King County (Seattle Area) 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.
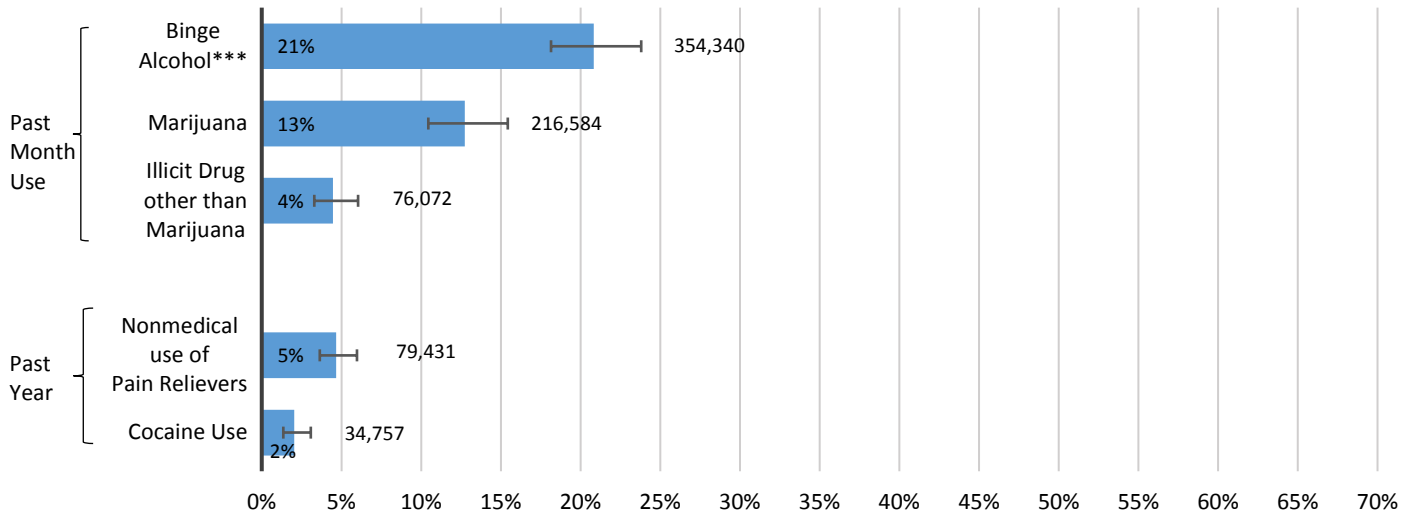
King County (Seattle Area) SCS Snapshot, 2017

Substance Use

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

Persons 12+ Years Reporting Selected Substance Use, King County (Seattle Area)^, 2012-2014

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

	Percent	Estimated Number
Past Month Use — Binge Alcohol***	21%	354,340
Marijuana	13%	216,584
Illicit Drug other than Marijuana	4%	76,072
Past Year — Nonmedical use of Pain Relievers	5%	79,431
Cocaine Use	2%	34,757

*U.S. Population: U.S. civilian non-institutionalized population. ^King County: NSDUH Region 2 (King County). **Estimated Number: Calculated by multiplying the prevalence rate and the population estimate of persons 12+ years (1,700,584) from Table C1 of the NSDUH Report.
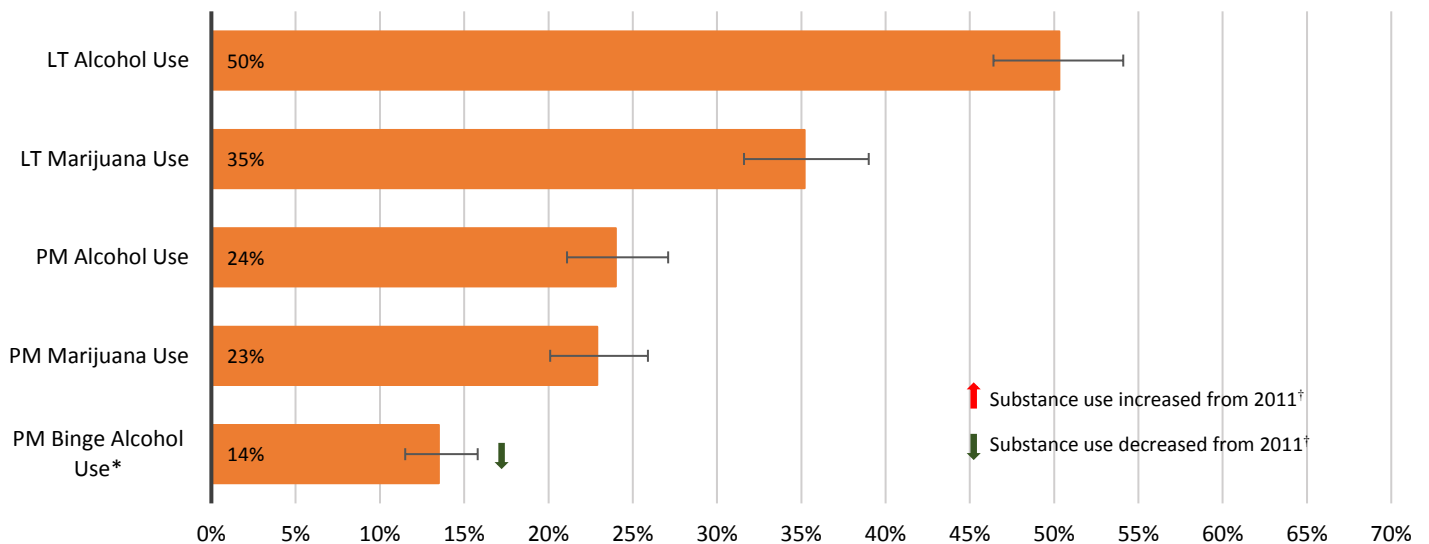
 ***Binge Alcohol: Defined as drinking five or more drinks on the same occasion.

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) or Past Month (PM) Use
of Selected Substances, Seattle, 2013[1]**

Estimated Percent and 95% Confidence Interval

	Percent
LT Alcohol Use	50%
LT Marijuana Use	35%
PM Alcohol Use	24%
PM Marijuana Use	23%
PM Binge Alcohol Use*	14%

↑ Substance use increased from 2011[†]

↓ Substance use decreased from 2011[†]

[1]2013: 2015 YRBS data not available for Seattle so 2013 YRBS data are presented.

*PM Binge Alcohol Use: Defined as had five or more drinks of alcohol in a row within a couple of hours.
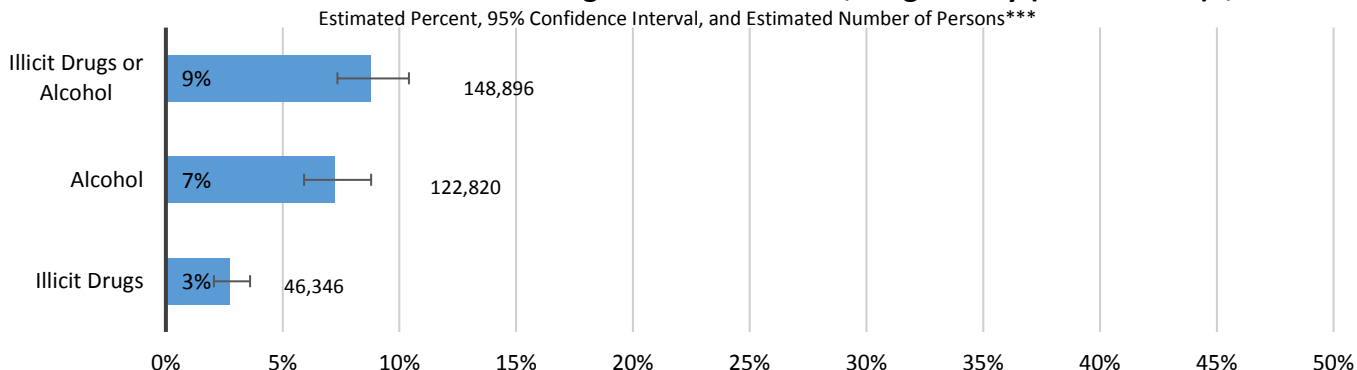
[†]Statistically significant change: p<0.05 by t-test.

Source: Adapted by the NDEWS Coordinating Center from data provided by CDC, 2001-2013 high school YRBS data.

Substance Use Disorders and Treatment

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

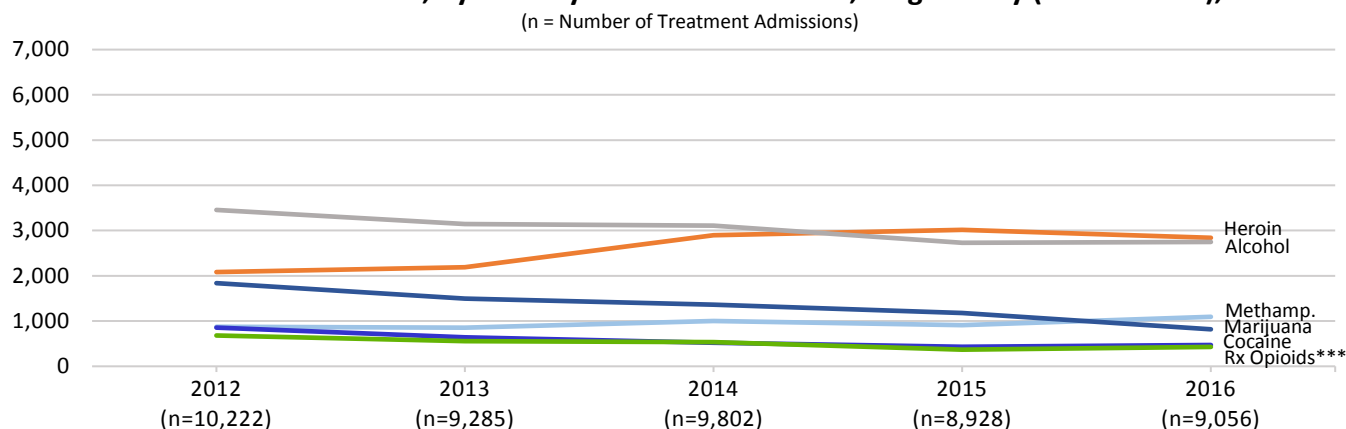### Substance Use Disorders** in Past Year Among Persons 12+ Years, King County (Seattle Area)^, 2012-2014

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

Category	Percent	Estimated Number
Illicit Drugs or Alcohol	9%	148,896
Alcohol	7%	122,820
Illicit Drugs	3%	46,346

(Chart x-axis: 0% to 50% in 5% increments)

*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)*. ^King County: NSDUH Region 2 (King County). ***Estimated Number: Calculated by multiplying the prevalence rate and the population estimate of persons 12+ years (1,700,584) from Table C1 of the NSDUH Report.
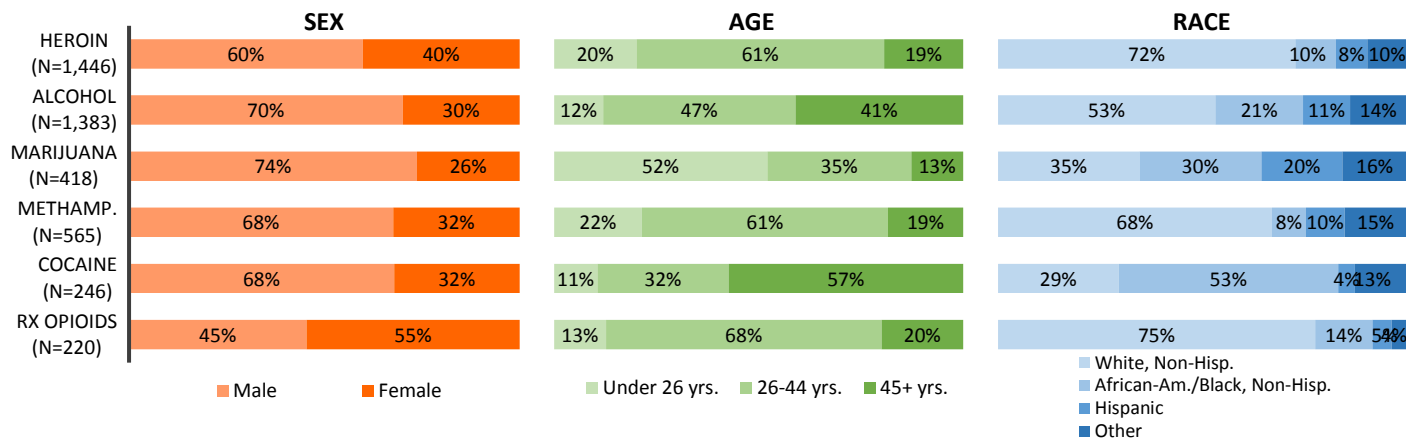
Source: Adapted by the NDEWS Coordinating Center from data provided by SAMHSA, NSDUH. Annual averages based on combined 2012 to 2014 NSDUH data.

Treatment Admissions Data from Local Sources

Trends in Treatment Admissions*, by Primary Substance of Abuse, King County (Seattle Area), 2012-2016**

(n = Number of Treatment Admissions)

Line chart showing trends 2012-2016. Categories: Heroin, Alcohol, Methamp., Marijuana, Cocaine, Rx Opioids***

- 2012 (n=10,222)
- 2013 (n=9,285)
- 2014 (n=9,802)
- 2015 (n=8,928)
- 2016 (n=9,056)

Demographic Characteristics of Treatment Admissions*, King County (Seattle Area), 2016†

	SEX (Male / Female)	AGE (Under 26 / 26-44 / 45+)	RACE (White / African-Am. / Hispanic / Other)
HEROIN (N=1,446)	60% / 40%	20% / 61% / 19%	72% / 10% / 8% / 10%
ALCOHOL (N=1,383)	70% / 30%	12% / 47% / 41%	53% / 21% / 11% / 14%
MARIJUANA (N=418)	74% / 26%	52% / 35% / 13%	35% / 30% / 20% / 16%
METHAMP. (N=565)	68% / 32%	22% / 61% / 19%	68% / 8% / 10% / 15%
COCAINE (N=246)	68% / 32%	11% / 32% / 57%	29% / 53% / 4% / 13%
RX OPIOIDS (N=220)	45% / 55%	13% / 68% / 20%	75% / 14% / 5% / 4%

Legend — SEX: Male, Female. AGE: Under 26 yrs., 26-44 yrs., 45+ yrs. RACE: White, Non-Hisp.; African-Am./Black, Non-Hisp.; Hispanic; Other.

*Treatment Authorizations: Includes admissions to outpatient, opioid treatment programs and residential modalities of care in public-funded programs. **2016 Trends Data: Estimates based on doubling preliminary numbers reported for July–December 2016. ***Rx Opioids: Includes oxycodone/hydrocodone, non-prescription methadone, and other opiates. †2016 Demographics Data: Based on preliminary data reported for July–December 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 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.

Drug Overdose (Poisoning) Deaths

## *National Vital Statistics System (NVSS) via CDC WONDER*

Trends in Drug Overdose (Poisoning) Deaths*, by Drug**, King County (Seattle Area), 2011–2015
(Number of Deaths and Percent of Drug Overdose (Poisoning) Deaths with Drug(s) Specified[v])
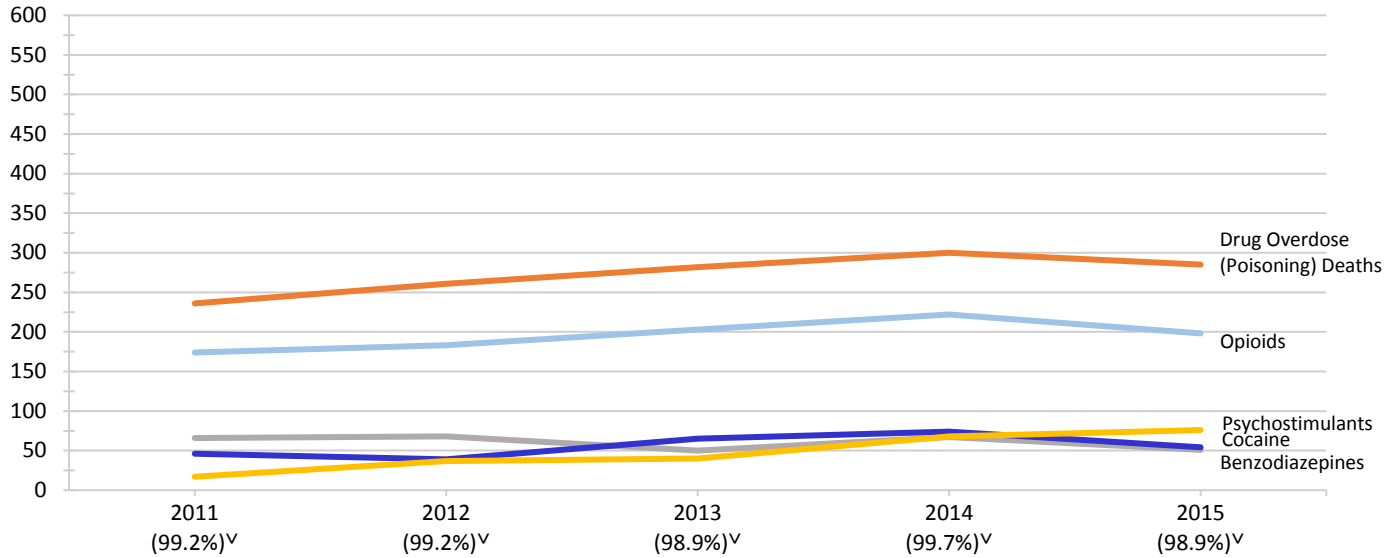
Trends in Opioid Overdose (Poisoning) Deaths*, by Opioid, King County (Seattle Area), 2011–2015
(Number of Deaths, by Drug** and Percent of Drug Overdose (Poisoning) Deaths with Drug(s) Specified[v])
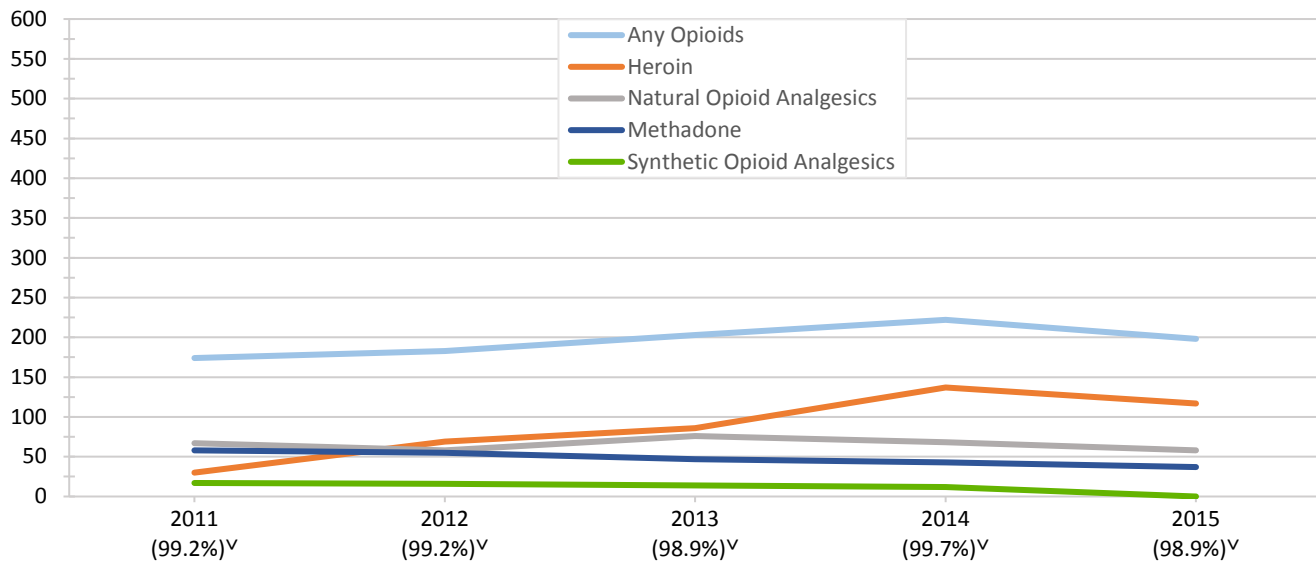
*Drug Overdose (Poisoning) Deaths: Defined as deaths with ICD-10 underlying cause-of-death (UCOD) codes: X40-X44, X60-X64, X85, and Y10-Y14. **Drug Overdose (Poisoning) Deaths, by Drug: Drug overdose (poisoning) deaths with ICD-10 multiple cause-of-death (MCOD) T-codes: Benzodiazepines (T42.4); Cocaine (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). [v]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. 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 King County (Seattle Area) 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	**1,252**	**100%**
Top 10 Drug Reports		
Methamphetamine	446	35.6%
Heroin	359	28.7%
Cocaine	143	11.4%
Cannabis	81	6.5%
Fentanyl	28	2.2%
Alprazolam	26	2.1%
Oxycodone	23	1.8%
No Controlled Drug Identified	20	1.6%
3,4-Methylenedioxymethamphetamine (MDMA)	14	1.1%
Phencyclidine	11	0.9%
Top 10 Total	**1,151**	**91.9%**
New Psychoactive Substances (NPS) Drug Categories†		
Fentanyl and Other Fentanyls‡	31	2.5%
Synthetic Cannabinoids	5	0.4%
Synthetic Cathinones	1	<0.1%
2C Phenethylamines	0	0.0%
Piperazines	0	0.0%
Tryptamines	0	0.0%
Any Opioid†	**435**	**34.7%**

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

Fentanyl and Other Fentanyls‡
(n=31)

Fentanyl (90%)
Acetylfentanyl (6%)
Furanyl Fentanyl (3%)

Synthetic Cannabinoids
(n=5)

5-Fluoro-ADB (80%)
ADB-CHMINACA (20%)

Synthetic Cathinones
(n=1)

Methylone (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.

**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 butyrl 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 Syestem (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)
King County (Seattle Area) Sentinel Community Site (SCS)
Drug Use Patterns and Trends, 2017: SCE Narrative

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Highlights

Marijuana use was statistically unchanged among high school sophomores in King County from 2006 to 2016 with 17% and 14% reporting past month use, respectively. Other indicators including police evidence testing, helpline calls, and treatment admissions all declined through 2016.

Indicators of **cocaine** use and consequences are generally level or declining. Calls from adults to the Recovery Helpline have been steady, and police evidence testing cases have been slowly and steadily declining in recent years and are well below levels seen a decade ago. Treatment admissions in 2016 were similar to previous years, but substantially lower than 2011–2012, and drug overdose deaths involving cocaine have been at moderate and relatively steady levels in recent years, down substantially from peak levels a decade ago.

Heroin indicators remain at high levels in 2016 across all measures, and there were more than 4 calls per day to the Recovery Helpline seeking assistance regarding heroin. Heroin deaths declined somewhat in 2015 and 2016. In 2016, there was improved reporting of fentanyl of unknown source (not obviously pharmaceutical) and fentanyl analogs in deaths such that 17 deaths were identified with these compounds present that would not have been previously.

Methamphetamine indicators continue to increase, most notably deaths involving methamphetamine totaled 98 in 2016, with a steady increase from the 20 deaths in 2011. In 2016, 51% of methamphetamine-involved, drug-caused deaths also involved an opioid. Police evidence testing for methamphetamine continued to increase in 2016, and it was the most commonly identified drug.

Prescription-type opioid trends are down somewhat from peaks around 2010; nevertheless, prescription-type, opioid-involved deaths are persisting at elevated rates and are second only to heroin in terms of most common drugs identified in fatal overdoses.

Injection drug use as the exposure category for HIV remains low, 3% to 4% of new HIV infections from 2008 to 2016, not including men who have sex with men and inject methamphetamine who are much more likely to have HIV. The majority of people who inject drugs in King County are HCV positive. Syringe exchange and naloxone programs continue to increase distribution.

Primary and Emerging Substance Use Problems

MARIJUANA

- Marijuana use was statistically unchanged among high school sophomores in King County from 2006 to 2016 with 17% and 14% reporting past month use, respectively. Other indicators including police evidence testing, helpline calls, and treatment admissions all declined through 2016.

Wastewater testing for the city of Seattle was conducted for one week in 2016—the first year that results on the marijuana metabolite carboxy-THC are available. Based on the current science, it appears that the level of carboxy-THC measured was among the highest detected in the world with an average load of 416 mg/1,000 people/day; this is a measure of the average mass excreted of the metabolite; detailed data charts are available online http://score-cost.eu/monitoring2016/. Note that wastewater testing for drugs is an area of evolving science and that THC and metabolites are complicated to analyze chemically and statistically so results can be difficult to interpret and compare over time and between locations.

Marijuana-related calls from King County residents to the Recovery Helpline have not changed substantially from 2012 through 2016 (Exhibit 1). There are very different patterns by age with marijuana being the most common drug mentioned by callers younger than the age of 18, the fourth most common substance mentioned among young adults and the fifth most common substance for those 26 and older.

An initiative legalizing marijuana use by adults 21 and older passed in November 2012 and retail stores opened July 2014. Marijuana use was statistically unchanged among high school sophomores in King County from 2006 to 2016 with 17% and 14% reporting past month use, respectively (Washington State Healthy Youth Survey, data available at www.askhys.net).

Police evidence testing from King County law enforcement jurisdictions for cannabis totaled 60 cases in 2016, which was similar to recent years and a substantial decline compared with the 704 cases in 2009 (Exhibit 2a). These changes were likely driven by the evolving legal and policy environments. Cannabis was the fourth most common drug detected in 2016. Cannabimimetics (synthetic cannabinoids) were infrequently detected in police evidence testing with five cases in 2016; they were first detected as a class of drugs in 2011 when there were 9 cases (Exhibit 2b).

Treatment admissions for which marijuana was the primary drug declined steadily from 18% in 2012 to 9% in the second half of 2016 among all publicly funded admissions (Exhibit 3a). Characteristics of those admitted with marijuana as primary in the second half of 2016 indicate a relatively high proportion of males and African Americans and Latinos compared with admissions for other drugs (Exhibit 3b); almost one third were younger than 18, a much larger proportion than for other drugs (1% to 3%). Almost all marijuana treatment admissions involved smoked marijuana, with just 3% reporting an oral route.

COCAINE

- Indicators of cocaine use and consequences are generally level or declining. Calls from adults to the Recovery Helpline have been steady, and police evidence testing cases have been slowly and steadily declining in recent years and are well below levels seen a decade ago. Treatment admissions in 2016 were similar to previous years, but substantially lower than 2011–2012, and drug overdose deaths involving cocaine have been at moderate and relatively steady levels in recent years, down substantially from peak levels a decade ago.

The cocaine metabolite benzoylecgonine was detected in Seattle's wastewater at a similar load in 2016 as in 2015, and the average level was similar to the population-weighted average for cities that participated in each of the years internationally.

Recovery Helpline calls regarding cocaine were relatively constant over time for each age group (Exhibit 1). Cocaine-related calls were uncommon for minors, were fairly uncommon among young adults with 44 calls in 2016 compared with 190 for methamphetamine, and totaled 231 in 2016 for those ages 26 and older compared with 731 for methamphetamine.

Police evidence testing cases positive for cocaine totaled 109 in 2016, the lowest number since reporting began in 2002 (Exhibit 2). The number of cases has steadily declined in recent years, and cocaine has been the third most common drug detected since 2012.

Treatment admissions for which cocaine was primary declined somewhat in number and percentage from 8% to 5% from 2012 to the second half of 2016 (Exhibit 3a). Over half (53%) of admissions were African American, a proportion far higher than for any other drug (Exhibit 3b). The cocaine-involved treatment admissions were also by far the oldest with 57% aged 45 or older compared with 18% for heroin. Smoking was the most common route of administration (79%), followed by inhaling and injecting.

Cocaine-involved deaths totaled 61 in 2016 out of 332 drug-caused deaths, down from 111 in 2006. In the intervening years, the number of cocaine-involved deaths has fluctuated between 46 and 86 (Exhibit 4a).

HEROIN

- Heroin indicators remain at high levels in 2016 across all measures, and there were more than 4 calls per day to the Recovery Helpline seeking assistance regarding heroin. Heroin deaths declined somewhat in 2015 and 2016. In 2016, there was improved reporting of fentanyl of unknown source (not obviously pharmaceutical) and fentanyl analogs in deaths such that 17 deaths were identified with these compounds present that would not have been previously.

Heroin-related calls to the Recovery Helpline totaled 25 in 2016 for minors, fewer than for alcohol and marijuana; nevertheless, heroin has consistently been the most common drug for calls regarding young adults with 476 in 2016, which was similar to prior years (Exhibit 1). For adults 26 and older, heroin was consistently the second most common substance after alcohol and totaled 1,179 calls in 2016 similar to the prior year. In 2016, after summing calls regarding all ages, there were 1,680 calls about heroin from

King County callers, which was an average of more than four per day. Callers expressing interest in buprenorphine for opioid use disorder treatment are generally increasing and totaled 58 for young adults and 228 for those ages 26 and older in 2016.

Police evidence testing positive for heroin totaled 287 cases in 2016, which was down somewhat from the peak of 364 in 2015 when heroin was the most frequently detected drug. In 2016, methamphetamine was detected in more police evidence cases than heroin (Exhibit 2a).

Heroin was the most common drug reported as primary in 2016, 31% of all treatment admissions, a numerical and proportional increase compared with 2012 (Exhibit 3a). Among illicit drugs, heroin had the largest proportion who were female, 40%, and White, non-Hispanic, 72%; note that prescription-type-opioid admissions had higher proportions who were female and White (Exhibit 3b). For adults ages 18–25 admitted to treatment, heroin was numerically and proportionally much more common than other drugs, with a relatively large proportion, 19%, of admissions for heroin ages 18–25 (n = 280 in the second half of 2016). Young adults may well still have private health insurance through their parents, and these data are only for publicly funded admissions, so this is likely a substantial underestimate of the number of admissions for heroin among this age group. Injecting remains the most common route of administration for heroin (68%), but smoking is up substantially (28%).

Heroin-involved deaths declined somewhat in 2016 to 118, down from 132 in 2015 and the peak of 156 in 2014 (Exhibit 4a). As discussed below, illicit fentanyl and other novel synthetic opioids increased in 2016 with at least 9 deaths involving opioids that were neither pharmaceutical-type nor heroin. Nonpharmaceutical/nonheroin opioids represent essentially a new, third class of opioids and a second class of nonpharmaceutical opioids in addition to heroin. The net impact of opioids in total, summing pharmaceutical, heroin, and/or nonheroin/nonpharmaceutical, was 219 of 332 drug-caused deaths in 2016, a number similar to the prior two years (Exhibit 4b).

PRESCRIPTION-TYPE OPIOIDS AND NONPHARMACEUTICAL/NONHEROIN OPIOIDS

- Prescription-type opioid trends are down somewhat from peaks around 2010; nevertheless, prescription-type, opioid-involved deaths are persisting at elevated rates and are second only to heroin in terms of most common drugs identified in fatal overdoses.

Recovery Helpline calls for prescription-type opioids remain low among minors and have declined among young adults from 180 to 89 from 2012 to 2016 (Exhibit 1). Nevertheless, calls regarding prescription-type opioids have been steady among those 26 and older, totaling 424 in 2016, the fourth most common substance after alcohol, heroin, and methamphetamine.

Healthy Youth Survey data for King County tenth graders indicate a significant decline in the proportion reporting past month use of prescription-type opioids to get high. In 2006, the proportion was 10%, with bi-annual surveys showing a steady decline to 4% in 2014 and the same proportion in 2016 (data not shown, available at www.askhys.net). In 2016, there was a strong association between reporting use of prescription-type opioids to get high and having ever used heroin (26%), compared with only 2% reporting ever having used heroin if they had not used prescription-type opioids to get high.

Police evidence testing that was positive for prescription-type-opioids ("other opiates" in Exhibit 2a) has declined to the lowest level, 38 cases in 2016, since 2003 and down from the peak of 241 in 2007. The specific types of opioids detected are available online at https://adai.washington.edu/WAdata/King_County_cases.htm. Oxycodone has consistently been the most common prescription-type opioid detected in all years.

Fentanyl as a chemical source, not documented, was identified in 7 crime lab cases in 2016 and in 9 cases in 2012, with smaller numbers of cases in other years. Fentanyl analogs were first identified in 2013 when there was 1 case and there were 2 cases in 2016. Crime lab chemists report that several pieces of evidence from King County law enforcement that appeared to be oxycodone tablets actually contained fentanyl-related substances. Two examples include a round blue tablets with an M/30 imprint that was actually fentanyl and a green tablet with an A214 imprint that actually contained U-47700, heroin, furanyl fentanyl, and alprazolam. There were other instances of people knowingly purchasing acetyl fentanyl in powder form on the Internet that were involved in fatal, poly-drug overdoses. Crime lab chemists indicate they have seen a few pieces of evidence that were positive for both heroin and fentanyl that had the appearance of heroin. Taken together, it is clear that illicit fentanyl and nonpharmaceutical/nonheroin drugs are present in King County, and based on available data related to the impacts of use, it appears that the amount available and used is still modest, certainly compared with other areas of the United States. Low numbers in police evidence testing may be attributable to a number of factors, including fake pills, which look legitimate and may be less likely to result in arrest and in turn prosecution or forensic testing, and Internet purchases. Law enforcement indicates they have seized some pill presses for manufacturing tablets from powders in Washington State (details are currently unavailable).

Prescription-type, opioid-involved treatment admissions constituted 5% of admissions in the second half of 2016 (Exhibit 3a), which was similar to the previous several years and down from the peak in 2010 (earlier data not shown, available at http://adai.washington.edu/WADATA). The majority of those admitted to treatment were female (55%), a much higher proportion than for other drugs (heroin was the closest with 40%) and they were much more likely to be White, non-Hispanic 76%. Two thirds were ages 26–44 and a similar proportion reported using these drugs orally, 17% smoked, 10% injected, and 5% inhaled (Exhibit 3b).

Deaths involving prescription-type opioids totaled 107 in 2016, which was up slightly from the previous two years and below the peak of 164 seen in 2009 (Exhibit 4a). There are challenges categorizing drugs as prescription-type opioids given the increase in illicitly manufactured fentanyl, which apparently began in 2016 in King County. We are now reporting a new category of opioid-involved deaths, nonpharmaceutical/nonheroin.

Nonpharmaceutical/nonheroin drugs as categorized in deaths included the following substances: acetyl fentanyl, MT-45, parafluorofentanyl, 4-ANPP, U-47700, furanyl fentanyl, para-fluorobutyryl fentanyl, and nonpharmaceutical fentanyl. The last category of nonpharmaceutical fentanyl is based on an enhanced death investigation conducted in 2016 and included information from toxicology, such as the presence of 4-ANPP that is used to illicitly manufacture fentanyl, or other information from the death investigation indicating the source was unlikely to be pharmaceutical. A detailed write up is available at http://adai.uw.edu/pubs/pdf/2017fentanyldeaths.pdf. These are new categorizations of opioids that

have been implemented in death data and in crime lab data, with an attempt to be consistent across data sources.

METHAMPHETAMINE

- Methamphetamine indicators continue to increase, most notably deaths involving methamphetamine totaled 98 in 2016, with a steady increase from the 20 deaths in 2011. In 2016, 51% of methamphetamine-involved, drug-caused deaths also involved an opioid. Police evidence testing for methamphetamine continued to increase in 2016, and it was the most commonly identified drug.

Wastewater testing indicated high levels of methamphetamine in the Seattle area with an average load of 334 mg/1,000 people/day in 2016, which was similar to 2015, much higher than the average loads seen internationally and among the highest levels measured internationally in both years.

Recovery Helpline data indicate methamphetamine calls for minors are less common than for alcohol or marijuana and similar to heroin (Exhibit 1). Among young adults, methamphetamine calls totaled 190 in 2016, which was similar to prior years and the third most common substance in 2016 in this age group. Methamphetamine calls among those 26 and older totaled 731 in 2016, which was similar to 2014 and 2015 but more than double the number seen in 2012. Methamphetamine was the third most common substance after alcohol and heroin.

Police evidence testing cases continued to increase for methamphetamine through 2016, when it was the most common drug detected in King County (Exhibit 2a).

Treatment admissions for which methamphetamine was the primary drug totaled 1,001 in 2014, the highest number to date. Doubling the second half of 2016 admissions provides a similar annual estimate of 1,094 for 2016 (Exhibit 3a), which was up somewhat from the annual total of 800–900 admissions seen in the decade prior (data not shown, available online at https://adai.washington.edu/WAdata/). In 2016, two thirds of methamphetamine admissions were for men and two thirds for White, non-Hispanics. Admissions among young adults 18–25 totaled 113 for the second half of 2016, 20% of all methamphetamine admissions. There were 280 admissions for heroin in the same period among this age group. Most methamphetamine was smoked, 62%, with 31% reporting any injection in the prior month.

Methamphetamine-involved deaths reached a new high in 2016 with 98 deaths, of which 51% also involved an opioid (Exhibit 4). There has been a substantial and consistent increase in methamphetamine-involved deaths since the 20 seen in 2011.

BENZODIAZEPINES

Treatment data for benzodiazepines for 2016 are unavailable; nevertheless, in previous years, they were almost never the primary or sole drug of abuse. Benzodiazepines were present in a substantial minority, 31%, of poly drug overdoses involving opioids.

Local Research Highlights

The Alcohol and Drug Abuse Institute conducted an evaluation of a pilot program by the Seattle Police Department to have bicycle officers and community-oriented policing officers carry naloxone in the event of witnessing an overdose (complete report http://adai.uw.edu/pubs/pdf/spdnaloxonereport2017.pdf). The evaluation included a review of all naloxone administrations over the initial months of the program and found:

There were eleven incidents in which SPD delivered naloxone, from March through September 2016. Ten of the eleven incidents were determined to be confirmed opioid overdoses, with one incident being an unknown drug overdose. These ten confirmed drug overdoses showed marked increases in the victims' respirations and levels of consciousness following naloxone administration. All of the naloxone administrations took place outdoors in a public location. For these 11 incidents, [Seattle Police Department] was able to respond 199 seconds before [Seattle Fire Department] units on average. For three of these incidents, bike officers had come across the overdose victim while on patrol and notified dispatch to request a medic response.

The second part of the evaluation was a comprehensive review of all opioid overdoses to which police were dispatched during July and August found that:

Of the 49 probable or confirmed opioid-related overdoses, SPD was the first responding unit on scene for 13, and officers carried naloxone for two of those thirteen. When SPD arrived first to a scene, they were on scene on average 51 seconds prior to Seattle Fire Department arrival.

In addition to these findings, which will aid decision-making regarding whether, how, and where to further distribute naloxone, recommendations were made for standardized data collection to facilitate ongoing evaluation and monitoring in Seattle and in any jurisdiction considering providing police with naloxone.

Infectious Diseases Related to Substance Use

- **Injection drug use** as the exposure category for HIV remains low, 3% to 4% of new HIV infections from 2008 to 2016, not including men who have sex with men and inject methamphetamine who are much more likely to have HIV. The majority of people who inject drugs in King County are HCV positive. Syringe exchange and naloxone programs continue to increase distribution.

New HIV diagnoses among King County residents totaled 730 from 2014 to 2016, of which 27 (3.7%) had injection drug use as their sole exposure category (Table 5). There were no significant changes in the rate of diagnoses with HIV as the exposure over time (p = .71).

The majority of people who inject drugs in King County are infected with hepatitis C. In the 2015 National HIV Behavioral Surveillance (NHBS) survey of people who inject drugs, 64% had evidence of HCV antibodies.

In 2015, 21 cases of acute hepatitis C were reported to Public Health – Seattle and King County; the suspected route of exposure was injection drug use for 15 of these cases (71%). Eight (38%) of these acute hepatitis C cases were among young adults born after 1985. Nevertheless, acute hepatitis C reporting underestimates the actual number of new hepatitis C cases because approximately 70% to 80% of people with acute hepatitis C do not have any symptoms or experience a mild illness and do not seek medical care. Each year, PHSKC receives over a thousand new reports of King County residents with chronic hepatitis C (current or past infection). Although the majority of new reports of chronic hepatitis C are persons in the Baby Boomer birth cohort (born from 1945 to 1965), there have been an increasing number of new reports of chronic hepatitis C among young adults born after 1985 (Exhibit 6).

Syringe distribution via exchange programs began in 1989 in King County when 39,157 syringes were distributed and continued to increase into 2016 when 7,161,085 were distributed, which was up slightly from 2015 (Exhibit 7). In 2016, there were 41,345 encounters with syringe exchange clients. Note that many clients are seen multiple times per year and that they often exchange syringes for multiple people.

Naloxone is increasingly available at local service providers, area pharmacies, and syringe exchanges. An online naloxone locator and overdose training are available at www.stopoverdose.org. The People's Harm Reduction Alliance distributes a substantial amount of naloxone via fixed site and mobile syringe exchange programs. Public Health – Seattle and King County increased its naloxone distribution substantially in 2016 to 811 kits, up from 346 in 2015. Among the naloxone refills in 2016, 114 were for those whose previous kit had been used to reverse an overdose.

Legislative and Policy Updates

In 2016, the King County executive and 3 local mayors convened the Heroin and Prescription Opiate Addiction Task Force, which had 32 members and was co-chaired by leadership from King County's Behavioral Health and Recovery Division and Public Health – Seattle and King County. The task force provided 8 recommendations across primary, secondary, and tertiary prevention as well as regarding evaluation. Complete details of the recommendations, meeting summaries, and supporting materials are available online at http://www.kingcounty.gov/depts/community-human-services/mental-health-substance-abuse/task-forces/heroin-opiates-task-force.aspx.

Two recommendations include support for low-barrier buprenorphine programs to encourage medication initiation within no more than 3 days of request and service availability in care settings out in the community where opioid injectors already receive services, e.g., syringe exchange and homeless clinics. Several pilot low-barrier buprenorphine programs began in 2016 and 2017, and demand has far exceeded capacity. 2017 Cures Act funded projects are expected to begin meeting some of this need beginning fall 2017. Same-day drop in appointments for buprenorphine induction are extremely popular

and appear to be an important element of low-barrier buprenorphine programs. Evaluation data are currently being collected to better understand these programs. Another recommendation was to pilot two Community Health Engagement Locations, often called safe injection facilities, in King County for three years, with continuation contingent upon evaluation findings; per the report, "the CHEL pilot program should have a provisional time limit of three years. Continuation of the program beyond that time should be based on evidence of positive outcomes."

Exhibits

Exhibit 1. Recovery Helpline, King County Calls, 2012–2016

	'12	'13	'14	'15	'16		'12	'13	'14	'15	'16		'12	'13	'14	'15	'16
			Ages <18						Ages 18-25						Ages 26+		
Alcohol	93	127	98	98	69		304	313	301	302	256		2135	2230	2535	2842	2171
Heroin	49	21	30	41	25		336	463	514	440	476		476	609	897	1221	1179
Methamphet-amine	40	36	37	52	24		150	226	219	235	190		322	513	687	713	731
Rx Pain Pills	17	17	14	14	9		180	151	103	101	89		445	423	473	457	424
Other	16	21	23	29	22		84	67	56	56	25		277	238	257	302	325
Marijuana	152	149	131	138	84		176	154	150	171	115		256	302	348	304	259
Cocaine	9	7	13	17	11		49	58	39	41	44		239	245	289	224	231
Cannabinoid synthetic	1	1	0	2	2		4	11	13	20	22		9	11	12	22	13
Buprenorphine Interest	0	0	1	0	1		20	21	47	63	58		76	76	196	211	228

Source: Washington State Recovery Helpline.

Exhibit 2a. Major Drugs—Police Evidence Testing for Local Law Enforcement Agencies in King County, WA Performed by the Washington State Patrol Crime Laboratory
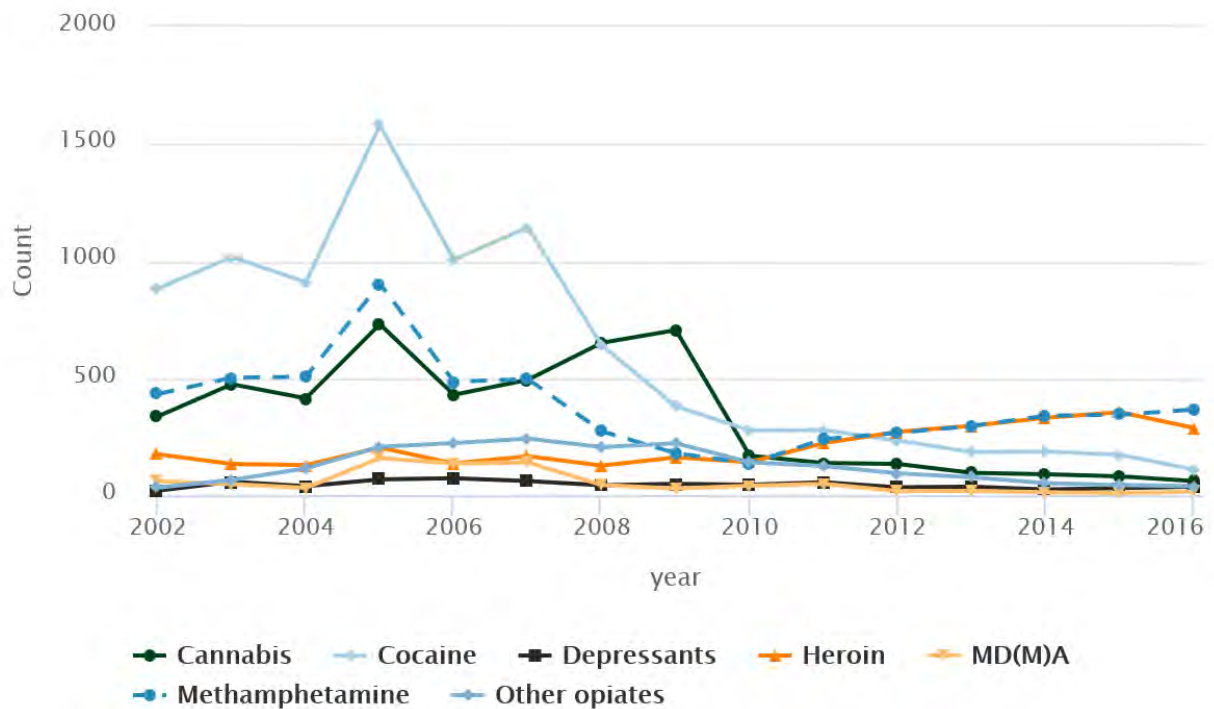
Exhibit 2b. Novel and Emerging Drugs—Police Evidence Testing for Local Law Enforcement Agencies in King County, WA Performed by the Washington State Patrol Crime Laboratory
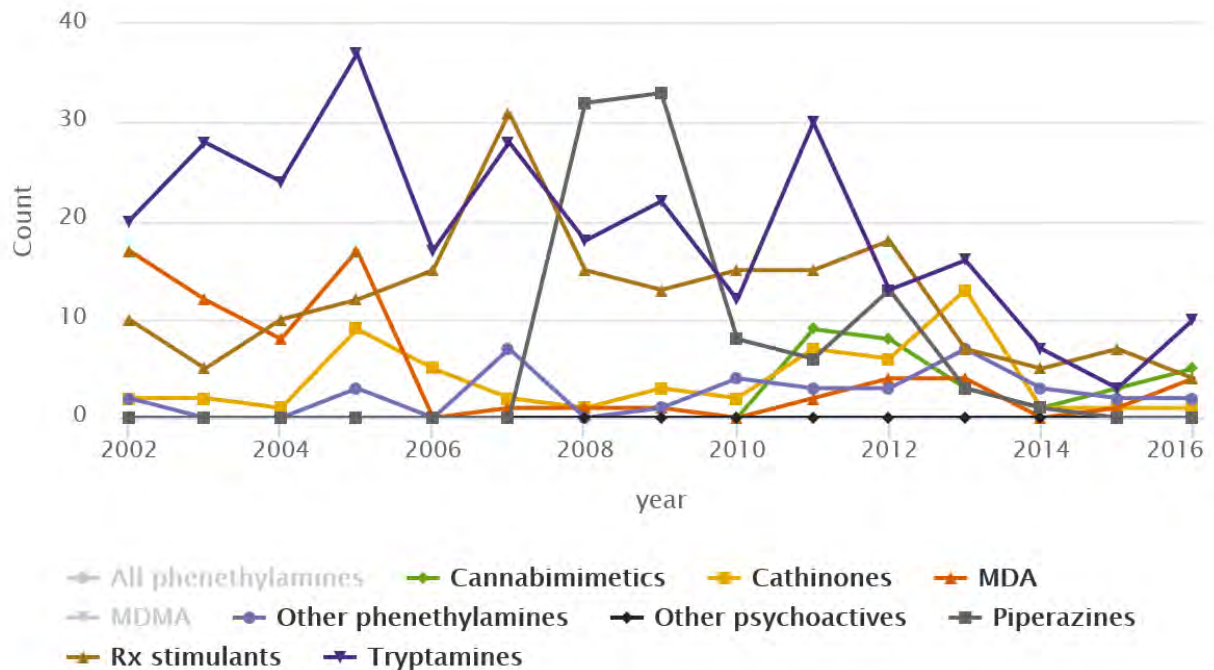
Data Sources: Washington State Patrol, Toxicology Laboratory, data coding and analyses Alcohol and Drug Abuse Institute, University of Washington.

Exhibit 3a. King County Treatment Admissions, Publicly Funded, Trends

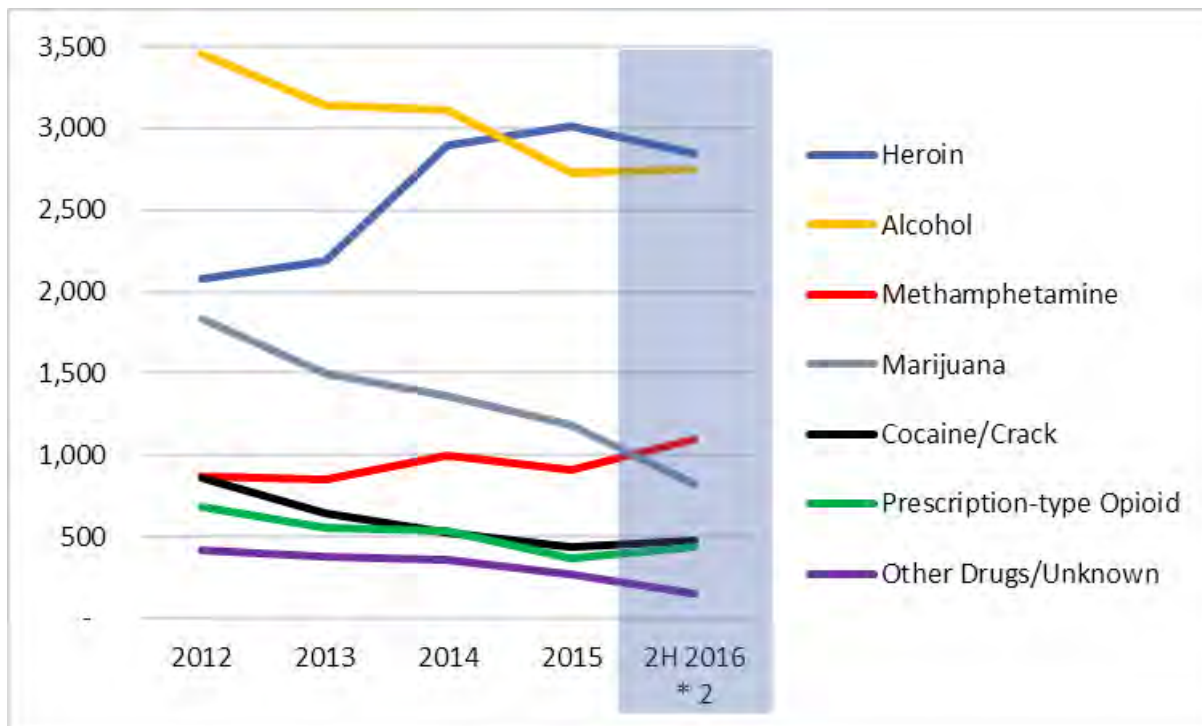|	2012		2013		2014		2015		2016 July-Dec (# multiplied by 2)	
	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)
Total Admissions	10,222	100%	9,285	100%	9,802	100%	8,928	100%	9,056	100%
Alcohol	3,456	33.8%	3,145	33.9%	3,112	31.7%	2,730	30.6%	2,750	30.4%
Cocaine/Crack	855	8.4%	642	6.9%	521	5.3%	432	4.8%	472	5.2%
Heroin	2,083	20.4%	2,192	23.6%	2,897	29.6%	3,016	33.8%	2,842	31.4%
Prescription-type Opioid	681	6.7%	559	6.0%	532	5.4%	368	4.1%	432	4.8%
Methamphetamine	874	8.6%	854	9.2%	1,001	10.2%	911	10.2%	1,094	12.1%
Marijuana	1,838	18.0%	1,498	16.1%	1,365	13.9%	1,180	13.2%	818	9.0%
Other Drugs/Unknown	419	4.1%	379	4.1%	355	3.6%	270	3.0%	152	1.7%

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-type Opioids: Includes hydromorphone, other opiates and synthetics, and oxycodone.

Percentages may not sum to 100 due to either rounding, missing data, and/or because not all possible categories are presented in the Exhibit.

Data Sources: Washington State Department of Social and Health Services (DSHS), Division Behavioral Health and Recovery, Treatment Report and Generation Tool (TARGET) for 2012–2015 and King County Behavioral Health and Recovery Division for July–December 2016. * Note that the asterisk indicates that the data for the second half of 2016 were multiplied by 2 to provide an annual estimate to compare with previous years' annual totals.

Exhibit 3b. King County Treatment Admissions, Publicly Funded, Characteristics July–December 2016

|	Alcohol		Cocaine/Crack		Heroin		Prescription-type Opioids		Methamphet-amine		Marijuana	
	#	%	#	%	#	%	#	%	#	%	#	%
Number of Admissions	1383	100%	246	100%	1446	100%	220	100%	565	100%	418	100%
Sex (%)												
Male	969	70.1%	167	67.9%	866	59.9%	100	45.5%	382	67.6%	308	73.7%
Female	414	29.9%	79	32.1%	580	40.1%	120	54.5%	183	32.4%	110	26.3%
Race/Ethnicity (%)												
White, Non-Hisp.	733	53.0%	72	29.3%	1046	72.3%	166	75.5%	382	67.6%	145	34.7%
African-Am/Black, Non-Hisp	296	21.4%	131	53.3%	142	9.8%	30	13.6%	47	8.3%	125	29.9%
Hispanic/Latino	158	11.4%	10	4.1%	111	7.7%	10	4.5%	54	9.6%	83	19.9%
Asian/Pacific Islander	91	6.6%	9	3.7%	47	3.3%		0.0%	44	7.8%	16	3.8%
Other	101	7.3%	22	8.9%	92	6.4%	8	3.6%	43	7.6%	50	12.0%
Age Group (%)												
Under 18	36	2.6%	5	2.0%	11	0.8%	2	0.9%	10	1.8%	132	31.6%
18-25	130	9.4%	21	8.5%	280	19.4%	26	11.8%	113	20.0%	87	20.8%
26-44	651	47.1%	79	32.1%	876	60.6%	149	67.7%	345	61.1%	148	35.4%
45+	568	41.1%	141	57.3%	279	19.3%	44	20.0%	105	18.6%	53	12.7%
Route of Administration (%)												
Smoked	10	0.7%	194	78.9%	406	28.1%	37	16.8%	352	62.3%	395	94.5%
Inhaled		0.0%	22	8.9%	28	1.9%	11	5.0%	23	4.1%		0.0%
Injected		0.0%	11	4.5%	978	67.6%	22	10.0%	174	30.8%		0.0%
Oral/Other/Unknown	1374	99.3%	19	7.7%	34	2.4%	151	68.6%	24	4.2%	13	3.1%

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-type Opioids: Includes hydromorphone, other opiates and synthetics, and oxycodone.

Percentages may not sum to 100 due to either rounding, missing data, and/or because not all possible categories are presented in the Exhibit.

Data Sources: Washington State Department of Social and Health Services (DSHS), Division Behavioral Health and Recovery, Treatment Report and Generation Tool (TARGET) for 2012–2015 and King County Behavioral Health and Recovery Division for July–December 2016.

Exhibit 4a. Drug-caused Deaths, King County Washington, Major Drug Classes
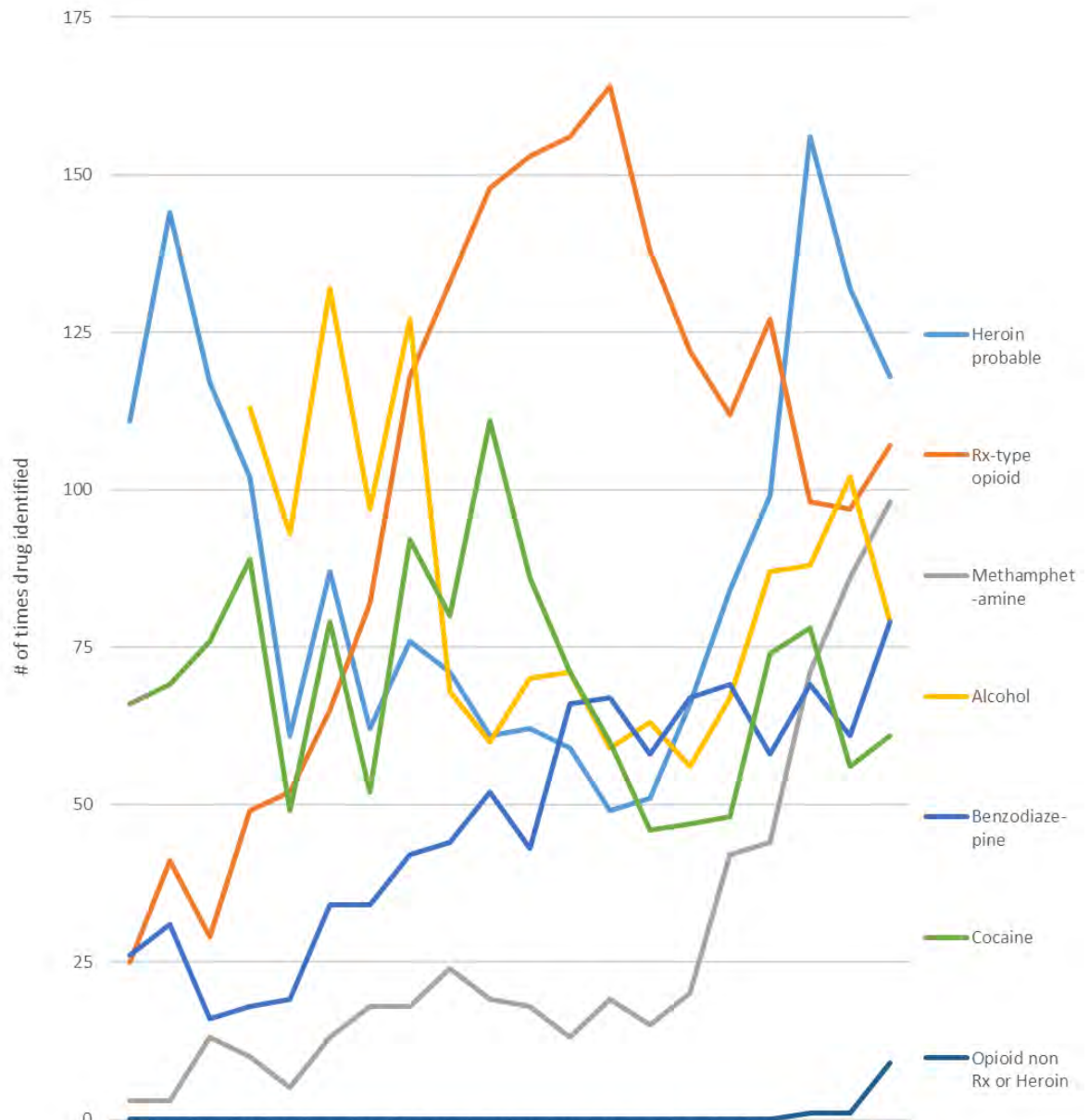
	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16
Heroin probable	111	144	117	102	61	87	62	76	71	61	62	59	49	51	66	84	99	156	132	118
Rx-type opioid	25	41	29	49	52	65	82	118	133	148	153	156	164	138	122	112	127	98	97	107
Methamphet-amine	3	3	13	10	5	13	18	18	24	19	18	13	19	15	20	42	44	71	86	98
Alcohol				113	93	132	97	127	68	60	70	71	59	63	56	67	87	88	102	79
Benzodiaze-pine	26	31	16	18	19	34	34	42	44	52	43	66	67	58	67	69	58	69	61	79
Cocaine	66	69	76	89	49	79	52	92	80	111	86	71	60	46	47	48	74	78	56	61
Opioid non Rx or Heroin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	9
Total deaths	179	222	205	217	150	195	186	253	240	286	274	258	254	244	231	274	304	316	320	332

Data Sources: King County Medical Examiner, Public Health – Seattle and King County, data coding and analyses Alcohol and Drug Abuse Institute, University of Washington.

Exhibit 4b. Drug-caused Deaths, King County Washington, Opioids
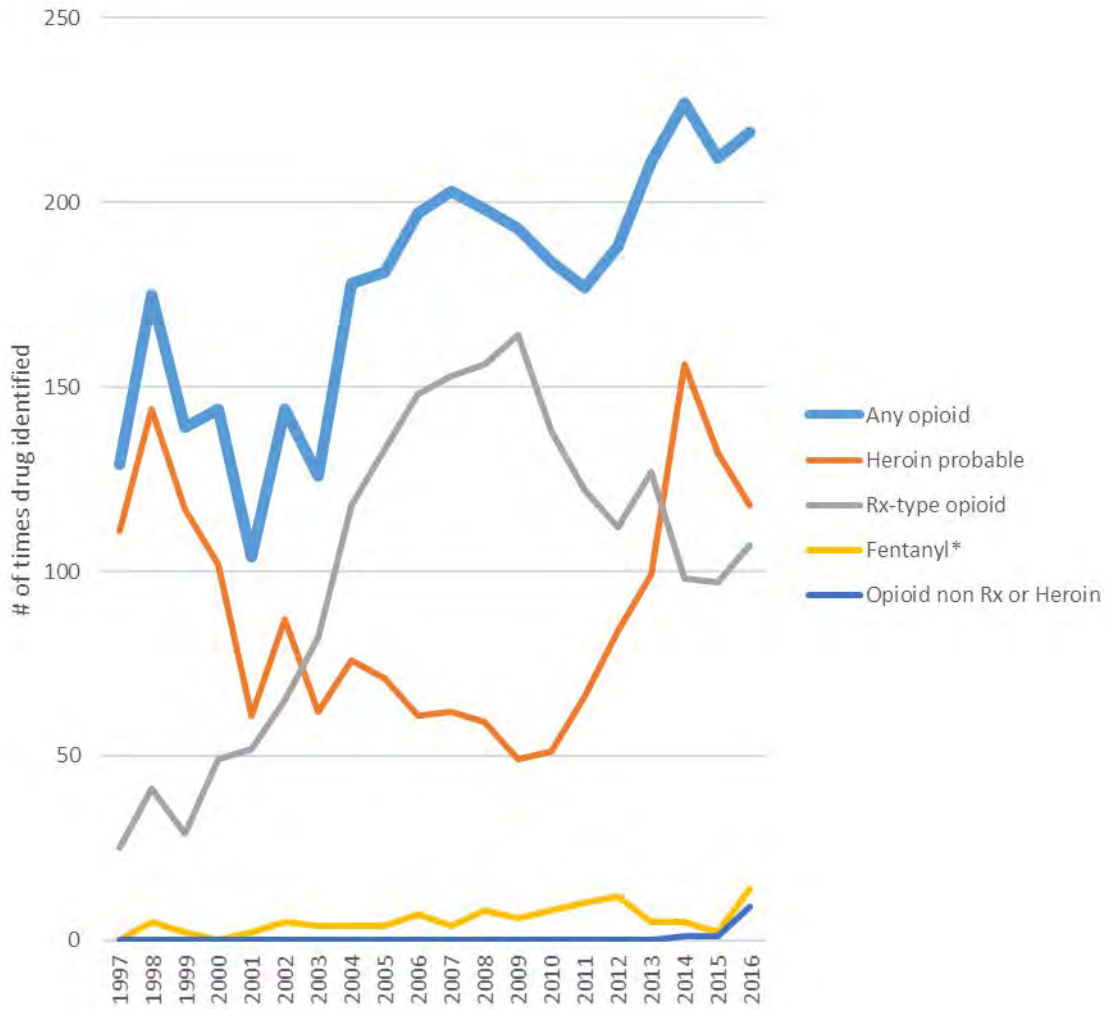
*Note that fentanyl is duplicated here, also included in Rx-type-opioid, and when determined to be illicitly manufactured, fentanyl is included in opioid-non-Rx (prescription)/nonheroin.

Data Sources: King County Medical Examiner, Public Health – Seattle and King County, data coding and analyses Alcohol and Drug Abuse Institute, University of Washington.

Exhibit 5. New HIV Diagnoses for King County Residents by Three-Year Period and Risk Factor

	2008-2010	*% with Unknown risk included*	2011-2013	*% with Unknown risk included*	2014-2016	*% with Unknown risk included*
MSM	627	67	512	63	454	62
IDU	34	4	27	3	27	4
MSM-IDU	61	7	72	9	37	5
Hetero	54	6	28	3	29	4
Other	9	1	12	1	5	1
No identified risk (Unknown)	149	16	159	20	178	24
TOTAL	**934**	*100*	**810**	*100*	**730**	*100*

Data Source: HIV/AIDS Epidemiology Program, Public Health – Seattle and King County.

Exhibit 6. New Confirmed and Probable Cases of Hepatitis C Reported to Public Health – Seattle and King County Each Year, by Birth Year Group
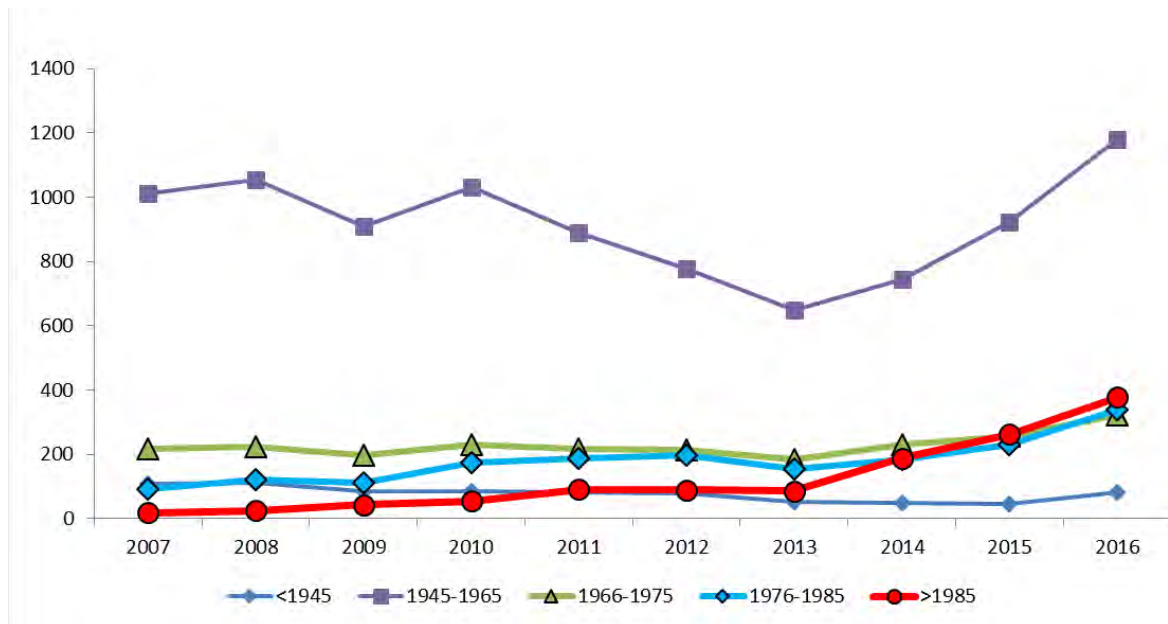
Data Source: Communicable Disease Epidemiology and Immunization Section, Public Health – Seattle and King County.

Exhibit 7. Syringes Distributed by Programs in King County, WA
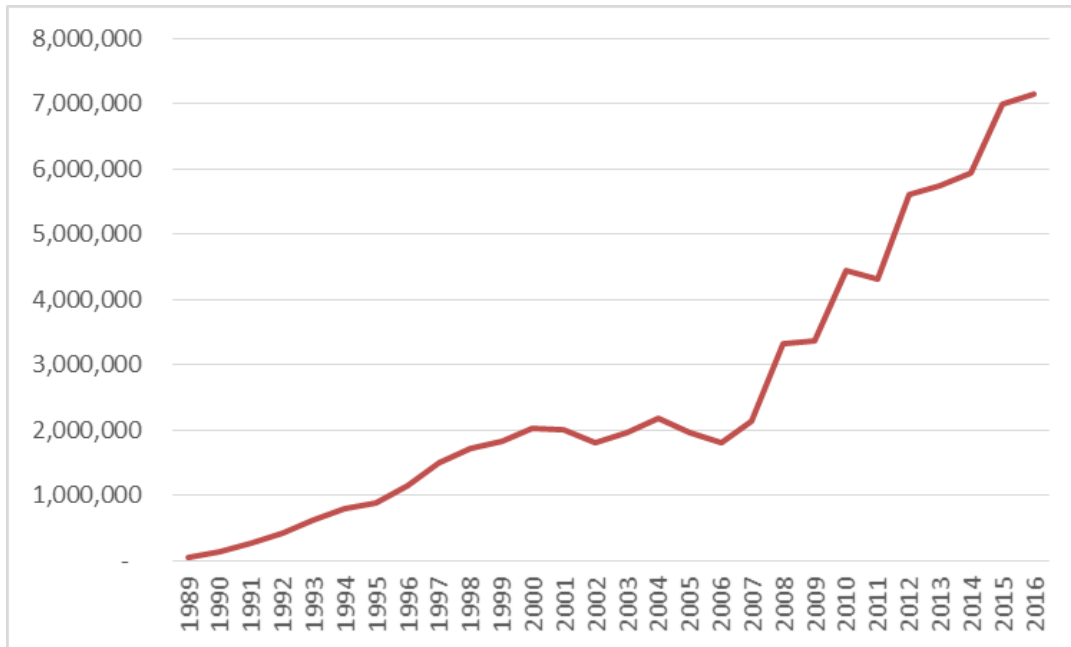
Data Source: HIV/AIDS Program, Public Health – Seattle and King County.

Data Sources

Data for this report were drawn from the following sources:

Washington Recovery Helpline data for King County callers from 2012 to 2016 are presented in Exhibit 1.

Washington State Patrol Crime Laboratory evidence testing data received at the laboratory between 2001 and 2016 from law enforcement in King County are presented in Exhibits 2a and 2b. Data are based on cases tested through April 2016 and are presented by the year the evidence was received at the laboratory. These data are submitted to the Drug Enforcement Administration for inclusion in the National Forensic Laboratory Information System (NFLIS) dataset. Note that the data used in this report will vary somewhat from NFLIS data because the data presented here are reported at the case level, not at the drug level; that is, if a single case had multiple pieces of evidence, the data presented here would count the cocaine once as a single case positive for cocaine.

Treatment admissions data for King County residents to publicly funded treatment are included for admissions from 1999 to 2015 and from July to December 2016 in Exhibits 3a and 3b. Data were provided by the Washington State Department of Social and Health Services (DSHS), Division of Behavioral Health and Recovery, Treatment Report and Generation Tool (TARGET) for 2012–2015 and King County Behavioral Health and Recovery Division for July–December 2016.Data for the second half of 2016 were multiplied by two to provide an annual estimate to compare with previous years' annual totals.

King County Medical Examiner data on drug-caused deaths from 1997 through 2016 are presented in Exhibits 4a and 4b. Most deaths involved multiple drugs, so discussion of drug-specific deaths should be interpreted in the context of understanding that most also involved other drugs or alcohol.

Syringe exchange client survey data were provided by the HIV/AIDS Program, Public Health—Seattle & King County (PHSKC) and are presented in Exhibit 7.

HIV data were provided by the HIV/AIDS Epidemiology Program, Public Health—Seattle & King County (PHSKC) and are presented in Exhibit 5. HIV cases diagnosed through December 2016 and reported through May 2017 are included, and data should be considered to be preliminary.

Hepatitis C data were provided by the Communicable Disease Epidemiology and Immunization Section, Public Health – Seattle and King County.

Student drug use data were from the Washington State Healthy Youth Survey (askhys.net).

Wastewater testing for drugs was directed by Caleb Banta-Green at the University of Washington Alcohol and Drug Abuse Institute; samples were collected by staff at the Westpoint Treatment Plan, Wastewater Treatment Division, King County Department of Natural Resources and Parks, and analyzed by Dan Burgard at the University of Puget Sound. The data were collected as part of an international collaboration described here: http://www.emcdda.europa.eu/topics/pods/waste-water-analysis. Note

that these data have not had complete confidence intervals calculated, and so formal tests of differences were not conducted.

Contact Information: For additional information about the drugs and drug use patterns discussed in this report, please contact Caleb Banta-Green, M.S.W., M.P.H., Ph.D., Alcohol and Drug Abuse Institute, University of Washington, 1107 N.E. 45th Street, Suite 120, Seattle, WA 98105, Phone: 206–685–3919, Fax: 206–543–5473, E-mail: calebbg@u.washington.edu.

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
King County (Seattle Area), Washington
2011–2015 ACS 5-Year Estimates

	Estimate	Margin of Error
Total Population (#)	**2,045,756**	**
Age		
18 years and over (%)	79.0%	**
21 years and over (%)	75.6%	+/-0.1
65 years and over (%)	11.8%	**
Median Age (years)	37.2	+/-0.2
Race (%)		
White, Not Hisp.	62.8%	+/-0.1
Black/African American, Not Hisp.	6.0%	+/-0.1
Hispanic/Latino (of any race)	9.3%	**
American Indian/Alaska Native, Not Hisp.	0.6%	+/-0.1
Asian, Not Hisp.	15.5%	+/-0.1
Native Hawaiian/Pacific Islander, Not Hisp.	0.8%	+/-0.1
Some Other Race	0.2%	+/-0.1
Two or More Races	4.9%	+/-0.1
Sex (%)		
Male	49.9%	**
Female	50.1%	**
Educational Attainment (*Among Population Aged 25+ Years***) (%)**		
High School Graduate or Higher	92.3%	+/-0.2
Bachelor's Degree or Higher	47.9%	+/-0.3
Unemployment (*Among Civilian Labor Force Population Aged 16+ Years***) (%)**		
Unemployment Rate	6.3%	+/-0.2
Income ($)		
Median Household Income (in 2015 inflation-adjusted dollars)	$75,302	+/-690
Health Insurance Coverage (*Among Civilian Noninstitutionalized Population***) (%)**		
No Health Insurance Coverage	9.7%	+/-0.2
Poverty (%)		
All People Whose Income in Past 12 Months Is Below Poverty Level	11.2%	+/-0.3

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 *King County (Seattle Area)*^, 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: King County^	
	Estimated % (95% CI)*	Estimated #*
Used in Past Month		
Alcohol	59.16 (55.22 − 62.98)	1,006,038
Binge Alcohol**	20.84 (18.15 − 23.81)	354,340
Marijuana	12.74 (10.45 − 15.44)	216,584
Use of Illicit Drug Other Than Marijuana	4.47 (3.30 − 6.04)	76,072
Used in Past Year		
Cocaine	2.04 (1.35 − 3.08)	34,757
Nonmedical Use of Pain Relievers	4.67 (3.64 − 5.97)	79,431
Substance Use Disorders in Past Year*		
Illicit Drugs or Alcohol	**8.76 (7.34 − 10.41)**	**148,896**
Alcohol	7.22 (5.92 − 8.79)	122,820
Illicit Drugs	2.73 (2.06 − 3.61)	46,346

NOTES:
^King County: NSDUH Substate Region 2 which comprises King 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 (1,700,584) 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 reponses 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 *King County (Seattle Area)^*, by Age Group, 2012–2014
Estimated Percent and 95% Confidence Interval (CI)*, Annual Averages Based on Combined 2012 to 2014 NSDUH Data

	Substate Region: King County^		
	12–17	18–25	26+
Substance Use Behaviors	Estimated Percent (95% CI)*	Estimated Percent (95% CI)*	Estimated Percent (95% CI)*
Used in Past Month			
Binge Alcohol**	5.76 (4.27 – 7.71)	36.40 (31.16 – 41.98)	20.06 (17.04 – 23.48)
Marijuana	9.36 (7.05 – 12.33)	27.13 (22.25 – 32.62)	10.96 (8.50 – 14.03)
Use of Illicit Drug Other Than Marijuana	4.03 (2.69 – 6.01)	9.19 (6.61 – 12.65)	3.82 (2.58 – 5.63)
Used in Past Year			
Cocaine	0.64 (0.35 – 1.18)	5.80 (3.80 – 8.74)	1.63 (0.94 – 2.82)
Nonmedical Use of Pain Relievers	5.91 (4.23 – 8.19)	8.34 (6.34 – 10.90)	4.01 (2.89 – 5.53)
Substance Use Disorder in Past Year*			
Illicit Drugs or Alcohol	5.04 (3.67 – 6.88)	17.08 (13.66 – 21.16)	7.90 (6.37 – 9.77)
Alcohol	3.05 (2.14 – 4.33)	12.94 (9.99 – 16.61)	6.80 (5.36 – 8.59)
Illicit Drugs	3.54 (2.45 – 5.11)	6.91 (5.00 – 9.47)	2.03 (1.37 – 3.00)

NOTES:
^King County: NSDUH Substate Region 2 which comprises King 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 *Seattle* ^ Public High School Students, 2013[1]
Estimated Percent and 95% Confidence Interval (CI)
2011 and 2013 YRBS*

Substance Use Behaviors	2013 vs 2011			2013 by Sex			2013 by Race		
	2013	2011		Male	Female		White	Black	Hispanic
	Percent		p-value	Percent		p-value	Percent		
	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	24.0 (21.1 - 27.1)	27.2 (24.1 - 30.6)	0.14	23.2 (19.7 - 27.2)	24.6 (21.3 - 28.3)	0.51	33.2 (27.6 - 39.4)	16.7 (11.6 - 23.4)	30.1 (23.2 - 37.9)
Binge Alcohol**	13.5 (11.5 - 15.8)	17.4 (15.0 - 20.2)	**0.02**	13.3 (10.6 - 16.4)	13.9 (11.5 - 16.6)	0.70	19.5 (15.3 - 24.5)	6.9 (4.3 - 11.0)	19.5 (14.2 - 26.2)
Marijuana	22.9 (20.1 - 25.9)	20.8 (18.2 - 23.7)	0.31	24.4 (21.0 - 28.3)	21.2 (17.8 - 25.0)	0.13	27.1 (22.2 - 32.5)	22.4 (16.5 - 29.6)	32.1 (25.9 - 39.1)
Ever Used in Lifetime									
Alcohol	50.3 (46.4 - 54.1)	—	~	48.2 (43.5 - 53.0)	52.0 (47.3 - 56.6)	0.18	61.3 (54.9 - 67.3)	35.3 (27.6 - 43.9)	60.5 (51.7 - 68.7)
Marijuana	35.2 (31.6 - 39.0)	—	~	36.5 (31.9 - 41.3)	33.3 (28.9 - 38.1)	0.26	40.1 (33.6 - 46.9)	33.2 (25.5 - 41.8)	49.5 (41.7 - 57.4)
Cocaine	—	—	~	—	—	~	—	—	—
Hallucinogenic Drugs	—	—	~	—	—	~	—	—	—
Inhalants	—	8.1 (6.8 - 9.6)	~	—	—	~	—	—	—
Ecstasy also called "MDMA"	—	—	~	—	—	~	—	—	—
Heroin	—	—	~	—	—	~	—	—	—
Methamphetamine	—	5.2 (4.0 - 6.6)	~	—	—	~	—	—	—
Rx Drugs without a Doctors Prescription	—	—	~	—	—	~	—	—	—
Injected Any Illegal Drug	2.7 (1.8 - 4.2)	3.5 (2.7 - 4.7)	0.30	3.1 (1.7 - 5.4)	2.1 (1.1 - 4.0)	0.36	1.7 (1.0 - 3.0)	4.4 (1.6 - 11.6)	2.6 (1.1 - 6.3)

NOTES:
[1]2013: 2015 YRBS data not available for Seattle so 2013 data is presented.
'—' = Data not available; **~ =** P-value not available; **N/A** = < 100 respondents for the subgroup.
^Seattle: weighted data were available for Seattle in 2011 and 2013; 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.
*Sample Frame for the 2011 and 2013 YRBS: sampling frame consisted of public schools with students in at least one of grades 9-12. The sample size for 2011 was 1,896 with an overall response reate of 84%; the 2013 sample size was 1,773 with a 83% overall response rate.
**Binge Alcohol: defined as 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), 1991-2013 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on [3/12/2015].

Table 4a: Trends in Admissions*to Programs Treating Substance Use Disorders, King County (Seattle Area), 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** (Estimates)	
	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)
Total Admissions (#)	**10,222**	**100%**	**9,285**	**100%**	**9,802**	**100%**	**8,928**	**100%**	**9,056**	**100%**
Primary Substance of Abuse (%)										
Alcohol	3,456	33.8%	3,145	33.9%	3,112	31.7%	2,730	30.6%	2,750	30.4%
Cocaine/Crack	855	8.4%	642	6.9%	521	5.3%	432	4.8%	472	5.2%
Heroin	2,083	20.4%	2,192	23.6%	2,897	29.6%	3,016	33.8%	2,842	31.4%
Prescription Opioids***	681	6.7%	559	6.0%	532	5.4%	368	4.1%	432	4.8%
Methamphetamine	874	8.6%	854	9.2%	1,001	10.2%	911	10.2%	1,094	12.1%
Marijuana	1,838	18.0%	1,498	16.1%	1,365	13.9%	1,180	13.2%	818	9.0%
Benzodiazepines	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail
MDMA	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	0	0.0%
Synthetic Stimulants	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	0	0.0%
Synthetic Cannabinoids	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	0	0.0%
Other Drugs/Unknown	419	4.1%	379	4.1%	355	3.6%	270	3.0%	152	1.7%

NOTES:

*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.

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

***Prescription Opioids: Includes hydromorphine, other opiates and synthetics, and oxycodone.

unavail: Data not available; **Percentages** may not sum to 100 due to either rounding, missing data and/or because not all possible categories are presented in the table.

SOURCE: Data provided to the King County (Seattle Area) NDEWS SCE by the Washington State Department of Social and Health Services (DSHS).

Table 4b: Demographic and Drug Use Characteristics of Primary Treatment Admissions* for Select Substances of Abuse, King County (Seattle Area), July-December 2016, Preliminary Data**

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 Stiumlants		Synthetic Cannabinoids			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Number of Admissions (#)	1,383	100%	246	100%	1,446	100%	220	100%	565	100%	418	100%	unavail	unavail	unavail	unavail	unavail	unavail		
Sex (%)																				
Male	969	70.1%	167	67.9%	866	59.9%	100	45.5%	382	67.6%	308	73.7%	unavail	unavail	unavail	unavail	unavail	unavail		
Female	414	29.9%	79	32.1%	580	40.1%	120	54.5%	183	32.4%	110	26.3%	unavail	unavail	unavail	unavail	unavail	unavail		
Race/Ethnicity (%)																				
White, Non-Hisp.	733	53.0%	72	29.3%	1046	72.3%	166	75.5%	382	67.6%	145	34.7%	unavail	unavail	unavail	unavail	unavail	unavail		
African-Am/Black, Non-Hisp	296	21.4%	131	53.3%	142	9.8%	30	13.6%	47	8.3%	125	29.9%	unavail	unavail	unavail	unavail	unavail	unavail		
Hispanic/Latino	158	11.4%	10	4.1%	111	7.7%	10	4.5%	54	9.6%	83	19.9%	unavail	unavail	unavail	unavail	unavail	unavail		
Asian/Pacific Islander	91	6.6%	9	3.7%	47	3.3%		0.0%	44	7.8%	16	3.8%	unavail	unavail	unavail	unavail	unavail	unavail		
Other	101	7.3%	22	8.9%	92	6.4%	8	3.6%	43	7.6%	50	12.0%	unavail	unavail	unavail	unavail	unavail	unavail		
Age Group (%)																				
Under 18	36	2.6%	5	2.0%	11	0.8%	2	0.9%	10	1.8%	132	31.6%	unavail	unavail	unavail	unavail	unavail	unavail		
18-25	130	9.4%	21	8.5%	280	19.4%	26	11.8%	113	20.0%	87	20.8%	unavail	unavail	unavail	unavail	unavail	unavail		
26-44	651	47.1%	79	32.1%	876	60.6%	149	67.7%	345	61.1%	148	35.4%	unavail	unavail	unavail	unavail	unavail	unavail		
45+	568	41.1%	141	57.3%	279	19.3%	44	20.0%	105	18.6%	53	12.7%	unavail	unavail	unavail	unavail	unavail	unavail		
Route of Administration (%)																				
Smoked	10	0.7%	194	78.9%	406	28.1%	37	16.8%	352	62.3%	395	94.5%	unavail	unavail	unavail	unavail	unavail	unavail		
Inhaled	0	0.0%	22	8.9%	28	1.9%	11	5.0%	23	4.1%	0	0.0%	unavail	unavail	unavail	unavail	unavail	unavail		
Injected	0	0.0%	11	4.5%	978	67.6%	22	10.0%	174	30.8%	0	0.0%	unavail	unavail	unavail	unavail	unavail	unavail		
Oral/Other/Unknown	1374	99.3%	19	7.7%	34	2.4%	151	68.6%	24	4.2%	13	3.1%	unavail	unavail	unavail	unavail	unavail	unavail		
Secondary Substance (%)																				
None	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Alcohol	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Cocaine/Crack	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Heroin	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Prescription Opioids***	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Methamphetamine	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Marijuana	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Benzodiazepines	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Synthetic Stiumlants	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		
Synthetic Cannabinoids	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail	unavail		

NOTES:

*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.

**Data presented are based on preliminary data reported for July-December 2016.

***Prescription Opioids: Includes hydromorphine, other opiates and synthetics, and oxycodone.

unavail: Data not available; **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 King County (Seattle Area) NDEWS SCE by the King County Behavioral Health and Recovery Division for July-Dec 2016.

Table 5: Drug Poisoning Deaths*, by Drug** and Year, _King County (Seattle Area)_ , 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	**236**	**12.0**	**11.0**	**261**	**13.0**	**12.0**	**282**	**13.8**	**12.6**	**300**	**14.4**	**13.1**	**285**	**13.5**	**12.6**
Opioids‡	**174**	**8.8**	**8.1**	**183**	**9.1**	**8.4**	**203**	**9.9**	**9.0**	**222**	**10.7**	**9.7**	**198**	**9.4**	**8.7**
Heroin	30	1.5	1.4	69	3.4	3.3	86	4.2	3.9	137	6.6	6.0	117	5.5	5.2
Natural Opioid Analgesics	67	3.4	3.0	58	2.9	2.6	76	3.7	3.3	68	3.3	2.9	58	2.7	2.5
Methadone	58	2.9	2.7	55	2.7	2.4	47	2.3	2.1	43	2.1	1.8	37	1.7	1.6
Synthetic Opioid Analgesics	17	UNR	UNR	16	UNR	UNR	14	UNR	UNR	12	UNR	UNR	SUP	SUP	SUP
Benzodiazepines	**66**	**3.4**	**3.1**	**68**	**3.4**	**3.2**	**50**	**2.4**	**2.3**	**67**	**3.2**	**2.9**	**51**	**2.4**	**2.3**
Benzodiazepines **AND** Any Opioids	61	3.1	2.8	59	2.9	2.8	43	2.1	1.9	57	2.7	2.5	45	2.1	2.0
Benzodiazepines **AND** Heroin	SUP	SUP	SUP	15	UNR	UNR	11	UNR	UNR	28	1.3	1.2	21	1.0	0.9
Psychostimulants															
Cocaine	46	2.3	2.0	39	1.9	1.8	65	3.2	2.9	74	3.6	3.3	54	2.6	2.2
Psychostimulants with Abuse Potential	17	UNR	UNR	37	1.8	1.7	40	2.0	1.8	68	3.3	3.0	76	3.6	3.4
Cannabis (derivatives)	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**	**SUP**
Percent with Drugs Specified‡	99.2%			99.2%			98.9%			99.7%			98.9%		

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.

***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 King County (Seattle Area) 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	**1,252**	**100.0%**
METHAMPHETAMINE	446	35.6%
HEROIN	359	28.7%
COCAINE	143	11.4%
CANNABIS	81	6.5%
FENTANYL	28	2.2%
ALPRAZOLAM	26	2.1%
OXYCODONE	23	1.8%
NO CONTROLLED DRUG IDENTIFIED	20	1.6%
3,4-METHYLENEDIOXYMETHAMPHETAMINE (MDMA)	14	1.1%
PHENCYCLIDINE	11	0.9%
CAFFEINE	10	0.8%
CLONAZEPAM	8	0.6%
PSILOCIN	7	0.6%
AMPHETAMINE	5	0.4%
BUPRENORPHINE	5	0.4%
CODEINE	5	0.4%
DIAZEPAM	5	0.4%
5-FLUORO-ADB	4	0.3%
DIMETHYLSULFONE	4	0.3%
PHENYLIMIDOTHIAZOLE ISOMER UNDETERMINED	4	0.3%
3,4-METHYLENEDIOXYAMPHETAMINE (MDA)	3	0.2%
4-ANILINO-1-PHENETHYLPIPERIDINE	3	0.2%
DIACETAMIDE	3	0.2%
HYDROCODONE	3	0.2%
PSILOCYBINE	3	0.2%
SOME OTHER SUBSTANCE	3	0.2%
ACETYLFENTANYL	2	0.2%
KETAMINE	2	0.2%
LYSERGIC ACID DIETHYLAMIDE (LYSERGIDE)	2	0.2%
METHADONE	2	0.2%
NOSCAPINE	2	0.2%
TRAMADOL	2	0.2%
CAMAZEPAM	1	< 0.1%
CARISOPRODOL	1	< 0.1%
DEXTROSE	1	< 0.1%
FURANYL FENTANYL	1	< 0.1%
LACTOSE	1	< 0.1%
LORAZEPAM	1	< 0.1%
MAB-CHMINACA (ADB-CHMINACA)	1	< 0.1%
MIDAZOLAM	1	< 0.1%
MONOACETYLMORPHINE	1	< 0.1%
MORPHINE	1	< 0.1%
N-METHYL-3,4-METHYLENEDIOXYCATHINONE (METHYLONE)	1	< 0.1%
TESTOSTERONE	1	< 0.1%
U-47700	1	< 0.1%
ZOLPIDEM	1	< 0.1%

NOTES:

*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 King County (Seattle Area) 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*	**1,252**	**100.0%**	**100.0%**
Opioids Category	**435**	**100.0%**	**34.7%**
Heroin	**359**	**82.5%**	**28.7%**
Narcotic Analgesics	**73**	**16.8%**	**5.8%**
FENTANYL	28	6.4%	2.2%
OXYCODONE	23	5.3%	1.8%
BUPRENORPHINE	5	1.1%	0.4%
CODEINE	5	1.1%	0.4%
HYDROCODONE	3	0.7%	0.2%
ACETYLFENTANYL	2	0.5%	0.2%
METHADONE	2	0.5%	0.2%
TRAMADOL	2	0.5%	0.2%
FURANYL FENTANYL	1	0.2%	< 0.1%
MORPHINE	1	0.2%	< 0.1%
U-47700	1	0.2%	< 0.1%
Narcotics	**3**	**0.7%**	**0.2%**
NOSCAPINE	2	0.5%	0.2%
MONOACETYLMORPHINE	1	0.2%	< 0.1%
Synthetic Cannabinoids Category	**5**	**100.0%**	**0.4%**
5-FLUORO-ADB	4	80.0%	0.3%
MAB-CHMINACA (ADB-CHMINACA)	1	20.0%	< 0.1%
Synthetic Cathinones Category	**1**	**100.0%**	**< 0.1%**
Synthetic Cathinones (Hallucinogen)	**1**	**100.0%**	**< 0.1%**
N-METHYL-3,4-METHYLENEDIOXYCATHINONE (METHYLONE)	1	100.0%	< 0.1%

NOTES:

***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*:** [a]Adapted 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, noninstutionalized 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 methodolgy 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***:** [a]Adapted 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 <u>and</u> 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 ≥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:

[a]Brener 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].

[b]Kann 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].

[c]Stark 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

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

[e]Eaton 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 hydromorphine, 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:

[a]National 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

[b]National 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:

[1]Center 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

[2]Goldberger, 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.

[3]World 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

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

[5]Warner, 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 Fentanyls 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 Fentanyls 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: [a]Adapted 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