Patterns and Trends of Substance Use
WITHIN AND ACROSS THE REGIONS OF FLORIDA
Update June 2018

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This product is supported by Florida Department of Children and Families Substance Abuse and Mental Health Program Office funding.
Objectives

Participants will be able to describe:

• Contrast between population-level measures of use versus measures of harm among individuals who use substances

• Increasing severity of consequences of opioids and stimulant drugs in Florida;

• Regional differences in the type of substance use that leads to admissions to publicly funded substance abuse treatment
Overview
Part 1

Introduction
I. Youth and Alcohol
II. Adult Alcohol Use and Misuse
III. Tobacco/Cigarettes
IV. E-cigarettes/Vaping
V. Cannabis/Marijuana
VI. New/Novel Psychoactive Substances (NPS)
Overview

Part 2

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VIII. Cocaine
IX. Methamphetamine and Amphetamines
X. Benzodiazepines
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Introduction

This report
– Was built on a foundation of reports produced by Epidemiologist James N. Hall
– Incorporates new data available as of May 2018
  • 2017 Medical Examiners Interim Report (published April 2018)
  • FY 2016-2017 Substance Abuse Treatment Admissions data from DCF SAMHIS
  • Online updated sources: Behavioral Risk Surveillance System (BRFSS), Youth Risk Behavior Survey (YRBS), Florida Youth Tobacco Survey (FYTS), National Survey on Drug Use and Health (NSDUH)
2017 Estimated Total Populations* in Florida’s DCF Regions
December 2017 – Bureau of Economic And Business Research
Total 2017 state estimate* 20,363,867

*Excludes inmates
I. Youth and Alcohol

• Long range trend:
  – Decreasing use
  – Florida prevalence slightly lower than the national average

• Great similarity across Florida’s regions
  – Based on 2016 FYSAS data

• 2017 FYSAS did not allow sub-state estimates
• 2018 survey will again be at the county level
Youth Alcohol Concerns

- The most recent *Monitoring the Future* national data showed a slight increase in “any alcohol use” between 2016 and 2017 among the youngest group studied (8th grade)

- Important to assess younger students when 2018 FYSAS becomes available
II. Adult Alcohol Use and Misuse

• More than half of adults in the 2016 BRFSS (52.7%) report one or more drinks in the past 30 days.
  – 59% of men and 47% of women

• BRFSS for 2016 reports that 15.5% of Floridians over 18 (20.1% of men versus 11.3% of women) engage in “binge drinking”

• 2017 BRFSS data are not yet available
Alcohol-Related Fatalities

- The 2017 Florida Medical Examiners Commission Interim Report showed that alcohol was detected as being present in 43% of all drug-related deaths in Florida, virtually the same as 2016, but an 11.7% increase over 2015.

- Of the ethanol cases in the first half of 2017, 490 or 19% were deaths considered to be caused by alcohol essentially the same proportion as 2016.
Cigarette/Tobacco

• Cigarette use continued to drop in 2017 for both high school and middle school

• Decreases in past decade are remarkable

Youth Tobacco Use
Youth Tobacco Use

• Recently reported 2017 data from the Florida Youth Tobacco Survey (FYTS) show dramatic decreases from 2012 to 2017 in “ever tried” cigarettes (a 40.9% decrease) and current cigarette use (a 59% decrease).

• Only 2.5% of 12-17 year old Floridians surveyed by FYTS in 2017 reported current smoking.

• Unlike alcohol, regional differences in youth cigarette use have been noticeable with highest rates mostly in northern part of the state.
IV. E-cigarettes/vaping
Youth and e-cigarettes/vaping

- **FYTS data** recently available show a marked increase in the use of electronic vaporizers since 2012.

- Nearly one of every ten 11-17 year old's (9.8%) reported using electronic vaping in 2017, a 333.8% increase since 2012.

- 22.3% reported having tried electronic vaping at some time.

- Both rates were notably higher proportions than those for cigarette smoking.

- Perhaps the most positive FYTS finding on this topic, which mirrors the 2017 FYSAS data included in the last Annual Report, is that current use of electronic vaporizers dropped from 11.0% in 2015 and 2016 to 9.8% in 2017.
Adults and e-cigarettes/vaping

Adult use of e-cigarettes as reported in the 2016 BRFSS survey showed that use of e-cigarettes decreased as the age of the adults surveyed increased.

- Of the 18-24 age group, 9.8% reported current e-cigarette use.
- By comparison, only 1.4% of the 65 and over age group reported current use.
V. Cannabis/ Marijuana

Given current climate, changing policies and attitudes, it is critical to collect and analyze additional data in the future.

- Schedule 1 status makes research on safety and efficacy of medical cannabis difficult or impossible to study.
- States with medical marijuana laws show somewhat higher recreational use and lower perceived risk than non-medical marijuana states (Schuermeyer et al, 2014)

BUT
- Does this portend greater youth use?
- More frequent or widespread adult use?
VI. New/Novel Psycho-active Substances (NPS)

- Synthetic Cannabinoids
- Synthetic Cathinones
Synthetic Cannabinoids

- Mimic effects of marijuana
- First legally sold as commercial products with names like “K-2” or “spice”
- Original group of synthetic cannabinoids was banned but have been constantly replaced with an ever-changing list of chemicals
- Adolescents use peaked around 2010 and has dropped dramatically with past 30-day levels in 2017 reported on FYSAS less than one-fourth of 2010 levels
Synthetic Cannabinoids

• Injuries and deaths in the Midwest from synthetic “marijuana” in 2018.

• The CDC reports that “from 10 March 2018 through 05 April 2018, 94 people presented to Emergency Departments (89 in Illinois, 2 in Indiana, 1 in Maryland, 1 in Missouri, and 1 in Wisconsin.”

• April 14, 2018, the Illinois Department of Public Health had received reports of 126 cases in eleven different counties across the state, including three deaths.

• According to an Illinois Health Department report, samples of synthetic marijuana have tested positive for brodifacoum, a lethal anticoagulant often used as a rodenticide, or rat poison.
May, 2018, two similar bleeding cases have been reported in Hillsborough County Florida according to a report from the Hillsborough County Health Department.

During the first six months of 2017, the Florida Medical Examiners Commission reports that occurrences of synthetic cannabinoids among decedents that they studied increased by 200 percent (20 more) and deaths caused by synthetic cannabinoids also increased (18 more).
Synthetic Cathinones

- Epidemic of “flakka” (alpha PVP) in Southeast Florida – especially Broward County - in 2015
- Apparent dramatic decrease starting in 2016
- Attempts to circumvent law by reformulating cathinones and other synthetic drugs to allow legal sales.
- Deaths have begun to climb again in 2016 and the first half of 2017.

*Journal of Drug Abuse, Castellanos et al. (2018) “Flakka” intoxication: What have We Learned?*
Figure 1: Synthetic Cathinone Deaths in Florida: Jan 2013 – June 2017

Source: Florida Medical Examiners Commission 2017 Interim Report
New Tools to Control Synthetic Drugs in Florida

• DEA, CDC and a private laboratory have set up a system to analyze and report on all novel psychoactive substances (NPS) seized by DEA

• Florida amended its controlled substance statute in 2017. It now defines a “synthetic” with reference to the similarity of its molecular structures to an illegal drug and allows immediate reclassification to Schedule 1 - pending legislative action.

• Law enforcement officials now can prosecute those trying to avoid criminal penalties by selling products that have simply made a small change to a synthetic drug’s molecular structure.

• This should provide a much more rapid means to respond to novel synthetic drugs.
A national epidemic – growing in Florida:

- Prescribed opioids
- Diverted prescription opioids
- Illicitly manufactured/sold prescription opioids
- Fentanyl
- Heroin
- Fentanyl analogs (carfentanil, etc. – all classified by DEA as Schedule 1 as of February 2018)
Monitoring Opioid Use/Misuse

- Prescriptions are tracked
- Illicit opioids are not easily monitored
- Annual Florida Medical Examiners Reports on drugs in deceased persons show evidence of:
  - Prevalence of use
  - Prevalence of presumptively lethal use
- Biggest change in past year is continued and rapid growth of deaths related to fentanyl analogs (carfentanil, etc.)
Figure 2: Number of Selected Lethal Opioid Occurrences Among Deceased Persons in Florida January 2008 to June 2017

Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners 2008 - 2017  Interim and Annual Reports
Fentanyl (Duragesic, Subsys, Abstral, and Ionsys)

- Extremely potent opioid
- Legal pain medication – e.g., post surgical pain
- Lethal dose is minute compared to heroin
- Illicit fentanyl manufactured in China is a street drug
- Mixed with/sold as heroin
- Reportedly found in dilution in other street drugs (e.g. cocaine)

Source: Drug Enforcement Administration
Figure 3: Number of Nonmedical Rx Opioids (excluding Fentanyl Analogs) Occurrences Detected among Decedents Florida 2005 – 2017

Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners Annual Reports 2005 - interim 2017

*estimated
Fentanyl Analogs

• Best known = Carfentanil – but as many as 4,000 others
  – 100 times as potent as Fentanyl, 5,000 times as potent as heroin*
  – Legal to be sold in China until March 2017 so widely available
  – No human use but sold as a tranquilizer for large zoo animals (elephants, rhinos, etc.)

• Others include acetylfentanyl, butyrfentanyl, furanylfluramine, and ocfentanil and newly designed fentanyl analogs such as acrylfentanyl and para-fluoroisobutyrfentanyl. No legal use -- all Schedule 1 as of February 2018

• There are numerous possibilities to create new analogs by small changes in chemical structures. – clandestine labs

*National Institutes of Health
Fentanyl Analogs

- Florida Medical Examiners first reported these as a separate category in 2016 data.

  - Present in 1,026 deaths statewide in 2016 (3 more than heroin!)
    Causal in 965 deaths (94%)

  - Projected 2017 data (based on first six months X 2)
    • Present in 1,750 deaths. Causal in 1,680 deaths (96%)

- How should we report these deaths? (Unlike Fentanyl, they are NOT prescription opioids) – legal status similar to heroin?
Figure 4: Number of Nonmedical Rx Opioids (Including Fentanyl Analogs) Occurrences Detected among Decedents. Florida 2005 – 2017

Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners Jan 2005 - June 2017 Reports
Figure 5: Fentanyl Analog Deaths in Florida

Fentanyl Analog Deaths
Rate per 100,000 population
January-June 2017

Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners Jan 2005 - June 2017 Reports
Heroin

• Rapid increase in heroin-related deaths in past five years

• Florida Medical Examiners data show over 1,000 heroin-related deaths in 2016 versus 56 in 2011.
Figure 6: Number of Heroin-Related Deaths in Florida 2000-2017*

Heroin-Related Deaths in Florida

*estimated

Source: Florida Medical Examiners Commission Reports
Regional Differences?

- Most regions in Florida have been affected by increased heroin deaths.
- Rate of increase in heroin deaths seems slower in Northwest region but this may simply reflect smaller population.
  - (For example, both Northwest and Southern regions have seen a fourfold increase in heroin deaths since 2014.)
Figure 7: Number of Heroin-Related Deaths by Florida Management Regions: 2000 – 2017*

*Estimated

Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners Reports
Table 1: Deaths with Occurrences of Various Opiates 2015-2017

<table>
<thead>
<tr>
<th>Opioid</th>
<th>1st H 2015</th>
<th>2nd H 2015</th>
<th>1st H 2016</th>
<th>2nd H 2016</th>
<th>1st H 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl &amp; Analogues</td>
<td>397</td>
<td>514</td>
<td>988</td>
<td>1,682</td>
<td>1,700</td>
</tr>
<tr>
<td>Morphine</td>
<td>670</td>
<td>813</td>
<td>878</td>
<td>1,162</td>
<td>1,032</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>525</td>
<td>556</td>
<td>632</td>
<td>750</td>
<td>651</td>
</tr>
<tr>
<td>Heroin</td>
<td>343</td>
<td>436</td>
<td>434</td>
<td>589</td>
<td>548</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>353</td>
<td>327</td>
<td>325</td>
<td>367</td>
<td>357</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>240</td>
<td>281</td>
<td>273</td>
<td>322</td>
<td>286</td>
</tr>
<tr>
<td>Methadone</td>
<td>239</td>
<td>214</td>
<td>240</td>
<td>259</td>
<td>211</td>
</tr>
<tr>
<td>Oxymorphone</td>
<td>171</td>
<td>218</td>
<td>240</td>
<td>322</td>
<td>274</td>
</tr>
<tr>
<td>Codeine</td>
<td>209</td>
<td>269</td>
<td>236</td>
<td>271</td>
<td>285</td>
</tr>
<tr>
<td>Tramadol</td>
<td>239</td>
<td>200</td>
<td>210</td>
<td>300</td>
<td>230</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>29</td>
<td>42</td>
<td>55</td>
<td>80</td>
<td>66</td>
</tr>
<tr>
<td>Meperidine</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: FDLE - Florida Medical Examiners Commission
Increased Opioid Deaths - Summary

- Opioid deaths increased dramatically in Florida in 2016 and the first half of 2017
- January – June 2017 occurrences were up 25% since first six months of 2016
- Fentanyl, fentanyl analogs and heroin were driving forces
- Medical Examiners 2017 Interim Report notes: “Since heroin is rapidly metabolized to morphine, this may lead to a substantial over-reporting of morphine-related deaths as well as significant under-reporting of heroin-related deaths.”
- High potency and mixing of fentanyl and analogs with street drugs, including stimulants, seem likely to be tied to many deaths
- Greater prevalence of use? Or is it greater lethality of opioids in the environment?
VIII. Cocaine

- Anecdotal reports of increased trafficking in Florida in 2017

- Florida Medical Examiners Reports show dramatic increase in occurrences in deceased persons in 2016 and first half of 2017
  - Based on first six months of data, 2017 projected to be up over 1,300 occurrences versus 2015 (73% increase)
Figure 8: Number of Cocaine Deaths in Florida. 2000 – 2017*

Source: Florida Medical Examiners Commission Annual Reports and 2017 Interim Report
Methamphetamine and Amphetamines

IX.

- Imports of methamphetamines have become a major source, but some domestic production in small labs persists.
- 540% increase in six years in occurrences in Florida Medical Examiners Reports.
- 828 related deaths projected for 2017 of which methamphetamine considered a cause in 51%
- Amphetamines also caused 199 deaths and occurred 640 times in toxicology reports of decedents in 2016. This is also projected to increase to 228 deaths and 800 occurrences in 2017 based on first six-month data.
- Regional data not available from Florida Medical Examiners Reports.
Figure 9: Number of Methamphetamine-Related Deaths in Florida: 2000-2017*

*estimated

Source: Florida Medical Examiners Commission Jan 2004-Jun 2017 Interim Reports
Emerging Issue

Are stimulants the next epidemic?

– A surge in the use of stimulants like methamphetamine, cocaine, and prescription drugs like Adderall and Ritalin is hitting the U.S. the National Emerging Threat Initiative coordinator said recently. Initiative coordinator John Eadie (April 2018)

– What do Florida Medical Examiner Data show?
Figure 10: Stimulant Caused Deaths Florida, 2013-2017*

* estimated
Source: Florida Medical Examiners Commission Reports
X. Benzodiazepines

- Used along with other drugs and alcohol

- Benzodiazepine-related deaths peaked in Florida at 6,188 in 2010 and then declined as the State’s efforts to reduce diversion of controlled medications took effect. However, these deaths appear to again have been on the increase over the past few years.

- Florida Medical Examiners Report show 5,167 reports of a benzodiazepine present in deceased persons across Florida in 2016, a 12% increase from 2015, but no increase apparent for 2017.
Benzodiazepines

- Alprazolam (Xanax®) and Diazepam (Valium, Diastat) are the benzodiazepines most often listed as a cause of death by Florida Medical Examiners.
  - Alprazolam occurrences are up in all regions of Florida.
  - Diazepam occurrences are down in the northern regions, stable in Suncoast, but up in other regions of Florida.
Figure 11: Number of Nonmedical Rx Benzodiazepine Reports Detected among Deceased Persons in Florida 2005 – 2017*

*estimated

Source: FDLE – Drugs Identified In Deceased Persons by Florida Medical Examiners 2005 - 2016 Annual Reports and 2017 Interim Report
XI. Regional Differences

State Sponsored Treatment

July 1, 2016 – June 30, 2017

Data Source: DCF SAMHIS Substance Abuse Treatment Admissions by Primary Drugs for FY 2016-2017
Uses of Treatment Admissions Data for Epidemiology

• Limitations
  – (1) They represent only individuals treated in publicly funded programs. Hence a smaller proportion of all persons seeking treatment may be captured in more affluent communities.
  – (2) Data are affected by the overall availability of spaces in treatment.

• Value
  – Treatment admissions data allow comparisons about the relative demand for treatment for various substances across regions of the state.
Figure 12: Statewide Primary Admissions to Publicly Funded Treatment 2016-17 (87,840 Admissions)

- Alcohol: 31%
- Crack: 2%
- Other Cocaine: 2%
- Heroin: 0%
- Other Opiates: 17%
- Marijuana: 18%
- Methamphetamine: 5%
- Amphetamine: 2%
- Benzodiazepines: 3%
- All Other Drugs: 16%
- At-Risk/No substance: 2%
Northwest Region

- Note the much larger portion of admissions related to methamphetamines compared to the state or any of the other regions that follow.
- Only 5% of admissions were for heroin
Figure 13: Northwest Region Primary Admissions to Publicly Funded Treatment 2016-17 (11,995 Admissions)
Figure 14: Northeast Region Primary Admissions to Publicly Funded Treatment 2016-17 (15,334 Admissions)

- 34% Alcohol
- 4% Crack
- 3% Other Cocaine
- 11% Heroin
- 25% Other Opiates
- 15% Marijuana
- 2% Methamphetamine
- 4% Amphetamine
- 1% Benzodiazepines
- 3% All Other Drugs
Central Region

- 50% of admissions are for opioids (heroin or other opioids)
- Only 2% are for methamphetamines
Figure 15: Central Region Primary Admissions to Publicly Funded Treatment 2016-17 (12,615 Admissions)
Figure 16: Suncoast Region Primary Admissions to Publicly Funded Treatment 2016-17 (26,615 Admissions)

- Alcohol: 29%
- Crack: 3%
- Other Cocaine: 2%
- Heroin: 15%
- Other Opiates: 21%
- Marijuana: 18%
- Methamphetamine: 6%
- Amphetamine: 0%
- Benzodiazepines: 2%
- All Other Drugs: 3%
- At-Risk/No Substance: 0%
Figure 17: Southeast Region Primary Admissions to Publicly Funded Treatment 2016-17 (9,842 Admissions)

- Alcohol: 34%
- Crack: 4%
- Other Cocaine: 3%
- Heroin: 26%
- Other Opiates: 12%
- Marijuana: 16%
- Methamphetamine: 1%
- Amphetamine: 2%
- Benzodiazepines: 1%
- All Other Drugs: 2%
- At-Risk/No Substance: 1%
Broward Region

Note slightly higher proportion than other regions for cocaine (crack and other cocaine) 10% of admissions versus 7% statewide
Figure 18: Broward Region Primary Admissions to Publicly Funded Treatment 2016-17 (5,153 Admissions)

- Alcohol: 29%
- Crack: 20%
- Other Cocaine: 10%
- Heroin: 7%
- Other Opiates: 25%
- Marijuana: 3%
- Methamphetamine: 1%
- Amphetamine: 1%
- Benzodiazepines: 1%
- All Other Drugs: 20%
- At-Risk/No substance: 1%
- Other: 1%

Note: The percentages may not add up to 100 due to rounding.
XII. Efforts to combat new and existing substance abuse

- CDC, DEA and Private toxicology labs have started a fast track to characterize new psychoactive substances and alert the public.
- Florida law allows unknown and new substances to be presumptively treated as Schedule 1 – gives the Legislature a year to make classification permanent
  - Powerful tool to interdict NPS sales
- Changes in opioid prescription laws and guidelines may reduce number of new medically-created opioid addictions.
XIII.

Summary

• 2017 Monitoring the Future data showed a slight increase in “any alcohol use” among 8th graders. 2018 FYSAS?

• Nearly three times as many students reported e-cigarettes/vaping in 2017 versus cigarette smoking. Future trend?

• Opioid problem continued through the middle of 2017 with fentanyl analogs and heroin particularly lethal.

• Florida recent trends show big increases in stimulant-caused deaths.
XIV. Questions
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