Miami-Dade County Substance Abuse Trends and Needs Assessment
2017
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HIGHLIGHTS

- **Non-pharmaceutical fentanyl** from foreign clandestine labs is the major factor for the dramatic escalation in opiate deaths related to adulterated heroin and counterfeit medications.
- 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 Southeastern Florida and across the State during 2016 involved at least one or more other drugs detected in the decedents demonstrating the polysubstance abuse patterns of the opioid epidemic.
- The number of **Benzodiazepine** non-fatals hospital overdose poisoning cases (n=1,047) exceeded those for either heroin (n=759) or prescription opioids (n=508) in the 3 counties of Southeastern Florida during the first half of 2016.
- Rising numbers of **Cocaine**-related deaths are attributed to its increased production and availability from Colombia as well as its use either knowingly or unknowingly with opioid and particularly non-pharmaceutical fentanyl analogs.
- The prevalence of **current alcohol use and binge drinking** among Miami-Dade County students has steadily declined since 2012 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 third of all patients admitted to addiction treatment in Miami-Dade County during 2016 with nearly three-fourths of those adult patients being over the age of 34.
- **Marijuana** was the primary drug of use reported by 93% of adolescents younger than 18 years of age entering addiction treatment programs in Miami-Dade County during 2016 as prevalence rates of marijuana use have declined since 2014 for high schoolers while stabilizing for middle school students.
- The number of **Synthetic Cannabinoid** crime lab cases in Florida as well as Poison Information Center exposure calls stabilized between 2015 and 2016 as use by high school students has continued to steadily decline since 2012.
- While **cigarette smoking** by youth has dramatically declined over the past decade, more than three times as many Miami-Dade County high school students and more than four times as many middle school students are current users of e-cigarettes as compared to regular cigarette users.
- The decline of crime lab reports and consequences from use of **Synthetic Cathinones** in 2016 appear to have been influenced by the ban of **alpha-PVP** ("flakka") and 115 other substances by China in October 2015.
- Indicators of **methamphetamine** abuse are relatively low in Southeastern Florida but have been steadily increasing since 2011 in the central part of the State and in the counties of the Northwestern Panhandle and along the Gulf Coast.
Data Sources

Florida Department of Law Enforcement: Florida Medical Examiners Commission 2016 Annual Report on Drugs Detected in Deceased Persons in Florida: January – December 2016 Released November 2017

Florida Department of Children and Families: Primary Drug Treatment Admissions in Florida and Miami-Dade County for Calendar Year 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 – Miami-Dade 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


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 College of Medicine: Florida drug-Related Outcome Surveillance and Tracking (FROST) System at [www.frost.med.ufl.edu](http://www.frost.med.ufl.edu)
PATTERNS AND TRENDS of DRUG USE

- Opioids including non-pharmaceutical analogues, prescription opioids, and heroin
- Benzodiazepines
- Cocaine
- Alcohol – Underage Drinking and Adult Problematic Use
- Marijuana
- Synthetic cannabinoids
- Tobacco
- Synthetic Cathinones
- Methamphetamine

OPIOIDS

Non-Pharmaceutical Opioids

- Non-pharmaceutical fentanyl from foreign clandestine labs is the major factor for the dramatic escalation in opiate deaths related to adulterated heroin and counterfeit medications.

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 2,670 fentanyl deaths for all of 2016 includes 1,023 reports of substances specifically identified as fentanyl analogues. Several Florida medical examiners report that the most dramatic rise of opioid deaths and particularly those from poisonous fentanyl analogues will be
were 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.

**Exhibit - Number of Fentanyl-Related Deaths in Florida and Miami-Dade County: 2007-2016**

![Graph showing the number of fentanyl-related deaths in Florida from 2000 to 2016.](image)

*Source: Florida Medical Examiners Commission Reports*

**Fentanyl Occurrences Among Deceased Persons in Miami-Dade County FL: 2014 - 2016**

![Graph showing the number of fentanyl occurrences among deceased persons in Miami-Dade County from 2014 to 2016.](image)

*Source: Florida Medical Examiners Commission*

Nonmedical Use of Prescription Opioids

Miami-Dade County Substance Abuse Trends and Needs Assessment
• 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 impact of these supply-reduction strategies as well as a pill mill law enforcement strike force and funding of the State’s PDMP (House Bill 7095) are seen in declining opioid deaths beginning in 2011.

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 number of opioid occurrences (not including heroin) among deceased person in 2016 was 9,598 including those found as present and as a cause of death. The projected total includes 2,040 occurrences for morphine, many of which are believed to actually be heroin, and 2,670 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.

**Exhibit - Number of Rx Opioid Occurrences Among Deceased Persons in Florida: 2005-2016**

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 just the first six months of 2016 in all of Florida. Most of the fentanyl reports from 2014 to 2016 are believed to be non-pharmaceutical fentanyl analogues from foreign labs and most of the morphine cases are considered to be heroin. The state total for occurrences of those five opioids during the first half of 2016 includes 827 reports in the 3 Southeast Florida counties representing a 99%-increase from the 416 occurrences for the same 5 opioids during the first half of 2015. The total opioid occurrences for the first six months of 2016 includes 368 in Palm Beach County, 242 in Miami-Dade and 217 in Broward County. Seventy-seven percent of these occurrences were considered to be a cause of death.

The graph on the next page tracks the number of lethal opioid occurrences in Florida where the named drugs were considered to be “a cause of death” for the 5 most prevalent opioids (not including heroin) by semi-annual reporting periods. The total for the first half of 2016 for the State of Florida was 2,005 which includes 640 lethal reports from the 3 Southeast Florida counties composed of 306 in Palm Beach County, 172 in Broward, and 162 in Miami-Dade County.

Exhibit - Number of Lethal Selected Opioid Occurrences in Florida: 2008 -2016
In the 3 Southeastern Florida counties, opioid occurrences (not including heroin) detected in deceased persons during the first half of 2016 totaled 827 including 131 for oxycodone, 34 for hydrocodone, 23 for methadone, 268 for morphine, and 371 for fentanyl including non-pharmaceutical fentanyl analogues. Miami-Dade County had 569 “cause of death,” non-heroin opioid occurrences in all of 2016.

Exhibit - Number of Heroin and Opioid Occurrences Among Deceased Persons in Miami-Dade County

Exhibit - Number of Selected Rx Opioid Occurrences Among Deceased Persons in Miami-Dade County: January 2015 – December 2016
Exhibit - Table of Heroin and Selected Opioid Occurrences Among Deceased Person Miami-Dade County: January 2015 – December 2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl</td>
<td>37</td>
<td>65</td>
<td>90</td>
<td>258</td>
</tr>
<tr>
<td>Morphine</td>
<td>71</td>
<td>86</td>
<td>89</td>
<td>148</td>
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<tr>
<td>Heroin</td>
<td>40</td>
<td>52</td>
<td>54</td>
<td>109</td>
</tr>
<tr>
<td>Oxycodone</td>
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<td>48</td>
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<td>64</td>
</tr>
<tr>
<td>Hydrocodone</td>
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<tr>
<td>Methadone</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: FDLE - Florida Medical Examiners Commission

The graph below tracks (1) the number of opioid drug occurrences during 2016 from the State of Florida 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.

Miami-Dade County Substance Abuse Trends and Needs Assessment
The most currently available data on hospital overdose cases are from the first half of 2016 when there were 508 hospital prescription opioid overdose poisonings in the 3 Florida Southeastern counties including 225 emergency room discharges and 283 admitted as inpatients. The 508 total overdoses included 137 in Miami-Dade, 200 in Broward and 171 in Pam Beach County.
In 2016 there were 3,092 admissions for opioids other than heroin reported as primary treatment admissions in the three Southeastern Florida counties representing a 35%-% increase from the 2,298 such admissions in 2015. Included in the 2016 total were 1,800 clients in Palm Beach County, 991 in Broward County, and 301 in Miami-Dade County. Females accounted for 55% of the 2016 opioid clients across the region, and 65% were between 18 and 34 years of age and 35% were aged 35 or older. Injecting Drug use was reported by 42% of the prescription opioid clients.

A total of 1,716 prescription opioid primary, secondary, and tertiary NFLIS crime laboratory reports were filed in the 3 Southeastern Florida counties during 2016 representing 8% of all substances analyzed. This category of drugs ranked fourth among all crime lab reports from the three counties in 2016. The number of prescription opioid crime laboratory reports increased 48%-% between 2015 and 2016. Fentanyl was the most frequently reported prescription opioid as shown in the table blow, however it is not known how many of those items may have been non-pharmaceutical opiate analogues from foreign clandestine laboratories.
Heroin

- Most all Heroin deaths in Southeastern Florida and across the State during 2016 involved at least one or more other drugs detected in the decedents demonstrating the polysubstance abuse patterns of the opioid epidemic.

The number of heroin-related deaths increased sharply from 2011 to 2016 across Florida, rising nearly 17 times the 57 deaths in 2011 to 1,023 in 2016. Heroin was considered “a cause of death” in 93% of the fatalities in which it was detected in 2016. In the three Southeast Florida counties, heroin deaths increased 1,387-% from 30 in 2011 to a projected 446 for 2016. The total in Miami-Dade County was 139 heroin-related deaths in 2016 in which 96 % heroin was considered “a cause of death.” 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.

Exhibit - Number of Heroin-Related Deaths in Florida and Miami-Dade County: 2000 – 2016

<table>
<thead>
<tr>
<th>Pharmaceutical Opioid Crime Lab Cases in Southeastern Florida in 2016</th>
<th># of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>FENTANYL</td>
<td>612</td>
</tr>
<tr>
<td>OXYCODONE</td>
<td>574</td>
</tr>
<tr>
<td>HYDROMORPHONE</td>
<td>154</td>
</tr>
<tr>
<td>BUPRENORPHINE</td>
<td>99</td>
</tr>
<tr>
<td>HYDROCODONE</td>
<td>86</td>
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<tr>
<td>MORPHINE</td>
<td>85</td>
</tr>
<tr>
<td>CODEINE</td>
<td>37</td>
</tr>
<tr>
<td>METHADONE</td>
<td>27</td>
</tr>
<tr>
<td>TRAMADOL</td>
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</tr>
<tr>
<td>OXYMORPHINE</td>
<td>15</td>
</tr>
<tr>
<td>MEPERIDINE</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,716</strong></td>
</tr>
</tbody>
</table>

*Source: US DEA - National Forensic Laboratory System Data Queried May 28, 2017*
Heroin-related deaths increased 32%- rising from 337 in 2015 to a projected 446 in 2016 across the Southeast Florida region with the sharpest rise reported in Broward County. Miami-Dade had 139 heroin-related deaths in 2016. Heroin was considered the cause of death in 96% of the heroin-related cases in Southeast Florida in 2016. Many deaths involved polydrug use with 97% of the 2016 cases having one or more other substances present at the time of death and in all of the Miami-Dade heroin deaths. There was no heroin-related decedent younger than 18 years of age in the region, 22% were 18–25, 30% were 26–34, 32% were 35–50, and 16% were older than 50 years of age.

Hospital overdose cases are from the first half of 2016 when there were 759 hospital heroin overdose poisonings in the 3 Florida Southeastern counties including 529 emergency room discharges and 230 admitted as inpatients. The 759 heroin overdoses included 147 in Miami-Dade, 221 in Broward and 391 in Pam Beach County.
Primary addiction treatment admissions for heroin totaled 5,011 patients across the three-county region in 2016 accounting for 18.8% of all admissions. In 2014 heroin was the primary drug cited by 6.8% of treatment clients in the region and by 11.5% in 2015. Males accounted for 61% of the 2016 clients. There were 11 heroin treatment clients younger than 18 years of age, 15% were 18–25, 51% were 26–34, and 34% were age 35 or older. Injecting heroin was reported by 51% of clients, but that rate is probably higher because the route of administration was recorded as unknown for 38%. Intranasal snorting was reported by 6% of clients, and 1.4% reported smoking heroin. The county totals for heroin treatment primary admissions were 556 for Miami-Dade, 1,791 for Broward, and 2,664 in Palm Beach County.

Exhibit - Percent of Treatment Admissions by Primary Drug in 3 Southeastern Florida Counties: 2014-2016
There were 2,027 heroin crime laboratory reports, or 9.5% of the 21,306-total primary, secondary, and tertiary NFLIS reports for Miami-Dade, Broward, and Palm Beach counties combined in 2016. Heroin ranked third among all substances analyzed in the three counties in 2016. The number of heroin crime laboratory reports increased 45% between 2015 and 2016 and rose from fourth to third place among all substances.

**BENZODIAZEPINES**

- The number of Benzodiazepine non-fatal hospital overdose poisoning cases (n=1,047) exceeded those for either heroin (n=759) or prescription opioids (n=508) in the 3 counties of Southeastern Florida during the first half of 2016.

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 increased to 5,167 in 2016. 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 in the three Southeast Florida counties (Broward, Miami-Dade, and Palm Beach), alprazolam was detected in 242 deceased persons in the first half of 2016 with 46% of those cases considered a cause of death and 95% found in combination with some other drug.

Exhibit - Number of Nonmedical Rx Benzodiazepine Reports Detected among Deceased Persons in Florida 2005-2016
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. The three Southeastern Counties reported 1,047 of those cases with 40% of those patients having been discharged from an emergency department and 60% being admitted as inpatients. Benzodiazepines were not categorized as a separate class of drugs in 2016 addiction treatment records for the three counties. However, in 2015 they were cited by 483 clients across the region as their primary drug problem accounting for 2% of all admissions, including those for alcohol.

There were 1,446 benzodiazepine National Forensic Laboratory Information System (NFLIS) crime lab reports in 2016 in Southeast Florida representing 7% of all substances analyzed. Alprazolam accounted for 86% of the benzodiazepine crime lab cases.

**COCaine/CRAck**

- Rising numbers of Cocaine-related deaths are attributed to its increased production and availability from Colombia as well as its use either knowingly or unknowingly with opioid and particularly non-pharmaceutical fentanyl analges.

Cocaine-related deaths increased 91.5% between 2015 (n=614) and 2016 (n=1,172) in the Southeast Florida region with the sharpest rise reported in Palm Beach County. The drug was considered the cause of death in 58% of the Miami-Dade County cases during 2016 as well as 76% of those in Broward and 72% of Palm Beach County cocaine-related deaths. Many deaths involved polydrug use with 87% of the 2016 cases having one or more other substances present at the time of death. There were four cocaine-related decedents younger than 18 years of age, 12% were 18–25, 28% were 26–34, 37% were 35–50, and 22% were older than 50 years of age.

**Exhibit - Number of Cocaine Reports Detected Among Decedents in Florida and Miami-Dade County: 2001-2016**

![Exhibit - Number of Cocaine Reports Detected Among Decedents in Florida and Miami-Dade County: 2001-2016](image)

Source: Florida Medical Examiners Commission 2016 Annual Report

Miami-Dade County Substance Abuse Trends and Needs Assessment
Polysubstance abuse of opioids with cocaine either knowingly or unintentionally with non-pharmaceutical fentanyl-adulterated cocaine is 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%.

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

Primary addiction treatment admissions for cocaine totaled 2,812 patients in the three-county region during 2016 accounting for 10.5% of all admissions. Males accounted for 58% of these clients with crack cocaine specified by 59% of all cocaine patients. Only 10, or less than 1%, of the admissions were for someone younger than 18, 13% were 18–25, 26% were 26–34, and 60% were age 35 or older. Smoking was the route of administration reported by 48% of the clients with intranasal sniffing cited by 37% and injection cited by 5%. The remaining 10% reported oral or other/unknown routes of administration.
The 7,794 cocaine crime lab cases in the Southeast Florida counties during 2016 accounted for 37% of all drug reports in the 3 Southeastern Florida counties with cocaine maintaining the number one ranking of crime lab reports it has held for more than three decades.

Underage Alcohol Use

- The prevalence of current alcohol use and binge drinking among Miami-Dade County students has steadily declined since 2012 paralleling declines Statewide.

The most recent trend of alcohol use by Miami-Dade County youth is from the 2016 Florida Youth Substance Abuse Survey (FYSAS). It reported a 14.6 percentage point decline (or 36%- decrease) in current (past 30-day) use of alcohol among Miami-Dade County high school students between 2006 (40.8%) and 2016 (26.2%). The FYSAS also reported a 13.7 percentage point decline (or 65%- decrease) in current use of alcohol among Miami-Dade County middle school students between 2006 (21%) and 2016 (7.3%). The 2016 rates of current alcohol use among Miami-Dade County students are slightly above the percentages for all Florida high school students at 25.4% and below those for middle schoolers at 8.3%.

Current (past 30-day) Alcohol Use Among Miami-Dade County Middle and High School Students 2000-2016

![Graph showing percentage of students reporting current use of alcohol from 2000 to 2016 for high school and middle school students.]

Source: Florida Youth Substance Abuse Surveys 2000-2016

The FYSAS also reports an 8.1 percentage point decrease (or 40%- decline) in binge drinking of having five or more drinks in a row during the past two weeks among Miami-Dade County high school students from 20.3% in 2006 to 12.2% in 2016. Miami-Dade County middle Miami-Dade County Substance Abuse Trends and Needs Assessment
school students also reported a 59%- decline in binge drinking (or 5.5 percentage points) between the same ten-year period from 9.4% in 2006 to 3.9% in 2016. Binge drinking percentages among Miami-Dade County students in 2016 were above those for high school students Statewide at 10.9% and 3.2% among middle schoolers.

Current (past 14-day) Binge Drinking Among Miami-Dade County Middle & High School Students 2000-2016

![Chart showing binge drinking percentages among Miami-Dade County middle and high school students from 2000 to 2016.](chart)

*Source: Florida Youth Substance Abuse Surveys 2000-2016*

The percent of Miami-Dade County 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 53%- from 36.1% in 2006 to 17% 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 Miami-Dade County underage drinking for those 12 to 20 years of age citing 21.26% of that population were current (past 30-day) users of alcohol and 9.78% reported binge drinking in the past month. These rates were below the percentages for all of Florida where the statewide rates were 22.7% for current alcohol use and 12.5% for binge drinking among those 12-20 years of age.

In calendar year 2016, only 7 adolescents aged 17 and under cited alcohol was their primary drug of abuse when they entered a Miami-Dade County treatment program. That total represented 0.6% of all admissions for that age group and 0.3% of the total number of primary alcohol treatment admissions (n= 2,211). There were 152 young adults aged 18-25 who reported alcohol as their primary substance abuse problem or 7% of all alcohol admissions representing 14% of all treatment admissions aged 18-25.
There were only 5 juvenile arrests age 17 and under in Miami-Dade County for Driving Under the Influence (DUI) during 2016 and 5 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 third of all patients admitted to addiction treatment in Miami-Dade County during 2016 with nearly three-fourths of those adult patients being over the age of 34.

  Alcohol was identified in 5,318 deceased persons Statewide in 2016 by Florida medical examiners representing a 11.7%-% increase from the 4,762 alcohol occurrences in 2015. Among the 2016 cases, alcohol was considered a “cause of death” in 948 or 18% of the cases and was detected in 45% of the 11,910 decedents in whom any drug was found present at the time of death.

  In calendar year 2016, 2,204 persons aged 18 and older cited alcohol as their primary drug of abuse when they entered a Miami-Dade County addiction treatment program accounting for 37% of all adult clients. Seventy-one percent of all alcohol primary admissions clients were males. Young adults aged 18-25 accounted for 7% of the adult alcohol admissions while those aged 26-34 years represented 20% and those aged 35 and older comprised 73%.

  There were 1,930 adults arrested in Miami-Dade County for Driving Under the Influence (DUI) during 2016 representing a 27%-% decline compared to 2,650 such arrests in 2015 and a 41%-% decrease from the 4,346 adult DUI arrests in 2012. The substances involved in the DUI arrest are not specified but most are for alcohol intoxication. There were 3,502 adult arrests in Miami-Dade County for Liquor Law Violations during 2016 representing a 15%-% decrease compared to 4,122 such arrests in 2015 and a 54%-% decrease from the 7,655 liquor arrests in 2012.

Marijuana

- **Marijuana** was the primary drug of use reported by 93% of adolescents younger than 18 years of age entering addiction treatment programs in Miami-Dade County during 2016 as prevalence rates of marijuana use have declined since 2014 for high schoolers while stabilizing for middle school students.

  The Florida Youth Substance Abuse Surveys revealed the rate of Miami-Dade County high school students reporting past 30-day use of marijuana increased from 13.5% in 2006 to 17.8% in 2012 and then declined to 12.7% in 2016. The rate for middle school students increased from 3.6% in 2006 to 6.3% in 2010 and then declined to 2.8% in 2016.

  There has been a weakening of marijuana prevention protective factors over the past 10 years. The percent of Miami-Dade County high school students reporting to the FYSAS that the regular use of marijuana once or twice a week presents a “great risk of harm” declined from 58.4% in 2004 to 28.8% in Miami-Dade County Substance Abuse Trends and Needs Assessment
2016. A similar trend in the perceived risk of harm in trying marijuana for the first time declined from 30.5% in 2004 to 18.8% in 2016. About 80% of Miami-Dade County students consistently disapproved of youthful marijuana use between 2002 and 2008 by responding that it was “wrong” or “very wrong” for someone their age to smoke it; that measure declined to 67.9% by 2016.

The NSDUH Sub-State data estimates that 5.23% of the Miami-Dade population age 12 and above were current past 30-day users of marijuana from its most current projections based on data available from 2012-2014.

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

The Florida Medical Examiners Commission reported there were 2,292 occurrences of natural cannabinoids (not synthetics) detected among the 11,910 drug-related deaths in Florida during 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 19% of all drug-related deaths in Florida. Among the 2016 natural cannabinoid medical examiner interim report cases, 8 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 2,106 patients in Miami-Dade County during 2016 or 30% of all admissions. Males accounted for 67% of the 2016 clients. Youth younger than 18 years of age totaled 1,035 or 49% of the marijuana admissions, 24% were 18-25, 17% were 26-34 and 10% were age 35 or older. Marijuana was the primary drug cited by 93% of 1,112 clients younger than 18 years of age for any substance.

The 1,508 cannabis crime lab cases in Miami-Dade County during 2016 accounted for 18% of all drug reports and ranked third behind cocaine and heroin among all other substances.

### Synthetic Cannabinoids

Miami-Dade County Substance Abuse Trends and Needs Assessment
The number of Synthetic Cannabinoid crime lab cases in Florida as well as Poison Information Center exposure calls stabilized between 2015 and 2016 as use by high school students has continued to steadily decline since 2012.

The availability of unregulated synthetic cannabinoids increased via retail sales throughout 2010 and 2011. Their use was mostly among those who were subject to frequent drug testing that did not identify these products. However, drug tests are now available for the detection of some but not all of these ever-changing substances. 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-% decline from the 276 calls in 2015. The 2016 total included 14 from Miami-Dade, 2 from Broward County, and none from Palm Beach County. There were 175 calls in 2014 which was fewer than the 194 calls in 2013, 537 calls in 2012, and 517 in 2011. During the first four months of 2017, there were 45 poison exposure calls for synthetic cannabinoids in all of Florida including 3 from Miami-Dade, 2 from Broward and none from Palm Beach County.

There were 22 Synthetic Cannabinoid related-deaths during 2016 in Florida with 17 of the occurrences being considered a cause of death compared to 23 total occurrences in calendar year 2015 of which 11 were considered to be “a cause of death.”

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 time 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 18 different synthetic cannabinoids detected by crime laboratories in the 3 Southeastern Florida Counties during calendar year 2016. Their specific chemical names and number of cases as reported by the US DEA National Forensic Laboratory Information System (NFLIS) are shown in the table on the next page.

**Exhibit - Number of Synthetic Cannabinoid Crime Lab Cases in Florida: 2010-2016**
The FYSAS has tracked use of synthetic cannabinoids among Florida high school students since 2012. Past-30-day use declined significantly between 2012 and 2016 in the 3 Southeastern Florida Counties as well as across the State. The most common usual source of synthetic cannabinoid cited by 40% of high school students statewide who have used it was “a convenience store or gas station” followed by 33% who reported “someone gave it to me.”
Tobacco, Smoking and Vaping

- While cigarette smoking by youth has dramatically declined over the past decade, more than three times as many Miami-Dade County high school students and more than four times as many middle school students are current users of e-cigarettes as compared to regular cigarette users.

Significant declines in cigarettes smoking among Miami-Dade County students are reported by both the Florida Youth Tobacco Survey and the Florida Youth Substance Abuse Survey over the past decade. In 2006, 11.2% of high school students reported past 30-day or current cigarette use as did 4.4% of middle school students. By 2016, the rate among high schoolers had declined 73% to 3% and dropped 67% among middle school students to 1.6%. 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.
Nearly three-and-a-half times as many Miami-Dade County high school students and four-and-a-half times as many middle school students are current users of e-cigarettes than regular cigarettes according to the 2016 FYSAS which reveals that 10.6% of Miami-Dade County high school students had used e-cigarettes in the past 30 days as compared to 3% who had smoke regular cigarettes. The rates for middle schoolers were 1.6% for current use of regular cigarettes while 7.2% reported current use of e-cigarettes or vaporizers.

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 has 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.
Synthetic Cathinones

- The decline of crime lab reports and consequences from use of Synthetic Cathinones in 2016 appear to have been influenced by the ban of alpha-PVP ("flakka") and 115 other substances by China in October 2015.

Substitute cathinones 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 was with alpha-PVP or "flakka" particularly in Broward County from late 2014 and throughout 2015.

There were 132 synthetic cathinone deaths in all of Florida during 2013, 134 in 2014, and 223 in 2015. There death toll declined to 102 synthetic cathinone medical examiner occurrences statewide in 2016 with 49 attributed as being a cause of death.

Exhibit - Number of Synthetic Cathinone Deaths in Florida: January 2013 – June 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 fueling the increase of cathinone deaths that year with the drug also 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.

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 practically disappeared from street drug sales.

Sold in quantities as small as 1/10th of a gram for as little as $3.00 to $5.00 it was highly profitable for the dealers whose actual cost was very low. Alpha-PVP was sold over the internet from China for about $1,500 per kilogram and shipped by world-wide express services to local mid-level dealers in packages containing from 1 to 5 kilograms. A single kilogram provided up to 10,000 doses at a 1/10th of a gram which sold for $5.00 each yielding up to $50,000 in sales or a profit of $48,500.

There were 63 alpha-PVP deaths in Broward County from September 27, 2014 to December 11, 2015 and none since that date. There were also 17 alpha-PVP deaths in Palm Beach County between May 5 and October 15, 2015. Miami-Dade had less alpha-PVP consequences than the two counties to its north but higher levels of ethylone cases sold as “Molly.”
There were 70 Poison Information Center exposure calls for synthetic cathinones in Florida during 2016 compared to 145 in 2015 and only 5 in 2014. During the first four months of 2017 there were 11 exposure calls for cathinones Statewide. Exposure calls involve cases usually from a hospital emergency department where a patient is experiencing adverse consequences after smoking or ingesting a substance. The 2016 total includes 11 calls from Miami-Dade County, 9 calls from Broward County, and 6 from Palm Beach County. During the first four months of 2017, there was one poison exposure call each from Miami-Dade and Broward Counties and none from Palm Beach 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 on the next page 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.

Exhibit - Numbers of Synthetic Cathinone and MDMA Crime Lab Reports in Florida: 2010-2016

Miami-Dade County Substance Abuse Trends and Needs Assessment
Across all of Florida there were 172 Poison Information Center exposure calls for hallucinogenic amphetamines during 2016 compared to 199 in 2015 and 321 in 2014. Hallucinogenic amphetamines include drugs sold as “ecstasy.” The 2016 total includes 45 calls from Miami-Dade County, 7 calls from Broward County, and 10 from Palm Beach County. During the first four months of 2017 there were 67 exposure calls for hallucinogenic amphetamines in Florida including 20 calls from Miami-Dade County, 6 calls from Broward County, and 1 from Palm Beach County.

**METHAMPHETAMINE**

- Indicators of methamphetamine abuse are relatively low in Southeastern Florida but have been steadily increasing since 2011 in the central part of the State and in the counties of the Northwestern Panhandle and along the Gulf Coast.

Significantly higher rates of methamphetamine treatment admissions and crime lab cases are reported in other areas of Florida than the southeastern region particularly in the Tampa Bay, Western Panhandle, and Orlando areas. According to the Florida Department of Law Enforcement and the South Florida High Intensity Drug Trafficking Area, most methamphetamine being used in Florida is produced in Mexico. Domestic laboratory production in Florida primarily appears to be in the northern and central parts of the state where the 2-liter soda bottle “shake and bake” method is used to yield 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.

Methamphetamine was detected among 621 deceased persons during 2016 statewide in Florida, compared with 305 in 2015 up from 217 in 2014. Only the state totals of methamphetamine- and Miami-Dade County Substance Abuse Trends and Needs Assessment
amphetaMine-related deaths are available and are not reported for counties or regions. Methamphetamine was considered a cause of death in 327 (53%) of the cases during 2016. There were also 640 reports of amphetamine detected among decedents across Florida in 2016, compared with 387 such occurrences in 2015. Amphetamine was considered the cause of death in 199 (or 31%) of the cases in 2016.

**Exhibit - Number of Methamphetamine-Related Deaths in Florida: 2000-2016**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
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<tr>
<td>2015</td>
<td>305</td>
</tr>
<tr>
<td>2016</td>
<td>621</td>
</tr>
</tbody>
</table>

*Source: Florida Medical Examiners Commission Jan 2004-Jun 2016 Reports*

There were 101 primary treatment admissions (1.3% of all admissions) for methamphetamine in Broward County, 62 Miami-Dade County (0.8% of all admissions), and 53 in Palm Beach County (0.4% of all admissions) during 2016. Methamphetamine was the primary drug reported by 4% of all clients statewide in 2016. Males accounted for 65% of the 216 methamphetamine clients across the region, and 53% were between 18 and 34 years of age, whereas 46% were age 35 and older. Smoking methamphetamine was the route of administration reported by 47% of these clients with intranasal sniffing cited by 15% and injection cited by 25%. The remaining 13% reported oral or other/unknown routes 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.

A total of 45 primary treatment admissions for amphetamine were reported in Broward County, 10 in Miami-Dade County, and 15 in Palm Beach County during 2016. Females accounted for 63% of the 70 amphetamine clients across the region in 2016, and 79% were between 18 and 34 years of age, whereas 21% were age 35 and older.

There were 539 methamphetamine crime laboratory reports, or 2.5% of the 21,306-total primary, secondary, and tertiary NFLIS reports for Miami-Dade, Broward, and Palm Beach counties combined in
2016. Methamphetamine ranked eighth among all substances analyzed in the three counties in 2016 as it had in 2015. Also, 235 amphetamine crime laboratory reports were filed, or 1% of the 2016 total ranking tenth among all substances.