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# **State Estimates of Substance Use from the 2004–2005 National Surveys on Drug Use and Health**

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DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Substance Abuse and Mental Health Services Administration  
Office of Applied Studies

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# Highlights

This report presents State estimates for 23 measures of substance use or mental health problems based on the 2004 and 2005 National Surveys on Drug Use and Health (NSDUHs). Sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), NSDUH is an ongoing survey of the civilian, noninstitutionalized population of the United States aged 12 years or older. Interview data from approximately 136,100 persons were collected in 2004-2005. Separate estimates have been produced for four age groups: 12 to 17, 18 to 25, 26 or older, and all persons 12 or older. For each measure, States have been ranked and categorized into quintiles, or fifths, in order to simplify the discussion. Estimates presented in this report are based on hierarchical Bayes estimation methods that combine survey data with a national model.

In addition to State estimates for 2004-2005, this report includes estimates of change between 2003-2004 and 2004-2005 for all measures except serious psychological distress (SPD) and major depressive episode (MDE). Also in this report are estimates for persons aged 12 to 20 for two of the measures—past month alcohol use and binge alcohol use. Please note that the change between 2003-2004 and 2004-2005 can be viewed as the average annual change between 2003 and 2005; therefore, the total change for that period is approximately twice the average annual change.

## Illicit Drug Use

- Estimates of past month use of illicit drugs ranged from a low of 5.9 percent in Iowa to a high of 12.2 percent in Alaska for all persons aged 12 or older in 2004-2005. At the national level, the use of illicit drugs among youths aged 12 to 17 declined from 10.9 percent in 2003-2004 to 10.3 percent in 2004-2005 (approximately a 1.2 percent change between 2003 and 2005). Five States showed significant decreases in past month use of illicit drugs among youths: California (from 12.1 to 10.6 percent), Michigan (from 12.3 to 10.6 percent), New Mexico (from 16.2 to 13.0 percent), North Dakota (from 10.8 to 8.5 percent), and Washington (from 11.7 to 9.6 percent). Among the 12 significant changes that occurred across all four age groups between 2003-2004 and 2004-2005, 11 were decreases. (*Tables B.1 and C.1*)
- Nationally in 2004-2005, 10.5 percent of all persons aged 12 or older reported marijuana use in the past year. The State rankings for past year use of marijuana were fairly similar to those for past month use of marijuana among persons 12 or older. Iowa had the lowest rate of past month marijuana use (4.2 percent) in the 12 or older population, and Alaska had the highest rate (10.1 percent). There were significant decreases in both the past month and past year use of marijuana among youths aged 12 to 17 nationally. Past year marijuana use among youths declined from 14.7 percent in 2003-2004 to 13.9 percent in 2004-2005, and past month marijuana use from 7.7 to 7.2 percent over the same period. (*Tables B.2, B.3, C.2, and C.3, Figures 2.5 and 2.9*)

- The national percentage of persons aged 12 or older perceiving a great risk of using marijuana once a month decreased significantly between 2003-2004 and 2004-2005, from 39.7 to 39.0 percent. Although there was a decline in perceived risk in the general population, there were no increases in past month use of marijuana for any State in any age group. Four States showed declines in perceived risk among the 12 or older population: Kansas (from 43.5 to 39.8 percent), Louisiana (from 45.7 to 42.4 percent), Montana (from 39.0 to 36.0 percent), and Oregon (from 33.2 to 30.1 percent). (*Table C.4*)
- For the combined years 2004-2005, the national marijuana incidence rate for all persons aged 12 or older was 1.7 percent. Alaska had the highest rate, 2.6 percent; Alabama, Arkansas, Florida, Mississippi, and West Virginia shared the lowest rate, 1.4 percent. Rates of first use of marijuana declined significantly among youths aged 12 to 17 between 2003-2004 and 2004-2005 (from 6.3 to 5.8 percent), young adults aged 18 to 25 (from 6.6 to 6.2 percent), and in the overall population aged 12 or older (from 1.8 to 1.7 percent). (*Tables B.5 and C.5*)
- Past month use of illicit drugs other than marijuana was relatively stable between 2003-2004 and 2004-2005 among all persons aged 12 or older; however, among youths aged 12 to 17, the rates dropped from 5.5 to 5.1 percent. North Dakota and South Dakota had the lowest rate (2.8 percent) of past month use of an illicit drug other than marijuana among persons 12 or older in 2004-2005, and Colorado had the highest rate (4.5 percent). (*Tables B.6 and C.6*)
- The national prevalence rate for the use of cocaine in the past year among all persons aged 12 or older was 2.3 percent in 2004-2005. The District of Columbia had the highest rate of past year cocaine use (3.4 percent) among persons aged 12 or older; North Dakota had the lowest rate (1.7 percent) in that population. (*Table B.7*)
- Although the nonmedical use of pain relievers among the general population aged 12 or older remained unchanged between 2003-2004 and 2004-2005 (at 4.8 percent), a significant decrease was observed among youths aged 12 to 17 (from 7.5 to 7.1 percent). Utah had the highest percentage (6.5 percent) of persons aged 12 or older using pain relievers for nonmedical purposes in the past year in 2004-2005; South Dakota had the lowest rate in the Nation—3.4 percent. (*Tables B.8 and C.8*)

## **Alcohol Use**

- In 2004-2005, the rate of past month alcohol use in States among all persons aged 12 or older ranged from a low of 30.1 percent in Utah to a high of 65.3 percent in Wisconsin. The rate of past month alcohol use among persons aged 12 or older increased between 2003-2004 and 2004-2005 from 50.2 to 51.1 percent. At the same time, past month alcohol use among youths aged 12 to 17 decreased from 17.7 to 17.1 percent. Seven States showed significant increases in past month alcohol use among persons 12 or older between 2003-2004 and 2004-2005, contributing to the national increase: Alabama, Arizona, Kansas, Minnesota, Tennessee, Texas, and Wisconsin. (*Tables B.9 and C.9*)

- In 2004-2005, the rate of past month binge alcohol use among persons aged 12 or older ranged from 16.3 percent in Utah to 31.5 percent in North Dakota. The national rate in 2004-2005 (22.7 percent) remained the same as the rate in 2003-2004, and the rates among youths aged 12 to 17, young adults aged 18 to 25, and persons aged 26 or older did not change either. (*Tables B.10 and C.10*)
- In 2004-2005, 41.2 percent of all persons aged 12 or older perceived a great risk of binge drinking. People's perceptions of the risk of binge drinking were moderately and inversely related to their actual rates of binge drinking at the State level in 2004-2005. Seven of the ten States (Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Wisconsin) with the highest rates of binge use of alcohol in 2004-2005 among persons 12 or older also were States with the lowest perceived risk of binge drinking for the population aged 12 or older. Between 2003-2004 and 2004-2005, there were no changes in the percentage of persons reporting a great risk in binge alcohol use, either nationally or in the four census regions in any of the age groups. (*Tables B.11 and C.11, Figures 3.5 and 3.9*)
- With respect to underage drinking (i.e., drinking among persons aged 12 to 20), past month alcohol use ranged from a low of 21.3 percent in Utah to a high of 39.5 percent in Wisconsin. Although there was no significant change at the national level in underage alcohol use between 2003-2004 and 2004-2005, six States (Hawaii, Michigan, New Hampshire, New Mexico, North Dakota, and Washington) displayed significant decreases, and two States (Texas and Utah) had significant increases. (*Tables B.12 and C.12*)
- The lowest State estimate for past month underage (aged 12 to 20) binge use of alcohol was 14.3 percent in Tennessee. North Dakota had the highest rate for this measure, 29.5 percent. Eight of the States that ranked in the highest fifth for past month underage use of alcohol also ranked in the highest fifth for past month underage binge use of alcohol: Iowa, Massachusetts, Montana, North Dakota, Rhode Island, South Dakota, Vermont, and Wisconsin. There was no change at the national level between 2003-2004 and 2004-2005 for underage binge use of alcohol. (*Tables B.12 and C.12, Figures 3.13 and 3.14*)

## **Tobacco Use**

- Nationally among persons aged 12 or older, the rate for past month use of tobacco in 2004-2005 was 29.3 percent. The State with the highest prevalence rate for tobacco use among persons aged 12 or older was West Virginia (40.9 percent). California had the lowest rate in the Nation for tobacco use among all persons aged 12 or older (21.2 percent). Although the percentage of persons aged 12 or older using tobacco in the past month was stationary between 2003-2004 and 2004-2005, the prevalence rate among youths aged 12 to 17 declined slightly from 14.4 to 13.8 percent during the same period. (*Tables B.13 and C.13*)

- The national rate for past month use of cigarettes among persons aged 12 or older remained almost the same between 2003-2004 (25.2 percent) and 2004-2005 (24.9 percent); however, the 12 to 17 age group and the 18 to 25 age group both had significant declines in the rates of past month use of cigarettes, from 12.0 to 11.3 percent, and from 39.9 to 39.3 percent, respectively. West Virginia had the highest rate of past month cigarette use in the Nation in 2004-2005 (32.4 percent), and California had the lowest rate (18.3 percent) among all persons aged 12 or older. (*Tables B.14 and C.14*)
- States with high prevalence rates for cigarette use tended to have low rates of perceived risk of heavy cigarette use (i.e., smoking one or more packs a day). Five of the States (Kentucky, Missouri, Oklahoma, South Carolina, and West Virginia) that ranked in the lowest fifth for perceptions of great risk of smoking one or more packs of cigarettes a day also were ranked in the highest fifth for past month cigarette use among persons aged 12 or older in 2004-2005. The rates of perception of great risk of smoking one or more packs of cigarettes a day increased from 72.8 percent in 2003-2004 to 74.4 percent in 2004-2005 among persons 12 or older. At the State level, across the three age groups (12 to 17, 18 to 25, and 26 or older) and the combined age group of those 12 or older, there were 46 significant increases in the perceived risk of heavy smoking—and no decreases. (*Table C.15, Figures 4.5 and 4.9*)

### **Substance Dependence, Abuse, and Treatment Need**

- Rates of past year dependence on or abuse of alcohol remained unchanged between 2003-2004 and 2004-2005 at 7.6 and 7.7 percent for all persons aged 12 or older. In 2004-2005, Wisconsin had the highest rate (10.1 percent) among persons aged 12 or older, while Georgia had the lowest rate (6.0 percent). (*Tables B.16 and C.16*)
- In 2004-2005, 3.4 percent of persons aged 12 or older were estimated to be dependent on alcohol in the past year, representing about 44 percent of those who were dependent on or had abused alcohol in the past year. No State had any increases or decreases in past year alcohol dependence rates between 2003-2004 and 2004-2005 either among the 12 or older population or in any of the age subgroups. (*Tables B.17 and C.17*)
- Nationally in 2004-2005, about 2.9 percent of persons aged 12 or older were dependent on or had abused illicit drugs in the past year. The District of Columbia had the highest rate of past year illicit drug dependence or abuse (3.8 percent) among persons aged 12 or older, and Iowa had the lowest rate (2.3 percent). In the Midwest, the rates of past year illicit drug dependence or abuse decreased among youths aged 12 to 17 from 5.4 percent in 2003-2004 to 4.8 percent in 2004-2005. (*Tables B.18 and C.18*)
- The percentage of persons in 2004-2005 estimated to be dependent on illicit drugs in the past year was 2.0 percent (about two thirds of those who were estimated to be dependent on or had abused illicit drugs in the past year). Nationally, there was a significant increase in the percentage of persons dependent on illicit drugs among the 18 to 25 age group from 5.4 percent in 2003-2004 to 5.7 percent in 2004-2005. (*Tables B.19 and C.19*)

- State percentages for past year dependence on or abuse of alcohol or illicit drugs among persons aged 12 or older ranged from a low of 7.7 percent in Georgia to a high of 11.6 percent in the District of Columbia. Among all persons aged 12 or older, the rate of past year dependence on or abuse of alcohol or illicit drugs remained constant at 9.2 to 9.3 percent, respectively, in 2003-2004 and 2004-2005. The only significant national change occurred among youths aged 12 to 17, where there was a decrease from 8.9 to 8.4 percent. (*Tables B.20 and C.20*)
- The national rate in 2004-2005 for needing but not receiving treatment for an illicit drug problem among persons aged 12 or older was 2.7 percent, which was unchanged from 2003-2004. In 2004-2005, Alaska had the highest percentage of persons aged 12 or older needing but not receiving treatment for an illicit drug use problem (3.5 percent), while North Dakota had the lowest rate (2.0 percent). (*Tables B.21 and C.21*)
- The percentage of persons aged 12 or older needing but not receiving treatment for an alcohol problem (7.4 percent) in 2004-2005 was almost 3 times larger than the corresponding percentage for persons needing but not receiving treatment for an illicit drug problem (2.7 percent). (*Tables B.21 and B.22*)

## **Mental Health**

- In 2004-2005, serious psychological distress (SPD) was present in 11.6 percent of the population aged 18 or older. West Virginia had the highest rate of SPD in the past year (15.3 percent), while Hawaii had the lowest rate (9.8 percent). Due to differences in the SPD modules in prior years, estimates for SPD in 2004-2005 were not comparable with the estimates in 2003-2004. (*Table B.23*)
- In 2004-2005, 7.7 percent of all persons aged 18 or older had a major depressive episode (MDE) in the past year. Utah had the highest rate (10.1 percent) of MDE in 2004-2005, and Hawaii had the lowest rate (6.7 percent). No estimates of change between 2003-2004 and 2004-2005 have been produced for MDE because the MDE questions were only added to the survey in 2004. (*Table B.24*)





# 1. Introduction

This report presents State estimates for 23 measures of substance use or mental health problems based on the 2004 and 2005 National Surveys on Drug Use and Health (NSDUHs) and changes in these measures between 2003-2004 and 2004-2005 for those that were defined the same way in both periods.<sup>1</sup> Sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), NSDUH is an ongoing survey of the civilian, noninstitutionalized population of the United States aged 12 years or older. Interview data from approximately 136,100 persons were collected in 2004-2005. State estimates presented in this report have been developed using a small area estimation (SAE) procedure in which State-level NSDUH data are combined with local-area county and census block group/tract-level data from the State. This model-based methodology provides more precise estimates of substance use at the State level than those based solely on the sample, particularly for smaller States.

Starting in 1999, the NSDUH sample was expanded to produce State-level estimates. The samples in each State were selected to represent proportionately the geography and demography of that State. The first report with State estimates was published in 2000 (Office of Applied Studies [OAS], 2000). It utilized the 1999 survey data and the SAE procedure. Because the SAE procedure requires significant preparatory steps for the modeling and extensive computation to generate results, the number of variables estimated has been limited to ones with high policy value. The first report included only seven measures. Subsequent State reports have been published annually, gradually extending the capabilities of the SAE procedure and increasing the number of measures estimated (Wright, 2002a, 2002b, 2003a, 2003b, 2004; Wright & Sathe, 2005; Wright & Sathe, 2006). The current practice is to base annual estimates on a 2-year moving average of NSDUH data in order to enhance the precision for States with smaller samples.

Recently, State estimates have been produced for additional measures by combining 3 (or more) years of NSDUH data and using sampling weights and direct estimation. The advantage of this approach is that it can be used on any variable in the NSDUH dataset; however, the estimates typically are not as accurate as the SAE measures. These estimates have been included in some reports and in tables on the SAMHSA website.

## 1.1 Summary of NSDUH Methodology

NSDUH is the primary source of statistical information on the use of illicit drugs by the U.S. civilian population aged 12 or older. Conducted by the Federal Government since 1971, the survey collects data by administering questionnaires to a representative sample of the population through face-to-face interviews at their place of residence. The survey is planned and managed by SAMHSA's OAS, and the data are collected and processed by RTI International.<sup>2</sup> This section briefly describes the national survey methodology. The survey covers residents of households, noninstitutional group quarters (e.g., shelters, rooming houses, dormitories), and civilians living

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<sup>1</sup> In 2002, the name of the survey was changed from the National Household Survey on Drug Abuse (NHSDA) to NSDUH.

<sup>2</sup> RTI International is a trade name of Research Triangle Institute.

on military bases. Persons excluded from the survey include homeless people who do not use shelters, active military personnel, and residents of institutional group quarters, such as prisons and long-term hospitals.

The 1999 survey marked the first year in which the national sample was interviewed using a computer-assisted interviewing (CAI) method. The survey used a combination of computer-assisted personal interviewing (CAPI) conducted by an interviewer and audio computer-assisted self-interviewing (ACASI). Use of ACASI is designed to provide the respondent with a highly private and confidential means of responding to questions and should increase the level of honest reporting of illicit drug use and other sensitive behaviors. For further details on the development of the CAI procedures for the 1999 NHSDA, see OAS (2001).

The 1999 through 2001 NHSDAs and the 2002 through 2005 NSDUHs employed a 50-State design with an independent, multistage area probability sample for each of the 50 States and the District of Columbia. The eight States with the largest population (which together accounted for 48 percent of the total U.S. population aged 12 or older) were designated as large sample States (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas). Collectively, the sample allocated to these States ensured adequate precision at the national level while providing individual State samples large enough to support both model-based (SAE) and design-based estimates. For the remaining 42 States and the District of Columbia, smaller, but adequate, samples were selected to support State estimates using SAE techniques (described in Appendix E of the 2001 NHSDA State report, Wright, 2003b). The design also oversampled youths and young adults, so that each State's sample was approximately equally distributed among three major age groups: 12 to 17 years, 18 to 25 years, and 26 years or older.

In 2002, several changes were introduced to the survey. Incentive payments of \$30 were given to respondents for the first time in order to address concerns about the national and State response rates. Other changes included a change in the survey name, new data collection quality control procedures, and a shift from the 1990 decennial census to the 2000 census as a basis for population count totals and to calculate any census-related predictor variables that are used in the estimation.

An unanticipated result of these changes was that the prevalence rates for 2002 were in general substantially higher than those for 2001—substantially higher than could be attributable to the usual year-to-year trend—and thus are not comparable with estimates for 2001 and prior years.<sup>3</sup> Therefore, the 2002 NSDUH was established as a new baseline for the national, as well as the State, estimates. Given the varying effects of the incentive and other changes on the States, not only are the estimates for 2002 and later years not comparable with prior years, but also the relative rankings of States may have been affected. Therefore, the rankings of States for 2002-2003 or later should not be compared with those for prior years.

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<sup>3</sup> For a thorough discussion of the impact of these changes, see Section C.2 of Appendix C in OAS (2005b).

By combining data across 2 years, the precision of the small area estimates for the small States, and thus their rankings, have been improved significantly. In addition, by combining 2 years of data, the impact of the national model on those States has been reduced significantly relative to estimates based on a single year's data.<sup>4</sup>

Nationally in 2004-2005, approximately 264,000 addresses were screened and about 136,100 persons responded within the screened addresses. The survey is conducted from January through December each year. The screening response rate for 2004-2005 combined averaged 91.1 percent, and the interviewing response rate averaged 76.6 percent, for an overall response rate of 69.8 percent (Table A.9). The State overall response rates for 2004-2005 ranged from 59.5 percent in New York to 78.7 percent in Utah. Estimates in this report have been adjusted to reflect the probability of selection, unit nonresponse, poststratification to known benchmarks, item imputation, and other aspects of the estimation process. These procedures are described in the NSDUH Methodological Resource Books (MRBs) for each survey year (see <http://www.oas.samhsa.gov/nsduh/methods.cfm>).

## **1.2 Format of Report and Presentation of Data**

The findings in this report are presented in seven chapters, including this introductory chapter, along with U.S. maps of estimates for States at the ends of Chapters 2 through 6 and data tables in Appendices B and C at the end of the report. For serious psychological distress (SPD), estimates are provided for those aged 18 to 25, 26 or older, and 18 or older. For major depressive episode (MDE), estimates are provided for those aged 12 to 17, 18 to 25, 26 or older, and 18 or older. For all other outcomes, there are separate estimates for three age groups (12 to 17, 18 to 25, and 26 or older) and a combined estimate for those aged 12 or older.

Chapter 2 presents State estimates for the prevalence of illicit drug use, marijuana use, the perceived risk of marijuana use, incidence of marijuana use, illicit drug use other than marijuana, cocaine use, and the nonmedical use of pain relievers. Chapter 3 discusses analogous estimates of alcohol use, binge alcohol use, and the perceived risk of binge alcohol use. Chapter 3 also includes estimates of underage (ages 12 to 20) alcohol use and binge alcohol use. Chapter 4 presents estimates for tobacco use, cigarette use, and the perceived risk of heavy cigarette use. Chapter 5 discusses the substance treatment–related measures (i.e., dependence on and abuse of alcohol or illicit drugs and needing but not receiving treatment). Chapter 6 presents estimates of SPD, formerly referred to as serious mental illness (SMI), for persons aged 18 or older and MDE for persons 12 or older. Chapter 7 discusses the direction of changes between 2002-2003 and 2004-2005 for a few key measures.

At the ends of Chapters 2 through 6, State model-based estimates are portrayed in U.S. maps showing all 50 States and the District of Columbia. The maps reflect the ranking of States into fifths from lowest to highest for each measure to simplify the discussion in the chapters. Appendix A gives a brief description of the SAE methodology for 2004-2005 and discusses minor refinements in that methodology for these analyses relative to prior years. For a more

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<sup>4</sup> Combining data across 2 years permits the estimation of change at the State level by expressing it as the difference of two consecutive 2-year SAE moving averages. Because the 2005 data are available for analysis, estimates of change between combined 2003-2004 data and the combined 2004-2005 data can be developed. This method is similar to the one used in the 2003-2004 State report (Wright & Sathe, 2006).

detailed discussion of the SAE methodology, see Appendix E of the 2001 State report (Wright, 2003b). Also included in Appendix A are the State sample sizes and response rates for 2003, 2004, 2005, 2003-2004 combined, and 2004-2005 combined (Tables A.1 to A.12). Tables of model-based estimates for each substance use or mental health measure are included in Appendix B. The quintile rankings can be determined from these tables that include all 50 States and the District of Columbia, listed in alphabetical order, by four age categories. Estimates of change between 2003-2004 and 2004-2005 are presented in Appendix C. *Tables for individual States are available on the SAMHSA website and display all of the estimates discussed in this report by the appropriate age categories. Also available on the SAMHSA website are tables of the total number of persons associated with each measure corresponding to the estimated percentages or rates for each substance use or mental health measure in Appendix B (see <http://www.oas.samhsa.gov/State/2k5Tabs/lot.htm>).*

The color of each State on the U.S. maps indicates how the State ranks relative to other States for each measure. States could fall into one of five groups according to their ranking by quintiles. Because there are 51 areas to be ranked for each measure, the middle quintile was assigned 11 areas and the remaining groups 10 each. In some cases, a "quintile" could have more or fewer States than desired because two (or more) States have the same estimate (to two decimal places). When such ties occurred at the "boundary" between two quintiles, all States with the same estimate were assigned to the lower quintile. Those States with the highest rates for a given outcome are in red, with the exception of the perceptions of risk measures, for which the lowest perceptions of great risk are in red. Those States with the lowest estimates are in white, with the exception of the perceptions of risk measures, for which the highest perceptions of great risk are in white.

At the top of each table in Appendix B is a national average that represents the population-weighted mean of the estimates from the 50 States and the District of Columbia. These national averages have been benchmarked in order to agree with the corresponding national estimates calculated as sample-weighted averages or proportions across the entire sample. (For more details, refer to Appendix A, Section A.4.) Associated with each State estimate is a 95 percent prediction interval (PI). These intervals indicate the precision of the estimate. For example, the State with the highest estimated past month alcohol rate for youths aged 12 to 17 (a model-based estimate) was Wisconsin, with a rate of 22.6 percent (Table B.9). The 95 percent PI on that estimate is from 19.8 to 25.7 percent. Therefore, the probability is 0.95 that the true prevalence for Wisconsin for persons aged 12 to 17 will fall between 19.8 and 25.7 percent. The PI indicates the uncertainty due to both sampling variability and model bias.

In this report, State rankings are discussed in terms of the range and the national average because the latter provides a useful context for the discussion. However, the differences between the highest (or lowest) rate and the next-to-highest (or next-to-lowest) rate are typically very small and not statistically significant. For example, although Alaska (12.2 percent) had the highest rate of past month use of an illicit drug among persons aged 12 or older for 2004-2005, the estimate for Rhode Island (10.7 percent) was only 1.5 percentage points lower and statistically no different from Alaska's estimate (Table B.1). Therefore, it is important to consider the PI when comparing States. For Alaska, one can say that 95 percent of the time the true value would fall in the range of approximately 10.3 to 14.3 percent. Clearly, the estimate for Rhode Island falls into this range, but Iowa's estimate (5.9 percent) does not.

Estimates of change between 2003-2004 and 2004-2005 are presented in Appendix C for 21 measures (for all outcomes except SPD and MDE), by age group (see Tables C.1 to C.22). These tables show the estimates for 2003-2004 and 2004-2005 and a *p* value to test the hypothesis that there was "no change" over this period. The report only discusses differences if they are significant at *p* values of 0.05 or less (corresponding to a probability of 95 percent that the change was not 0). However, *p* values greater than 0.05 but less than or equal to 0.10 also have been marked to highlight other possible changes because the year-to-year changes are often small and relatively hard to detect, especially for those measures with low prevalence rates. The methodology for estimating change involves estimating one model for 2003-2004 based on the predictor variables and the sample for those years and a separate model for 2004-2005 based on the predictor variables and sample for those years. This can lead to slightly different national models (i.e., models with slightly different model coefficients for the two sets of years). The change between 2003-2004 and 2004-2005 estimates the average yearly change between 2003 and 2005. "Average yearly change" indicates the change between 2003 and 2005 divided by 2. For more details on this topic, see Section A.9 on measuring change in Appendix A.

Throughout the report, there are a number of related drug measures, such as marijuana use and illicit drug use. It might appear that one could draw new conclusions by subtracting one from the other (e.g., subtracting the percentage who used marijuana in the past month from the percentage who used illicit drugs in the past month to find the percentage who used an illicit drug other than marijuana in the past month). Because related measures have not been estimated jointly, but with different models, subtracting one measure from another related measure at the State level can give misleading results, perhaps even a "negative" estimate, and should not be done.

### **1.3 Measures Presented in This Report**

Estimates for 2004-2005 were developed for 23 measures:

- past month use of illicit drugs,
- past year use of marijuana,
- past month use of marijuana,
- perception of great risk of smoking marijuana once a month,
- average annual rate of first use of marijuana,<sup>5</sup>
- past month use of illicit drugs other than marijuana,
- past year use of cocaine,
- past year nonmedical use of pain relievers,

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<sup>5</sup> For details on how the average annual rate of first use of marijuana (incidence of marijuana) is calculated, see Section A.5 of Appendix A.

- past month use of alcohol,
- past month binge alcohol use,
- perception of great risk of having five or more drinks of an alcoholic beverage once or twice a week,
- past month use of tobacco products,
- past month use of cigarettes,
- perception of great risk of smoking one or more packs of cigarettes per day,
- past year alcohol dependence or abuse,
- past year alcohol dependence,
- past year illicit drug dependence or abuse,
- past year illicit drug dependence,
- past year dependence on or abuse of illicit drugs or alcohol,
- needing but not receiving treatment for illicit drug use in the past year,
- needing but not receiving treatment for alcohol use in the past year,
- past year serious psychological distress (SPD), and
- past year major depressive episode (MDE).

Estimates of change between 2003-2004 and 2004-2005 were developed for 21 measures (i.e., all the measures listed above except SPD and MDE for which change estimates could not be developed).

#### **1.4 Other NSDUH Reports and Products**

The national results from the 2005 NSDUH were released in September 2006 (OAS, 2006b). Additional methodological information on the survey, including the questionnaire, is available electronically on the OAS webpages at <http://www.oas.samhsa.gov>. Brief descriptive reports and in-depth analytic reports focusing on specific issues or population groups also are produced by OAS. Further information on access to NSDUH publications, detailed tables, and public use files is contained in "Accessing Data from the National Survey on Drug Use and Health (NSDUH)" (OAS, 2004). A complete listing of previously published reports from NSDUH and other data sources is available from OAS. Most of these reports are available through the Internet (<http://www.oas.samhsa.gov>). In addition, OAS makes public use data files available to researchers through the Substance Abuse and Mental Health Data Archive (SAMHDA, 2006). Currently, data files are available for online analysis from the 1979 to 2005 surveys at <http://www.icpsr.umich.edu/SAMHDA/index.html>.

In 2006, estimates for substate planning areas based on combined 2002-2004 NSDUH data were made available at the SAMHSA website (OAS, 2006c). The substate planning area definitions for all 50 States and the District of Columbia are based on the areas for substate allocation of funds under SAMHSA's Substance Abuse Prevention and Treatment (SAPT) block grant. This marked the second time that substate data for the entire United States have been collected and estimated using comparable methods.<sup>6</sup> Substate estimates are available for each State and the District of Columbia for 22 of the 23 measures listed in Section 1.3 (all except MDE). Along with the substate estimates, comparable State and national estimates are summarized in tables and maps that indicate the distribution of prevalence rates across the United States. The methodology used for producing substate estimates is similar to the SAE methodology used to produce the State estimates in this report.

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<sup>6</sup> Substate data were first reported in May 2005 using data from the 1999 to 2001 surveys (OAS, 2005c), and in June 2005, a short report focusing on marijuana use was released based on the same data (OAS, 2005a).





## 2. Illicit Drug Use

The National Survey on Drug Use and Health (NSDUH) obtains information on nine different categories of illicit drug use: marijuana, cocaine, heroin, hallucinogens, inhalants, and nonmedical use of prescription-type pain relievers, tranquilizers, stimulants, and sedatives. Estimates of illicit drug use reflect any of the nine categories listed above. In 2004-2005, an estimated 8.0 percent of the population aged 12 or older had used an illicit drug in the past month, and the estimated percentage was similar in 2003-2004 (8.1 percent) (Table C.1). Marijuana, the most commonly used illicit drug, was used by 6.0 percent of the population in 2004-2005 during the past month (Table B.3).

### 2.1 Illicit Drugs

Estimates of past month use of illicit drugs ranged from a low of 5.9 percent in Iowa to a high of 12.2 percent in Alaska for all persons aged 12 or older (Table B.1). See Section 1.2 for a discussion of the proper use of the prediction intervals [PIs]. Colorado, Oregon, Rhode Island, and Vermont were in the highest fifth for all persons aged 12 or older and for each of the age subgroups: 12 to 17, 18 to 25, and 26 or older (Figures 2.1 to 2.4).

Two States showed significant decreases from 2003-2004 to 2004-2005 (at the 5 percent level of significance) in the percentage of all persons aged 12 or older who used an illicit drug in the past month: New Mexico (from 11.3 to 8.9 percent) and North Dakota (from 7.5 to 6.2 percent) (Table C.1). At the national level, the use of illicit drugs among youths aged 12 to 17 declined from 10.9 percent in 2003-2004 to 10.3 percent in 2004-2005 (approximately a 1.2 percent change between 2003 and 2005).<sup>7</sup> The Western region contributed significantly to the national decline in the percentage of youths who used illicit drugs in the past month. Five States showed significant decreases among youths: California (from 12.1 to 10.6 percent), Michigan (from 12.3 to 10.6 percent), New Mexico (from 16.2 to 13.0 percent), North Dakota (from 10.8 to 8.5 percent), and Washington (from 11.7 to 9.6 percent). Among the 12 significant changes that occurred across all four age groups between 2003-2004 and 2004-2005, 11 were decreases (Table C.1).

### 2.2 Marijuana

Because marijuana is the predominant drug among those using an illicit drug, States that had high prevalence rates for illicit drug use also had high prevalence rates for past month use of marijuana. Eight out of ten States in the top fifth for past month use of an illicit drug among persons aged 12 or older also were ranked in the top fifth for past month use of marijuana. Seven States were common to the top fifth for past month marijuana use in all three age groups: 12 to 17, 18 to 25, and 26 or older: Alaska, Connecticut, Maine, Montana, Oregon, Rhode Island, and Vermont (Figures 2.1 and 2.9 to 2.12). Iowa had the lowest rate of past month use of marijuana

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<sup>7</sup> The change in the illicit drug use rate among youths between 2003-2004 and 2004-2005 can be viewed as the average annual change between 2003 and 2005; therefore, the total change for that period is approximately twice the average annual change (i.e.,  $[10.9 - 10.3]*2 = 1.2$  percent).

(4.2 percent) in the 12 or older population, and Alaska had the highest rate (10.1 percent) (Table B.3).

Nationally in 2004-2005, 10.5 percent of all persons aged 12 or older reported marijuana use in the past year (Table B.2). Young adults, aged 18 to 25, reported the highest rate of past year use of marijuana, 27.9 percent. The State rankings for past year use were fairly similar to those for past month use of marijuana among persons 12 or older (Figures 2.5 and 2.9). Iowa had the lowest rate (8.0 percent) of past year use of marijuana among persons aged 12 or older. Alaska had the highest rate of past year marijuana use in that age group (16.0 percent). Rhode Island had the highest rate of past year marijuana use in the Nation in the 18 to 25 age group (42.1 percent).

Six States showed significant decreases in the past year use of marijuana among all persons aged 12 or older between 2003-2004 and 2004-2005: Iowa (from 9.4 to 8.0 percent), Massachusetts (from 14.2 to 12.5 percent), Missouri (from 11.9 to 10.6 percent), New Hampshire (from 14.6 to 12.6 percent), New Mexico (from 13.3 to 11.0 percent), and North Dakota (from 10.1 to 8.5 percent) (Table C.2). Only one State, Tennessee, showed a significant increase among persons aged 12 or older, from 8.4 to 10.3 percent. Three States that showed significant decreases from 2003-2004 to 2004-2005 in past year marijuana use for the 12 or older age group also displayed decreases in past month marijuana use (Massachusetts, New Mexico, and North Dakota) (Tables C.2 and C.3). Nationally, there was a significant decrease in the past month use of marijuana among youths aged 12 to 17 (from 7.7 to 7.2 percent), and past year use of marijuana among youths also decreased from 14.7 to 13.9 percent over the same period (Tables C.2 and C.3).

### **2.3 Perceptions of Risk of Marijuana Use**

An individual's perception of the risks of substance use has been shown to be inversely related to whether he or she actually uses the substance (e.g., Bachman, Johnston, & O'Malley, 1998). At the State level, 7 of the 10 States that ranked in the lowest fifth of perceived great risk of using marijuana once a month were also among the States ranked in the highest fifth for past month use of marijuana in 2004-2005 for persons aged 12 or older (Figures 2.9 and 2.13).

Slightly over one quarter (27.1 percent) of all persons aged 12 or older in New Hampshire reported that using marijuana occasionally (once a month) was a great risk (Table B.4). However, in Mississippi slightly more than half (51.2 percent) of all persons aged 12 or older indicated that occasional use of marijuana was a great risk. Although Mississippi (4.8 percent) did not have the lowest rate for past month use of marijuana among persons aged 12 or older, it ranked in the lowest fifth for that measure (Table B.3 and Figure 2.9).

The national percentage of persons aged 12 or older perceiving a great risk of using marijuana once a month decreased significantly between 2003-2004 and 2004-2005, from 39.7 to 39.0 percent (Table C.4). Although there was a decline in perceived risk in the general population, there were no increases in past month use of marijuana for any State in any age group (Table C.3). Four States played a role in contributing to the national decrease in perceived risk: Kansas (from 43.5 to 39.8 percent), Louisiana (from 45.7 to 42.4 percent), Montana (from 39.0 to 36.0 percent), and Oregon (from 33.2 to 30.1 percent) (Table C.4). No State showed a

significant increase in any of the age groups in the perceived great risk of using marijuana once a month.

## 2.4 Incidence of Marijuana Use

Related to the prevalence of marijuana use is the number of persons in a period of time who used marijuana for the first time ever. When the number of first-time users of a substance increases for a number of consecutive years, the prevalence rate for the substance tends to increase also. The average annual incidence of marijuana for this report is estimated somewhat differently than in the national report (OAS, 2006b).<sup>8</sup> The estimate for a single year is averaged over the 2 most recent years and expressed as a rate per 100 person years of exposure. For the combined years 2004-2005, the national marijuana incidence rate for all persons aged 12 or older was 1.7 percent (Table B.5). Alaska had the highest rate, 2.6 percent. Alabama, Arkansas, Florida, Mississippi, and West Virginia shared the lowest rate, 1.4 percent.

Eight States that were ranked in the top fifth for marijuana incidence in the 12 or older age group also ranked in the top fifth for past month marijuana use (Alaska, Colorado, Connecticut, Montana, New Hampshire, Oregon, Rhode Island, and Vermont) (Figures 2.9 and 2.17). Because most initiation of marijuana takes place at age 25 or earlier (Gfroerer, Wu, & Penne, 2002), the rates of initiation in the 26 or older age group were much lower than those in the 18 to 25 and 12 to 17 age groups: The national rates were 0.2, 6.2, and 5.8 percent, respectively (Table B.5). Connecticut had the highest rate among youths aged 12 to 17 (8.0 percent), and New Hampshire had the highest rate among persons aged 18 to 25 (10.1 percent).

Rates of first use of marijuana declined significantly among youths between 2003-2004 and 2004-2005 (from 6.3 to 5.8 percent), young adults aged 18 to 25 (from 6.6 to 6.2 percent), and in the overall population aged 12 or older (from 1.8 to 1.7 percent) (Table C.5). Five States showed significant decreases in marijuana incidence among persons 12 or older. The only significant increase in marijuana incidence was in the 26 or older age group for Hawaii (increased from 0.1 percent in 2003-2004 to 0.2 percent in 2004-2005).

## 2.5 Illicit Drugs Other Than Marijuana

Illicit drugs other than marijuana include cocaine, heroin, hallucinogens, inhalants, and the nonmedical use of prescription-type pain relievers, tranquilizers, stimulants, and sedatives. The national estimate of past month use of illicit drugs other than marijuana among persons aged 12 or older was 3.6 percent for 2004-2005 combined (Table B.6). North Dakota and South Dakota had the lowest rate (2.8 percent) of past month use of an illicit drug other than marijuana among persons 12 or older, and Colorado had the highest rate (4.5 percent). Three States that were in the top fifth for past month use of an illicit drug among those aged 12 or older also were ranked in the top fifth for past month use of an illicit drug other than marijuana: Alaska, Colorado, and Rhode Island (Figures 2.1 and 2.20).

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<sup>8</sup> *Average annual rate* =  $100 * \{ [X_1 \div (0.5 * X_1 + X_2)] \div 2 \}$ , where  $X_1$  is the number of marijuana initiates in the past 24 months and  $X_2$  is the number of persons who never used marijuana. Note that because the average annual incidence of marijuana was so low for the 26 or older age group and had such an abbreviated range, no map has been included for it; however, Table B.5 includes these estimates. For details on how average annual incidence was calculated, see Appendix A (Section A.5).

Past month use of illicit drugs other than marijuana was relatively stable between 2003-2004 and 2004-2005 among all persons aged 12 or older; however, among youths aged 12 to 17, the rates dropped from 5.5 to 5.1 percent (Table C.6). The rate of past month use of illicit drugs other than marijuana in Texas changed from 5.8 to 4.7 percent and shared in the national decrease among youths. Among persons aged 18 to 25, two States showed significant increases: Connecticut (from 8.7 to 11.4 percent) and Tennessee (from 7.4 to 9.8 percent).

## **2.6 Cocaine**

The 2004-2005 national prevalence rate for the use of cocaine in the past year among all persons aged 12 or older was 2.3 percent (Table B.7). Because cocaine is one of the substances included in the "illicit drug use other than marijuana" category, it is useful to compare the rankings of States with respect to these two measures. In 2004-2005, only three States (Alaska, Colorado, and Rhode Island) ranked in the highest fifth for both past month use of an illicit drug other than marijuana (aged 12 or older) and past year use of cocaine (aged 12 or older) (Figures 2.20 and 2.24). The District of Columbia had the highest rate of past year cocaine use (3.4 percent) among persons aged 12 or older; North Dakota had the lowest rate (1.7 percent) in that population (Table B.7). Massachusetts was the only State that ranked in the top fifth for past year cocaine use among all three age groups (12 to 17, 18 to 25, and 26 or older) (Figures 2.25 to 2.27).

California (from 2.6 to 2.2 percent) and New Mexico (from 3.1 to 2.3 percent) showed significant decreases in past year cocaine use among persons aged 12 or older between 2003-2004 and 2004-2005 (Table C.7). The District of Columbia showed an increase in past year cocaine use among young adults aged 18 to 25, from 4.1 to 5.8 percent.

## **2.7 Pain Relievers (Nonmedical Use)**

In 2004-2005, 4.8 percent of all persons aged 12 or older reported having used pain relievers nonmedically in the past year, a percentage that was unchanged from 2003-2004 (Table B.8). Utah had the highest percentage (6.5 percent) of persons aged 12 or older using pain relievers for nonmedical purposes in the past year. South Dakota had the lowest rate in the Nation—3.4 percent. Kentucky and Oklahoma ranked in the top fifth of States for this measure in each of the three age groups and for the total population aged 12 or older (Figures 2.28 to 2.31).

Although the nonmedical use of pain relievers among the general population aged 12 or older remained unchanged between 2003-2004 and 2004-2005, a significant decrease occurred among youths aged 12 to 17 (from 7.5 to 7.1 percent) (Table C.8). Among all persons 12 or older, Georgia showed a decline in the prevalence rate, from 5.5 percent in 2003-2004 to 4.3 percent in 2004-2005. Tennessee, on the other hand, showed an increase from 4.6 to 5.5 percent.

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**Please use the bookmarks palette to access the U.S. maps for this chapter (Figures 2.1 to 2.31 on pages 20-35).**

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## 3. Alcohol Use

A number of measures of alcohol use are available from the National Survey on Drug Use and Health (NSDUH). This report discusses past month alcohol use, past month binge alcohol use, and the perceived risk of binge alcohol use. Binge alcohol use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple hours of each other) on at least 1 day in the 30 days prior to the survey. Alcohol is the most commonly used substance in the United States. Nationally, about half (51.1 percent) of Americans aged 12 or older reported being current (past month) drinkers of alcohol in 2004-2005 (Table B.9). This figure was significantly lower in 2003-2004 (50.2 percent) (Table C.9).

In addition to information on alcohol use among persons aged 12 or older and each of the three age groups (12 to 17, 18 to 25, and 26 or older), estimates of past month alcohol use and binge alcohol use for persons aged 12 to 20 are presented in this report to provide information on underage drinking at the State level. Nationally, neither of these underage drinking measures changed significantly between 2003-2004 and 2004-2005; however, there were some changes at the State level.

### 3.1 Alcohol

In 2004-2005, the rate of past month alcohol use in States among all persons aged 12 or older ranged from a low of 30.1 percent in Utah to a high of 65.3 percent in Wisconsin (Table B.9). The highest rates of past month alcohol use occurred in the 18 to 25 age group, with Wisconsin having the highest rate (75.7 percent). The following States ranked in the top fifth for all three age groups (12 to 17, 18 to 25, and 26 or older) and among persons 12 or older: Connecticut, North Dakota, Rhode Island, South Dakota, and Wisconsin (Figures 3.1 to 3.4).

Seven States showed significant increases in past month alcohol use between 2003-2004 and 2004-2005 among persons 12 or older, contributing to the national increase: Alabama (39.2 to 42.1 percent), Arizona (49.7 to 55.4 percent), Kansas (48.5 to 51.8 percent), Minnesota (57.6 to 61.0 percent), Tennessee (37.6 to 40.9 percent), Texas (46.8 to 48.6 percent) and Wisconsin (62.1 to 65.3 percent) (Table C.9). The national increase was fueled largely by increases in past month alcohol use rates in the 26 or older population (from 52.8 percent in 2003-2004 to 54.0 percent in 2004-2005). Contrary to these increases, alcohol use decreased slightly among youths aged 12 to 17 from 17.7 percent in 2003-2004 to 17.1 percent in 2004-2005.

With respect to underage drinking, past month use of alcohol ranged from a low of 21.3 percent in Utah to a high of 39.5 percent in Wisconsin (Table B.12). Although there was no significant change at the national level in underage alcohol use between 2003-2004 and 2004-2005, eight States displayed changes (Table C.12). Hawaii, Michigan, New Hampshire, New Mexico, North Dakota, and Washington had significant decreases. Texas and Utah had significant increases.



### **3.2 Binge Alcohol Use**

Nationally, almost a quarter (22.7 percent) of all persons aged 12 or older participated in binge use of alcohol in the past month in 2004-2005 (Table B.10). During that period, the past month rate of binge use of alcohol among persons aged 12 or older ranged from 16.3 percent in Utah to 31.5 percent in North Dakota. Five States were ranked in the top fifth in all three age groups (12 to 17, 18 to 25, and 26 or older) and among persons 12 or older: Iowa, Montana, Nebraska, North Dakota, and Wisconsin (Figures 3.5 to 3.8).

The national rate of past month binge alcohol use in 2004-2005 (22.7 percent) remained the same as the rate in 2003-2004 (Table C.10), and the rates among youths aged 12 to 17, young adults aged 18 to 25, and persons aged 26 or older did not change either. Only a few States showed changes during this period, including both increases and decreases. The highest rates of binge use of alcohol occurred among persons aged 18 to 25. North Dakota (58.1 percent) had the highest rate in this age group, almost double the highest rate among persons aged 26 or older and almost 4 times the highest rate among youths aged 12 to 17 (Table B.10).

The lowest State estimate for past month underage (aged 12 to 20) binge use of alcohol was 14.3 percent in Tennessee. North Dakota had the highest rate for this measure, 29.5 percent (Table B.12). Eight of the States that ranked in the highest fifth for past month underage use of alcohol also ranked in the highest fifth for past month underage binge use of alcohol: Iowa, Massachusetts, Montana, North Dakota, Rhode Island, South Dakota, Vermont, and Wisconsin, (Figures 3.13 and 3.14).

Although there was no change at the national level, eight States indicated changes between 2003-2004 and 2004-2005 for underage binge use of alcohol. Illinois, New Hampshire, New Mexico, North Dakota, South Dakota, and Washington showed decreases, whereas Texas and Utah showed increases (Table C.12).

### **3.3 Perceptions of Risk of Binge Alcohol Use**

In 2004-2005, 41.2 percent of all persons aged 12 or older perceived a great risk of binge drinking (Table B.11). People's perceptions of the risk of binge drinking were moderately and inversely related to their actual rates of binge drinking at the State level in 2004-2005. Seven of the ten States (Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Wisconsin) with the highest rates of binge use of alcohol in 2004-2005 among persons 12 or older also were States with the lowest perceived risk of binge drinking for the population aged 12 or older (Figures 3.5 and 3.9). Among persons aged 12 or older, Wisconsin had the lowest percentage (29.8 percent) perceiving a great risk of drinking five or more drinks of alcohol on a single occasion, while Mississippi had the highest rate at 47.7 percent (Table B.11).

Between 2003-2004 and 2004-2005, there were no changes in the percentage of persons reporting a great risk in binge alcohol use, either nationally or in the four census regions in any of the age groups (Table C.11). Only Wisconsin and Wyoming showed changes. Wisconsin indicated decreases in the 12 or older age group and in the 26 or older age group (from 33.3 to 29.8 percent and from 35.5 to 31.3 percent, respectively). Wyoming indicated a significant increase in the 12 or older age group (from 34.9 to 38.2 percent).

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**Please use the bookmarks palette to access the U.S. maps for this chapter (Figures 3.1 to 3.14 on pages 40-46).**

**Please note, these associated maps will open a separate PDF document.**

## 4. Tobacco Use

Tobacco is the second most commonly used substance in the United States next to alcohol. The National Survey on Drug Use and Health (NSDUH) includes a series of questions on the use of several tobacco products, including cigarettes, smokeless tobacco, cigars, and pipe tobacco. This chapter includes State estimates on past month use of tobacco, past month use of cigarettes, and the perceptions of risk of heavy use of cigarettes, using 2004 and 2005 NSDUH data. Heavy use of cigarettes is defined as smoking one or more packs of cigarettes per day. Most tobacco users are cigarette smokers. However, differences in past month prevalence estimates for cigarettes and tobacco (about 4 percent nationally) represent persons who do not smoke cigarettes, but who use one of the other forms of tobacco (chewing tobacco, snuff, cigars, or pipe tobacco) (Tables B.13 and B.14). Nationally, both the percentage of tobacco use and the percentage of cigarette use in the past month were stationary between 2003-2004 and 2004-2005 for the total population aged 12 or older (Tables C.13 and C.14). However, there were significant declines for both measures among youths aged 12 to 17 and among persons aged 18 to 25 in past month cigarette use.

### 4.1 Tobacco

Nationally among persons aged 12 or older, the rate for past month use of tobacco in 2004-2005 was 29.3 percent (Table B.13). The State with the highest prevalence rate for tobacco use among persons aged 12 or older was West Virginia (40.9 percent). California had the lowest rate in the Nation for tobacco use among all persons aged 12 or older (21.2 percent). Kentucky, Missouri, Montana, Oklahoma, and West Virginia ranked in the highest fifth for all three age groups (12 to 17, 18 to 25, and 26 or older) and among all persons 12 or older (Figures 4.1 to 4.4).

Although the percentage of persons aged 12 or older using tobacco in the past month was stationary between 2003-2004 and 2004-2005, the prevalence rate among youths aged 12 to 17 declined slightly from 14.4 to 13.8 percent during the same period (Table C.13). Kentucky, Louisiana, Michigan, and North Dakota showed declines in the 12 to 17 age group. Two States showed decreases in past month tobacco use in at least one of the other age groups between 2003-2004 and 2004-2005. Colorado's rate declined in the 26 or older age group, while South Dakota's rate declined in the 18 to 25 age group. Also, Colorado's rate in the 12 or older population fell from 30.7 to 27.0 percent, and South Dakota's declined from 35.3 to 32.2 percent for persons 12 or older during those years. Across all three age groups, only two States displayed increases in past month tobacco use. Both Tennessee and Utah had increases among persons aged 18 to 25, from 45.3 to 49.4 percent and from 26.0 to 29.6 percent, respectively.

### 4.2 Cigarettes

In 2004-2005, the national rate for past month use of cigarettes among persons aged 12 or older was 24.9 percent (Table B.14). Because cigarettes are the major tobacco product, States ranked high for past month tobacco use tended also to be ranked high for past month cigarette use. In fact, 8 of the 10 States in the highest fifth for past month use of tobacco also were in the

highest fifth for past month cigarette use among persons aged 12 or older (Figures 4.1 and 4.5). Similarly, 8 of the 10 States ranked in the lowest fifth were the same for both measures. Four of the five States that ranked in the highest fifth for past month tobacco use in all three age groups (12 to 17, 18 to 25, and 26 or older) also were ranked in the highest fifth for cigarette use in all three age groups: Kentucky, Missouri, Oklahoma, and West Virginia (Figures 4.2 to 4.4 and 4.6 to 4.8). West Virginia had the highest rate of past month cigarette use in the Nation (32.4 percent), and California had the lowest rate (18.3 percent) for all persons aged 12 or older (Table B.14).

Although the national rate for past month use of cigarettes among persons aged 12 or older remained almost the same between 2003-2004 (25.2 percent) and 2004-2005 (24.9 percent), the 12 to 17 age group and the 18 to 25 age group both had significant declines, from 12.0 to 11.3 percent and from 39.9 to 39.3 percent, respectively (Table C.14). The decreases among the youths were primarily observed in the Midwest and the South. Although there were a few declines among States in past month cigarette use in the other age groups, most of them occurred among youths aged 12 to 17. Alaska, Louisiana, North Dakota, Ohio, and Texas had significant decreases among youths. Across the age groups and across all States, Tennessee had the only significant increase in past month cigarette use among persons aged 18 to 25 (from 38.5 percent in 2003-2004 to 43.9 percent in 2004-2005).

### **4.3 Perceptions of Risk of Heavy Cigarette Use**

States with high prevalence rates for cigarette use tended to have low rates of perceived risk of heavy cigarette use (i.e., smoking one or more packs a day). Five of the States (Kentucky, Missouri, Oklahoma, South Carolina, and West Virginia) that ranked in the lowest fifth for perceptions of great risk of smoking one or more packs of cigarettes a day also were ranked in the highest fifth for past month cigarette use among persons aged 12 or older (Figures 4.5 and 4.9). Kentucky had the lowest rate of perception of great risk for heavy cigarette use (66.0 percent), and Utah had the highest rate (78.8 percent) for persons aged 12 or older (Table B.15).

The rates of perception of great risk of smoking one or more packs of cigarettes a day increased from 72.8 percent in 2003-2004 to 74.4 percent in 2004-2005 among persons 12 or older. Also, during the same period, in all age groups and in all four census regions and nationally within those age groups (except for persons 26 or older in the Midwest region), there were significant increases (at the 5 percent level of significance) in the rates of perception of great risk of smoking one or more packs of cigarettes a day (Table C.15). At the State level, across the three age groups and the combined age group of those 12 or older, there were 46 significant increases in the perceived risk of heavy smoking—and no decreases. Of the 46 State-by-age group increases in perceived risk between 2003-2004 and 2004-2005, only 7 were accompanied by similar decreases in past month use of cigarettes (Tables C.14 and C.15).

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# 5. Substance Dependence, Abuse, and Treatment Need

The National Survey on Drug Use and Health (NSDUH) includes a series of questions to assess the prevalence of substance use disorders (i.e., dependence on or abuse of a substance) in the past 12 months. Substances include alcohol and illicit drugs, such as marijuana, cocaine, heroin, hallucinogens, and inhalants, and nonmedical use of prescription-type drugs. These questions are used to classify persons as being dependent on or abusing specific substances based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> edition (DSM-IV) (American Psychiatric Association [APA], 1994). The questions on dependence ask about health and emotional problems, attempts to cut down on use, tolerance, withdrawal, and other symptoms associated with substances used. The questions on abuse ask about problems at work, home, and school; problems with family or friends; physical danger; and trouble with the law due to substance use. Dependence reflects a more severe substance problem than abuse, and persons are classified with abuse of a particular substance only if they are not dependent on that substance.

An estimated 22.4 million persons aged 12 or older in 2004-2005 were classified with dependence on or abuse of any illicit drug or alcohol in the past year. Of these, 7.1 million were dependent on or had abused illicit drugs, and 18.7 million were dependent on or had abused alcohol (see Tables 16, 18, and 20, <http://www.oas.samhsa.gov/2k5/State/ageTabs.htm>).

## 5.1 Alcohol Dependence or Abuse

Nationally in 2004-2005, 7.7 percent of the population aged 12 or older was classified with dependence on or abuse of alcohol in the past year (Table B.16). Persons aged 18 to 25 had the highest rate of alcohol dependence or abuse (17.5 percent) in the Nation. Wisconsin had the highest rate (10.1 percent) among persons aged 12 or older. Georgia had the lowest rate (6.0 percent). Three States (Montana, North Dakota, and Wisconsin) ranked in the highest fifth for all three age groups (12 to 17, 18 to 25, and 26 or older) and among all persons 12 or older (Figures 5.1 to 5.4).

Past year dependence on or abuse of alcohol remained unchanged between 2003-2004 and 2004-2005 at 7.6 to 7.7 percent for all persons aged 12 or older (Table C.16). The rates for each of the age groups also remained relatively constant during these years. Across all age groups, including the combined 12 or older group, there were seven significant changes among the States, and five of them were increases.

In 2004-2005, 3.4 percent of persons aged 12 or older were estimated to be dependent on alcohol in the past year, representing about 44 percent of those who were dependent on or had abused alcohol in the past year (Tables B.16 and B.17). State estimates for alcohol dependence for persons aged 12 or older ranged from 2.8 percent in Delaware, Georgia, and New Jersey to 5.3 percent in the District of Columbia. The highest rates for alcohol dependence occurred in the 18 to 25 age group. In 2004-2005, about 7 percent of young adults were dependent on alcohol in the past year. Seven States that ranked in the highest fifth in the 12 or older population for

dependence on or abuse of alcohol in the past year also were ranked in the highest fifth for past year alcohol dependence (Figures 5.1 and 5.5). None of the States showed any increase or decrease in past year alcohol dependence rates between 2003-2004 and 2004-2005 either among the 12 or older population or in any of the age subgroups (Table C.17).

## **5.2 Illicit Drug Dependence or Abuse**

Nationally in 2004-2005, about 2.9 percent of persons aged 12 or older were dependent on or had abused illicit drugs in the past year (Table B.18). The District of Columbia had the highest rate of past year illicit drug dependence or abuse (3.8 percent) among persons aged 12 or older, and Iowa had the lowest rate (2.3 percent). The highest rates for past year illicit drug dependence or abuse occurred in the 18 to 25 age group, with Connecticut having the highest rate (12.9 percent). The only regional change in the rates of past year illicit drug dependence or abuse occurred in the Midwest where there was a decrease among youths aged 12 to 17 from 5.4 percent in 2003-2004 to 4.8 percent in 2004-2005 (Table C.18). Both Hawaii and Michigan showed decreases among youths for the time period, while Connecticut, Michigan, and Tennessee all displayed increases among young adults aged 18 to 25. New Mexico showed a decline among the age 12 or older population.

The percentage of persons in 2004-2005 estimated to be dependent on illicit drugs in the past year was 2.0 percent (about two thirds of those who were estimated to be dependent on or had abused illicit drugs in the past year) (Tables B.18 and B.19). As in the case of persons 12 or older being dependent on or having abused illicit drugs in the past year, the District of Columbia had the highest percentage of persons who were dependent on illicit drugs in the past year (2.8 percent). Nationally, there was a significant increase in the percentage of persons dependent on illicit drugs among the 18 to 25 age group from 5.4 percent in 2003-2004 to 5.7 percent in 2004-2005. Some of the same States and age groups that had changes for past year illicit drug dependence or abuse had similar changes for past year illicit drug dependence between 2003-2004 and 2004-2005. The Michigan rate among youths aged 12 to 17 decreased from 3.3 to 2.6 percent; and both Connecticut and Michigan had increases among young adults aged 18 to 25, from 6.3 to 8.8 percent and from 5.7 to 7.1 percent, respectively (Table C.19).

There was a slight relationship in 2004-2005 between the high rates of past year illicit drug dependence and the high rates of past year cocaine use for persons aged 12 or older at the State level. Seven States (Alaska, Colorado, Connecticut, District of Columbia, Massachusetts, Rhode Island, and Vermont) ranked in the highest fifth for both measures among persons aged 12 or older (Figures 2.24 and 5.13). The relationship between low rates of past year illicit drug dependence and low rates of past year cocaine use for persons aged 12 or older at the State level was similar. Five States ranked in the lowest quintile for both measures in 2004-2005.

## **5.3 Alcohol or Illicit Drug Dependence or Abuse**

The national rate in 2004-2005 for past year dependence on or abuse of alcohol or illicit drugs among persons aged 12 or older was 9.3 percent (Table B.20). When examining dependence on or abuse of alcohol or illicit drugs at the State level, the States with high rates for alcohol dependence or abuse tended to rank in the top fifth for alcohol and illicit drug dependence or abuse combined because alcohol accounts for most of the substance dependence

or abuse. Nine States that ranked in the highest fifth for past year alcohol dependence or abuse also ranked in the top fifth for past year dependence on or abuse of alcohol or illicit drugs among persons aged 12 or older (Arizona, Colorado, District of Columbia, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming) (Figures 5.1 and 5.17).

State percentages for past year dependence on or abuse of alcohol or illicit drugs among persons aged 12 or older ranged from a low of 7.7 percent in Georgia to a high of 11.6 percent in the District of Columbia (Table B.20). Only three States, Colorado, Montana, and Wisconsin, were in the highest fifth for all three age groups (12 to 17, 18 to 25, and 26 or older) and among all persons 12 or older (Figures 5.17 to 5.20).

Among all persons aged 12 or older, the rate of past year dependence on or abuse of alcohol or illicit drugs remained nearly constant at 9.2 to 9.3 percent, respectively, in 2003-2004 and 2004-2005 (Table C.20). The only significant national change occurred among youths aged 12 to 17, where there was a decrease from 8.9 to 8.4 percent. Eleven statistically significant changes were spread among eight States across the different age groups. Six of those were increases, and five were decreases. There were no changes in the rate of past year dependence on or abuse of alcohol or illicit drugs observed among persons aged 26 or older.

#### **5.4 Needing But Not Receiving Treatment for Illicit Drug Problems**

The definition of a person needing but not receiving treatment for an illicit drug problem is that the person meets the criteria for abuse of or dependence on illicit drugs according to the DSM-IV, but has not received specialty treatment for an illicit drug problem in the past year. Specialty treatment is treatment received at a drug and alcohol rehabilitation facility (inpatient or outpatient), hospital (inpatient only), or mental health center. The national rate in 2004-2005 for needing but not receiving treatment for an illicit drug problem among persons aged 12 or older was 2.7 percent, unchanged from 2003-2004 (Tables B.21 and C.21).

In 2004-2005, Alaska had the highest percentage of persons aged 12 or older needing but not receiving treatment for an illicit drug use problem (3.5 percent), while North Dakota had the lowest rate (2.0 percent) (Table B.21). The States in the top fifth for needing but not receiving treatment for an illicit drug use problem among persons 12 or older were distributed across the West (four States), Northeast (three States), and the South (two States and the District of Columbia) (Figure 5.21).

The only change at the regional level in the percentage needing but not receiving treatment for illicit drug use was a decline in the 12 to 17 age group in the Midwest, from 5.1 percent in 2003-2004 to 4.5 percent in 2004-2005 (Table C.21). That decline was accompanied by a decrease among youths in Hawaii from 5.6 to 4.2 percent and a decrease among Michigan youths from 5.8 to 4.5 percent. Three States had increases in the 18 to 25 age group. Connecticut's rate increased from 9.3 to 12.3 percent; Michigan's rate increased from 7.3 to 8.8 percent; and Tennessee showed an increase from 6.7 to 9.1 percent among persons aged 18 to 25. There were no significant changes in the 26 or older population.

## 5.5 Needing But Not Receiving Treatment for Alcohol Problems

The definition of a person needing but not receiving treatment for an alcohol problem is that the person meets the criteria for abuse of or dependence on alcohol according to the DSM-IV, but has not received specialty treatment for an alcohol problem in the past year. The percentage of persons aged 12 or older needing but not receiving treatment for alcohol problems (7.4 percent) in 2004-2005 was almost 3 times larger than the corresponding percentage for persons needing but not receiving treatment for illicit drug problems (2.7 percent) (Tables B.21 and B.22).

States in the top fifth for needing but not receiving treatment for alcohol problems among persons aged 12 or older in 2004-2005 were primarily Midwestern (five States) or Western (four States) (Figure 5.25). Only Colorado and the District of Columbia were ranked in the highest quintile for both needing but not receiving treatment for an alcohol problem and needing but not receiving treatment for an illicit drug problem among persons aged 12 or older (Figures 5.21 and 5.25). Four States were ranked in the top fifth for needing but not receiving treatment for alcohol problems among persons aged 12 or older and in each of the three age categories (12 to 17, 18 to 25, and 26 or older): Nebraska, North Dakota, Wisconsin, and Wyoming (Figures 5.25 to 5.28). Wisconsin had the highest rate of needing but not receiving treatment for an alcohol problem (9.6 percent) (Table B.22). Georgia had the lowest rate (5.7 percent).

Among persons aged 12 or older, there were no significant changes between 2003-2004 and 2004-2005 for the Nation as a whole; however, there was a slight increase in the South among persons aged 26 or older from 5.4 to 5.8 percent (Table C.22). Florida was the only State in the South having an increase, from 5.7 to 6.6 percent, among persons aged 26 or older. Florida also had an increase in the rate of the persons needing but not receiving treatment for alcohol use in the overall population 12 or older, from 6.8 percent in 2003-2004 to 7.7 percent in 2004-2005. Michigan and Utah both had increases in the 18 to 25 age group. South Carolina had a decrease in the 18 to 25 age group, and Hawaii had a decrease in the 12 to 17 age group.

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**Please use the bookmarks palette to access the U.S. maps for this chapter (Figures 5.1 to 5.28 on pages 62-75).**

**Please note, these associated maps will open a separate PDF document.**



# 6. Mental Health

## 6.1 Serious Psychological Distress among Adults

In 2005, serious psychological distress (SPD) was measured using the "short-form" module consisting only of the K6 screening instrument for nonspecific psychological distress (Kessler et al., 2003). In the 2004 National Survey on Drug Use and Health (NSDUH), the sample of respondents aged 18 or older was split evenly between the "long-form" module, which included all items in the mental health module used in the 2003 NSDUH (sample A), and a "short-form" module consisting only of the K6 items (sample B). In order to produce the pooled 2004-2005 SPD estimates, the 2004 sample A "long-form" scores were transformed to match the distributional characteristics of the 2004 sample B "short-form" scores using the cumulative distribution function (CDF) adjustment method described in Appendix A of this report. These adjusted 2004 sample A scores were used in conjunction with the 2004 sample B "short-form" scores and the 2005 "short-form" SPD scores to produce the 2004-2005 SPD estimates. The SPD estimates in the 2003-2004 SAE report and other prior SAE reports are, therefore, not comparable with the 2004-2005 SPD estimates in this report.

In 2004-2005, SPD was present in 11.6 percent of the population aged 18 or older (Table B.23). West Virginia had the highest rate of SPD in the past year (15.3 percent), while Hawaii had the lowest rate (9.8 percent). Three of the States (Oklahoma, Utah, and West Virginia) were in the top fifth for both age groups (18 to 25 and 26 or older) and among all persons 18 or older (Figures 6.1 to 6.3).

## 6.2 Major Depressive Episode

Beginning in 2004, a module was included in the questionnaire that was related to having a major depressive episode (MDE); it was derived from the criteria specified for major depression in the *Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> edition (DSM-IV) (American Psychiatric Association [APA], 1994). These questions permit estimates to be calculated for lifetime and past year prevalence of MDE, treatment for MDE, and role impairment resulting from MDE. For this report, estimates were produced only for having MDE in the past year.

In 2004, a split-sample design was implemented where adults aged 18 or older in half of the sample (sample B) received the depression module while adult respondents in the other half (sample A) did not. All adolescents aged 12 to 17 were administered the adolescent depression module. In 2005, however, all adult and adolescent respondents were administered their respective depression modules. Due to minor wording differences in the questions in the adult and adolescent MDE modules, data from youths aged 12 to 17 were not combined with data from persons aged 18 or older to get an overall estimate for those aged 12 or older. Instead, an estimate for those aged 18 or older was produced. To produce the pooled 2004-2005 MDE estimates, the 2005 MDE data were pooled with the 2004 sample B MDE data. Because the 2004 sample A was not used in the estimation process, the 2004 sample B weights were properly adjusted to account for the missing 2004 sample A MDE data.



According to DSM-IV, a person is defined as having had MDE in his or her lifetime if he or she has had at least five or more of the following nine symptoms nearly every day in the same 2-week period (where at least one of the symptoms is a depressed mood or loss of interest or pleasure in daily activities) (APA, 1994): (1) depressed mood most of the day; (2) markedly diminished interest or pleasure in all or almost all activities most of the day; (3) significant weight loss when not sick or dieting, or weight gain when not pregnant or growing, or decrease or increase in appetite; (4) insomnia or hypersomnia; (5) psychomotor agitation or retardation; (6) fatigue or loss of energy; (7) feelings of worthlessness; (8) diminished ability to think or concentrate or indecisiveness; and (9) recurrent thoughts of death or suicidal ideation.

In 2004-2005, 7.7 percent of all persons aged 18 or older experienced having MDE in the past year (Table B.24). Rates among the three age groups ranged between 7 and 10 percent nationally: 8.9 percent among youths aged 12 to 17, 9.9 percent among young adults aged 18 to 25, and 7.3 percent among adults aged 26 or older.

For the 18 or older population, Utah had the highest rate (10.1 percent) of having MDE in the past year in 2004-2005 and Hawaii had the lowest rate (6.7 percent) (Table B.24). Utah was the only State ranking in the top fifth among the three age groups and for all persons aged 18 or older combined (Figures 6.4 to 6.7). No estimates of change have been produced for MDE because the MDE questions were only added to the survey in 2004.

For details on the adult and adolescent modules for MDE, see Section B.4.5 in Appendix B of the 2005 NSDUH's national results report (Office of Applied Studies [OAS], 2006b, pp. 125-129).

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**Please use the bookmarks palette to access the U.S. maps for this chapter (Figures 6.1 to 6.7 on pages 80-83).**

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## 7. Discussion

Chapters 2 through 6 of this report describe the variations across the States in each of the 23 measures for which estimates were produced based on the 2004-2005 National Surveys on Drug Use and Health (NSDUHs), as well as changes between 2003-2004 and 2004-2005 for all measures except for serious psychological distress (SPD) and major depressive episode (MDE). Past reports have noted the regional clustering of States with similar high rates of substance use (e.g., the high rates of alcohol use among northern States in the Northeast and Midwest), the inverse relationship between perceptions of risk of use of a substance and actual use (e.g., between marijuana use and the perceived risk of using marijuana), and the similarity in the ranking of States for related substance use measures (e.g., use of illicit drugs and use of marijuana) (Wright & Sathe, 2004, 2006).

This report marks the first time that comparable State estimates have been available for three consecutive time periods (2002-2003, 2003-2004, and 2004-2005). In this report, statistical tests have been conducted to determine whether there was a significant change between 2003-2004 and 2004-2005. An earlier report tested for differences between 2002-2003 and 2003-2004 (Wright & Sathe, 2006). With both sets of tests, it can be determined whether any State has had a significant change in the same direction for both the earlier and the later period. However, those tests are not able to determine whether the change between 2002-2003 and 2004-2005 is significant or not for a specific measure, State, and age group unless both changes were significant and in the same direction. Because there are State-level random effects in the model that do not vary much from year to year, this can result in a fairly large positive correlation (depending on the measure) between the 2002-2003 estimates and the 2004-2005 estimates. Given the significant size of this correlation, it is important to include it in the tests for significant differences between 2002-2003 and 2004-2005. Thus, a new method for testing is needed and is currently being developed. Based on this method, a web-only supplement to this report will be produced that will compare 2002-2003 and 2004-2005 for all measures that were common to those sets of years. This supplement will include tables with these results and a brief discussion of the results and methodology. Those results are expected to be available in March 2007 on the Substance Abuse and Mental Health Services Administration (SAMHSA) website.

However, some conclusions can be made from the available information in cases where both changes (i.e., between 2002-2003 and 2003-2004, and between 2003-2004 and 2004-2005) have been significant (at the .05 level) and were in the same direction, either increases or decreases. These are discussed in this chapter for a few key measures.

### 7.1 Direction of Changes between 2002-2003 and 2004-2005

As mentioned earlier, the focus of this discussion will be on the consistency of changes at the national and State level between 2002-2003 and 2004-2005 to present an initial snapshot of the direction of changes that have occurred over the period 2002-2005 for selected measures. In addition, because high levels of substance use are a special concern, a focus on decreases among States that rank in the highest fifth of rates of use is included.

### 7.1.1 Marijuana Use

Because marijuana is the single most-used illicit drug, it is useful to look at past month use of marijuana. In 2005, of all persons aged 12 or older who had used an illicit drug during the past month, approximately 75 percent had used marijuana (see Office of Applied Studies [OAS], 2006a, Table 1.1). The areas with the highest rates of past month use of marijuana in 2003-2004 among persons 12 or older were States in the Northeast and West (Wright & Sathe, 2006, Figure 2.9). In the Northeast, the States were Maine, Massachusetts, New Hampshire, New York, Vermont, and Rhode Island. In the West, the States in the highest fifth were Alaska, Montana, New Mexico, and Oregon. Also, in 2003-2004 among youths aged 12 to 17, the States ranked in the highest fifth were the same as those among the 12 or older population, with the only difference being the replacement of New York with Colorado (Wright & Sathe, 2006, Figures 2.9 and 2.10).

At the national level between 2002-2003 (6.2 percent) and 2003-2004 (6.1 percent), and between 2003-2004 and 2004-2005 (6.0 percent), no significant changes in marijuana use occurred among the 12 or older population (Wright & Sathe, 2006, Table C.3; Table C.3 of this report). However, there were some decreases among youths and young adults. Among youths, there was a decrease between 2002-2003 and 2003-2004 in the South (from 7.4 to 6.8 percent). Nationally among persons aged 18 to 25, the percentage using marijuana during the past month decreased from 17.2 percent in 2002-2003 to 16.6 percent in 2003-2004. This was accompanied by a significant decrease for this age group in the Midwest. Between 2003-2004 and 2004-2005, the only significant decrease nationally was among youths, from 7.7 to 7.2 percent. This decrease in past month marijuana use was reflected in similar declines among youths in the Midwest and West.

At the State-by-age group level, from 2002-2003 to 2003-2004, there were 20 declines in past month marijuana use across all age groups, and a single increase (Wright & Sathe, 2006, Table C.3). The sole increase was in New Mexico among persons aged 12 or older. That increase resulted from small, but not statistically significant, increases across the three age groups (12 to 17, 18 to 25, and 26 or older), that when combined, caused a significant increase for the combined 12 or older population. Seven of the decreases occurred in the West, six in the South, four in the Northeast, and three in the Midwest. In the 18 to 25 age group, which displayed the only significant decline at the national level during 2002-2003 to 2003-2004 period, two decreases occurred in Western States (Nevada and Washington), two in the Northeast region (New Hampshire and Rhode Island), one in the South (District of Columbia), and one in the Midwest (Ohio).

Between 2003-2004 and 2004-2005, there were a total of 13 State/age group changes during this period, and all of them were decreases (Table C.3). Seven of the decreases were from States in the West: one each in Alaska, California, and Hawaii, and four in New Mexico. One decrease was in Massachusetts in the Northeast region. The remaining changes occurred in the Midwest (Michigan and North Dakota) and the South (Maryland). Of the States contributing to the national decline among youths aged 12 to 17, four of them were from States in the West and two came from States in the Midwest.

Comparing the consistency of changes between 2002-2003 and 2003-2004 with those between 2003-2004 and 2004-2005, none of the changes in past month marijuana use in the first period occurred in the same domains in the second period (Table C.3 of this report; Wright & Sathe, 2006, Table C.3). The decline in the rates of past month marijuana use among persons aged 18 to 25 in the first period (2002-2003 to 2003-2004) was not followed by a similar change in the second period (2003-2004 to 2004-2005). The decrease among youths aged 12 to 17 in the South in the first period was not reflected among youths in the second period. Comparing the 21 State/age group changes from the first period with the 13 changes from the second period, the only change common to both was in New Mexico among persons aged 12 or older. But even here, the direction was opposite. During the first period, New Mexico showed a significant increase from 7.4 to 8.7 percent, while during the second period the change was a significant *decrease* from 8.7 to 6.6 percent.

It is important to note that this may understate the true number of State-by-age group categories that decreased during both periods because this analysis is defining consistency across both periods only when the changes are both statistically significant (and in the same direction). Other States may display a significant decrease during one of the periods and a nonsignificant decrease in the other period, and tests of the combined decrease from 2002-2003 to 2004-2005 may prove to be statistically significant in those States as well. For example, between 2002-2003 and 2003-2004, New Hampshire had a significant decrease in past month marijuana use among persons aged 26 or older from 7.4 to 6.0 percent (Wright & Sathe, 2006, Table C.3). The comparable New Hampshire estimate for this age group for 2004-2005 is 4.9 percent; however, the decrease between 2003-2004 and 2004-2005 was not significant (Table B.3 of this report). Combined, the total change from 2002-2003 to 2004-2005 is from 7.4 percent to 4.9 percent, and the proposed supplemental testing will determine whether the difference is statistically significant or not.

It is notable that a number of the decreases have occurred in States that were ranked in the highest fifth among persons aged 12 or older. Eight of the States that were ranked in the highest fifth (either in 2002-2003 or 2003-2004) had decreases in one or more age groups either during the first period or the second period (Alaska, Colorado, District of Columbia, Massachusetts, Montana, New Hampshire, New Mexico, and Rhode Island) (Figure 2.9 and Table C.3 in this report; Wright & Sathe, 2005, Figure 2.9; Wright & Sathe, 2006, Table C.3). Across the 20 declines in the first period and the 13 declines in the second period, those States accounted for a total of 16 of the State/age group decreases.

### **7.1.2 Underage Binge Use of Alcohol**

In 2005, the national rate of underage binge alcohol use in the past month was 18.8 percent, which represents about 7.2 million persons aged 12 to 20 (see OAS, 2006a, Tables 2.105A and 2.105B). The States with the highest rates in 2003-2004 in the Midwest were Iowa, Kansas, North Dakota, South Dakota, and Wisconsin (Wright & Sathe, 2006, Figure 3.14). The States with the highest rates in the Northeast were Massachusetts, New Hampshire, and Rhode Island. The remaining States that ranked in the top fifth were Montana and Wyoming. In 2004-2005, the States in the highest fifth were the same with the following exceptions: New Hampshire and Wyoming were replaced by Vermont and Nebraska (Figure 3.14).

There were no significant changes nationally either between 2002-2003 (19.2 percent) and 2003-2004 (19.4 percent) or between 2003-2004 and 2004-2005 (19.2 percent), and no changes among any of the four census regions (Table C.12 in this report; Wright & Sathe, 2006, Table C.12).

There were only five changes among States between 2002-2003 and 2003-2004: Iowa and Oklahoma had increases, while North Carolina, South Carolina, and Tennessee had decreases. Between 2003-2004 and 2004-2005, eight States had changes in the rate of binge use of alcohol among persons aged 12 to 20: Illinois, New Hampshire, New Mexico, North Dakota, South Dakota, and Washington decreased, while Texas and Utah increased (Table C.12 in this report).

Comparing the State changes across the two periods (2002-2003 to 2003-2004 and 2003-2004 to 2004-2005), none of the States that had a change in the first period had a corresponding change in the second period. When the new results on testing for any significant changes between 2002-2003 and 2004-2005 become available, some of the States (e.g., New Mexico, North Carolina, and South Carolina) may indicate a significant decrease for that period.

Of the three States with decreases in the first period and the six with decreases in the second period, only three of them were among those that were ranked in the highest fifth for underage binge drinking, either in 2002-2003 or 2003-2004: New Hampshire, North Dakota, and South Dakota (Wright & Sathe, 2006, Figure 3.14 and Table C.12).

### **7.1.3 Youth Cigarette Use**

In 2002-2003, the percentage of youths aged 12 through 17 who had used cigarettes in the past month was 12.6 percent (Wright & Sathe, 2005, Table B.12). The past month rate of cigarette use among youths declined between 2002-2003 and 2003-2004 from 12.6 to 12.0 percent, and again between 2003-2004 and 2004-2005 from 12.0 to 11.3 percent (Table C.14 in this report; Wright & Sathe, 2006, Table C.14). Among youths, there were similar declines for both periods in the Midwest and South. Both in 2002-2003 and in 2003-2004, the highest rates of past month cigarette use among youths occurred typically in the Midwest and the South (Wright & Sathe, 2005, Figure 4.6; Wright & Sathe, 2006, Figure 4.6). The States that were ranked in the highest fifth among youths in 2002-2003 were Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin in the Midwest; Arkansas, Kentucky, and West Virginia in the South; and Montana in the West.

Over the first period, five States had significant changes among youths, of which four were decreases and one was an increase (in California) (Wright & Sathe, 2006, Table C.14). Of the four decreases, two (Minnesota and Nebraska) were for States ranked in the highest fifth in 2002-2003 (Wright & Sathe, 2005, Figure 4.6). The other two declines were in Florida and Illinois.

During the second period, 2003-2004 to 2004-2005, five States (Alaska, Louisiana, North Dakota, Ohio, and Texas) had decreases among youths (Table C.14). Only North Dakota ranked among the highest fifth in 2003-2004 (Wright & Sathe, 2006, Figure 4.6). Of the States with decreases in the rates of cigarette use in this age group, none of them occurred in the same States



that had a decline in the first period. Because there was a decline in cigarette use among youths nationally and in two regions across both periods, the planned future testing to detect significant changes between 2002-2003 and 2004-2005 may reveal that a number of the States mentioned above may have significant declines across the two periods.

#### **7.1.4 Dependence on or Abuse of Alcohol or Illicit Drugs in the Past Year**

In 2002-2003, 9.2 percent of all persons aged 12 or older met the criteria for having been dependent on or having abused an illicit drug or alcohol during the past year (Wright & Sathe, 2005, Table B.18). The prevalence rates have remained basically unchanged between 2003-2004 (9.2 percent) and 2004-2005 (9.3 percent) (Table C.20). Because alcohol dependence or abuse rates are higher than rates of dependence on or abuse of illicit drugs, States with high rates of alcohol dependence or abuse tend to report the highest rates of dependence on or abuse of illicit drugs or alcohol. The States that were ranked in the highest fifth for dependence on or abuse of illicit drugs or alcohol in 2003-2004 among persons 12 or older included three States from the Midwest (Wisconsin, North Dakota, and South Dakota), five from the West (Arizona, Colorado, Montana, New Mexico, and Wyoming), one from the South (District of Columbia), and one from the Northeast (Rhode Island) (Wright & Sathe, 2006, Figure 5.17). Eight of the States that ranked in the highest fifth in 2002-2003 were the same as those in 2003-2004, trading Wisconsin and Wyoming for Nebraska and New Hampshire (Wright & Sathe, 2005, Figure 5.17).

Between 2002-2003 and 2003-2004, the rates of past year dependence on or abuse of illicit drugs or alcohol did not change nationally in any age group or region except in the 18 to 25 year old age group in the South (decreased from 20.2 to 19.3 percent) (Wright & Sathe, 2006, Table C.20). There were only five changes among all States and age groups during this period. Iowa and Kansas showed increases among young adults aged 18 to 25 and youths aged 12 to 17, respectively. North Carolina, Ohio, and Rhode Island indicated decreases among young adults aged 18 to 25. Rhode Island was the only State from the top-ranked States in 2002-2003 (Wright & Sathe, 2005, Figure 5.17) among persons 12 or older that had a decrease (albeit, in the 18 to 25 age group) in this period.

Between 2003-2004 and 2004-2005, a national decrease in dependence on or abuse of illicit drugs or alcohol occurred among youths, from 8.9 to 8.4 percent (Table C.17 in this report). During the same period, there were 11 changes at the State/age group level that included 6 increases and 5 decreases. One of the increases was in Montana (in the 18 to 25 age group), a State ranked in the highest fifth in 2002-2003 among persons 12 or older, but 2 of the decreases occurred in New Mexico, another State ranked in the highest fifth (Wright & Sathe, 2005, Figure 5.17). None of the decreases in the first period occurred in the same State/age group as those in the second period.

## **7.2 Validation**

Given the unique NSDUH design and limited availability of independent data sources that provide State-level estimates, it is difficult to validate NSDUH State estimates using external sources. In the past, State estimates from this survey (prior to 2002 named the National Household Survey on Drug Abuse [NHSDA]) have been compared with estimates from the Behavioral Risk Factor Surveillance System (BRFSS) and the Youth Risk Behavior Survey

(YRBS) sponsored by the Centers for Disease Control and Prevention (CDC, 2006a, 2006b). However, these CDC surveys (a) did not focus extensively on substance use, (b) employed different data collection methods, (c) did not cover all of the States on an annual basis, and (d) had varying degrees in potential response and nonresponse bias. It is, therefore, difficult to know how much confidence should be placed on comparing the results of surveys that are so different in design and implementation. A recent paper compared past month binge drinking rates among persons aged 18 or older from the BRFSS both at the national and State levels with comparable estimates from NSDUH for the years 1999 and 2001. Miller et al. (2004) found the rates for BRFSS to be lower than those from NSDUH both at the national level and for 46 States although the correlation between the two sets of estimates was fairly high. It was speculated that the differences are due to the perceived greater privacy of the NSDUH that encourages respondents to give honest answers.

Although external validation of NSDUH findings is problematic, internal validation of the State estimates can be useful. Because the State prevalence levels for 2004-2005 are estimated in the same manner as they were for earlier years, the procedures and the results of the validation done for prior estimates apply to these estimates.<sup>9</sup> The average relative absolute bias (RAB) values from the 2000 State report (produced by pooling the 1999 and 2000 NHSDAs) that compare large sample benchmark values with small sample hierarchical Bayes estimates are as follows (see Tables B.22 to B.25 of the 2000 State report; Wright, 2002b):

- past month use of marijuana, 4.07 percent;
- past year use of cocaine, 7.88 percent;
- past month binge alcohol use, 0.98 percent; and
- past month use of cigarettes, 1.22 percent.

These results suggest that, if, for example, the true value of past month use of marijuana for persons aged 12 or older in a State with a sample of about 1,800 persons was 5 percent, the small area estimate would, on average, fall within 0.2 percent ( $4.07 \text{ percent} \times 5 \text{ percent}$ ) of the true value. The precision of these estimates is better than that from corresponding design-based estimates of the same sample size. By combining 2 years' data, the prediction intervals are about 25 to 35 percent shorter, depending on the substance (see Appendix B of the 2000 State report, Wright, 2002b).

As noted in past State reports, the models may not adequately adjust for differential nonresponse and bias effects at the State level. Any such bias resulting from nonresponse that varied in relation to the prevalence rates would raise concerns about comparisons among States.<sup>10</sup> For such bias to exist after nonresponse adjustments have been made requires that the true probabilities for persons to respond to the survey still depend to some degree on whether they have used a substance or not.

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<sup>9</sup> For details, see Appendix B, Section B.4.2 of the 2000 State report (Wright, 2002b).

<sup>10</sup> Tables A.1 to A.12 of Appendix A in this report provide response rates for 2003, 2004, 2005, pooled 2003-2004, and pooled 2004-2005.

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