. However, respondents could report that they did not know how easy or difficult it would be to obtain a substance, or they could refuse to answer the question; these respondents were excluded from the analysis.²⁷

In 2016, almost half (44.7 percent) of youths aged 12 to 17 reported that it would be fairly easy or very easy for them

Figure 7. Perceived Great Risk from Smoking One or More Packs of Cigarettes per Day among People Aged 12 or Older, by Age Group: Percentages, 2016



⁺ Difference between this estimate and the estimate for youths aged 12 to 17 is statistically significant at the .05 level.
[#] Difference between this estimate and the estimate for young adults aged 18 to 25 is statistically significant at the .05 level.

to get marijuana if they wanted some (Figure 8). About 1 in 12 adolescents (8.7 percent) indicated that heroin would be easily obtainable. About 1 in 8 reported that it would be easy to get LSD or cocaine (12.0 and 12.6 percent, respectively).

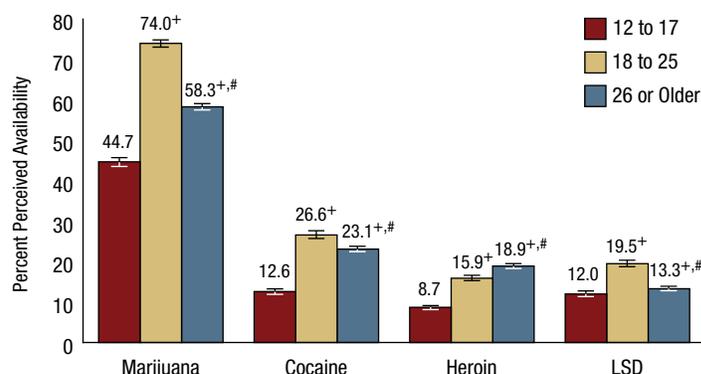
Nearly 3 out of 4 young adults aged 18 to 25 in 2016 reported that it would be easy for them to get marijuana if they wanted some (74.0 percent) (Figure 8). About 1 in 7 young adults (15.9 percent) reported that it would be easy for them to get heroin. About 1 in 5 young adults reported that they could easily get LSD (19.5 percent). About one fourth of young adults reported that they could easily get cocaine (26.6 percent).

In 2016, more than half of adults aged 26 or older (58.3 percent) believed it would be easy for them to get marijuana if they wanted some (Figure 8). Nearly 1 in 5 adults aged 26 or older (18.9 percent) reported that it would be easy for them to get heroin. About 1 in 8 adults in this age group (13.3 percent) reported that it would be easy for them to get LSD if they wanted some. Nearly one fourth of adults aged 26 or older believed it would be easy for them to get cocaine (23.1 percent).

Being Approached by Someone Selling Drugs

Another way to assess an individual's risk of drug initiation or use is to determine if an individual has been actively solicited by people selling drugs. NSDUH respondents are asked if they had been approached by someone selling drugs in the past month. In 2016, young adults aged 18

Figure 8. Perceived Availability of Substances among People Aged 12 or Older, by Age Group: Percentages, 2016



LSD = lysergic acid diethylamide.

⁺ Difference between this estimate and the estimate for youths aged 12 to 17 is statistically significant at the .05 level.

[#] Difference between this estimate and the estimate for young adults aged 18 to 25 is statistically significant at the .05 level.

Note: Percentages refer to reports that it would be fairly easy or very easy to obtain the substance.

to 25 were more likely than adolescents aged 12 to 17 to indicate that they had been approached in the past month by someone selling drugs (13.3 vs. 11.0 percent) (Table A.1B in Appendix A). Adults aged 26 or older were less likely than adolescents or young adults to be approached by someone selling drugs in the past month (3.8 percent).

Youth Perceptions of Parental Disapproval of Youth Substance Use

Adolescents' perceptions of the level of parental disapproval of youth substance use have been associated with the initiation of substance use and substance use in general among adolescents.² In 2016, NSDUH respondents aged 12 to 17 were asked whether their parents would "neither approve nor disapprove," "somewhat disapprove," or "strongly disapprove" if they used different substances. This section presents percentages of youths who believed that their parents would "strongly disapprove" of them using specific substances.

Most adolescents in 2016 believed that their parents would strongly disapprove of them trying marijuana once or twice, using marijuana monthly, drinking alcohol nearly every day, or smoking one or more packs of cigarettes per day (Figure 9). The percentages of youths who believed that their parents would strongly disapprove of these behaviors increased between 2002 and 2016 for cigarette smoking and alcohol use. However, the percentage of adolescents who believed that their parents would disapprove of them trying or using marijuana declined over this period.

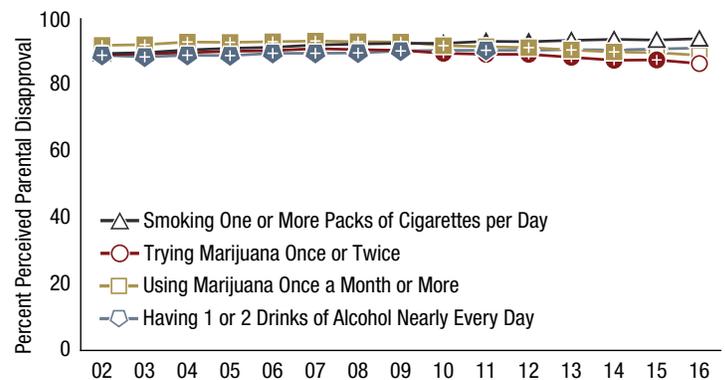
In 2016, 86.5 percent of youths reported that their parents would strongly disapprove of them trying marijuana once or twice, and 89.0 percent reported that their parents would strongly disapprove of them using marijuana once a month or more (Figure 9). The percentage of youths in 2016 who reported that their parents would strongly disapprove of them trying marijuana was slightly lower than the percentages in each year from 2002 to 2015, which ranged from 87.5 to 91.0 percent. The percentage of youths in 2016 who reported that their parents would strongly disapprove of them using marijuana once a month or more was also slightly lower than the percentages in 2002 to 2014, which ranged from 90.0 to 93.3 percent, but it was similar to the 2015 percentage (89.8 percent).

Most youths in 2016 (91.2 percent) reported that their parents would strongly disapprove of them having one or two drinks of an alcoholic beverage nearly every day (Figure 9). This

percentage was similar to the percentages in most years from 2010 to 2015, but it was somewhat higher than the percentages in 2002 to 2009, which ranged from 88.5 to 90.3 percent.

In 2016, most youths (94.0 percent) reported that their parents would strongly disapprove of them smoking one or more packs of cigarettes per day (Figure 9). This percentage was similar to the percentages in 2013 to 2015, but it was higher than the percentages in 2002 to 2012, which ranged from 89.5 to 93.2 percent.

Figure 9. Youths Felt That Parents Would Strongly Disapprove of Substance Use Behaviors among Youths Aged 12 to 17: Percentages, 2002-2016



+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Figure 9 Table. Youths Felt That Parents Would Strongly Disapprove of Substance Use Behaviors among Youths Aged 12 to 17: Percentages, 2002-2016

Perceived Parental Disapproval	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Smoking One or More Packs of Cigarettes per Day	89.5*	89.8*	90.6*	91.1*	91.4*	92.1*	92.4*	92.6*	92.6*	93.2*	93.1*	93.5	93.8	93.6	94.0
Trying Marijuana Once or Twice	89.1*	89.4*	89.8*	90.2*	90.4*	91.0*	90.7*	90.5*	89.6*	89.3*	89.3*	88.4*	87.5*	87.6*	86.5
Using Marijuana Once a Month or More	92.0*	92.2*	93.0*	92.9*	93.1*	93.3*	93.1*	93.0*	91.9*	91.6*	91.3*	90.6*	90.0*	89.8	89.0
Having 1 or 2 Drinks of Alcohol Nearly Every Day	89.0*	88.5*	89.0*	88.9*	89.6*	89.6*	89.7*	90.3*	90.5	90.5*	90.5	90.7	90.6	90.9	91.2

+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Youth Disapproval of Peers' Substance Use

Research has also shown associations between adolescents' attitudes about their peers' substance use and their initiation of substance use.² In 2016, NSDUH respondents aged 12 to 17 were asked whether they would "neither approve nor disapprove," "somewhat disapprove," or "strongly disapprove" if someone their age used different substances. This section presents percentages of youths who "somewhat disapproved" or "strongly disapproved" of specific substance use by their peers.

Most adolescents strongly or somewhat disapproved of their peers using marijuana monthly, drinking alcohol nearly every day, or smoking one or more packs of cigarettes per day. The percentages of youths who strongly or somewhat disapproved of these behaviors increased between 2002 and 2016 for cigarette and alcohol use.

In 2016, 90.6 percent of youths strongly or somewhat disapproved of their peers having one or two drinks of an alcoholic beverage nearly every day (Table A.3B in Appendix A). This percentage was higher than the percentages in 2002 to 2014, but it was similar to the percentage in 2015. Nevertheless, about 85 percent or more of adolescents in most of the years between 2002 and 2016 strongly or somewhat disapproved of their peers having one or two drinks of an alcoholic beverage nearly every day.

About 4 out of 5 youths in 2016 (80.2 percent) strongly or somewhat disapproved of their peers using marijuana once a month or more (Table A.3B). The percentage of youths who disapproved of their peers using marijuana once a month or more was lower in 2016 than in 2004 to 2010, but it was similar to the percentages in 2002, 2003, and 2011 to 2015. Despite these differences, about 80 percent or more of adolescents in most of the years between 2002 and 2016 strongly or somewhat disapproved of their peers using marijuana once a month or more.

In 2016, 93.6 percent of youths strongly or somewhat disapproved of their peers smoking one or more packs of cigarettes per day (Table A.3B). This percentage was higher than the percentages in 2002 to 2014, but it was similar to the percentage in 2015.

Youth Exposure to Substance Use Prevention Messages

Substance use prevention programs are designed to discourage children and adolescents from starting to use tobacco, alcohol, or illicit drugs by reducing the influence of risk factors for substance use and increasing the influence of protective factors.^{28,29} Substance use prevention messages and programs are provided through schools, the media, and other sources. Since 2002, NSDUH has included a series of questions about youth exposure to substance use prevention messages from different sources. Adolescents are asked whether they have been exposed to prevention messages in the past 12 months through school sources (i.e., special classes about drugs or alcohol in school; films, lectures, discussions, or printed information about drugs or alcohol in regular school classes such as health or physical education; or films, lectures, discussions, or distribution of

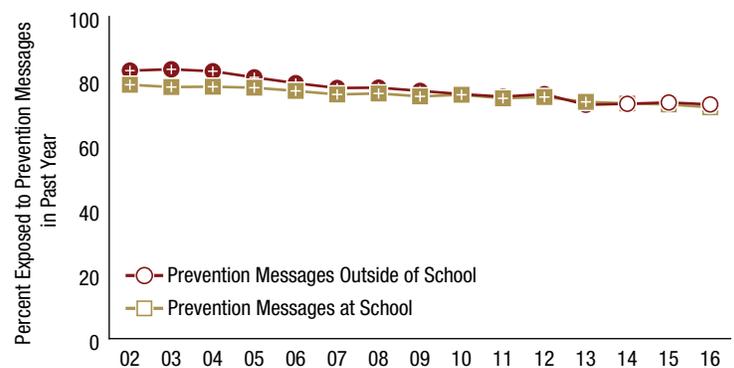
printed information about drugs or alcohol outside of regular classes such as in a special assembly). Adolescents also are asked whether they had seen or heard drug or alcohol use prevention messages in the past year from sources outside of school and whether they have participated in the past 12 months in an alcohol, tobacco, or drug prevention program outside of school.

In 2016, 71.8 percent of youths aged 12 to 17 who were enrolled in school in the past year reported having seen or heard drug or alcohol use prevention messages at school (Figure 10). This percentage was lower than the percentages in 2002 to 2013, but it was similar to the percentages in 2014 and 2015. In 2002, for example, 78.8 percent of adolescents who were enrolled in school reported exposure to substance use prevention messages at school.

In 2016, 72.7 percent of youths aged 12 to 17 reported having seen or heard drug or alcohol use prevention messages in the past year from sources outside of school, such as posters, pamphlets, the radio, or television (Figure 10). The percentage in 2016 was lower than the percentages in 2002 to 2012, but it was similar to the percentages in 2013 to 2015.

In 2016, about 1 in 9 youths aged 12 to 17 (11.4 percent) reported that they had participated in alcohol, tobacco, or drug use prevention programs outside of school in the past year

Figure 10. Past Year Exposure to Substance Use Prevention Messages and Programs among Youths Aged 12 to 17: Percentages, 2002-2016



* Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Figure 10 Table. Past Year Exposure to Substance Use Prevention Messages and Programs among Youths Aged 12 to 17: Percentages, 2002-2016

Exposure	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Prevention Messages Outside of School	83.2*	83.6*	83.0*	81.1*	79.3*	77.8*	77.9*	76.9*	75.9*	75.1*	75.9*	72.6	72.9	73.3	72.7
Prevention Messages at School	78.8*	78.1*	78.2*	77.9*	76.9*	75.8*	76.1*	75.2*	75.7*	74.6*	75.0*	73.5*	73.0	72.7	71.8

* Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

(Table A.4B in Appendix A). This estimate was similar to the percentages in 2004 to 2015, but it was lower than the percentages in 2002 and 2003. Nevertheless, in any given year since 2002, the majority of youths did not participate in prevention programs outside of school in the past year.

Initiation of Substance Use

The 2016 NSDUH had two key measures related to substance use initiation (i.e., the first use of a particular substance). One of the measures examined the age at which a person first used a given substance (age at first use). The other key measure identified whether a person started using or misusing a substance for the first time over the past year (recent initiate).³⁰ The estimates of the number of substance use initiates or prescription drug misuse initiates in this report are limited to recent initiates.³¹ Recent initiates were defined as substance users or prescription drug misusers who reported that they first used or misused, respectively, a particular substance within 12 months of the date of their interview.^{32,33} Prescription drug misuse is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. More information about the methods for measuring and estimating the initiation of substance use and prescription drug misuse in NSDUH can be found on the web in Section B.4.2 of the 2016 NSDUH's methodological summary and definitions report.¹⁴

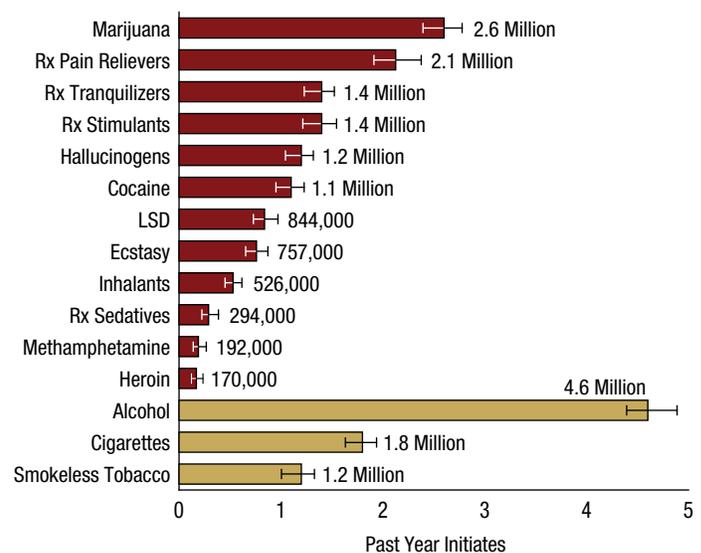
Unlike previous sections, this section focuses on the *numbers* of people who were recent initiates (e.g., the number of people aged 12 or older who were recent initiates of marijuana use) rather than on percentages. Information on the number of recent initiates can be useful to policymakers and program planners for anticipating future needs for health services both in the short term and in the longer term. For example, the number of people who have initiated use of substances such as heroin could signal future needs for emergency medical services, treatment for infectious diseases such as hepatitis, or substance use treatment. However, care should be taken in interpreting increases over time in the estimated number of past year initiates because some of these increases could reflect growth in the size of the population over time. Because of changes to the 2015 NSDUH questionnaire, initiation estimates for prescription drugs (i.e., pain relievers, tranquilizers, stimulants, and sedatives), methamphetamine, hallucinogens, inhalants, and smokeless tobacco are shown only for 2016; estimates for the numbers

of past year initiates for these substances in 2016 are not comparable with estimates prior to 2015.

This section also presents the average age at first use (or misuse for prescription drugs) among recent initiates for specific substances. The estimates are limited to recent initiates because NSDUH respondents who started using (or misusing) a substance recently would be expected to have less difficulty remembering how old they were when they first used it compared with respondents whose first use occurred several years before the interview. Although the numbers of initiates are shown for individuals aged 12 or older and by age group, the average ages at first use (or first misuse) in this report are limited to all past year initiates aged 12 to 49 to avoid the influence of extreme values on the averages. For example, a small number of people who started using (or misusing) a substance at very late ages could heavily influence the average age at first use (or first misuse) among all initiates and cause instability in the estimated average. Because the survey was revised in 2015, estimates of the average age at first misuse for the prescription drug categories and estimates of the average age at first use among methamphetamine, hallucinogen, inhalant, and smokeless tobacco initiates are presented only for 2016.

Figure 11 provides an overview of the numbers of past year initiates in 2016 for the majority of substances that are discussed in this section. The illicit drugs with the

Figure 11. Numbers of Past Year Initiates of Substances among People Aged 12 or Older: 2016



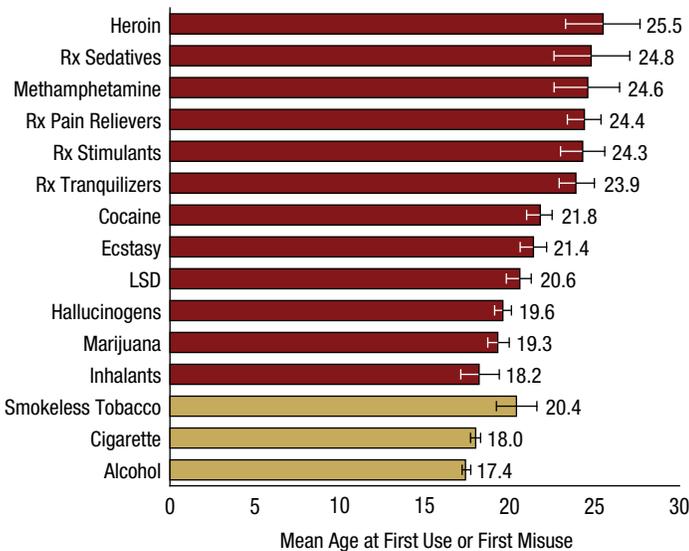
LSD = lysergic acid diethylamide; Rx = prescription.

Note: Estimates for prescription pain relievers, prescription tranquilizers, prescription stimulants, and prescription sedatives are for the initiation of misuse. Misuse is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor.

largest number of recent initiates in 2016 were marijuana (2.6 million new users), prescription pain relievers (2.1 million new misusers), prescription tranquilizers (1.4 million new misusers), prescription stimulants (1.4 million new misusers), hallucinogens (1.2 million new users), and cocaine (1.1 million new users). In addition, there were 4.6 million new users of alcohol, 1.8 million people who tried a cigarette for the first time in the past year, and 1.2 million people who first used smokeless tobacco in the past year.³⁴

Figure 12 provides an overview of the average age at first use (or first misuse for prescription drugs) in 2016 among recent initiates aged 12 to 49. For many substances, the average age at initiation in 2016 was younger than age 20, with average ages of 17.4 years for alcohol, 18.0 years for cigarettes, 18.2 years for inhalants, 19.3 years for marijuana, and 19.6 years for any hallucinogen. However, some substances had older average initiation ages, such as methamphetamine (24.6 years) and heroin (25.5 years). The average ages at initiation for prescription drug misuse were in the early to mid-20s (23.9 years for prescription tranquilizers, 24.3 years for prescription stimulants, 24.4 years for prescription pain relievers, and 24.8 years for prescription sedatives).

Figure 12. Mean Age at First Use or First Misuse of Substances among Past Year Initiates Aged 12 to 49: 2016



LSD = lysergic acid diethylamide; Rx = prescription.

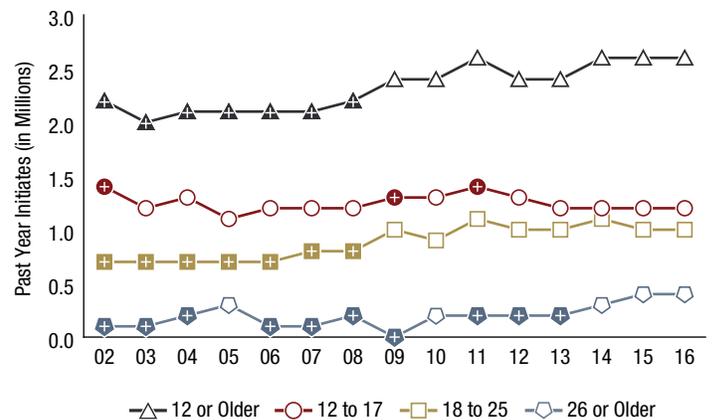
Note: The term "first misuse" applies to the misuse of prescription pain relievers, prescription tranquilizers, prescription stimulants, and prescription sedatives. Misuse is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor.

Initiation of Marijuana Use

In 2016, about 2.6 million people aged 12 or older used marijuana for the first time in the past 12 months (Figures 11 and 13). This averages to about 7,100 new marijuana users each day (Table A.10A in Appendix A). The 2016 estimate for the total number of past year initiates for marijuana was similar to the estimates in 2009 through 2015, but it was higher than the estimates in 2002 through 2008. Nevertheless, at least 2.0 million people per year were recent initiates of marijuana use since 2002.

In 2016, the average age at first marijuana use among recent marijuana initiates aged 12 to 49 was 19.3 years, which was higher than the average ages in most years from 2002 through 2013, but it was similar to the average ages in 2014 and 2015 (see the table below Figure 13). Although new marijuana users aged 12 to 49 initiated use on average in their late teens, these trend data suggest that new users on average were initiating use at a slightly older age in 2016 compared with new users in some earlier years.

Figure 13. Past Year Marijuana Initiates among People Aged 12 or Older, by Age Group (in Millions): 2002-2016



+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Figure 13 Table. Past Year Marijuana Initiates among People Aged 12 or Older, by Age Group (in Millions), Mean Age at First Use of Marijuana among Past Year Marijuana Initiates Aged 12 to 49: 2002-2016

Age	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
≥12	2.2*	2.0*	2.1*	2.1*	2.1*	2.1*	2.2*	2.4	2.4	2.6	2.4	2.4	2.6	2.6	2.6
12-17	1.4*	1.2	1.3	1.1	1.2	1.2	1.2	1.3*	1.3	1.4*	1.3	1.2	1.2	1.2	1.2
18-25	0.7*	0.7*	0.7*	0.7*	0.7*	0.8*	0.8*	1.0	0.9	1.1	1.0	1.0	1.1	1.0	1.0
≥26	0.1*	0.1*	0.2*	0.3	0.1*	0.1*	0.2*	0.0*	0.2	0.2*	0.2*	0.2*	0.3	0.4	0.4
Mean Age at First Use	17.0*	16.8*	17.1*	17.4*	17.4*	17.6*	17.8*	17.0*	18.4	17.5*	17.9*	18.0*	18.5	19.0	19.3

+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Note: Estimates of less than 0.1 million round to 0.0 million when shown to the nearest tenth of a million.

By Age Group

In 2016, an estimated 1.2 million adolescents aged 12 to 17 used marijuana for the first time in the past year (Figure 13), which translates to approximately 3,300 adolescents each day who initiated marijuana use (Table A.10A). About 1.1 million to 1.4 million adolescents per year in 2002 to 2015 were recent marijuana initiates. The 2016 estimate was similar to the estimates in most years from 2002 to 2015.

In 2016, 1.0 million young adults aged 18 to 25 initiated marijuana use in the past year (Figure 13), or an average of about 2,800 recent initiates per day in this age group (Table A.10A). The 2016 estimate for the total number of young adults who initiated marijuana use in the past year was similar to the estimates in each year since 2009, but it was higher than the estimates in 2002 to 2008.

An estimated 372,000 adults aged 26 or older in 2016 initiated marijuana use in the past year, which rounds to the estimate of 0.4 million initiates in this age group in Figure 13. The number of recent marijuana initiates in this age group in 2016 was higher than the numbers of initiates in most years from 2002 to 2013, but it was similar to the numbers in 2014 and 2015.

Initiation of Prescription Pain Reliever Misuse

The 2016 NSDUH questionnaire includes questions about the first misuse of prescription pain relievers such as hydrocodone (e.g., Vicodin®), oxycodone (e.g., OxyContin®), and morphine. In 2016, the number of recent initiates of prescription pain reliever misuse (2.1 million) was second among the illicit drugs to the number of marijuana initiates (Figures 11 and 14). The number of people aged 12 or older who misused prescription pain relievers for the first time in the past year averages to about 5,800 initiates per day (Table A.10A). In 2016, the average age at first misuse of prescription pain relievers among recent prescription pain reliever initiates aged 12 to 49 was 24.4 years (Figure 12).

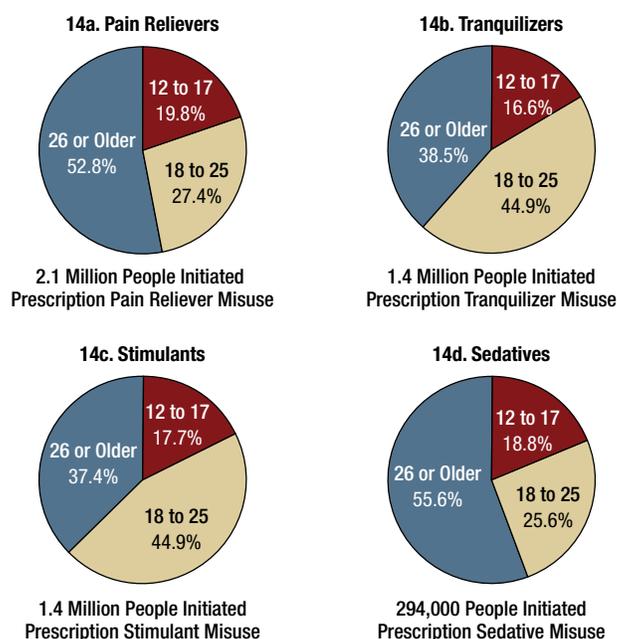
Approximately 423,000 adolescents aged 12 to 17 misused prescription pain relievers for the first time in the past year (see the table below Figure 14). This averages to approximately 1,200 adolescents each day who initiated prescription pain reliever misuse (Table A.10A). An estimated 585,000 young adults aged 18 to 25 and 1.1 million adults aged 26 or older initiated prescription pain reliever misuse in the past year. These numbers average to about 1,600 young adults and about 3,100 adults aged 26 or older each day who initiated prescription pain reliever misuse.

Initiation of Prescription Tranquilizer Misuse

The 2016 NSDUH questionnaire includes questions about the first misuse of prescription tranquilizers such as benzodiazepine tranquilizers (e.g., Xanax®) and muscle relaxants (e.g., Soma®). About 1.4 million people aged 12 or older in 2016 misused prescription tranquilizers for the first time in the past year (Figures 11 and 14). This averages to about 3,800 initiates per day (Table A.10A). In 2016, the average age at first misuse of prescription tranquilizers among recent prescription tranquilizer initiates aged 12 to 49 was 23.9 years (Figure 12).

Approximately 228,000 adolescents aged 12 to 17, 617,000 young adults aged 18 to 25, and 530,000 adults aged 26 or

Figure 14. People Aged 12 or Older Who Initiated Prescription Drug Misuse in the Past Year, by Age Group: Numbers and Percentages, 2016



Note: Misuse is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor.

Figure 14 Table. Number of People Aged 12 or Older (in Thousands) Who Initiated Prescription Drug Misuse in the Past Year, by Age Group: 2016

Age Group	Pain Relievers	Tranquilizers	Stimulants	Sedatives
12 or Older	2,139	1,374	1,374	294
12 to 17	423	228	244	55
18 to 25	585	617	617	75
26 or Older	1,130	530	513	164

Note: Misuse is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor.

older misused prescription tranquilizers for the first time in the past year (see the table below [Figure 14](#)). Thus, about 600 adolescents, 1,700 young adults, and 1,400 adults aged 26 or older each day initiated prescription tranquilizer misuse ([Table A.10A](#)).

Initiation of Prescription Stimulant Misuse

The 2016 NSDUH questionnaire includes questions about the first misuse of prescription stimulants such as amphetamines (e.g., Adderall®) and methylphenidate (e.g., Ritalin®). In 2016, approximately 1.4 million people aged 12 or older misused prescription stimulants for the first time in the past year ([Figures 11 and 14](#)). This estimated number of initiates in 2016 averages to about 3,800 initiates per day for prescription stimulant misuse ([Table A.10A](#)). In 2016, the average age at first misuse of prescription stimulants among recent initiates aged 12 to 49 was 24.3 years ([Figure 12](#)).

Approximately 244,000 adolescents aged 12 to 17, 617,000 young adults aged 18 to 25, and 513,000 adults aged 26 or older misused prescription stimulants for the first time in the past year (see the table below [Figure 14](#)). Thus, about 700 adolescents, 1,700 young adults, and 1,400 adults aged 26 or older each day initiated prescription stimulant misuse in 2016 ([Table A.10A](#)).

Initiation of Prescription Sedative Misuse

The 2016 NSDUH questionnaire includes questions about the first misuse of prescription sedatives such as zolpidem (e.g., Ambien®). In 2016, approximately 294,000 people aged 12 or older misused prescription sedatives for the first time in the past year ([Figures 11 and 14](#)). This estimated number of initiates in 2016 averages to about 800 initiates per day for prescription sedative misuse ([Table A.10A](#)). In 2016, the average age at first misuse of prescription sedatives among recent initiates aged 12 to 49 was 24.8 years ([Figure 12](#)).

Approximately 55,000 adolescents aged 12 to 17, 75,000 young adults aged 18 to 25, and 164,000 adults aged 26 or older misused prescription sedatives for the first time in the past year (see the table below [Figure 14](#)). Thus, about 150 adolescents, 210 young adults, and 450 adults aged 26 or older each day initiated prescription sedative misuse in 2016 ([Table A.10A](#)).

Initiation of Cocaine Use

In 2016, 1.1 million people aged 12 or older used cocaine for the first time in the past year ([Figures 11 and 15](#)). This averages to approximately 3,000 cocaine initiates per day

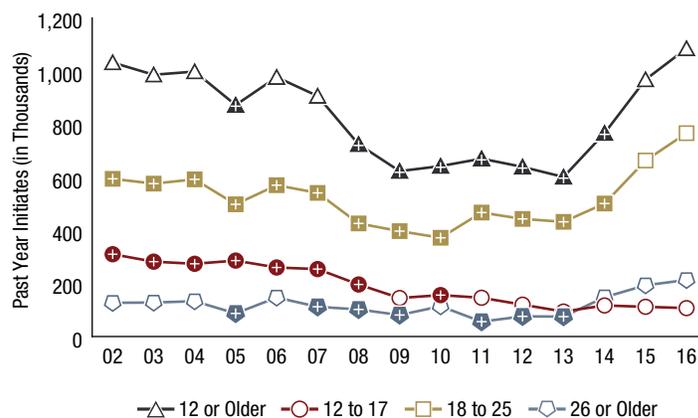
([Table A.10A](#)). The total number of past year initiates for cocaine in 2016 was similar to the number in 2015 but was higher than the estimated numbers in 2008 to 2014.³⁵ This suggests that it may be useful to monitor cocaine use and initiation to assess whether these data signal the start of increases in cocaine initiation.

In 2016, the average age at first cocaine use among recent cocaine initiates aged 12 to 49 was 21.8 years ([Figure 12](#)). This average increased slightly from the average ages in most years from 2002 to 2013, but it was consistent with the average ages in 2014 and 2015 (see the table below [Figure 15](#)).

By Age Group

In 2016, an estimated 107,000 adolescents aged 12 to 17 used cocaine for the first time in the past year ([Figure 15](#)). Among adolescents, the number of cocaine initiates in 2016 was lower than the numbers in most years from 2002 to 2010, but it was similar to the numbers in 2011 to 2015. Also in 2016, 766,000 young adults aged 18 to 25 and 213,000 adults aged 26 or older initiated cocaine use in the past year. The number of young adults in 2016 who initiated cocaine use averages to about 2,100 young adults per day ([Table A.10A](#)).

Figure 15. Past Year Cocaine Initiates among People Aged 12 or Older, by Age Group (in Thousands): 2002-2016



+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Figure 15 Table. Past Year Cocaine Initiates among People Aged 12 or Older, by Age Group (in Thousands), Mean Age at First Use of Cocaine among Past Year Cocaine Initiates Aged 12 to 49: 2002-2016

Age	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
≥12	1,032	986	998	872 ⁺	977	906	724 ⁺	623 ⁺	642 ⁺	670 ⁺	639 ⁺	601 ⁺	766 ⁺	968	1,085
12-17	310 ⁺	282 ⁺	274 ⁺	286 ⁺	260 ⁺	254 ⁺	196 ⁺	145	156 ⁺	146	120	94	117	112	107
18-25	594 ⁺	576 ⁺	592 ⁺	498 ⁺	570 ⁺	541 ⁺	426 ⁺	397 ⁺	372 ⁺	467 ⁺	443 ⁺	432 ⁺	501 ⁺	663	766
≥26	127	128	133	87 ⁺	147	112 ⁺	102 ⁺	81 ⁺	114	56 ⁺	76 ⁺	75 ⁺	148	193	213
Mean Age at First Use	19.8 ⁺	19.8 ⁺	20.0 ⁺	19.7 ⁺	20.3 ⁺	20.2 ⁺	19.8 ⁺	19.9 ⁺	21.2	20.1 ⁺	20.0 ⁺	20.4 ⁺	21.8	21.5	21.8

+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

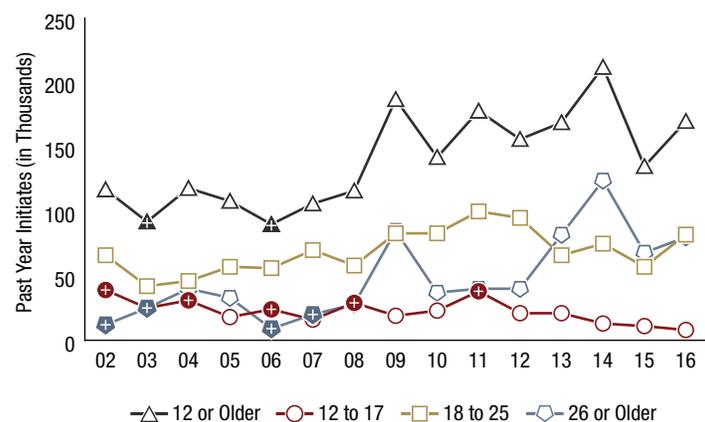
Among young adults, the total number of cocaine initiates in 2016 was higher than the numbers in each year from 2002 to 2014, but it did not differ significantly from the number in 2015. Among adults aged 26 or older, the number of cocaine initiates in 2016 was higher than the numbers in most years from 2005 to 2013, but it was similar to the numbers in 2014 and 2015 and in 2002 to 2004.

Initiation of Heroin Use

In 2016, 170,000 people aged 12 or older used heroin for the first time in the past year (Figures 11 and 16). On average, this represents about 470 people each day who initiated heroin use (Table A.10A). The total number of past year heroin initiates in 2016 was similar to the numbers of recent heroin initiates in most years from 2002 to 2015 (Figure 16).

In 2016, the average age at first heroin use among recent heroin initiates aged 12 to 49 was 25.5 years (Figure 12). This average age was similar to the average ages in most years between 2002 and 2015, except for the average ages in 2003, 2006, 2007, 2010, and 2011, which ranged from 20.7 to 22.1 years in these 5 survey years (see the table below Figure 16).

Figure 16. Past Year Heroin Initiates among People Aged 12 or Older, by Age Group (in Thousands): 2002-2016



+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Figure 16 Table. Past Year Heroin Initiates among People Aged 12 or Older, by Age Group (in Thousands), Mean Age at First Use of Heroin among Past Year Heroin Initiates Aged 12 to 49: 2002-2016

Age	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
≥12	117	92 ⁺	118	108	90 ⁺	106	116	187	142	178	156	169	212	135	170
12-17	39 ⁺	25 ⁺	31 ⁺	18	24 ⁺	16	29 ⁺	19	23	38 ⁺	21	21	13	11	8
18-25	66	42	46	57	56	70	58	83	83	100	95	66	75	57	82
≥26	12 ⁺	25 ⁺	40	33	9 ⁺	20 ⁺	28	85	37	40	40	82	124	68	80
Mean Age at First Use	21.0	20.9 ⁺	24.4	22.2	20.7 ⁺	21.8 ⁺	23.5	25.3	21.4 ⁺	22.1 ⁺	23.0	24.5	28.0	25.4	25.5

+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

By Age Group

In 2016, an estimated 8,000 adolescents aged 12 to 17, 82,000 young adults aged 18 to 25, and 80,000 adults aged 26 or older used heroin for the first time in the past year (Figure 16). The numbers of adolescents, young adults, and adults aged 26 or older in 2016 who were recent heroin initiates were similar to the numbers in most years between 2002 and 2015. Caution is advised in interpreting the fluctuations in the numbers of heroin initiates in single years because the relatively small numbers of respondents aged 26 or older who reported that they initiated heroin use in the past year can greatly influence estimates of initiates aged 26 or older in a single year; these respondents aged 26 or older often represent large numbers of people in that age group.³⁶

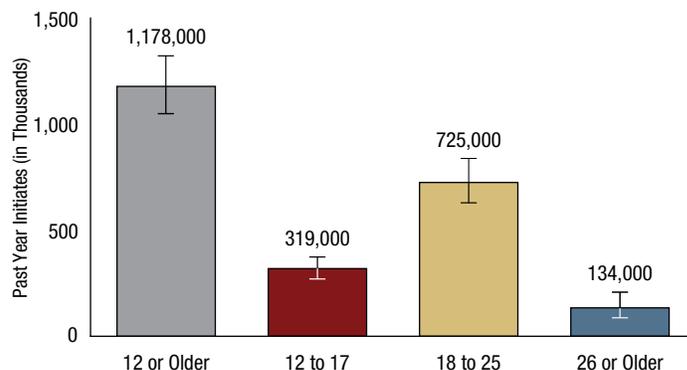
Initiation of Hallucinogen Use

Several drugs are grouped under the category of hallucinogens, including LSD, PCP, peyote, mescaline, psilocybin mushrooms, "Ecstasy" (MDMA or "Molly"), ketamine, AMT/DMT/"Foxy," and *Salvia divinorum*.^{37,38}

In 2015, the NSDUH questions for hallucinogen use were expanded to include the use of ketamine, AMT/DMT/"Foxy," and *Salvia divinorum*, and "Molly" was added as a slang term for Ecstasy. Because a new baseline was established in 2015, the 2016 NSDUH estimates of hallucinogen use initiation, including initiation of Ecstasy use, are not comparable with estimates prior to 2015.

In 2016, 1.2 million people aged 12 or older used hallucinogens for the first time in the past year (Figures 11 and 17).³⁹ This averages to about 3,200 new hallucinogen users each day (Table A.10A). In 2016, an estimated 319,000 adolescents aged 12 to 17, 725,000 young adults aged 18 to 25, and 134,000 adults aged 26 or older used hallucinogens for the first time in the past year. In 2016, the average age

Figure 17. Past Year Hallucinogen Initiates among People Aged 12 or Older, by Age Group (in Thousands): 2016



at first hallucinogen use among recent hallucinogen initiates aged 12 to 49 was 19.6 years (Figure 12).

Initiation of LSD Use

In 2016, 844,000 people aged 12 or older were past year initiates of LSD use (Figure 11). On average, this represents roughly 2,300 people each day who initiated LSD use (Table A.10A). The total number of past year LSD initiates in 2016 was higher than the numbers in each year from 2002 to 2015 (Table A.5A).

In 2016, the average age at first LSD use among recent initiates aged 12 to 49 was 20.6 years (Figure 12). The average age at first use of LSD in 2016 was higher than the averages in most years from 2002 to 2012, but it was similar to the averages in 2013 through 2015 (Table A.9B).

By Age Group

In 2016, an estimated 160,000 adolescents aged 12 to 17, 567,000 young adults aged 18 to 25, and 117,000 adults aged 26 or older used LSD for the first time in the past year (Tables A.6A, A.7A, and A.8A). The number of recent adolescent initiates in 2016 was higher than the numbers in most years from 2002 to 2010, but it was similar to the numbers from 2011 to 2015. The number of recent young adult LSD initiates in 2016 was higher than the numbers in each year from 2002 to 2015. The number of recent LSD initiates aged 26 or older in 2016 was higher than the available estimates in 2002 to 2012, but it was similar to estimates in 2013 to 2015.

Initiation of Ecstasy Use

As noted previously, estimates of Ecstasy initiation in 2016 are not comparable with estimates prior to 2015 because "Molly" was added as a slang term for Ecstasy in 2015. There were 757,000 past year initiates of Ecstasy use aged 12 or older in 2016 (Figure 11), which averages to about 2,100 people each day who initiated Ecstasy use (Table A.10A). In 2016, an estimated 143,000 adolescents aged 12 to 17 (Table A.6A), 460,000 young adults aged 18 to 25 (Table A.7A), and 154,000 adults aged 26 or older (Table A.8A) used Ecstasy for the first time in the past year. In 2016, the average age at first Ecstasy use among recent Ecstasy initiates aged 12 to 49 was 21.4 years (Figure 12).

Initiation of Inhalant Use

Inhalants include a variety of substances, such as nitrous oxide, amyl nitrite, cleaning fluids, gasoline, spray paint,

computer keyboard cleaner, other aerosol sprays, felt-tip pens, and glue. Respondents were asked to report use of inhalants to get high but not to include accidental inhalation of a substance. In 2015, the NSDUH questions for inhalant use were expanded to include the use of computer keyboard cleaner and felt-tip pens. Because a new baseline was established in 2015, the 2016 NSDUH estimates of inhalant initiation are not comparable with estimates prior to 2015.

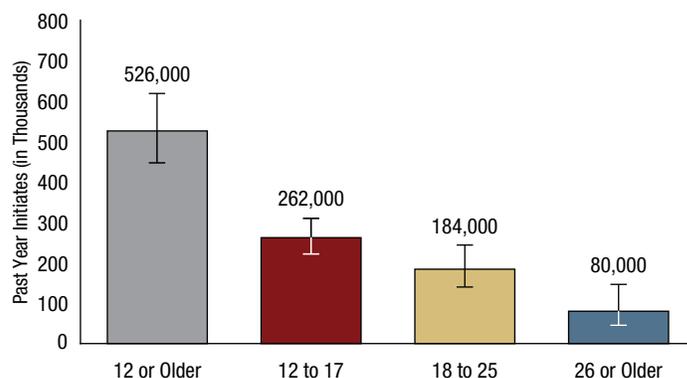
In 2016, 526,000 people aged 12 or older had used inhalants for the first time in the past 12 months (Figures 11 and 18), which averages to about 1,400 people per day who initiated inhalant use (Table A.10A). In 2016, the average age at first inhalant use among recent inhalant initiates aged 12 to 49 was 18.2 years (Figure 12).

Inhalants are more commonly used by adolescents than by people in other age groups,¹ which is reflected in the number of inhalant initiates by age group. In 2016, an estimated 262,000 adolescents aged 12 to 17 used inhalants for the first time in the past year (Figure 18). This averages to approximately 700 adolescents each day who initiated inhalant use (Table A.10A). In 2016, 184,000 young adults aged 18 to 25 initiated inhalant use in the past year. An estimated 80,000 adults aged 26 or older in 2016 used inhalants for the first time in the past year.

Initiation of Methamphetamine Use

Prior to 2015, questions about methamphetamine use were asked in the context of questions about prescription stimulants because methamphetamine historically has been legally available by prescription (e.g., Desoxyn®). For 2015, however, a new set of questions specific to methamphetamine was created and administered separately from the prescription drug items because most methamphetamine is currently produced and consumed illicitly in the United States.

Figure 18. Past Year Inhalant Initiates among People Aged 12 or Older, by Age Group (in Thousands): 2016



Because of these changes in the NSDUH questionnaire, estimates of methamphetamine initiation in 2016 are not comparable with estimates prior to 2015.

In 2016, 192,000 people aged 12 or older initiated methamphetamine use in the past year (Figures 11 and 19), which averages to about 500 people per day who initiated methamphetamine use (Table A.10A). An estimated 16,000 adolescents aged 12 to 17, 79,000 young adults aged 18 to 25, and 97,000 adults aged 26 or older used methamphetamine for the first time in the past year. The average age at first methamphetamine use among recent methamphetamine initiates aged 12 to 49 in 2016 was 24.6 years (Figure 12).

Initiation of Alcohol Use

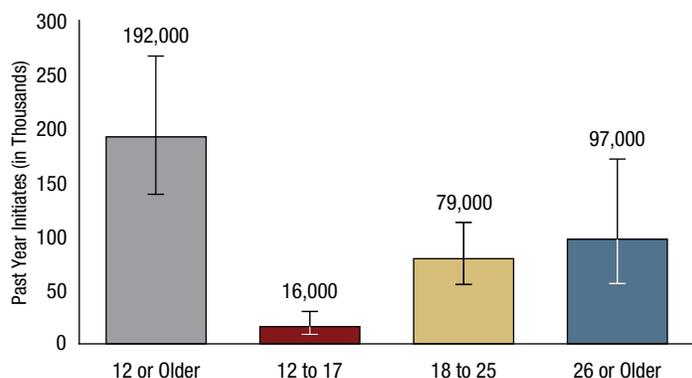
About 4.6 million people aged 12 or older in 2016 used alcohol for the first time in the past year, not counting sips from another person's drink (Figures 11 and 20). This averages to approximately 12,700 initiates per day (Table A.10A). The total number of past year initiates aged 12 or older for alcohol was higher than the numbers in 2002, 2003, and 2005, but it was similar to the numbers in 2004 and in 2006 to 2015.

In 2016, the average age at first use of alcohol among recent alcohol initiates aged 12 to 49 was 17.4 years (Figure 12). The average age at first use of alcohol in 2016 was higher than the average ages in most years from 2002 through 2011, but it was similar to the average ages in 2012 to 2015 (see the table below Figure 20). Nevertheless, in each year between 2002 and 2016, recent alcohol initiates on average first used alcohol well before the legal drinking age of 21.

By Age Group

In 2016, an estimated 2.3 million adolescents aged 12 to 17 used alcohol for the first time in the past year (Figure 20),

Figure 19. Past Year Methamphetamine Initiates among People Aged 12 or Older, by Age Group (in Thousands): 2016



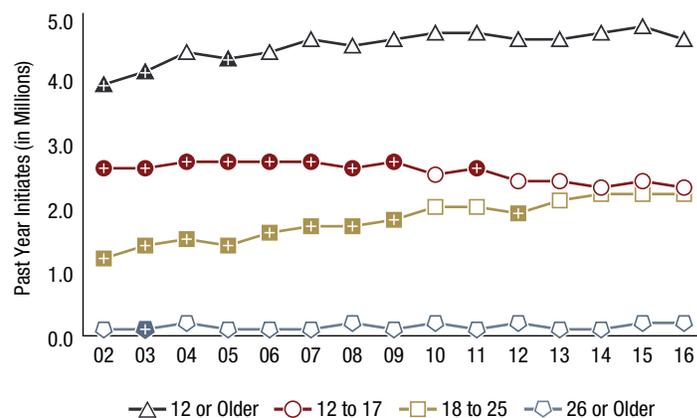
which averages to approximately 6,300 adolescents each day who initiated alcohol use (Table A.10A). Also, 2.2 million young adults aged 18 to 25 and 156,000 adults aged 26 or older (which rounds to 0.2 million) in 2016 initiated alcohol use in the past year.

The number of adolescents in 2016 who recently initiated alcohol use was lower than the numbers in most years from 2002 to 2011, but it was similar to the numbers in 2012 to 2015 (Figure 20). Among young adults, the number of recent initiates in 2016 was higher than the numbers in most years from 2002 to 2012, but it was similar to the numbers in 2013 to 2015. For adults aged 26 or older, the number of initiates in 2016 was similar to most of the numbers from 2002 to 2015. These trend data for adults aged 26 or older consistently indicate that relatively few people start to use alcohol after age 25.

Initiation of Cigarette Use

In 2016, about 1.8 million people aged 12 or older smoked part or all of a cigarette for the first time in the past 12 months (Figures 11 and 21). This averages to about 4,900 people each day who smoked part or all of a cigarette for the first time (Table A.10A). The total number of

Figure 20. Past Year Alcohol Initiates among People Aged 12 or Older, by Age Group (in Millions): 2002-2016



+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Figure 20 Table. Past Year Alcohol Initiates among People Aged 12 or Older, by Age Group (in Millions), Mean Age at First Use of Alcohol among Past Year Alcohol Initiates Aged 12 to 49: 2002-2016

Age	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
≥12	3.9*	4.1*	4.4	4.3*	4.4	4.6	4.5	4.6	4.7	4.7	4.6	4.6	4.7	4.8	4.6
12-17	2.6*	2.6*	2.7*	2.7*	2.7*	2.7*	2.6*	2.7*	2.5	2.6*	2.4	2.4	2.3	2.4	2.3
18-25	1.2*	1.4*	1.5*	1.4*	1.6*	1.7*	1.7*	1.8*	2.0	2.0	1.9*	2.1	2.2	2.2	2.2
≥26	0.1	0.1*	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.2
Mean Age at First Use	16.6*	16.4*	16.4*	16.4*	16.6*	16.8*	17.0*	16.9*	17.1	17.1*	17.4	17.3	17.3	17.6	17.4

+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

initiates of cigarette smoking in 2016 who were aged 12 or older was similar to the number in 2015 and in 2002 and 2003, but it was lower than the numbers in 2004 to 2014.

In 2016, the average age at first cigarette use among recent cigarette initiates aged 12 to 49 was 18.0 years (Figure 12). The average age in 2016 was higher than the average age in most years between 2002 and 2011, but it was similar to the average ages in most years from 2012 to 2015 (see the table below Figure 21).

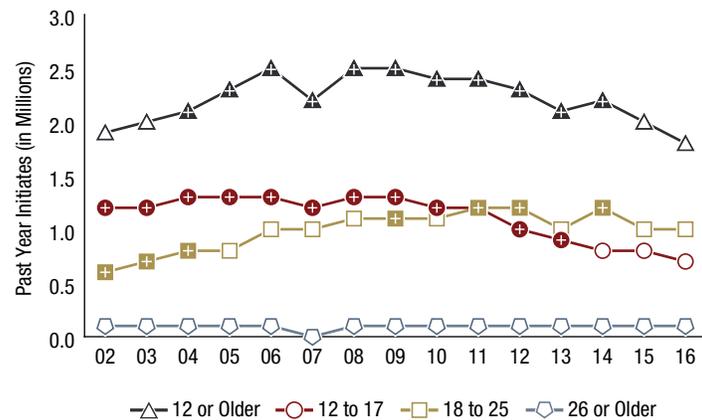
By Age Group

In 2016, an estimated 723,000 adolescents aged 12 to 17 smoked part or all of a cigarette for the first time in the past year, which rounds to the estimate of 0.7 million adolescents in Figure 21. This number of recent initiates among adolescents averages to approximately 2,000 adolescents each day who initiated cigarette smoking (Table A.10A). Also, 978,000 young adults aged 18 to 25 in 2016 (which rounds to 1.0 million) initiated cigarette use in the past year, which translates to about 2,700 young adults each day who initiated cigarette use. Among adults aged

26 or older in 2016, 81,000 (which rounds to 0.1 million) initiated cigarette use in the past year.

Among adolescents, the number of recent initiates of any cigarette smoking in 2016 was lower than the numbers in each year between 2002 and 2013, but it was similar to the numbers in 2014 and 2015 (Figure 21). About 1.2 million to 1.3 million adolescents each year from 2002 to 2011 smoked part or all of a cigarette for the first time in the past year. However, the number of initiates among adolescents decreased to 1.0 million in 2012 and to fewer than 1.0 million in subsequent years. Among young adults, the number of recent initiates of any cigarette smoking in 2016 was higher than the numbers in 2002 to 2004, lower than the numbers in most years from 2009 to 2014, and similar to the numbers in 2005 to 2008 and in 2015. The number of recent cigarette initiates in 2016 who were aged 26 or older was similar to the numbers in 2002 to 2015. As was the case with alcohol initiation, these trend data for cigarettes consistently indicate that relatively few people try cigarettes for the first time after age 25.

Figure 21. Past Year Cigarette Initiates among People Aged 12 or Older, by Age Group (in Millions): 2002-2016



+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

Figure 21 Table. Past Year Cigarette Initiates among People Aged 12 or Older, by Age Group (in Millions), Mean Age at First Use of Cigarettes among Past Year Cigarette Initiates Aged 12 to 49: 2002-2016

Age	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
≥12	1.9	2.0	2.1 ⁺	2.3 ⁺	2.5 ⁺	2.2 ⁺	2.5 ⁺	2.5 ⁺	2.4 ⁺	2.4 ⁺	2.3 ⁺	2.1 ⁺	2.2 ⁺	2.0	1.8
12-17	1.2 ⁺	1.2 ⁺	1.3 ⁺	1.3 ⁺	1.3 ⁺	1.2 ⁺	1.3 ⁺	1.3 ⁺	1.2 ⁺	1.2 ⁺	1.0 ⁺	0.9 ⁺	0.8	0.8	0.7
18-25	0.6 ⁺	0.7 ⁺	0.8 ⁺	0.8	1.0	1.0	1.1	1.1 ⁺	1.1	1.2 ⁺	1.2 ⁺	1.0	1.2 ⁺	1.0	1.0
≥26	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mean Age at First Use	16.9 ⁺	16.9 ⁺	16.7 ⁺	17.3	17.1 ⁺	16.9 ⁺	17.4 ⁺	17.5	17.3 ⁺	17.2 ⁺	17.8	17.8	18.6 ⁺	17.9	18.0

+ Difference between this estimate and the 2016 estimate is statistically significant at the .05 level.

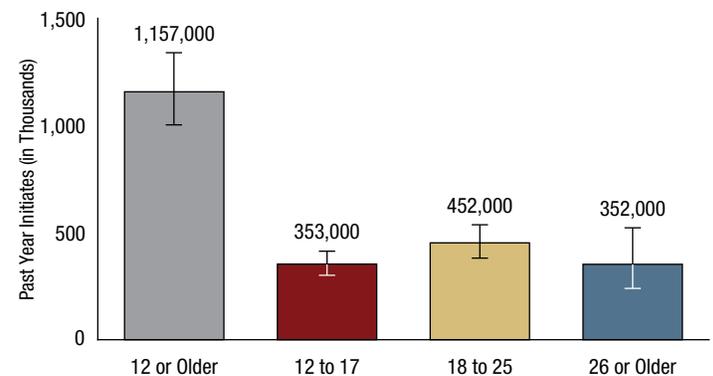
Note: Estimates of less than 0.1 million round to 0.0 million when shown to the nearest tenth of a million.

Initiation of Smokeless Tobacco Use

In 2015, questions on snuff and chewing tobacco were combined into a single set of questions about smokeless tobacco use, and the tobacco product "snus" was added as an example of smokeless tobacco. These changes established a new baseline for measuring smokeless tobacco use in 2015. As a result, the 2016 estimates are not comparable with estimates prior to 2015.

About 1.2 million people aged 12 or older in 2016 initiated smokeless tobacco use in the past year (Figures 11 and 22). This averages to about 3,200 people each day who initiated smokeless tobacco use (Table A.10A). In 2016, the average age at first smokeless tobacco use among recent smokeless tobacco initiates aged 12 to 49 was 20.4 years (Figure 12).

Figure 22. Past Year Smokeless Tobacco Initiates among People Aged 12 or Older, by Age Group (in Thousands): 2016



In 2016, an estimated 353,000 adolescents aged 12 to 17 used smokeless tobacco for the first time in the past year (Figure 22), which averages to approximately 1,000 adolescents each day who initiated smokeless tobacco use (Table A.10A). In 2016, 452,000 young adults aged 18 to 25, or about 1,200 new initiates per day, initiated smokeless tobacco use in the past year. Among adults aged 26 or older in 2016, 352,000 initiated smokeless tobacco use in the past year, or about 1,000 adults in this age group per day.

Risk Perceptions and the Initiation of Substance Use

This section discusses the association between the perceived risk of harm from substance use and the initiation of marijuana, cocaine, cigarettes, and alcohol. This discussion of the association between risk perceptions and substance use initiation builds upon previous research on associations between risk perceptions and substance use. Analysis of NSDUH data in previous years also has found that the percentages of people perceiving great risk of harm from substance use historically have coincided with decreases in use. Conversely, decreases in the percentages of people perceiving great risk of harm have historically coincided with increases in use.⁴⁰ Because of the cross-sectional nature of NSDUH data (i.e., reports of perceived risk and initiation of substance use made at a single point in time instead of from the same individuals over multiple points in time), causal connections cannot be made between perceptions of risk and actual substance use initiation. However, NSDUH data do allow for comparisons of risk perceptions among respondents with varying characteristics, such as substance use initiation history.

This section examines the differences in the percentages of people who perceived great risk of harm from substance use across four mutually exclusive groups according to their initiation of substance use: (1) people aged 12 or older who initiated use in the past year, (2) those who initiated use prior to the past year and who also used in the past year, (3) those who initiated use prior to the past year but had not used in the past year (hereafter referred to as lifetime but not past year users), and (4) those who had never used the substance of interest. No comparisons of estimates for 2016 are made with estimates from prior years because new baselines were established in 2015 for the risk perception measures.

Risk Perceptions and Marijuana Initiation

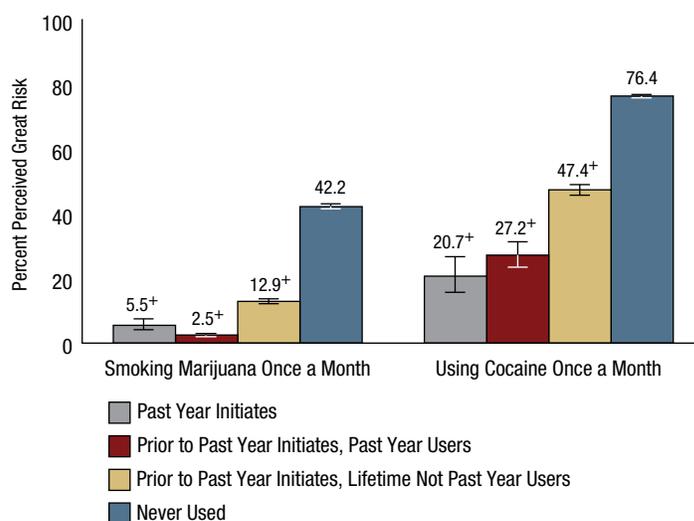
In 2016, 73.4 million people aged 12 or older perceived great risk of harm from smoking marijuana once a month,

which corresponds to the estimate of 27.7 percent in Figure 1. About 1 out of 40 people aged 12 or older (2.5 percent) who had initiated marijuana use prior to the past year and had used marijuana in the past year perceived great risk of harm from monthly marijuana use (Figure 23). This group was the least likely to perceive great risk of harm from monthly marijuana use; however, the percentage for this group was closely followed by the percentage among people who had initiated marijuana use in the past year (5.5 percent). In comparison, 12.9 percent of people who were lifetime but not past year marijuana users indicated that they perceived great risk of harm from monthly marijuana use. Among people aged 12 or older who had never used marijuana, 42.2 percent perceived great risk of harm from monthly marijuana use.

Risk Perceptions and Cocaine Initiation

In 2016, about 190.2 million people aged 12 or older perceived great risk of harm from using cocaine once a month, which corresponds to the estimate of 71.8 percent in Figure 1. Past year cocaine users, including those who initiated cocaine use in the past year and those who initiated use prior to the past year, were less likely to perceive great risk of harm from monthly cocaine use than people who were lifetime but not past year cocaine users and those who

Figure 23. Perceived Great Risk from Smoking Marijuana or Using Cocaine among People Aged 12 or Older, by Initiation Status: Percentages, 2016



⁺ Difference between this estimate and the estimate for never used is statistically significant at the .05 level.

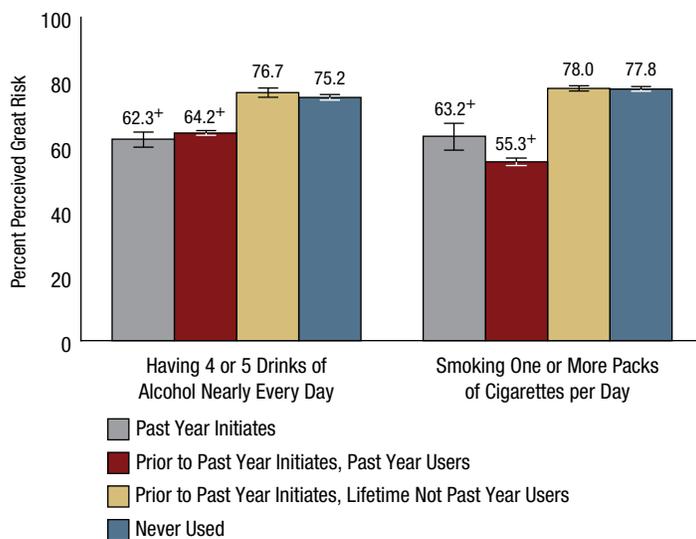
Note: Past Year Initiates are defined as individuals who used the specific substance for the first time in the 12 months before the date of the interview. Prior to Past Year Initiates include two groups of individuals who used the specific substance for the first time more than 12 months before the date of the interview: (a) those who also used that substance in the past 12 months and (b) those who last used the substance more than 12 months prior to the interview.

had never used cocaine. About 1 in 5 people who were past year cocaine initiates (20.7 percent) and about 1 in 4 people who initiated cocaine use prior to the past year and used cocaine in the past year (27.2 percent) perceived great risk of harm from monthly cocaine use (Figure 23). In comparison, nearly half of those who were lifetime but not past year cocaine users perceived great risk of harm from monthly cocaine use (47.4 percent). Among people who had never used cocaine, about three fourths (76.4 percent) perceived great risk of harm from monthly cocaine use.

Risk Perceptions and Alcohol Initiation

In 2016, about 182.2 million people aged 12 or older perceived great risk of harm from having four or five drinks of alcohol nearly every day (i.e., binge drinking), which corresponds to the estimate of 68.3 percent in Figure 1. Nearly two thirds of people who initiated alcohol use more than a year ago and continued to drink alcohol in the past year (64.2 percent) and more than three fifths of those who initiated alcohol use in the past year (62.3 percent) perceived great risk of harm from binge drinking (Figure 24). Among people who never used alcohol and among people who were lifetime but not past year drinkers, about three fourths (75.2 and 76.7 percent, respectively) perceived great risk of harm

Figure 24. Perceived Great Risk from Drinking Alcohol or Smoking Cigarettes among People Aged 12 or Older, by Initiation Status: Percentages, 2016



⁺ Difference between this estimate and the estimate for never used is statistically significant at the .05 level.

Note: Past Year Initiates are defined as individuals who used the specific substance for the first time in the 12 months before the date of the interview. Prior to Past Year Initiates include two groups of individuals who used the specific substance for the first time more than 12 months before the date of the interview: (a) those who also used that substance in the past 12 months and (b) those who last used the substance more than 12 months prior to the interview.

from binge drinking. Thus, a majority of people across all of these groups perceived great risk of harm from binge drinking.

Risk Perceptions and Cigarette Initiation

In 2016, about 194.5 million people aged 12 or older perceived great risk of harm from smoking one or more packs of cigarettes per day, which corresponds to the estimate of 72.8 percent in Figure 1. Past year cigarette smokers were least likely to perceive great risk of harm from smoking one or more packs of cigarettes per day, including those who initiated cigarette smoking more than a year ago (55.3 percent) and those who initiated smoking in the past year (63.2 percent) (Figure 24). In comparison, 77.8 percent of people who never smoked part or all of a cigarette perceived great risk of harm from smoking one or more packs of cigarettes per day. Similarly, 78.0 percent of people who were lifetime but not past year cigarette smokers perceived great risk of harm from smoking one or more packs of cigarettes per day. Consistent with 50 years of public health reports on the health hazards of cigarette smoking,⁴¹ a majority of people across all of these groups perceived great risk of harm from smoking one or more packs of cigarettes per day.

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Endnotes

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9. Center for Behavioral Health Statistics and Quality. (2017). *Results from the 2016 National Survey on Drug Use and Health: Detailed tables*. Retrieved from <https://www.samhsa.gov/data/>
10. In this report, terms such as “Americans,” “people in this country,” “general population,” or similar terms are used broadly to refer to the civilian, noninstitutionalized population that is covered by NSDUH. Although some people in the general population of the United States are outside of the civilian, noninstitutionalized population, information from the 2010 census suggests that the civilian, noninstitutionalized population includes at least 97 percent of the total U.S. population. See the following reference: Lofquist, D., Lugaila, T., O’Connell, M., & Feliz, S. (2012, April). *Households and families: 2010* (C2010BR-14, 2010 Census Briefs). Retrieved from <https://www.census.gov/prod/cen2010/briefs/c2010br-14.pdf>
11. Details about the sample design, weighting, and interviewing results for the 2016 NSDUH are provided in Sections A.1, A.3.4, and B.3.1 of CBHSQ (2017). In particular, Tables A.1 and A.2 in CBHSQ (2017) provide sample design information on the targeted numbers of completed interviews by state and by age group, respectively. See the following reference: Center for Behavioral Health Statistics and Quality. (2017). *2016 National Survey on Drug Use and Health: Methodological summary and definitions*. Retrieved from <https://www.samhsa.gov/data/>
12. The screening procedure involves listing all household members in order to determine whether zero, one, or two individuals aged 12 or older should be selected for the interview.
13. Overall response rates are not calculated for adolescents or adults because the screening response rate is not specific to age groups.
14. Center for Behavioral Health Statistics and Quality. (2017). *2016 National Survey on Drug Use and Health: Methodological summary and definitions*. Retrieved from <https://www.samhsa.gov/data/>
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16. Details about the questionnaire changes for 2015 and their effects on the comparability of estimates are provided in Section C of CBHSQ (2016). See the following reference: Center for Behavioral Health Statistics and Quality. (2016). *2015 National Survey on Drug Use and Health: Methodological summary and definitions*. Retrieved from <https://www.samhsa.gov/data/>
17. If the number of people in the population with a characteristic of interest has increased (e.g., the number of substance users) simply because the size of the overall population has increased, then the percentages will control for the increases both in the number of people with the characteristic of interest and the total number of people in the population.
18. For a discussion of the criteria for suppressing (i.e., not publishing) unreliable estimates, see Section B.2.2 in CBHSQ (2017). See the following reference: Center for Behavioral Health Statistics and Quality. (2017). *2016 National Survey on Drug Use and Health: Methodological summary and definitions*. Retrieved from <https://www.samhsa.gov/data/>
19. The term “most years” is used when the 2016 estimate is either similar to or significantly different from the estimates in the majority of prior years. However, estimates may not follow the overall pattern in up to 3 nonsequential years for estimates that are available in 2002 to 2016.
20. Anomalous differences between 2 years of data usually “correct” themselves with 1 or 2 additional years of data.
21. Some tables in Appendix A present 2015 and 2016 estimates and statistical comparisons for measures that started new baselines in 2015. However, caution is advised in drawing conclusions based on only these 2 years of data because both sets of estimates are based on samples of respondents.
22. Survey questions for the perceived risk from using different substances vary in terms of the frequency and quantity of use. For example, comparing perceptions of risk for alcohol and marijuana use is difficult because NSDUH respondents were asked about the perceived harm from having five or more drinks once or twice a week or of having four or five drinks nearly every day. In comparison, respondents were asked about the perceived risk from monthly or weekly marijuana use.
23. In NSDUH, a “drink” has been historically 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 respondents only had a sip or two from a drink are not considered to be alcohol consumption. Binge drinking for males has been historically defined as drinking five or more drinks on the same occasion on at least 1 day in the past 30 days. For females, binge drinking in 2015 was redefined as drinking four or more drinks on an occasion on at least 1 day in the past 30 days.
24. National Institute on Alcohol Abuse and Alcoholism. (2015). *Rethinking drinking. Alcohol and your health. What are the risks?* Retrieved from <https://www.rethinkingdrinking.niaaa.nih.gov/How-much-is-too-much/whats-the-harm/what-Are-The-Risks.aspx>
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 27. A special analysis of the 2002 to 2014 NSDUH data indicated that most missing data for perceived availability in each year were accounted for by people not knowing how easy or difficult it would be to get a particular substance. Percentages of young adults aged 18 to 25 and adults aged 26 or older in 2014 who did not know how easy or difficult it would be to get different substances were similar to the percentages in most years from 2002 to 2013. However, youths aged 12 to 17 were more likely in 2014 not to know how easy or difficult it would be to get different substances than in most years from 2002 to 2011.
 28. National Institute on Drug Abuse. (2003). *Preventing drug use among children and adolescents: A research-based guide for parents, educators, and community leaders* (NIH Publication No. 04-4212A, 2nd ed.). Washington, DC: U.S. Department of Health and Human Services, National Institutes of Health. Retrieved from <https://www.drugabuse.gov/sites/default/files/preventingdruguse.pdf>
 29. Skiba, D., Monroe, J., & Wodarski, J. S. (2004). Adolescent substance use: Reviewing the effectiveness of prevention strategies. *Social Work, 49*, 343–353. <https://doi.org/10.1093/sw/49.3.343>
 30. To measure initiation for most substances, NSDUH respondents who reported that they ever used a particular substance were asked to report their age when they first used it. To measure initiation of prescription drug misuse (i.e., misuse of pain relievers, tranquilizers, stimulants, and sedatives), NSDUH respondents who reported that they misused a particular prescription drug in the past 12 months were asked to report their age when they first misused it. Respondents who reported first use (or misuse in the case of prescription drugs) of a substance within a year of their current age also were asked to report the year and month when they first used (or misused) it.
 31. Estimates relating to the periods prior to the 12-month reference period have not been considered here because of concerns about their validity resulting from recall bias. See the following reference: Gfroerer, J., Hughes, A., Chromy, J., Heller, D., & Packer, L. (2004, July). Estimating trends in substance use based on reports of prior use in a cross-sectional survey. In S. B. Cohen & J. M. Lepkowski (Eds.), *Eighth Conference on Health Survey Research Methods: Conference proceedings [Peachtree City, GA]* (HHS Publication No. PHS 04-1013, pp. 29-34). Hyattsville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Health Statistics.
 32. For substances other than prescription psychotherapeutic drugs, respondents who had ever used the substance (e.g., marijuana) were asked to report when they first used the substance, and respondents who reported first use within a year of their current age were asked to report the year and month when they first used it. Thus, past year initiates for substances other than prescription psychotherapeutic drugs reported their first use within 12 months of the interview date.
 33. Assessing whether respondents in the 2016 NSDUH had initiated misuse of a prescription psychotherapeutic drug in the past 12 months differed from assessing whether respondents had initiated the use of other substances in that period because the psychotherapeutic drug categories (e.g., prescription pain relievers) include many different types of prescription drugs in a given category (e.g., pain relievers containing hydrocodone, such as Vicodin®, Lortab®, Norco®, Zohydro® ER, or generic hydrocodone). Respondents in 2016 were asked questions about initiation of misuse only for the specific prescription drugs that they misused in the past 12 months, including their age when they first misused a drug and (if the first misuse occurred within a year of the current age) the year and month of first misuse for that drug. Respondents who reported that they initiated misuse in the past 12 months for all of the specific prescription drugs in a given category that they misused in that period were asked a follow-up question to establish whether they had ever misused prescription drugs in that category more than 12 months before being interviewed. Respondents who answered this follow-up question as “no” were defined as being past year initiates for the misuse of any prescription drug in the overall category. This answer meant that respondents had never misused any prescription drug in that category more than 12 months prior to the interview date.
 34. Numbers in Figure 11 refer to people who used a specific substance for the first time in the past year, regardless of whether the initiation of use of other substances occurred prior to the past year.
 35. Past year initiates of crack cocaine use were counted as past year initiates for cocaine only if they had not previously used cocaine in any form.
 36. For more information, see Section B.2.3 of CBHSQ (2017). See the following reference: Center for Behavioral Health Statistics and Quality. (2017). *2016 National Survey on Drug Use and Health: Methodological summary and definitions*. Retrieved from <https://www.samhsa.gov/data/>
 37. LSD = lysergic acid diethylamide; PCP = phencyclidine; MDMA = methylenedioxy-methamphetamine. DMT = dimethyltryptamine; AMT = alpha-methyltryptamine; Foxy = N, N-diisopropyl-5-methoxytryptamine (5-MeO-DIPT). Definitions for these hallucinogens also are included in Section D of CBHSQ (2017). See the following reference: Center for Behavioral Health Statistics and Quality. (2017). *2016 National Survey on Drug Use and Health: Methodological summary and definitions*. Retrieved from <https://www.samhsa.gov/data/>
 38. One important note for the initiation estimates is the relationship between the main categories and the subcategories of substances (e.g., hallucinogens would be a main category, and LSD, PCP, and Ecstasy would be subcategories in relationship to hallucinogens). 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 Ecstasy, then he or she is also a past month user of any hallucinogen). However, this is not the case with regard to incidence statistics. For example, an individual can initiate use of any hallucinogen, LSD, PCP, or Ecstasy only once. A respondent who initiated use of any hallucinogen more than 12 months ago by definition is not a past year initiate of

hallucinogen use, even if he or she initiated use of LSD, PCP, or Ecstasy in the past year.

39. Past year initiates of LSD, PCP, or Ecstasy use are counted as past year initiates for hallucinogens only if they had previously not used other hallucinogens.
40. Center for Behavioral Statistics and Quality. (2015). *Risk and protective factors and initiation of substance use: Results from the 2014 National Survey on Drug Use and Health*. Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>
41. Office on Smoking and Health. (2014). *The health consequences of smoking – 50 years of progress: A report of the Surgeon General*. Atlanta, GA: National Center for Chronic Disease Prevention and Health Promotion, Retrieved from <https://www.surgeongeneral.gov/>

Appendix A:
Supplemental Tables of Estimates for Risk and Protective Factors and Estimates of Substance Use Initiation

Table A.1B Perceived Great Risk of Harm Associated with Substance Use and Perceived Availability of Substances among Individuals Aged 12 or Older, by Age Group

Risk/Availability	Aged 12 or Older	Aged 12 to 17	Aged 18 or Older	Aged 18 to 25	Aged 26 or Older
PERCEPTIONS OF GREAT RISK¹					
Cigarettes					
Smoke One or More Packs per Day	72.8 (0.27)	69.3 (0.47)	73.1 (0.30)	68.6 (0.46)	73.9 (0.33)
Marijuana					
Smoke Once a Month	27.7 (0.29)	27.1 (0.47)	27.8 (0.32)	13.5 (0.35)	30.2 (0.36)
Smoke Once or Twice a Week	34.0 (0.31)	40.0 (0.53)	33.4 (0.34)	17.2 (0.39)	36.1 (0.38)
Cocaine					
Use Once a Month	71.8 (0.27)	56.4 (0.51)	73.3 (0.29)	64.8 (0.51)	74.7 (0.32)
Use Once or Twice a Week	87.1 (0.19)	80.6 (0.39)	87.7 (0.21)	83.6 (0.38)	88.4 (0.24)
Heroin					
Try Once or Twice	85.6 (0.21)	65.6 (0.47)	87.6 (0.21)	83.0 (0.39)	88.4 (0.24)
Use Once or Twice a Week	94.1 (0.14)	83.4 (0.38)	95.1 (0.14)	93.5 (0.25)	95.4 (0.16)
LSD					
Try Once or Twice	69.5 (0.28)	50.4 (0.49)	71.4 (0.30)	54.5 (0.59)	74.2 (0.33)
Use Once or Twice a Week	83.9 (0.20)	70.5 (0.47)	85.2 (0.22)	74.4 (0.46)	87.0 (0.23)
Alcohol					
Have Four or Five Drinks Nearly Every Day	68.3 (0.29)	65.5 (0.47)	68.5 (0.31)	62.3 (0.46)	69.6 (0.35)
Have Five or More Drinks Once or Twice a Week	44.4 (0.31)	44.1 (0.50)	44.4 (0.34)	37.1 (0.50)	45.6 (0.38)
PERCEIVED AVAILABILITY²					
Fairly or Very Easy to Obtain					
Marijuana	59.1 (0.33)	44.7 (0.52)	60.5 (0.36)	74.0 (0.48)	58.3 (0.41)
Cocaine	22.6 (0.27)	12.6 (0.34)	23.6 (0.29)	26.6 (0.49)	23.1 (0.32)
Crack	19.3 (0.27)	11.5 (0.31)	20.1 (0.29)	16.3 (0.38)	20.8 (0.33)
Heroin	17.5 (0.24)	8.7 (0.27)	18.4 (0.27)	15.9 (0.37)	18.9 (0.30)
LSD	14.0 (0.22)	12.0 (0.34)	14.2 (0.24)	19.5 (0.40)	13.3 (0.27)
Approached in the Past Month by Someone Selling Drugs	5.7 (0.12)	11.0 (0.31)	5.1 (0.13)	13.3 (0.33)	3.8 (0.13)

LSD = lysergic acid diethylamide.

NOTE: Estimates shown are percentages with standard errors included in parentheses.

¹ Respondents with unknown Perception of Great Risk data were excluded from the respective analyses.

² Respondents with unknown Perceived Availability data were excluded from the respective analyses.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2016.

Table A.2B Youths Felt That Parents Would Strongly Disapprove of Substance Use Behaviors among Youths Aged 12 to 17

Substance Use Behavior	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Smoking One or More Packs of Cigarettes per Day	89.5* (0.26)	89.8* (0.28)	90.6* (0.28)	91.1* (0.26)	91.4* (0.24)	92.1* (0.25)	92.4* (0.23)	92.6* (0.23)	92.6* (0.24)	93.2* (0.22)	93.1* (0.22)	93.5 (0.23)	93.8 (0.25)	93.6 (0.24)	94.0 (0.23)
Trying Marijuana Once or Twice	89.1* (0.29)	89.4* (0.28)	89.8* (0.28)	90.2* (0.26)	90.4* (0.26)	91.0* (0.26)	90.7* (0.26)	90.5* (0.27)	89.6* (0.29)	89.3* (0.28)	89.3* (0.27)	88.4* (0.28)	87.5* (0.34)	87.6* (0.33)	86.5 (0.36)
Using Marijuana Once a Month or More	92.0* (0.24)	92.2* (0.22)	93.0* (0.23)	92.9* (0.23)	93.1* (0.22)	93.3* (0.22)	93.1* (0.23)	93.0* (0.23)	91.9* (0.26)	91.6* (0.24)	91.3* (0.25)	90.6* (0.26)	90.0* (0.31)	89.8 (0.30)	89.0 (0.33)
Having One or Two Drinks of an Alcoholic Beverage Nearly Every Day	89.0* (0.27)	88.5* (0.29)	89.0* (0.25)	88.9* (0.27)	89.6* (0.28)	89.6* (0.27)	89.7* (0.28)	90.3* (0.26)	90.5 (0.28)	90.5* (0.25)	90.5 (0.27)	90.7 (0.27)	90.6 (0.28)	90.9 (0.27)	91.2 (0.28)

NOTE: Estimates shown are percentages with standard errors included in parentheses.

NOTE: Respondents with unknown Perceptions of Parents' Feelings data were excluded.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.3B Youths Strongly Disapproved or Somewhat Disapproved of Peers' Substance Use Behaviors among Youths Aged 12 to 17

Substance Use Behavior	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Smoking One or More Packs of Cigarettes per Day	87.1* (0.30)	87.6* (0.27)	88.1* (0.29)	88.2* (0.29)	89.1* (0.28)	89.8* (0.27)	89.7* (0.28)	90.3* (0.26)	90.5* (0.28)	91.0* (0.26)	91.4* (0.26)	91.4* (0.27)	92.5* (0.25)	93.4 (0.24)	93.6 (0.24)
Trying Marijuana Once or Twice	79.5 (0.35)	80.0 (0.35)	80.6 (0.35)	80.8 (0.37)	81.7* (0.35)	82.5* (0.34)	82.2* (0.35)	81.7* (0.35)	81.3* (0.38)	80.0 (0.36)	80.5 (0.36)	79.5 (0.38)	79.5 (0.41)	80.4 (0.41)	80.0 (0.40)
Using Marijuana Once a Month or More	80.4 (0.35)	80.6 (0.35)	81.6* (0.34)	81.4* (0.36)	82.7* (0.33)	82.9* (0.34)	82.7* (0.34)	82.1* (0.36)	81.5* (0.37)	80.3 (0.37)	80.3 (0.35)	79.2 (0.37)	79.2 (0.42)	80.1 (0.39)	80.2 (0.40)
Having One or Two Drinks of an Alcoholic Beverage Nearly Every Day	84.7* (0.33)	84.4* (0.31)	85.0* (0.30)	85.6* (0.31)	86.4* (0.31)	86.6* (0.31)	87.1* (0.31)	87.5* (0.31)	88.1* (0.30)	88.1* (0.31)	88.7* (0.29)	88.7* (0.30)	89.7* (0.31)	90.1 (0.31)	90.6 (0.29)

NOTE: Estimates shown are percentages with standard errors included in parentheses.

NOTE: Respondents with unknown Feelings about Peers data were excluded.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.4B Exposure to Substance Use Prevention Program or Message in the Past Year among Youths Aged 12 to 17

Program/Message	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Participated in Alcohol, Tobacco, or Drug Prevention Program Outside of School	12.7* (0.28)	13.9* (0.32)	12.2 (0.30)	11.7 (0.29)	11.4 (0.29)	11.4 (0.30)	11.1 (0.29)	12.1 (0.29)	11.5 (0.28)	11.7 (0.29)	11.9 (0.29)	11.5 (0.29)	11.1 (0.30)	11.3 (0.31)	11.4 (0.32)
Saw or Heard Alcohol or Drug Prevention Message from Sources Outside School	83.2* (0.36)	83.6* (0.33)	83.0* (0.35)	81.1* (0.36)	79.3* (0.36)	77.8* (0.40)	77.9* (0.36)	76.9* (0.40)	75.9* (0.40)	75.1* (0.38)	75.9* (0.40)	72.6 (0.42)	72.9 (0.44)	73.3 (0.43)	72.7 (0.46)
Drug or Alcohol Prevention Messages Were Seen or Heard in School among Youths Enrolled in School ¹	78.8* (0.38)	78.1* (0.37)	78.2* (0.40)	77.9* (0.37)	76.9* (0.38)	75.8* (0.41)	76.1* (0.41)	75.2* (0.43)	75.7* (0.45)	74.6* (0.43)	75.0* (0.44)	73.5* (0.44)	73.0 (0.47)	72.7 (0.45)	71.8 (0.47)

NOTE: Estimates shown are percentages with standard errors included in parentheses.

NOTE: Respondents with unknown Substance Use Prevention Program or Message Exposure data were excluded from the respective analyses.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

¹ Youths who did not report their school enrollment status or reported not being enrolled in school in the past 12 months were excluded from this analysis. Youths reporting that they were "home-schooled" in the past 12 months were considered to be enrolled in school.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.5A Past Year Initiation of Specific Substance Use among Individuals Aged 12 or Older

Substance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Marijuana	2,196* (70)	1,973* (70)	2,142* (81)	2,114* (121)	2,061* (79)	2,089* (77)	2,224* (89)	2,379 (79)	2,439 (93)	2,617 (97)	2,398 (96)	2,427 (86)	2,568 (95)	2,600 (95)	2,582 (99)
Cocaine	1,032 (61)	986 (56)	998 (65)	872* (50)	977 (60)	906 (57)	724* (52)	623* (47)	642* (57)	670* (48)	639* (48)	601* (47)	766* (57)	968 (68)	1,085 (73)
Crack	337* (44)	269* (36)	215* (29)	230* (30)	243* (31)	353* (72)	209* (34)	95 (15)	83 (20)	76 (14)	84 (16)	58 (13)	109 (24)	37* (9)	88 (19)
Heroin	117 (20)	92* (20)	118 (28)	108 (20)	90* (15)	106 (21)	116 (23)	187 (30)	142 (24)	178 (26)	156 (23)	169 (36)	212 (35)	135 (24)	170 (29)
Hallucinogens	nc	nc	1,160 (69)	1,178 (70)											
LSD	338* (30)	200* (20)	235* (25)	243* (29)	265* (32)	271* (23)	400* (31)	341* (28)	381* (39)	358* (30)	421* (41)	482* (40)	586* (48)	664* (45)	844 (62)
PCP	123* (15)	105* (14)	106* (20)	77 (13)	70 (13)	58 (11)	53 (10)	45 (9)	46 (11)	48 (10)	90 (21)	32 (7)	41 (10)	42 (11)	43 (20)
Ecstasy	nc	nc	839 (62)	757 (55)											
Inhalants	nc	nc	600 (44)	526 (43)											
Methamphetamine	nc	nc	225 (37)	192 (32)											
Misuse of Pain Relievers	nc	nc	2,126 (115)	2,139 (119)											
Misuse of Tranquilizers	nc	nc	1,437 (94)	1,374 (77)											
Misuse of Stimulants	nc	nc	1,260 (80)	1,374 (89)											
Misuse of Sedatives	nc	nc	425 (63)	294 (42)											
Cigarettes	1,940 (75)	1,983 (72)	2,122* (72)	2,282* (86)	2,456* (79)	2,231* (71)	2,453* (90)	2,545* (89)	2,403* (81)	2,394* (86)	2,336* (89)	2,071* (81)	2,164* (90)	1,956 (77)	1,782 (77)
Daily Cigarette Use	1,016* (64)	1,064* (58)	1,101* (55)	965* (58)	1,049* (54)	983* (52)	945* (57)	1,136* (66)	962* (57)	878* (55)	778* (53)	813* (52)	756 (51)	622 (45)	620 (54)
Smokeless Tobacco	nc	nc	1,335 (75)	1,157 (86)											
Cigars	2,858* (103)	2,736* (99)	3,058* (112)	3,349* (113)	3,061* (104)	3,078* (107)	2,918* (105)	3,146* (121)	2,950* (120)	2,800* (143)	2,664* (108)	2,770* (144)	2,597 (104)	2,569 (110)	2,359 (103)
Alcohol	3,942* (101)	4,082* (104)	4,396 (127)	4,274* (108)	4,378 (107)	4,551 (111)	4,466 (116)	4,561 (112)	4,675 (131)	4,699 (124)	4,589 (130)	4,559 (113)	4,655 (127)	4,761 (126)	4,639 (126)

LSD = lysergic acid diethylamide; nc = not comparable due to methodological changes; PCP = phencyclidine.

NOTE: Estimates shown are numbers in thousands with standard errors included in parentheses.

NOTE: Misuse of prescription psychotherapeutics (i.e., pain relievers, tranquilizers, stimulants, and sedatives) is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told; or use in any other way not directed by a doctor. Prescription psychotherapeutics do not include over-the-counter drugs.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.6A Past Year Initiation of Specific Substance Use among Youths Aged 12 to 17

Substance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Marijuana	1,373* (50)	1,219 (45)	1,252 (45)	1,139 (44)	1,194 (48)	1,168 (45)	1,248 (49)	1,343* (49)	1,274 (51)	1,375* (53)	1,255 (49)	1,200 (46)	1,203 (52)	1,169 (50)	1,197 (50)
Cocaine	310* (24)	282* (22)	274* (23)	286* (23)	260* (22)	254* (22)	196* (20)	145 (17)	156* (18)	146 (16)	120 (16)	94 (13)	117 (20)	112 (16)	107 (16)
Crack	86* (13)	76* (11)	42* (9)	32* (7)	41* (8)	52* (10)	17 (5)	18* (5)	14 (4)	19* (5)	18 (8)	10 (4)	11 (5)	** (**)	6 (3)
Heroin	39* (10)	25* (7)	31* (8)	18 (5)	24* (7)	16 (5)	29* (10)	19 (5)	23 (7)	38* (10)	21 (7)	21 (6)	13 (7)	11 (4)	8 (3)
Hallucinogens	nc	nc	nc	340 (31)	319 (26)										
LSD	180 (18)	96* (13)	99* (13)	105* (14)	76* (11)	97* (13)	147 (16)	106* (12)	100* (15)	123 (16)	125 (15)	122 (14)	165 (22)	206 (24)	160 (18)
PCP	77* (11)	59* (10)	43* (9)	55* (11)	43* (10)	38* (8)	37* (7)	26 (7)	22 (6)	29* (7)	45* (11)	19 (6)	17 (6)	34* (11)	12 (4)
Ecstasy	nc	nc	nc	168 (22)	143 (19)										
Inhalants	nc	nc	nc	349* (27)	262 (23)										
Methamphetamine	nc	nc	nc	24 (8)	16 (5)										
Misuse of Pain Relievers	nc	nc	nc	415 (32)	423 (30)										
Misuse of Tranquilizers	nc	nc	nc	210 (23)	228 (22)										
Misuse of Stimulants	nc	nc	nc	276 (27)	244 (28)										
Misuse of Sedatives	nc	nc	nc	46 (11)	55 (11)										
Cigarettes	1,187* (44)	1,226* (47)	1,294* (50)	1,303* (50)	1,333* (48)	1,198* (48)	1,288* (50)	1,273* (50)	1,205* (47)	1,165* (46)	1,032* (43)	932* (41)	838 (44)	823 (43)	723 (42)
Daily Cigarette Use	403* (27)	439* (27)	417* (32)	334* (24)	386* (27)	333* (23)	277* (23)	313* (24)	286* (24)	268* (22)	197* (22)	209* (19)	165* (19)	119 (15)	105 (14)
Smokeless Tobacco	nc	nc	nc	460* (29)	353 (28)										
Cigars	1,113* (40)	1,163* (46)	1,246* (48)	1,270* (47)	1,217* (42)	1,145* (44)	1,120* (43)	1,085* (43)	940* (40)	969* (41)	849* (38)	730* (36)	797* (41)	671 (37)	575 (34)
Alcohol	2,588* (64)	2,593* (65)	2,743* (73)	2,749* (69)	2,706* (68)	2,698* (69)	2,568* (64)	2,662* (69)	2,476 (62)	2,622* (69)	2,448 (72)	2,417 (67)	2,335 (67)	2,358 (75)	2,293 (71)

** Low precision; no estimate reported.

LSD = lysergic acid diethylamide; nc = not comparable due to methodological changes; PCP = phencyclidine.

NOTE: Estimates shown are numbers in thousands with standard errors included in parentheses.

NOTE: Misuse of prescription psychotherapeutics (i.e., pain relievers, tranquilizers, stimulants, and sedatives) is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told; or use in any other way not directed by a doctor. Prescription psychotherapeutics do not include over-the-counter drugs.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.7A Past Year Initiation of Specific Substance Use among Young Adults Aged 18 to 25

Substance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Marijuana	733* (37)	666* (37)	714* (45)	723* (45)	742* (46)	787* (45)	817* (49)	988 (55)	918 (51)	1,060 (61)	966 (57)	1,017 (54)	1,094 (62)	1,048 (57)	1,013 (58)
Cocaine	594* (42)	576* (36)	592* (41)	498* (35)	570* (40)	541* (38)	426* (33)	397* (32)	372* (32)	467* (38)	443* (37)	432* (37)	501* (40)	663 (52)	766 (57)
Crack	100* (15)	109* (15)	120* (17)	142* (21)	132* (18)	88 (15)	91* (15)	62 (11)	39 (8)	40 (9)	49 (11)	25 (6)	54 (14)	37 (9)	48 (14)
Heroin	66 (13)	42 (9)	46 (10)	57 (13)	56 (12)	70 (14)	58 (11)	83 (13)	83 (15)	100 (17)	95 (16)	66 (13)	75 (15)	57 (12)	82 (19)
Hallucinogens	nc	nc	nc	nc	nc	nc	nc	nc							
LSD	142* (18)	98* (14)	112* (16)	114* (16)	162* (22)	171* (18)	235* (23)	228* (25)	261* (33)	222* (23)	264* (33)	312* (31)	371* (37)	387* (35)	567 (48)
PCP	46* (11)	41* (9)	49* (14)	22 (6)	27 (8)	19 (7)	16 (6)	17 (6)	24 (9)	18 (8)	28 (8)	13 (5)	24 (8)	8 (4)	9 (6)
Ecstasy	nc	nc	nc	nc	nc	nc	nc	nc							
Inhalants	nc	nc	nc	nc	nc	nc	nc	nc							
Methamphetamine	nc	nc	nc	nc	nc	nc	nc	nc							
Misuse of Pain Relievers	nc	nc	nc	nc	nc	nc	nc	nc							
Misuse of Tranquilizers	nc	nc	nc	nc	nc	nc	nc	nc							
Misuse of Stimulants	nc	nc	nc	nc	nc	nc	nc	nc							
Misuse of Sedatives	nc	nc	nc	nc	nc	nc	nc	nc							
Cigarettes	641* (40)	659* (45)	765* (46)	848 (46)	1,041 (52)	989 (48)	1,076 (58)	1,147* (60)	1,120 (54)	1,156* (59)	1,204* (65)	1,031 (57)	1,181* (72)	1,050 (58)	978 (61)
Daily Cigarette Use	447 (31)	474* (35)	566* (36)	493* (33)	554* (36)	566* (38)	549* (35)	618* (39)	599* (44)	525* (37)	488* (39)	505* (36)	479* (40)	403 (34)	363 (37)
Smokeless Tobacco	nc	nc	nc	nc	nc	nc	nc	nc							
Cigars	1,031* (46)	1,055* (48)	1,199 (54)	1,332 (58)	1,275 (54)	1,379 (58)	1,277 (54)	1,417* (61)	1,388 (66)	1,238 (58)	1,291 (61)	1,334 (61)	1,311 (67)	1,281 (67)	1,226 (68)
Alcohol	1,230* (51)	1,430* (64)	1,484* (62)	1,421* (61)	1,612* (68)	1,741* (70)	1,706* (68)	1,775* (66)	2,008 (79)	1,971 (80)	1,945* (77)	2,056 (76)	2,225 (86)	2,203 (78)	2,191 (86)

LSD = lysergic acid diethylamide; nc = not comparable due to methodological changes; PCP = phencyclidine.

NOTE: Estimates shown are numbers in thousands with standard errors included in parentheses.

NOTE: Misuse of prescription psychotherapeutics (i.e., pain relievers, tranquilizers, stimulants, and sedatives) is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told; or use in any other way not directed by a doctor. Prescription psychotherapeutics do not include over-the-counter drugs.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.8A Past Year Initiation of Specific Substance Use among Adults Aged 26 or Older

Substance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Marijuana	90* (25)	88* (30)	176* (47)	252 (97)	126* (33)	134* (37)	159* (45)	49* (15)	247 (60)	182* (49)	177* (53)	210* (44)	271 (45)	383 (55)	372 (53)
Cocaine	127 (33)	128 (36)	133 (39)	87* (23)	147 (38)	112* (32)	102* (34)	81* (28)	114 (41)	56* (22)	76* (26)	75* (29)	148 (35)	193 (39)	213 (39)
Crack	151* (38)	83 (31)	53 (21)	55 (19)	70 (24)	212* (69)	101* (30)	15 (10)	30 (18)	17 (9)	17 (8)	23 (11)	44 (18)	** (**)	34 (13)
Heroin	12* (11)	25* (16)	40 (25)	33 (15)	9* (6)	20* (14)	28 (17)	85 (27)	37 (17)	40 (17)	40 (15)	82 (32)	124 (31)	68 (20)	80 (21)
Hallucinogens	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	150 (29)
LSD	16* (13)	** (**)	24* (15)	24* (19)	28* (19)	** (**)	18* (12)	** (**)	20* (15)	13* (8)	33* (16)	48 (25)	50 (19)	71 (20)	117 (32)
PCP	** (**)	** (**)	14 (10)	** (**)	** (**)	** (**)	** (**)	** (**)	** (**)	** (**)	17 (16)	** (**)	** (**)	** (**)	22 (19)
Ecstasy	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	141 (31)
Inhalants	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	62 (20)
Methamphetamine	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	80 (25)
Misuse of Pain Relievers	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	97 (28)
Misuse of Tranquilizers	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	110 (29)
Misuse of Stimulants	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	1,114 (101)
Misuse of Sedatives	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	1,130 (102)
Cigarettes	111 (36)	98 (31)	63 (20)	131 (40)	83 (30)	45 (15)	89 (31)	124 (35)	78 (24)	73 (25)	101 (28)	108 (32)	144 (29)	84 (20)	81 (20)
Daily Cigarette Use	166 (48)	150 (39)	118 (29)	137 (42)	109 (33)	84 (23)	119 (37)	204 (49)	77 (23)	85 (32)	92 (27)	99 (31)	113 (25)	100 (24)	152 (35)
Smokeless Tobacco	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	358 (53)
Cigars	714 (82)	518 (74)	614 (79)	747 (86)	570 (77)	555 (73)	521 (77)	644 (90)	622 (87)	593 (119)	524 (72)	706 (126)	489 (62)	617 (75)	558 (72)
Alcohol	124 (40)	60* (21)	169 (74)	105 (31)	60 (22)	112 (32)	193 (50)	124 (34)	191 (76)	106 (32)	196 (56)	85 (26)	95 (37)	200 (48)	156 (44)

** Low precision; no estimate reported.

LSD = lysergic acid diethylamide; nc = not comparable due to methodological changes; PCP = phencyclidine.

NOTE: Estimates shown are numbers in thousands with standard errors included in parentheses.

NOTE: Misuse of prescription psychotherapeutics (i.e., pain relievers, tranquilizers, stimulants, and sedatives) is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told; or use in any other way not directed by a doctor. Prescription psychotherapeutics do not include over-the-counter drugs.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.9B Mean Age at First Use among Past Year Initiates of Specific Substances Aged 12 to 49

Substance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Marijuana	17.0* (0.19)	16.8* (0.14)	17.1* (0.21)	17.4* (0.22)	17.4* (0.21)	17.6* (0.34)	17.8* (0.35)	17.0* (0.13)	18.4 (0.48)	17.5* (0.18)	17.9* (0.32)	18.0* (0.26)	18.5 (0.28)	19.0 (0.27)	19.3 (0.34)
Cocaine	19.8* (0.33)	19.8* (0.36)	20.0* (0.45)	19.7* (0.38)	20.3* (0.51)	20.2* (0.52)	19.8* (0.44)	19.9* (0.42)	21.2 (0.96)	20.1* (0.47)	20.0* (0.32)	20.4* (0.36)	21.8 (0.48)	21.5 (0.38)	21.8 (0.38)
Crack	25.0 (1.35)	21.8 (1.01)	21.9 (1.35)	23.4 (1.28)	22.8 (1.47)	29.6 (2.54)	27.1 (1.68)	20.6* (0.66)	24.8 (2.45)	20.8* (1.05)	20.5* (1.03)	24.4 (2.70)	26.4 (2.78)	21.3* (0.57)	25.0 (1.54)
Heroin	21.0 (2.51)	20.9* (1.36)	24.4 (2.53)	22.2 (1.55)	20.7* (1.51)	21.8* (1.23)	23.5 (3.18)	25.3 (1.40)	21.4* (1.05)	22.1* (1.22)	23.0 (1.18)	24.5 (1.26)	28.0 (1.28)	25.4 (0.97)	25.5 (1.11)
Hallucinogens	nc	19.6 (0.32)	19.6 (0.25)												
LSD	17.4* (0.49)	17.2* (0.32)	18.4* (0.71)	18.3* (0.78)	19.4 (0.72)	18.2* (0.29)	18.4* (0.31)	18.3* (0.21)	19.0* (0.40)	18.6* (0.27)	19.0* (0.44)	19.7 (0.37)	19.7 (0.33)	19.6 (0.44)	20.6 (0.38)
PCP	16.0 (0.27)	17.4 (0.49)	18.9 (1.17)	16.5 (0.40)	16.3 (0.61)	16.4 (0.51)	15.9 (0.63)	16.8 (0.80)	17.6 (0.57)	17.8 (0.94)	16.6 (0.50)	17.1 (0.61)	17.7 (0.55)	15.3 (0.68)	19.6 (1.93)
Ecstasy	nc	20.7 (0.37)	21.4 (0.39)												
Inhalants	nc	17.4 (0.58)	18.2 (0.57)												
Methamphetamine	nc	25.8 (1.36)	24.6 (1.00)												
Misuse of Pain Relievers	nc	25.8 (0.58)	24.4 (0.52)												
Misuse of Tranquilizers	nc	25.9* (0.63)	23.9 (0.55)												
Misuse of Stimulants	nc	22.3* (0.52)	24.3 (0.67)												
Misuse of Sedatives	nc	28.3 (1.50)	24.8 (1.14)												
Cigarettes	16.9* (0.30)	16.9* (0.26)	16.7* (0.19)	17.3 (0.33)	17.1* (0.21)	16.9* (0.12)	17.4* (0.26)	17.5 (0.25)	17.3* (0.21)	17.2* (0.13)	17.8 (0.23)	17.8 (0.22)	18.6* (0.23)	17.9 (0.17)	18.0 (0.16)
Daily Cigarette Use	19.9* (0.72)	19.8* (0.62)	18.8* (0.40)	19.7* (0.71)	18.9* (0.53)	19.2* (0.45)	20.1 (0.78)	20.7 (0.69)	19.1* (0.34)	19.1* (0.44)	19.9* (0.51)	19.8* (0.65)	20.6 (0.49)	20.9 (0.50)	22.0 (0.74)
Smokeless Tobacco	nc	21.3 (0.50)	20.4 (0.61)												
Cigars	21.8 (0.50)	20.3 (0.45)	20.2 (0.37)	21.2 (0.45)	19.9 (0.42)	20.5 (0.42)	20.0 (0.38)	20.7 (0.44)	20.5 (0.37)	19.6* (0.33)	20.5 (0.38)	21.6 (0.62)	20.4 (0.33)	20.9 (0.33)	20.9 (0.36)
Alcohol	16.6* (0.19)	16.4* (0.10)	16.4* (0.12)	16.4* (0.11)	16.6* (0.11)	16.8* (0.13)	17.0* (0.16)	16.9* (0.13)	17.1 (0.16)	17.1* (0.13)	17.4 (0.19)	17.3 (0.14)	17.3 (0.08)	17.6 (0.13)	17.4 (0.12)

LSD = lysergic acid diethylamide; nc = not comparable due to methodological changes; PCP = phencyclidine.

NOTE: Estimates shown are means with standard errors included in parentheses.

NOTE: Misuse of prescription psychotherapeutics (i.e., pain relievers, tranquilizers, stimulants, and sedatives) is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told; or use in any other way not directed by a doctor. Prescription psychotherapeutics do not include over-the-counter drugs.

* Difference between estimate and 2016 estimate is statistically significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002-2016.

Table A.10A Average Number of Initiates per Day among Individuals Aged 12 or Older, by Age Group

Substance	Aged 12 or Older	Aged 12 to 17	Aged 18 or Older	Aged 18 to 25	Aged 26 or Older
Marijuana	7,055 (269)	3,270 (136)	3,785 (227)	2,768 (160)	1,017 (144)
Cocaine	2,964 (199)	291 (44)	2,673 (193)	2,092 (155)	581 (106)
Crack	240 (53)	** (**)	225 (52)	132 (39)	93 (35)
Heroin	465 (80)	21 (9)	444 (80)	224 (53)	220 (58)
Hallucinogens	3,219 (190)	870 (72)	2,348 (170)	1,981 (145)	367 (82)
LSD	2,305 (169)	437 (50)	1,868 (159)	1,549 (132)	319 (86)
PCP	117 (54)	31 (11)	** (**)	** (**)	** (**)
Ecstasy	2,070 (151)	392 (52)	1,678 (140)	1,258 (115)	421 (75)
Inhalants	1,438 (118)	716 (63)	723 (100)	504 (72)	219 (68)
Methamphetamine	526 (88)	44 (14)	482 (86)	216 (40)	266 (77)
Misuse of Pain Relievers	5,844 (325)	1,156 (81)	4,688 (315)	1,599 (137)	3,089 (279)
Misuse of Tranquilizers	3,754 (209)	622 (60)	3,132 (204)	1,685 (124)	1,447 (162)
Misuse of Stimulants	3,753 (242)	665 (77)	3,087 (232)	1,685 (134)	1,402 (177)
Misuse of Sedatives	804 (116)	151 (31)	653 (111)	206 (49)	448 (102)
Cigarettes	4,870 (211)	1,975 (114)	2,895 (180)	2,672 (166)	223 (55)
Daily Cigarette Use	1,693 (149)	288 (38)	1,406 (141)	991 (100)	414 (95)
Smokeless Tobacco	3,162 (234)	965 (77)	2,198 (222)	1,235 (106)	962 (195)
Cigars	6,444 (282)	1,571 (94)	4,874 (270)	3,349 (185)	1,525 (196)
Alcohol	12,676 (344)	6,265 (194)	6,411 (281)	5,985 (236)	425 (120)

** Low precision; no estimate reported.

LSD = lysergic acid diethylamide; PCP = phencyclidine.

NOTE: Estimates shown are unrounded averages with standard errors included in parentheses.

NOTE: Misuse of prescription psychotherapeutics (i.e., pain relievers, tranquilizers, stimulants, and sedatives) is defined as use in any way not directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told; or use in any other way not directed by a doctor. Prescription psychotherapeutics do not include over-the-counter drugs.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2016.

Table A.11B Perceived Great Risk of Harm Associated with Substance Use and Perceived Availability of Substances among Individuals Aged 12 or Older, by Specific Substance Use Initiation Status

Specific Substance Risk/Availability	Past Year Initiates	Prior to Past Year Initiates, Past Year Users	Prior to Past Year Initiates, Lifetime Not Past Year Users	Never Used
PERCEPTIONS OF GREAT RISK¹				
Cigarettes				
Smoke One or More Packs per Day	63.2 (2.17)	55.3 (0.64)	78.0 (0.46)	77.8 (0.34)
Marijuana				
Smoke Once a Month	5.5 (0.86)	2.5 (0.25)	12.9 (0.37)	42.2 (0.42)
Smoke Once or Twice a Week	6.7 (0.89)	2.7 (0.24)	17.8 (0.43)	50.8 (0.43)
Cocaine				
Use Once a Month	20.7 (2.83)	27.2 (2.04)	47.4 (0.88)	76.4 (0.26)
Use Once or Twice a Week	53.7 (3.28)	49.3 (2.10)	72.0 (0.80)	90.1 (0.18)
Heroin				
Try Once or Twice	** (**)	57.8 (4.91)	65.6 (2.49)	86.1 (0.20)
Use Once or Twice a Week	** (**)	71.9 (4.39)	85.2 (1.85)	94.3 (0.14)
LSD				
Try Once or Twice	9.8 (1.64)	4.2 (1.05)	38.7 (1.04)	73.1 (0.27)
Use Once or Twice a Week	39.6 (3.19)	24.1 (2.93)	69.3 (0.93)	85.8 (0.20)
Alcohol				
Have Five or More Drinks Once or Twice a Week	38.5 (1.26)	37.9 (0.39)	54.8 (0.84)	58.0 (0.58)
Have Four or Five Drinks Nearly Every Day	62.3 (1.20)	64.2 (0.37)	76.7 (0.71)	75.2 (0.52)
PERCEIVED AVAILABILITY²				
Fairly or Very Easy to Obtain				
Marijuana	88.0 (1.26)	90.4 (0.46)	71.2 (0.56)	44.1 (0.43)
Cocaine	64.0 (3.07)	70.5 (1.94)	34.7 (0.85)	19.7 (0.27)
Crack	** (**)	79.0 (4.86)	43.2 (1.79)	18.3 (0.27)
Heroin	** (**)	84.7 (3.30)	43.5 (2.38)	16.8 (0.25)
LSD	42.9 (3.46)	51.6 (3.33)	17.6 (0.80)	13.4 (0.23)

** Low precision; no estimate reported.

LSD = lysergic acid diethylamide.

NOTE: Estimates shown are percentages with standard errors included in parentheses.

NOTE: Past Year Initiates are defined as individuals who used the specific substance for the first time in the 12 months prior to the date of the interview. Prior to Past Year Initiates include two groups of individuals who used the specific substance for the first time more than 12 months prior to the date of the interview: (a) those who also used that substance in the past 12 months and (b) those who last used the substance more than 12 months prior to the interview.

¹ Respondents with unknown Perception of Great Risk data were excluded from the respective analyses.

² Respondents with unknown Perceived Availability data were excluded from the respective analyses.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2016.