

# Patterns and Characteristics of Methamphetamine Use Among Adults — United States, 2015–2018

Christopher M. Jones, PharmD, DrPH1; Wilson M. Compton, MD2; Desiree Mustaquim, MPH3

Methamphetamine is a highly addictive central nervous system stimulant. Methamphetamine use is associated with a range of health harms, including psychosis and other mental disorders, cardiovascular and renal dysfunction, infectious disease transmission, and overdose (1,2). Although overall population rates of methamphetamine use have remained relatively stable in recent years (3), methamphetamine availability and methamphetaminerelated harms (e.g., methamphetamine involvement in overdose deaths and number of treatment admissions) have increased in the United States<sup>\*</sup> (4,5); however, analyses examining methamphetamine use patterns and characteristics associated with its use are limited. This report uses data from the 2015–2018 National Surveys on Drug Use and Health (NSDUHs) to estimate methamphetamine use rates in the United States and to identify characteristics associated with past-year methamphetamine use. Rates (per 1,000 adults aged ≥18 years) for past-year methamphetamine use were estimated overall, by demographic group, and by state. Frequency of past-year use and prevalence of other substance use and mental illness among adults reporting past-year use were assessed. Multivariable logistic regression examined characteristics associated with past-year use. During 2015-2018, the estimated rate of past-year methamphetamine use among adults was 6.6 per 1,000. Among adults reporting past-year methamphetamine use, an estimated 27.3% reported using on ≥200 days, 52.9% had a methamphetamine use disorder, and 22.3% injected methamphetamine. Controlling for other factors, higher adjusted odds ratios for past-year use

were found among men; persons aged 26-34, 35-49, and  $\geq 50$  years; and those with lower educational attainment, annual household income <\$50,000, Medicaid only or

# INSIDE

- 324 Nonfatal Violent Workplace Crime Characteristics and Rates by Occupation — United States, 2007–2015
- 329 Tuberculosis Preventive Treatment Scale-Up Among Antiretroviral Therapy Patients — 16 Countries Supported by the U.S. President's Emergency Plan for AIDS Relief, 2017–2019
- 335 Genotyping and Subtyping *Cryptosporidium* To Identify Risk Factors and Transmission Patterns — Nebraska, 2015–2017
- 339 COVID-19 in a Long-Term Care Facility King County, Washington, February 27–March 9, 2020
- 343 Severe Outcomes Among Patients with Coronavirus Disease 2019 (COVID-19) — United States, February 12–March 16, 2020
- 347 Public Health Responses to COVID-19 Outbreaks on Cruise Ships — Worldwide, February–March 2020
- 353 Notes from the Field: Ongoing Cluster of Highly Related Disseminated Gonococcal Infections — Southwest Michigan, 2019
- 355 Notes from the Field: Nationwide Hepatitis E Outbreak Concentrated in Informal Settlements — Namibia, 2017–2020
- 359 QuickStats

Continuing Education examination available at https://www.cdc.gov/mmwr/mmwr\_continuingEducation.html



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<sup>\*</sup> https://www.nflis.deadiversion.usdoj.gov/DesktopModules/ReportDownloads/ Reports/12568NFLISdrugMethamphetamine.pdf.

no insurance, those living in small metro and nonmetro counties,<sup>†</sup> and those with co-occurring substance use and co-occurring mental illness. Additional efforts to build state and local prevention and response capacity, expand linkages to care, and enhance public health and public safety collaborations are needed to combat increasing methamphetamine harms.

Data are from 171,766 adults participating in the 2015–2018 NSDUHs, managed by the Substance Abuse and Mental Health Services Administration.<sup>§</sup> NSDUHs collected information about the use of drugs, alcohol, and tobacco through inperson interviews with noninstitutionalized U.S. civilians aged ≥12 years. An independent, multistage area probability sample design for each state and the District of Columbia allows for production of national and state estimates. The average overall weighted response rate for the 2015–2018 NSDUHs

<sup>†</sup>The Rural-Urban Continuum Codes are hierarchical, mutually exclusive classifications for all U.S. counties created by the U.S. Department of Agriculture. All population counts are from the 2010 Census representing the resident population. Large metro = counties in metro areas with a population ≥1 million persons. Small metro = counties in metros areas with populations between 250,000–1,000,000; counties in metro areas with populations <250,000. Nonmetro = counties in metro areas with populations <250,000. Nonmetro = counties with urban populations ≥20,000 adjacent to a metro area; urban populations ≥20,000 not adjacent to a metro area; urban populations 2,500–19,999 adjacent to a metro area; urban populations 2,500–19,999 not adjacent to a metro area; urban populations adjacent to a metro area; and rural or <2,500 urban population not adjacent to a metro area. https:// seer.cancer.gov/seerstat/variables/countyattribs/ruralurban.html.

<sup>§</sup>https://www.samhsa.gov/data/report/2017-methodological-summary-and-definitions.

was 51%. NSDUH variables included sex, age, race/ethnicity, urbanization status of county, education, annual household income, insurance status, and self-reported substance use, mental illness status, and receipt of substance use treatment. Self-reported substance use in NSDUHs included lifetime and past-year use of methamphetamine; past-year use of cocaine and heroin; past-year misuse of prescription opioids, sedatives, tranquilizers, and stimulants; past-month binge drinking (i.e., drinking five or more [men] or four or more [women] drinks on the same occasion on  $\geq 1$  day within the past month); and past-month nicotine dependence as determined using the Nicotine Dependence Syndrome Scale (6). NSDUHs assessed past-year substance use disorders for specific substances (e.g., methamphetamine) using self-reported responses to questions based on the individual diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Using a predictive model, past-year any mental illness and serious mental illness<sup>¶</sup> were determined for each adult NSDUH respondent.

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<sup>&</sup>lt;sup>9</sup> Any mental illness is defined as currently or at any time within the past year having had a diagnosable mental disorder (excluding developmental disorders and substance use disorder) of sufficient duration to meet DSM-IV diagnostic criteria. Serious mental illness is defined as currently or at any time within the past year having had a mental disorder (excluding developmental disorders and substance use disorder) of sufficient duration to meet DSM-IV diagnostic criteria, which resulted in serious functional impairment substantially interfering with or limiting one or more major life activities. https://www.samhsa.gov/data/report/2017-methodological-summary-and-definitions.

Using public-use-file data\*\* from combined 2015-2018 NSDUHs, weighted counts, annual average rates per 1,000 adults, and corresponding 95% confidence intervals (CIs) were estimated for lifetime methamphetamine use and pastyear methamphetamine use overall and by demographic, substance use, and mental illness variables. Estimates and 95% CIs for frequency of methamphetamine use and prevalence of past-year methamphetamine use disorder, methamphetamine injection, receipt of substance use treatment, other substance use, and mental illness among adults reporting past-year use were determined. Multivariable logistic regression examined characteristics associated with past-year methamphetamine use, controlling for demographic, substance use, and mental illness variables. Results are presented as adjusted odds ratios and 95% CIs. No multicollinearity or potential interaction effects between examined variables in the final model were observed. Restricted access 2017-2018 NSDUH data were used to estimate state rates of past-year methamphetamine use per 1,000 adults. NSDUHs use 2010 census-based population estimates (3). Stata (version 15.1; StataCorp) was used to account for the NSDUH complex survey design and sample weights.

During 2015–2018, the estimated annual average rate of lifetime methamphetamine use was 59.7 per 1,000 adults, or 14,686,900 adults on average each year. The estimated rate of past-year use was 6.6 per 1,000, or 1,626,200 adults on average each year (Table 1). Estimated rates of past-year use were 8.7 for men and 4.7 for women. The highest estimated rates were among adults aged 26–34 (11.0), 18–25 (9.3), and 35–49 (8.3) years and among non-Hispanic whites (7.5), Hispanics (6.7), and non-Hispanic other races (5.6). Estimated rates of past-year use also varied by the other demographic, substance use, and mental illness variables assessed. During 2017–2018 rates of past-year methamphetamine use ranged from 2.76 in New York to 13.98 in Nevada; generally, rates were higher in the western United States than in the East (Supplementary Figure, https://stacks.cdc.gov/view/cdc/85704).

Among adults reporting past-year methamphetamine use, an estimated 36.2%, 19.2%, 17.2%, and 27.3% reported using methamphetamine 1–29 days, 30–99 days, 100–199 days, and  $\geq$ 200 days, respectively; 22.3% reported injecting methamphetamine (Figure). Approximately one half (52.9%) of adults who reported past-year methamphetamine use met diagnostic criteria for past-year methamphetamine use disorder. Among those with past-year methamphetamine use disorder, an estimated 31.5% received any substance use treatment within the past year.

Among adults using methamphetamine within the past year, estimated prevalences of past-year use or misuse of other substances included cannabis use (68.7%), prescription opioid misuse (40.4%), cocaine use (30.4%), prescription sedative or tranquilizer misuse (29.1%), prescription stimulant misuse (21.6%), and heroin use (16.9%). Past-month binge drinking was reported by an estimated 46.4% and nicotine dependence by 44.3%. Mental illness was common also; of persons who used methamphetamine, an estimated 57.7% reported any mental illness, and 25.0% reported serious mental illness during the past year.

Multivariable logistic regression analysis found increased odds of past-year methamphetamine use among men; persons aged 26–34, 35–49, and ≥50 years (versus persons aged 18-25 years); persons with less than a high school diploma, a high school diploma, and some college or associate's degree (versus college graduates); those with annual household income <\$20,000 or \$20,000-\$49,999 (versus ≥\$75,000); persons having Medicaid only or being uninsured (versus private or other insurance); persons living in small metro and nonmetro counties (versus large metro counties); persons reporting pastmonth nicotine dependence; those reporting past-year use of cannabis, cocaine, and heroin; persons reporting misuse of prescription opioids, sedatives, tranquilizers, or stimulants; and persons reporting past-year mental illness but not serious mental illness or past-year serious mental illness (versus no pastyear mental illness). Non-Hispanic black race/ethnicity was associated with lower odds of past-year methamphetamine use compared with non-Hispanic white race/ethnicity (Table 2).

#### Discussion

In the United States during 2015–2018, approximately 1.6 million adults, on average, used methamphetamine each year, and nearly 25% of those reported injecting methamphetamine. In addition, approximately 50% of persons using methamphetamine in the past year met diagnostic criteria for past-year methamphetamine use disorder, yet fewer than one third of adults with past-year methamphetamine use disorder received substance use treatment in the past year. Particularly concerning were high rates of co-occurring substance use or mental illness among adults using methamphetamine.

These findings provide new insights into populations to prioritize for prevention and response efforts, such as men, middle aged adults, and rural residents. Identification of higher rates of methamphetamine use in small metro and nonmetro areas are important given difficulties in delivering services to rural populations who might be disproportionately affected by methamphetamine use. Attention has been drawn to infectious disease transmission associated with opioid injection in these areas (7); the long-standing challenges with lower economic resources, prevalent substance use, and limited treatment availability also place these areas at risk for infectious disease

<sup>\*\*</sup> https://datafiles.samhsa.gov/info/browse-studies-nid3454.

#### Morbidity and Mortality Weekly Report

TABLE 1. Methamphetamine use among adults aged ≥18 years by demographic, substance use, and mental health characteristics — United States, 2015–2018

Annual average no. of adults aged 218 years (weighted)         Annual average no. of adults aged 218 years (weighted)           Overall lifetime use         14,686,000         59.7 (58.1-61.1)           Overall past year use by demographic characteristic         5           Set         988,300         4.7 (4.2-5.2)           Women         1,027,000         8.7 (7.9-5.5)           Arg group (yrs)         7         7           18-25         300,000         3.8,3-10.4)           25-34         4.31,200         11.10,97-12.5           35-49         307,000         3.8,3-10.4)           25-34         4.31,200         1.2,2-3.5)           25-35         36,000         7.5 (6.9-8.2)           Bace/thindiy         72,000         2.5 (1.8.3.4)           White, non-Hispanic         1.30,000         7.5 (6.9-8.2)           Back, non-Hispanic         1.30,000         5.6 (4.4-7.2)           White, non-Hispanic         1.30,000         2.8 (1.1-0.4)           Back, non-Hispanic         2.0000         7.6 (5.9-8.2)           Back of hispanic         7.000         2.8 (1.1-0.4)           Back of hispanic         1.30,000         2.8 (1.1-0.4)           Back of hispanic         7.7 (5.9 -8.1)         1.8 (1.9 - 2.7) <th rowspan="2">Characteristic</th> <th colspan="4">Past-year methamphetamine use</th>	Characteristic	Past-year methamphetamine use			
Overall past-year use14,668,9009.9.7 (58.1-61.4)Overall past-year use0.66 (6.1-7.1)Past-year use by demographic characteristicSexWomen5.95,200Age group (yrs)8.7 (7.9-9.5)Pag-52220,000Pag-533.01.01 (9.7-12.5)Sac-433.10.200Sac-433.10.200Sac-433.10.200Sac-433.10.200Sac-433.10.200Sac-433.10.200Sac-443.10.200Sac-443.10.200Sac-443.10.200Sac-453.20.200Sac-453.20.200Sac-453.20.200Sac-453.20.200Sac-451.180.200Sac-453.20.200Sac-461.180.200Sac-463.20.200Sac-463.20.200Sac-463.20.200Sac-463.20.200Sac-463.20.200Sac-4602.24.10.8-14.3)High school diploma3.94.600Sac-46002.24.10.8-14.3)Sac-46002.24.10.8-14.3)Sac-46002.26.1-30Sac-46002.24.10.8-14.3)Sac-46002.24.10.8-14.3)Sac-46002.90.20.20.20.20.20.20.20.20.20.20.20.20.20		Annual average no. of adults aged ≥18 years (weighted)	Annual average rate per 1,000 adults aged ≥18 years (95% CI) 59.7 (58.1–61.4)		
Overall past-year use by demographic characteristicPast-year use by demographic characteristicSexWomen\$98,30047.42-52.Women\$98,30087.70-9.51Ape group (yrs)30.0088.70-9.5113-2530.0088.70-9.5125-34312.0010.10.97-12.5135-4930.70.0088.73-9.5125-3030.70.0088.73-9.5125030.70.0025.10.8225030.70.0025.10.8225030.70.0025.10.8-3.11250.0072.60.9225.10.8-3.11250.0072.60.9225.10.8-3.11250.0072.60.9225.10.8-3.11250.0072.60.9225.10.8-3.11250.0072.60.9025.61.8-3.11250.0072.60.9225.10.91250.0025.61.8-3.11250.0025.50.0026.16.1-7.91250.0025.50.0075.61.8-1.71250.00025.60.0075.61.8-1.71250.00025.00.0075.61.8-1.71250.00025.00.0075.61.8-1.71250.00025.00.0075.61.8-1.71250.00025.00.0075.61.8-1.72250.00025.00.0075.61.8-1.71250.00025.00.0075.61.8-1.71250.00025.00.0075.61.8-1.71250.00025.00.0075.61.8-1.71250.00025.00.0075.61.8-1.71250.00025.00.0075.62.8.1.72250.00025.00.0075.62.8.1.722	Overall lifetime use	14,686,900			
Patyear use by demographic characteristic           Sec         Nome         1,527,900         6,7 (4,2-5,2)           Men         1,527,900         6,7 (4,2-5,2)           Age group (yrs)         I         I           18-25         320,000         9,3 (8,3-10,4)           25-34         320,000         9,3 (8,3-10,4)           25-34         337,90         38,2 (7,3-9,5)           250         35,7 (9,0)         32,7 (2,8-3,9)           Step:         11,000         2,5 (8,9-8,2)           Step:         11,000         2,5 (8,9-8,2)           Step:         11,000         2,5 (8,9-8,2)           Step:         11,000         2,5 (8,9-8,2)           Education evel         11,000         2,5 (1,8-3,4)           Education evel         12,000         2,4 (1,0,8-14,3)           Step:         11,000         2,4 (1,0,8-14,3)           High school diploma         94,600         12,4 (1,0,8-14,3)           Step:         14,000         13,1 (1,3,2,0)         12,2 (1,6,3,4,1,7,1)           Stop:         14,000         14,1 (3,2,0)         2,2 (4,6,3,4)           Stop:         14,000         3,6 (1,1,3,1,7,1)         2,2 (4,0,4,2)           Stop:         15,2	Overall past-year use	1,626,200	6.6 (6.1–7.1)		
Sex         spasso         spasso         spasso           Men         1,027,900         8.7 (7.9-9.5)           Age group (yrs)         3         3           18-25         320,000         9.3 (8.3-10.4)           25-34         312,000         9.3 (8.3-10.4)           25-34         312,000         9.3 (8.3-10.4)           25-35         30         32,7100         3.2 (2.8-3.9)           Reac/Hanicity         7.0000         2.5 (1.8-3.4)           White, non-Hispanic         113,000         5.6 (4.4-7.2)           Back, non-Hispanic         113,000         5.6 (4.4-7.2)           Hispanic         563,000         9.2 (1.8-1.4)           High school diploma         9.9 (4.00         9.2 (1.8-3.4)           Back non-Hispanic         113,000         5.6 (4.4-7.2)           Hispanic         7.2000         2.5 (1.8-3.4)           Some college or associate's degree         52,300         9.2 (8.1-1.0.4)           Some college or associate's degree         52,300         7.6 (6.6-8.6)           Soutow-Ag.999         55,000         7.6 (6.6-8.6)           Soutow-Ag.999         2.6 (1.3-9.1)         9.2 (2.4-3.4)           Insurance (including Medicare)         704,900         3.6 (3.1-4.	Past-year use by demographic characteristic				
Wonen         598,300         4.7 (24-5.2)           Age group (yrs)         10.7500         8.7 (7.9 - 9.5)           18-25         20.000         9.3 (8.3-10.4)           25-34         431,200         11.0 (9.7-12.5)           25-0         367,7000         8.3 (7.3 - 9.5)           250         367,7000         8.3 (7.3 - 9.5)           250         367,7000         8.3 (7.3 - 9.5)           Store (Strict)         367,100         3.2 (2.8 - 3.9)           Race/Ethnicity         72,000         2.5 (1.8 - 3.4)           Other, non-Hispanic         1130,000         5.6 (4.4 - 7.2)           Hispanic         200,000         6.7 (5.5 - 8.1)           Education level         100,000         5.6 (4.4 - 7.2)           Light school organduate         503,300         9.2 (8.1 - 10.4)           Some college or associate's degree         527,300         6.9 (61 - 7.9)           Bachelor's degree or higher         141,000         18.3 (1.3 - 2.5)           Anual household income         200,00 - 49,99         52,000         7.6 (66.6 6.6)           520,000 - 74,999         52,000         7.6 (66.6 6.6)         50,000 - 7.6 (63.6 1.3 817,7)           520,000 - 74,999         52,400         2.9 (2.4 - 3.4)         1.0 (1.9	Sex				
Men         1,027,900         8.7 (7.9-9.5)           Age group (vis)         18         23           18-25         32,0000         9.3 (8.3-10.4)           25-34         31,000         11.0 (9.7-12.5)           35-49         507,900         8.3 (7.3-9.5)           250         367,100         3.2 (2.8-3.9)           Rec/Ethnicty         72,000         2.5 (1.8-3.4)           White, non-Hispanic         72,000         2.5 (1.8-3.4)           Cher, non-Hispanic         72,000         2.6 (1.4-7.2)           Education level         260,000         6.6 (4.4-7.2)           Hispanic         260,000         6.9 (6.1-7.9)           Schelor's degree         563,300         9.2 (8.1-10.4)           Schelor's degree or hispher         141,000         1.8 (1.3-2.5)           Annua household income         252,000         40,0700         1.6 (1.3-7.9)           Scholor 49,999         552,000         7.6 (6-6.8)         2.5 (2.00.2)           Scholor 49,999         552,000         7.6 (6-6.8)         2.5 (2.0.2)         2.9 (2.4-3.4)           Insurance stus         1         11.8,000         3.6 (3.1-4.1)           Medicaid only         3.6 (3.1-4.1)         3.6 (6-9.5)	Women	598,300	4.7 (4.2–5.2)		
Age group (yrs)         support           18–25         320,000         93 (3.810.4)           25-34         431,200         11.0 (9.7-12.5)           250         367,7000         38 (73-95)           250         367,7000         38 (73-95)           250         367,7100         32 (2.8-3.9)           Race/Ethnicity         72,000         2.5 (1.8-3.4)           White, non-Hispanic         1130,000         6.56 (4.4-7.2)           Hispanic         72,000         6.5 (4.4-7.2)           Hispanic         133,000         6.5 (4.4-7.2)           Bisch, non-Hispanic         133,000         6.6 (4.7-7.2)           Bisch and high school diploma         394,600         1.24 (10.8-14.3)           High school graduate         563,300         9.2 (8.1-10.4)           Some college or associate's degree associate's degree or associate's degree or associate's degree         527,300         6.6 (1.7.9)           Bachelor's degree or higher         41,000         43 (3.4-5.5)         527,500           Soupoon-74,999         552,000         7.6 (6.6-6.8)         550,000,-74,999         56 (2.7.3)           Soupoon-74,999         524,600         2.9 (2.4-3.4)         11.81,000         3.6 (3.1-4.1)           Mediciad only	Men	1,027,900	8.7 (7.9–9.5)		
13r-25         32,0000         9.3 (8.3-10,4)           25-34         35,700         8.3 (73-95)           35-49         36,7100         3.2 (2.8-3.9)           Race/Ethnicity             White, non-Hispanic         1,180,200         2.5 (1.8-3.4)           Other, non-Hispanic         72,000         2.5 (1.8-3.4)           Other, non-Hispanic         13,000         5.6 (4.4-7.2)           Hispanic         260,900         6.7 (5.5-8.1)           Education level             Education level         553,300         9.2 (8.1-10.4)           Some colleg or associate's degree associate's degree         527,300         6.9 (6.1-7.9)           Bachelor's degree or higher         141,000         15.6 (13.8-17,7)           S20,000         640,700         15.6 (13.8-17,7)           S20,000         640,700         7.6 (6.6-8.6)           S0,000,-49,999         159,100         4.3 (1.4-5.5)           Annual household income             Insurance status             Private or other insurance (including Medicare)         704,900         3.6 (3.1-4.1)           Medicaid only         524,660         29.9 (18.5-2.3.5)	Age group (yrs)	220.000			
2b-34         431,200         11.0 (9.7-12.5)           35-49         507,000         32.1 (2.8-3.9)           250         367,100         3.2 (2.8-3.9)           Back/thon-Hispanic         1.180,200         7.5 (6.9-8.2)           Black, non-Hispanic         72,000         2.5 (1.8-3.4)           Other, non-Hispanic         113,000         5.6 (4.4-7.2)           Hispanic         200,900         6.7 (5.5-8.1)           Education level         2         2           Less than high school diploma         394,600         1.2.4 (10.8-14.3)           High school graduate         563,300         9.2 (8.1-10.4)           Some college or associate's degree or higher         110,000         1.8 (1.3-2.5)           Annual household income         2         250,000         4.9 (6.1-7.9)           Soutool 4.999         552,000         7.6 (6.6-6.6)         550,000-7.4 (9.99         3.6 (3.1-4.1)           Medicaid only         524,600         2.9 (1.8-2.5.5)         2.4 (1.8-1.8)           Soutoon 74,999         3.6 (3.1-4.1)         9.2 (4.5-5.8)           Songoon 74,999         52,400         2.9 (1.8-5.2.5)           Uninsured         711,200         52,46-6.9           Sonall metro         533,100         7.9	18-25	320,000	9.3 (8.3–10.4)		
35-39         367,100         3.5 (.3,9-3.)           260         367,100         3.2 (.2,8-3.9)           Race/Ethnicity             White, non-Hispanic         7,200         2.5 (.8-3.4)           Other, non-Hispanic         72,000         2.5 (.8-3.4)           Other, non-Hispanic         72,000         2.6 (.8-7.2)           Hispanic         72,000         6.7 (.5,5-8.1)           Education level             Less than high school diploma         394,600         12.4 (10.8-14.3)           High school graduate         563,300         9.2 (8,1-10.4)           Some college or associate's degree or higher         141,000         1.8 (1.3-2.5)           Annual household income           552,000         7.6 (.6,6-8.6)           S0,000-74,999         166,100         4.3 (.3,4-5.5)         257,500         2.6 (.3,1-4.1)           Medicaid only         524,600         2.0 (.8,2-3.5)          31,900         3.6 (.3,1-4.1)           Medicaid only         524,600         2.0 (.8,2-3.5)          31,900         3.2 (.4,6-5.8)         Small metro         S.2 (.4,6-5.8)         Small metro         S.2 (.4,6-5.8)         Small metro         S.2 (.4,6-5.8)         Smal	26-34	431,200	11.0 (9.7–12.5)		
2-0         50',10'         5.2 (2.8'-3.9')           Race/Ethnicity         1180,000         7.5 (6.9-8.2)           White, non-Hispanic         113,000         5.6 (4.4-7.2)           Other, non-Hispanic         260,000         6.7 (5.5-8.1)           Education level         2         2           Less than high school diploma         394,600         12.4 (10.8-14.3)           High school graduate         563,300         9.2 (8.1-0.4)           Som college or associate's degree         527,300         6.9 (6.1-7.9)           Bachelor's degree or higher         141,000         1.8 (1.3-2.5)           Annual household income         -         -           <20,000	50-49	267,100	8.3 (7.3-9.5)		
Background by Write, non-Hispanic         1,180,200         7,5 (6,9–8,2)           Black, non-Hispanic         7,200         2,5 (1,8–3,4)           Other, non-Hispanic         260,900         6,7 (5,5–8,1)           Education level         2         2           Less than high school diploma         94,600         1,24 (10,8–14,3)           High school graduate         563,300         9,2 (8,1–10,4)           Some college or associate's degree or higher         141,000         1,8 (1,3–2,5)           Annual household income		307,100	5.2 (2.8-3.9)		
Mine, Indentispanic         1,18,200         1,216,200-2,21           Other, non-Hispanic         113,000         5,6 (4,4-7,2)           Hispanic         260,900         6,7 (5,5-8,1)           Education level         2         2           Less than high school diploma         394,600         1,24 (10,8-14,3)           High school graduate         563,300         9,2 (8,1-10,4)           Some college or associate's degree         527,300         6.9 (6,1-7.9)           Bachelor's degree or higher         141,000         1.8 (1,3-2.5)           Annual household income         2         520,000         7.6 (6,6-8.6)           S20,000-74.999         552,000         7.6 (6,6-8.6)         550,000-74.999         3.6 (3,1-4.1)           Herdicaid only         24 (40,200         2.9 (2,4-3.4)         1.1           Insurance tincluding Medicare)         704,900         3.6 (3,1-4.1)           Medicaid only         524,600         2.09 (18,5-2.35)           Uninsured         396,700         1.6 (10,2-13.0)           Synaphic         733,900         1.6 (10,2-13.0)           Synaphic         733,900         3.6 (3,1-4.1)           Medicaid only         52 (4,6-5.8)         539,900           Uninsured         393,100	Kace/Ethnicity	1 190 200	75 (60 92)		
Date, non-Hispanic.         72,000         2.5 (12–3.4)           Other, non-Hispanic         260,900         6.7 (5.5–8.1)           Education level         2         2           Less than high school diploma         394,600         12.4 (10.8–14.3)           High school graduate         563,300         9.2 (8.1–10.4)           Some college or associate's degree or higher         141,000         1.8 (1.3–2.5)           Annual household income         2         2         252,000         7.6 (6.6–8.6)           S20,000         49,999         552,000         7.6 (6.6–8.6)         257,500         2.6 (3.1–4.1)           S20,000-49,999         552,000         7.6 (6.6–8.6)         252,500         2.9 (2.4–3.4)           Insurace status         Private or other insurance (including Medicare)         704,900         3.6 (3.1–4.1)           Medicaid only         524,600         2.0.9 (18.5–23.5)         Unisured         39,700         16.4 (13)–9.12)           County type of residence*         2         2         2.4 (8.5–8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)         2.5 (4.6–5.8)		72,000	7.5 (0.9-0.2)		
Context, non-mispaine.         11,000         5.0 (447–2.2)           Hispanic         260,900         6.7 (55–8.1)           Education level             Less than high school diploma         394,600         12.4 (10.8–14.3)           High school graduate         563,300         9.2 (8.1–10.4)           Some college or associate's degree         527,300         6.9 (61–7.9)           Bachelor's degree or higher         141,000         18.1(3.2–5)           Annual household income             <250,000	Other pop-Hispanic	113,000	2.3 (1.8–3.4) 5.6 (4.4–7.2)		
Impain         Description         Description           Education level         East an high school diploma         394,600         12.4 (10.8–14.3)           Less than high school diploma         563,300         9.2 (8.1–10.4)           Some college or associate's degree         527,300         6.9 (6.1–7.9)           Bachelor's degree or higher         141,000         1.8 (1.3–2.5)           Annual household income             <\$20,000	Hispanic	260,900	6.7 (5.5–8.1)		
Lack and inference         394,600         12.4 (10.8–14.3)           High school graduate         563,300         9.2 (8.1–10.4)           Some college or associate's degree         527,300         6.9 (6.1–7.9)           Bachelor's degree or higher         141,000         1.8 (1.3–2.5)           Annual household income             <250,000	Education level	200,900	0.7 (3.5 0.1)		
Case intering in summer in the interior of the interior	Less than high school diploma	394 600	124 (108-143)		
Answer         Second         Figure           Some college or associate's degree         527,300         6.9 (6.1-7.9)           Bachelor's degree or higher         141,000         1.8 (1.3-2.5)           Annual household income             <250,000	High school graduate	563 300	9 2 (8 1–10 4)		
Bachelor's degree or higher         141,000         1.8 (1.3–2.5)           Annual household income            <\$20,000	Some college or associate's degree	527.300	6.9 (6.1–7.9)		
Annual household income         Annual household income           <220,000	Bachelor's degree or higher	141,000	1.8 (1.3–2.5)		
Stand         Stand         Stand           S20,000         49,999         552,000         7.6 (6.6-8.6)           S50,000-74,999         169,100         4.3 (3.4-5.5)           S575,000         264,300         2.9 (2.4-3.4)           Insurance status         704,900         3.6 (3.1-4.1)           Medicaid only         524,600         20.9 (18.5-23.5)           Uninsured         396,700         1.6.4 (13.9-19.2)           County type of residence*         2         2           Large metro         711,200         5.2 (4.6-5.8)           Small metro         331,900         9.5 (8.2-11.0)           Substance use <sup>†</sup> 711,200         3.0 (3.1-4.3,4)           Past-month hioge drinking         753,900         11.6 (10.2-13.0)           Past-month nicotine dependence         719,900         3.90 (35.1-43.4)           Past-year cocaine use         4.93,500         9.47 (83.5-107.1)           Past-year cocaine use         4.93,500         9.47 (83.5-107.1)           Past-year prescription opioid misuse         657,100         63.2 (56.4-70.9)           Past-year prescription sedative/tranquilizer misuse         473,400         7.40 (66.9-81.7)           Past-year prescription stimulant misuse         657,100         63.2 (56.4-70	Annual household income				
\$20,000-49,999552,0007.6 (6.6-8.6)\$50,000-74,999169,1004.3 (3.4-5.5)≥\$75,000264,3002.9 (2.4-3.4)Insurance statusTPrivate or other insurance (including Medicare)704,9003.6 (3.1-4.1)Medicaid only524,60020.9 (18.5-23.5)Uninsured396,70016.4 (13.9-19.2)County type of residence*TTLarge metro711,2005.2 (4.6-5.8)Small metro583,1007.9 (6.6-9.5)Nonmetro381,9009.5 (8.2-11.0)Substance use <sup>†</sup> TTPast-month binge drinking753,90011.6 (10.2-13.0)Past-month nicotine dependence719,90039.0 (35.1-43.4)Past-year cocaine use493,50094.7 (83.5-107.1)Past-year cocaine use493,50094.7 (83.5-107.1)Past-year prescription opioid misuse657,10063.2 (56.4-70.9)Past-year prescription stimulant misuse350,90069.6 (61.2-79.0)Metal healthTTTNo past-year mental illness68.3003.4 (3.1-3.8)Past-year ereous mental illness <td>&lt;\$20.000</td> <td>640.700</td> <td>15.6 (13.8–17.7)</td>	<\$20.000	640.700	15.6 (13.8–17.7)		
\$50,000-74,999         169,100         4.3 (3.4-5.5)           ≥575,000         264,300         2.9 (2.4-3.4)           Insurace status         Private or other insurance (including Medicare)         704,900         3.6 (3.1-4.1)           Medicaid only         524,600         20.9 (18.5-23.5)         Uninsured           County type of residence*         20.9 (18.5-23.5)         Uninsured         366,700         16.4 (13.9-19.2)           County type of residence*         20.9 (18.5-23.5)         State of the state of th	\$20,000-49,999	552,000	7.6 (6.6–8.6)		
≥\$75,000 264,300 2.9 (2.4–3.4) Insurance status Private or other insurance (including Medicare) 704,900 3.6 (3.1–4.1) Medicaid only 20.9 (18.5–23.5) Uninsured 396,700 16.4 (13.9–19.2) County type of residence* Large metro 5.2 (4.6–5.8) Small metro 5.2 (4.6–5.8) Small metro 5.2 (4.6–5.8) Small metro 711,200 5.2 (4.6–5.8) Small metro 9.5 (8.2–11.0) Substance use <sup>†</sup> Past-month binge drinking 753,900 11.6 (10.2–13.0) Past-month nicotine dependence 719,900 39.0 (35.1–43.4) Past-year marijuana use 1,118,000 30.6 (27.9–33.6) Past-year cocaine use 493,500 94.7 (83.5–107.1) Past-year cocaine use 493,500 94.7 (83.5–107.1) Past-year prescription opioid misuse 657,100 63.2 (56.4–70.9) Past-year prescription stimulant misuse 350,900 69.6 (61.2–79.0) Mental health No past-year mental illness 688,300 3.4 (3.1–3.8) Past-year mental illness 931,900 315.4 (3.1–3.8) Past-year serious mental illness <sup>§</sup> 531,900 15.3 (13.5–17.3) Past-year serious mental illness <sup>§</sup> 531,900 37.6 (32.1–4.3.9)	\$50,000–74,999	169,100	4.3 (3.4–5.5)		
Insurance status         Private or other insurance (including Medicare)         704,900         3.6 (3.1–4.1)           Medicaid only         524,600         20.9 (18.5–23.5)           Uninsured         396,700         16.4 (13.9–19.2)           County type of residence*         2         2           Large metro         711,200         5.2 (4.6–5.8)           Small metro         583,100         7.9 (6.6–9.5)           Nonmetro         331,900         9.5 (8.2–11.0)           Substance use <sup>†</sup> 2         2           Past-month hioge drinking         753,900         11.6 (10.2–13.0)           Past-ger cocaine use         719,900         39.0 (35.1–43.4)           Past-year marijuana use         1,118,000         30.6 (27.9–33.6)           Past-year prescription opiol misuse         275,600         315.7 (267.8–367.8)           Past-year prescription sedative/tranquilizer misuse         473,400         74.0 (6.6–9.8.7)           Past-year prescription sedative/tranquilizer misuse         350,900         63.2 (56.4–70.9)           Past-year prescription sedative/tranquilizer misuse         50.900         69.6 (61.2–79.0)           Metal health         2         53.1,900         3.4 (3.1–3.8)           Past-year serious mental illness <sup>6</sup> 531,900 <td< td=""><td>≥\$75,000</td><td>264,300</td><td>2.9 (2.4–3.4)</td></td<>	≥\$75,000	264,300	2.9 (2.4–3.4)		
Private or other insurance (including Medicare)       704,900       3.6 (3.1-4.1)         Medicaid only       524,600       20.9 (18.5-23.5)         Uninsured       396,700       16.4 (13.9-19.2)         County type of residence*       711,200       5.2 (4.6-5.8)         Small metro       583,100       7.9 (6.6-9.5)         Nonmetro       331,900       9.5 (8.2-11.0)         Substance use <sup>†</sup> 719,900       3.0 (35.1-43.4)         Past-month binge drinking       753,900       11.6 (10.2-13.0)         Past-month nicotine dependence       719,900       3.0.6 (27.9-33.6)         Past-year marijuana use       1,118,000       30.6 (27.9-33.6)         Past-year prescription opioid misuse       275,600       315.7 (267.8-367.8)         Past-year prescription opioid misuse       473,400       74.0 (66.9-81.7)         Past-year prescription sedative/tranquilizer misuse       473,400       74.0 (66.9-81.7)         Past-year prescription stimulant misuse       350,900       69.6 (61.2-79.0)         Metat health       1       11.900       3.4 (3.1-3.8)         Past-year mertal illness       688,300       3.4 (3.1-3.8)         Past-year serious mental illness <sup>§</sup> 531,900       15.3 (13.5-17.3)	Insurance status				
Medicaid only         524,600         20.9 (18.5–23.5)           Uninsured         396,700         16.4 (13.9–19.2)           County type of residence*            Large metro         711,200         5.2 (4.6–5.8)           Small metro         583,100         7.9 (6.6–9.5)           Nonmetro         331,900         9.5 (8.2–11.0)           Substance use <sup>†</sup> Past-month binge drinking         753,900         11.6 (10.2–13.0)           Past-war marijuana use         711,800         30.6 (27.9–33.6)           Past-year marijuana use         1,118,000         30.6 (27.9–33.6)           Past-year prescription opioid misuse         493,500         94.7 (83.5–107.1)           Past-year prescription sedative/tranquilizer misuse         473,400         74.0 (66.9–81.7)           Past-year prescription sedative/tranquilizer misuse         473,400         74.0 (66.9–81.7)           Past-year prescription stimulant misuse         350,900         69.6 (61.2–79.0)           Mental health         No past-year mental illness         688,300         3.4 (3.1–3.8)           Past-year serious mental illness <sup>6</sup> 531,900         15.3 (13.5–17.3)           Past-year serious mental illness <sup>6</sup> 531,900         35.3 (13.5–17.3)	Private or other insurance (including Medicare)	704,900	3.6 (3.1–4.1)		
Uninsured         396,700         16.4 (13.9–19.2)           County type of residence*            Large metro         711,200         5.2 (4.6–5.8)           Small metro         583,100         7.9 (6.6–9.5)           Nonmetro         331,900         9.5 (8.2–11.0)           Substance use <sup>†</sup> Past-month binge drinking         753,900         11.6 (10.2–13.0)           Past-month nicotine dependence         719,900         39.0 (35.1–43.4)           Past-year marijuana use         1,118,000         30.6 (27.9–33.6)           Past-year cocaine use         493,500         94.7 (83.5–107.1)           Past-year prescription opioid misuse         657,100         63.2 (56.4–70.9)           Past-year prescription sedative/tranquilizer misuse         473,400         74.0 (66.9–81.7)           Past-year prescription stimulant misuse         657,100         63.2 (56.4–70.9)           Past-year prescription stimulant misuse         473,400         74.0 (66.9–81.7)           Past-year prescription stimulant misuse         350,900         69.6 (61.2–79.0)           Mental health         No past-year mental illness         34.(3.1–3.8)           Past-year serious mental illness <sup>§</sup> 531,900         35.3 (13.5–17.3)           Past-year ser	Medicaid only	524,600	20.9 (18.5–23.5)		
County type of residence*       711,200 $5.2$ (4.6–5.8)         Large metro $5.3$ (4.6–5.8) $5.3$ (4.6–5.8)         Small metro $583,100$ $7.9$ (6.6–9.5)         Nonmetro $331,900$ $9.5$ (8.2–11.0)         Substance use <sup>†</sup> Past-month binge drinking $753,900$ $11.6$ (10.2–13.0)         Past-month nicotine dependence $719,900$ $39.0$ ( $35.1-43.4$ )         Past-year marijuana use $1,118,000$ $30.6$ ( $27.9-33.6$ )         Past-year cocaine use $493,500$ $94.7$ ( $83.5-107.1$ )         Past-year prescription opioid misuse $657,100$ $63.2$ ( $56.4-70.9$ )         Past-year prescription sedative/tranquilizer misuse $473,400$ $74.0$ ( $66.9-81.7$ )         Past-year prescription sedative/tranquilizer misuse $473,400$ $74.0$ ( $66.9-81.7$ )         Past-year mertal illness $50,900$ $69.6$ ( $61.2-79.0$ )         Mortal health       No past-year mental illness $31,900$ $34.(3.1-3.8)$ Past-year serious mental illness $531,900$ $53.3$ ( $13.5-17.3$ )         Past-year serious mental illness <sup>§</sup> $531,900$ $53.2$ ( $13.5-17.3$ )	Uninsured	396,700	16.4 (13.9–19.2)		
Large metro       711,200       5.2 (4.6–5.8)         Small metro       583,100       7.9 (6.6–9.5)         Nonmetro       331,900       9.5 (8.2–11.0)         Substance use <sup>†</sup> 753,900       11.6 (10.2–13.0)         Past-month binge drinking       753,900       39.0 (35.1–43.4)         Past-year marijuana use       1,118,000       30.6 (27.9–33.6)         Past-year cocaine use       493,500       94.7 (83.5–107.1)         Past-year prescription opioid misuse       657,100       63.2 (56.4–70.9)         Past-year prescription sedative/tranquilizer misuse       473,400       74.0 (66.9–81.7)         Past-year mental illness       688,300       3.4 (3.1–3.8)         Past-year mental illness       688,300       3.4 (3.1–3.8)         Past-year serious mental illness <sup>§</sup> 531,900       15.3 (13.5–17.3)	County type of residence*				
Small metro         583,100         7.9 (6.6–9.5)           Nonmetro         331,900         9.5 (8.2–11.0)           Substance use <sup>†</sup> Past-month binge drinking         753,900         11.6 (10.2–13.0)           Past-month nicotine dependence         719,900         39.0 (35.1–43.4)           Past-year marijuana use         1,118,000         30.6 (27.9–33.6)           Past-year cocaine use         493,500         94.7 (83.5–107.1)           Past-year prescription opioid misuse         275,600         315.7 (267.8–67.8)           Past-year prescription opioid misuse         657,100         63.2 (56.4–70.9)           Past-year prescription sedative/tranquilizer misuse         473,400         74.0 (66.9–81.7)           Past-year prescription simulant misuse         350,900         69.6 (61.2–79.0)           Mental health         No past-year mental illness         531,900         3.4 (3.1–3.8)           Past-year serious mental illness <sup>§</sup> 531,900         15.3 (13.5–17.3)           Past-year serious mental illness <sup>¶</sup> 406,000         37.6 (32.1–43.9)	Large metro	711,200	5.2 (4.6–5.8)		
Nonmetro         331,900         9.5 (8.2–11.0)           Substance use <sup>†</sup> Past-month binge drinking         753,900         11.6 (10.2–13.0)           Past-month nicotine dependence         719,900         39.0 (35.1–43.4)           Past-year marijuana use         1,118,000         30.6 (27.9–33.6)           Past-year cocaine use         493,500         94.7 (83.5–107.1)           Past-year prescription opioid misuse         275,600         315.7 (267.8–367.8)           Past-year prescription opioid misuse         657,100         63.2 (56.4–70.9)           Past-year prescription sedative/tranquilizer misuse         473,400         74.0 (66.9–81.7)           Past-year mental illness         350,900         34. (3.1–3.8)           Past-year mental illness         531,900         15.3 (13.5–17.3)           Past-year serious mental illness <sup>§</sup> 531,900         37.6 (32.1–43.9)	Small metro	583,100	7.9 (6.6–9.5)		
Substance use <sup>†</sup> Past-month binge drinking       753,900       11.6 (10.2–13.0)         Past-month nicotine dependence       719,900       39.0 (35.1–43.4)         Past-year marijuana use       1,118,000       30.6 (27.9–33.6)         Past-year cocaine use       493,500       94.7 (83.5–107.1)         Past-year heroin use       275,600       315.7 (267.8–367.8)         Past-year prescription opioid misuse       657,100       63.2 (56.4–70.9)         Past-year prescription sedative/tranquilizer misuse       473,400       74.0 (66.9–81.7)         Past-year mental illness       50,900       69.6 (61.2–79.0)         Mental health       No past-year mental illness       688,300       3.4 (3.1–3.8)         Past-year serious mental illness <sup>§</sup> 531,900       15.3 (13.5–17.3)         Past-year serious mental illness <sup>¶</sup> 406,000       37.6 (32.1–43.9)	Nonmetro	331,900	9.5 (8.2–11.0)		
Past-month binge drinking       753,900       11.6 (10.2–13.0)         Past-month nicotine dependence       719,900       39.0 (35.1–43.4)         Past-year marijuana use       1,118,000       30.6 (27.9–33.6)         Past-year cocaine use       493,500       94.7 (83.5–107.1)         Past-year heroin use       275,600       315.7 (267.8–367.8)         Past-year prescription opioid misuse       657,100       63.2 (56.4–70.9)         Past-year prescription sedative/tranquilizer misuse       473,400       74.0 (66.9–81.7)         Past-year mental illness       350,900       69.6 (61.2–79.0)         Mental health       No past-year mental illness       688,300       3.4 (3.1–3.8)         Past-year serious mental illness       531,900       15.3 (13.5–17.3)         Past-year serious mental illness <sup>§</sup> 531,900       37.6 (32.1–43.9)	Substance use <sup>†</sup>				
Past-month nicotine dependence       719,900       39.0 (35.1–43.4)         Past-year marijuana use       1,118,000       30.6 (27.9–33.6)         Past-year cocaine use       493,500       94.7 (83.5–107.1)         Past-year heroin use       275,600       315.7 (267.8–367.8)         Past-year prescription opioid misuse       657,100       63.2 (56.4–70.9)         Past-year prescription sedative/tranquilizer misuse       473,400       74.0 (66.9–81.7)         Past-year prescription stimulant misuse       350,900       69.6 (61.2–79.0)         Mental health       No past-year mental illness       34. (3.1–3.8)         Past-year serious mental illness       531,900       15.3 (13.5–17.3)         Past-year serious mental illness <sup>§</sup> 531,900       37.6 (32.1–43.9)	Past-month binge drinking	753,900	11.6 (10.2–13.0)		
Past-year marijuana use       1,118,000       30.6 (27.9–33.6)         Past-year cocaine use       493,500       94.7 (83.5–107.1)         Past-year heroin use       275,600       315.7 (267.8–367.8)         Past-year prescription opioid misuse       657,100       63.2 (56.4–70.9)         Past-year prescription sedative/tranquilizer misuse       473,400       74.0 (66.9–81.7)         Past-year mental illness       350,900       69.6 (61.2–79.0)         Mental health       No past-year mental illness       531,900       15.3 (13.5–17.3)         Past-year serious mental illness <sup>§</sup> 531,900       15.3 (13.5–17.3)	Past-month nicotine dependence	719,900	39.0 (35.1–43.4)		
Past-year cocaine use       493,500       94.7 (83.5-107.1)         Past-year heroin use       275,600       315.7 (267.8-367.8)         Past-year prescription opioid misuse       657,100       63.2 (56.4-70.9)         Past-year prescription sedative/tranquilizer misuse       473,400       74.0 (66.9-81.7)         Past-year prescription stimulant misuse       350,900       69.6 (61.2-79.0)         Mental health       No past-year mental illness       34.4 (3.1-3.8)         Past-year serious mental illness       531,900       15.3 (13.5-17.3)         Past-year serious mental illness <sup>§</sup> 531,900       37.6 (32.1-43.9)	Past-year marijuana use	1,118,000	30.6 (27.9–33.6)		
Past-year prescription opiol misuse275,000515.7 (207.8–507.6)Past-year prescription opiol misuse657,10063.2 (56.4–70.9)Past-year prescription sedative/tranquilizer misuse473,40074.0 (66.9–81.7)Past-year prescription stimulant misuse350,90069.6 (61.2–79.0)Mental healthNo past-year mental illness34. (3.1–3.8)Past-year mental illness but not serious mental illness531,90015.3 (13.5–17.3)Past-year serious mental illness406,00037.6 (32.1–43.9)	Past-year cocaine use	493,500	94.7 (83.5-107.1)		
Past-year prescription sedative/tranquilizer misuse 473,400 74.0 (66.9–81.7) Past-year prescription stimulant misuse 350,900 69.6 (61.2–79.0) Mental health No past-year mental illness but not serious mental illness <sup>§</sup> 531,900 15.3 (13.5–17.3) Past-year serious mental illness <sup>¶</sup>	Past-year neroin use	275,000	315.7 (207.8-307.8) 62.2 (56.4, 70.0)		
Past-year prescription stimulant misuse 77,700 60.9-01.7) Past-year prescription stimulant misuse 69.6 (61.2–79.0) Mental health No past-year mental illness Past-year mental illness but not serious mental illness <sup>§</sup> 531,900 15.3 (13.5–17.3) Past-year serious mental illness <sup>¶</sup>	Past-year prescription opioid misuse	473 400	74 () (66 9–81 7)		
Mental health       530,000       3.4 (3.1–3.8)         Past-year mental illness       688,300       3.4 (3.1–3.8)         Past-year serious mental illness <sup>§</sup> 531,900       15.3 (13.5–17.3)         Past-year serious mental illness <sup>¶</sup> 406,000       37.6 (32.1–43.9)	Past-year prescription stimulant misuse	350 900	69.6 (61.2–79.0)		
No past-year mental illness688,3003.4 (3.1–3.8)Past-year mental illness but not serious mental illness531,90015.3 (13.5–17.3)Past-year serious mental illness406,00037.6 (32.1–43.9)	Montal health	330,200	05.0 (01.2 7 5.0)		
Past-year mental illness <sup>¶</sup> 406,000 37.6 (32.1–43.9)	No past-year mental illness	688 300	3 4 (3 1_3 8)		
Past-year serious mental illness <sup>¶</sup> 406,000 37.6 (32.1–43.9)	Past-year mental illness but not serious mental illness <sup>§</sup>	531 900	15.3 (13 5–17 3)		
57.0 (JL) 13.7	Past-vear serious mental illness <sup>¶</sup>	406.000	37.6 (32.1–43.9)		

Source: National Surveys on Drug Use and Health, 2015–2018, using 2010 U.S. Census-based population estimates.

Abbreviations: CI = confidence interval; DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition.

\* The Rural-Urban Continuum Codes are hierarchical, mutually exclusive classifications for all U.S. counties created by the U.S. Department of Agriculture. All population counts are from the 2010 Census representing the resident population. *Large metro* = counties in metro areas with a population ≥1 million persons. *Small metro* = counties in metros areas with populations between 250,000–1,000,000; counties in metro areas with populations <250,000. *Nonmetro* = counties with urban populations ≥20,000 adjacent to a metro area; urban populations ≥20,000 not adjacent to a metro area; urban populations 2,500–19,999 not adjacent to a metro area; rural or <2,500 urban populations adjacent to a metro area; and rural or <2,500 urban population not adjacent to a metro area. https://seer.cancer.gov/seerstat/variables/countyattribs/ruralurban.html.

<sup>†</sup> Among adults engaging in substance use behavior.

<sup>§</sup> Any mental illness is defined as currently or at any time within the past year having had a diagnosable mental disorder (excluding developmental disorders and substance use disorders of sufficient duration to meet DSM-IV diagnostic criteria). https://www.samhsa.gov/data/report/2017-methodological-summary-and-definitions. For this analysis where the variable was defined as past-year mental illness, not serious mental illness, persons meeting criteria for serious mental illness were not included.

<sup>¶</sup> Serious mental illness is defined as currently or at any time within the past year having had a mental disorder (excluding developmental disorders and substance use disorders of sufficient duration to meet DSM-IV diagnostic criteria, which resulted in serious functional impairment substantially interfering with or limiting one or more major life activities). https://www.samhsa.gov/data/report/2017-methodological-summary-and-definitions.



FIGURE. Methamphetamine injection, use disorder, frequency of use, receipt of substance use treatment,\* other substance use,<sup>†</sup> and mental illness among adults aged  $\geq$ 18 years reporting past-year methamphetamine use — United States, 2015–2018<sup>§</sup>

Source: National Surveys on Drug Use and Health, 2015–2018, using 2010 U.S. Census-based population estimates.

\* Receipt in past year among those with a methamphetamine use disorder; all other percentages are among adults reporting past-year methamphetamine use. † Binge drinking and nicotine dependence reported within the past month; all other substances are within the past year.

<sup>§</sup> Weighted percentages; error bars represent 95% confidence intervals.

outbreaks associated with methamphetamine injection. Expansion of evidence-based substance use treatment, syringe services programs, and other community-based interventions aimed at reducing use, including injection, are needed.

Given the high rates of co-occurring substance use identified, along with trends of increasing opioid-related overdose deaths and treatment admissions that involve methamphetamine (4,5), prevention and treatment efforts will need to be comprehensive and broad-based. Universal preventive interventions such as Promoting School-Community-University Partnerships to Enhance Resilience (PROSPER) have resulted in lasting protective effects on youth substance use generally, and for methamphetamine use and opioid misuse specifically (8). Promising treatment strategies for methamphetamine use disorder are those that use evidence-based psychosocial approaches (e.g., community reinforcement or cognitive-behavioral therapy) combined with contingency management, where rewards are provided to reinforce positive behavior (9). The finding of increased odds of methamphetamine use among adults with lower socioeconomic indicators underscores the importance of recovery support services and linkage to social service providers.

The overlap of methamphetamine use with mental illness, especially serious mental illness, suggests an important role for mental health providers to engage in care with this population, in coordination with addiction and other health care providers. Treatment of co-occurring mental and substance use disorders has been a recognized gap in the system of care (*10*) and persons who use methamphetamine might be particularly affected.

The findings in this report are subject to at least four limitations. First, NSDUH data are self-reported and subject to recall and social desirability biases. Second, because the survey is cross-sectional and different persons were sampled

Characteristic	Adjusted odds ratios* (95% CI)		
Sex			
Women	Reference		
Men	1.68 (1.43–1.96)		
Age group (yrs)			
18–25	Reference		
26–34	1.67 (1.36–2.05)		
35–49	2.49 (2.01–3.07)		
≥50	1.72 (1.31–2.25)		
Race/Ethnicity			
White, non-Hispanic	Reference		
Black, non-Hispanic	0.29 (0.20–0.42)		
Other, non-Hispanic	1.07 (0.78–1.47)		
Hispanic	1.08 (0.85–1.37)		
Education level			
Less than high school	3.28 (2.13-5.06)		
High school graduate	2.65 (1.78–3.93)		
Some college or associate's degree	2.04 (1.38–3.02)		
Bachelor's degree or higher	Reference		
Annual household income			
	2 09 (1 59–2 74)		
\$20,000	1 42 (1 11–1 82)		
\$50,000-74,999	1.06 (0.77–1.46)		
>\$75.000	Reference		
Private or other insurance (including Medicare)	Reference		
Medicaid only	2 01 (1 55_2 61)		
	1 70 (1 31_2 22)		
Granta tana afas idan sat	1.70 (1.51-2.22)		
County type of residence	Deference		
Large metro	Reference		
Sindii metro	1.52 (1.01–1.72) 1.54 (1.25, 1.00)		
	1.54 (1.25-1.90)		
Substance use <sup>3</sup>			
Past-month binge drinking	1.06 (0.86–1.30)		
Past-month nicotine dependence	2.14 (1.75-2.62)		
Past-year cannabis use	4.61 (3.67–5.80)		
Past-year cocaine use	2.72 (2.12–3.50)		
Past-year heroin use	5.10 (3.63-7.17)		
Past-year prescription opioid misuse	2.17 (1.66–2.84)		
Past-year prescription sedative/tranquilizer misuse	1.85 (1.45-2.35)		
Past-year prescription stimulant misuse	1.91 (1.43–2.55)		
Mental health	- /		
No past-year mental illness	Reference		
Past-year mental illness but not serious mental illness <sup>1</sup>	2.18 (1.82–2.60)		
Past-year serious mental illness**	3.34 (2.53–4.40)		

TABLE 2. Characteristics associated wit	h past-year methan	nphetamine use among	adults aged ≥18 y	ears — United States,	2015-2018
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Source: National Surveys on Drug Use and Health, 2015–2018, using 2010 U.S. Census-based population estimates.

Abbreviations: CI = confidence interval; DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition.

\* Odds ratios are adjusted for all other variables in the model.

<sup>§</sup> Reference group is no use (misuse) within the past month (past year).

<sup>¶</sup> Any mental illness is defined as currently or at any time within the past year having had a diagnosable mental disorder (excluding developmental disorders and substance use disorder of sufficient duration to meet DSM-IV diagnostic criteria). https://www.samhsa.gov/data/report/2017-methodological-summary-and-definitions. For this analysis where the variable was defined as past-year mental illness, not serious mental illness, persons meeting criteria for serious mental illness were not included.

\*\* Serious mental illness is defined as currently or at any time within the past year having had a mental disorder (excluding developmental disorders and substance use disorder of sufficient duration to meet DSM-IV diagnostic criteria, which resulted in serious functional impairment substantially interfering with or limiting one or more major life activities). https://www.samhsa.gov/data/report/2017-methodological-summary-and-definitions.

<sup>&</sup>lt;sup>+</sup> The Rural-Urban Continuum Codes are hierarchical, mutually exclusive classifications for all U.S. counties created by the U.S. Department of Agriculture. All population counts are from the 2010 Census representing the resident population. *Large metro* = counties in metro areas with a population ≥1 million persons. *Small metro* = counties in metros areas with populations between 250,000–1,000,000; counties in metro areas with populations <250,000. *Nonmetro* = counties with urban populations ≥20,000 adjacent to a metro area; urban populations ≥2,500–19,999 adjacent to a metro area; urban populations 2,500–19,999 not adjacent to a metro area; rural or <2,500 urban populations adjacent to a metro area; and rural or <2,500 urban population not adjacent to a metro area. https://seer.cancer.gov/seerstat/variables/countyattribs/ruralurban.html.</p>

### Summary

## What is already known about this topic?

Methamphetamine is a highly addictive central nervous system stimulant. In recent years, methamphetamine availability and methamphetamine-related harms have been increasing in the United States.

# What is added by this report?

During 2015–2018, an estimated 1.6 million U.S. adults aged ≥18 years, on average, reported past-year methamphetamine use; 52.9% had a methamphetamine use disorder, and 22.3% reported injecting methamphetamine within the past year. Co-occurring substance use and mental illness were common among those who used methamphetamine within the past year.

# What are the implications for public health practice?

Efforts to build state and local prevention and response capacity, expand linkages to care, and enhance public health and public safety collaborations are needed to combat rising methamphetamine availability and related harms.

each year, inferring causality from the observed associations between the predictors examined and self-reported past-year methamphetamine use is not possible. Third, NSDUHs do not include homeless persons not living in shelters, active duty military, or persons residing in institutions such as those who are incarcerated; thus, substance use estimates in this study might not be generalizable to the total U.S. population. Finally, NSDUHs provide estimates of persons meeting diagnostic criteria for methamphetamine use disorder based on self-reported responses to the individual questions that make up the DSM-IV diagnostic criteria for methamphetamine use disorder, not estimates of the number of persons receiving a diagnosis from a health care provider; thus, gaps between meeting diagnostic criteria and receiving treatment might be incorrectly estimated.

Methamphetamine use and related harms represent a substantial U.S. public health concern. Additional efforts to support prevention and response capacity in communities, expand linkages to care for substance use and mental health, and enhance collaborations between public health and public safety are needed.

Corresponding author: Christopher M. Jones, fjr0@cdc.gov, 404-498-0756.

<sup>1</sup>Office of Strategy and Innovation, National Center for Injury Prevention and Control, CDC; <sup>2</sup>National Institute on Drug Abuse, National Institutes of Health, Bethesda, Maryland; <sup>3</sup>Division of Overdose Prevention, National Center for Injury Prevention and Control, CDC.

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