

NDEWS *National Drug Early Warning System*

Funded at the Center for Substance Abuse Research by the National Institute on Drug Abuse

San Francisco Sentinel Community Site (SCS) Drug Use Patterns and Trends, 2017

November 2017

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National Drug Early Warning System (NDEWS) Sentinel Community Site (SCS) Drug Use Patterns and Trends, 2017

The National Drug Early Warning System (NDEWS) was launched in 2014 with the support of the National Institute on Drug Abuse (NIDA) to collect and disseminate timely information about drug trends in the United States. The Center for Substance Abuse Research (CESAR) at the University of Maryland manages the NDEWS Coordinating Center and has recruited a team of nationally recognized experts to collaborate on building NDEWS, including 12 Sentinel Community Epidemiologists (SCEs). The SCEs serve as the point of contact for their individual Sentinel Community Site (SCS), and correspond regularly with NDEWS Coordinating Center staff throughout the year to respond to queries, share information and reports, collect data and information on specific drug topics, and write an annual *SCE Narrative* describing trends and patterns in their local SCS.

This *Sentinel Community Site Drug Use Patterns and Trends* report contains three sections:

- ◇ The *SCS Snapshot*, prepared by Coordinating Center staff, contains graphics that display information on drug use, substance use disorders and treatment, drug poisoning deaths, and drug seizures. The *SCS Snapshots* attempt to harmonize data available for each of the 12 sites by presenting standardized graphics from local treatment admissions and four national data sources.
- ◇ The *SCE Narrative*, written by the SCE, provides their interpretation of important findings and trends based on available national data as well as sources specific to their area, such as data from local medical examiners or poison control centers. As a local expert, the SCE is able to provide context to the national and local data presented.
- ◇ The *SCS Data Tables*, prepared by Coordinating Center staff, include information on demographic and socioeconomic characteristics of the population, drug use, substance use disorders and treatment, drug poisoning deaths, and drug seizures for the Sentinel Community Site. The *SCS Data Tables* attempt to harmonize data available for each of the 12 sites by presenting standardized information from local treatment admissions and five national data sources.

The *Sentinel Community Site Drug Use Patterns and Trends* reports for each of the 12 Sentinel Community Sites and detailed information about NDEWS can be found on the NDEWS website at www.ndews.org.

National Drug Early Warning System (NDEWS) Sentinel Community Site (SCS) Drug Use Patterns and Trends: SCS Snapshot

The *SCS Snapshot* is prepared by NDEWS Coordinating Center staff and contains graphics that display information on drug use, substance use disorders and treatment, drug poisoning deaths, and drug seizures. The *SCS Snapshots* attempt to harmonize data available for each of the 12 sites by presenting standardized graphics from local treatment admissions and four national data sources:

- ◇ National Survey on Drug Use and Health;
- ◇ Youth Risk Behavior Survey;
- ◇ SCE-provided local treatment admissions data;
- ◇ National Vital Statistics System mortality data queried from CDC WONDER; and
- ◇ National Forensic Laboratory Information System.

The *SCS Snapshots* for each of the 12 Sentinel Community Sites and detailed information about NDEWS can be found on the NDEWS website at www.ndews.org.

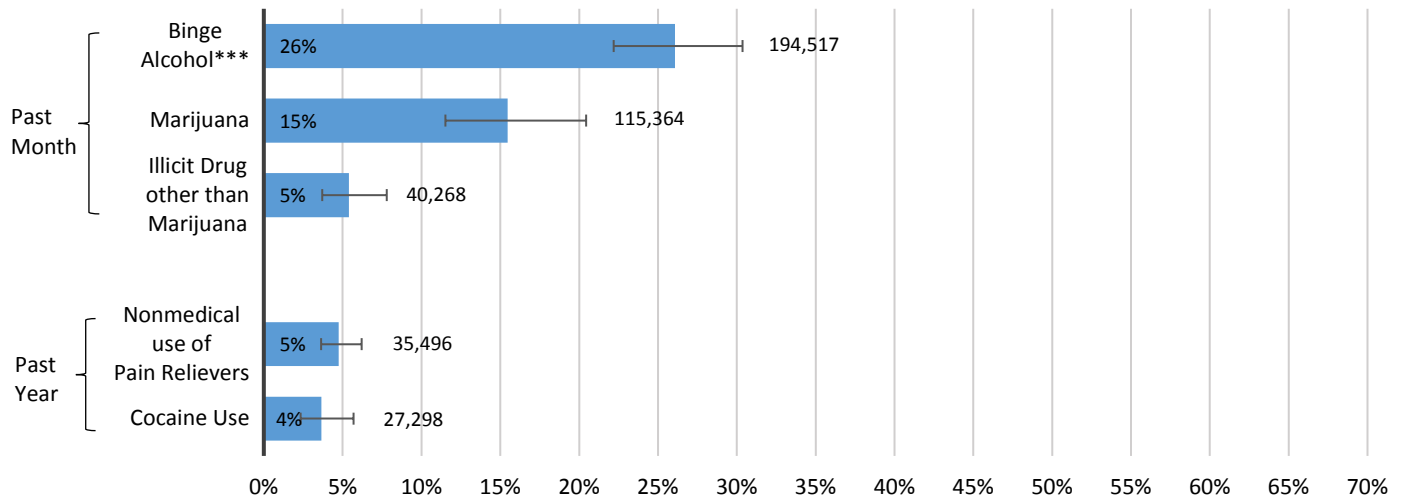
San Francisco County SCS Snapshot, 2017

Substance Use

National Survey on Drug Use and Health (NSDUH): Survey of U.S. Population*

Persons 12+ Years Reporting Selected Substance Use, San Francisco^, 2012-2014

Estimated Percent, 95% Confidence Interval, and Estimated Number of Persons**



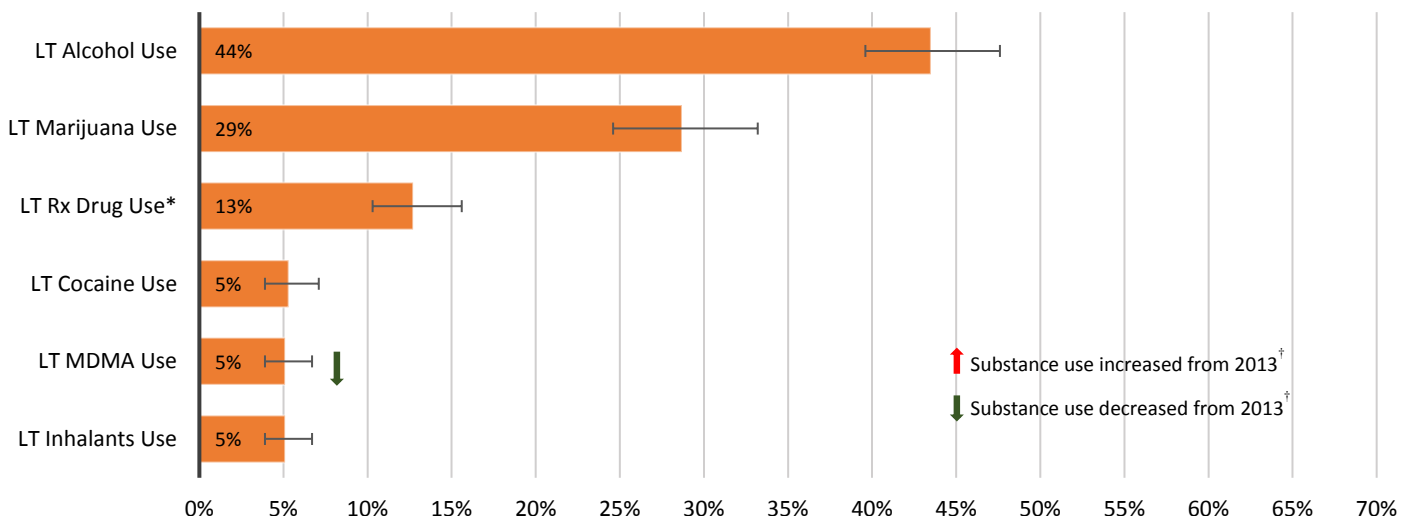
*U.S. Population: U.S. civilian non-institutionalized population. ^San Francisco: NSDUH Region 5R (San Francisco County). **Estimated Number: Calculated by multiplying the prevalence rate and the population estimate of persons 12+ years (746,157) from Table C1 of the NSDUH Report. ***Binge Alcohol: Defined as drinking five or more drinks on the same occasion.

Source: Adapted by the NDEWS Coordinating Center from data provided by SAMHSA, NSDUH. Annual averages based on combined 2012 to 2014 NSDUH data.

Youth Risk Behavior Survey (YRBS): Survey of Student Population

Public High-School Students Reporting Lifetime (LT) Use of Selected Substances, San Francisco, 2015

Estimated Percent and 95% Confidence Interval



*LT Rx Drug Use: Defined as ever taking prescription drugs without a doctor's prescription one or more times during their life.

[†]Statistically significant change: $p < 0.05$ by t-test.

See *Sentinel Community Site (SCS) Data Tables* and *Overview & Limitations* section for more information regarding the data.

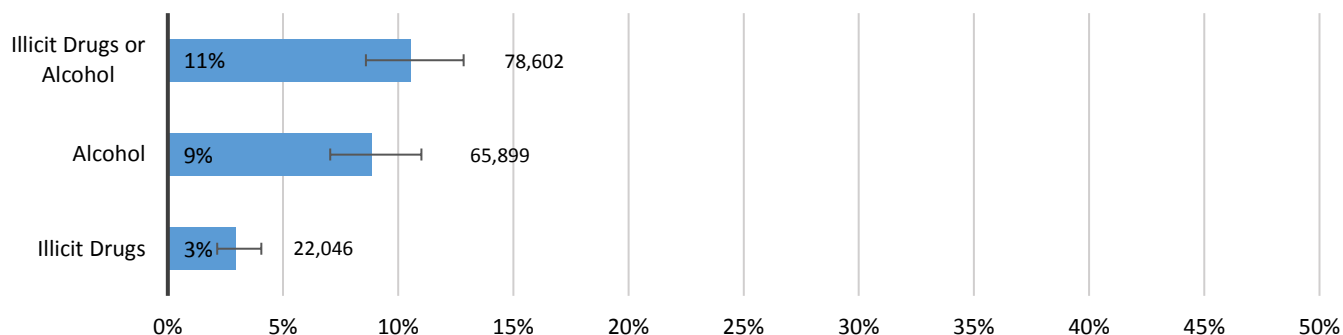
Source: Adapted by the NDEWS Coordinating Center from data provided by CDC, 1991-2015 High School YRBS data.

Substance Use Disorders and Treatment

National Survey on Drug Use and Health (NSDUH): Survey of U.S. Population*

Substance Use Disorders** in Past Year Among Persons 12+ Years, San Francisco^, 2012-2014

Estimated Percent, 95% Confidence Interval, and Estimated Number of Persons***



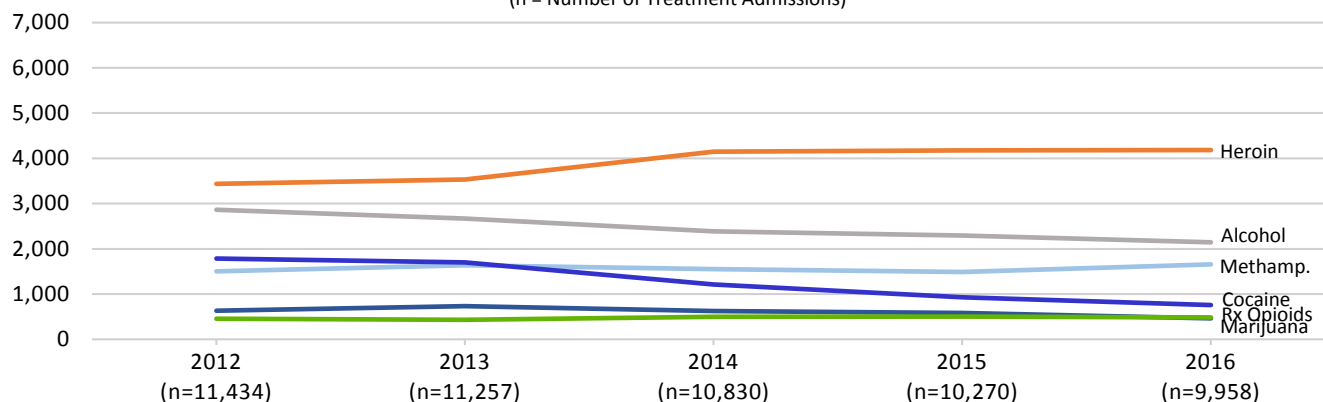
*U.S. Population: U.S. civilian non-institutionalized population. **Substance Use Disorders in Past Year: Persons are classified as having a substance use disorder in the past 12 months based on responses to questions that meet the criteria specified in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. ^San Francisco: NSDUH Region 5R (San Francisco County). ***Estimated Number: Calculated by multiplying the prevalence rate and the population estimate of persons 12+ years (746,157) from Table C1 of the NSDUH Report.

Source: Adapted by the NDEWS Coordinating Center from data provided by SAMHSA, NSDUH. Annual averages based on combined 2012 to 2014 NSDUH data.

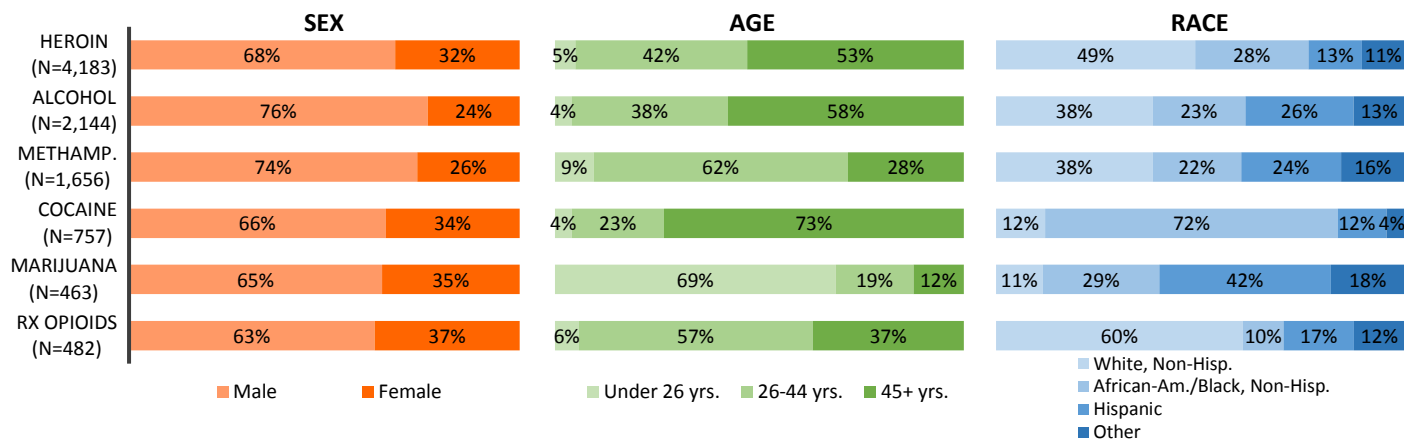
Treatment Admissions Data from Local Sources

Trends in Treatment Admissions, by Primary Substance of Abuse, San Francisco, 2012-2016

(n = Number of Treatment Admissions)



Demographic Characteristics of Treatment Admissions, San Francisco, 2016



Percentages may not sum to 100 due to rounding.

See *Sentinel Community Site (SCS) Data Tables and Overview & Limitations* section for more information regarding the data.

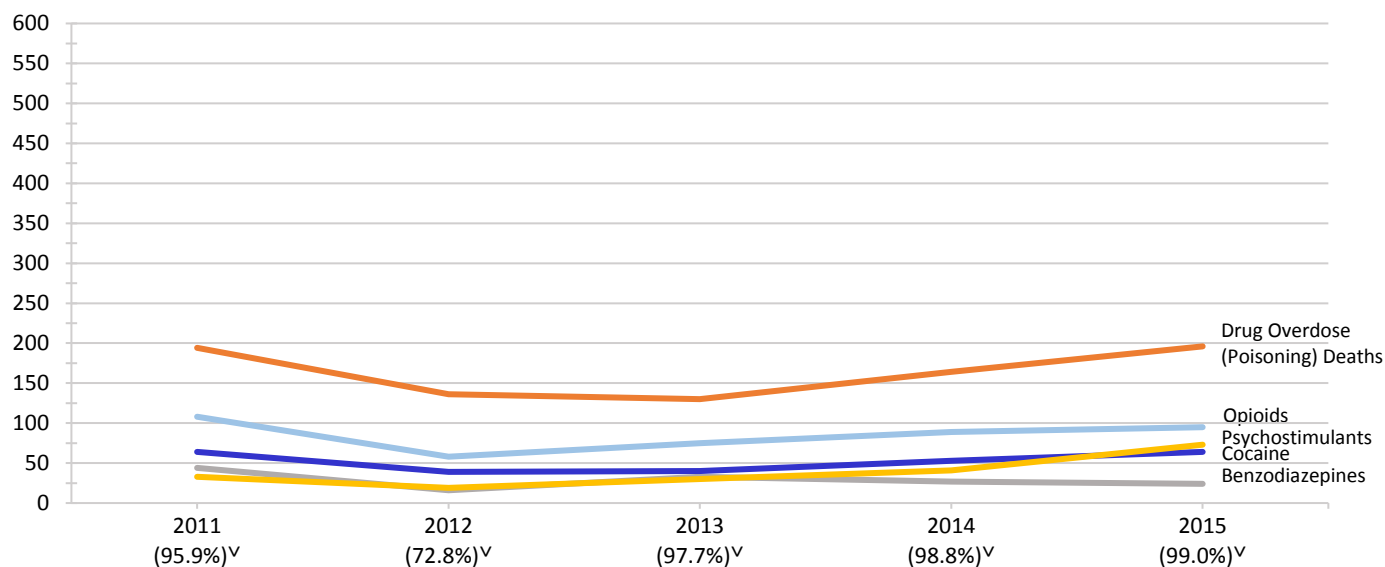
Source: Data provided to the San Francisco NDEWS SCE by the San Francisco Department of Public Health (SFPDH), Community Behavioral Health Services Division.

Drug Overdose (Poisoning) Deaths

National Vital Statistics System (NVSS) via CDC WONDER

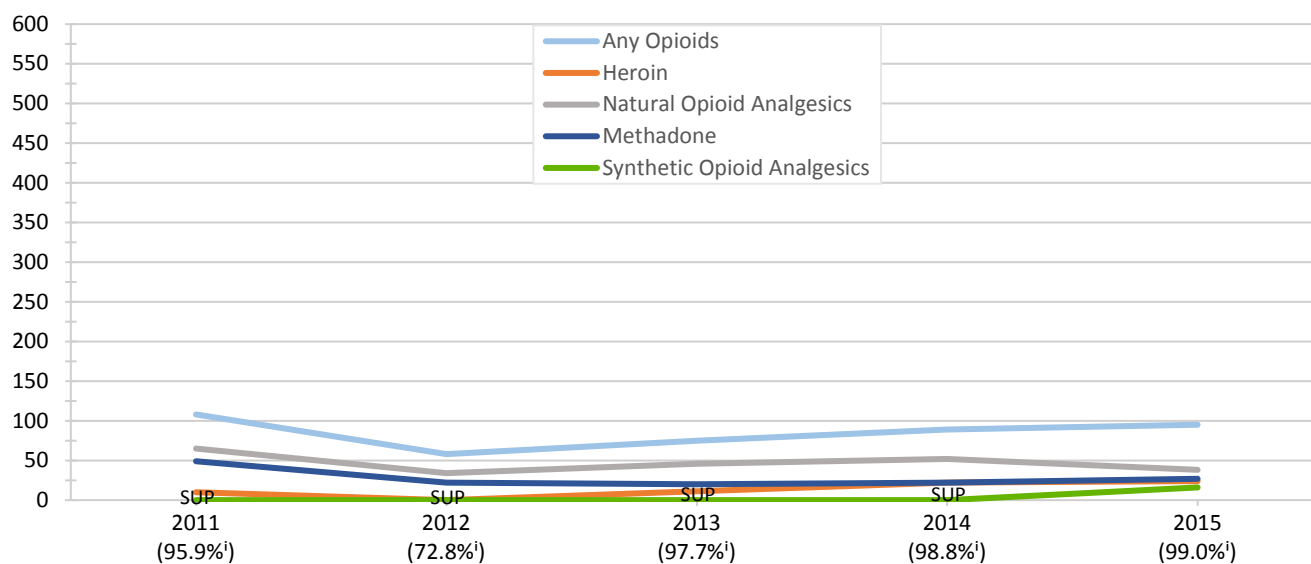
Trends in Drug Overdose (Poisoning) Deaths*, by Drug**, San Francisco^, 2011–2015

(Number of Deaths and Percent of Drug Overdose (Poisoning) Deaths with Drug(s) Specified^)



Trends in Opioid Overdose (Poisoning) Deaths*, by Opioid, San Francisco^, 2011–2015

(Number of Deaths, by Drug** and Percent of Drug Overdose (Poisoning) Deaths with Drug(s) Specified^)



*Drug Overdose (Poisoning) Deaths: Defined as deaths with ICD-10 underlying cause-of-death (UCOD) codes: X40-X44, X60-X64, X85, and Y10-Y14. **Drug Overdose (Poisoning) Deaths, by Drug: Drug overdose (poisoning) deaths with ICD-10 multiple cause-of-death (MCOD) T-codes: Benzodiazepines (T42.4); Cocaine (T40.5); Psychostimulants with Abuse Potential [excluding cocaine] (T43.6)—may include amphetamines, caffeine, MDMA, methamphetamine, and/or methylphenidate; Any Opioids (T40.0-T40.4, OR T40.6). Specific opioids are defined: Opium (T40.0); Heroin (T40.1); Natural Opioid Analgesics (T40.2)—may include morphine, codeine, and semi-synthetic opioid analgesics, such as oxycodone, hydrocodone, hydromorphone, and oxymorphone; Methadone (T40.3); Synthetic Opioid Analgesics [excluding methadone] (T40.4)—may include drugs such as tramadol and fentanyl; and Other and Unspecified Narcotics (T40.6). ^San Francisco: Comprised of San Francisco County. ^Percent of Drug Overdose (Poisoning) Deaths with Drug(s) Specified: The percentage of drug overdose (poisoning) deaths with specific drugs mentioned varies considerably by state/catchment area. This statistic describes the annual percentage of drug overdose (poisoning) deaths that include at least one ICD-10 MCOD code in the range T36-T50.8. SUP=Suppressed: Counts are suppressed for subnational data representing 0–9 deaths.

See *Sentinel Community Site (SCS) Data Tables and/or Overview & Limitations* for additional information on mortality data.

Source: Adapted by the NDEWS Coordinating Center from data provided by the Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, Multiple cause of death 1999-2015, available on the CDC WONDER Online Database, released 2016. Data compiled in the Multiple cause of death 1999-2015 were provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Retrieved between February-June 2017, from <http://wonder.cdc.gov/mcd-icd10.html>

Law Enforcement Drug Seizures

National Forensic Laboratory Information System (NFLIS)

Drug Reports* for Items Seized by Law Enforcement in San Francisco County^ in 2016 DEA National Forensic Laboratory Information System (NFLIS)

Top 10 Drug Reports and Selected Drug Categories

Drug Identified	Number (#)	Percent of Total Drug Reports (%)
TOTAL Drug Reports	2,579	100%
Top 10 Drug Reports		
Methamphetamine	662	25.7%
Cocaine	630	24.4%
Cannabis	416	16.1%
Heroin	373	14.5%
No Controlled Drug Identified	97	3.8%
Oxycodone	70	2.7%
Alprazolam	64	2.5%
3,4-Methylenedioxymethamphetamine (MDMA)	38	1.5%
Hydrocodone	31	1.2%
Psilocybin/Psilocyn	29	1.1%
Top 10 Total	2,410	93.4%
New Psychoactive Substances (NPS) Drug Categories†		
Fentanyl and Other Fentanyl‡	22	0.9%
Synthetic Cathinones	3	0.1%
Synthetic Cannabinoids	0	0.0%
2C Phenethylamines	0	0.0%
Piperazines	0	0.0%
Tryptamines	0	0.0%
Any Opioid‡	544	21.1%

Top Drug Reports Among Select** NPS Drug Categories†
(% of Category)

Fentanyl and Other Fentanyl‡
(n=22)
Fentanyl (100%)

Synthetic Cathinones
(n=3)
Ethylone (100%)

*Drug Report: Drug that is identified in law enforcement items, submitted to and analyzed by federal, state, or local forensic labs, and included in the NFLIS database. The NFLIS database allows for the reporting of up to three drugs per item submitted for analysis. The data presented are a total count of first, second, and third listed reports for each selected drug item seized and analyzed. The timeframe is January–December 2016. ^The San Francisco Police Department (SFPD) laboratory has been closed since 2010; however, beginning in January 2012, the Alameda Sheriff Department laboratory began reporting their SFPD cases to NFLIS. All available data from the SFPD are included in the counts. Please note that previously published 2014 and 2015 San Francisco County NDEWS reports did not include SFPD cases analyzed by the Alameda Sheriff Department laboratory. The dramatic increases in this year's 2016 data, compared to 2014 and 2015, are a result of the inclusion of SFPD data analyzed by the Alameda laboratory. **Select NPS Drug Categories: The 3 most prevalent NPS drug categories. Percentages may not sum to 100 due to either rounding, missing data and/or because not all possible categories are presented in the table.

†Drug Categories/Any Opioid: See *Sentinel Community Site (SCS) Data Table 6b* for a full list of the drug reports for each NPS and Opioid category.

‡Other Fentanyls are substances that are structurally related to fentanyl (e.g., acetylfentanyl and butyl fentanyl). See *Notes About Data Terms in Overview and Limitations* section for a list of Other Fentanyls that were reported to NFLIS from the 12 NDEWS sites.

Source: Adapted by the NDEWS Coordinating Center from data provided by the U.S. Drug Enforcement Administration (DEA), Diversion Control Division, Drug and Chemical Evaluation Section, Data Analysis Unit. Data were retrieved from the NFLIS Data Query System (DQS) on May 28, 2017.

National Drug Early Warning System (NDEWS)

Sentinel Community Site (SCS)

Drug Use Patterns and Trends: SCE Narrative

The *SCE Narrative* is written by the Sentinel Community Epidemiologist (SCE) and provides their interpretation of important findings and trends based on available national data as well as sources specific to their area, such as data from local medical examiners or poison control centers. As a local expert, the SCE is able to provide context to the national and local data presented.

This *SCE Narrative* contains the following sections:

- ◇ Highlights
- ◇ Primary and Emerging Substance Use Problems
- ◇ Local Research Highlights (if available)
- ◇ Infectious Diseases Related to Substance Use (if available)
- ◇ Legislative and Policy Updates

The *SCE Narratives* for each of the 12 Sentinel Community Sites and detailed information about NDEWS can be found on the NDEWS website at www.ndews.org.

National Drug Early Warning System (NDEWS) San Francisco Sentinel Community Site (SCS) Drug Use Patterns and Trends, 2017: SCE Narrative

Phillip O. Coffin, M.D., M.I.A. and Chris Rowe, M.P.H.
San Francisco Department of Public Health

Highlights

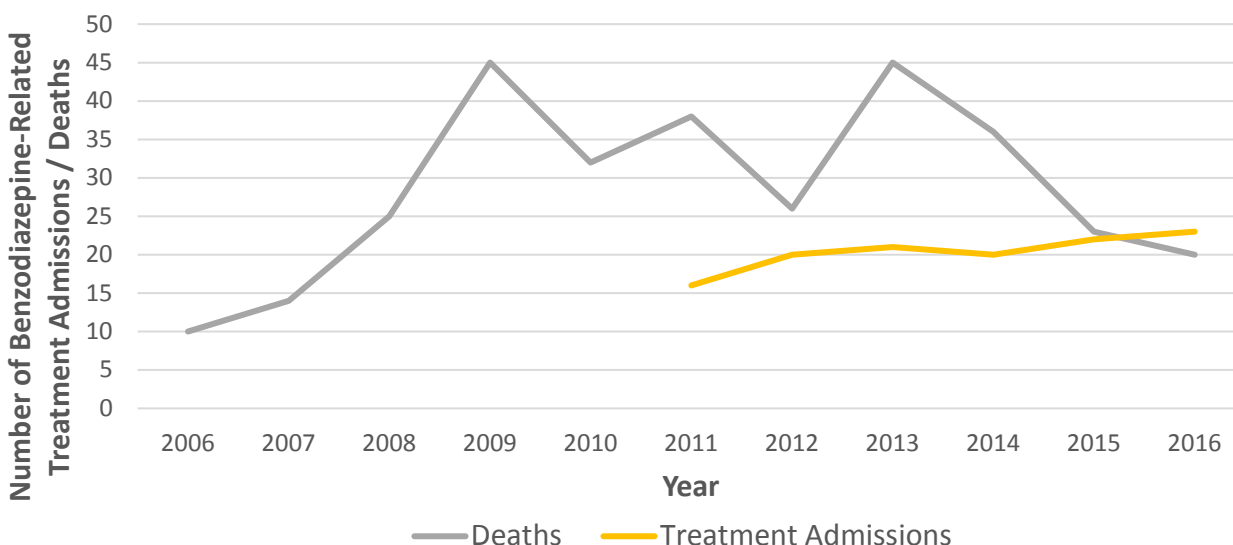
- Numerous indicators again suggest increasing **methamphetamine**-related morbidity and mortality in the City and County of San Francisco (CCSF). Substance use disorder (SUD) treatment admissions for methamphetamine continued to consistently rise, as did hospitalizations and emergency department visits involving methamphetamine and deaths including methamphetamine as a causal agent.
- Evidence also suggests an increase in **heroin** use in CCSF. The proportion of all SUD treatment admissions involving heroin continued to increase, and anecdotal reports suggest that, notwithstanding treatment-on-demand, there are many out-of-treatment heroin users in CCSF. Mortality from heroin remains low, although slowly it has been increasing since 2011, with 41 deaths from heroin in 2016.
- **Prescription opioids** remain an uncommon reason for SUD treatment admissions, and there is evidence to suggest declining street use of these agents. Data from the California State prescription drug monitoring program (CURES) show an ongoing decline in the monthly number of opioid prescription and the morphine milligram equivalent per patient in CCSF, and overdose deaths involving prescription opioids have steadily declined since 2010.
- **Fentanyl** has affected CCSF sporadically, although it may have become more established in 2016. In 2015, CCSF witnessed one episode of fentanyl sold as heroin and two episodes of counterfeit pills containing fentanyl that resulted in multiple overdoses and several deaths. In 2016, anecdotal reports suggest that fentanyl is becoming more common as its own product on the street, as counterfeit pills, and as a contaminant in stimulant drugs. Fentanyl deaths increased notably in 2016, accounting for 21 opioid deaths.
- Indicators for other substances in CCSF, including **alcohol**, **cocaine**, **benzodiazepines**, **marijuana**, and **synthetics**, suggest stable use.
- Long-term **homelessness** is an increasing concern for people who use substances in CCSF and a potential barrier to seeking help for SUD. In addition, the high rate of homelessness among people who use substances, which is a problem exacerbated by real estate development and limited housing options, has forced much drug use into the public eye. This trend continues to raise concerns and conflicts for both people who use substances and other community residents.
- Several pieces of **legislation** have altered legal and service delivery in California related to substance use, including regulation of asset forfeiture from drug arrest, legalization of recreational use of marijuana, mandatory checking of the prescription drug monitoring program by medical providers, funding for distribution of naloxone, and the establishment of Law Enforcement Assisted Diversion Pilot Programs.
- The number of people who **inject drugs** in CCSF may have increased from 10,158 in 2005 and to 22,500 in 2012, although estimates are imprecise and confidence intervals overlap.
- Numerous **research studies** have contributed to understanding substance use patterns in CCSF, and several initiatives, such as the citywide Hepatitis C Elimination Initiative, the San Francisco Department of Public Health Drug User Health Initiative, and several efforts to improve buprenorphine access, have been actively addressing substance user health issues.

Primary and Emerging Substance Use Problems

BENZODIAZEPINES

Benzodiazepines have remained a rare indication for admission to substance use disorder (SUD) treatment in CCSF, representing just 0.2% of admissions in 2016. Most patients were White/non-Hispanic and aged 26–44; the most common secondary drug was marijuana. Benzodiazepines accounted for a slightly smaller proportion of drug seizures in 2016 (3.4%) compared with 2015 (5.2%), which was also smaller than the U.S. proportion of 4.7% in 2016. Since 2008, benzodiazepines have been a causal agent in 20–50 deaths per year in CCSF, the majority of which also involve opioids (see Figure 1).

Figure 1. Benzodiazepine Health Indicators



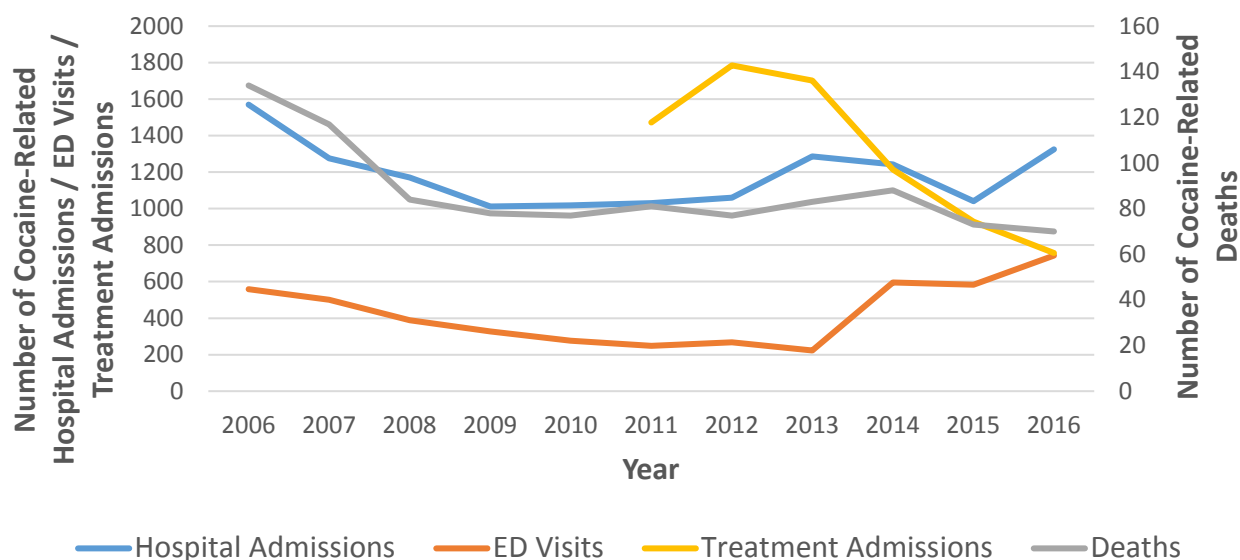
Source: Community Behavioral Health Services Electronic Health Record, San Francisco Department of Public Health, 2017; Office of the Chief Medical Examiner, San Francisco, 2017.

COCAINE/CRACK

SUD treatment admissions involving cocaine/crack as the primary drug have been continuously declining in CCSF from a peak of 15.6% of admissions in 2012 to 7.6% of admissions in 2016. Nearly two thirds of admissions for cocaine use were male, nearly three quarters were Black/African American, and 73.3% were older than age 45; 87.5% smoked the drug, and alcohol was the most common secondary drug. The number of hospitalizations at the county facility (Zuckerberg San Francisco General Hospital, ZSFG) has been fairly stable, and the number of deaths involving cocaine as a causal agent in CCSF may have slightly declined (see Figure 2). After a steady decline in cocaine-related emergency department (ED) visits at ZSFG, there has been an increase since 2013. Providers report that, among persons who use

stimulants and are homeless or marginally housed, cocaine/crack use is far less common than methamphetamine use, with the possible exception of those older than 60 years of age. Cocaine use was noted among just 5% of 6,704 visits to the Zuckerberg San Francisco General Psychiatric Emergency Services in fiscal year 2016–2017. Cocaine accounted for a slightly larger proportion of drug seizures in CCSF in 2016 (24.4%) compared with 2015 (20.9%); both years were notably larger than the proportion of national drug seizures involving cocaine (13.9%).

Figure 2. Cocaine Health Indicators

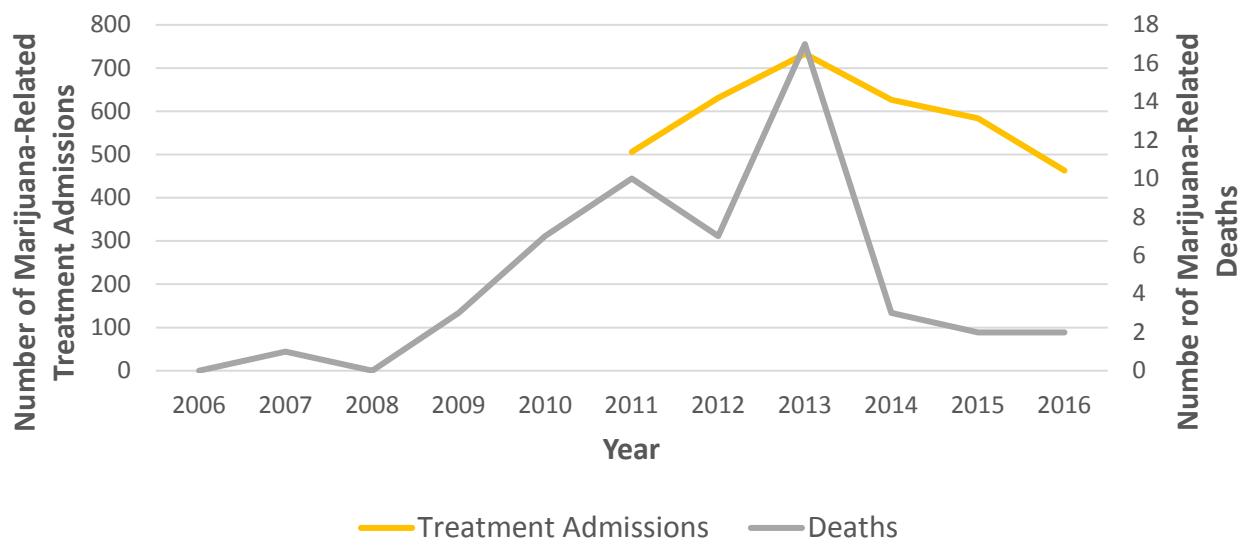


Source: Lifetime Clinical Record, San Francisco Department of Public Health, 2017 (Community Behavioral Health Services Electronic Health Record, San Francisco Department of Public Health, 2017; Office of the Chief Medical Examiner, San Francisco, 2017). Note that the transition from 2013 to 2014 involved a significant increase in the use of particular substance-use-related ICD-9 codes for ZSFG ED visits, which may represent an artificially large change in the number of substance-specific ED visits between those years.

MARIJUANA

Marijuana remains a fairly uncommon reason for SUD treatment admission in CCSF, representing 4.6% of admissions in 2016. Approximately two thirds of treatment admissions for marijuana were male, and the majority were either Black/African American (28.5%) or Hispanic/Latino (41.9%); almost half were younger than age 18, and the most common secondary drug was alcohol. The proportion of drug seizures involving marijuana was fairly stable between 2015 (18.8%) and 2016 (16.1%). Cannabis was found in 24.7% of drug seizures nationally, higher than in CCSF. Marijuana is a rare cause of death in CCSF, implicated in only 2 deaths in 2016 based on a review of records of the California Electronic Death Reporting System (see Figure 3).

Figure 3. Marijuana Health Indicators



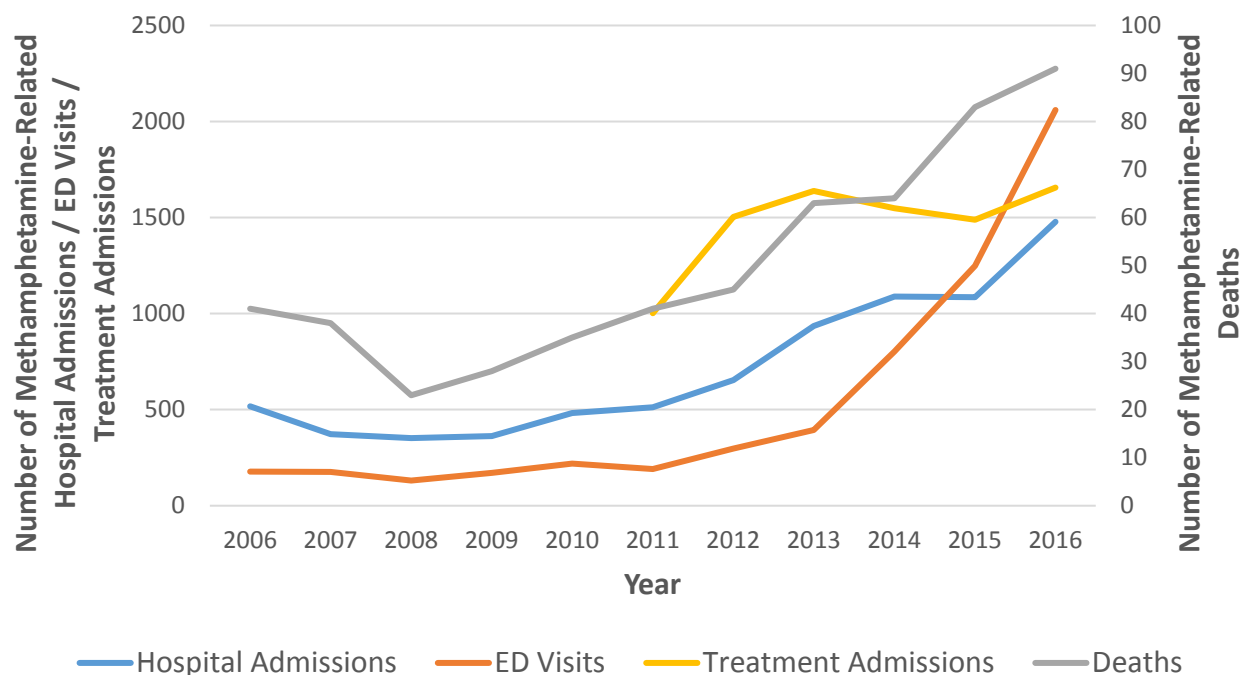
Source: Community Behavioral Health Services Electronic Health Record, San Francisco Department of Public Health, 2017; Office of the Chief Medical Examiner, San Francisco, 2017.

METHAMPHETAMINE

- Numerous indicators again suggest increasing **methamphetamine**-related morbidity and mortality in the City and County of San Francisco (CCSF). Substance use disorder (SUD) treatment admissions for methamphetamine continued to consistently rise, as did hospitalizations and emergency department visits involving methamphetamine and deaths including methamphetamine as a causal agent.

Methamphetamine remains a significant contributor to SUD treatment admissions in CCSF, involved in 16.6% of admissions in 2016. Nearly three quarters of admissions for methamphetamine were male, a plurality were White, most were aged 26–44 years, and nearly two thirds smoked the drug; the most common secondary drug was alcohol. The proportion of drug seizures involving methamphetamine has increased modestly, from 22.0% of seizures in 2015 to 25.7% in 2016, with both years exceeding the proportion of drug seizures including methamphetamine nationally (21.5%). These results are consistent with the steadily increasing number of deaths involving methamphetamine as a causal agent (see Figure 4). The number of ZSFG hospitalizations and ED visits involving methamphetamine have also increased consistently since 2009. Methamphetamine use is highly prevalent among homeless and marginally housed individuals in CCSF. Amphetamine-based stimulant use was noted among 47% of 6,704 visits to the Zuckerberg San Francisco General Psychiatric Emergency Services in fiscal year 2016–2017.

Figure 4. Methamphetamine Health Indicators



Source: Lifetime Clinical Record, San Francisco Department of Public Health, 2017; Community Behavioral Health Services Electronic Health Record, San Francisco Department of Public Health, 2017; Office of the Chief Medical Examiner, San Francisco, 2017. Note that the transition from 2013 to 2014 involved a significant increase in the use of particular substance-use-related ICD-9 codes for ZSFG ED visits, which may represent an artificially large change in the number of substance-specific ED visits between those years.

NEW PSYCHOACTIVE SUBSTANCES (NPS) AND SYNTHETICS OTHER THAN OPIOIDS

Synthetic stimulants continue to represent a rare cause for SUD treatment admissions in CCSF, including zero cases in 2016. Synthetic cathinones also continue to be rarely involved in drug seizures.

OPIOIDS

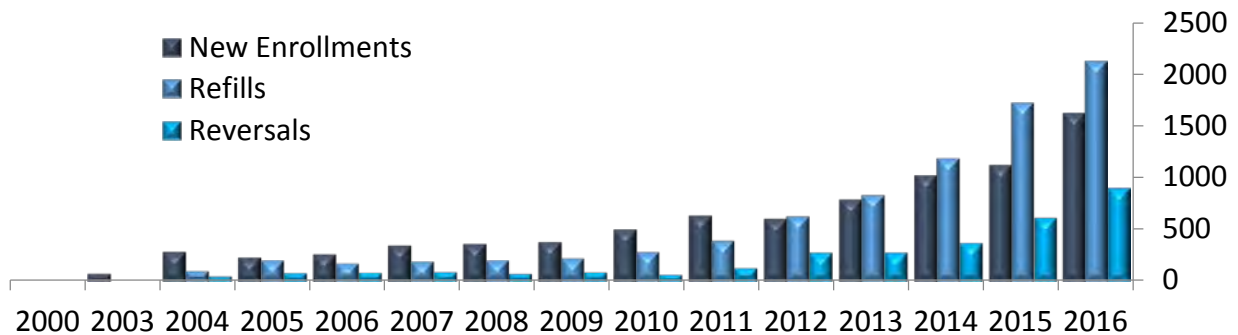
- Evidence also suggests an increase in heroin use in CCSF. The proportion of all SUD treatment admissions involving heroin continued to increase, and anecdotal reports suggest that, notwithstanding treatment-on-demand, there are many out-of-treatment heroin users in CCSF. Mortality from heroin remains low, although slowly it has been increasing since 2011, with 41 deaths from heroin in 2016.
- Prescription opioids remain an uncommon reason for SUD treatment admissions, and there is evidence to suggest declining street use of these agents. Data from the California State prescription drug monitoring program (CURES) show an ongoing decline in the monthly number of opioid prescription and the morphine milligram equivalent per patient in CCSF, and overdose deaths involving prescription opioids have steadily declined since 2010.

- Fentanyl has affected CCSF sporadically, although it may have become more established in 2016. In 2015, CCSF witnessed one episode of fentanyl sold as heroin and two episodes of counterfeit pills containing fentanyl that resulted in multiple overdoses and several deaths. In 2016, anecdotal reports suggest that fentanyl is becoming more common as its own product on the street, as counterfeit pills, and as a contaminant in stimulant drugs. Fentanyl deaths increased notably in 2016, accounting for 21 opioid deaths.

Opioid use continues to be prominent in CCSF, with ongoing evidence of increased heroin use. Heroin was the primary drug involved in 42.0% of SUD treatment admissions in 2016, a substantial increase from 30.1% of admissions in 2012. In contrast, prescription opioids were the primary drug involved in just 4.8% of SUD treatment admissions in 2016, which was relatively stable from 4.0% in 2012. More than two thirds of admissions involving heroin were male, nearly half were White, most were older than 45 years of age, and most injected the drug; cocaine was the most frequently cited secondary drug. For prescription opioids, most persons admitted were male, White, aged 26–44, and consumed the drug orally; heroin was the most frequently cited secondary drug. Opioid use was noted among 15% of 6,704 visits to the Zuckerberg San Francisco General Psychiatric Emergency Services in fiscal year 2016–2017. Opioids were involved in a similar proportion of drug seizures in 2016 (20.9%) as in 2015 (22.4%), which was also similar to the proportion of seizures involving opioids nationally (21.0%). There were increases in the proportions of seizures involving heroin (2015: 11.4%, 2016: 14.5%) and fentanyl (2015: 0.2%, 2016: 0.9%) from 2015 to 2016 but decreases in the proportions of seizures involving other prescription opioids. In 2016, there were more heroin-involved seizures and fewer fentanyl-involved seizures in CCSF compared with the nation as a whole (heroin: 11.5% nationally, fentanyl: 2.4% nationally).

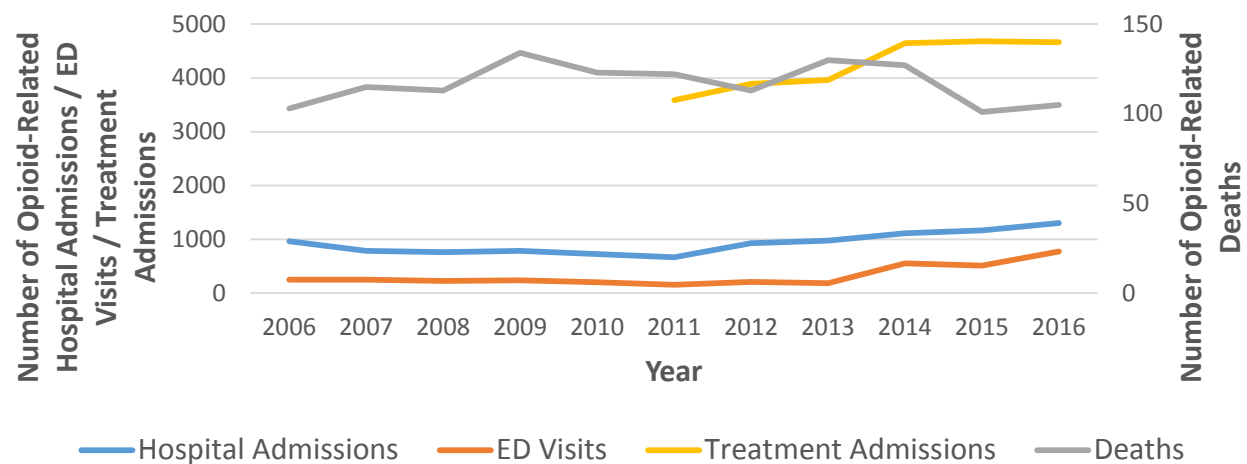
CCSF has a robust program of community distribution of naloxone as well as a co-prescribing initiative for patients in safety net primary care clinics. The community distribution program has substantially increased naloxone distribution in recent years and has reported a growing number of overdose reversals by program clients (see Figure 5). In addition, the number of ZSFG hospitalizations involving opioids has increased modestly since 2011 and the number of ZSFG ED visits involving opioids has increased since 2013 (see Figure 6). Nevertheless, the number of deaths involving opioids as a causal agent has been relatively stable. The number of deaths caused by heroin reached a nadir of 10 cases in 2010 and has since slowly risen to 41 in 2016, whereas deaths involving prescription opioids declined from 111 in 2010 to 76 in 2016. Deaths caused by fentanyl jumped to 21 in 2016.

Figure 5. Naloxone Enrollments, Refills, and Reversal Reports to the Drug Overdose Prevention and Education Project, 2003–2016



Source: Drug Overdose Prevention and Education Project, 2016.

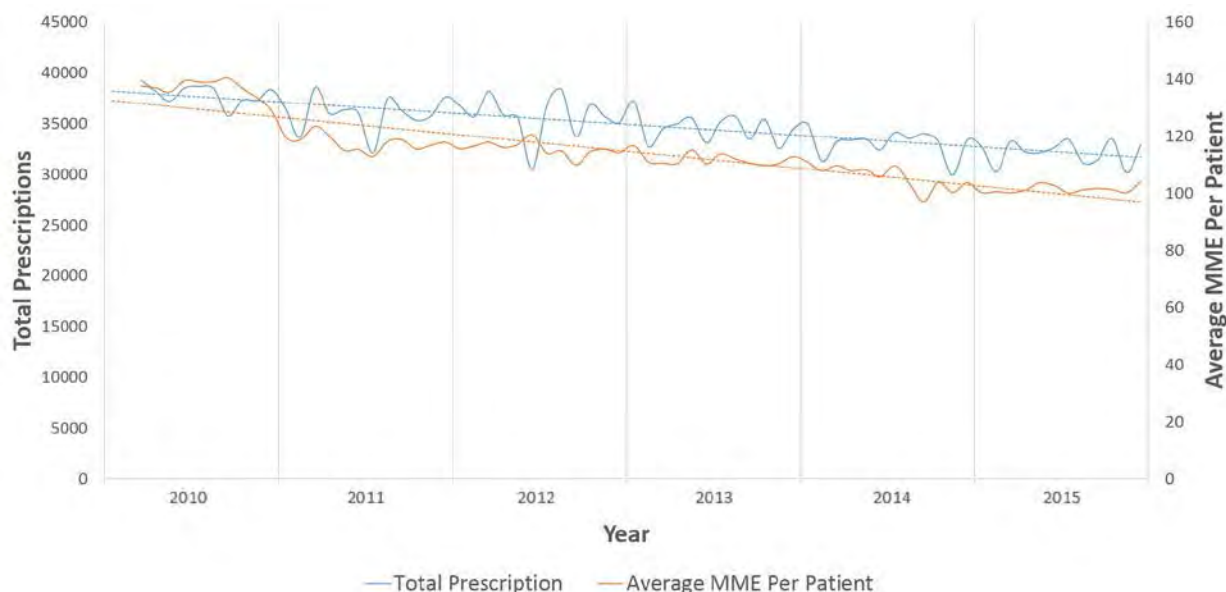
Figure 6. Opioid Health Indicators



Source: Lifetime Clinical Record, San Francisco Department of Public Health, 2017; Community Behavioral Health Services Electronic Health Record, San Francisco Department of Public Health, 2017; Office of the Chief Medical Examiner, San Francisco, 2017. Note that the transition from 2013 to 2014 involved a significant increase in the use of particular substance-use-related ICD-9 codes for ZSFG ED visits, which may represent an artificially large change in the number of substance-specific ED visits between those years.

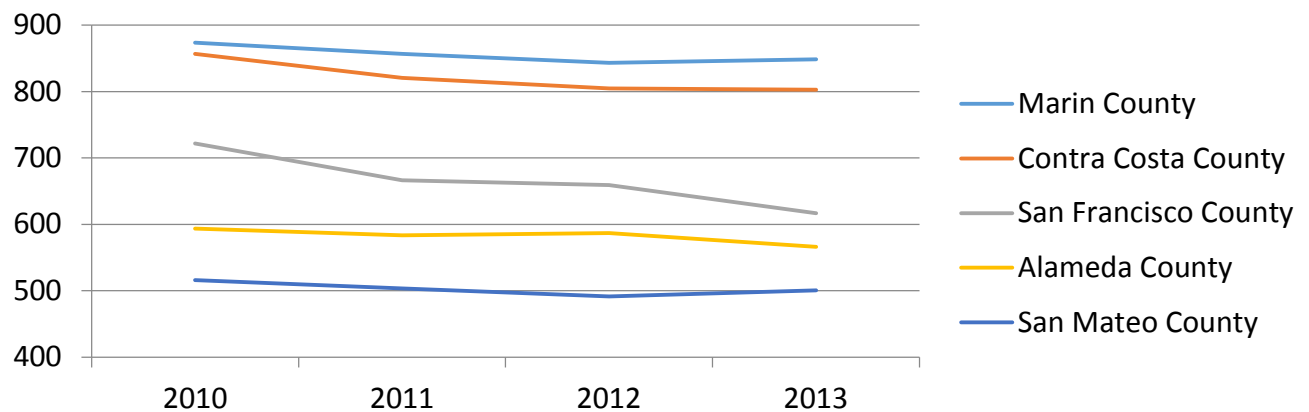
Several shifts continue to occur in the local opioid market. First, opioid prescribing substantially declined from a peak in 2010 according to data from the California State prescription drug monitoring program (CURES; see Figure 7). The decline in CCSF has been steeper than in surrounding counties, which generally maintained a similar level of prescribing during this period (Figure 8).

Figure 7. Monthly Opioid Prescription Trends, San Francisco, 2010–2015



Source: California State prescription drug monitoring program (CURES), 2016.

Figure 8. Morphine Milligram Equivalents of Opioids Prescribed Per Capita in Bay Area California Counties



Source: California State Prescription Drug Monitoring Program (CURES), 2015.

Second, the illicit drug market continues to evolve. In addition to the three episodes of fentanyl overdoses in 2015 and 2016, there was a substantial increase in fentanyl-involved deaths in 2016. This is consistent with reports from people who use drugs and harm reduction service providers that fentanyl is increasingly present in San Francisco. Fentanyl is present as both a contaminant in other products and as a powder. On May 8, 2017, the San Francisco Department of Public Health issued a health advisory in response to four fentanyl overdoses that occurred after using crack cocaine, one of which resulted in death. Review of the 21 fentanyl-involved deaths from 2016 found that 52% also listed methamphetamine as a cause of death, 29% also listed cocaine, and 33% also listed another opioid (24% heroin, 10% other opioid analgesic). Compared with other opioid deaths, fentanyl-involved deaths were of significantly younger individuals and more likely to involve methamphetamine.

At least some deaths involving fentanyl as a causal agent occurred among persons intending to use a different class of drugs, suggesting that efforts to prevent fentanyl overdose should target people who access any street drugs, not just opioids. Nonetheless, anecdotal reports of fentanyl increasingly present in the street opioid market suggest that the barriers to fentanyl entering San Francisco (black tar heroin being more difficult to adulterate and producing a very distinct high from fentanyl) may be falling to market processes.

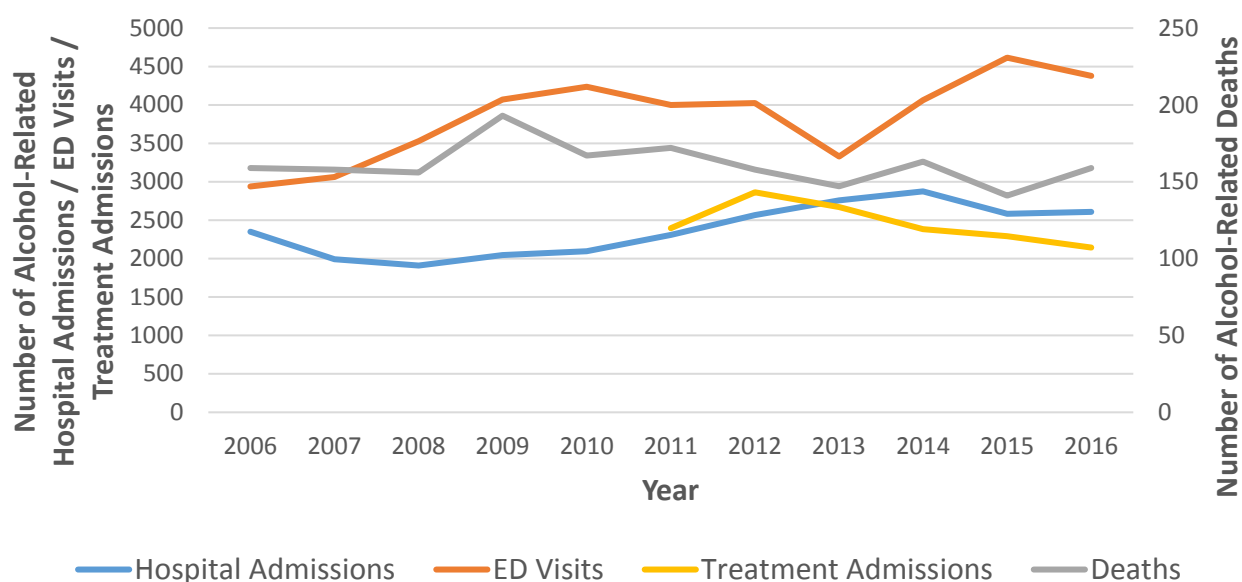
Notwithstanding opioid use disorder treatment-on-demand, providers anecdotally report a large and growing number of out-of-treatment heroin users who are homeless or marginally housed, with a notable proportion using both heroin and methamphetamine. The use of both heroin and methamphetamine adds challenges in accessing SUD treatment and other health care services, particularly for those who are homeless or marginally housed. The limited supply of affordable housing and the elimination of places such as vacant lots and squats has led to more heroin and other substance use by injection and smoking on streets and has increased its public visibility. The chronicity of homelessness raises additional challenges for those with SUDs, and some providers believe this may impact motivation to seek or sustain abstinence. The San Francisco Department of Public Health has begun providing low-barrier buprenorphine treatment among high-risk homeless persons. They

assessed more than 100 individuals and initiated buprenorphine treatment in 60, one third of whom have remained in treatment and have experienced improvements at three months. Furthermore, in January 2017, the Zuckerberg San Francisco General Hospital began initiating buprenorphine treatment in the emergency department.

ALCOHOL

Alcohol use remains a major issue in CCSF and the second leading cause of SUD treatment admissions. Alcohol was the primary drug for 21.5% of SUD treatment admissions in CCSF in 2016, which was a stable figure compared with prior years. More than three quarters of SUD treatment admissions for alcohol were male, a plurality were White, and most were older than 45 years of age; the most common secondary substances were cocaine/crack and methamphetamine. Alcohol remained the most common substance resulting in hospital admissions at ZSFG, with evidence of increasing ED visits in recent years but fairly stable numbers of alcohol-related hospitalizations and deaths (see Figure 9). Alcohol use was noted among 34% of 6,704 visits to the Zuckerberg San Francisco General Psychiatric Emergency Services in fiscal year 2017–2017.

Figure 9. Alcohol Health Indicators



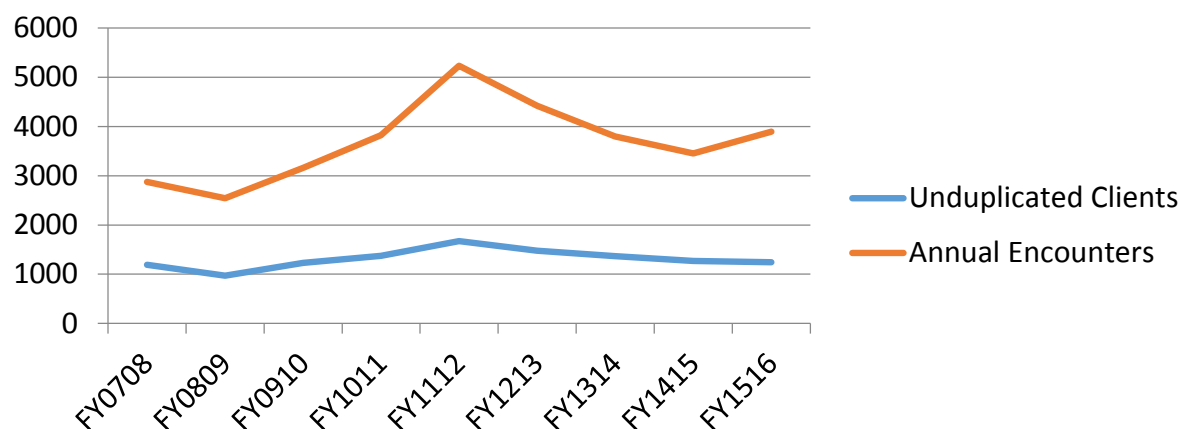
Source: Lifetime Clinical Record, San Francisco Department of Public Health, 2017; Community Behavioral Health Services Electronic Health Record, San Francisco Department of Public Health, 2017; Office of the Chief Medical Examiner, San Francisco, 2017. Note that the transition from 2013 to 2014 involved a significant increase in the use of particular substance-use-related ICD-9 codes for ZSFG ED visits, which may represent an artificially large change in the number of substance-specific ED visits between those years.

CCSF also has the Sobering Center, a 24/7 nurse-managed program providing support to individuals who are actively intoxicated on alcohol. A team including registered nurses, medical assistants, health workers, and respite workers serves clients through a pre-hospital diversion unit accepting clients aged

18+ both from ambulance and police services. The Sobering Center has seen a high and fairly consistent number of clients in recent years (see Figure 10).

Among homeless persons in CCSF, the most frequent causes of death are alcohol related.

Figure 10. CCSF Sobering Center Care by Fiscal Year (FY)



Source: San Francisco Sobering Center Annual Report 2016. San Francisco Department of Public Health. San Francisco CA. 2017.

Local Research Highlights

- Numerous **research studies** have contributed to understanding substance use patterns in CCSF, and several initiatives, such as the citywide Hepatitis C Elimination Initiative, the San Francisco Department of Public Health Drug User Health Initiative, and several efforts to improve buprenorphine access, have been actively addressing substance user health issues.

CCSF has a robust cadre of researchers focusing on substance use. The following includes a selection of relevant research performed in CCSF that was conducted or published since early 2016. This is not a comprehensive list.

- A) An analysis of the National HIV Behavioral Surveillance results for CCSF, and related data, found that the point estimates for the number of PWID in CCSF was 10,158 in 2005, 15,554 in 2009, and 22,500 in 2012. Although the estimates are imprecise, resulting in wide confidence intervals, the point estimates suggest a growth in the population of PWID. PMID: 26721246.
- B) A study found high rates of food insecurity among PWID in CCSF. See PMID: 26956477.
- C) A study of people without known cardiac disease who use cocaine found high levels of troponin I, further supporting the cardiac toxicity of cocaine. See PMID: 28157591.

- D) A study of HIV care adherence found that methamphetamine use was the strongest predictor of missing visits. See PMID: 26654093.
- E) A clinical trial of extended-release naltrexone for methamphetamine dependence among men who have sex with men found no benefit. See PMID: 28734107.
- F) A pilot clinical trial of intermittent naltrexone for binge-drinking and methamphetamine-using men who have sex with men found the intervention to be feasible, acceptable, and well-tolerated. See PMID: 26674372.
- G) Qualitative research has attempted to elucidate the complex relationship between providers and patients seeking care for chronic pain who have comorbid substance use. See PMIDs: 28599142, 28394752, 27754719, 26682471.
- H) Several publications assessing a naloxone co-prescribing initiative at safety net primary care clinics in CCSF reported that co-prescribing naloxone to patients treated with opioids long term for chronic pain was widely acceptable to patients and providers and may result in ancillary benefits such as reduced opioid-related emergency department visits. See PMIDs: 28218937, 27815762, 27621159, 27366987.
- I) A related publication found that using opioid poisoning billing codes to identify visits to the emergency department for opioid overdose is highly insensitive, detecting just 26% of events. See PMID: 27763703.

Infectious Diseases Related to Substance Use

Annual HIV diagnoses have been declining steadily for more than ten years. As of December 31, 2016, there were 212 new diagnoses in 2016; nevertheless, this is likely an underestimate because of delays in case reporting. The end-of-year numbers for 2014 and 2015 ultimately increased by 28 and 29, respectively, when incorporating cases that were reported after the end of each calendar year. Assuming a similar increase for 2016, it is probable that the number of new HIV diagnoses in 2016 will continue the declining trend in San Francisco, from 264 diagnoses in 2015. The number and percentage of diagnoses among PWID, including gay or bisexual males who inject drugs and other PWID, have also been declining steadily; the number and percentage of diagnoses among PWID other than gay or bisexual men, however, has remained stable and low since 2012. Although 2016 data are incomplete, among the 212 new HIV diagnoses, there were 38 (18%) among all PWID, including 19 (9%) among gay or bisexual male PWID and 19 (9%) among other PWID. Of the 16,009 individuals currently living with HIV in San Francisco, 3112 (19.4%) are or were PWID, including 2,203 (13.8%) gay or bisexual male PWID and 909 (5.7%) other PWID.

Figure 11. New HIV Diagnoses by Transmission Type, San Francisco, CA 2010–2016

Transmission Category	2010		2011		2012		2013		2014		2015		2016	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
Total new diagnoses	457		422		452		390		307		264		212	
Any injection drug user (IDU)	106	(23.2)	82	(19.4)	65	(14.4)	65	(16.7)	59	(19.2)	42	(15.9)	38	(17.9)
IDU only	37	(8.1)	28	(6.6)	19	(4.2)	21	(5.4)	22	(7.2)	18	(6.8)	19	(9.0)
Gay or bisexual male IDU	69	(15.1)	54	(12.8)	46	(10.2)	44	(11.3)	37	(12.1)	24	(9.1)	19	(9.0)

The most up-to-date data regarding HCV in San Francisco comes from the HCV Elimination Initiative described earlier in the Local Activities subsection of the New Drug-Related Legislation/Changes in Drug-Related Legislation section. Through the use of available local data, the HCV Elimination Initiative estimates that approximately 23,000 (2.7%) San Francisco residents have HCV antibodies, compared with a national percentage of 1.7%. Of those with HCV antibodies, it is estimated that approximately 13,000 individuals (1.5%) are carrying an active virus; the remainder have naturally cleared the virus or have been treated for the infection. It is also estimated that PWID make up approximately 70% of active HCV infections in San Francisco, whereas they make up less than 3% of the city's population.

Legislative and Policy Updates

LEGISLATION

- Several pieces of **legislation** have altered legal and service delivery in California related to substance use, including regulation of asset forfeiture from drug arrest, legalization of recreational use of marijuana, mandatory checking of the prescription drug monitoring program by medical providers, funding for distribution of naloxone, and the establishment of Law Enforcement Assisted Diversion Pilot Programs.

In 2016, Governor Brown signed Senate Bill 443, which regulated asset forfeiture in drug cases by, for example, requiring a conviction for forfeiture of property in most cases.

In November 2016, California voters approved Proposition 64, which legalized recreational possession and use of marijuana for persons aged 21 and older and created taxes for cultivation and sale of marijuana.

Beginning July 1, 2017, California State Senate Bill 482 requires that all medical providers check the state prescription drug monitoring program (CURES) when initiating opioid therapy and every four months thereafter if opioids are continued. CURES is not integrated into medical records, and restrictions remain on who can access CURES.

Senate Bill 833, effective January 1, 2017, authorized \$3 million for a one-time allocation of naloxone to communities for naloxone distribution systems.

Senate Bill 1110, effective in 2016, established the Law Enforcement Assisted Diversion Pilot Program, in which selected local counties received support to implement pre-booking diversion programs to local health resources for offenders with substance use disorders. CCSF was one of the selected counties.

LOCAL ACTIVITIES

SFDPH has continued the Drug User Health Initiative (DUHI), initiated in 2015 to address health issues related to substance use in CCSF. DUHI is a collaborative, department-wide effort to align services and systems to consistently support the health of people who use drugs and alcohol in San Francisco. It was developed through a broad-based community engagement and strategic planning process that included input from substance use treatment experts, community service providers, and drug users. The DUHI strategic plan identifies four priority areas: (1) harm reduction education and systems capacity building; (2) overdose prevention, education, and naloxone distribution; (3) syringe access and disposal; and (4) HIV/HCV prevention, screening, and treatment. HIV/HCV prevention guides the initiative's activities and provides a common set of performance measures and outcomes. DUHI's accomplishments include establishment of a Harm Reduction Training Institute; incorporation of harm reduction objectives into service provider contracts; expanded overdose prevention education and naloxone access via collaborations with SFDPH Primary Care, Police Department, Jail Health, and other partners; building community support for syringe access and disposal by combatting stigma around public drug use and homelessness; funding a community-based HIV prevention binge-drinking intervention for gay men and transgender women; and strengthening community and clinical capacity for HCV prevention, screening, and treatment.

Multiple stakeholders in CCSF also created the HCV Elimination Initiative of San Francisco aiming to eliminate HCV in CCSF. The long-term goal of the HCV Elimination Initiative is to establish (1) city-wide HCV community-based testing coverage for highly impacted populations and augmented surveillance infrastructure to track the progress of the HCV Initiative, (2) linkage to care and treatment access for all people living with HCV infection, and (3) prevention of infection for those at risk of HCV and reinfection in those cured of HCV. The Initiative will use existing services and attempt to coordinate city-wide efforts. Current Medi-Cal guidelines allow for liberal access to HCV treatment, including treatment of active persons who inject drugs (PWID), which is essential for reducing incident infections. In 2016, HCV linkage programs were established at the San Francisco AIDS Foundation, HealthRIGHT 360, and Glide Foundation, which were designed to support marginalized persons with HCV. HCV linkage has also been provided at the CCSF Jail.

Data Sources

Data for this report were drawn from the following sources:

Treatment admissions data for San Francisco County were provided by the Community Behavioral Health Services Division of the San Francisco Department of Public Health (SFDPH). Treatment episodes include clients admitted in prior years who are still receiving services in a particular year (e.g., methadone maintenance clients).

Hospital admission and emergency department visit data for San Francisco County were provided by the San Francisco Department of Public Health Lifetime Clinical Record.

Drug mortality data were taken from the National Vital Statistics System-Mortality data, with additional information provided by the California Electronic Death Record System (CA-EDRS).

Psychiatric emergency services data were provided by the San Francisco Department of Public Health Psychiatric Emergency Services (PES).

Lay naloxone participant registration, refill and reversal data were provided by Eliza Wheeler of the San Francisco Drug Overdose Prevention Education (DOPE) Project, a program of the Harm Reduction Coalition.

Opioid prescription data were provided by California Department of Justice, Law Enforcement Support Program, Bureau of Criminal Identification and Investigative Services, from the Controlled Substance Utilization Review and Evaluation System (CURES), California Prescription Drug Monitoring Program (<http://oag.ca.gov/cures-pdmp>).

Low-barrier buprenorphine treatment pilot data was provided by Dr. Barry Zevin of the San Francisco Department of Public Health.

Drug seizure data were provided by the National Forensic Laboratory Information System (NFLIS), Drug Enforcement Administration (DEA). Data were retrieved on Identified Drugs of Total Analyzed Drug Reports, San Francisco, 2015 and 2016, NFLIS, DEA. NFLIS methodology allows for the accounting of up to three drugs per item submitted for analysis. The data presented are a combined count including primary, secondary, and tertiary reports for each drug.

Acquired immunodeficiency syndrome (AIDS) surveillance and human immunodeficiency virus (HIV) data were provided by the San Francisco Department of Public Health, *Population Health Division, Applied Research, Community Health Epidemiology, and Surveillance Branch, HIV Semi-Annual Surveillance Report, HIV/AIDS Cases Reported Through December 2016*, accessed at <https://www.sfdph.org/dph/comupg/oprograms/hivepise/HIVepiSecReports.asp>.

Viral hepatitis data were provided by HCV Elimination Initiative of San Francisco (End Hep C SF), *Prevalence Estimate*, accessed at <https://endhepcsf.org/>.

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National Drug Early Warning System (NDEWS) Sentinel Community Site (SCS) Drug Use Patterns and Trends: SCS Data Tables

The *SCS Data Tables* are prepared by NDEWS Coordinating Center staff and include information on demographic and socioeconomic characteristics of the population, drug use, substance use disorders and treatment, drug poisoning deaths, and drug seizures for the Sentinel Community Site. The *SCS Data Tables* attempt to harmonize data available for each of the 12 sites by presenting standardized information from local treatment admissions and five national data sources:

- ◇ American Community Survey;
- ◇ National Survey on Drug Use and Health;
- ◇ Youth Risk Behavior Survey;
- ◇ SCE-provided local treatment admissions data;
- ◇ National Vital Statistics System mortality data queried from CDC WONDER; and
- ◇ National Forensic Laboratory Information System.

The *SCS Data Tables* for each of the 12 Sentinel Community Sites and detailed information about NDEWS can be found on the NDEWS website at www.ndews.org.

Table 1: Demographic and Socioeconomic Characteristics
San Francisco County, California
 2011–2015 ACS 5-Year Estimates

	Estimate	Margin of Error
Total Population (#)	840,763	**
Age		
18 years and over (%)	86.6%	**
21 years and over (%)	83.9%	+/-0.1
65 years and over (%)	14.2%	+/-0.1
Median Age (years)	38.5	+/-0.1
Race (%)		
White, Not Hisp.	41.2%	+/-0.1
Black/African American, Not Hisp.	5.3%	+/-0.1
Hispanic/Latino (of any race)	15.3%	**
American Indian/Alaska Native, Not Hisp.	0.2%	+/-0.1
Asian, Not Hisp.	33.5%	+/-0.1
Native Hawaiian/Pacific Islander, Not Hisp.	0.4%	+/-0.1
Some Other Race	0.5%	+/-0.1
Two or More Races	3.5%	+/-0.2
Sex (%)		
Male	50.9%	+/-0.1
Female	49.1%	+/-0.1
Educational Attainment (Among Population Aged 25+ Years) (%)		
High School Graduate or Higher	87.0%	+/-0.3
Bachelor's Degree or Higher	53.8%	+/-0.5
Unemployment (Among Civilian Labor Force Population Aged 16+ Years) (%)		
Unemployment Rate	6.8%	+/-0.3
Income (\$)		
Median Household Income (in 2015 inflation-adjusted dollars)	\$81,294	+/-1,099
Health Insurance Coverage (Among Civilian Noninstitutionalized Population) (%)		
No Health Insurance Coverage	8.5%	+/-0.3
Poverty (%)		
All People Whose Income in Past 12 Months Is Below Poverty Level	13.2%	+/-0.4

NOTES:

Margin of Error: Can be interpreted roughly as providing a 90% probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value.

**The estimate is controlled; a statistical test for sampling variability is not appropriate.

SOURCE: Adapted by the NDEWS Coordinating Center from data provided by the U.S. Census Bureau, 2011–2015 American Community Survey (ACS) 5-Year Estimates.

Table 2a: Self-Reported Substance Use Behaviors
Among Persons 12+ Years in San Francisco[^], 2012–2014
 Estimated Percent, 95% Confidence Interval, and Estimated Number*
 Annual Averages Based on Combined 2012 to 2014 NSDUH Data

Substance Use Behaviors	Substate Region: San Francisco	
	Estimated % (95% CI)*	Estimated #*
Used in Past Month		
Alcohol	60.64 (54.13 66.79)	452,449
Binge Alcohol**	26.07 (22.19 30.36)	194,517
Marijuana	15.46 (11.52 20.44)	115,364
Use of Illicit Drug Other Than Marijuana	5.40 (3.71 7.80)	40,268
Used in Past Year		
Cocaine	3.66 (2.33 5.69)	27,298
Nonmedical Use of Pain Relievers	4.76 (3.63 6.20)	35,496
Substance Use Disorders in Past Year***		
Illicit Drugs or Alcohol	10.53 (8.60 12.84)	78,602
Alcohol	8.83 (7.05 11.01)	65,899
Illicit Drugs	2.95 (2.14 4.06)	22,046

NOTES:

[^]**San Francisco:** NSDUH Substate Region 5R which comprises San Francisco County.

***Estimated %:** Substate estimates are based on a small area estimation methodology in which 2012–2014 substate level NSDUH data are combined with county and census block group/tract-level data from the state; **95% Confidence Interval (CI):** Provides a measure of the accuracy of the estimate. It defines the range within which the true value can be expected to fall 95 percent of the time; **Estimated #:** The estimated number of persons aged 12 or older who used the specified drug or are dependent/abuse a substance was calculated by multiplying the prevalence rate and the population estimate of persons 12+ years (746,157) from Table C1 of the NSDUH report. The population estimate is the simple average of the 2012, 2013, and 2014 population counts for persons aged 12 or older.

****Binge Alcohol:** Defined as drinking 5 or more drinks on the same occasion on at least 1 day in the past 30 days.

*****Substance Use Disorders in Past Year:** Persons are classified as having a substance use disorder in the past 12 months based on responses to questions that meet the criteria specified in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

SOURCE: Adapted by the NDEWS Coordinating Center from data provided by the Substance Abuse and Mental Health Services Administration (SAMHSA), Substate Estimates of Substance Use and Mental Illness from the 2012–2014 National Surveys on Drug Use and Health. Available at:
<http://www.samhsa.gov/data/population-data-nsduh/reports?tab=38>

Table 2b: Self-Reported Substance Use Behaviors Among Persons in *San Francisco*[^], by Age Group, 2012–2014
 Estimated Percent and 95% Confidence Interval (CI)*, Annual Averages Based on Combined 2012 to 2014 NSDUH Data

Substance Use Behaviors	Substate Region: San Francisco					
	12–17		18–25		26+	
	Estimated Percent (95% CI)*		Estimated Percent (95% CI)*		Estimated Percent (95% CI)*	
Used in Past Month						
Binge Alcohol**	—		—		24.82 (20.69 – 29.47)	
Marijuana	—		—		—	
Use of Illicit Drug Other Than Marijuana	—		9.35 (6.47 – 13.33)		4.98 (3.22 – 7.64)	
Used in Past Year						
Cocaine	—				2.84 (1.58 – 5.04)	
Nonmedical Use of Pain Relievers	—		9.49 (7.17 – 12.46)		4.15 (2.99 – 5.74)	
Substance Use Disorder in Past Year***						
Illicit Drugs or Alcohol	—		22.50 (17.90 – 27.88)		9.34 (7.34 – 11.81)	
Alcohol	—		18.28 (13.97 – 23.56)		7.97 (6.14 – 10.27)	
Illicit Drugs	—		9.50 (6.94 – 12.88)		2.12 (1.36 – 3.29)	

NOTES:

[^]**San Francisco:** NSDUH Substate Region 5R which comprises San Francisco County.

***Estimated %:** Substate estimates are based on a small area estimation methodology in which 2012–2014 substate level NSDUH data are combined with county and census block group/tract-level data from the state; **95% Confidence Interval (CI):** Provides a measure of the accuracy of the estimate. It defines the range within which the true value can be expected to fall 95 percent of the time.

****Binge Alcohol:** Defined as drinking 5 or more drinks on the same occasion on at least 1 day in the past 30 days.

*****Substance Use Disorders in Past Year:** Persons are classified as having a substance use disorder in the past 12 months based on responses to questions that meet the criteria specified in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

SOURCE: Adapted by the NDEWS Coordinating Center from data provided by the Substance Abuse and Mental Health Services Administration (SAMHSA), Substate Estimates of Substance Use and Mental Illness from the 2012–2014 National Surveys on Drug Use and Health. Available at: <http://www.samhsa.gov/data/population-data-nsduh/reports?tab=38>

Table 3: Self-Reported Substance Use-Related Behaviors Among *San Francisco* ^ Public High-School Students, 2015
Estimated Percent and 95% Confidence Interval (CI)
2013 and 2015 YRBS*

Substance Use Behaviors	2015 vs 2013			2015 by Sex			2015 by Race			
	2015	2013	<i>p</i> value	Male	Female	<i>p</i> value	White	Black	Hispanic	Asian
	Estimate (95% CI)	Estimate (95% CI)		Estimate (95% CI)	Estimate (95% CI)		Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)
Used in Past Month										
Alcohol	18.4 (15.5 - 21.8)	18.6 (16.3 - 21.1)	0.93	15.8 (12.6 - 19.6)	21.2 (17.8 - 25.1)	0.00	45.8 (35.6 - 56.2)	N/A	25.0 (19.9 - 30.9)	9.9 (7.7 - 12.8)
Binge Alcohol**	8.8 (7.2 - 10.8)	10.4 (8.8 - 12.3)	0.21	8.1 (6.2 - 10.5)	9.7 (7.6 - 12.3)	0.25	28.3 (19.4 - 39.3)	N/A	14.5 (10.3 - 20.1)	3.7 (2.3 - 5.8)
Marijuana	17.4 (13.9 - 21.5)	16.3 (13.6 - 19.3)	0.65	16.3 (12.6 - 20.8)	18.4 (14.4 - 23.3)	0.29	33.3 (22.5 - 46.2)	N/A	26.0 (21.1 - 31.5)	5.8 (3.5 - 9.4)
Ever Used in Lifetime										
Alcohol	43.5 (39.6 - 47.6)	46.0 (42.6 - 49.4)	0.36	40.7 (35.9 - 45.7)	46.3 (41.7 - 50.9)	0.04	66.8 (56.8 - 75.4)	N/A	56.1 (49.5 - 62.5)	31.9 (27.8 - 36.2)
Marijuana	28.7 (24.6 - 33.2)	28.2 (24.7 - 32.0)	0.87	26.9 (22.6 - 31.6)	30.7 (25.9 - 36.0)	0.07	51.8 (40.6 - 62.9)	N/A	46.8 (40.5 - 53.2)	10.6 (7.6 - 14.7)
Cocaine	5.3 (3.9 - 7.1)	6.5 (5.2 - 8.1)	0.24	5.1 (3.7 - 7.0)	4.8 (3.1 - 7.2)	0.78	12.5 (7.7 - 19.6)	7.2 (2.2 - 21.1)	8.8 (6.5 - 11.9)	1.9 (0.9 - 4.0)
Hallucinogenic Drugs	—	—	~	—	—	~	—	—	—	—
Synthetic Marijuana	—	—	~	—	—	~	—	—	—	—
Inhalants	5.1 (3.9 - 6.7)	5.9 (4.8 - 7.2)	0.40	4.7 (3.6 - 6.1)	5.1 (3.2 - 8.0)	0.73	9.0 (4.2 - 18.3)	5.5 (2.1 - 13.5)	8.7 (6.7 - 11.1)	2.7 (1.5 - 4.6)
Ecstasy also called "MDMA"	5.1 (3.9 - 6.7)	8.5 (6.7 - 10.6)	0.01	5.9 (4.2 - 8.1)	3.9 (2.6 - 5.8)	0.08	11.9 (7.3 - 19.0)	N/A	7.2 (5.1 - 10.0)	1.9 (1.1 - 3.3)
Heroin	2.4 (1.5 - 3.9)	3.0 (2.2 - 4.1)	0.40	2.1 (1.3 - 3.4)	1.9 (0.8 - 4.4)	0.74	5.4 (2.1 - 13.3)	4.5 (1.6 - 12.0)	3.9 (2.2 - 7.0)	0.8 (0.2 - 2.7)
Methamphetamine	3.8 (2.8 - 5.2)	4.0 (3.0 - 5.3)	0.80	4.4 (3.3 - 5.9)	2.5 (1.5 - 4.1)	0.01	7.1 (3.3 - 14.6)	3.0 (1.1 - 7.9)	6.9 (5.1 - 9.3)	1.8 (0.8 - 3.9)
Rx Drugs without a Doctor's Prescription	12.7 (10.3 - 15.6)	11.1 (9.3 - 13.3)	0.34	13.2 (10.4 - 16.7)	11.6 (9.2 - 14.5)	0.23	26.4 (19.2 - 35.2)	N/A	14.3 (10.6 - 19.0)	7.2 (5.1 - 10.2)
Injected Any Illegal Drug	—	—	~	—	—	~	—	—	—	—

NOTES:

^ **San Francisco:** Weighted data were available for San Francisco in 2013 and 2015; weighted results mean that the overall response rate was at least 60%. The overall response rate is calculated by multiplying the school response rate times the student response rate. Weighted results are representative of all students in grades 9–12 attending public schools in each jurisdiction.

'—': Data not available; ~: *p* value not available; **N/A:** <100 respondents for the subgroup.

* **Sample Frame for the 2013 and 2015 YRBS:** Consisted of public schools with students in at least one of grades 9-12. The sample size for 2013 was 1,953 with an overall response rate of 75%; the 2015 sample size was 2,181 with an 82% overall response rate.

** **Binge Alcohol:** Defined as having had five or more drinks of alcohol in a row within a couple of hours on at least 1 day during the 30 days before the survey.

SOURCE: Adapted by the NDEWS Coordinating Center from data provided by the Centers for Disease Control and Prevention (CDC), 1991-2015 High School Youth Risk Behavior Survey Data. Available at <http://nccd.cdc.gov/youthonline/>. Accessed on [7/5/2016].

Table 4a: Trends in Admissions* to Programs Treating Substance Use Disorders, San Francisco, 2012-2016
Number of Admissions and Percentage of Admissions with Selected Substances Cited as Primary Substance of Abuse at Admission, by Year and Substance

	Calendar Year									
	2012		2013		2014		2015		2016	
	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)
Total Admissions (#)	11,434	100%	11,257	100%	10,830	100%	10,270	100%	9,958	100%
Primary Substance of Abuse (%)										
Alcohol	2,863	25.0%	2,670	23.7%	2,384	22.0%	2,293	22.3%	2,144	21.5%
Cocaine/Crack	1,785	15.6%	1,702	15.1%	1,214	11.2%	928	9.0%	757	7.6%
Heroin	3,436	30.1%	3,531	31.4%	4,145	38.3%	4,177	40.7%	4,183	42.0%
Prescription Opioids	456	4.0%	431	3.8%	501	4.6%	502	4.9%	482	4.8%
Methamphetamine	1,504	13.2%	1,639	14.6%	1,549	14.3%	1,488	14.5%	1,656	16.6%
Marijuana	631	5.5%	733	6.5%	627	5.8%	584	5.7%	463	4.6%
Benzodiazepines	20	0.2%	21	0.2%	20	0.2%	22	0.2%	23	0.2%
MDMA	26	0.2%	21	0.2%	19	0.2%	12	0.1%	5	<0.1%
Synthetic Stimulants	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Synthetic Cannabinoids	0	0.0%	2	<0.1%	1	<0.1%	1	<0.1%	0	0.0%
Other Drugs/Unknown	713	6.2%	507	4.5%	370	3.4%	263	2.6%	245	2.5%

NOTES:

***Admissions:** Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

unavail: Data not available.

Source: Data provided to the San Francisco SCE by the San Francisco Department of Public Health (SFPDH), Community Behavioral Health Services Division.

Table 4b: Demographic and Drug Use Characteristics of Primary Treatment Admissions* for Select Substances of Abuse, San Francisco, 2016
Number of Admissions, by Primary Substance of Abuse and Percentage of Admissions with Selected Demographic and Drug Use Characteristics

	Primary Substance of Abuse																	
	Alcohol		Cocaine/Crack		Heroin		Prescription Opioids		Methamphetamine		Marijuana		Benzo-diazepines		Synthetic Stimulants		Synthetic Cannabinoids	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Number of Admissions (#)	2,144	100%	757	100%	4,183	100%	482	100%	1,656	100%	463	100%	23	100%	0	100%	0	100%
Sex (%)																		
Male	1,639	76.4%	497	65.7%	2,849	68.1%	303	62.9%	1,221	73.7%	300	64.8%	15	65.2%	n/a	n/a	n/a	n/a
Female	504	23.5%	259	34.2%	1,334	31.9%	179	37.1%	434	26.2%	163	35.2%	8	34.8%	n/a	n/a	n/a	n/a
Race/Ethnicity (%)																		
White, Non-Hisp.	821	38.3%	91	12.0%	2,037	48.7%	291	60.4%	634	38.3%	53	11.4%	9	39.1%	n/a	n/a	n/a	n/a
African-Am/Black, Non-Hisp	486	22.7%	542	71.6%	1,159	27.7%	48	10.0%	359	21.7%	132	28.5%	3	13.0%	n/a	n/a	n/a	n/a
Hispanic/Latino	568	26.5%	90	11.9%	547	13.1%	83	17.2%	404	24.4%	194	41.9%	6	26.1%	n/a	n/a	n/a	n/a
Asian	42	2.0%	13	1.7%	76	1.8%	13	2.7%	97	5.9%	16	3.5%	1	4.3%	n/a	n/a	n/a	n/a
Other	227	10.6%	21	2.8%	364	8.7%	47	9.8%	162	9.8%	68	14.7%	4	17.4%	n/a	n/a	n/a	n/a
Age Group (%)																		
Under 18	14	0.7%	0	0.0%	0	0.0%	0	0.0%	4	0.2%	191	41.3%	0	0.0%	n/a	n/a	n/a	n/a
18-25	72	3.4%	31	4.1%	210	5.0%	28	5.8%	152	9.2%	127	27.4%	4	17.4%	n/a	n/a	n/a	n/a
26-44	821	38.3%	171	22.6%	1,755	42.0%	276	57.3%	1,031	62.3%	88	19.0%	11	47.8%	n/a	n/a	n/a	n/a
45+	1,237	57.7%	555	73.3%	2,218	53.0%	178	36.9%	469	28.3%	57	12.3%	8	34.8%	n/a	n/a	n/a	n/a
Route of Administration (%)																		
Smoked	0	0.0%	662	87.5%	178	4.3%	24	5.0%	1,024	61.8%	448	96.8%	0	0.0%	n/a	n/a	n/a	n/a
Inhaled	0	0.0%	68	9.0%	715	17.1%	37	7.7%	132	8.0%	1	0.2%	0	0.0%	n/a	n/a	n/a	n/a
Injected	0	0.0%	8	1.1%	3,173	75.9%	50	10.4%	475	28.7%	1	0.2%	0	0.0%	n/a	n/a	n/a	n/a
Oral/Other/Unknown	2,144	100.0%	19	2.5%	117	2.8%	371	77.0%	25	1.5%	13	2.8%	23	100.0%	n/a	n/a	n/a	n/a
Secondary Substance (%)																		
None	1,644	76.7%	521	68.8%	1,662	39.7%	224	46.5%	1,146	69.2%	246	53.1%	10	43.5%	n/a	n/a	n/a	n/a
Alcohol	0	0.0%	98	12.9%	140	3.3%	24	5.0%	161	9.7%	137	29.6%	2	8.7%	n/a	n/a	n/a	n/a
Cocaine/Crack	180	8.4%	0	0.0%	1,099	26.3%	36	7.5%	43	2.6%	19	4.1%	3	13.0%	n/a	n/a	n/a	n/a
Heroin	30	1.4%	49	6.5%	0	0.0%	50	10.4%	77	4.6%	1	0.2%	1	4.3%	n/a	n/a	n/a	n/a
Prescription Opioids	10	0.5%	6	0.8%	219	5.2%	43	8.9%	12	0.7%	6	1.3%	1	4.3%	n/a	n/a	n/a	n/a
Methamphetamine	142	6.6%	25	3.3%	777	18.6%	42	8.7%	0	0.0%	35	7.6%	2	8.7%	n/a	n/a	n/a	n/a
Marijuana	115	5.4%	53	7.0%	215	5.1%	36	7.5%	163	0.0%	0	0.0%	4	17.4%	n/a	n/a	n/a	n/a
Benzodiazepines	3	0.1%	2	0.3%	62	1.5%	20	4.1%	5	<0.1%	8	1.7%	0	0.0%	n/a	n/a	n/a	n/a
Synthetic Stimulants	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	n/a	n/a	n/a	n/a
Synthetic Cannabinoids	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	n/a	n/a	n/a	n/a

NOTES:

***Admissions:** Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

unavail: Data not available; **n/a:** Not Applicable; **Percentages** may not sum to 100 due to either rounding, missing data, and/or because not all possible categories are presented in the table (and category frequencies may not add to drug total because not all possible categories are presented in the table).

SOURCE: Data provided to the San Francisco SCE by the San Francisco Department of Public Health, Community Behavioral Health Services Division.

Table 5: Drug Poisoning Deaths*, by Drug and Year, San Francisco ^, 2011–2015**
Number, Crude Rate, and Age-Adjusted Rate* (per 100,000 population)**

	2011			2012			2013			2014			2015		
	Number (#)	Crude Rate	Age-Adjusted Rate	Number (#)	Crude Rate	Age-Adjusted Rate	Number (#)	Crude Rate	Age-Adjusted Rate	Number (#)	Crude Rate	Age-Adjusted Rate	Number (#)	Crude Rate	Age-Adjusted Rate
Drug Poisoning Deaths	194	23.9	21.5	136	16.5	13.8	130	15.5	13.6	164	19.2	16.4	196	22.7	20.1
Opioids[†]	108	13.3	12.0	58	7.0	6.0	75	9.0	7.7	89	10.4	8.6	95	11.0	9.7
Heroin	10	UNR	UNR	SUP	SUP	SUP	11	UNR	UNR	22	2.6	2.1	24	2.8	2.4
Natural Opioid Analgesics	65	8.0	7.1	34	4.1	3.5	46	5.5	4.8	52	6.1	5.0	38	4.4	4.2
Methadone	49	6.0	5.3	22	2.7	2.3	20	2.4	2.1	22	2.6	2.2	27	3.1	2.8
Synthetic Opioid Analgesics	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	16	UNR	UNR
Benzodiazepines	44	5.4	4.9	16	UNR	UNR	33	3.9	3.6	27	3.2	2.6	24	2.8	2.3
Benzodiazepines AND Any Opioids	31	3.8	3.4	12	UNR	UNR	28	3.3	3.0	18	UNR	UNR	16	UNR	UNR
Benzodiazepines AND Heroin	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP	SUP
Psychostimulants															
Cocaine	64	7.9	7.0	39	4.7	4.0	40	4.8	4.1	53	6.2	5.3	64	7.4	6.2
Psychostimulants with Abuse Potential	33	4.1	3.5	19	UNR	UNR	30	3.6	3.1	41	4.8	4.2	73	8.4	7.6
Cannabis (derivatives)	10	UNR	UNR	SUP	SUP	SUP	16	UNR	UNR	11	UNR	UNR	SUP	SUP	SUP
Percent with Drugs Specified[†]	95.9%			72.8%			97.7%			98.8%			99.0%		

NOTES:

***Drug Poisoning Deaths:** Drug poisoning deaths are defined as deaths with **underlying cause-of-death** codes from the World Health Organization's (WHO's) *International Classification of Diseases, Tenth Revision* (ICD-10) of X40-X44, X60-X64, X85, and Y10-Y14. See *Overview & Limitations* section for additional information on mortality data and definitions of the specific ICD-10 codes listed.

****Drug Poisoning Deaths, by Drug:** Among the deaths with drug poisoning identified as the underlying cause, the specific drugs are identified by ICD-10 **multiple cause-of-death (MCOD)** T-codes (see below). Each death certificate may contain up to 20 causes of death indicated in the MCOD field. Thus, the total count across drugs may exceed the actual number of dead persons in the selected population. Some deaths involve more than one drug; these deaths are included in the rates for each drug category.

^San Francisco: Comprised of San Francisco County.

*****Age-Adjusted Rate:** Age-adjusted rates are weighted averages of the age-specific death rates, where the weights represent a fixed population by age (2000 U.S. Population). Age adjustment is a technique for removing the effects of age from crude rates, so as to allow meaningful comparisons across populations with different underlying age structures. Age-adjusted rates should be viewed as relative indexes rather than as direct or actual measures of mortality risk. See <http://wonder.cdc.gov/wonder/help/mcd.html> for more information.

[†]Opioids: Includes any of these MCOD codes T40.0-T40.4, or T40.6

Heroin (T40.1); *Natural Opioid Analgesics* (T40.2) - Including morphine and codeine, and semi-synthetic opioid analgesics, including drugs such as oxycodone, hydrocodone, hydromorphone, and oxymorphone; *Methadone* (T40.3); *Synthetic Opioid Analgesics* (T40.4) - Other than methadone, including drugs such as tramadol and fentanyl; *Other and Unspecified Narcotics* (T40.6)

Benzodiazepines: (T42.4)

Benzodiazepines AND Any Opioids (T42.4 AND T40.0-T40.4, or T40.6)

Benzodiazepines AND Heroin (T42.4 AND T40.1)

Psychostimulants:

Cocaine (T40.5); *Psychostimulants with Abuse Potential* [excludes cocaine](T43.6)

Cannabis (derivatives): (T40.7)

[†]Percent of Drug Poisoning Deaths with Drug(s) Specified: Among drug poisoning deaths, deaths that mention the type of drug(s) involved are defined as those including at least one ICD-10 MCOD in the range T36-T50.8. See *Overview & Limitations* section for more information about this statistic.

SUP=Suppressed: Counts and Rates are suppressed for subnational data representing 0–9 deaths. **UNR=Unreliable:** Rates are Unreliable when the death count <20.

SOURCE: Adapted by the NDEWS Coordinating Center from data taken from the Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple cause of death 1999-2015, available on the CDC WONDER Online Database, released December 2016. Data compiled in the Multiple cause of death 1999-2015 were provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Retrieved between February 2017 - June 2017, from <http://wonder.cdc.gov/mcd-icd10.html>

Table 6a: Drug Reports* for Items Seized by Law Enforcement in San Francisco in 2016
DEA National Forensic Laboratory Information System (NFLIS)
 Number of Drug-Specific Reports and Percent of Total Analyzed Drug Reports

Drug Identified	Number (#)	Percent of Total Drug Reports* (%)
Total Drug Reports	2,579	100.0%
METHAMPHETAMINE	662	25.7%
COCAINE	630	24.4%
CANNABIS	416	16.1%
HEROIN	373	14.5%
NO CONTROLLED DRUG IDENTIFIED	97	3.8%
OXYCODONE	70	2.7%
ALPRAZOLAM	64	2.5%
3,4-METHYLENEDIOXYMETHAMPHETAMINE (MDMA)	38	1.5%
HYDROCODONE	31	1.2%
PSILOCYBIN/PSILOCYN	29	1.1%
FENTANYL	22	0.9%
LYSERGIC ACID DIETHYLAMIDE (LYSERGIDE)	17	0.7%
METHADONE	13	0.5%
MORPHINE	13	0.5%
CLONAZEPAM	12	0.5%
3,4-METHYLENEDIOXYAMPHETAMINE (MDA)	9	0.3%
LACTOSE	9	0.3%
CODEINE	8	0.3%
AMPHETAMINE	6	0.2%
DIAZEPAM	6	0.2%
CARISOPRODOL	5	0.2%
TRAMADOL	5	0.2%
ETIZOLAM	4	0.2%
PHENCYCLIDINE	4	0.2%
PHENYLIMIDOTHIAZOLE ISOMER UNDETERMINED	4	0.2%
3,4-METHYLENEDIOXYETHYL CATHINONE (ETHYLONE)	3	0.1%
BUPRENORPHINE	3	0.1%
DIMETHYLSULFONE	3	0.1%
HYDROMORPHONE	3	0.1%
KETAMINE	3	0.1%
LORAZEPAM	2	< 0.1%
TADALAFIL	2	< 0.1%
4-ANILINO-1-PHENETHYLPIPERIDINE	1	< 0.1%
6-MONOACETYLMORPHINE	1	< 0.1%
CAFFEINE	1	< 0.1%
CONTROLLED SUBSTANCE	1	< 0.1%
GAMMA HYDROXY BUTYL LACTONE	1	< 0.1%
LIDOCAINE	1	< 0.1%
NOSCAPINE	1	< 0.1%
OXYMORPHONE	1	< 0.1%
PHENACETIN	1	< 0.1%
PHTERMINE	1	< 0.1%
PROCAINE	1	< 0.1%
SILDENAFIL CITRATE (VIAGRA)	1	< 0.1%
ZOLPIDEM	1	< 0.1%

NOTES:

Important Note About Reporting Labs: The San Francisco Police Department (SFPD) laboratory has been closed since 2010; however, beginning in January 2012, the Alameda Sheriff Department laboratory began reporting their SFPD cases to NFLIS. All available data from the SFPD are included in the counts. Please note that previously published 2014 and 2015 San Francisco County NDEWS reports did not include SFPD cases analyzed by the Alameda Sheriff Department laboratory. The dramatic increases in this year's 2016 data, compared to 2014 and 2015, are a result of the inclusion of SFPD data analyzed by the Alameda laboratory.

***Drug Report:** Drug that is identified in law enforcement items, submitted to and analyzed by federal, state, or local forensic labs, and included in the NFLIS database. The time frame is January - December 2016.

The NFLIS database allows for the reporting of up to three drugs per item submitted for analysis. The data presented are a total count of first, second, and third listed reports for each selected drug item seized and analyzed.

Source: Adapted by the NDEWS Coordinating Center from data provided by the U.S. Drug Enforcement Administration (DEA), Diversion Control Division, Drug and Chemical Evaluation Section, Data Analysis Unit. Data were retrieved from the NFLIS Data Query System (DQS) on May 28, 2017.

Table 6b: Drug Reports* for Items Seized by Law Enforcement in San Francisco in 2016
DEA National Forensic Laboratory Information System (NFLIS)

Drug Reports* by Selected Drug Categories** of Interest, Number of Drug-Specific Reports,
Percent of Analyzed Drug Category Reports, & Percent of Total Analyzed Drug Reports

Drug Identified, by Selected Drug Category**	Number (#)	Percent of Drug Category (%)	Percent of Total Reports (%)
Total Drug Reports*	2,579	100.0%	100.0%
Opioids Category	544	100.0%	21.1%
Heroin	373	68.6%	14.5%
Narcotic Analgesics	169	31.1%	6.6%
OXYCODONE	70	12.9%	2.7%
HYDROCODONE	31	5.7%	1.2%
FENTANYL	22	4.0%	0.9%
METHADONE	13	2.4%	0.5%
MORPHINE	13	2.4%	0.5%
CODEINE	8	1.5%	0.3%
TRAMADOL	5	0.9%	0.2%
BUPRENORPHINE	3	0.6%	0.1%
HYDROMORPHONE	3	0.6%	0.1%
OXYMORPHONE	1	0.2%	< 0.1%
Narcotics	2	0.4%	< 0.1%
6-MONOACETYLMORPHINE	1	0.2%	< 0.1%
NOSCAPINE	1	0.2%	< 0.1%
Synthetic Cathinones Category	3	100.0%	0.1%
Synthetic Cathinones	3	100.0%	0.1%
3,4-METHYLENEDIOXYETHYLCATHINONE (ETHYLONE)	3	100.0%	0.1%

NOTES:

Important Note About Reporting Labs: The San Francisco Police Department (SFPD) laboratory has been closed since 2010; however, beginning in January 2012, the Alameda Sheriff Department laboratory began reporting their SFPD cases to NFLIS. All available data from the SFPD are included in the counts. Please note that previously published 2014 and 2015 San Francisco County NDEWS reports did not include SFPD cases analyzed by the Alameda Sheriff Department laboratory. The dramatic increases in this year's 2016 data, compared to 2014 and 2015, are a result of the inclusion of SFPD data analyzed by the Alameda laboratory.

***Drug Report:** Drug that is identified in law enforcement items, submitted to and analyzed by federal, state, or local forensic labs, and included in the NFLIS database. The time frame is January - December 2016.

****Selected Drug Categories:** Opioids, Synthetic Cannabinoids, Synthetic Cathinones, 2C Phenethylamines, Piperazines, and Tryptamines are drug categories of current interest to the NDEWS Project because of the recent increase in their numbers, types, and availability.

The NFLIS database allows for the reporting of up to three drugs per item submitted for analysis. The data presented are a total count of first, second, and third listed reports for each selected drug item seized and analyzed.

Source: Adapted by the NDEWS Coordinating Center from data provided by the U.S. Drug Enforcement Administration (DEA), Diversion Control Division, Drug and Chemical Evaluation Section, Data Analysis Unit. Data were retrieved from the NFLIS Data Query System (DQS) on May 28, 2017.

National Drug Early Warning System (NDEWS) Sentinel Community Site (SCS) Drug Use Patterns and Trends, 2017: Overview and Limitations About Data Sources

The *Overview and Limitations About Data Sources*, written by Coordinating Center staff, provides a summary and a detailed description of the limitations of some of the national data sources used this report, including indicators of substance use, treatment, consequences, and availability.

Overview and Limitations of American Community Survey (ACS) Data

Data on demographic, social, and economic characteristics are based on 2011–2015 American Community Survey (ACS) 5-Year Estimates, collected between January 1, 2011 and December 31, 2015. The U.S. Census Bureau's ACS is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic, and housing data on an annual basis. Although the main function of the decennial census is to provide counts of people for the purpose of congressional apportionment and legislative redistricting, the primary purpose of the ACS is to measure the changing social and economic characteristics of the U.S. population. As a result, the ACS does not provide official counts of the population in between censuses. Instead, the Census Bureau's Population Estimates Program will continue to be the official source for annual population totals, by age, race, Hispanic origin, and sex.^a

The ACS selects approximately 3.5 million housing unit addresses from every county across the nation to survey. Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error (MOE). The values shown in the table are the margin of errors. The MOE can be interpreted roughly as providing a 90% probability that the interval defined by the estimate minus the MOE and the estimate plus the MOE (the lower and upper confidence bounds) contains the true value.^a

Sources

Data Sources: Adapted by the NDEWS Coordinating Center from data from the American Community Survey; *2011–2015 American Community Survey 5-Year Estimates*; Tables DP02, DP03, and DP05; using American FactFinder; <http://factfinder.census.gov>; Accessed April 2017; U.S. Census Bureau.

Overview/Methods/Limitations Sources: ^aAdapted by the NDEWS Coordinating Center from U.S. Census Bureau, *A Compass for Understanding and Using American Community Survey Data: What General Data Users Need to Know*. U.S. Government Printing Office, Washington, DC, 2008. Available at: <https://www.census.gov/library/publications/2008/acs/general.html>

Overview and Limitations of National Survey of Drug Use and Health (NSDUH) Data

NSDUH is an annual survey of the civilian, noninstitutionalized population of the United States aged 12 years or older that is planned and managed by the Substance Abuse and Mental Health Administration's (SAMHSA) Center for Behavioral Health Statistics and Quality (CBHSQ). Data is collected from individuals residing in households, noninstitutionalized group quarters (e.g., shelters, rooming houses, dormitories) and civilians living on military bases. In 2012–2014, NSDUH collected data from 204,048 respondents aged 12 years or older; this sample was designed to obtain representative samples from the 50 states and the District of Columbia.^a

The **substate estimates** are produced from a hierarchical Bayes model-based small area estimation (SAE) procedure in which 2012–2014 NSDUH data at the substate level are combined with local area county and census block group/tract-level data from the area. The goal of this method is to enhance statistical power and analytic capability, and to provide more precise estimates of substance use and mental health outcomes within and across states. [See [2012–2014 NSDUH Methods Report](#) for more information about the methodology used to generate substate estimates]. Comparable estimates derived from the small area estimation procedure were also produced for the 50 states and the District of Columbia. We present these estimates for Maine and Texas. Because these data are based on 3 consecutive years of data, they are not directly comparable with the annually published state estimates that are based on only 2 consecutive years of NSDUH data.^a

Substate regions, also referred to as planning regions or substate areas, were defined by officials from each of the 50 states and the District of Columbia and were typically based on the treatment planning regions specified by the states in their applications for the Substance Abuse Prevention and Treatment Block Grant (SABG) administered by SAMHSA. There has been extensive variation in the size and use of substate regions across states. In some states, the substate regions have been used more for administrative purposes than for planning purposes. The goal of the project was to provide substate-level estimates showing the geographic distribution of substance use prevalence for regions that states would find useful for planning and reporting purposes. The final substate region boundaries were based on the state's recommendations, assuming that the NSDUH sample sizes were large enough to provide estimates with adequate precision. Most states defined regions in terms of counties or groups of counties, while some defined them in terms of census tracts. Estimates for 384 substate regions were generated using the 2012–2014 NSDUH data. Substate regions used for each Sentinel Community Site (SCS) are defined in the Notes sections of Tables 2a and 2b.^a

Notes about Data Terms

Estimated percentages are based on a survey-weighted hierarchical Bayes estimation approach, and the 95% prediction (credible) intervals are generated by Markov Carlo techniques.

95% Confidence Interval (CI) provides a measure of the accuracy of the estimate. It defines the range within which the true value can be expected to fall 95% of the time.

Estimated # is the estimated number of persons aged 12 years or older in the civilian, noninstitutionalized population who used the specified drug or are dependent on/abuse a substance; the estimated number of persons using/dependent on a particular drug was calculated by multiplying the prevalence rate and the population estimate from Table C1 of the NSDUH report. The population estimate is the simple average of the 2012, 2013, and 2014 population counts for persons aged 12 years or older.

Binge Alcohol is defined as drinking five or more drinks on the same occasion on at least 1 day in the past 30 days.

Use of Illicit Drug Other Than Marijuana is defined as any illicit drug other than marijuana and includes cocaine (including crack), heroin, hallucinogens, inhalants, or any prescription-type psychotherapeutic used nonmedically.

Substance Use Disorder in Past Year: Persons are classified as having a substance use disorder in the past 12 months based on responses to questions that meet the criteria specified in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).

Sources

Data Sources: Adapted by the NDEWS Coordinating Center from data provided by the Substance Abuse and Mental Health Services Administration (SAMHSA), Substate Estimates of Substance Use and Mental Disorders from the 2012–2014 *National Surveys on Drug Use and Health: Results and Detailed Tables*. Rockville, MD. 2014. Available at: <http://www.samhsa.gov/data/population-data-nsduh/reports?tab=38>; Accessed on August 2016.

Overview/Methods/Limitations Sources: ^aAdapted by the NDEWS Coordinating Center from Substance Abuse and Mental Health Services Administration (SAMHSA), 2012–2014 *National Surveys on Drug Use and Health: Guide to Substate Tables and Summary of Small Area Estimation Methodology*. Rockville, MD 2016. Available at: <http://www.samhsa.gov/data/sites/default/files/NSDUHsubstateMethodology2014/NSDUHsubstateMethodology2014.html>; Accessed August 2016.

Overview and Limitations of Youth Risk Behavioral Survey (YRBS) Data

The Youth Risk Behavior Surveillance System (YRBSS) was established in 1991 by the Centers for Disease Control and Prevention (CDC) to monitor six priority health-risk behaviors that contribute to the leading causes of morbidity and mortality among youth and young adults in the United States.^a The YRBSS was designed to enable public health professionals, educators, policy makers, and researchers to 1) describe the prevalence of health-risk behaviors among youths, 2) assess trends in health-risk behaviors over time, and 3) evaluate and improve health-related policies and programs.^a One component of the surveillance system is the biennial school-based Youth Risk Behavior Survey (YRBS). Survey results are based on representative samples of high school students in the nation, States, tribes, and select large urban school district across the country.^a Weighted survey estimates of alcohol and drug use are presented for the nation and the YRBS state and large urban school district catchment areas that most closely represent each NDEWS SCS.

The national YRBS estimates are representative of all students in grades 9–12 attending **public and private** schools in the 50 states and the District of Columbia. Public schools in the national sample might include charter schools and public alternative, special education, or vocational schools. Private schools in the national sample might include religious and other private schools, but they do not include private alternative, special education, or vocational schools.^a

The estimates for the NDEWS Sentinel Community Sites (SCS) catchment areas are represented by state and large urban school districts. Only jurisdictions with an overall response rate $\geq 60\%$ are presented. See Table A for sample size and overall response rate for each SCS. The weighted estimates for state and large urban school districts are representative of all students in grades 9–12 attending **public** schools in each of their respective jurisdictions.^b State and substate public schools might include charter schools; public alternative, special education, or vocational schools; and schools overseen by the Bureau of Indian Education.^b In 2015, data were not available for 5 NDEWS sites and YRBS regions did not correspond exactly to the catchment areas of each NDEWS SCS:

- 2015 YRBS survey results were unavailable for the following 5 SCSs: Chicago Metro, Atlanta Metro, Texas, Denver Metro, and King County.
- The Detroit YRBS is used to represent the Wayne County SCS; Detroit does not represent the entire Wayne County catchment area.
- The Southeastern Florida (Miami Area) SCS reporting area includes separate results for each of the 3 counties making up the SCS reporting area.

Thus, results for 9 YRBS reporting areas representing 7 of the 12 NDEWS SCSs are presented in the YRBS Cross-Site Data Presentation. See Figures and Tables for description of the YRBS catchment areas, where available, used to represent each NDEWS SCS. For more information about the YRBSS and 2015 YRBS survey methodology, see [Youth Risk Behavior Surveillance—United States, 2015](#).

Table A: Sample Sizes and Overall Response Rates, United States and Selected YRBS Sites, YRBS, 2015

NDEWS SCS	YRBS Site	Student Sample Size (#)	Overall Response Rate (%)
United States	National Sample	15,624	60%
Maine	Maine	9,605	66%
Los Angeles County	Los Angeles	2,336	81%
New York City	New York City	8,522	70%
Philadelphia	Philadelphia	1,717	68%
San Francisco	San Francisco	2,181	82%
Southeastern Florida (Miami Area)	Broward County	1,413	72%
	Miami-Dade County	2,728	78%
	Palm Beach County	2,490	71%
Wayne County (Detroit Area)	Detroit	1,699	67%

Limitations. All YRBS data are self-reported, and the extent of underreporting or overreporting of behaviors cannot be determined, although there have been studies that demonstrate that the data are of acceptable quality.

The data apply only to youths who attend school and, therefore, are not representative of all persons in this age group. Nationwide, in 2012, approximately 3% of persons aged 16–17 years were not enrolled in a high-school program and had not completed high school.^c The NHIS and Youth Risk Behavior Supplement conducted in 1992 demonstrated that out-of-school youths are more likely than youths attending school to engage in the majority of health-risk behaviors.^d

Local parental permission procedures are not consistent across school-based survey sites. However, in a 2004 study, the CDC demonstrated that the type of parental permission typically does not affect prevalence estimates as long as student response rates remain high.^e

Notes about Data Terms

Lifetime Prescription Drug Misuse is defined as “taken prescription drugs (e.g., Oxycontin, Percocet, Vicodin, codeine, Adderall, Ritalin, or Xanax) without a doctor’s prescription one or more times during their life”.

Lifetime Inhalant Use is defined as “sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high one or more times during their life”.

Lifetime Synthetic Cannabinoid Use is defined as “used “synthetic marijuana” (also called “K2,” “Spice,” “fake weed,” “King Kong,” “Yucatan Fire,” “Skunk,” or “Moon Rocks”) one or more times during their life”.

Past Month Binge Alcohol Use is defined as “having five or more drinks of alcohol in a row within a couple of hours on at least 1 day during the 30 days before the survey”.

Sources

Data Sources: Adapted by the NDEWS Coordinating Center from data provided by Centers for Disease Control and Prevention (CDC), 1991–2015 High School Youth Risk Behavior Survey Data. Available at <http://nccd.cdc.gov/youthonline/>. Accessed on [10/11/2016].

Overview/Methods/Limitations Sources: Adapted by the NDEWS Coordinating Center from:

^aBrener N, Kann L, Shanklin S, et al. Methodology of the Youth Risk Behavior Surveillance System—2013. MMWR Recomm Rep; 2013, 62(No. RR-1);1–20. Available at <http://www.cdc.gov/mmwr/pdf/rr/rr6201.pdf>. Accessed on [4/10/2015].

^bKann L, McManus T, Harris WA, et al. Youth Risk Behavior Surveillance—United States, 2015. MMWR Surveill Summ 2016; 65(No. SS-6);1–174. Available at <https://www.cdc.gov/mmwr/volumes/65/ss/ss6506a1.htm>. Accessed on [10/11/2016].

^cStark P, Noel AM. Trends in high school dropout and completion rates in the United States: 1972–2012 (NCES 2015-015). US Department of Education. Washington, DC: National Center for Education Statistics; 2015. Available at <http://nces.ed.gov/pubs2015/2015015.pdf>

^dCDC. Health risk behaviors among adolescents who do and do not attend school—United States, 1992. MMWR 1994;43(08):129–32.

^eEaton DK, Lowry R, Brener ND, et al. Passive versus active parental permission in school-based survey research: does type of permission affect prevalence estimates of self-reported risk behaviors? Evaluation Review 2004;28:564–77.

Overview and Limitations of Treatment Admissions Data from Local Sources

Treatment admissions data provide indicators of the health consequences of drug use and their impact on the treatment system.^a The data can provide some indication of the types of drugs being used in geographic areas and can show patterns of use over time. However, it is important to note that treatment data only represent use patterns of individuals entering treatment programs and the availability of particular types of treatment in a geographic area will influence the types of drugs being reported. Also, most sites report only on admissions to publicly funded treatment programs; thus, information on individuals entering private treatment programs may not be represented by the data. It should also be noted that each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.^b

Treatment admissions data are reported to the NDEWS Coordinating Center by the NDEWS Sentinel Community Epidemiologist for each SCS, when available. Calendar year 2016 data were available for 10 of 12 NDEWS SCSs; data were not available for the Atlanta Metro and Chicago SCSs. See below for site-specific information about the data.

Site-Specific Notes about 2016 Treatment Data and Sources of the Data

❖ Atlanta Metro

Data Availability: Calendar year 2015 and 2016 data are not available; therefore data for 2012–2014 are presented in the Atlanta Metro SCS Data Tables and Snapshot.

Catchment Area: Includes residents of: Barrow, Bartow, Butts, Carroll, Cherokee, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Haralson, Heard, Henry, Jasper, Lamar, Meriwether, Morgan, Newton, Paulding, Pickens, Pike, Rockdale, Spalding, and Walton counties.

Notes & Definitions:

Admissions: includes admissions to publicly-funded programs.

Marijuana/Synthetic Cannabinoids: the data do not differentiate between marijuana and synthetic cannabinoids.

Source: Data provided to the Atlanta Metro NDEWS SCE by the Georgia Department of Human Resources.

❖ Chicago Metro

Data Availability: Calendar Year (CY) data are not available for the Chicago SCS so fiscal year data are presented. Data for 2016 were also not available at this time so FY2012-2015 are presented.

Catchment Area: Data were only available for residents of Chicago, not for the entire Chicago MSA.

Notes & Definitions:

Admissions: Includes admissions to publicly funded programs. Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

Declines in overall treatment admissions are due to several factors, including budget cuts and changes in providers and payers that affect the reporting of these data (e.g., the expansion of Medicaid under the ACA to cover some forms of drug treatment).

Prescription Opioids: Includes oxycodone/hydrocodone, nonprescription methadone, and other opiates.

Source: Data provided to the NDEWS Chicago SCE by the Illinois Department of Human Services, Division of Alcoholism and Substance Abuse (DASA).

❖ **Denver Metro**

Catchment Area: Includes admissions data for residents of Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Gilpin, and Jefferson counties.

Notes & Definitions:

Admissions: Includes admissions (excluding detox and DUI) to all Colorado alcohol and drug treatment agencies licensed by the Colorado Department of Human Services, Office of Behavioral Health (OBH). Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period. Treatment data presented in this year's report differ from data presented in previous SCS reports due to a change in access to treatment data and/or a change in query search terms.

Prescription Opioids: Includes nonprescription methadone and other opiates and synthetic opiates.

MDMA: Coded as "club drugs," which are mostly MDMA.

Other Drugs/Unknown: Includes inhalants, over-the-counter, and other drugs not specified.

Source: Data provided to the Denver Metro NDEWS SCE by the Colorado Department of Human Services, Office of Behavioral Health (OBH), Drug/Alcohol Coordinated Data System (DACODS).

❖ **King County (Seattle Area)**

Notes & Definitions:

Data Availability: 2016 figures are estimates based on doubling preliminary numbers reported for July-December 2016.

Treatment authorizations: Includes admissions to outpatient, opioid treatment programs and residential modalities of care in publicly funded programs. Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

Prescription Opioids: Includes hydromorphone, other opiates and synthetics, and oxycodone.

Source: Data provided to the King County (Seattle Area) NDEWS SCE by the Washington State Department of Social and Health Services (DSHS) and King County Behavioral Health and Recovery Division for July-Dec 2016.

❖ **Los Angeles County**

Notes & Definitions:

Admissions: Includes all admissions to programs receiving any public funds or to programs providing narcotic replacement therapy, as reported to the California Outcomes Monitoring System (CalOMS). An admission is counted only after all screening, intake, and assessment processes have been completed, and all of the following have occurred: 1) the provider has determined that the client meets the program admission criteria; 2) if applicable, the client has given consent for treatment/recovery services; 3) an individual recovery or treatment plan has been started; 4) a client file has been opened; 5) the client has received his/her first direct recovery service in the facility and is expected to continue participating in program activities; and 6) in methadone programs, the client has received his/her first dose. Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

Prescription Opioids: Includes drug categories labeled "oxycodone/OxyContin" and "other opiates or synthetics."

Source: Data provided to the Los Angeles NDEWS SCE by the California Department of Health Care Services, Mental Health Services Division, Office of Applied Research and Analysis, CalOMS (2013–2016 data) and the California Department of Drug and Alcohol Programs (2012 data).

❖ **Maine**

Notes & Definitions:

Admissions: includes all admissions to programs receiving state funding.

Source: Data provided to the Maine NDEWS SCE by the Maine Office of Substance Abuse.

❖ **New York City**

Notes & Definitions:

Non-Crisis Admissions: Includes non-crisis admissions to outpatient, inpatient, residential, and methadone maintenance treatment programs licensed in the state.

Crisis Admissions: Includes detox admissions to all licensed treatment programs in the state

Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

Prescription Opioids: Includes nonprescription methadone, buprenorphine, other synthetic opiates, and OxyContin.

Benzodiazepines: Includes benzodiazepines, alprazolam, and rohypnol.

Synthetic Stimulants: Includes other stimulants and a newly created category, synthetic stimulants (created in 2014).

Source: Data provided to the New York City NDEWS SCE by the New York State Office of Alcoholism and Substance Abuse Services (OASAS), Client Data System accessed May 24, 2017 from Local Governmental Unit (LGU) Inquiry Reports.

❖ **Philadelphia**

Notes & Definitions:

Admissions: Includes admissions for uninsured and underinsured individuals admitted to any licensed treatment programs funded through the Philadelphia Department of Behavioral Health and Intellectual disAbility Services (DBHIDS). Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

2015 and 2016 Data: Pennsylvania expanded Medicaid coverage under the Affordable Care Act and more than 100,000 additional individuals became eligible in 2015. As individuals who historically have been uninsured become insured, the number of individuals served through the BHSI (Behavioral Health Special Initiative) program has declined; thus treatment admissions reported by BHSI declined from 8,363 in 2014 to 3,507 in 2016. However, similar patterns of substance use were observed among those seeking treatment in 2014 and in 2015.

Beginning in FY2015, services funded by the Pennsylvania Department of Drug and Alcohol Programs and tracked by BHSI for OAS are required to report through an Internet portal. This new reporting system does not require drug of choice in the data collection. The impact of this change in reporting protocol resulted in an increase in the proportion of “unknown” drug of choice in subsequent years.

Methamphetamine: Includes both amphetamines and methamphetamine.

Other Drugs: May include synthetics, barbiturates, and over-the-counter drugs. Synthetic Stimulants and Synthetic Cannabinoids are not distinguishable from “Other Drugs” in the reporting source.

Source: Data provided to the Philadelphia NDEWS SCE by the Philadelphia Department of Behavioral Health and Intellectual disAbility Services (DBHIDS), Office of Addiction Services, Behavioral Health Special Initiative.

❖ **San Francisco County**

Notes & Definitions

Admissions: Treatment episodes include clients admitted in prior years who are still receiving services in a particular year (e.g., methadone maintenance clients). Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

Source: Data provided to the San Francisco NDEWS SCE by the San Francisco Department of Public Health (SFDPH), Community Behavioral Health Services Division.

❖ **Southeastern Florida (Miami Area)**

Catchment Area: Includes the three counties of the Miami MSA—Broward, Miami-Dade, and Palm Beach counties.

Notes & Definitions:

Admissions: Includes admissions of all clients in programs receiving any public funding located in Miami-Dade, Broward and Palm Beach counties as provided by the Florida Department of Children and Families Office of Substance Abuse and Mental Health. Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

2012–2013: Data for Palm Beach County is not available for 2012–2013, therefore, data for 2012–2013 only includes data for Broward and Miami-Dade counties.

Source: Data provided to the Southeastern Florida NDEWS SCE by the Florida Department of Children and Families, Office of Substance Abuse and Mental Health.

❖ **Texas**

Notes & Definitions:

Admissions: Includes all admissions reported to the Clinical Management for Behavioral Health Services (CMBHS) of the Texas Health and Human Services Commission, Behavioral Health Services (HHSC BHS). Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

Methamphetamine: Includes amphetamines and methamphetamine.

Please Note: Treatment data presented in this year's report differ from data presented in previous NDEWS reports because the treatment data for Texas have been revised.

Source: Data provided to the Texas NDEWS SCE by the Texas Health and Human Services Commission, Behavioral Health Services (HHSC BHS).

❖ **Wayne County (Detroit Area)**

Notes & Definitions:

Admissions: Admissions whose treatment was covered by Medicaid or Block Grant funds; excludes admissions covered by private insurance, treatment paid for in cash, and admissions funded by the Michigan Department of Corrections. Each admission does not necessarily represent a unique individual because some individuals are admitted to treatment more than once in a given period.

Synthetic Stimulants: Includes amphetamines and synthetic stimulants; data suppressed to protect confidentiality.

Source: Data provided to the Wayne County (Detroit Area) NDEWS SCE by the Michigan Department of Health and Human Services, Bureau of Behavioral Health and Developmental Disabilities, Division of Quality Management and Planning, Performance Measurement and Evaluation Section.

Sources

Data Sources: Adapted by the NDEWS Coordinating Center from data provided by NDEWS SCEs listed above.

Overview/Methods/Limitations Sources: Adapted by the NDEWS Coordinating Center from:

^aNational Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services, *Assessing Drug Abuse Within and Across Communities, 2nd Edition*. 2006. Available at: <https://www.drugabuse.gov/publications/assessing-drug-abuse-within-across-communities>

^bNational Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services, *Epidemiologic Trends in Drug Abuse, Proceedings of the Community Epidemiology Work Group, Highlights and Executive Summary, June 2014*. Available at: <https://www.drugabuse.gov/sites/default/files/cewgjune2014.pdf>

Overview and Limitations of CDC WONDER Multiple Cause of Death Data

The multiple cause-of-death mortality files from the National Vital Statistics System (NVSS) (queried from the CDC WONDER Online Database) were used to identify drug overdose (poisoning) deaths. Mortality data are based on information from all death certificates for U.S. residents filed in the 50 states and the District of Columbia. Deaths of nonresidents and fetal deaths are excluded. The death certificates are either 1) coded by the states or provided to the CDC's National Center for Health Statistics (NCHS) through the Vital Statistics Cooperative Program; or 2) coded by NCHS from copies of the original death certificates provided to NCHS by the respective state registration office. Each death certificate contains a single underlying cause of death, up to 20 additional multiple causes, and demographic data.¹ ([Click here for more information about CDC WONDER Multiple Cause of Death data](#))

The drug-specific poisoning deaths presented in the National Drug Early Warning System (NDEWS) reports are deaths that have been certified "as due to acute exposure to a drug, either alone or in combination with other drugs or other substances" (Goldberger, Maxwell, Campbell, & Wilford, p. 234)² and are identified by using the World Health Organization's (WHO's) *International classification of diseases, 10th Revision* (ICD-10)³ **underlying cause-of-death** codes X40–X44, X60–X64, X85, and Y10–Y14. Drug-specific poisoning deaths are the subset of drug overdose (poisoning) deaths with drug-specific **multiple cause-of-death** codes (i.e., T-codes). For the definitions of specific ICD-10 codes, see the section titled **Notes About Data Terms**. Each death certificate may contain up to 20 causes of death indicated in the multiple cause-of-death (MCOD) field. Thus, the total count across drugs may exceed the actual number of dead persons in the selected population. Some deaths involve more than one drug; these deaths are included in the rates for each drug category.

As stated in its report, *Consensus Recommendations for National and State Poisoning Surveillance*, the Safe States Injury Surveillance Workgroup on Poisoning (ISW7)^a identified the limitations of using mortality data from NVSS to measure drug poisoning deaths:

Several factors related to death investigation and reporting may affect measurement of death rates involving specific drugs. At autopsy, toxicological lab tests may be performed to determine the type of legal and illegal drugs present. The substances tested for and circumstance in which tests are performed vary by jurisdiction. Increased attention to fatal poisonings associated with prescription pain medication may have led to changes in reporting practices over time such as increasing the level of substance specific detail included on the death certificates. Substance-

^a The Safe States Alliance, a nongovernmental membership association, convened the Injury Surveillance Workgroup on Poisoning (ISW7) to improve the surveillance of fatal and nonfatal poisonings. Representation on the ISW7 included individuals from the National Center for Injury Prevention and Control (NCIPC), the National Center for Health Statistics (NCHS) at the Centers for Disease Control and Prevention (CDC), the Substance Abuse and Mental Health Services Administration (SAMHSA), the Council of State and Territorial Epidemiologists (CSTE), the American Association of Poison Control Centers (AAPCC), the Association of State and Territorial Health Officials (ASTHO), the Society for the Advancement of Injury Research (SAVIR), state health departments, academic centers, the occupational health research community, and private research organizations.

specific death rates are more susceptible to measurement error related to these factors than the overall poisoning death rate. ([The Safe States Alliance, p. 63](#))⁴

Warner et al.⁵ found that there was considerable variation in certifying the manner of death and the percentage of drug intoxication deaths with specific drugs identified on death certificates and that these variations across states can lead to misleading cross-state comparisons. Based on 2008–2010 data, Warner et al.⁵ found that the percentage of deaths with an “undetermined” manner of death ranged from 1% to 85%. Thus, comparing state-specific rates of *unintentional* or *suicidal* drug intoxication deaths would be problematic because the “magnitude of the problem will be underestimated in States with high percentages of death in which the manner is *undetermined*.”⁵ The drug overdose (poisoning) deaths presented in the NDEWS tables include the various manner of death categories: unintentional (X40–X44); suicide (X60–X64); homicide (X85); or undetermined (Y10–Y14).

Based on 2008–2010 data, Warner et al.⁵ found that the percentage of drug overdose (poisoning) deaths with specific drugs mentioned varied considerably by state and type of death investigation system. The authors found that in some cases, deaths without a specific drug mentioned on the death certificate may indicate a death involving multiple drug toxicity. The **Percent of Drug Overdose (Poisoning) Deaths with Drug(s) Specified** statistic is calculated for each NDEWS SCS catchment area so the reader can assess the thoroughness of the data for the catchment area. This statistic is defined as drug poisoning deaths with at least one ICD-10 multiple cause of death in the range T36–T50.8.

Notes About Data Terms

Underlying Cause of Death (UCOD): The CDC follows the WHO’s definition of *underlying cause of death*: “[T]he disease or injury which initiated the train of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury.” Underlying cause of death is selected from the conditions entered by the physician on the cause-of-death section of the death certificate. When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of condition on the certificate, provisions of the ICD, and associated selection rules and modifications. ([Click here for more information about CDC WONDER Multiple Cause of Death data](#))

Specific ICD-10 codes for *underlying cause of death*³ ([Click here to see full list of WHO ICD-10 codes](#))

X40: Accidental poisoning by and exposure to nonopioid analgesics, antipyretics, and antirheumatics.

X41: Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism, and psychotropic drugs, not elsewhere classified.

X42: Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified.

X43: Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system.

X44: Accidental poisoning by and exposure to other and unspecified drugs, medicaments, and biological substances.

X60: Intentional self-poisoning (suicide) by and exposure to nonopioid analgesics, antipyretics, and antirheumatics.

X61: Intentional self-poisoning (suicide) by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism, and psychotropic drugs, not elsewhere classified.

X62: Intentional self-poisoning (suicide) by, and exposure to, narcotics and psychodysleptics [hallucinogens], not elsewhere classified.

X63: Intentional self-poisoning (suicide) by and exposure to other drugs acting on the autonomic nervous system.

X64: Intentional self-poisoning (suicide) by and exposure to other and unspecified drugs, medicaments, and biological substances.

X85: Assault (homicide) by drugs, medicaments, and biological substances.

Y10: Poisoning by and exposure to nonopioid analgesics, antipyretics, and antirheumatics, undetermined intent.

Y11: Poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism, and psychotropic drugs, not elsewhere classified, undetermined intent.

Y12: Poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified, undetermined intent.

Y13: Poisoning by and exposure to other drugs acting on the autonomic nervous system, undetermined intent.

Y14: Poisoning by and exposure to other and unspecified drugs, medicaments, and biological substances, undetermined intent.

Multiple Cause of Death: Each death certificate may contain up to 20 *multiple causes of death*. Thus, the total count by “any mention” of cause in the *multiple cause of death* field may exceed the actual number of dead persons in the selected population. Some deaths involve more than one drug; these deaths are included in the rates for each drug category. ([Click here for more information about CDC WONDER Multiple Cause of Death data](#))

Drug-specific ICD-10 T-codes for *multiple cause of death*³

([Click here to see full list of WHO ICD-10 codes](#))

Any Opioids (T40.0–T40.4 or T40.6) [T40.0 (Opium) and T40.6 (Other and Unspecified Narcotics)]

Heroin (T40.1)

Methadone (T40.3)

Natural Opioid Analgesics (T40.2)

Please note the ICD-10 refers to T40.2 as *Other Opioids*; CDC has revised the wording for clarity:

<http://www.cdc.gov/drugoverdose/data/analysis.html>

Synthetic Opioid Analgesics (T40.4)

Please note the ICD-10 refers to T40.4 as *Other Synthetic Narcotics*; CDC has revised the wording for clarity:

<http://www.cdc.gov/drugoverdose/data/analysis.html>

Cocaine (T40.5)

Psychostimulants with Abuse Potential [excludes cocaine] (T43.6)

Cannabis (derivatives) (T40.7)

Benzodiazepines (T42.4)

Percentage of Drug Overdose (Poisoning) Deaths with Drug(s) Specified: Percentage of drug overdose (poisoning) deaths that mention the type of drug(s) involved, by catchment area. This statistic is defined as drug poisoning deaths with at least one ICD-10 multiple cause of death in the range T36–T50.8.

Population (used to calculate rates): The population estimates used to calculate the crude rates are bridged-race estimates based on Bureau of the Census estimates of total U.S. national, state, and county resident populations. The year 2010 populations are April 1 modified census counts. The year 2011–2015 population estimates are bridged-race postcensal estimates of the July 1 resident population. [Click here for more information about CDC WONDER Multiple Cause of Death data](#)

Age-Adjusted Rate: Age-adjusted death rates are weighted averages of the age-specific death rates, where the weights represent a fixed population by age. They are used to compare relative mortality risk among groups and over time. An age-adjusted rate represents the rate that would have existed had the age-specific rates of the particular year prevailed in a population whose age distribution was the same as that of the fixed population. Age-adjusted rates should be viewed as relative indexes rather than as direct or actual measures of mortality risk. The rate is adjusted based on the age distribution of a standard population allowing for comparison of rates across different sites. The year “2000 U.S. standard” is the default population selection for the calculation of age-adjusted rates. ([Click here for more information about CDC WONDER Multiple Cause of Death data](#))

Suppressed Data: As of May 23, 2011, all subnational data representing 0–9 deaths are suppressed (privacy policy). Corresponding subnational denominator population figures are also suppressed when the population represents fewer than 10 persons. ([Click here for more information about CDC WONDER Multiple Cause of Death data](#))

Unreliable Data: Estimates based on fewer than 20 deaths are considered unreliable and are not displayed. ([Click here for more information about CDC WONDER Multiple Cause of Death data](#))

Sources

Data Sources: Adapted by the NDEWS Coordinating Center from data taken from the Centers for Disease Control and Prevention, National Center for Health Statistics, *Multiple cause of death 1999–2015*, available on the CDC WONDER Online Database, released December 2016. Data compiled in the *Multiple cause of death 1999–2015* were provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Retrieved between February 2017 - June 2017, from <http://wonder.cdc.gov/mcd-icd10.html>

Overview/Methods/Limitations Sources: Adapted by the NDEWS Coordinating Center from:

¹Center from Centers for Disease Control and Prevention, National Center for Health Statistics. (2015). *Multiple cause of death 1999–2014*. Retrieved December 16, 2015, from <http://wonder.cdc.gov/wonder/help/mcd.html>

²Goldberger, B. A., Maxwell, J. C., Campbell, A., & Wilford, B. B. (2013). Uniform standards and case definitions for classifying opioid-related deaths: Recommendations by a SAMHSA consensus panel. *Journal of Addictive Diseases*, 32, 231–243.

³World Health Organization (WHO). (2016). *International statistical classification of diseases and related health problems 10th Revision*. Retrieved March 14, 2016, from <http://apps.who.int/classifications/icd10/browse/2016/en>

⁴The Safe States Alliance. (2012). *Consensus recommendations for national and state poisoning surveillance*. Atlanta, GA: Injury Surveillance Workgroup 7.

⁵Warner, M., Paulozzi, L. J., Nolte, K. B., Davis, G. G., & Nelson, L.S. (2013). State variation in certifying manner of death and drugs involved in drug intoxication deaths. *Acad Forensic Pathol*, 3(2),231–237.

Overview and Limitations of National Forensic Laboratory Information System (NFLIS) Data

The Drug Enforcement Administration's (DEA) National Forensic Laboratory Information System (NFLIS) systematically collects results from drug analyses conducted by State and local forensic laboratories. These laboratories analyze controlled and noncontrolled substances secured in law enforcement operations across the United States. The NFLIS participation rate, defined as the percentage of the national drug caseload represented by laboratories that have joined NFLIS, is currently over 98%. NFLIS includes 50 State systems and 101 local or municipal laboratories/laboratory systems, representing a total of 277 individual laboratories. The NFLIS database also includes Federal data from DEA and U.S. Customs and Border Protection (CBP) laboratories.^a

Limitations. NFLIS includes results from completed analyses only. Drug evidence secured by law enforcement but not analyzed by laboratories is not included in the NFLIS database.

State and local policies related to the enforcement and prosecution of specific drugs may affect drug evidence submissions to laboratories for analysis.

Laboratory policies and procedures for handling drug evidence vary. Some laboratories analyze all evidence submitted to them, whereas others analyze only selected case items. Many laboratories do not analyze drug evidence if the criminal case was dismissed from court or if no defendant could be linked to the case.^a

Notes about Reporting Labs

Reporting anomalies were identified in several NDEWS SCSs in 2016 and are described below:

- ❖ **Denver Metro Area:** The Aurora Police Department laboratory's last reported data are from July 2014, following the migration to a new laboratory information management system (LIMS).
- ❖ **San Francisco County:** The San Francisco Police Department (SFPD) laboratory has been closed since 2010; however, beginning in January 2012, the Alameda Sheriff Department laboratory began reporting their SFPD cases to NFLIS. All available data from the SFPD are included in the counts. Please note that previously published 2014 and 2015 San Francisco County NDEWS reports did not include SFPD cases analyzed by the Alameda Sheriff Department laboratory. The dramatic increases in this year's 2016 data, compared to 2014 and 2015, are a result of the inclusion of SFPD data analyzed by the Alameda laboratory.
- ❖ **Texas:** The Austin Police Department laboratory resumed reporting for 2016. Dallas Institute of Forensic Science is a new lab reporting all 2016 data to date.
- ❖ **Wayne County (Detroit Area):** The Michigan State Police began reporting data from a lab in Detroit starting in March 2016.

Notes about Data Terms

SCS Drug Report: Drug that is identified in law enforcement items, submitted to and analyzed by Federal, State, or local forensic labs and included in the NFLIS database. This database allows for the reporting of up to three drug reports per item submitted for analysis.

For each site, the NFLIS drug reports are based on submissions of items seized in the site's catchment area. The catchment area for each site is described in the Notes section below each table. The time frame is January through December 2016. Data were retrieved from the NFLIS Data Query System (DQS) on May 28, 2017. Please note that

the data are subject to change; data queried on different dates may reflect differences in the time of data analyses and reporting.

National Estimates in Table 5a of the Cross-Site Data Presentation of NFLIS data: The top 10 most frequently identified drugs in the United States are included in Table 5a; this list comes from the DEA's [National Forensic Laboratory Information System \(NFLIS\) Annual 2016 Report](#) and is based on national estimates of drug reports using the NEAR (National Estimates Based on All Reports) approach. The NEAR estimates are based on cases and items submitted to laboratories from January through December 2016 that were analyzed by March 31, 2017. A national sampling frame of all State and local forensic laboratories that routinely perform drug chemistry analyses has been developed based on laboratory-specific information, such as annual caseloads, ascertained from a 1998 survey (updated in 2002, 2004, 2008, and 2013).^a A probability proportional to size (PPS) sample was drawn on the basis of annual cases analyzed per laboratory resulting in a NFLIS national sample of 29 State laboratory systems and 31 local or municipal laboratories, and a total of 168 individual laboratories.^a Over the years, the number of non-sampled laboratories reporting to NFLIS has increased, so the DEA sought ways to use the data submitted by these "volunteer" laboratories. Since 2011, data from the "volunteer" laboratories have been included and assigned a weight of one. Estimates are more precise, especially for recent years, due to this inclusion of a large number of volunteer laboratories. This precision allows for more power to detect trends and fewer suppressed estimates."^a

Since 2011, for each drug item (exhibit) analyzed by a laboratory in the NFLIS program, up to three drugs were reported to NFLIS and counted in the estimation process. A further enhancement to account for multiple drugs per item was introduced in 2017 for the 2016 Annual Report. All drugs reported in an item are now counted in the estimation process. This change ensures that the estimates will take into consideration all reported substances including emerging drugs of interest that may typically be reported as the fourth or fifth drug within an item. This change was implemented in the 2016 data processing cycle and for future years.^a (See [National Forensic Laboratory Information System \(NFLIS\): Statistical Methodology](#) report for more information about how the national estimates are derived).

NPS Categories: Five new psychoactive substance (NPS) drug categories and Fentanyl are of current interest to the NDEWS Project because of the recent increase in their numbers, types, and availability. The five NPS categories are: synthetic cannabinoids, synthetic cathinones, piperazines, tryptamines, and 2C Phenethylamines.

Other Fentanyls are substances that are structurally related to fentanyl (e.g., acetylfentanyl and butyryl fentanyl).

A complete list of drugs included in the Other Fentanyl category that were reported to NFLIS during the January to December 2016 timeframe includes:

3-METHYLFENTANYL
3-METHYLTHIOFENTANYL
4-METHOXY-BUTYRYL FENTANYL
ACETYL-ALPHA-METHYLFENTANYL
ACETYLFENTANYL
ACRYL-ALPHA-METHYLFENTANYL
ACRYLFENTANYL
ALFENTANIL
ALPHA-METHYLFENTANYL
ALPHA-METHYLTHIOFENTANYL
BENZYLFENTANYL
BETA-HYDROXY-3-METHYLFENTANYL

BETA-HYDROXYFENTANYL
Beta-HYDROXYTHIOFENTANYL
BUTYRYL FENTANYL
CARFENTANIL
CIS-3-METHYLFENTANYL
DESPROPIONYL FENTANYL
FLUOROFENTANYL
FLUOROISOBUTYRYLFENTANYL
FURANYL FENTANYL
LOFENTANIL
ORTHO-FLUOROFENTANYL
P-FLUOROBUTYRYL FENTANYL (P-FBF)
P-FLUOROFENTANYL
P-FLUOROISOBUTYRYL FENTANYL
REMIFENTANIL
SUFENTANIL
THENYLFENTANYL
THIOFENTANYL
TRANS-3-METHYLFENTANYL
VALERYL FENTANYL

Sources

Data Sources: SCS Drug Report data adapted by the NDEWS Coordinating Center from data provided by the U.S. Drug Enforcement Administration (DEA), Diversion Control Division, Drug and Chemical Evaluation Section, Data Analysis Unit. Data were retrieved from NFLIS Data Query System (DQS) May 28, 2017.

National estimates adapted by the NDEWS Coordinating Center from data provided by the U.S. Drug Enforcement Administration (DEA), Diversion Control Division. (2017) *National Forensic Laboratory Information System: 2016 Annual Report*. Springfield, VA: U.S. Drug Enforcement Administration. Available at:
<https://www.nflis.deadiversion.usdoj.gov/DesktopModules/ReportDownloads/Reports/NFLIS2016AR.pdf>

Overview/Methods/Limitations Sources: ^aAdapted by the NDEWS Coordinating Center from U.S. Drug Enforcement Administration (DEA), Diversion Control Division. (2017) *National Forensic Laboratory Information System: 2016 Annual Report*. Springfield, VA: U.S. Drug Enforcement Administration. Available at:
<https://www.nflis.deadiversion.usdoj.gov/DesktopModules/ReportDownloads/Reports/NFLIS2016AR.pdf>

U.S. Drug Enforcement Administration (DEA), Diversion Control Division. (2017) *National Forensic Laboratory Information System: Statistical Methodology Revised September 2017*. Springfield, VA: U.S. Drug Enforcement Administration. Available at:
<https://www.nflis.deadiversion.usdoj.gov/DesktopModules/ReportDownloads/Reports/NFLIS-2017-StatMethodology.pdf>