2021 Half-Year Overdose Surveillance Report:

January 1, 2021 – June 30, 2021

Overdose Data to Action (OD2A)

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For inquiries, please email OD2A at
OD2A@flhealth.gov

Report Authors:

Whitney Van Arsdale, MPH, CPH
Stephanie Barajas, MPH
Emily Crandall, CHES
Natalie Kenton, MBA
Karen Thomas, MPH
Jacqueline Lobban-Marsan, MPA
Alina Alonso, MD
Florida Department of Health Palm Beach County
Division of Epidemiology & Communicable Diseases

Overdose Data to Action (OD2A)

Purpose

The Overdose Data to Action (OD2A) innovative surveillance project at the Florida Department of Health (FDOH) in Palm Beach County (PBC) aims to increase the surveillance of suspected drug overdose and use that data to drive action, policy change, and community outreach. Surveillance of suspected drug overdose events in PBC can help the overdose epidemic by identifying clusters or areas of high drug overdose incidences, learning more about the social determinants of substance use disorder, and can help identify novel substances or new trends in illicit drugs. The findings of the data collected through this surveillance initiative are designed to be shared with PBC community, providing a foundation of evidence for prevention overdose and early intervention for people with substance use disorder (SUD).

Three Waves of the Rise in Opioid Overdose Deaths
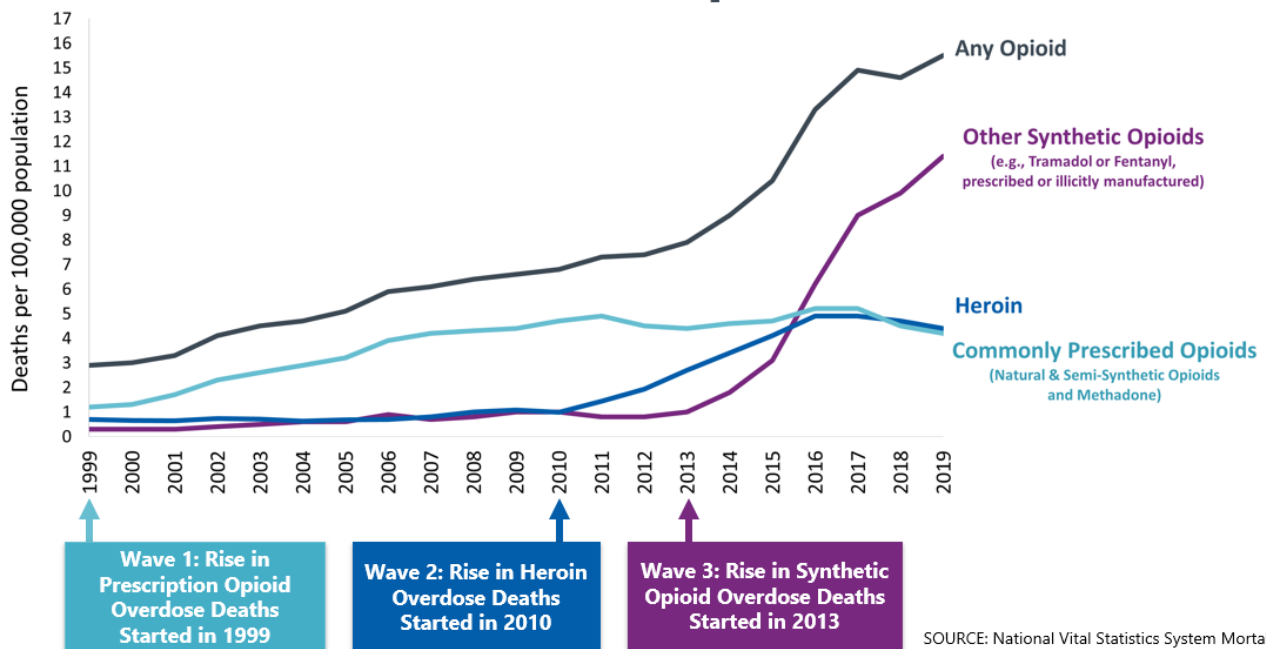
Image source: CDC, Understand the Epidemic, https://www.cdc.gov/opioids/basics/epidemic.html

The 4th Wave: Psychostimulants

In recent years, there has been a significant increase in the number of deaths due to psychostimulants[1]. Psychostimulants are a broad category of drug that includes cocaine, methamphetamine, MDMA, and prescription stimulants like Adderall and Vyvanse. Stimulant-involved overdose deaths tend to disproportionally affect racial and ethnic minority groups. Use of psychostimulants together with opioids and the increasing presence of fentanyl-contaminated drug supply are driving this new wave of overdose deaths.
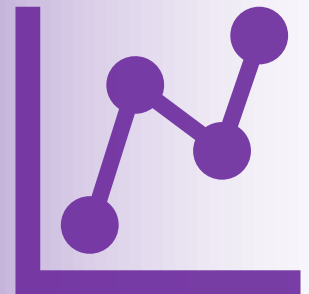
Overdose Data to Action (OD2A)

Data

The public health approach to the overdose epidemic is multidisciplinary in that it examines the epidemic through the lens of a whole person perspective. This approach requires the consideration of the individual health behaviors and genetic makeup that influences health; but it also the social and physical environments as well, which accounts for an estimated 30-55% of health outcomes[2]. The integration of different sources of data into a single cohesive data set, can add elements of the social determinants of health (SDH) to overdose surveillance that might otherwise be overlooked.

The social-ecological model considers the complex interactions between individuals, interpersonal relationships, community, societal factors, and how these factors might influence a person's health and health outcomes.

Societal	Community	Relationship	Individual

Data Sources

Primary data for suspected overdoses were collected from three sources: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) database, emergency department medical records, and the medical examiner's database. All data collected was securely stored and followed strict HIPAA compliance.

Syndromic Surveillance: De-identified syndromic surveillance data was collected through ESSENCE. All 14 hospitals in Palm Beach County participated in the reporting of data to ESSENCE. Suspected drug overdoses were identified through a query search of ED chief complaints and discharge diagnostics codes that corresponded to a suspected drug overdose.

Non-fatal overdose data: Data for suspected drug overdoses were collected from 10 hospitals in PBC through the collection of ED medical records.

Fatal overdose data: Fatal overdose data were obtained from the medical examiner's database.

Primary Data and Sources

Syndromic Surveillance · Emergency Departments · Medical Examiner

Secondary Data and Sources

Location · Arrest · COVID-19 · Housing

Overdose Data to Action (OD2A)

Data

Supplementary Data

Overdose incident data was supplemented with available public health resources including Merlin (Florida's disease surveillance database), STARS (Florida's STD surveillance database), and Accurint for Government® (used for housing information and criminal records check). These data sources provided valuable information on population needs assessment and important social determinants of health. This innovative approach to overdose surveillance attempts to identify potential risk factors and areas of opportunity for prevention and early intervention, to better inform and educate our community and drive actionable change.

Data Limitations and Considerations

⚠️ It is important to consider the limitations of the data report. The data presented reflects a sample of suspected drug overdose from OD2A-participating hospitals. Hospital participation in the **OD2A innovative surveillance initiative** was completely voluntary, and not all hospitals participated during the time frame of this report. Thus, underlying population differences between hospital catchment areas are likely to exist. Additionally, data from the medical records received at times contained missing or incomplete data. Areas of data collection most significantly affected by this included toxicology (70% missing), history of overdose(s) (64% missing), factors contributing to drug abuse or overdose (30% missing), current medication list (40% missing), mental health (50% missing), and physical health (38% missing). Data abstracted from medical record free text notes may be subject to bias, dictation system errors, and patient cooperation with clinical staff which may result in gaps in the data. Patients may have provided false information to avoid stigma associated with substance use, legal repercussions from law enforcement, or from decreased mental capacity due to intoxication. These data limitations should be carefully considered when reviewing the content of this report and the wider implications.
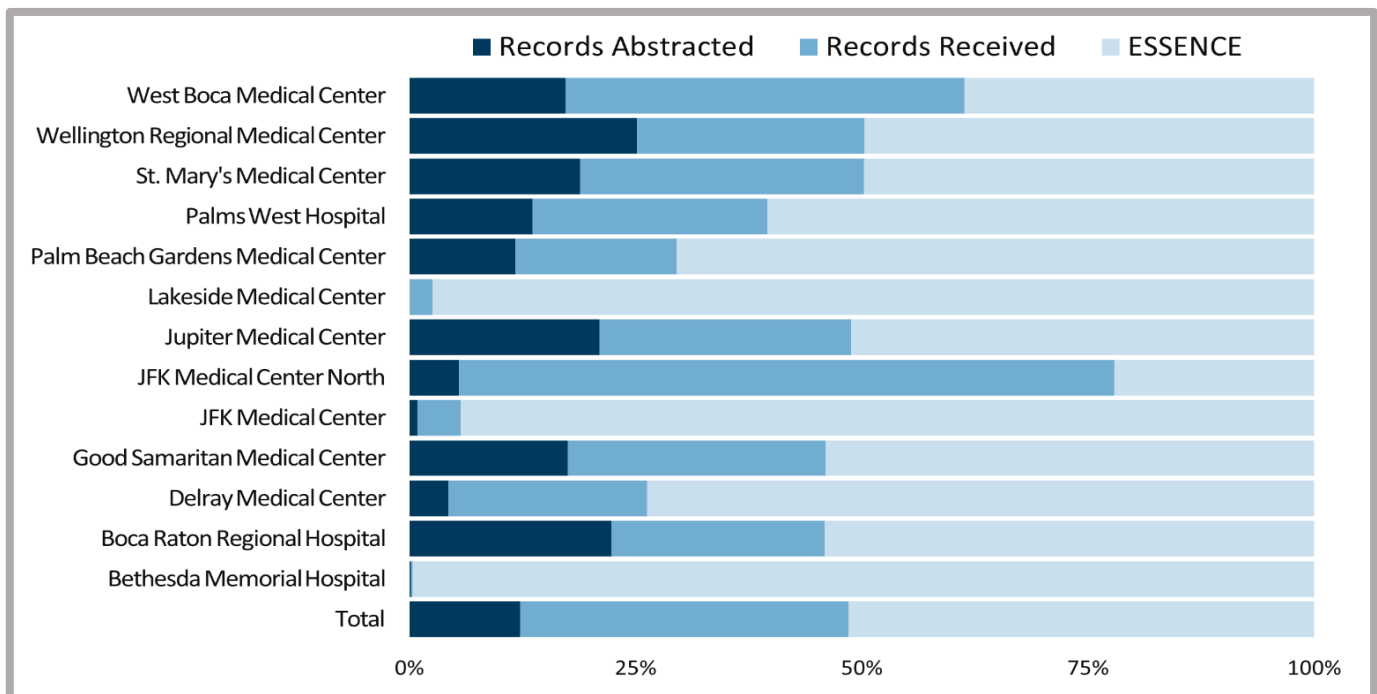
The figure above compares the relative proportion of suspected drug overdoses identified through syndromic surveillance to the proportion of medical records received and the proportion of medical records that met case definitions for suspected drug overdose.

Overdose Data to Action (OD2A)

Syndromic Surveillance

Regional Distribution of Suspected Overdoses

All Drugs

Opioids

Benzodiazepines

Stimulants
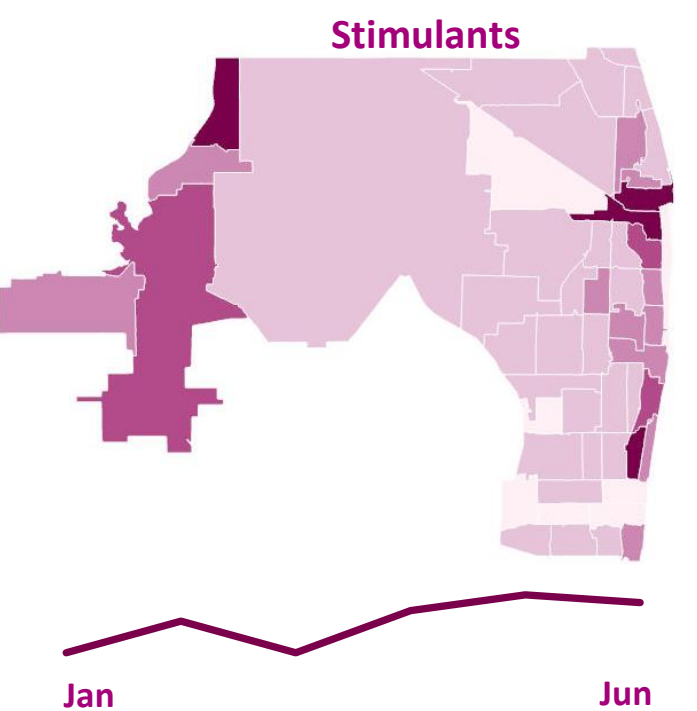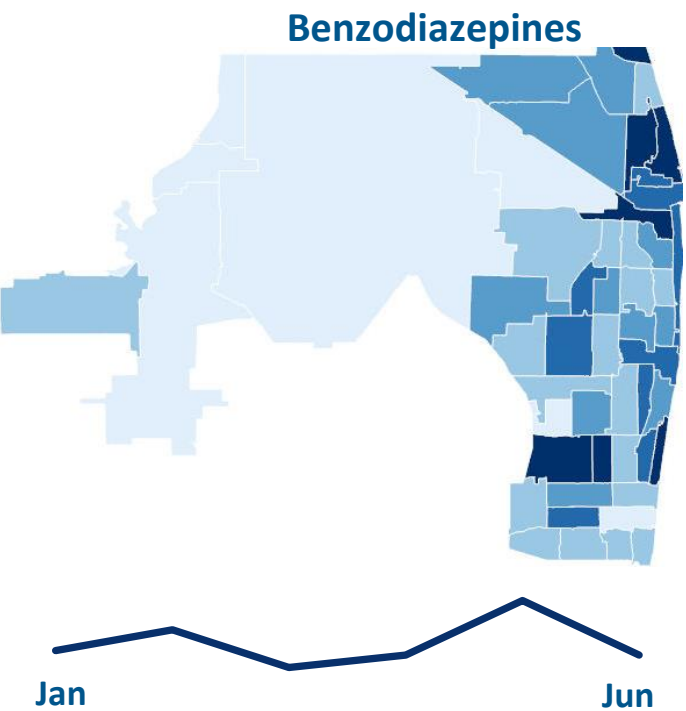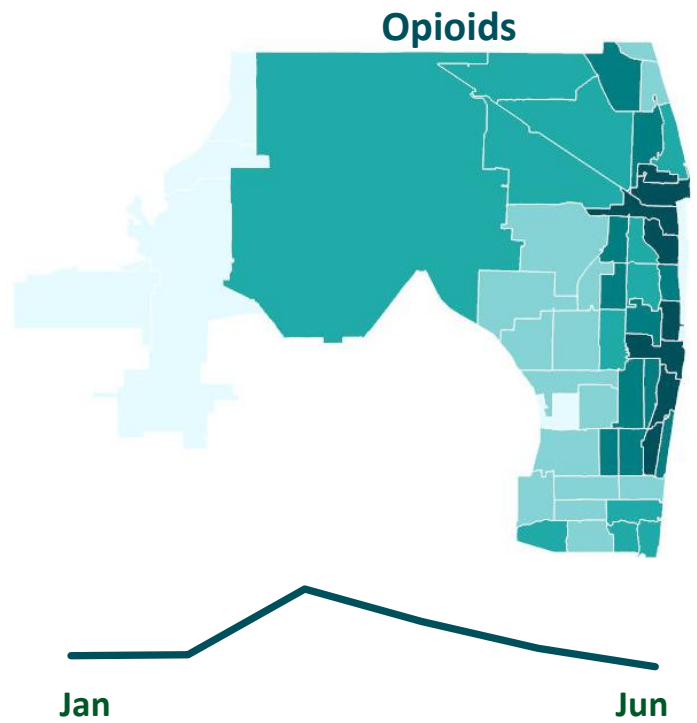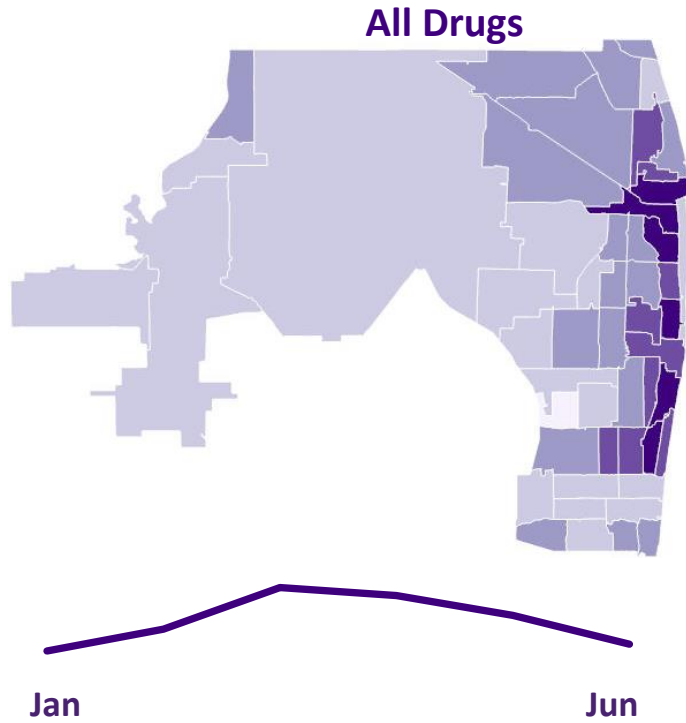
Overdose Data to Action (OD2A)

Demographics

By Gender

Male	Female

Male pie chart: White, Black, Other

Female pie chart: White, Black, Other

Male pie chart: Non-Hispanic, Hispanic

Female pie chart: Non-Hispanic, Hispanic

Male (bar chart)

Age	Count
0-9	3
10-14	1
15-24	44
25-34	173
35-44	140
45-54	46
55-64	25
65+	23

Female (bar chart)

Age	Count
0-9	5
10-14	3
15-24	32
25-34	75
35-44	49
45-54	29
55-64	24
65+	25

Overdose Data to Action (OD2A)

Demographics

By Drug

Opioid	Benzodiazepine	Stimulant

Pie charts by race (White, Black, Other) for Opioid, Benzodiazepine, and Stimulant.

Pie charts by sex (Male, Female) for Opioid, Benzodiazepine, and Stimulant.

Opioid age groups:
0-9	10-14	15-24	25-34	35-44	45-54	55-64	65+
1	1	50	211	166	63	35	35

Benzodiazepine age groups:
0-9	10-14	15-24	25-34	35-44	45-54	55-64	65+
3	2	24	56	40	19	14	20

Stimulant age groups:
0-9	10-14	15-24	25-34	35-44	45-54	55-64	65+
4	1	20	54	38	8	6	3

Overdose Data to Action (OD2A)

Social Determinants of Health

Housing

1 in 3

Experienced transient or unstable housing

- Stable Housing
- Unstable Housing
- Unknown

What is *unstable* housing?
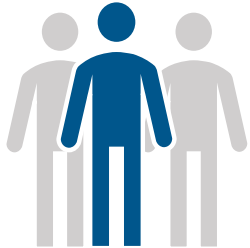
Homeless/Homeless Shelters

Sober Homes/Halfway Houses

Prison/Jail

Hotels/Motels

Couch Surfing

Other unstable living arrangements

Employed

Not Employed

Unknown

- Unemployed
- Retired
- Disabled
- Student/Minor

Employment

Employment is a strong indicator of economic and financial stability[3]. Gainful employment is associated with increased health and well-being and may help ensure that a person's basic needs are met.

Most patients were not employed at the time of overdose. **Unemployed** adults accounted for **44%** of patients. Only **17%** of patients were employed.
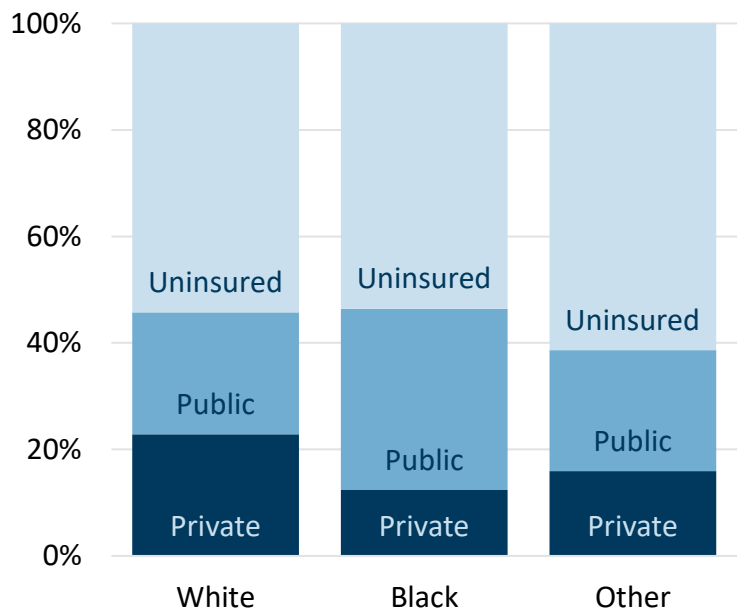
Health Insurance

White patients were more likely to have private health insurance. Public health insurance, like Medicaid, offer much less flexibility and limit treatment options for people with substance use disorder.

1 in 10

Drug treatment facilities in Palm Beach County accept **Medicaid insurance**

Overdose Data to Action (OD2A)

Social Determinants of Health

Criminal History

The percentage of patients with a prior arrest or criminal record

46% Drug possession

33% Possession of drug paraphernalia

10% Possession with intent to distribute

15% Driving under the influence

43% Theft/burglary

29% Violent crimes

15% Disorderly conduct

4% Child endangerment

4% Prostitution

Criminal history, as defined here, is the presence of a criminal charge or arrest record regardless of whether the charge resulted in a conviction.

Nearly three-quarters of patients **(73.3%)** were found to have a criminal record or prior arrest. Given the strong association between substance use disorder and crime[4], the **criminal justice system** is a critical area of opportunity for early intervention for those with substance use disorder. Despite estimates that about one-half of the US prison population abuse drugs, it is still relatively uncommon for inmates to receive evidence-based treatment while incarcerated[4].

Drug arrest can hinder a person's ability to find gainful employment and stable housing, which can further the cycle of substance abuse. Social stigma from arrests can also negatively impact a person's interpersonal relationships and local support networks. These factors can act as barriers on the road to recovery.

The odds of a prior arrested for drug possession

History of substance abuse	**5.29**
Hispanic	**3.11**
Black	**1.81**
Male	**1.56**

What are the odds?

Hispanic patients were **3 times** more likely to have a criminal record history of drug possession than non-Hispanic patients, even after adjusted for race and age.
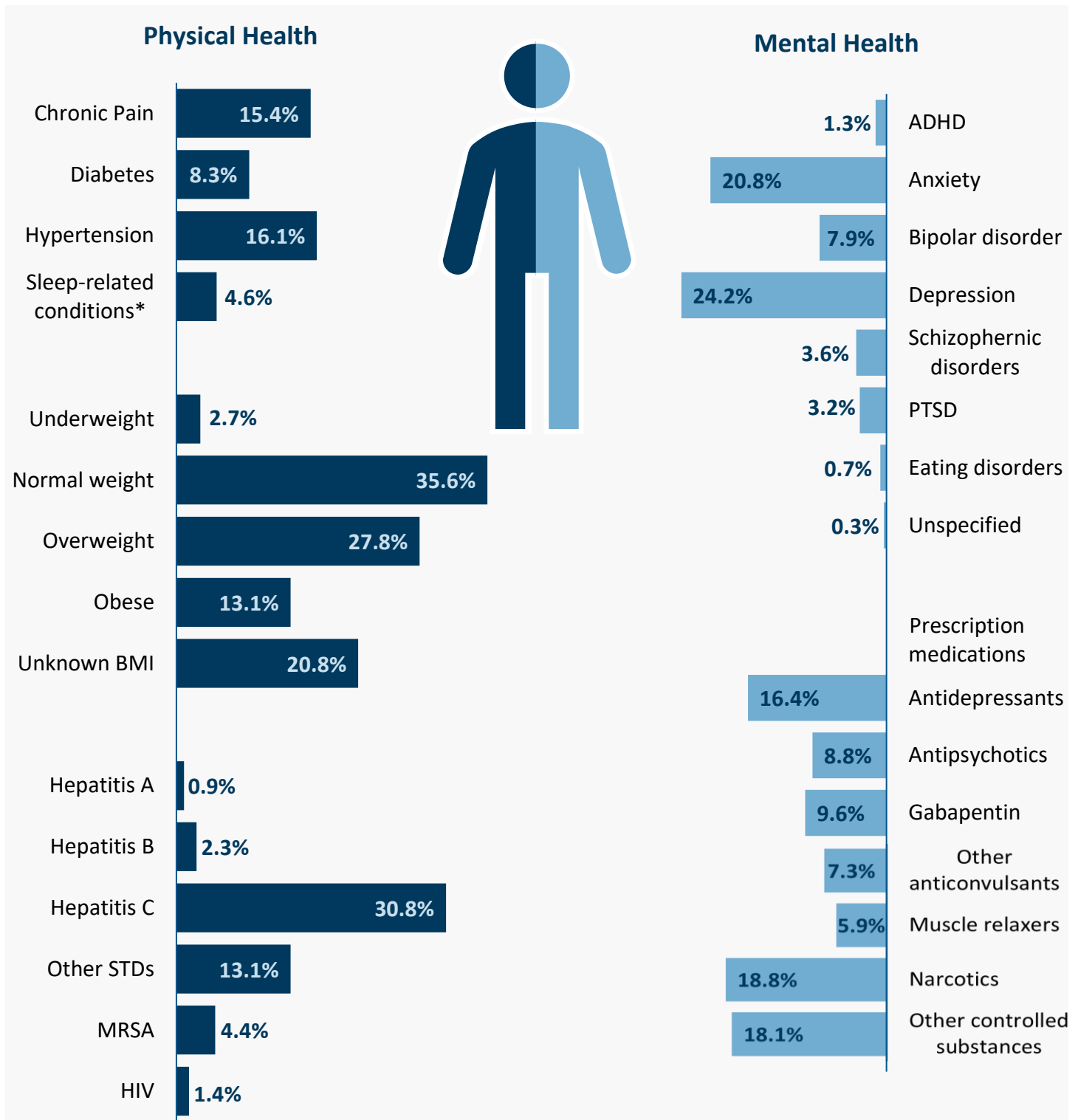
History of substance abuse vs no known history of substance abuse OR 5.29, 95% confidence interval (CI) [1.71, 16.43] adjusted for age, race, and gender
Hispanic vs non-Hispanic OR 3.11 95% (CI) [1.60, 6.04] adjusted for age and race
Black vs White OR 1.81 95% (CI) [1.04, 3.05] adjusted for age and gender
Male vs Female OR 1.56 95% (CI) [1.09, 2.24] adjusted for age and race

Overdose Data to Action (OD2A)

Health and Wellness

Past Medical History

Physical Health

Condition	Percentage
Chronic Pain	15.4%
Diabetes	8.3%
Hypertension	16.1%
Sleep-related conditions*	4.6%
Underweight	2.7%
Normal weight	35.6%
Overweight	27.8%
Obese	13.1%
Unknown BMI	20.8%
Hepatitis A	0.9%
Hepatitis B	2.3%
Hepatitis C	30.8%
Other STDs	13.1%
MRSA	4.4%
HIV	1.4%

Mental Health

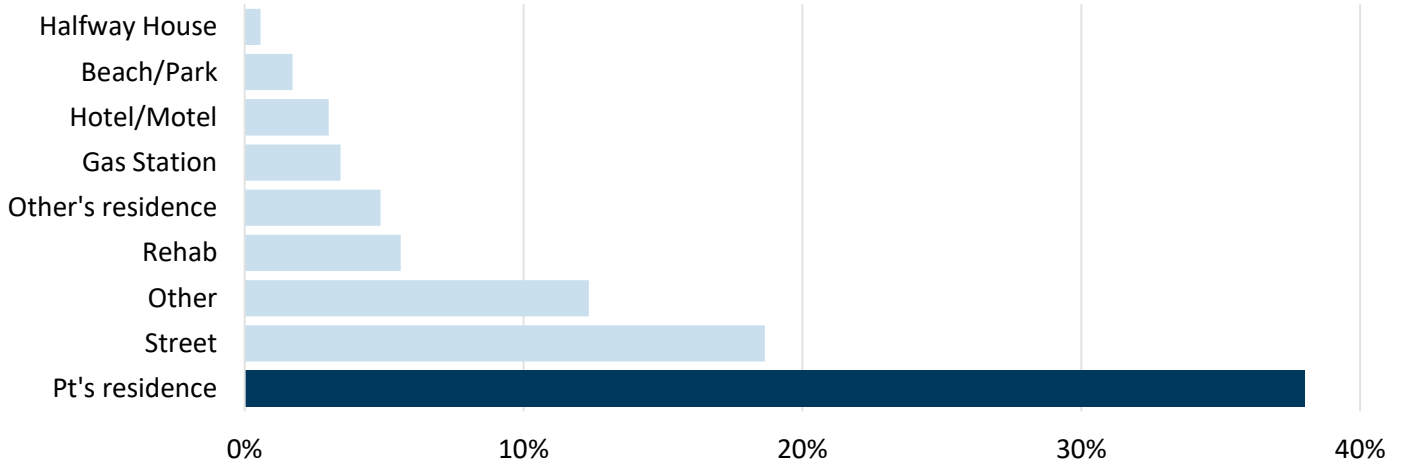| Condition	Percentage
ADHD	1.3%
Anxiety	20.8%
Bipolar disorder	7.9%
Depression	24.2%
Schizophernic disorders	3.6%
PTSD	3.2%
Eating disorders	0.7%
Unspecified	0.3%
Prescription medications	
Antidepressants	16.4%
Antipsychotics	8.8%
Gabapentin	9.6%
Other anticonvulsants	7.3%
Muscle relaxers	5.9%
Narcotics	18.8%
Other controlled substances	18.1%

* Sleep-related conditions included insomnia, sleep apnea, or narcolepsy

Overdose Data to Action (OD2A)

Pre-Hospital Data

Location of Overdose

38% of overdoses occurred at home. Other significant locations where overdoses occurred included outdoors/ streets **(19%)** and gas stations **(6%)**. **12%** of overdose location data was missing or unknown.

(Horizontal bar chart, Location of Overdose)

Location	Percent
Halfway House	~1%
Beach/Park	~2%
Hotel/Motel	~3%
Gas Station	~3%
Other's residence	~5%
Rehab	~5%
Other	~12%
Street	~19%
Pt's residence	~38%

10% of overdoses occurred in a motor vehicle
2% were involved in a car accident at the time of overdose

Mode of Arrival

1% arrived by police transport
12% were brought in by private vehicle
86% were transported by fire rescue services

3 in 5
Patients were revived with naloxone (all drug) and **71%** of opioid overdose patients required naloxone
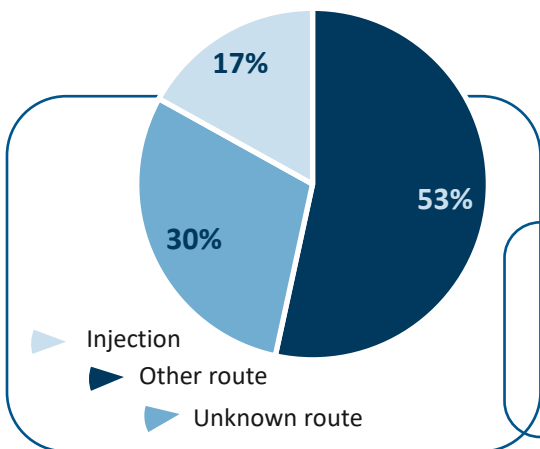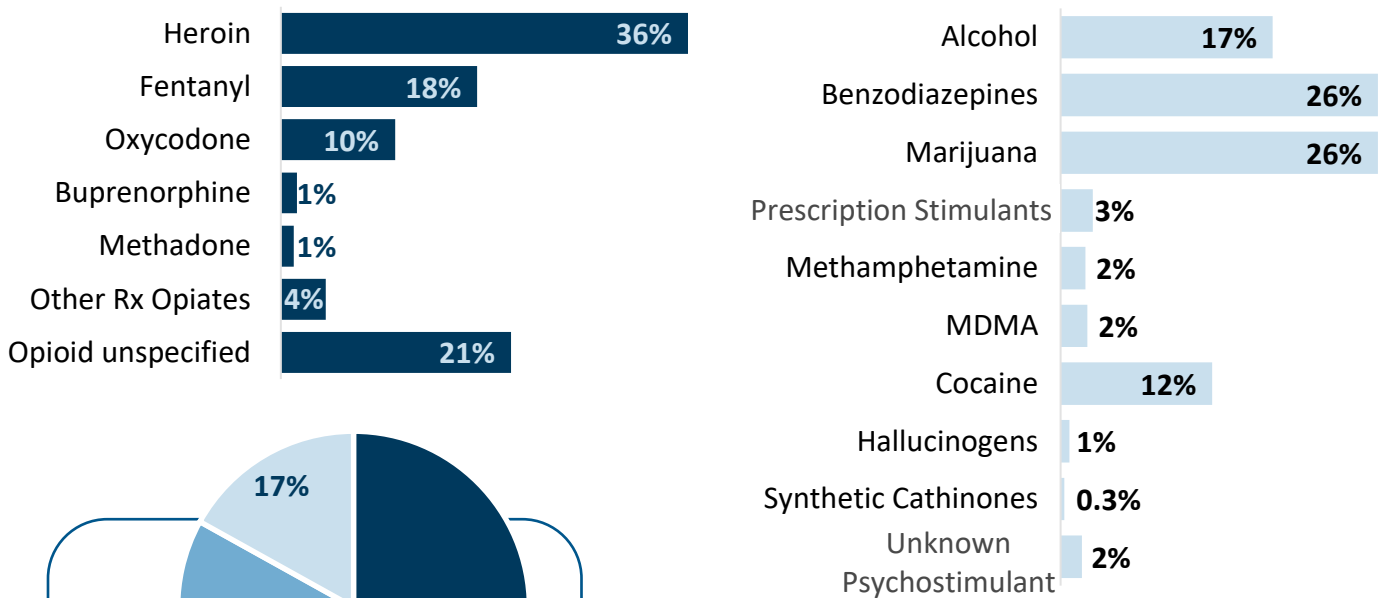
Who administered naloxone first?

Administrator	Percent
Fire Rescue	66%
Healthcare Professional	24%
Rehab Facility Staff	3%
Family, Friend, or Bystander	6%
Police Officer	1%
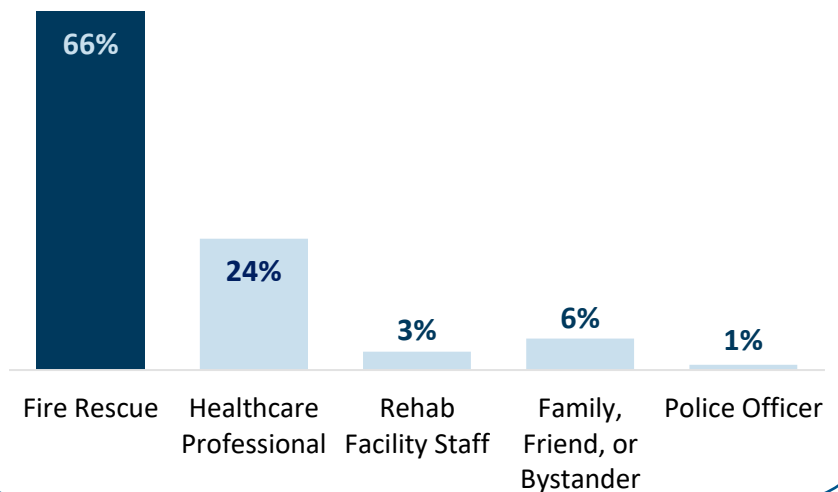
Overdose Data to Action (OD2A)

Overdose Incident Data

Ingested Substances

The following represents all reported substances relating to the overdose event and are non-mutually exclusive. Overdose events must have at least included an opioids, benzodiazepines, *or* psychostimulants to be included. The frequency of all reported substances ingested are displayed in the figure below.

Substance	Percentage
Heroin	36%
Fentanyl	18%
Oxycodone	10%
Buprenorphine	1%
Methadone	1%
Other Rx Opiates	4%
Opioid unspecified	21%

Substance	Percentage
Alcohol	17%
Benzodiazepines	26%
Marijuana	26%
Prescription Stimulants	3%
Methamphetamine	2%
MDMA	2%
Cocaine	12%
Hallucinogens	1%
Synthetic Cathinones	0.3%
Unknown Psychostimulant	2%

Pie chart: 53%, 30%, 17%
- Injection
- Other route
- Unknown route

Route of Administration

17% of people who overdosed on opioids injected intravenously (IV), and **3%** of people who overdosed on non-opioid substances (not shown) injected them

Recognizing an Overdose

⚠️ Signs and symptoms of overdose can vary greatly depending on the type of substance ingested and the physiological characteristics of the individual.

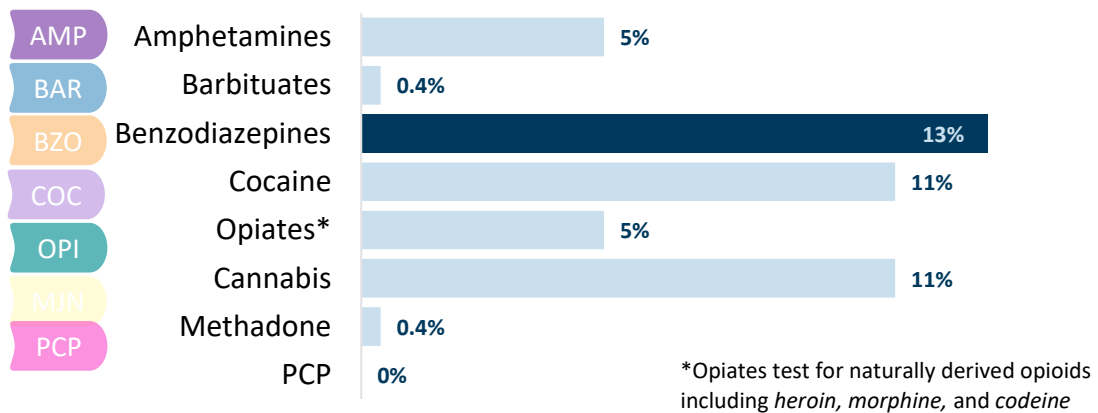| **Opioid**[5]	**Benzodiazepine**[6]	**Stimulant**[7]
Cold or blue skin	Slurred speech	Psychosis
Slow shallow breathing	Excessive drowsiness	Agitation and irritability
Delirium	Agitation and anxiety	Delirium
Pinpoint pupils	Hallucinations	Rapid speech and restlessness
Loss of consciousness	Unresponsiveness	Tachycardia and chest pain
Decreased responsiveness	Difficulty breathing	Tremors or seizures
Reversal medication: Naloxone	**Reversal medication: Flumazenil**	**Intervention: Physical/chemical sedation**

Overdose Data to Action (OD2A)
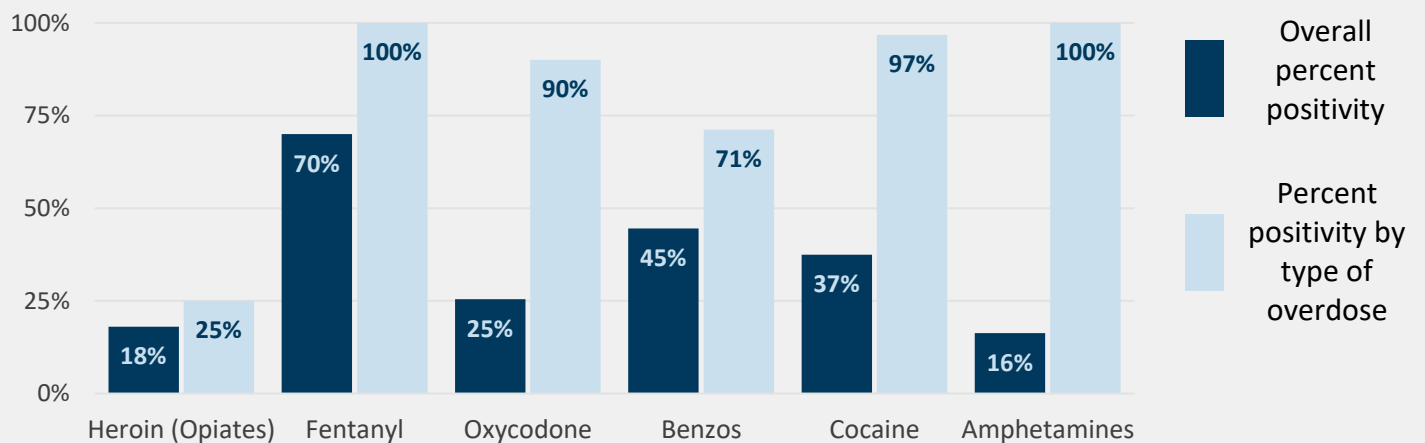
Overdose Incident Data

Toxicology

Hospitals primarily use standard panel urine drug tests to identify potential drugs present in a patient's system. Toxicology was reported in medical records in 29% (n=205) of overdose events. Standard panel tests do not test for fentanyl and oxycodone, both of which have been responsible for most overdoses over the years. Of the 697 overdose records analyzed, only 20 records **(3%)** reported fentanyl toxicology screening.

Various factors might explain the lack of toxicology test results such as, tests were completed but results were not attached to the patient records, patient left against medical advice (AMA) before test could be completed, and/or the patient refused to submit a sample for analysis due to stigma surrounding drug use or out of fear of legal persecution.

Proportion of patient records that reported a positive drug screen

Code	Drug	Percent
AMP	Amphetamines	5%
BAR	Barbituates	0.4%
BZO	Benzodiazepines	13%
COC	Cocaine	11%
OPI	Opiates*	5%
MJN	Cannabis	11%
	Methadone	0.4%
PCP	PCP	0%

*Opiates test for naturally derived opioids including *heroin, morphine,* and *codeine*

Positivity percent for records where drug toxicology was reported

Drug	Overall percent positivity	Percent positivity by type of overdose
Heroin (Opiates)	18%	25%
Fentanyl	70%	100%
Oxycodone	25%	90%
Benzos	45%	71%
Cocaine	37%	97%
Amphetamines	16%	100%

The figure above shows the percent positivity rate for records that reported hospital drug screen and by reported drug use. For example, of records that included toxicology, 45% tested positive for benzodiazepines. Of records that reported benzodiazepine-involved overdose **AND** included drug screen results, 71% of records tested positive for the drug indicated.

Overdose Data to Action (OD2A)

Overdose Incident Data

Outcomes

7% Acute toxic or metabolic encephalopathy

5% Aspiration pneumonia

2% Rhabdomyolysis

5% Acute kidney injury (AKI)

Complications

One way to gauge the severity of an overdose is by the presence of potentially life-threatening complications following the event. Some complications require an extended hospital stay for observation and treatment, while other complications such as respiratory failure might require intubation and intensive care.

Disposition

More than half (61%) of patients treated at the emergency department were stable for discharge. Patients that were stable for discharge generally were discharged to home (either their home or a loved one's) but may also have been discharged to a drug treatment facility or to police custody. 9% of patients left the hospital early, leaving against medical advice (AMA).

61% Standard ED discharge

9% left against medical advice

18% admitted for observation

7% admitted to intensive care (ICU)

5% baker acted or transferred to a psychiatric facility

In Remembrance…

Since 2010, over 4,000 people have died of a drug overdose in Palm Beach County and the numbers continue to climb – with more than a third of these deaths occurring in the past 3 years alone[8]. From January 1 through June 30, 2021, OD2A collected data on more than **697** non-fatal suspected opioid, benzodiazepine, and stimulant overdoses from **626** individuals. **15** of these individuals have since lost their battle with SUD, experiencing a fatal overdose. They leave behind family, friends, and loved ones.
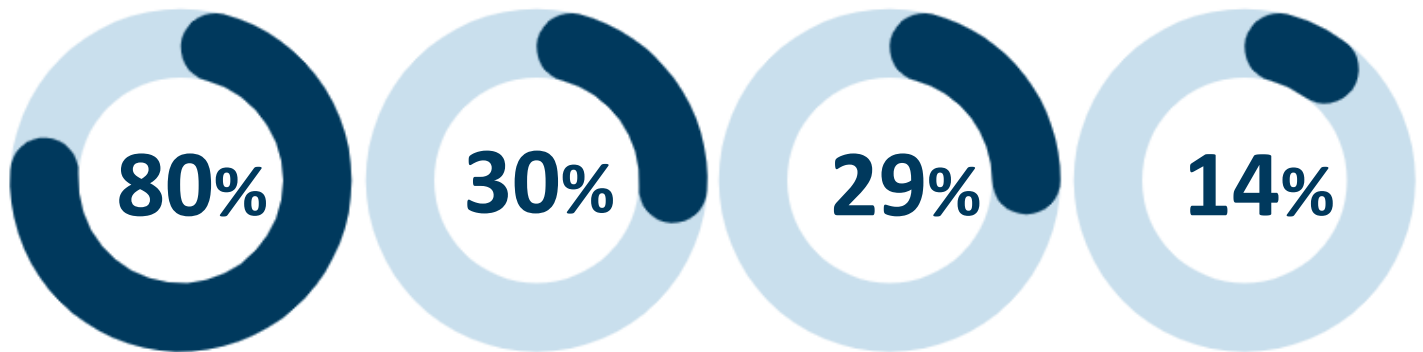
The OD2A team remembers those who lost their battle.

Overdose Data to Action (OD2A)

Harm Reduction

History of Substance Abuse

80% **30%** **29%** **14%**

Harm reduction is critically important in preventing and reducing drug overdose mortality and the morbidity of co-occurring diseases and conditions associated with drug use. Understanding a person's history with substance abuse and recovery can inform public health professionals to the overall needs of the population and identify areas where help and resources can be most efficient. **80%** of patients had a known history of substance abuse, and **30%** had a known prior overdose in the past. **29%** of patients were found to have a history of intravenous (IV) drug use. **14%** of patients reported prior attempt(s) at recovery through medication-assisted treatment (MAT) program.

Potential Contributing Factors or Circumstances for Substance Use and/or Overdose

57% of patients reported using drugs for recreational purposes

10% of overdoses were attempts at suicide or self-harm

9% reported self-medicating chronic or acute pain

9% overdosed after a period of abstinence

5% of patients were binging drugs before going to rehab

9% reported using drugs to cope with stress or mental health issues

10% reported accidentally taking too much of their prescription medications

Overdose Data to Action (OD2A)

Harm Reduction

Naloxone

Naloxone (Narcan) is an FDA-approved medication that is both safe and effective at treating opioid-induced respiratory depression[9]. Naloxone is available by prescription as a nasal spray that requires minimal training to use effectively. This means that family, friends, and other non-medical individuals can learn how to provide first aid for opioid overdoses, potentially saving the person's life. The effects of naloxone can wear off quickly, so people should always **call 911**. Harm reduction strategies such as co-prescribing naloxone with prescription opioid medications or after hospital discharge following a non-fatal overdose, can play a vital role in reducing overdose fatalities.

> *"Naloxone gave me a second, third, and fourth chance at life…*
> *Now, looking back, I am so very grateful for the opportunities I have had in*
> *my recovery and in my life that would never have been possible if it weren't*
> *for people saving my life, even when I didn't want to be saved."[10]*

Percentage of patients engaged in harm reduction before and after overdose
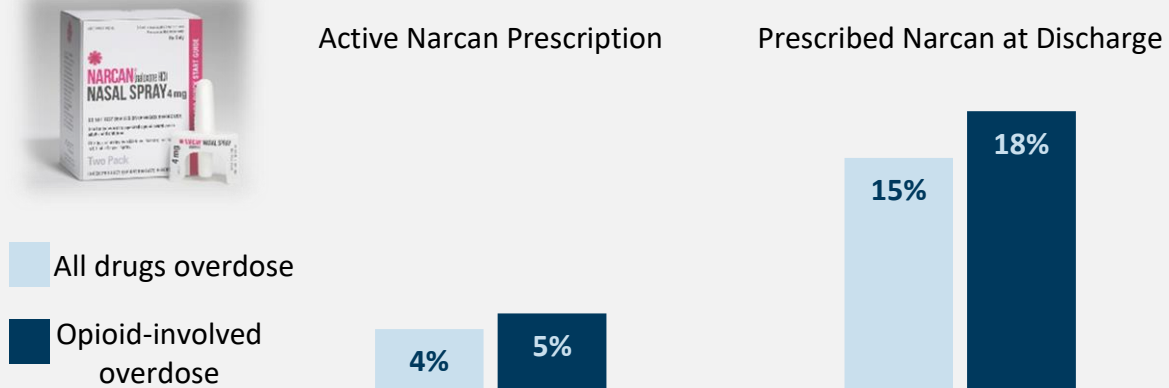
Active Narcan prescription indicates the proportion of the sample that has previously engaged in harm reduction strategies prior to the current overdose. In 4% of the overall sample, patient records reported an active prescription for Narcan at the time of overdose. For patients who experienced an opioid-involved overdose, active prescriptions were marginally higher at 5%. Emergency department (ED) implementation of harm reduction strategies was measured through physician prescribed Narcan at time of discharge.

For all drug overdoses, 70% (n=486) of patients were discharged from the ED either regularly or against medical advice (AMA). The remaining 211 patients where admitted to the hospital or transferred to another facility. 15% of all patients who were discharged from the ED received Narcan or a prescription for Narcan at discharge. For opioid-involved overdoses, 74% (n=414) of patients were discharged from the ED. 18% of those patients received Narcan or a prescription for Narcan at discharge.

> **16% of patients whose home medications included at least one narcotic prescription received a prescription for Narcan after discharge from the emergency department.**

Overdose Data to Action (OD2A)

Harm Reduction

Evidence-based treatment for opioid use disorder (OUD)

Medication-Assisted Treatment (MAT) is a treatment program that combines the use of FDA-approved medication with counseling and therapy to treat OUD[11]. Medications for opioid use disorder (MOUD) include methadone, naltrexone, and buprenorphine. **14%** of patients reported prior treatment with MOUD. Buprenorphine/naloxone (Suboxone) was the most frequently reported MOUD, followed by buprenorphine alone (Subutex), methadone, and lastly naltrexone.

Societal Barriers to Accessing MAT[11]

Stigma from the recovery community that MOUD is substituting one drug for another

Stigma from healthcare providers or pharmacists who are prejudice and/or discriminatory towards patients seeking MOUD

Regulatory restrictions for practitioners require extra training and an application for a waiver to legally prescribe MOUD

Cultural norms within minority and ethnic communities regarding mental health and SUD

Religious beliefs regarding SUD and treatment with the MAT program

Individual Barriers to accessing MAT[11]

Patient's previous negative experiences in a MAT program

Patient does not have reliable transportation to be able to travel to and from frequent appointments while in a MAT program

Patient does not believe that MAT will help or that it is not effective in treating OUD

Treatment cost and health insurance barriers

Mobility issues for the elderly and mobility-impaired to make in-person appointments

Long wait times at clinics that supply MOUD for low income or uninsured individuals

Percentage of patients referred to a MAT program upon discharge from the ED for an opioid-involved overdose
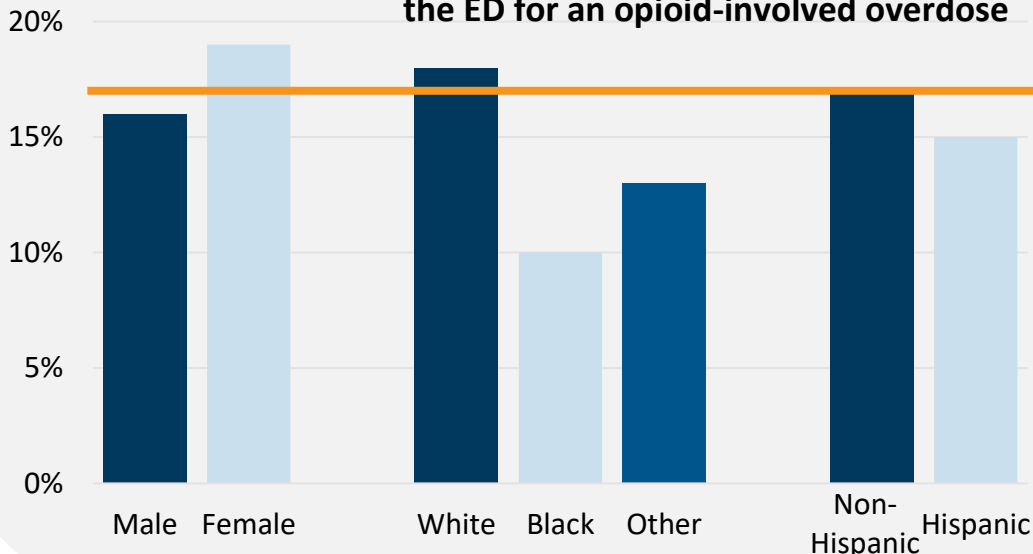
17% Of opioid overdoses were referred to MAT

5% of doctors in PBC are waived to provide MAT services. That is 1.5 doctors for every 10k residents

Overdose Data to Action (OD2A)

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