

United Way of Broward County Commission on Substance Abuse

**Drug Abuse Trends
In Broward County, Florida
Annual Report: June 2017**



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Patterns and Trends of Substance Abuse in Broward County Florida

June 2017

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SECTION I. HIGHLIGHTS

- The prevalence of **current alcohol use and binge drinking** among Broward students steadily declined from 2010 to 2016 paralleling declines Statewide.
- **Alcohol** was detected as being present in nearly one-half of all drug-related deaths in Florida during 2016 and was the primary drug cited by more than a fourth of all patients admitted to addiction treatment in Broward County during 2016 with three-fourths of those adult patients being over the age of 34.
- While **cigarette smoking** by youth has dramatically declined over the past decade, three times as many Broward high school students and six times as many middle school students are current users of e-cigarettes as compared to regular cigarette users.
- **Marijuana** was the primary drug of use reported by 87% of adolescents younger than 18 years of age entering addiction treatment programs in Broward County during 2016 as prevalence rates of current marijuana use have generally increased since 2006.
- More than three-fourths of **Synthetic Cannabinoids** analyzed in Florida crime labs in 2016 were from 2 different substances not seen in previous years while Broward County had less than one-percent of all synthetic cannabinoid crime lab exhibits statewide.
- The ban by China in October 2015 of 116 Novel Psychoactive Substances including *alpha*-PVP (“Flakka”) and other **Synthetic Cathinones** appears to have dramatically reduced the availability of these substance in Broward County and across all of Florida in 2016.
- **Non-pharmaceutical fentanyl** and its analogues from foreign clandestine labs are the major factor for the dramatic increase in opioid deaths related to adulterated heroin and counterfeit medications in Broward County and all of Florida.
- Deaths related to the non-medical misuse of **prescription opioids**, and particularly oxycodone, have increased since their decline from 2011 to 2013 following Florida’s crackdown on prescription drug diversion.
- Most all **heroin** deaths in Florida involve polysubstance use in combination with other drugs.
- **Cocaine** deaths have been steadily increasing since 2013 attributed in part to polysubstance use with heroin and other opioids.
- Indicators of **methamphetamine** remain relatively low in Broward County compared to other parts of Florida.
- **Benzodiazepine** deaths increased in 2015 and 2016 following sharp declines from 2011 to 2013 paralleling trends of prescription opioid fatalities.

Data Sources

Florida Department of Law Enforcement: Florida Medical Examiners Commission 2016 Interim Report on Drugs Detected in Deceased Persons in Florida: January – June 2016 Released May 2017

Florida Department of Children and Families: Primary Drug Treatment Admissions in Florida and Broward County for Calendar Year 2016

Florida Department of Children and Families: *Florida Youth Substance Abuse Surveys (FYSAS)* Broward County Reports 2000 – 2016

US Centers for Disease Control and Prevention and the Florida Department of Health: *Youth Risk Behavior Surveillance System (YRBSS)* for High School and Middle School Students – Broward County, 2015 Released June 10, 2016

Florida Agency for Health Care Administration: Opioid, Heroin and Benzodiazepine Poisoning Overdose Hospitalization Cases January – June 2016 Data Queried June 2017

Florida Poison Information Centers exposure calls for calendar year 2016 and January through April 2017

Florida Department of Law Enforcement: Arrests Reports by Florida Counties 2015 and 2016

US Drug Enforcement Administration: National Forensic Laboratory Information System (NFLIS): Florida and Broward County crime lab cases for calendar year 2016 data (Queried: May 22, 2017)

U.S. Substance Abuse and Mental Health Services Administration: Substate Estimates from the 2012-2014 National Survey on Drug Use and Health (NSDUH)

University of Florida drug-Related Outcome Surveillance and Tracking (**FROST**) System at www.frost.med.ufl.edu

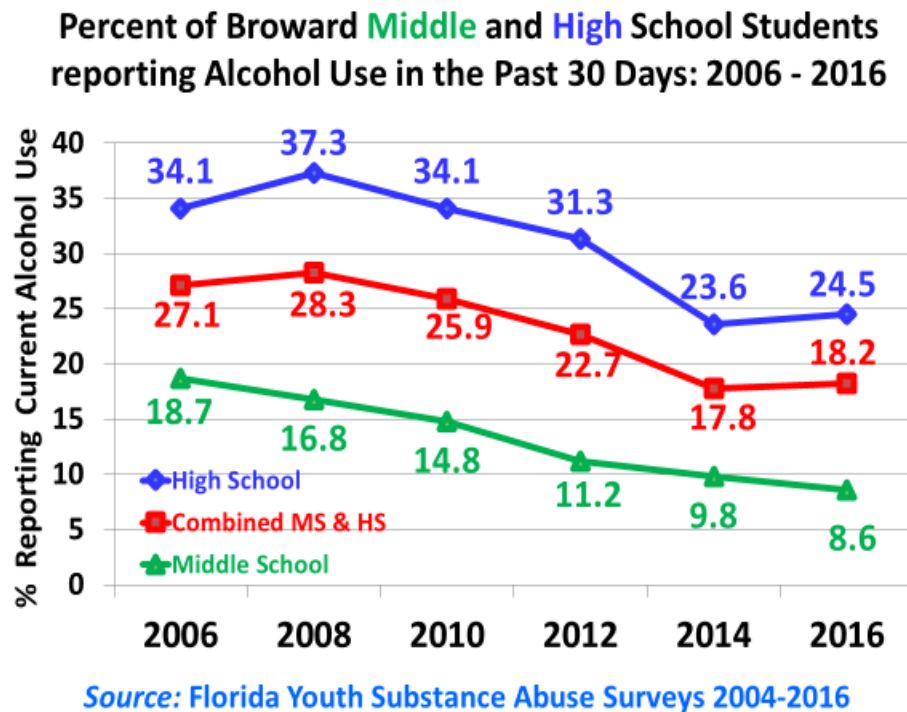
SECTION II. PATTERNS AND TRENDS of DRUG USE

United Way of Broward County Commission on Substance Abuse
Annual Drug Trends Report June 2017

Underage Alcohol Use

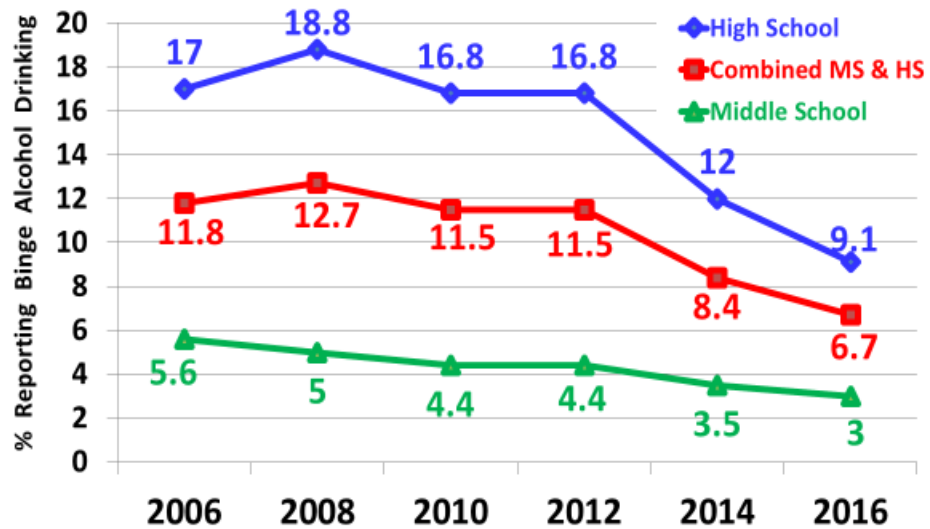
- The prevalence of **current alcohol use and binge drinking** among Broward students steadily declined from 2010 to 2016 paralleling declines Statewide.

The most recent update on trends of alcohol use by Broward youth is from the 2016 Florida Youth Substance Abuse Survey (FYSAS). It reported a 9.6 percentage point decline (or 29-% decrease) in current (past 30-day) use of alcohol among Broward high school students between 2006 (34.1%) and 2016 (24.5%) The FYSAS also reported a 10.1 percentage point decline (or 54-% decrease) in current use of alcohol among Broward middle school students between 2006 (18.7%) and 2016 (8.6%). The 2016 rates of current alcohol use among Broward students are similar to the percentages for all Florida high school students at 25.4% and middle schoolers at 8.3%.



The FYSAS also reports a 7.9 percentage point decrease (or 46% decline) in binge drinking of having five or more drinks in a row during the past two weeks among Broward high school students from 17% in 2006 to 9.1% in 2016. Broward middle school students also reported a 46-% decline in binge drinking (or 2.6 percentage points) between the same ten-year period from 5.6% in 2006 to 3% in 2016. Binge drinking percentages among Broward students in 2016 were also similar to those for high school students Statewide at 10.9% and 3.2% among middle schoolers.

Percent of Broward Middle and High School Students reporting Binge Drinking in the Past 2 Weeks: 2006 - 2016



Source: Florida Youth Substance Abuse Surveys 2004-2016

The percent of Broward high school students reporting they had their first drink of alcohol other than a few sips before the age of 13 as tracked by the FYSAS has declined 59-% from 40.1% in 2006 to 16.5% in 2016. Statewide 19.4% of high school students in 2016 reported alcohol use prior to the age of 13.

The National Survey on Drug Use and Health (NSDUH) Substate Data provides prevalence rates of alcohol use for Broward County underage drinking for those 12 to 20 years of age citing 20.15% of that population were current (past 30-day) users of alcohol and 11.51% reported binge drinking in the past month. These were the lowest rates in Florida where the statewide rates were 24.04% for current alcohol use and 14.24 for binge drinking among those 12-20 years of age.

In calendar year 2016, only 12 adolescents aged 17 and under cited alcohol was their primary drug of abuse when they entered a local addiction treatment program. That total represented 4% of all admissions for that age group and less than 1% of the total number of primary alcohol treatment admissions (n= 2,030). There were 121 young adults aged 18-25 who reported alcohol as their primary substance abuse problem or 6% of all alcohol admissions representing 10% of all treatment admissions aged 18-25.

There were only 2 juvenile arrests age 17 and under in Broward County for Driving Under the Influence (DUI) during 2016 and 6 juvenile arrests for Liquor Law Violations.

Adult Problematic Alcohol

- **Alcohol** was detected as being present in nearly one-half of all drug-related deaths in Florida during 2016 and was the primary drug cited by more than a fourth of all patients admitted to addiction treatment in Broward County during 2016 with three-fourths of those adult patients being over the age of 34.

Alcohol was identified in 2,466 deceased persons Statewide in the first six months of 2016 by Florida medical examiners representing a 7-% increase from the 2,308 alcohol occurrences in the first half of 2015. Among the 2016 cases, alcohol was considered a “cause of death” in 405 or 16% of the cases and was detected in 46% of the 5,392 decedents in whom any drug was found present at the time of death.

In calendar year 2016, 2,058 persons aged 18 and older cited alcohol was their primary drug of abuse when they entered a Broward addiction treatment program accounting for 28% of all adult clients. Nearly three-fourths of all alcohol primary admissions clients were males. Young adults aged 18-25 accounted for 6% of the adult alcohol admissions while those aged 26-34 years represented 20% and those age 35 and older comprised 74%.

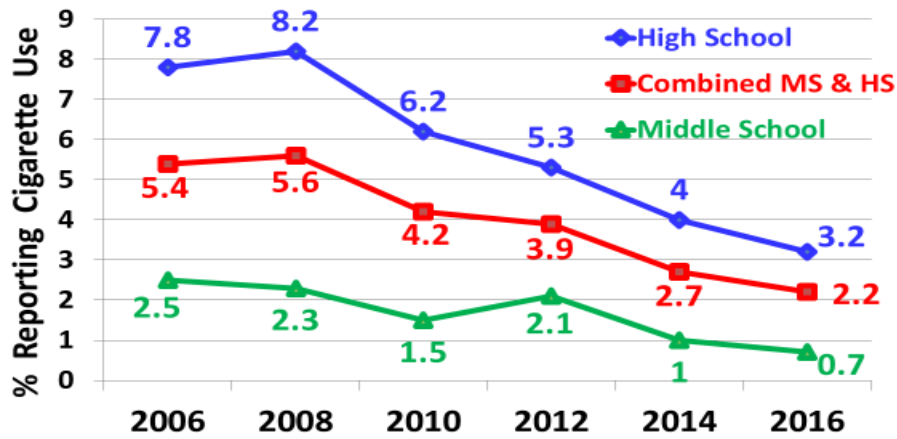
There were 1,720 arrests in Broward County for Driving Under the Influence (DUI) during 2016 representing a 13-% decline compared to 1,930 such arrests in 2015 and a 25-% decrease from the 2,299 adult DUI arrests in 2012. The substances involved in the DUI arrest are not specified but most are for alcohol intoxication. There were 490 arrests in Broward County for Liquor Law Violations during 2016 representing a 91-% increase compared to 257 such arrests in 2015 and a 57-% decrease from the 1,127 liquor arrests in 2012.

Tobacco, Smoking and Vaping

- While **cigarette smoking** by youth has dramatically declined over the past decade, three times as many Broward high school students and six times as many middle school students are current users of e-cigarettes as compared to regular cigarette users.

The 2014 Florida Youth Tobacco Survey (FYTS) reported that 2.2% of Broward youth 11-17 years of age are current (past 30-day) cigarette smokers as compared to 4.3% of youth statewide. The Broward County rate was 3.1% in 2012. Significant declines in cigarettes smoking among Broward students are reported by both the FYTS and the FYSAS over the past decade. In 2006, 7.8% of high school students reported past 30-day or current cigarette use as did 2.5% of middle school students or 5.4% of all secondary students. By 2016, the rate among high schoolers had declined 59-% to 3.2%% and dropped 72-% among middle school students to 0.7%. These are the most significant declines of any substance use ever recorded during the 16 years of the FYSAS and are noted as the de-normalization of cigarette smoking among youth.

Percent of Broward Middle and High School Students reporting Cigarette Use in the Past 30 Days: 2006 - 2016



Source: Florida Youth Substance Abuse Surveys 2004-2016

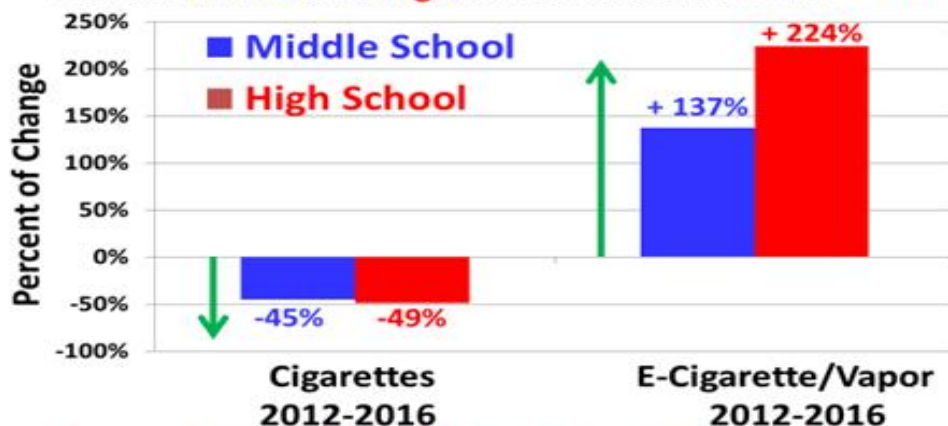
Three times as many Broward high school students and six times as many middle school students are current users of e-cigarettes than regular cigarettes according to the 2016 FYSAS which reveals that 9.7% of Broward high school students had used e-cigarettes in the past 30 days as compared to 3.2% who had smoke regular cigarettes. The rates for middle schoolers were 0.7% for current use of regular cigarettes while 4.4% reported current use of e-cigarettes or vaporizers

The 2015 Youth Risk Behavior Surveillance Survey (YRBSS) expanded the question of e-cigarette use to include “e-hookahs, vaping pipes or pens.” Thus, its results report even higher rates of current vaping use with 22.4% of Broward high school students and 9.6% of middle school students having used a vaping device in the past month as compared to regular cigarette use by 4.2% of high schoolers and 0.8% of middle school students.

Existing studies on electronic smoking devices’ vapor emissions and cartridge contents have found numerous dangerous substances including chemicals known to cause cancer such as: formaldehyde, acetaldehyde, lead, nickel, chromium, PM_{2.5}, acrolein, tin, toluene, and aluminum. These toxins are associated with a range of negative health effects such as skin, eye, and respiratory irritation, neurological effects, damage to reproductive systems, and even premature death from heart attacks and stroke. More than one study have concluded that exposure to vapor from electronic smoking devices may cause passive or secondhand vaping. Clinical studies about the safety and efficacy of these products have **not** been submitted to the FDA for the over 400 brands of electronic smoking devices that are on the market and for this reason, consumers currently have no way of knowing whether electronic smoking devices are safe or what potentially harmful chemicals the products contain.

Use of electronic smoking devices has increased significantly in recent years. The 2016 FYTS reports while cigarette use among Florida youth has decreased over the past four years, use of e-cigarette and other vaping devices has increased 137-% among middle schoolers and 224-% among high school students between 2012 and 2016.

Percent of Change in Current (Past 30-Day) Use of Cigarette and E-Cigarette/Vapor Devices Among Florida Middle and High School Students: 2012- 2016



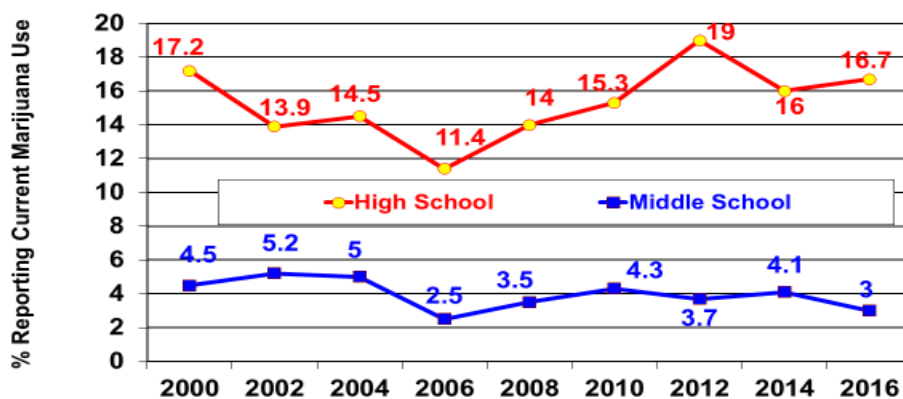
Source: 2012 and 2016 Florida Youth Tobacco Surveys

Marijuana

- Marijuana was the primary drug of use reported by 87% of adolescents younger than 18 years of age entering addiction treatment programs in Broward County during 2016 as prevalence rates of current marijuana use have generally increased since 2006.

The Florida Youth Substance Abuse Surveys revealed the rate of Broward County high school students reporting past 30-day use of marijuana increased from 11.4% in 2006 to 19% in 2012 and then declined to 16% in 2014 before rising to 16.7%. The rate for middle school students increased from 2.5% in 2006 to 4.3% in 2010 and then remained relatively stable until 2014 going from 4.3% in 2010 to 3.7% in 2012 and then back up to 4.1% in 2014 before declining to 3% in 2016.

Current (past 30-day) Marijuana Use Among Broward County Middle and High School Students 2000-2016



Source: Florida Youth Substance Abuse Surveys 2000-2016

There has been a weakening of marijuana prevention protective factors over the past 10 years. The percent of Broward secondary students reporting to the FYSAS that the regular use of marijuana once or twice a week presents a “great risk of harm” declined from 65.1% in 2006 to 31% in 2016. A similar trend in the perceived risk of harm in trying marijuana for the first time declined from 36.1% in 2006 to 21.7% in 2016. About 80% of Broward students consistently disapproved of youthful marijuana use between 2002 and 2010 by responding that it was “wrong” or “very wrong” for someone their age to smoke it; that measure declined to 72.9% by 2016.

The NSDUH Sub-State data estimates that there were 112,985 current (past 30 day) marijuana users aged 12 and above living in Broward County in the most current data available from 2012-2014.

The Florida Medical Examiners Commission reported there were 1,071 occurrences of natural cannabinoids (not synthetics) detected among the 5,392 drug-related deaths in Florida during the first half of 2016 in which a drug was determined through postmortem toxicology tests to be present at the time of death. Thus, marijuana was detected as being present in 20% of all drug-related deaths in Florida. The number of marijuana occurrences in the first six months of 2016 represented a 33-% increase over the 804 such occurrences in the first half of 2015. Among the 2016 natural cannabinoid medical examiner interim report cases, three deaths were considered to be caused by marijuana. County-level medical examiner data are not available for marijuana-related deaths.

Primary addiction treatment admissions for marijuana totaled 1,523 patients in Broward County during 2016 or 20% of all admissions. Males accounted for 76% of the 2016 clients. Youth younger than 18 years of age totaled 261 or 17% of the marijuana admissions, 41% were 18-25, 23% were 26-34 and 19% were age 35 or older. Marijuana was the primary drug cited by 87% of 300 clients younger than 18 years of age for any substance.

The 1,116 cannabis crime lab cases in Broward County during 2016 accounted for 18% of all drug reports and ranked second among all other substances.

Novel Psychoactive Substances

A critical issue impacting substance abuse in Florida and the Nation during the current decade has been the emergence of new synthetic drugs of abuse. They were often first detected in Australia or New Zealand followed by Eastern then Western Europe around 2006 before arriving in North America about 2010. By 2017 these drugs are reported globally and found on every continent.

The United Nations and major national government agencies have adopted the term, “Novel Psychoactive Substances” or NPS, to describe these drugs. Not all of these substances are new, but some may have been around for 20-30 or more years but not used as drugs until recently. The term “emerging” is not always appropriate to describe the problem as these substances often arrive in various locations in different years. Thus, what may be an emerging drug problem in Florida may have already come and gone in Great Britain. While most NPS are synthetic chemicals, so are many other drugs that have been around for decades.

The classes of Novel Psychoactive Substances include:

- **Phenethylamines**
- **Synthetic Cannabinoids**
- **Tryptamines**
- **Piperazines**
- **Opiates**
- **Benzodiazepine Analogs**

Phenethylamines include methamphetamine and 3, 4-methylenedioxy-methamphetamine (MDMA) or the drug most often called “ecstasy” both which have been around for decades. Phenethylamines also include substitute cathinones which are potent stimulants with varying degrees of hallucinogenic properties. Cathinones are chemically designed to mimic but be more potent than the stimulant in the Khat plant found in East Africa and the Middle East. The first substitute cathinones to appear were often referred to as “bath salts” and have been banned nationally and in Florida as well as many other nations. The most prevalent substitute cathinones in Florida have been methylone, ethylone, and diButylone all of which have been falsely sold as “pure MDMA” or “Mollys” for several years. The most dramatic problems associate with synthetic cathinones have been with *alpha*-PVP or “flakka” particularly in Broward County from late 2014 and throughout 2015.

Synthetic cannabinoids mimic the effects of marijuana and were first legally sold as commercial products with names like “K-2” or “spice” before the original group of synthetic cannabinoids were banned and have been constantly replaced with an ever-changing list of these chemicals.

Tryptamines are typically serotonin-affecting psychedelics/hallucinogens such as LSD, DMT and Psilocybin (the active ingredient of psychedelic mushrooms), or 5-MeO-DiPT (“foxy methoxy”).

Piperazines are stimulants such as BZP or TFMPP that were frequently sold as “ecstasy” up until 2013 and just prior to the appearance of cathinones sold as “Mollys.”

The unregulated benzodiazepine, etizolam, not from a pharmaceutical manufacturer but from clandestine laboratory production first appeared as a drug sold on the internet beginning in 2015.

The most deadly of NPS currently available are non-pharmaceutical analogues of fentanyl and other opiates in various formulations from clandestine laboratories in China, Mexico and Canada. The NPS fentanyl analogs have been used as a booster narcotic adulterant to street heroin or are merely sold as heroin. Since 2016, these analogues have been distributed as counterfeit medications including fake “Xanax,” hydrocodone, and oxycodone. The opiate NPS are a key factor in the escalating number of heroin-related deaths in Florida and across the nation beginning in 2014.

Synthetic Cannabinoids

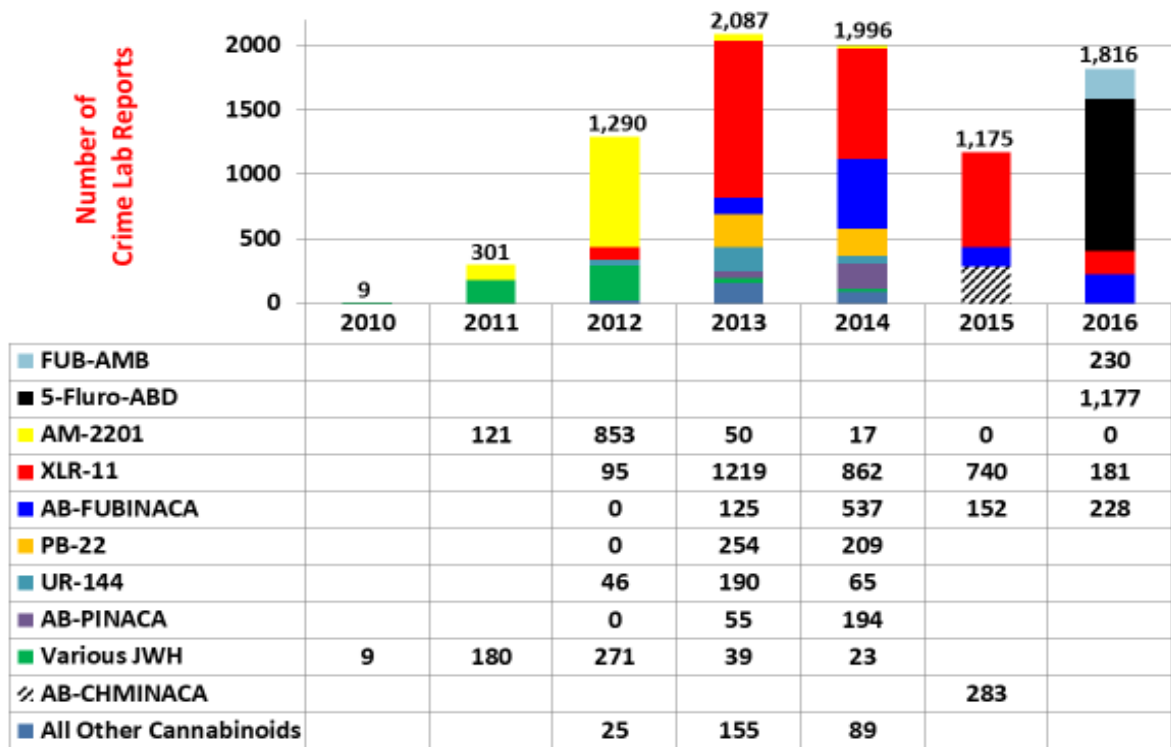
- More than three-fourths of **Synthetic Cannabinoids** analyzed in Florida crime labs in 2016 were from 2 different substances not seen in previous years while Broward County had less than one-percent of all synthetic cannabinoid crime lab exhibits statewide.

The availability of unregulated synthetic cannabinoids increased via retail sales throughout 2010 and the first half of 2011. Their use was mostly among those who were subject to frequent drug testing that did not identify these products. Nevertheless, drug tests are now available for their detection for some, but not all, of these ever-changing substances and many of the synthetic cannabinoids are now illegal.

There were 193 exposure calls statewide to Florida Poison Information Centers in 2016 for various unspecified synthetic cannabinoids, representing a 30-percent decrease from the 276 calls in 2015. In 2014 there were 175 calls and 194 calls in 2013 reflecting a decrease from the 537 calls in 2012 and 517 calls in 2011. Among the calls in 2016, only 2 were from Broward County. During the first quarter of 2017, there were 45 poison exposure calls for synthetic cannabinoids in all of Florida, including 2 from Broward County.

There were 10 Synthetic Cannabinoid related-deaths during the first half of 2016 in Florida with 7 of the occurrences being considered a cause of death compared to 23 total occurrences in the full calendar year 2015 of which 11 were considered to be “a cause of death.” County-level medical examiner data are not available for synthetic cannabinoid-related deaths.

Synthetic Cannabinoids Crime Lab Cases in Florida: 2010-2016



Source: US DEA - National Forensic Laboratory System Data Queried May 22, 2017

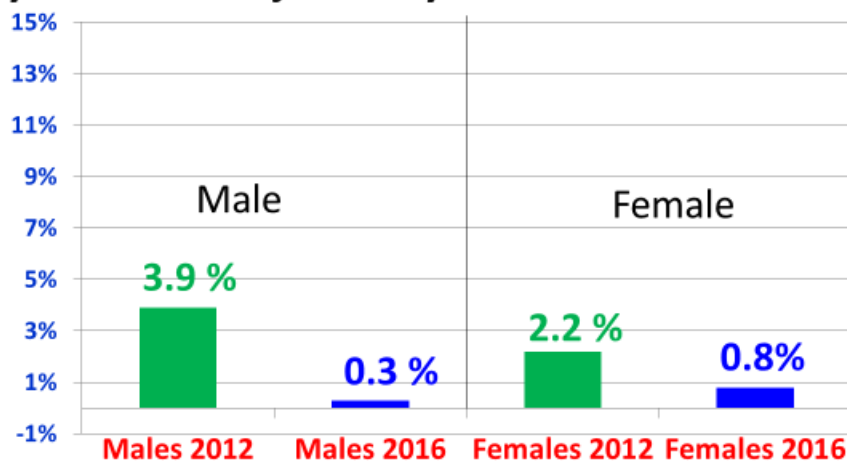
There were 1,816 crime lab reports for synthetic cannabinoids during 2016 in Florida which is a 54-% increase from the 1,175 reports in 2015. Synthetic cannabinoids crime lab reports totaled 1,996 in 2014 after peaking in 2013 with 2,087 cases, up from 1,209 in 2012, 301 in 2011, and just 9 in 2010. Among

the 1,816 synthetic cannabinoid reports in 2016, 1,177 or 65% were for 5-fluro-ABD which appeared for the first that year. There were also 230 crime lab reports for FUB-AMB in 2016, 228 for AB-Fubinaca, and 181 for XLR-11 representing a 75-% decline for that substance from the 740 reports in 2015.

There were 16 crime lab cases for synthetic cannabinoids in Broward County during 2016 all of which were FUB-AMB and represented only 0.3% of all local crime lab reports.

The FYSAS has tracked use of synthetic cannabinoids among Broward high school students since 2012. Past-30-day use declined between 2012 and 2016 from 3.0% to 0.5%. As shown in the graph below rates among males declined even greater than those for females. Any lifetime use of synthetic cannabinoids by Broward high school students declined between 2012 and 2016 from 9.2% to 2.7%.

Percent of Broward County High School Students Reporting Past 30-Day Use of Synthetic Marijuana by Gender: 2012 vs.2016



Source: Florida Youth Substance Abuse Survey 2012 and 2016

Synthetic Cathinones

- The ban by China in October 2015 of 116 Novel Psychoactive Substances including *alpha*-PVP (“Flakka”) and other **Synthetic Cathinones** appears to have dramatically reduced the availability of those substance in Broward County and across all of Florida in 2016.

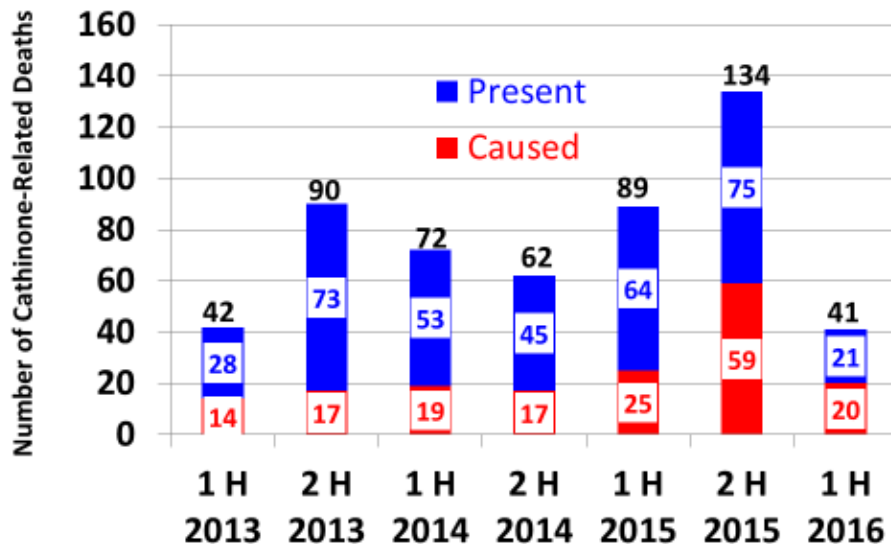
An epidemic of the synthetic cathinone, *alpha*-PVP, the drug sold as “flakka” erupted in Broward County in September of 2014. Consequences of its abuse rapidly escalated in 2015 with the drug linked to thousands of hospital emergency cases many from the excited delirium syndrome. Broward County had more crime lab cases of *alpha*-PVP than any other county in the nation.

A Flakka Response Community Action Team was formed in April 2015 under the direction of the United Way of Broward County Commission on Substance Abuse, the Broward Addiction Recovery Center, the Broward Sheriff's Office and numerous other federal and local partners. Their work resulted in almost daily town hall meetings, numerous media alerts, development of a medical emergency protocol, and trainings for first responders. In part because of worldwide negative media coverage about flakka as well as diplomatic efforts, the government of China banned *alpha*-PVP and 115 other novel psychoactive substances on October 1, 2015. By the end of 2015 hospital emergency department cases, arrests, and treatment admissions related to *alpha*-PVP abuse dramatically declined. By early 2016 it had disappeared from street drug sales.

There were 41 synthetic cathinone deaths in all of Florida during the first half of 2016 compared to 223 in calendar year 2015 and 134 in 2014. Among the 2016 deaths half of the synthetic cathinone cases were attributed as being a cause of death.

There were 63 *alpha*-PVP deaths in Broward County from September 27, 2014 to December 11, 2015 and none since that date.

Synthetic Cathinone Deaths in Florida: Jan 2013 – Jun 2016



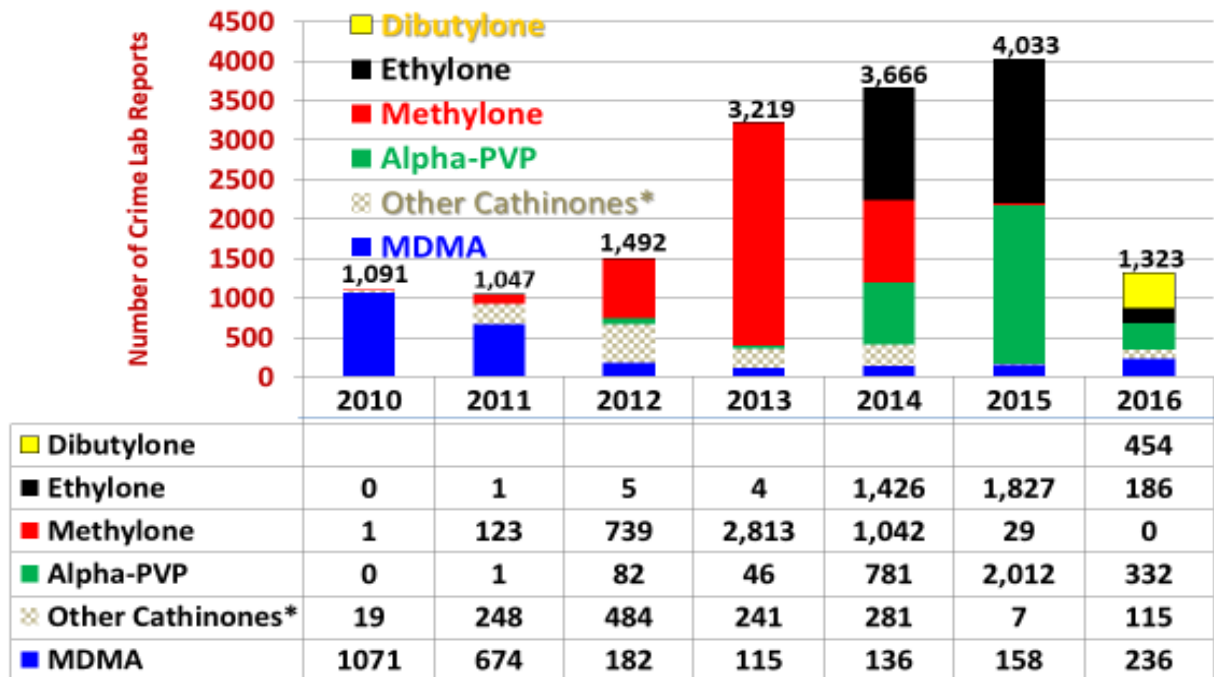
Source: Florida Medical Examiners Commission 2016 Interim Report

There were 70 Poison Information Center exposure calls for synthetic cathinones in Florida during 2016 including 9 from Broward County. Exposure calls involve cases usually from a hospital emergency department where a patient is experiencing adverse consequences after smoking or ingesting a substance. During the first quarter of 2017 there were 11 exposure calls for synthetic cathinones Statewide and only 1 from Broward County.

There were 1,087 crime lab reports for synthetic cathinones during 2016 in Florida (not including MDMA as shown in the chart below), a 72-% decrease from 3,875 in 2015 compared to previous year totals of 3,530 in 2014, 3,104 in 2013, 1,310 in 2012, and 373 in 2011. Among the 2016 crime lab reports there were 454 for DiButylone as well as 332 for *alpha*-PVP, 186 for ethylone and 115 for N-Ethylpentylone. DiButylone, Ethylone, and N-Ethylpentylone were usually sold as “Molly” capsules or powder. There were also 236 crime lab cases for MDMA in 2016.

The graph below charts the ever changing synthetic cathinones detected in Florida crime labs from 2010 to 2016. MDMA was the major club drug sold as Ecstasy in 2010 with 1,071 Florida crime lab cases that year. By 2013 real MDMA had been largely replaced by Methylone which was sold as Mollys and falsely promoted as “pure MDMA.” In mid-2014 China banned Methylone which then practically disappeared in Florida crime lab cases the following year as illustrated by the red portions of the bar graph below. In 2014 and 2015 Ethylone had replaced Methylone as the major Molly drug and alpha-PVP or Flakka escalated to be the major cathinone in Florida. Following their ban by China in October 2015 both Flakka and Ethylone dramatically declined in 2016 as both DiButylone and N-Ethylpentylone arrived as the new Mollys. Neither of those two new drugs had been included in the Chinese ban. These data offer some of the first evidence that demonstrates the success of China’s action.

The Changing Face of Ecstasy, Molly, Flakka, et al in Florida Crime Lab Reports 2010-2016



*Note: The 115 Other Cathinones in 2016 were all N-Ethylpentylone

Source: US DEA - National Forensic Laboratory System Data Queried May 22, 2017

In calendar year 2016 there were 127 crime lab cases for *alpha*-PVP in Broward County accounting for 2% of all crime lab exhibits and there were also 22 reports for Ethylone and another 22 reports for N-Ethylpentylone each representing 0.35% of local crime lab exhibits.

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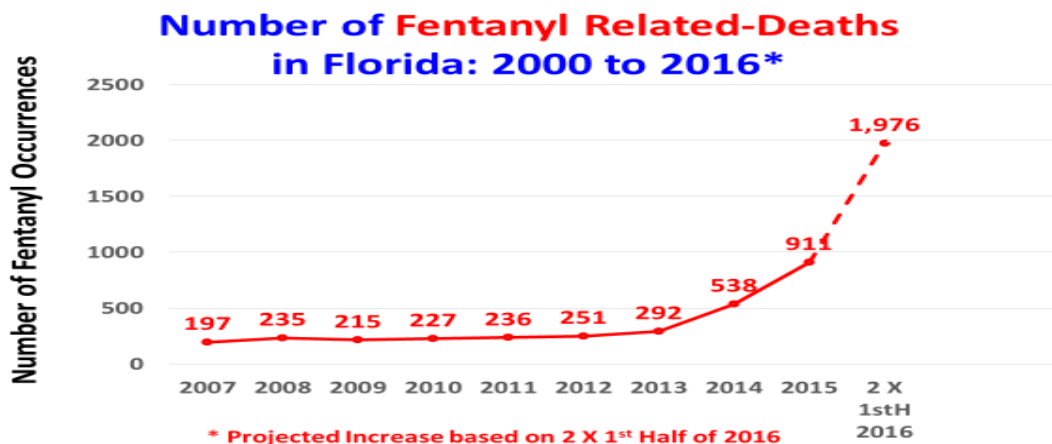
Opiates (including non-pharmaceutical analogues and pharmaceutical opioids and heroin)

Non-Pharmaceutical Opioid Analogues

- **Non-pharmaceutical fentanyl** and its analogues from foreign clandestine labs are the major factor for the dramatic increase in opioid deaths related to adulterated heroin and counterfeit medications in Broward County and all of Florida.

The increasing availability of poisonous fentanyl analogues and their distribution are critical issues related to the escalation of deaths from the opiate epidemic. These novel psychoactive opiates are found not only as adulterated street heroin and cocaine but also as counterfeit medications including fake “Xanax®” pills and as oxycodone and hydrocodone tablets. There were at least 9 deaths in Pinellas County, Florida attributed to counterfeit medications laced with fentanyl during early 2016. Other opiate analogues include U-47700 which also has been reported in Florida.

The key measure of fentanyl consequences is the number of deaths attributed to it. In previous years medical examiner reports in Florida included both pharmaceutical fentanyl as well as its non-pharmaceutical analogues from clandestine labs mostly produced in China, Mexico, and Canada. Beginning in early 2016 some Florida medical examiner officers have been able to identify specific fentanyl analogues in their toxicology reports. The graph below illustrates the escalation of fentanyl-related deaths in Florida beginning in 2014 with the introduction of the drug’s analogues into the illicit drug market. Between 2007 and 2013 fentanyl deaths total from 200 to nearly 300 per year. Most of those deaths are believed to have been related to non-medical use of pharmaceutical fentanyl. Yet the sharp rise in fentanyl occurrences detected in deceased persons in Florida from 2014 to 2016 is due to non-pharmaceutical fentanyl analogues. The projected 1,976 fentanyl deaths for all of 2016 is based on doubling the 988 occurrences in the first six months of that year which includes 183 reports of substances specifically identified as fentanyl analogues. However, several Florida medical examiners warn that the most dramatic rise of opioid deaths and particularly those from poisonous fentanyl analogues will be seen in the second half of 2016 due in part to the arrival of carfentanil, the most toxic of opioids considered to be 10,000 more potent than morphine.

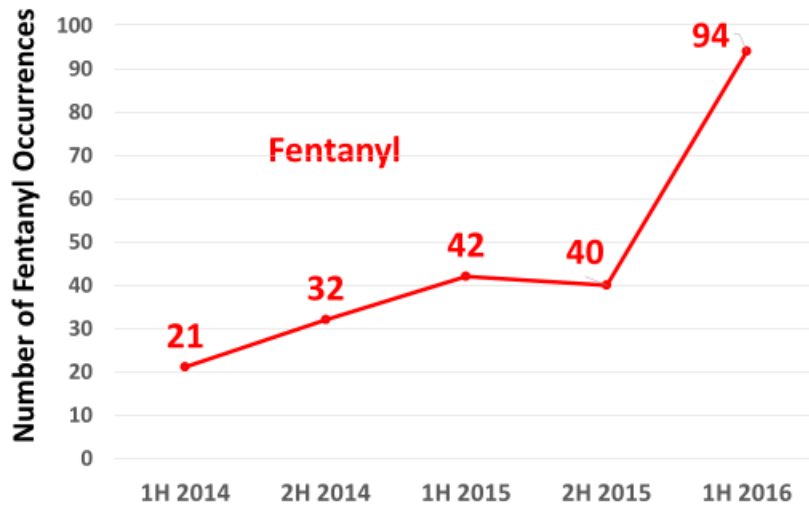


Source: Florida Medical Examiners Commission Reports

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There were 94 fentanyl deaths including mostly non-pharmaceutical fentanyl analogs in Broward County during the first half of 2016, more than double the numbers from the two previous semi-annual periods in 2015. The Broward County Medical Examiner also reports a significant increase in fentanyl analogues detected in decedents in the second half of 2016 including 43 with carfentanil between mid-July and early November.

Fentanyl Occurrences Among Deceased Persons in Broward County FL: Jan 2014-Jun 2016



Source: FDLE - Florida Medical Examiners Commission

Nonmedical Use of Prescription Opioids

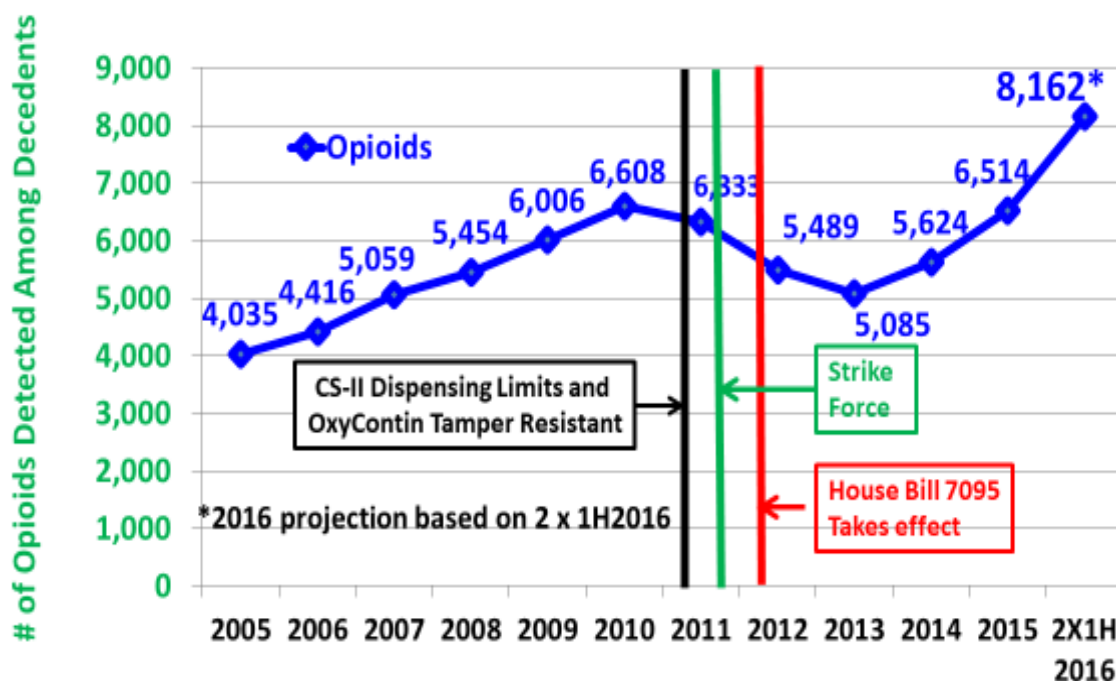
- Deaths related to the non-medical misuse of **prescription opioids** and particularly oxycodone have increased since their decline from 2011 to 2013 following Florida’s crackdown on prescription drug diversion.

In the first decade of the 21st Century there was a dramatic increase in the availability of diverted pharmaceutical opioids and deaths linked to their non-medical misuse as well as primary addiction treatment admissions for prescription opioids. Numerous new laws and regulations took effect beginning in 2010 along with the abuse-deterrent reformulation of high dose extended release opioids. The collective impacts of these supply-reduction strategies are reflected in declining opioid deaths beginning in 2011. At the same time heroin deaths increased sharply from 2012 to 2016 across all of Florida, rising 1,423-% from 57 in 2011 to a projected 868 in 2016 based on doubling the number from the first half of that year. The sharp escalations of heroin use, treatment admission, and deaths in Florida along with stable and high levels of prescription opioid indicators constitute an opiate epidemic.

In 2010 there were 6,608 opioids detected in deceased person in Florida. That toll steadily declined 23-% to 5,085 by 2013 and then increased to 5,624 opioid occurrences in 2014 and then to 7,293 in 2015. The projected number of opioid occurrences (not including heroin) among deceased person in 2016 is 8,162 based on the first six months of the year. The projected total includes 1,756 occurrences for

morphine, many of which are believed to actually be heroin, and 1,976 fentanyl occurrences including most that are considered to be non-pharmaceutical fentanyl from foreign clandestine labs used to adulterate street heroin or sold as counterfeit medications.

Number of Nonmedical Rx Opioids Occurrences Detected among Decedents in Florida 2005 – 2016*

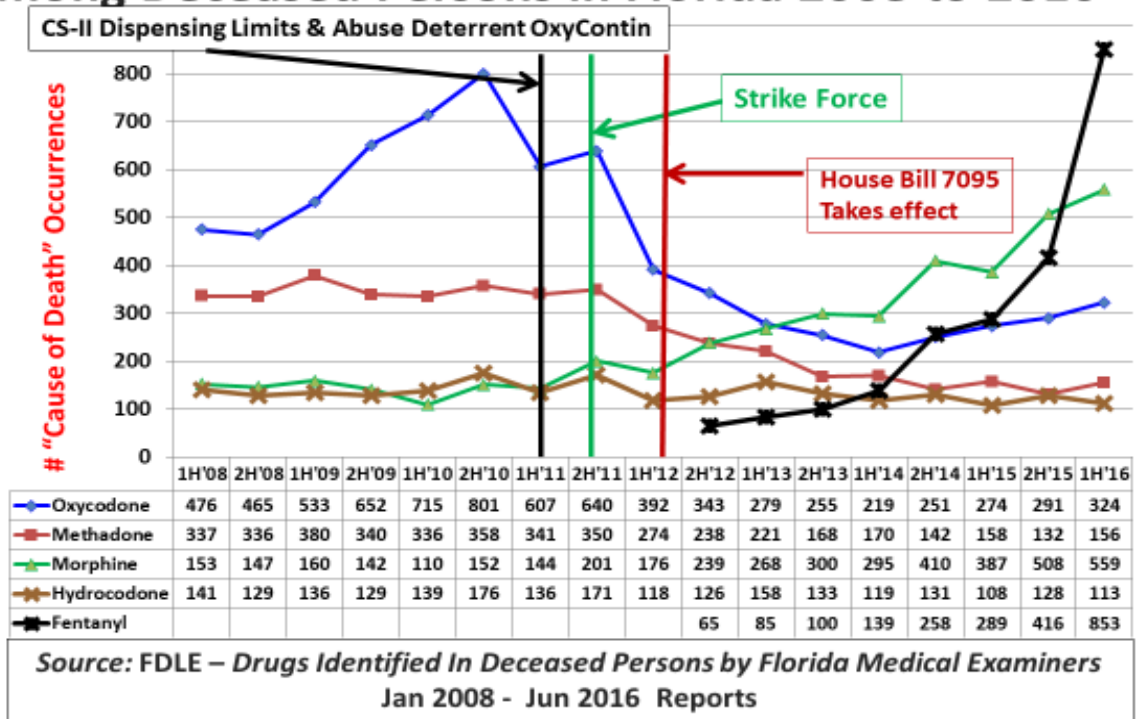


*Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners
Jan 2005 - June 2016 Reports*

Seventy-five percent of the 2016 opioid deaths (not including heroin) are related to 5 of the 11 opioids tracked by the Florida Medical Examiners Commission. Those 5 are morphine, oxycodone, hydrocodone, methadone, and fentanyl totaling 3,063 medical examiner occurrences in the first six months of 2016 across Florida. Many if not most of the fentanyl medical examiner reports from 2014 to 2016 are believed to be non-pharmaceutical fentanyl analogues from foreign clandestine labs.

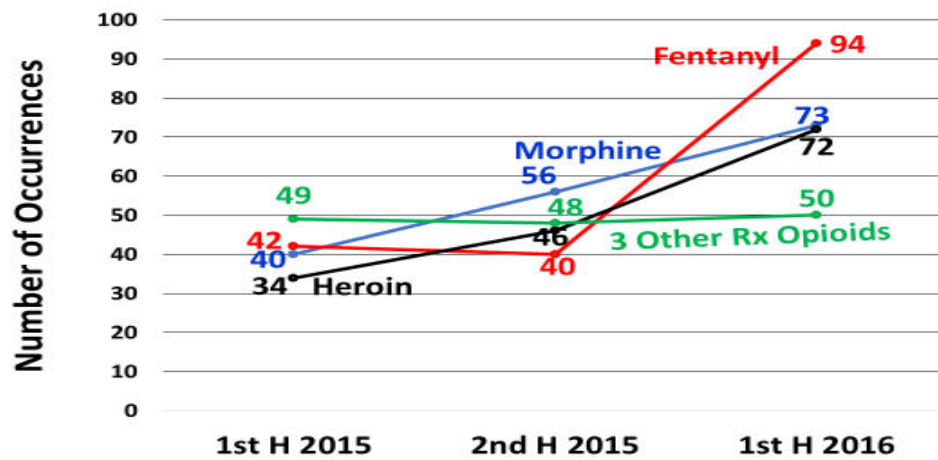
The graph on the next page tracks the number of lethal opioid occurrences in Florida where the drug was considered to be “a cause of death” for the 5 most prevalent prescription opioids by semi-annual reporting periods.

Number of Selected **Lethal** Opioid Occurrences Among Deceased Persons in Florida 2008 to 2016



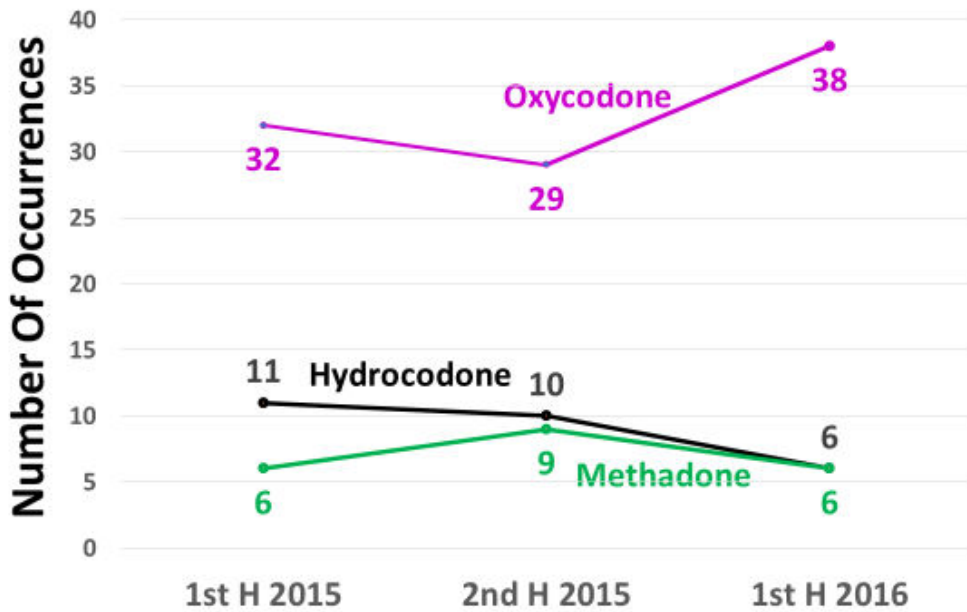
In Broward County opioid occurrences (not including heroin) detected in deceased persons during the first half of 2016 totaled 217 including 38 for oxycodone, 6 for hydrocodone, 6 for methadone, 73 for morphine, and 94 for fentanyl including non-pharmaceutical fentanyl analogues. Seventy-nine percent of these occurrences were considered to be a cause of death.

Heroin, Morphine, Fentanyl, and 3 Other Rx Opioid Occurrences Among Deceased Persons in Broward County FL: Jan 2015-Jun 2016



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Occurrences of 3 Selected Rx Opioids among Deceased Persons in Broward County: Jan 2015 -June 2016



Source: FDLE - Florida Medical Examiners Commission

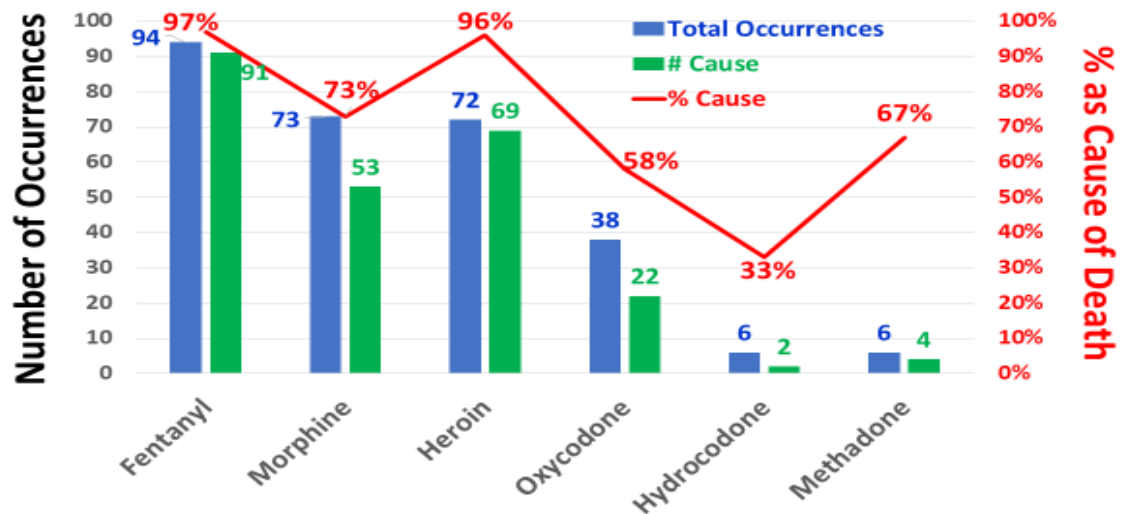
Number of Selected Opioid Occurrences among Deceased Persons in Broward County: Jan 2015 – June 2016

Opioid	1st H 2015	2nd H 2015	1st H 2016
Fentanyl	42	40	94
Morphine	40	56	73
Heroin	64	46	72
Oxycodone	32	29	38
Hydrocodone	11	10	6
Methadone	6	9	6

Source: FDLE - Florida Medical Examiners Commission

The graph below tracks (1) the number of drug occurrences during the first half of 2016 from the Broward County table above for the various opioids shown in the blue bars, (2) the number of those cases considered to be “a cause of death in the green bars, and (3) the percent of each opioid’s occurrences which are “a cause of death” on the red line graph.

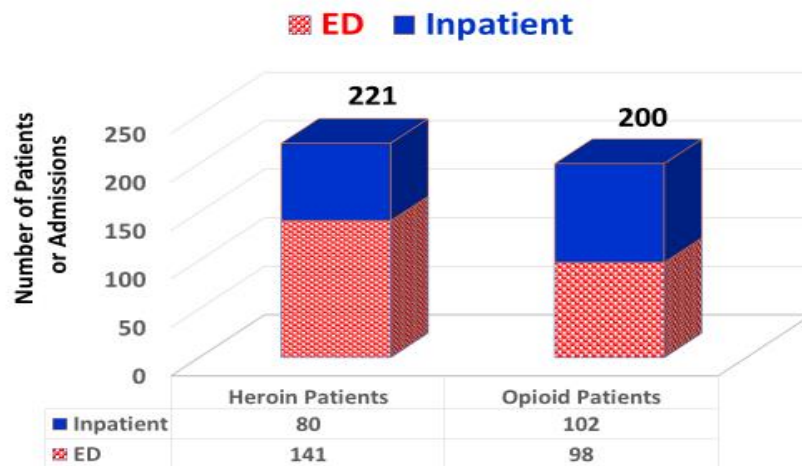
Opioid Occurrences and Number and Percent as Cause of Death
Among Deceased Persons in Broward County FL : Jan 2016-Jun 2016



Source: 2016 FL Medical Examiners Commission Interim Report

The most currently available data on hospital overdose cases are from the first half of 2016 when there were 200 hospital prescription opioid overdose poisonings in Broward County including 98 emergency room discharges and 102 admitted as inpatients.

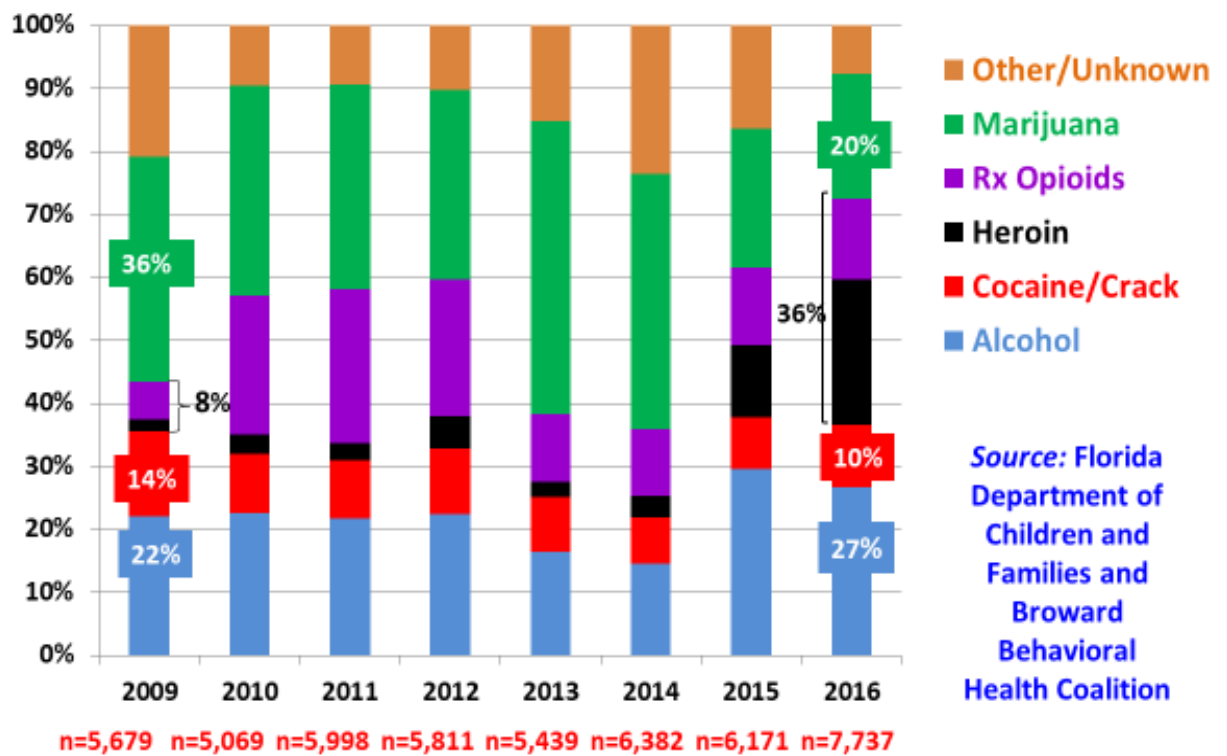
Overdose Poisoning Cases for Heroin and Opioids, in Broward County Hospitals: Jan-Jun 2016



Source: Florida Agency for Health Care Administration

There were 991 admissions for opiates other than heroin reported as primary treatment admissions in Broward County during 2016 accounting for 13% of all treatment admissions (including alcohol). Females accounted for 51 % of the opioid clients and none of the patients were younger than 18 years of age, 11% were between 18 and 25 years of age, 52% were aged 26-34, and 37% were aged 35 or older. Injecting drug use was reported by 45% of the treatment clients whose primary substance of abuse was an opiate other than heroin. Heroin accounted for an additional 23% of the 2016 primary admissions for a combined rate of 36% for all opiates (heroin and opioids) up from 24% in 2015 and only 8% in 2009.

Percent of Treatment Admissions by Primary Drug Broward County: 2009 - 2016



There were 5,506 prescription opioid crime laboratory reports, or 10% of the 53,777 total primary, secondary, and tertiary NFLIS reports for all substances in Florida during 2016. The total opioid reports included 1,645 for oxycodone, 1,196 for hydromorphone, 1,008 for fentanyl, 757 for hydrocodone, 470 for morphine, and 430 for buprenorphine.

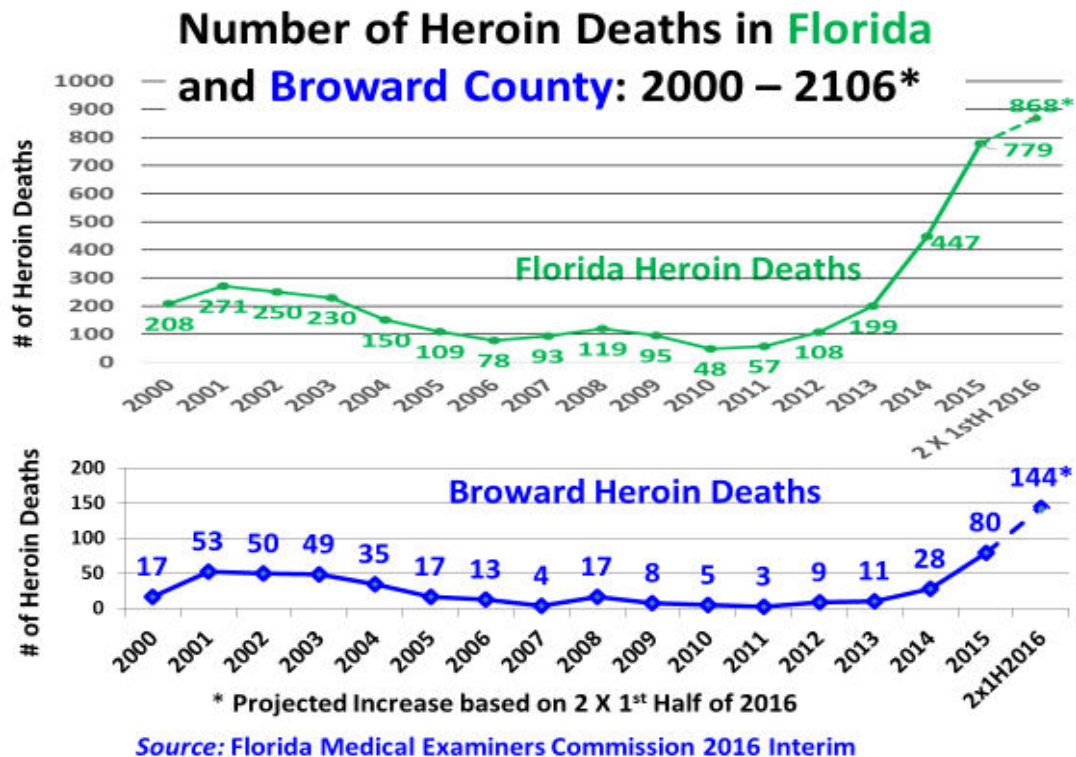
In Broward County, there were 658 prescription and clandestine opioid crime laboratory reports, or 10% of the 6,368 NFLIS reports in 2016 including 238 for oxycodone, 110 for fentanyl, 90 for hydromorphone, 49 for buprenorphine, 48 for hydrocodone, 46 for morphine, 35 for carfentanil, 22 for methadone, and 20 for furanyl fentanyl.

Heroin

- Most all heroin deaths in Florida involve polysubstance use in combination with other drugs.

Heroin-related deaths in the State of Florida increased 11-% rising from 779 in 2015 to a projected 868 in 2016 based on the first half of the year. Heroin was considered the cause of death in 94% of the cases in Florida during 2016. Many of the deaths involved polydrug use with 98% of the 2016 cases having one or more other substances present at the time of death. There was no heroin-related decedent under age 18, 18% were 18-25, 29% were 26-34 while 35% were aged 35-50 and 18% were over 50 years of age.

In Broward County heroin deaths increased 80-% from 80 in 2015 to 144 in 2016 based on the first half of the year. Heroin was ruled “a cause of death” for 95% of the cases in 2016 and was found in combination with at least one other drug in 90% of the deaths. Among the Broward County heroin decedents in the first half of 2016, none were under age 18, 21% were 18-25, and another 21% were 26-34, 40% were aged 35-50 and 18% were over 50 years of age.



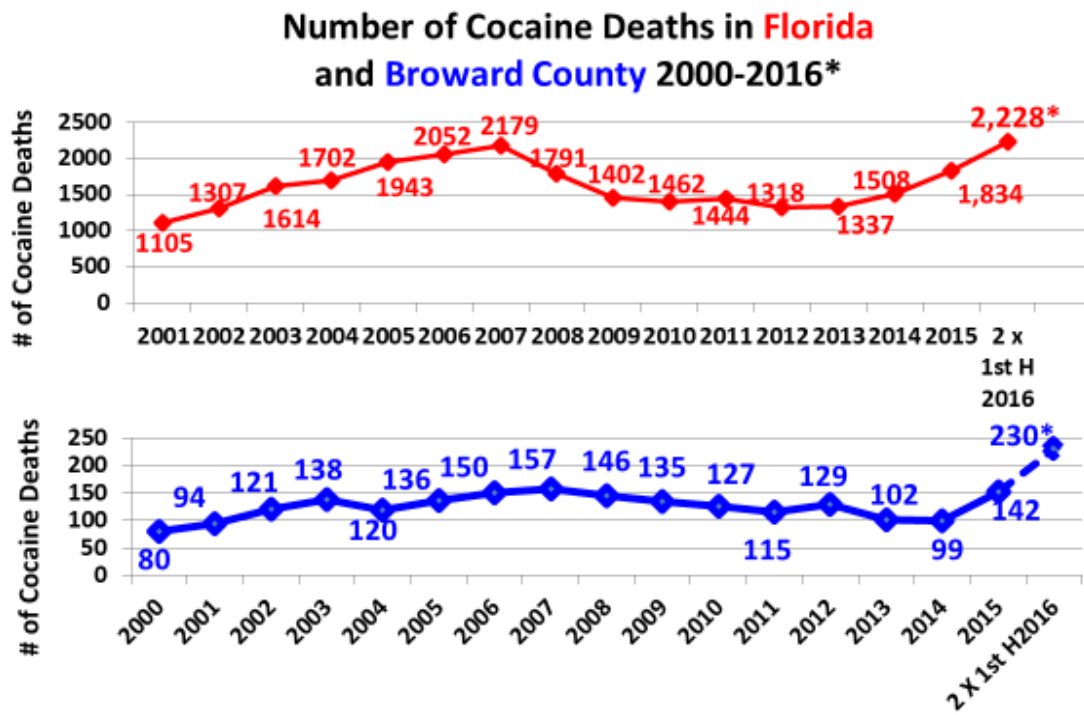
Florida heroin hospital overdose poisonings totaled 2,001 in the first six months of 2016. In the first half of 2016, 80% of the heroin overdoses occurred among emergency department patients and 20% were admitted as inpatients. In Broward County there were 221 hospital cases for heroin overdose poisonings in the first six months of 2016; 64% were treated in and discharged from an emergency department and 36% were admitted as inpatients.

Primary addiction treatment admissions for heroin totaled 12,397 patients in all of Florida during 2016 accounting for 13.7% of all admissions up from 10.4% in 2015. In Broward County, primary heroin admissions totaled 1,791 or 23% of all admissions in 2016 up from 11% in 2015. Males accounted for 59% of the 2016 clients. Nine (or 0.5%) of the clients were under 18 years of age, 10% were 18-25, 51% were 26-34 and 38% were age 35 or older. Injecting heroin was reported by 88% of clients. Intranasal snorting was reported by 10% of clients and 1% reported smoking heroin.

There were 4,633 heroin crime laboratory reports or 8.6% of the 53,777 total primary, secondary, and tertiary NFLIS reports for Florida in 2016. Heroin ranked fourth among all substances analyzed. In Broward County, there were 530 heroin crime lab cases in 2016 or 8.3% of all drugs ranking fourth among all substances.

Cocaine/Crack

- **Cocaine** deaths have been steadily increasing since 2013 attributed in part to polysubstance use with heroin and other opioids.



* Projected Increase based on 2 X 1st Half of 2016

Source: Florida Medical Examiners Commission 2016 Interim Report

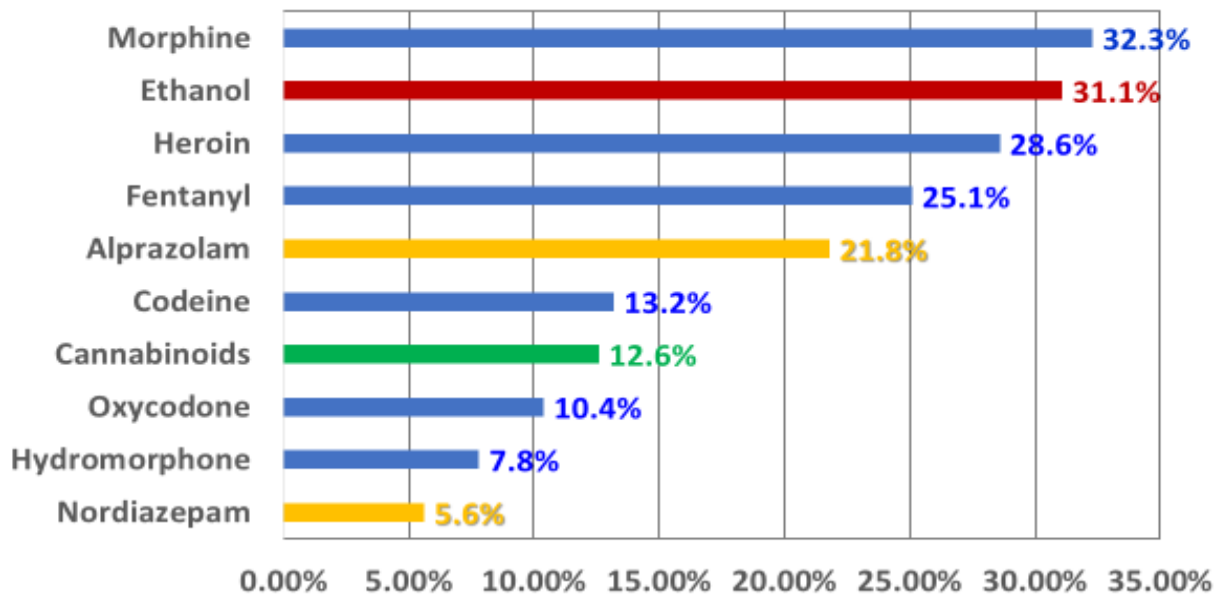
Cocaine-related deaths increased 21-% between 2015 and 2016 across all of Florida with a projected 2,228 medical examiner occurrences for the year based on the first six months of 2016. The drug was considered the cause of death for 56% of the 2016 cases. Polydrug use was detected in 88% of the 2016 cases having one or more other substances present at the time of death. Many of the 2016 polysubstance cocaine deaths are considered to be in combination either knowingly or unknowingly with an opiate.

There were 7 cocaine-related decedent under age 18; 12% were 18-25, 24% were 26-34 while 37% were aged 35-50 and 26% were over 50 years of age.

In Broward County cocaine-related deaths increased 51-% between 152 in 2015 and 230 in 2016 based on twice the number of deaths during the first half of 2016. The drug was considered the cause of death for 76% of the 2016 cases, and polydrug use was detected in 84% the cocaine-related deaths. There was no cocaine-related decedent under age 18; 10% were 18-25, 20% were 26-34 while 46% were aged 35-50 and 23% were over 50 years of age.

Polysubstance abuse of opioids with cocaine either knowingly or unintentionally with non-pharmaceutical fentanyl-adulterated cocaine are considered a key factor in the rise of cocaine-related deaths nationally and in Florida. A review of deaths caused by cocaine in Florida during 2015 revealed 32% were also found with morphine which most likely was heroin along with another 29% where heroin itself was identified. Fentanyl was found in 25% of the 2015 Florida cocaine-induced deaths. Other opioids detected included codeine in 13% of the cases, oxycodone in 10% and hydromorphone in 8%. Non-opioid drugs found present in the 2015 cocaine-caused deaths included ethanol in 31% of the cases, alprazolam in 22%, cannabinoids in 13%, and nordiazepam in 6%.

Top 10 Co-Occurring Substances Among Florida Cocaine-Caused Deaths in 2015



Sources: Florida Medical Examiners Commission 2015 Report and Florida drug-Related Outcomes Surveillance and Tracking (FROST) System

Primary addiction treatment admissions for cocaine totaled 6,640 patients in all of Florida during 2016 accounting for 7% of all admissions. In Broward County there were 763 cocaine primary treatment admission in 2016 or 10% of all clients. Males accounted for 65% of these clients with crack cocaine specified by 72% of all the cocaine patients. One of the admissions was for someone under 18 years of

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age, 11% were 18-25, 23% were 26-34 and 65% were age 35 or older. Smoking cocaine was the route of administration reported by 58% of the cocaine clients with intranasal sniffing cited by 36% and 3% reported injecting cocaine. The remaining 3% reported oral or other or unknown routes of administration.

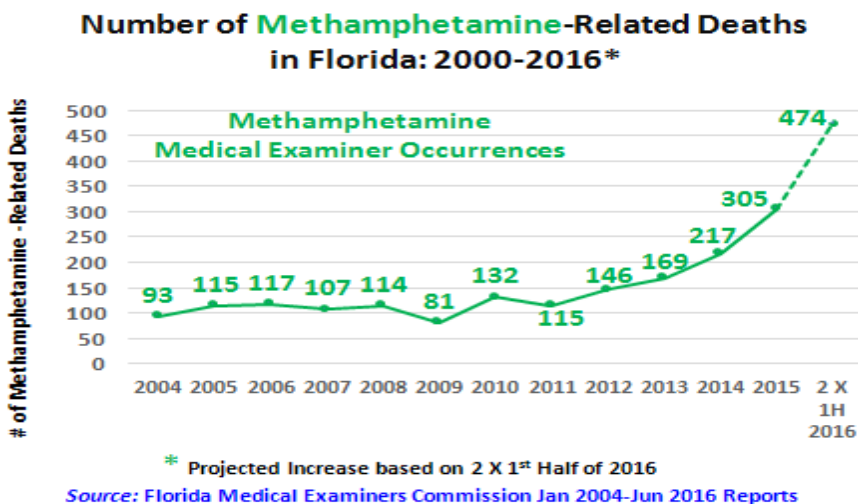
There were 17,960 cocaine crime laboratory reports or 33% of the 53,777 total primary, secondary, and tertiary NFLIS reports for Florida in 2016. Cocaine ranked first among all substances analyzed. The 2,188 cocaine crime lab cases in Broward during 2016 accounted for 34% of all cases raking number one among all substances.

Methamphetamine

- Indicators of **methamphetamine** remain relatively low in Broward County compared to other parts of Florida.

The highest rates of methamphetamine treatment admissions and crime lab cases in Florida are in the Tampa Bay, Western Panhandle, and Orlando areas. Most methamphetamine being used in Florida is produced in Mexico. Domestic clandestine laboratory production in Florida appears primarily still to be in the north and central parts of the State using the 2-liter soda bottles “shake and bake” method that yields a relatively small amount of methamphetamine for personal use by the “cook” and for sharing with those who may have helped supply the precursor, pseudoephedrine.

Indicators of methamphetamine have been steadily increasing in Florida since 2011 with deaths related to the drug escalating 312-% over that five-year period and are projected to increase 55-% between 2015 and 2016. Methamphetamine was detected among 237 deceased persons during the first half of 2016 in Florida, compared with 130 in the first half of 2015 and 305 for the full year of 2015. Methamphetamine was considered a cause of death in 114 (or 48%) of the cases during the first half of 2016. There were also 266 reports of amphetamine detected among decedents across Florida in the first 6 months of 2016, compared to 179 such occurrences in the first half of 2015. Amphetamine was considered the cause of death in 73 (or 27%) of the cases in the first half of 2016. County-level medical examiner data are not available for methamphetamine or amphetamine-related deaths.



There were 14 Sympathomimetic Amines deaths in the first half of 2016 across Florida with 2 of the occurrences being considered a cause of death compared to 15 such occurrences in calendar year 2015 of which 6 were considered to be a cause of death. Sympathomimetic Amines are a group of stimulants including the appetite suppressant, phentermine, and other sympathomimetic amines not tracked elsewhere in this report.

There were 3,902 primary treatment admissions (4% of all admissions) for methamphetamine in Florida during 2016 and 101 (1.3% of all admissions) in Broward County. Males accounted for 75% of the Broward methamphetamine clients and 35% of all clients were between 18 and 34 years of age while 65% were age 35 and above. Smoking methamphetamine was the route of administration reported by 66% of these clients with intranasal sniffing cited by 11% and 21% reported injecting methamphetamine. The remaining 2% reported oral route of administration. Private treatment counselors continued to report serious methamphetamine abuse problems among men who have sex with men and who are often not included in the number of clients from treatment programs receiving public funding. These clients are at high risk of infectious disease transmission related to both unprotected sexual activity and injecting drug use.

There were 339 primary treatment admissions for amphetamine in Florida during 2016 and 45 in Broward County. Females accounted for 58% of the Broward amphetamine clients and 71% of these clients were between 18 and 34 years of age while 29% were age 35 and above. Smoking was the preferred route of administration cited by 49% of the amphetamine clients.

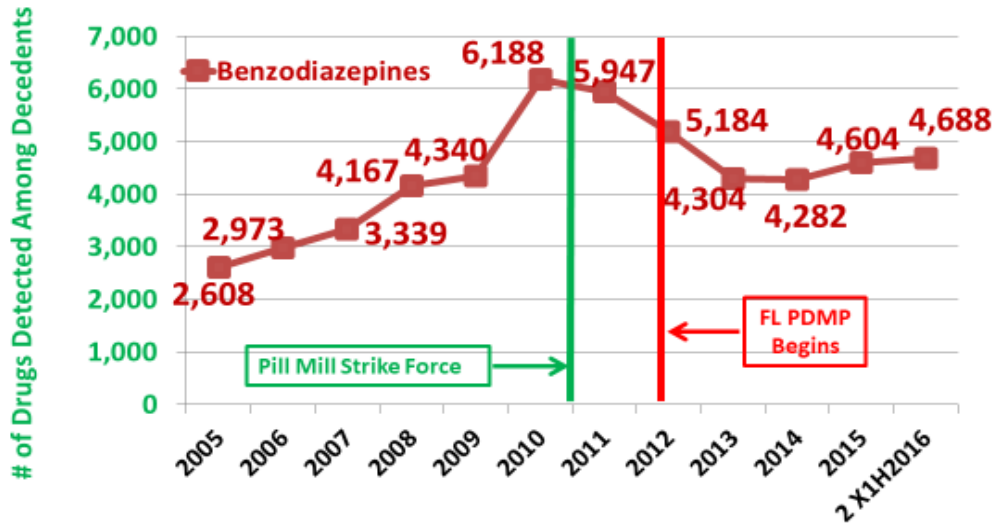
There were 6,296 methamphetamine crime laboratory reports or 12% of the 53,777 total primary, secondary, and tertiary NFLIS reports for Florida in 2016. Methamphetamine ranked third among all substances analyzed. The highest numbers of cases were from the Tampa Bay, Orlando, and Panama City areas. There were also 575 amphetamine crime laboratory reports, or 1% of the 2016 total ranking 11th among all substances. In Broward County there were 247 methamphetamine crime lab cases or 3.9 % of all items analyzed ranking fifth among all drugs. Broward also reported 140 amphetamine crime lab exhibits or 2.2% of all cases ranking eighth.

Benzodiazepines

- Benzodiazepine deaths increased in 2015 and 2016 following sharp declines from 2011 to 2013 paralleling trends of prescription opioid fatalities.

The number of benzodiazepines detected in deceased persons in Florida peaked at 6,188 occurrences in 2010 prior to various efforts to reduce prescription drug diversion. That number then declined steadily to 4,304 in 2013 and modestly increased to 4,604 occurrences in 2015 and is projected to increase to 4,688 in 2016 based on the total from the first 6 months of that year. Alprazolam was the number one benzodiazepine detected representing 36% of the 2016 reports followed by nordiazepam (14%), diazepam (13%), clonazepam (10%), and temazepam (9%). County-level medical examiner data are not available for benzodiazepine-related deaths, however there were 69 alprazolam deaths in Broward County in the first half of 2016 of which 68% were considered “a cause of death” and 94% of the cases were detected with at least one other drug found present.

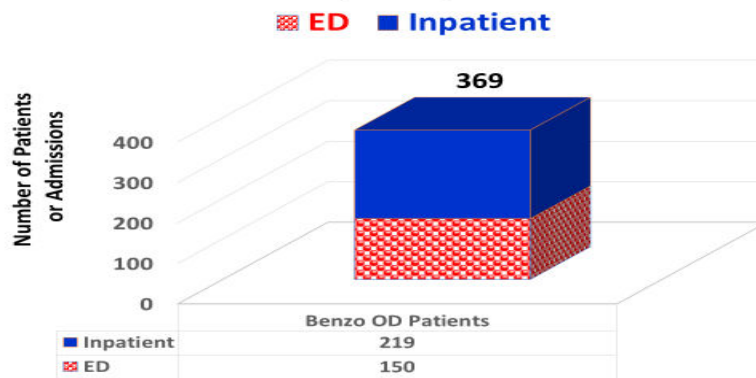
Number of Nonmedical Rx Benzodiazepine Reports Detected among Deceased Persons in Florida 2005 – 2016*



*Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners
Jan 2005 - Jun 2016 Reports*

Across all of Florida benzodiazepine hospital overdose poisonings totaled 4,130 in the first six months of 2016 with 37% of those overdoses having occurred among emergency department patients and 63% being admitted as inpatients. Broward County reported 369 of those cases with 41% of those patients having been discharged from an emergency department and 59% being admitted as inpatients.

Overdose Poisoning Cases for Benzodiazepines in Broward County Hospitals: Jan-Jun 2016



Source: Florida Agency for Health Care Administration

There were 3,958 benzodiazepine NFLIS crime lab reports in Florida during 2016 representing 7% of all substances analyzed. Alprazolam accounted for 84% of the benzodiazepine crime lab cases followed by clonazepam (11%), and diazepam (4%). In Broward County there were 649 benzodiazepine crime lab cases or 10% of all drugs detected. Alprazolam accounted for 86% of the Broward benzodiazepine crime lab cases followed by clonazepam (9%), diazepam (3%), and lorazepam (2%).

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