# Opioid Misuse and Overdose Report

## Philadelphia, PA

*last updated July 11th, 2019

Department of
Public Health
CITY OF PHILADELPHIA

# Executive Summary

The purpose of this report is to describe trends in opioid misuse and overdose in Philadelphia, PA. Since 2003, unintentional drug related overdoses have increased dramatically in the City, likely as a result of a rise in the sale of selected pharmaceutical opioids. Between 2000 and 2015, selected opioid sales quadrupled in Philadelphia, the main driver of which has been oxycodone.

The number of unintentional drug related deaths increased from 311 in 2003 to 1,217 in 2017. Deaths slightly decreased to 1,116 in 2018. The primary driver of the increase has been deaths involving opioids. In 2003, just 211 deaths involved opioids, but this number climbed to 1,074 in 2017. With the overall decrease in deaths, the number of deaths involving opioids has declined to 939 in 2018. Since 2011, the majority of opioid related deaths have included heroin, and since 2014 there has been a steady increase in the number of deaths involving fentanyl. While the rate of unintentional opioid related death is highest among 25-34 year old, white, non-Hispanic males, no Philadelphia subpopulation has remained untouched by the epidemic.

In parallel to the increase in unintentional drug related deaths, rates of drug related emergency department (ED) visits also increased from 3.19 drug-related ED visits per 1,000 ED visits in 2007 to 7.69 per 1,000 ED visits in 2018. Likewise, hospitalizations attributable to opioid poisoning have increased from under 300 in 2002 to more than 600 in 2017. Visits and hospitalizations are highest among 25-34 year old males.

The number of fatal unintentional drug related overdoses would be higher if not for availability of the overdose reversal drug, naloxone. In 2017 alone, more than 5,000 individuals were administered naloxone by Philadelphia Emergency Medical Services (EMS). In 2018, this decreased to more than 3,000 individuals administered naloxone. Individuals receiving naloxone from EMS were most often 25-54 year old males and more than 90% were transported to an area hospital after receipt of the drug, though that percentage had declined in 2018 to slightly less than 80%.

Finally, concurrent with the increases in opioid overdose has been other adverse outcomes including increasing rates of neonatal abstinence syndrome (NAS) and hepatitis C virus (HCV) transmission. In 2002, there were 3.09 cases of neonatal abstinence syndrome for every 1,000 live born hospital births, and by 2017, this rate had increased to 13.67 per every 1,000 live born hospital births. Additionally, the rate of women giving birth that were opioid dependent or using opioids increased from 2.65 per every 1,000 live born hospital births to 15.15 in 2015. The rate of women giving birth that were opioid dependent or using opioids decreased to 14.57 per 1,000 live born hospital births in 2017. Finally, through sharing of injection equipment, there is also potential for infectious disease transmission among persons who inject drugs. Among cases of acute HCV infection, more than 60% self-reported ever injecting drugs.

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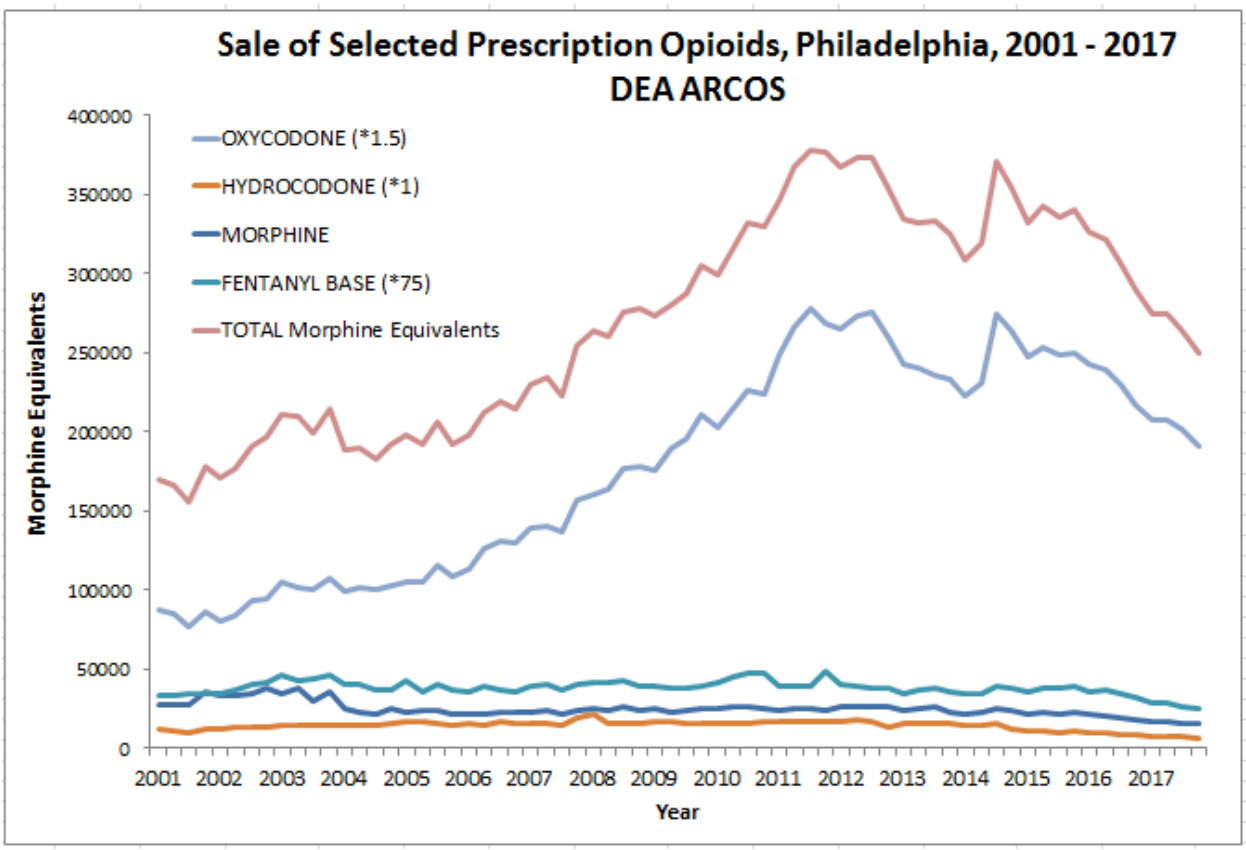
# I. Opioid Sales and Prescriptions

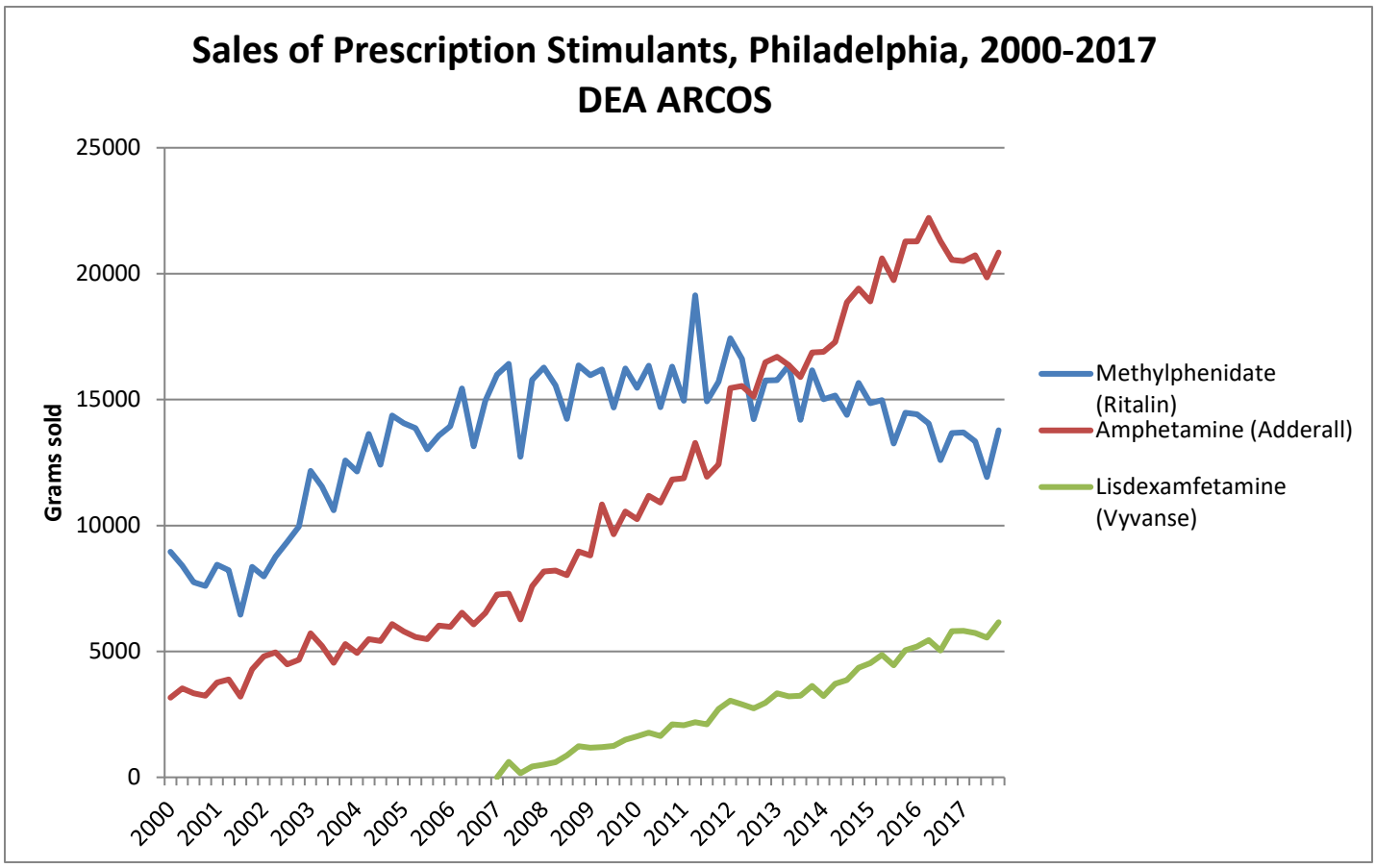
Prescription drug manufacturers and distributors of bulk and/or dosage form controlled substances are required to report inventories, acquisitions, and dispositions of all Schedule I and II substances, and Schedule III narcotic and Gamma-Hydroxybutyric Acid (GHB) substances to the DEA Automated Reports and Consolidated Ordering System (ARCOS). This system provides total drug amounts (in grams) distributed to retail registrants in each state by three digit zip code. The drug amounts are converted to morphine equivalents. This report includes data from zip codes beginning with 191 and is complete through December 31, 2017.

There are two primary limitations associated with the ARCOS dataset. First, ARCOS data includes opioid used in veterinary medicine, and thus may overestimate the amount available for human consumption. Additionally, ARCOS does not distinguish between routes of administration (i.e. oral, IV, or sublingual) which can impact a drug's potential for abuse and/or diversion.

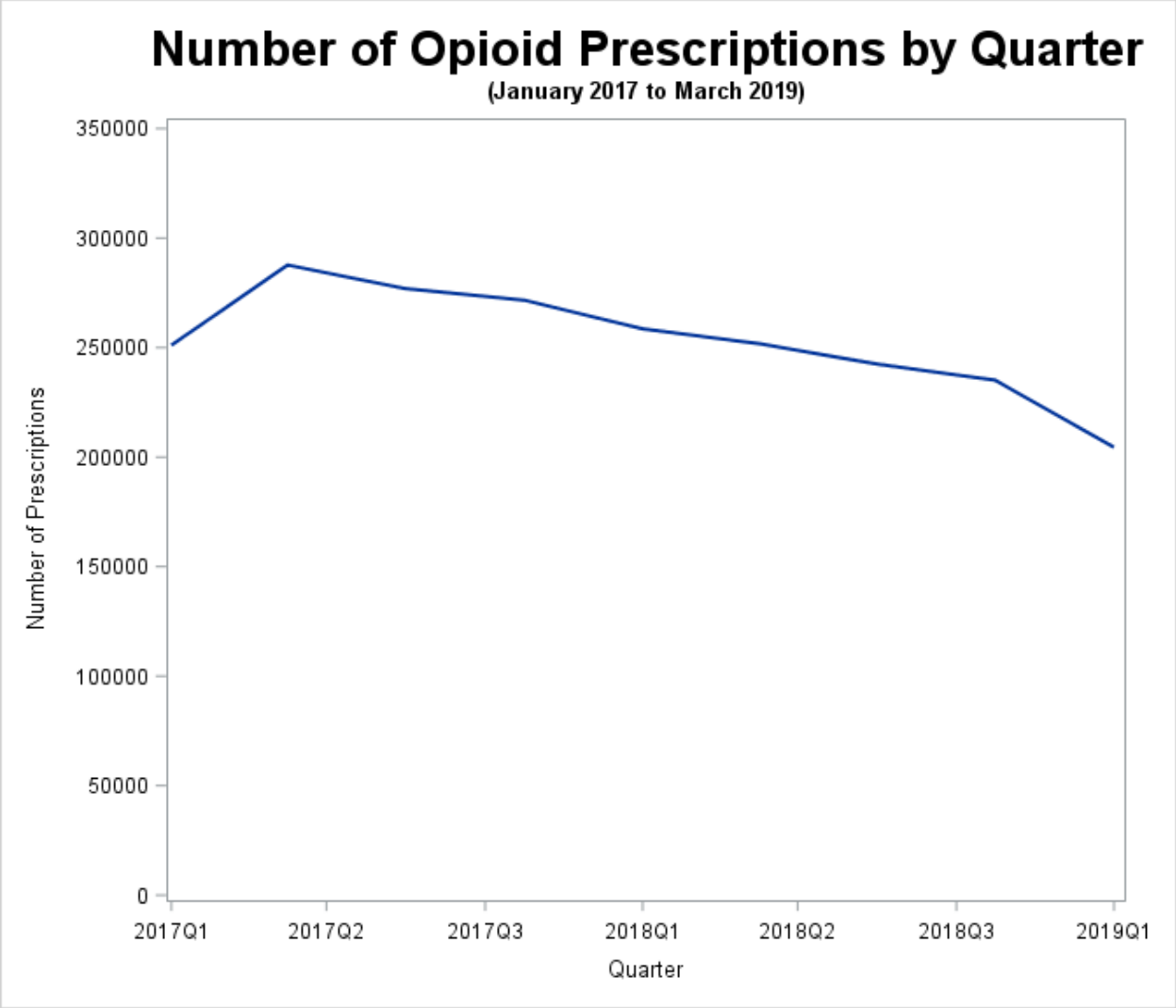
Pennsylvania's Prescription Drug Monitoring Program (PDMP) collects information on all filled prescriptions for controlled substances. In July 2016, PA launched a new and much more robust PDMP. This report includes Philadelphia-based opioid prescribing data collected from January 2017 to March 2019. Data has been filtered to include only Philadelphia prescribers.



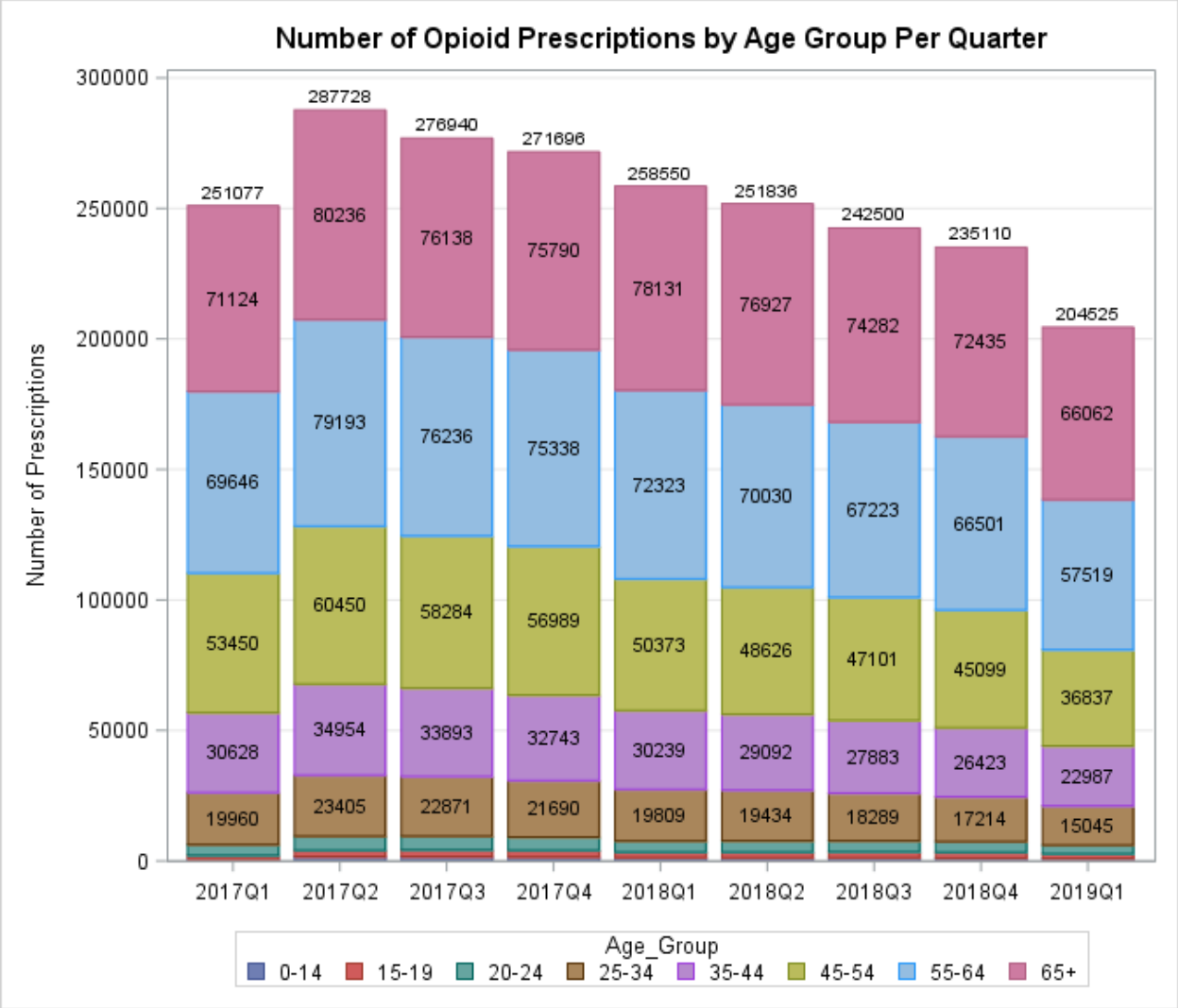

Between 2000 and 2015, sales of selected prescription opioids increased. Each selected opioid displays the potency based on morphine equivalents. Hydrocodone had the lowest potency equivalent to morphine with a 1:1 ratio whereas fentanyl had the highest potency of 75:1 morphine ratio. In 2017, sales of selected opioids continued to decline.



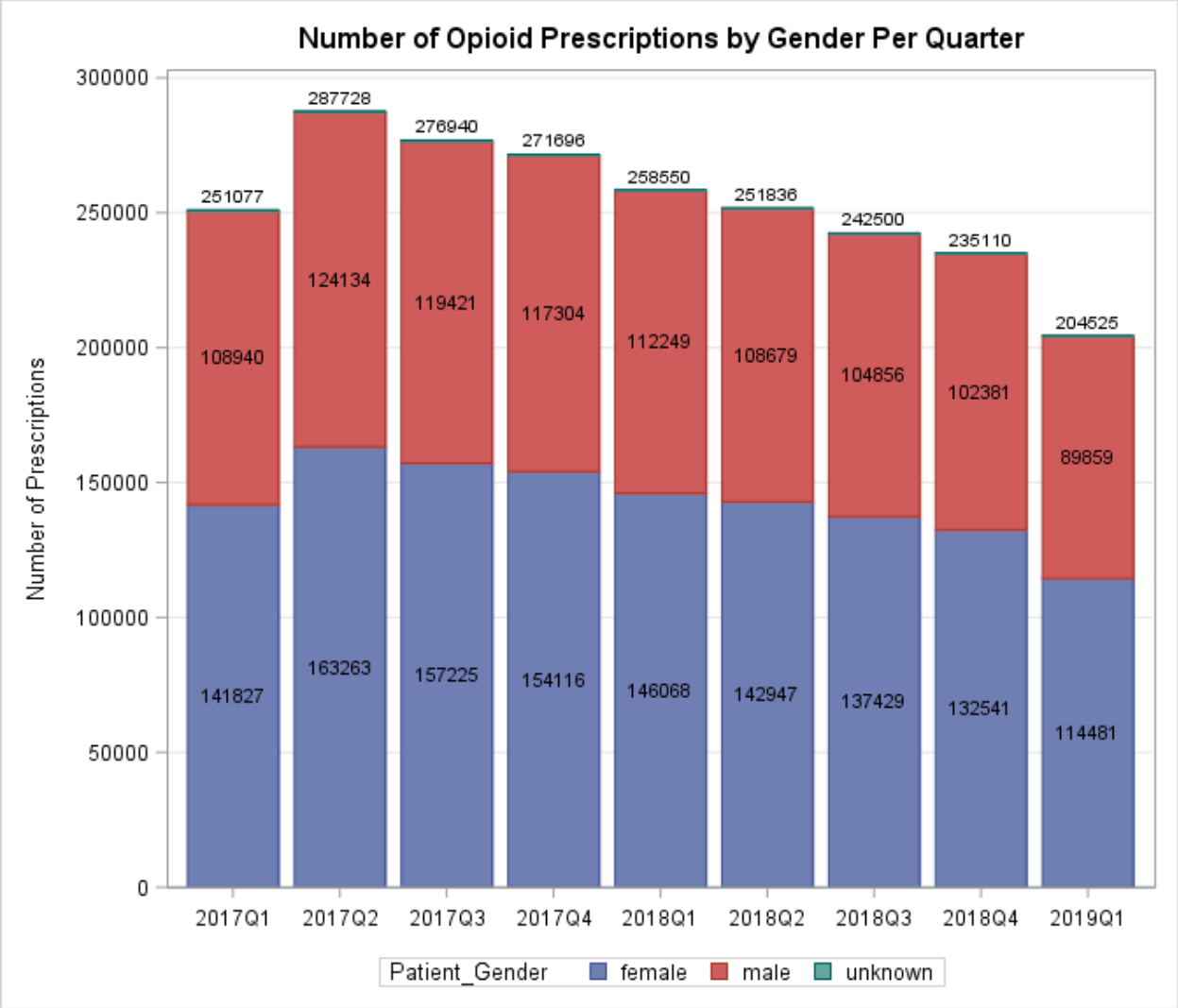

Beginning in 2007, the sales of stimulants began to increase. Sales of amphetamine surpassed the sale of methylphenidate in 2014.




The number of opioid prescriptions began to decrease in 2017Q3 and continued to do so throgh 2019Q1. In 2019Q1, there were 204,525 opioid prescriptions, excluding buprenorphine and methadone.

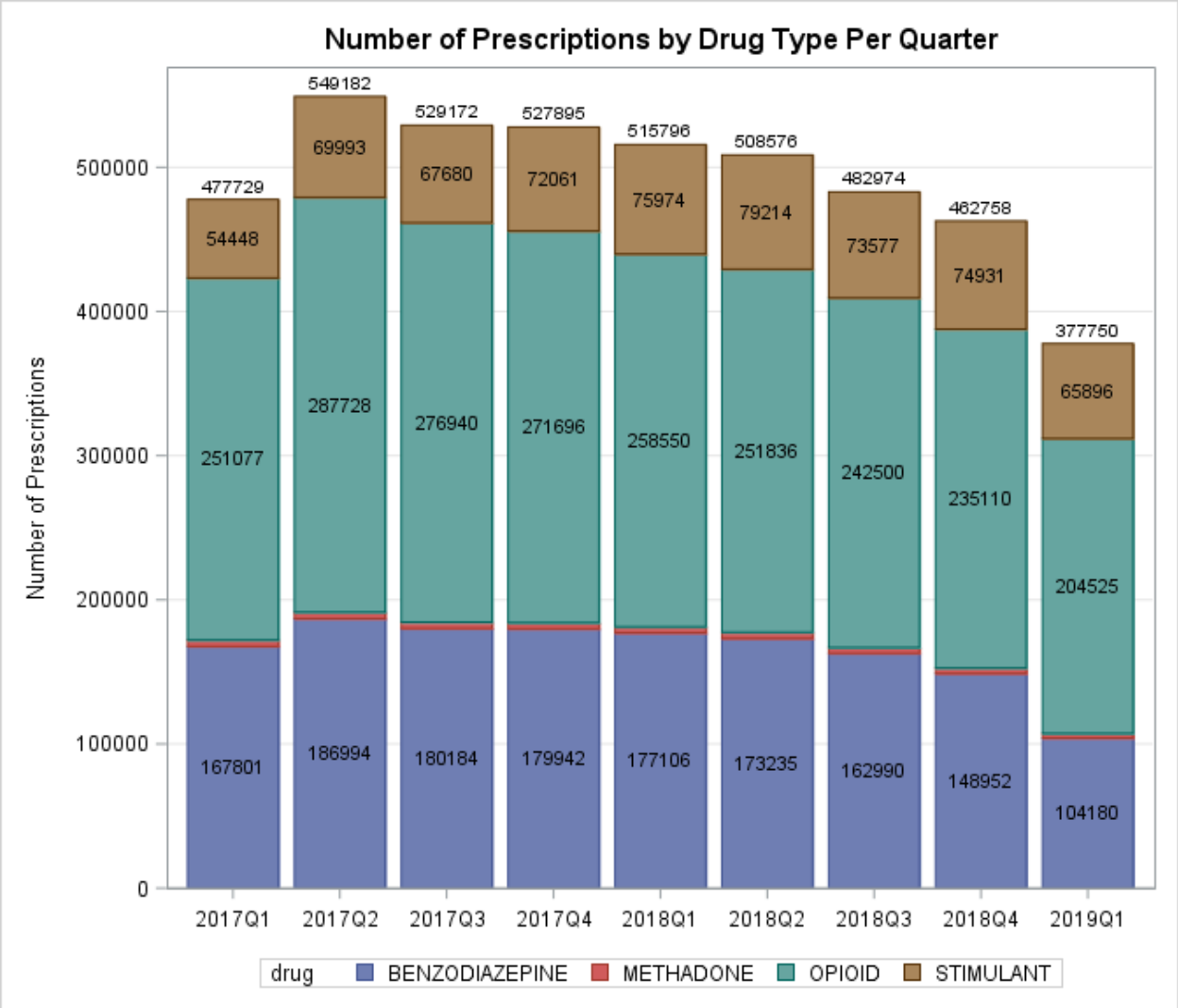



Opioid prescriptions were consistently the highest among the older age groups, 45-54, 55-64, and 65 and older. The number of prescriptions began to decrease beginning in 2017Q3. Those in the 65+ age group received 66,062 prescriptions in 2019Q1.




***Observations with unknown gender were deleted.**

Females were prescribed more opioids than males. The number of prescriptions began to decrease beginning in 2017Q3. There were 114,481 prescriptions given to females and 89,859 prescriptions given to males in 2019Q1.



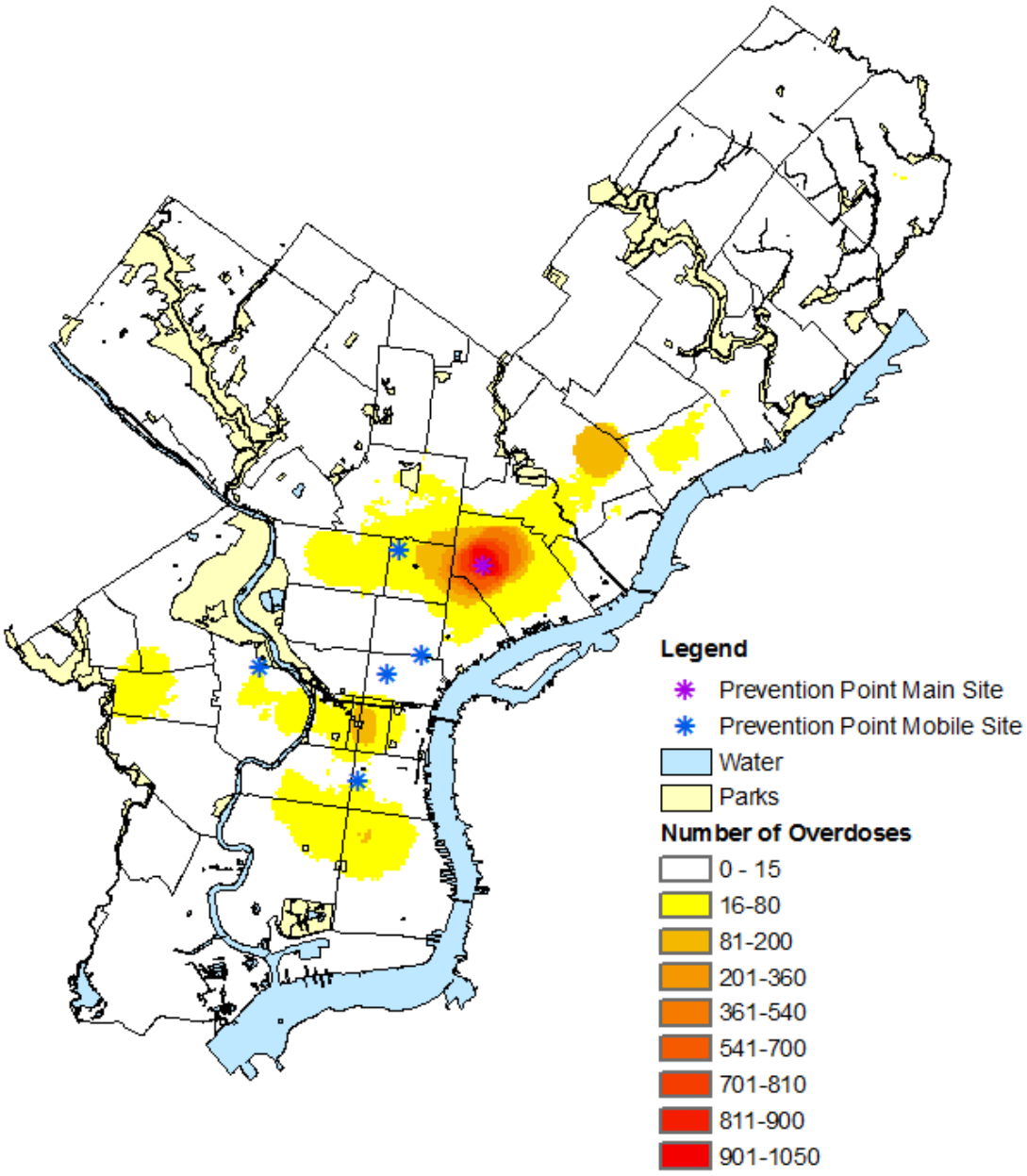

Opioid prescriptions, excluding buprenorphine, remained the highest number of prescriptions from 2017Q1 through 2019Q1 followed by benzodiazepines.

# II. Outcomes

## A. Non-Fatal Overdose

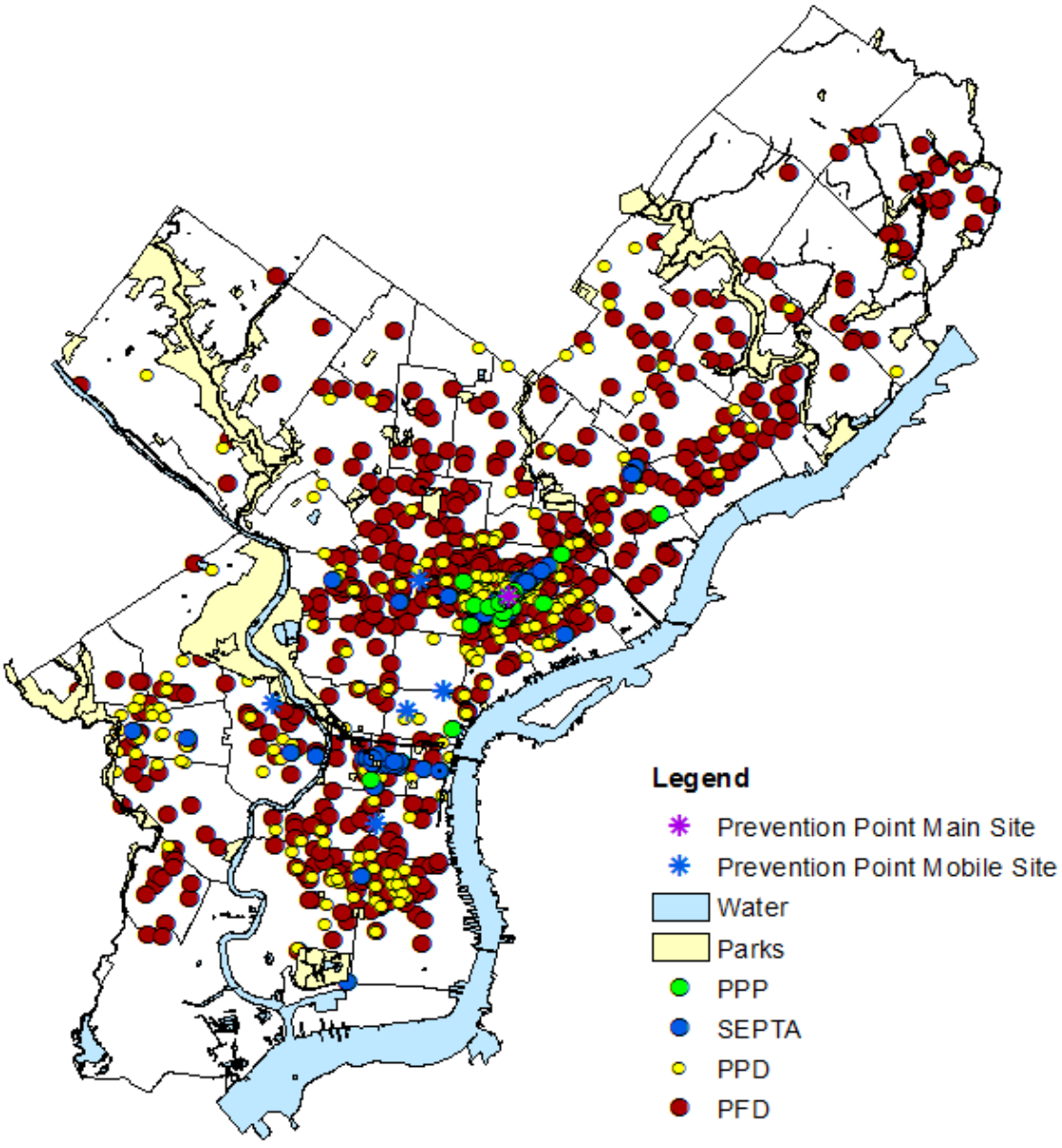
The following section includes maps that show naloxone administrations reported to the Philadelphia Police Department's Real Time Crime Center by Philadelphia Police Department, Philadelphia Fire Department/EMS, SEPTA Police Department, and Prevention Point Philadelphia personnel. This data represents unintentional non-fatal overdoses for which naloxone was administered in 2018.

## Incidence of Non-Fatal Overdoses in Philadelphia by Zip Code, 2018




There are several areas of the city where the number of nonfatal overdoses tend to be higher. These incidences reflect the overdoses where naloxone was administered. The nonfatal overdoses are reported by the Philadelphia Police Department, Philadelphia Fire Department, Prevention Point, and SEPTA police.

## Incidence of Non-Fatal Overdoses in Philadelphia by Zip Code, 2018




Most of the non-fatal overdoses reported to DVIC were by the Philadelphia Fire Department, followed by Philadelphia Police Department. Most of the overdoses

reported by SEPTA police and all the Prevention Point reports were in the vicinity of Prevention Point's main location.

# 1. Naloxone Distributions

The following section shows the doses of naloxone distributed by the Departments of Public and Behavioral Health to law enforcement agencies and other organizations during July 1, 2017 – April 5, 2019. It is important to note that the Departments of Public and Behavioral Health *do not* distribute naloxone to the Philadelphia Fire Department/EMS nor provide all naloxone doses used by the Philadelphia Police Department.

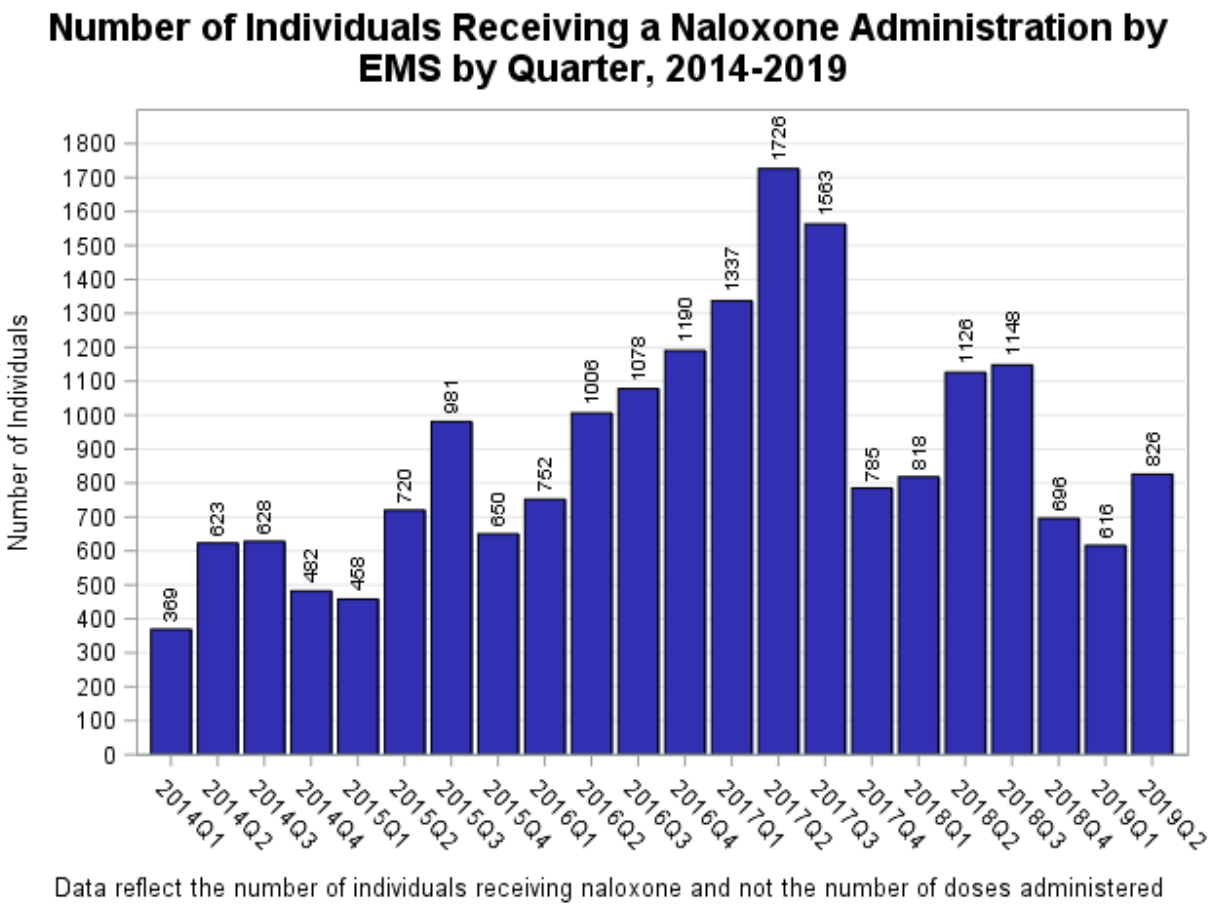
| Organization | Number of Doses (2 per kit) |
|---|---|
| **Providers and Community Organization** | 80,710 |
| **Criminal Justice Organizations** | 16,230 |
| **Law Enforcement/First Responders** | 8,504 |
| **Total** | 105,444 |

Since July 1, 2017, the City has distributed **105,444 doses of naloxone** to law enforcement agencies and other organizations.

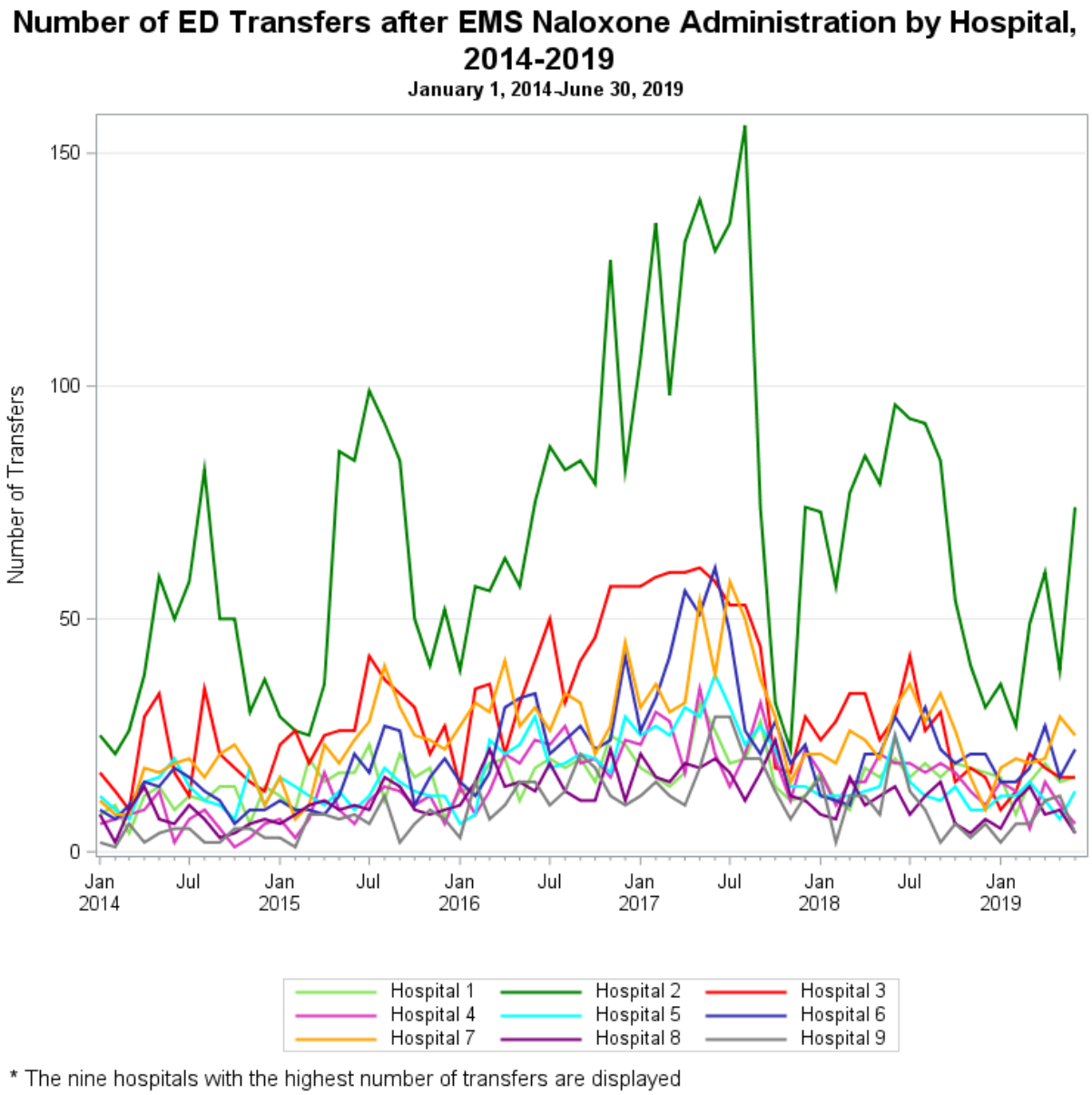
# 2. Naloxone Administrations (EMS)

The following section includes data on naloxone administration by Philadelphia Regional Emergency Medical Services (EMS). Data shown is complete through June 30, 2019.

There are limitations to this dataset. First, data represent unique events during which naloxone was administered and do not reflect number of doses of administered. Second, naloxone administration is not a perfect proxy for an opioid-involved overdose. There are instances in which naloxone is administered and is unsuccessful at reviving someone, and similarly, there are occasions in which EMS is called to respond to an overdose that does not require naloxone administration.

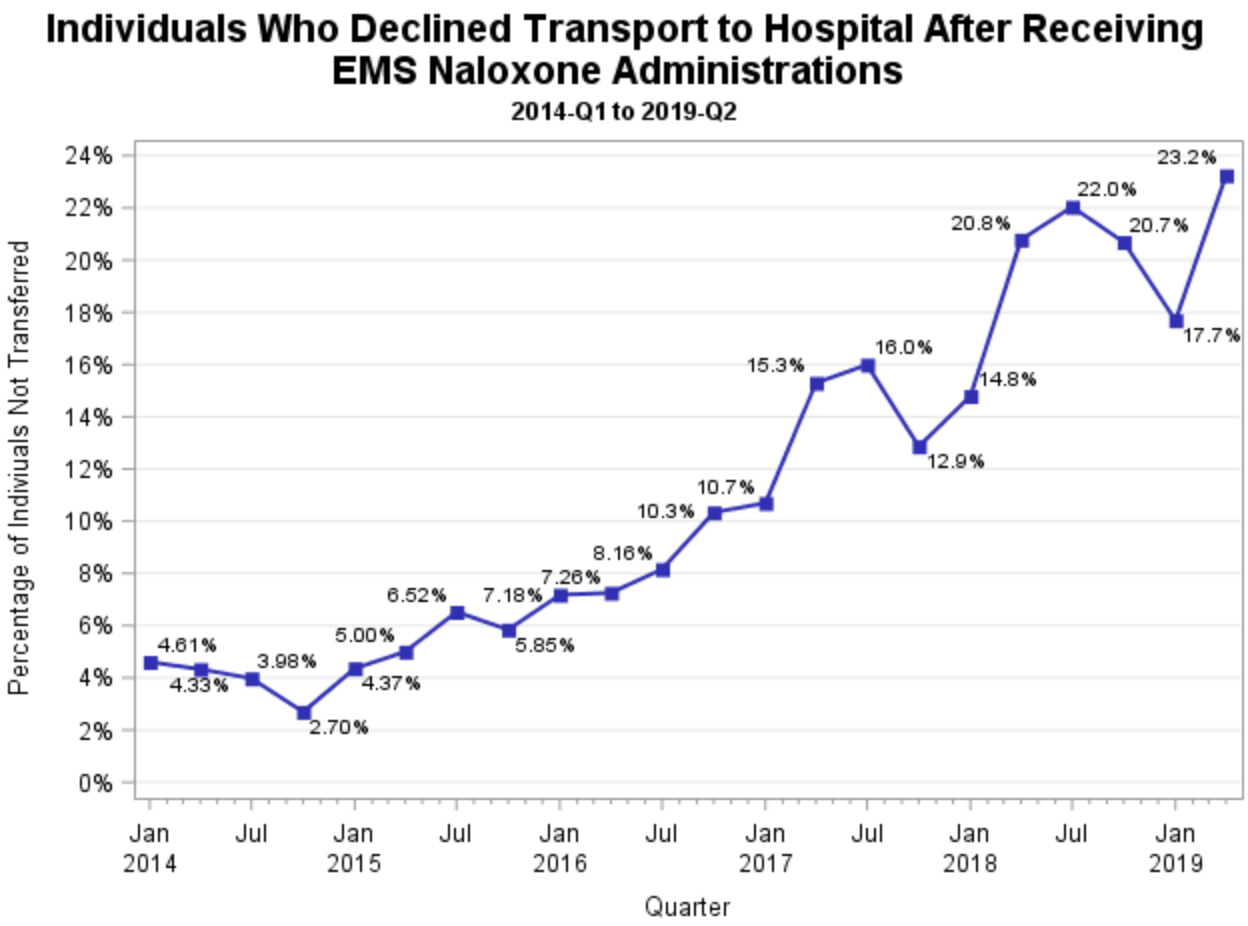



The number of individuals receiving naloxone by EMS has increased each quarter since 2015 Q4 but declined starting 2017 Q3, with the exceptions of 2018Q2 and 2018Q3. In 2019Q2, 826 individuals were administered naloxone.




* The nine hospitals with the highest number of transfers are displayed

Specific hospitals receive the most ED transfers after EMS naloxone administrations. Between 2014 and 2016 over 90% of individuals receiving a naloxone administration by EMS were transferred to an emergency room.




Starting in Oct 2015, there has been a steady increase in the percentage of individuals who are not being transferred to the hospital after receiving naloxone. It is important to note that the graph displaying the percentage of individuals not being transported to the hospital after EMS administered naloxone is reflective of the number of patients who are refusing to be transported and not on EMS's end. Beginning in 2018Q4, there was a continual decrease in the percent of individuals declining transport. In 2019Q2, 23.2% of individuals declined transport to hospital after receiving EMS naloxone administrations.

EMS

| | 2014 (N=2093) | 2015 (N=2783) | 2016 (N=3969) | 2017 (N=5283) | 2018 (N=3534) |
|---|---|---|---|---|---|
| 0-14 | 0.19% | 0.28% | 0.10% | 0.13% | 0.14% |
| 15-18 | 0.38% | 0.25% | 0.22% | 0.09% | 0.14% |
| 19-24 | 12% | 10% | 10% | 7% | 5% |
| 25-34 | 30% | 31% | 31% | 31% | 31% |
| 35-44 | 18% | 21% | 20% | 21% | 25% |
| 45-54 | 18% | 18% | 17% | 19% | 18% |
| 55-64 | 13% | 12% | 14% | 13% | 14% |
| 65+ | 7% | 7% | 8% | 8% | 6% |

Naloxone

## Administrations by Age

**** Individuals with missing age information were excluded***

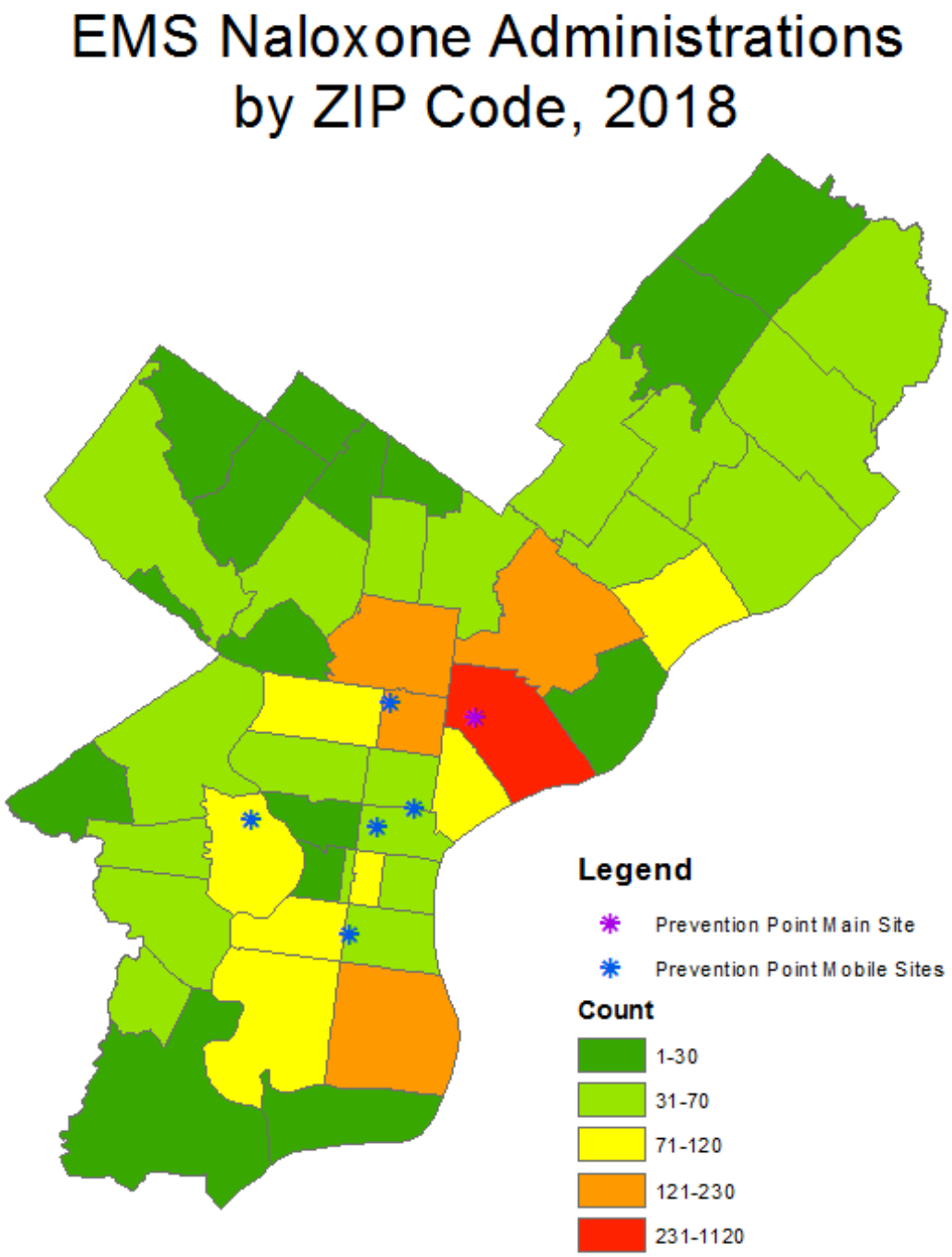
Individuals between the ages of 25-34 represent the largest age group receiving naloxone by EMS.

## EMS Naloxone Administrations by Sex

| | 2014 (N=2093) | 2015 (N=2783) | 2016 (N=3969) | 2017 (N=5283) | 2018 (N=3534) |
|---|---|---|---|---|---|
| Female | 31% | 31% | 30% | 29% | 28% |
| Male | 69% | 69% | 70% | 71% | 72% |

**** Individuals with missing sex information were excluded***

The percentage of males receiving naloxone from EMS has been consistently higher than the percentage of females receiving naloxone.

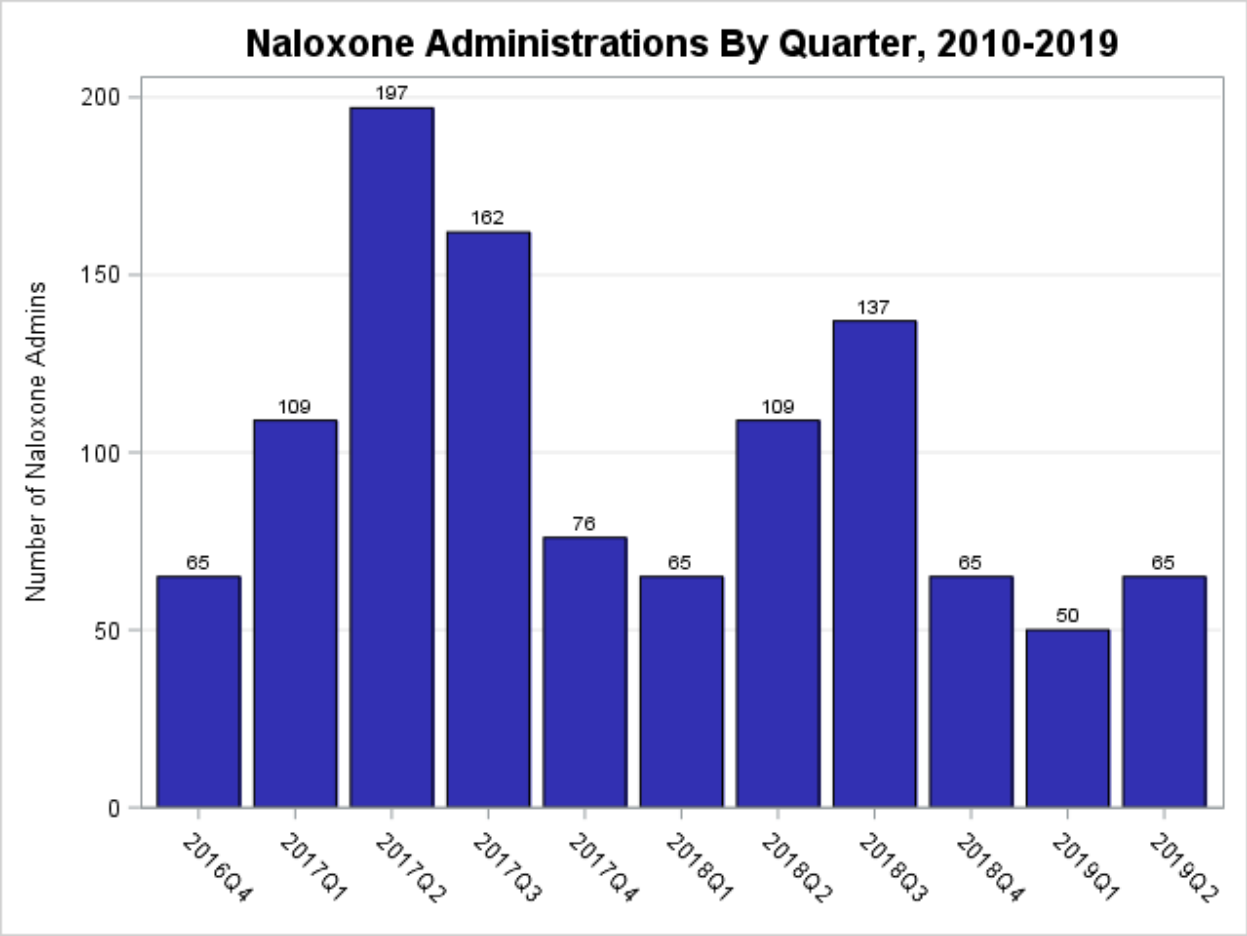



Based on the map, the highest number of EMS Naloxone Administrations was in the zip code where Prevention Point's main location is located.

## 2. Naloxone Administrations (Police)

The following section includes data on naloxone administration by Philadelphia Police Department. Data shown are complete through June 30, 2019.

There are limitations to this dataset. First, data represent unique events during which naloxone was administered and do not reflect number of doses administered. Second, naloxone administration is not a perfect proxy for an opioid-involved overdose. There are instances in which naloxone is administered and is unsuccessful at reviving someone, and similarly there are occasions in which the Philadelphia Police Department is called to respond to an overdose that does not require naloxone administration.

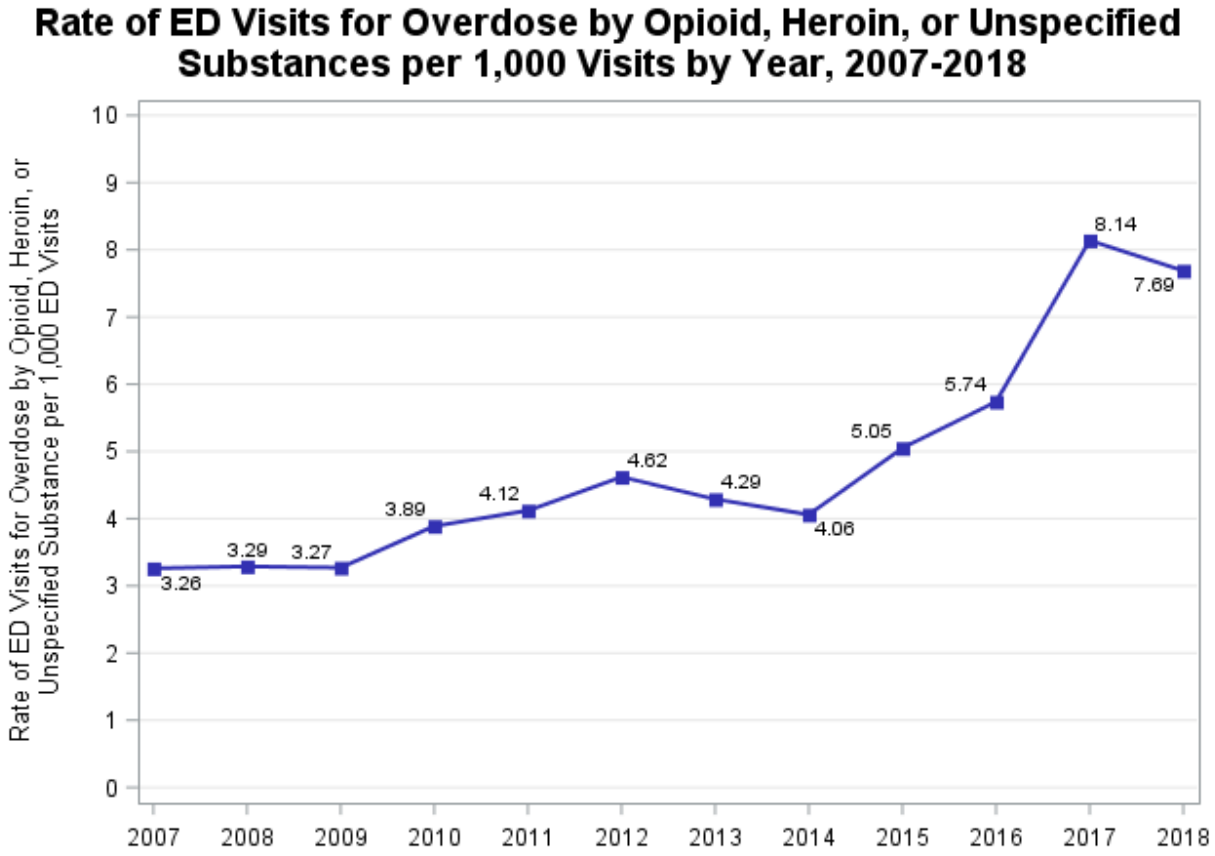



The graph displays data between 2016Q4 and 2018Q4. There have been a few spikes in numbers of individuals administered naloxone by police, specifically in 2017Q2, 2018Q2, and 2018Q3. In 2019Q2, police administered naloxone to 65 individuals.

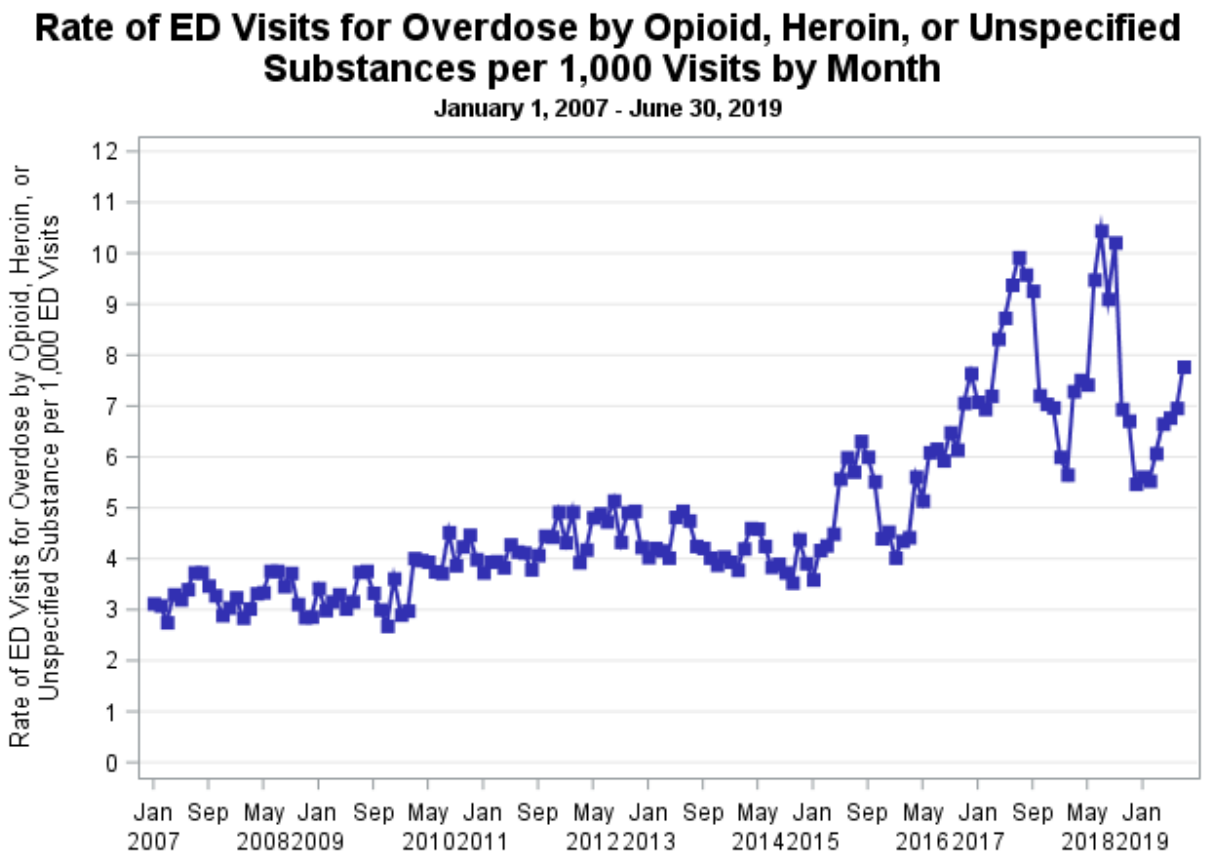
# 3. Emergency Room Visits

The data shown here are from the Philadelphia Department of Public Health's syndromic surveillance system. Chief complaint and diagnosis code information for all individuals seen in Philadelphia area emergency departments (ED) is reported to this system. The number and rate of drug-related ED visits is assessed on a daily basis. Data shown in this report is complete through June 30, 2019.

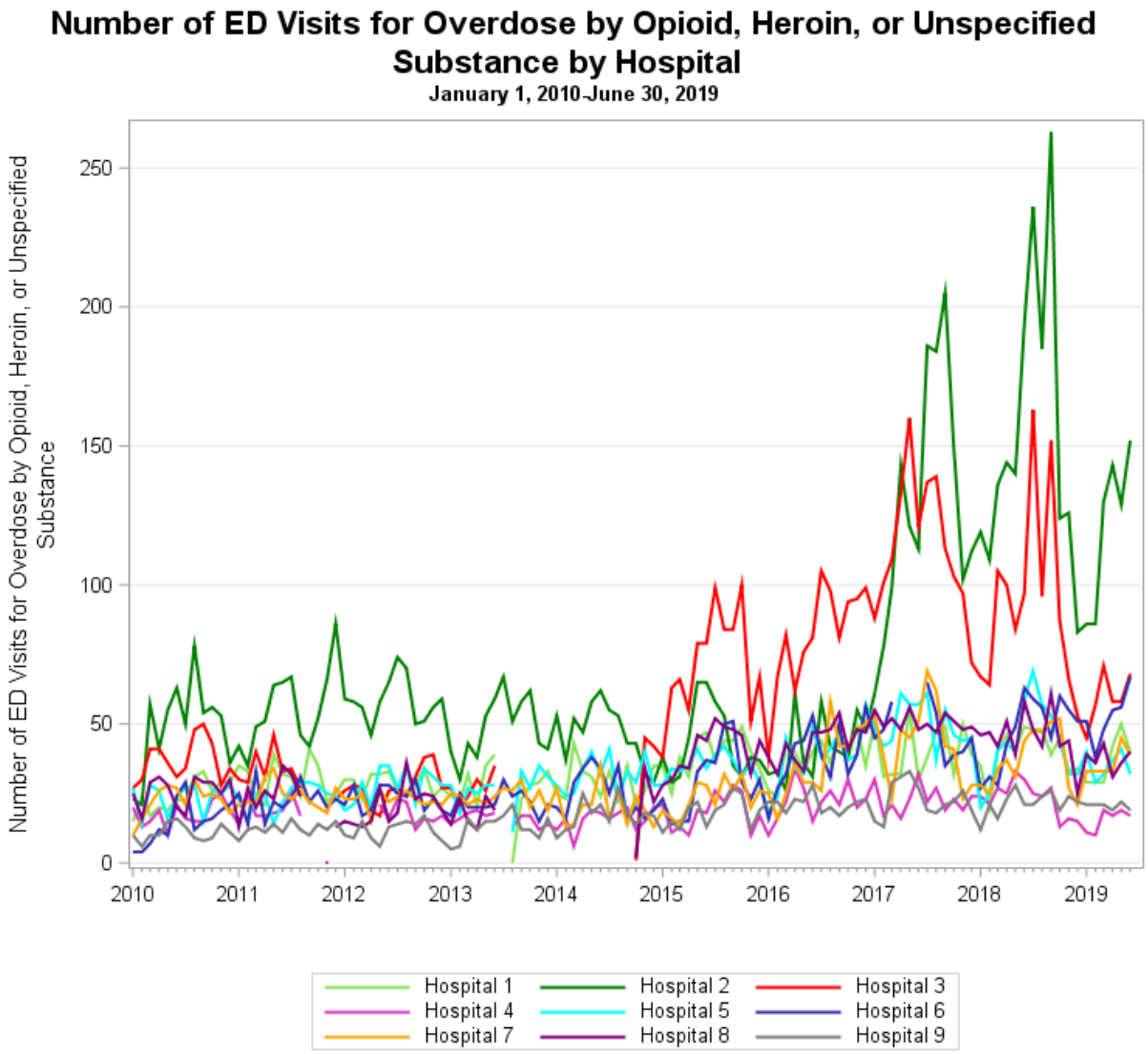
There are some limitations to this data. First, due to changes in hospital reporting mechanisms, there are fluctuations in total counts of drug related ED visits over time. As a result, it is more reliable to assess proportions of drug related ED visits rather than total number of visits. Second, because it is often impossible to discern the drug involved in the incident, the data represent both opioid and unspecified drug related visits.




From 2009 to 2015, the rate of ED visits for drug related incidents has continuously increased with the exception of 2014. In 2018, 7.69 visits per 1,000 ED visits were drug related.



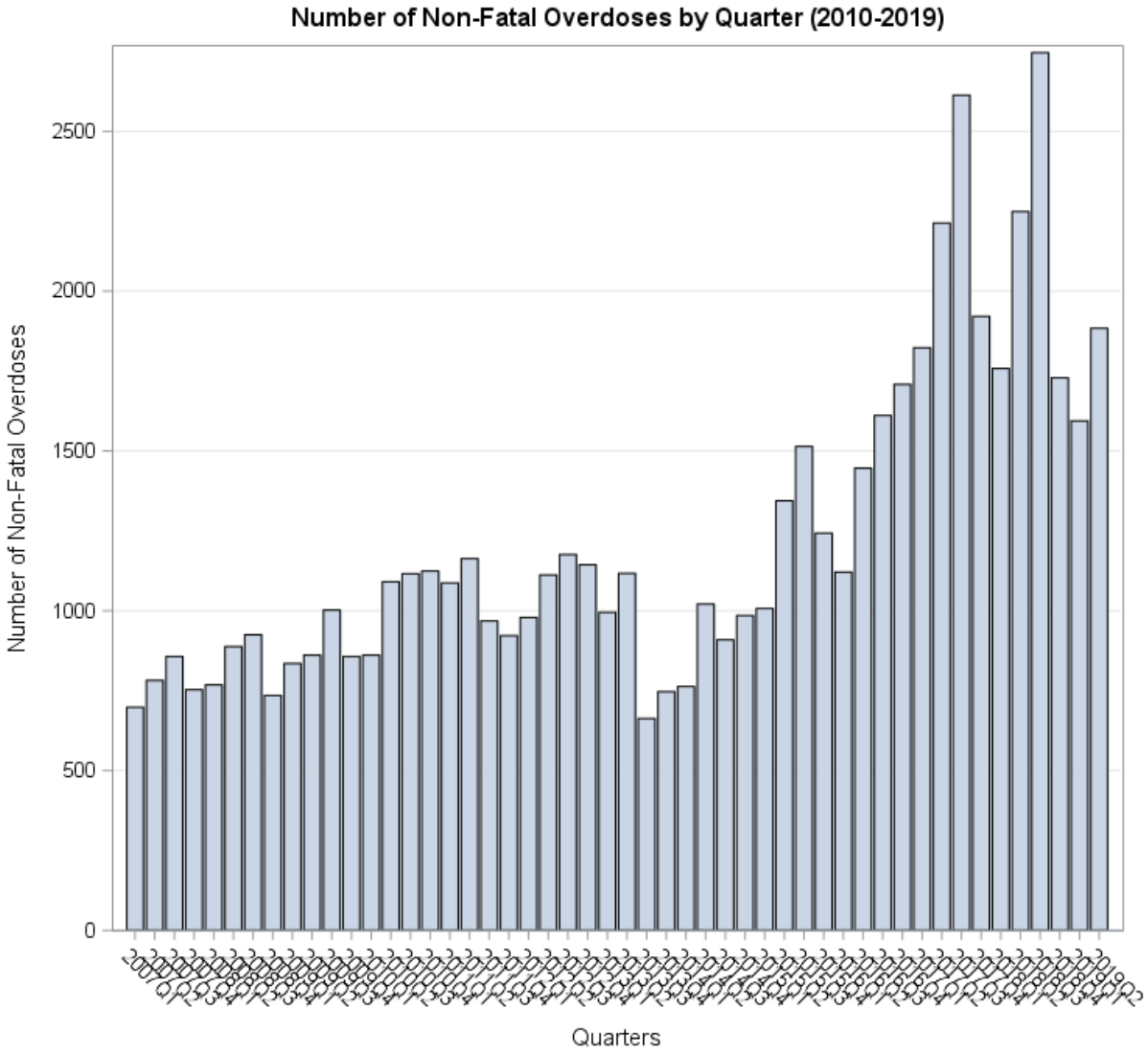

The rate of total emergency department visits due to drug related incidents has tended to trend upward since January 2010. There is a notable peak that occurred between May and October 2015. Additionally, peaks occurred in between April and August 2015, May and August 2017, and May and August 2018.




* Breaks in graph are due to missing data for month

** The nine hospitals with the highest number of ED visits for overdoses by opioid, heroin, or unspecified substance are displayed

Specific hospitals consistently have the highest number of drug related emergency department visits. There is a notable peak in visits to three hospitals from June to October, 2015. There was also a notable peak in two hospitals from April to October, 2017 and May and August 2018.




* Breaks in graph are due to missing data for month

** The nine hospitals with the highest number of ED visits for overdoses by opioid, heroin, or unspecified substance are displayed

From 2010 to 2015, number of non-fatal overdoses based on syndromic surveillance remained stable. That number increased beginning in 2016 through 2017. In 2019Q2, 1,884 non-fatal overdoses occurred and were seen in the emergency department.

## ED Visits for Overdose by Opioid, Heroin, or Unspecified Substances by Age

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| | (N=4192) | (N=4140) | (N=4411) | (N=3522) | (N=3678) | (N=5108) | (N=5886) | (N=8570) | (N=8481) |
| 0-14 | 4% | 6% | 6% | 6% | 5% | 3% | 2% | 2% | 2% |
| 15-18 | 8% | 7% | 6% | 6% | 5% | 5% | 4% | 3% | 3% |
| 20-24 | 16% | 14% | 13% | 14% | 13% | 13% | 12% | 10% | 7% |
| 25-34 | 27% | 29% | 30% | 29% | 29% | 31% | 32% | 32% | 30% |
| 35-44 | 19% | 17% | 17% | 17% | 17% | 18% | 20% | 21% | 22% |
| 45-54 | 17% | 17% | 16% | 15% | 16% | 15% | 15% | 15% | 15% |
| 55+ | 10% | 10% | 11% | 13% | 13% | 11% | 13% | 13% | 13% |
| Unknown | 0.21% | 0.65% | 0.41% | 0.48% | 1% | 3% | 3% | 4% | 7% |

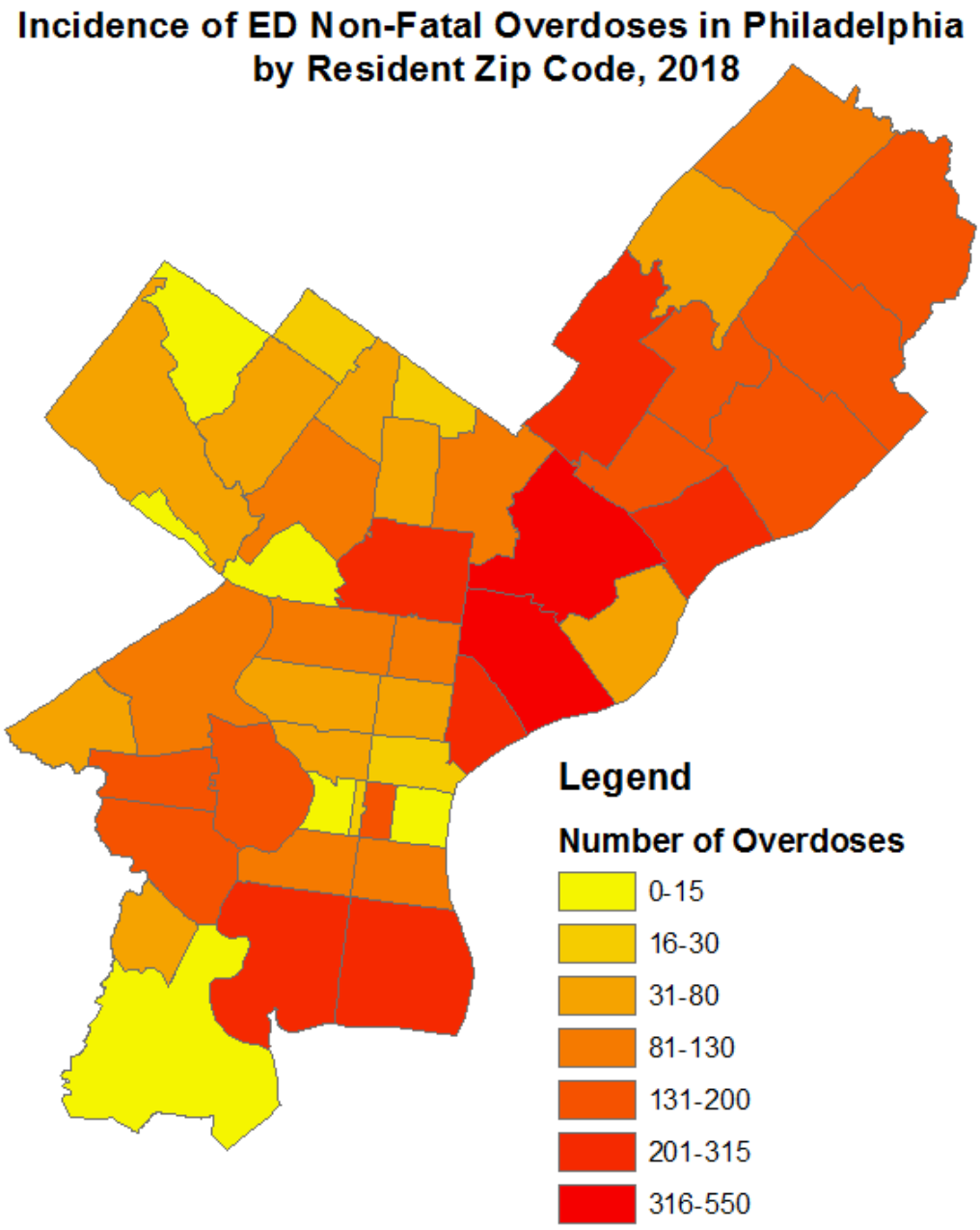
Individuals between the ages of 25-34 years consistently represent the age group that has the most drug related ED visits followed by those between the ages of 35-44 years. Numbers for those ages 55 years and older may be inflated as some hospitals input the age as 99 years or greater to indicate those dead upon arrival.

## ED Visits for Overdose by Opioid, Heroin, or Unspecified Substances by Sex

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| | (N=4191) | (N=4138) | (N=4410) | (N=3522) | (N=3678) | (N=5107) | (N=5885) | (N=8570) | (N=8481) |
| Female | 51% | 49% | 50% | 49% | 47% | 46% | 42% | 38% | 38% |
| Male | 49% | 51% | 50% | 51% | 53% | 54% | 58% | 62% | 62% |

**** Individuals with unknown gender were excluded from total visits***
*****Code is consistently being refined to accurately pick up overdoses so numbers will fluctuate.***

Since 2010, the percentage of males seen in the emergency department for drug related visits has increased relative to females.




This map reflects the incidence of overdose where individuals were seen at emergency departments. Incidence of overdose was mapped based on the resident zip code of the patients.

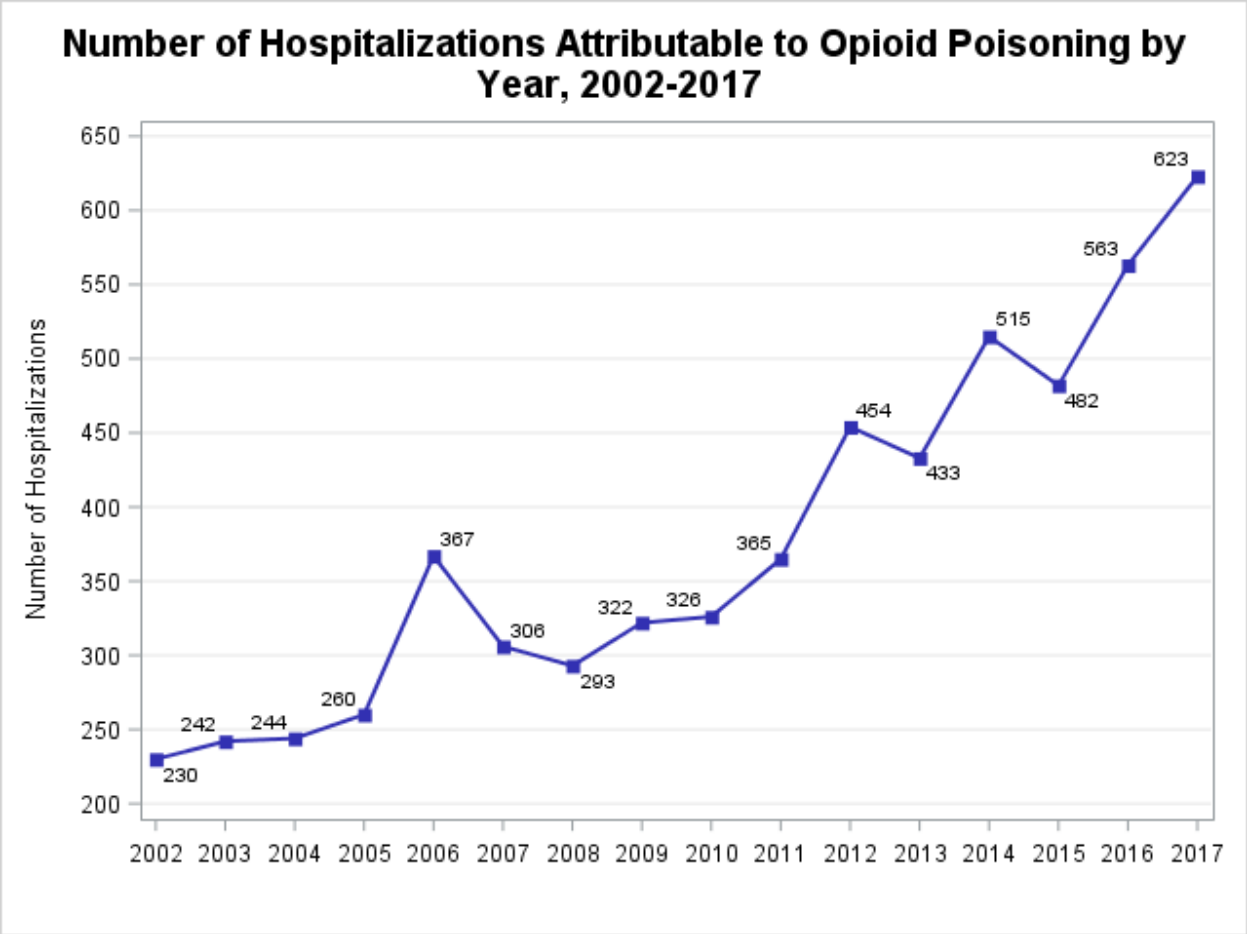
# 4. Hospitalizations

The following section includes data from the Pennsylvania Health Care Cost Containment Council (PHC4), an independent state agency that collects information on all inpatient hospitalizations and ambulatory procedures at freestanding clinics in Pennsylvania to monitor health care cost. Data are de-identified and include detailed patient demographic and utilization information. Each record has one principal diagnosis, up to 17 secondary diagnoses, and up to three external causes of injury codes. Data is coded using the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) for data from January 1, 2002 to September 31, 2015 and the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) from October 1, 2015 to December 31, 2017.

Data shown in this section are complete through 2017 and are for Philadelphia residents hospitalized at both Philadelphia hospitals and hospitals in the surrounding region.

Inpatient discharges with an ICD-9-CM principal diagnosis of 965.00, 965.01, 965.02, or 965.03 or external cause of injury code of E85.00, E85.01, or E85.02, or ICD-10-CM principal diagnosis of T40.0-T40.3 were identified as hospitalizations attributable to an opioid poisoning (includes both heroin and pharmaceutical opioids). Individuals with an opioid poisoning related to therapeutic use were identified and excluded.

There are limitations to this dataset. First, the data is delayed up to two years. Second, all data is de-identified, and thus cannot be matched across city systems. Finally, the data only includes individuals who were admitted to the hospital. Anyone seen in the emergency room but not admitted is not included in this dataset.




The number of hospitalizations attributable to opioid poisoning including both heroin and pharmaceutical opioids has been steadily increasing since 2002. In 2017, there were 623 hospitalizations attributable to opioid poisoning, which is more than double the number that occurred in 2002. The peak in hospitalizations that occurred in 2006 is consistent with the fentanyl outbreak that occurred at that time.

## Hospitalizations Attributable to Opioid Poisoning by Age

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| | (N=324) | (N=365) | (N=454) | (N=433) | (N=515) | (N=482) | (N=563) | (N=623) |
| 0-14 | 0% | 1% | 0% | 0% | 1% | 1% | 0% | 0% |
| 15-18 | 0.62% | 1% | 1% | 1% | 1% | 1% | 0.18% | 0% |
| 19-24 | 7% | 8% | 7% | 6% | 8% | 7% | 8% | 6% |
| 25-34 | 15% | 18% | 25% | 24% | 20% | 19% | 21% | 27% |
| 35-44 | 14% | 14% | 17% | 14% | 12% | 17% | 17% | 16% |
| 45-54 | 26% | 25% | 22% | 23% | 24% | 21% | 18% | 18% |
| 55-64 | 26% | 22% | 20% | 20% | 23% | 22% | 21% | 20% |
| 65+ | 12% | 11% | 8% | 12% | 11% | 11% | 15% | 13% |

In 2017, those between the ages of 25-34 years were the predominant age group being hospitalized for opioid poisonings whereas in 2010, the predominant age group being hospitalized for opioid poisoning was those between the ages of 45-54 years.

## Hospitalizations Attributable to Opioid Poisoning by Sex

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| | (N=324) | (N=365) | (N=454) | (N=433) | (N=515) | (N=482) | (N=563) | (N=623) |
| Female | 41% | 44% | 40% | 43% | 39% | 40% | 45% | 33% |
| Male | 59% | 56% | 60% | 57% | 61% | 60% | 55% | 67% |

Males consistently represent a larger percentage of those being hospitalized for opioid poisoning.

## Hospitalizations Attributable to Opioid Poisoning by Race/Ethnicity

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| | (N=324) | (N=365) | (N=454) | (N=433) | (N=515) | (N=482) | (N=563) | (N=623) |
| White, Non-Hispanic | 57% | 62% | 60% | 57% | 56% | 56% | 60% | 57% |
| Black, Non-Hispanic | 31% | 28% | 27% | 33% | 32% | 30% | 27% | 29% |
| Hispanic | 7% | 7% | 3% | 2% | 9% | 10% | 8% | 11% |
| Other, Non-Hispanic | 1% | 2% | 8% | 6% | 3% | 3% | 5% | 3% |

**** Individuals with missing race/ethnicity information were excluded***

White, non-Hispanic individuals are the predominant race/ethnicity group being hospitalized for opioid poisoning.

## Hospitalizations Attributable to Opioid Poisoning by Insurance Payer

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| | (N=324) | (N=365) | (N=454) | (N=433) | (N=515) | (N=482) | (N=563) | (N=623) |
| **Public** | 81% | 81% | 82% | 83% | 83% | 86% | 88% | 85% |
| **Private** | 14% | 13% | 13% | 10% | 10% | 10% | 8% | 10% |
| **Self-Pay/Charity** | 4% | 7% | 5% | 6% | 6% | 2% | 3% | 4% |
| **Unknown** | 0.93% | 0.27% | 0.63% | 0.46% | 1% | 2% | 1% | 1% |

Most individuals with a hospitalization attributable to opioid poisoning are on public insurance.

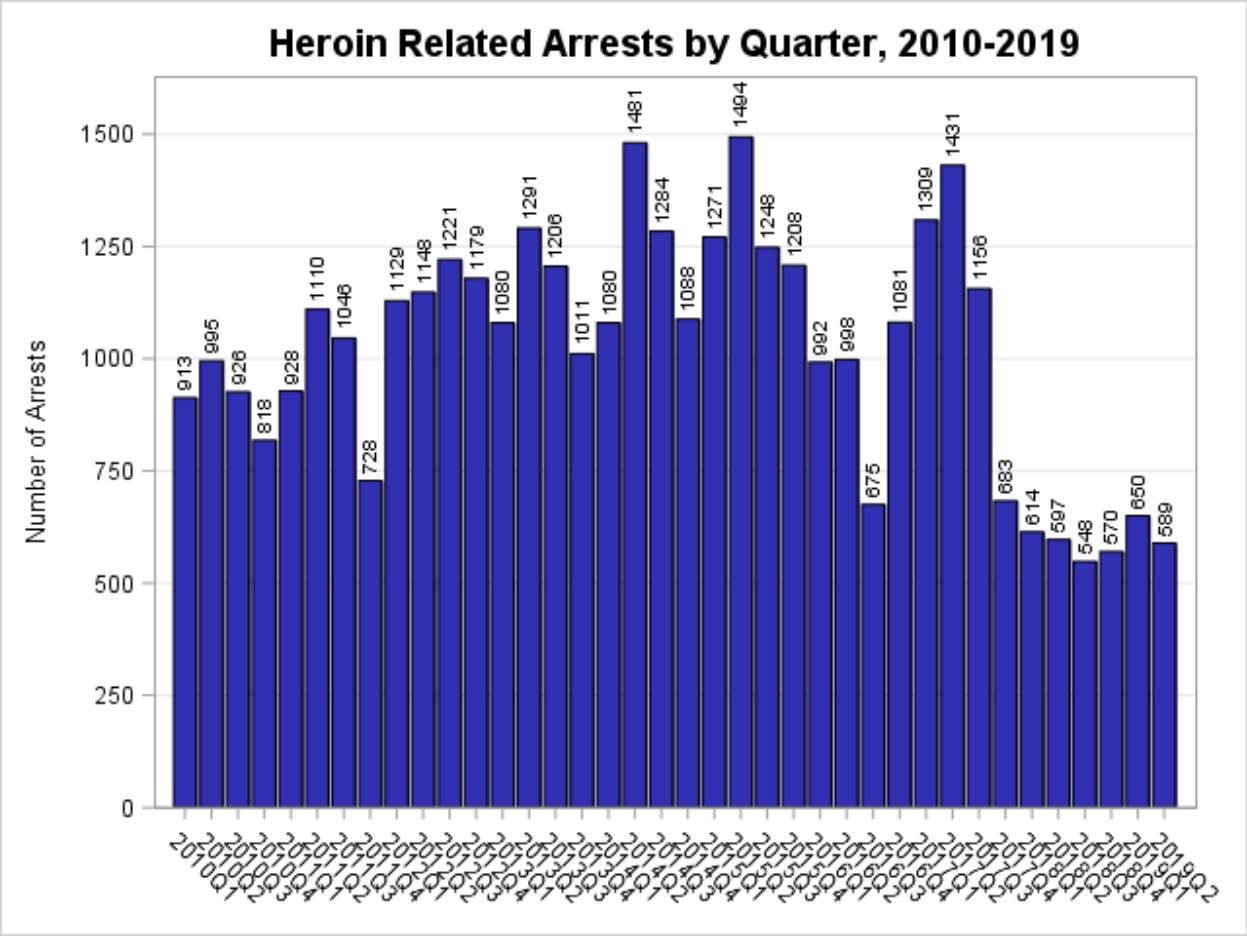
# B. Law Enforcement

The following section includes data reported by the Philadelphia Police Department and Drug Enforcement Agency (DEA). This data includes all heroin related arrests and drug analyses of seizures made by the Philadelphia Police Department.

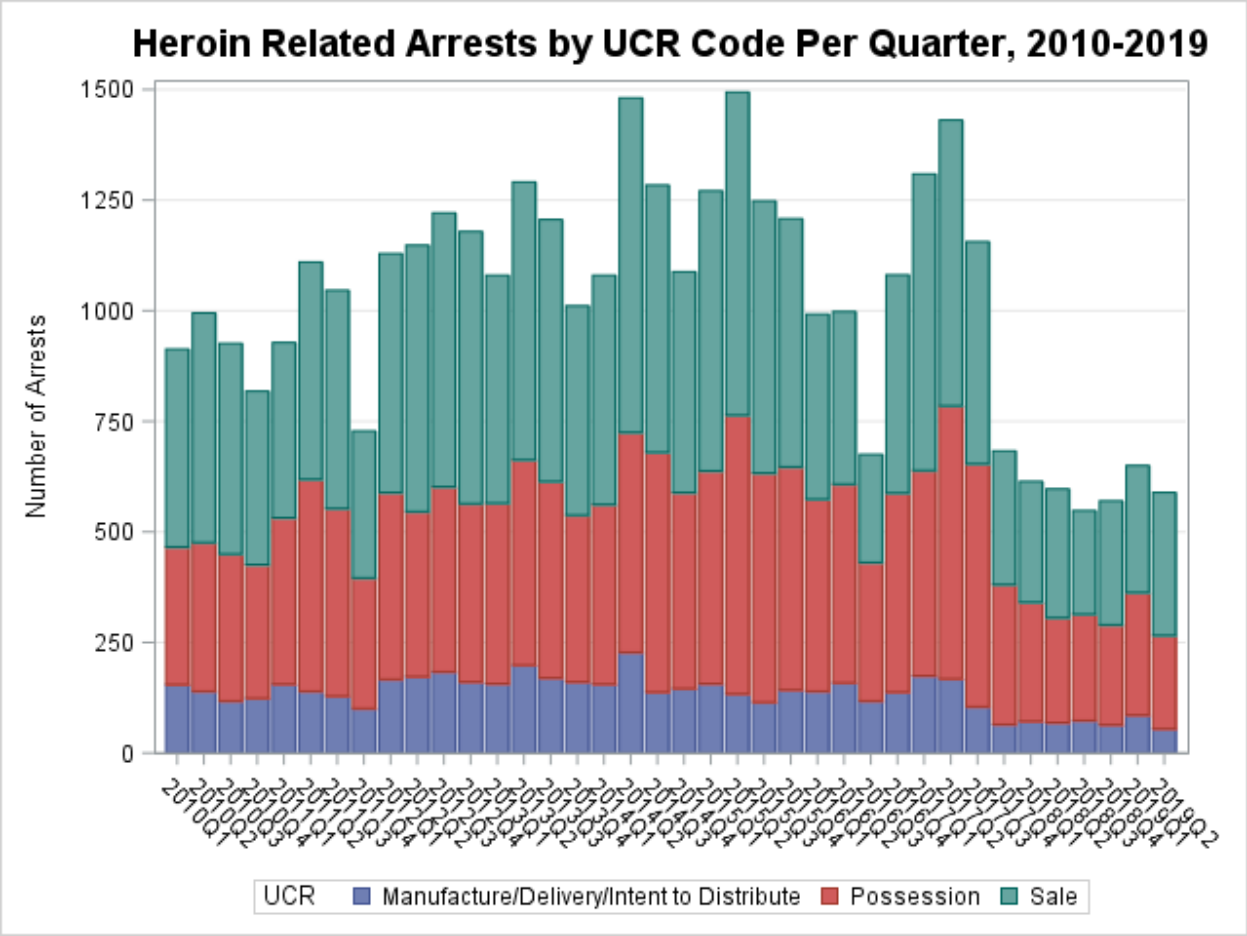
# 1. Arrests

The following section includes data on heroin-related arrests by the Philadelphia Police Department. Data was provided de-identified and includes information on arrest location, crime identification, and district codes. Arrests were pulled and classified based on the following Uniform Crime Reporting (UCR) arrest codes: 1805 (seller of heroin), 1815 (manufacture, delivery, or possession with intent to deliver), and 1825 (possession of heroin). Data shown is complete through June 30, 2019

There are a few limitations to the dataset for arrests. First, true UCR arrests are enforcement driven and do not reflect the actual heroin market conditions. Second, because people may have been arrested multiple times during the specified time period, it is unlikely that the total number of arrests is higher than the data reflects.



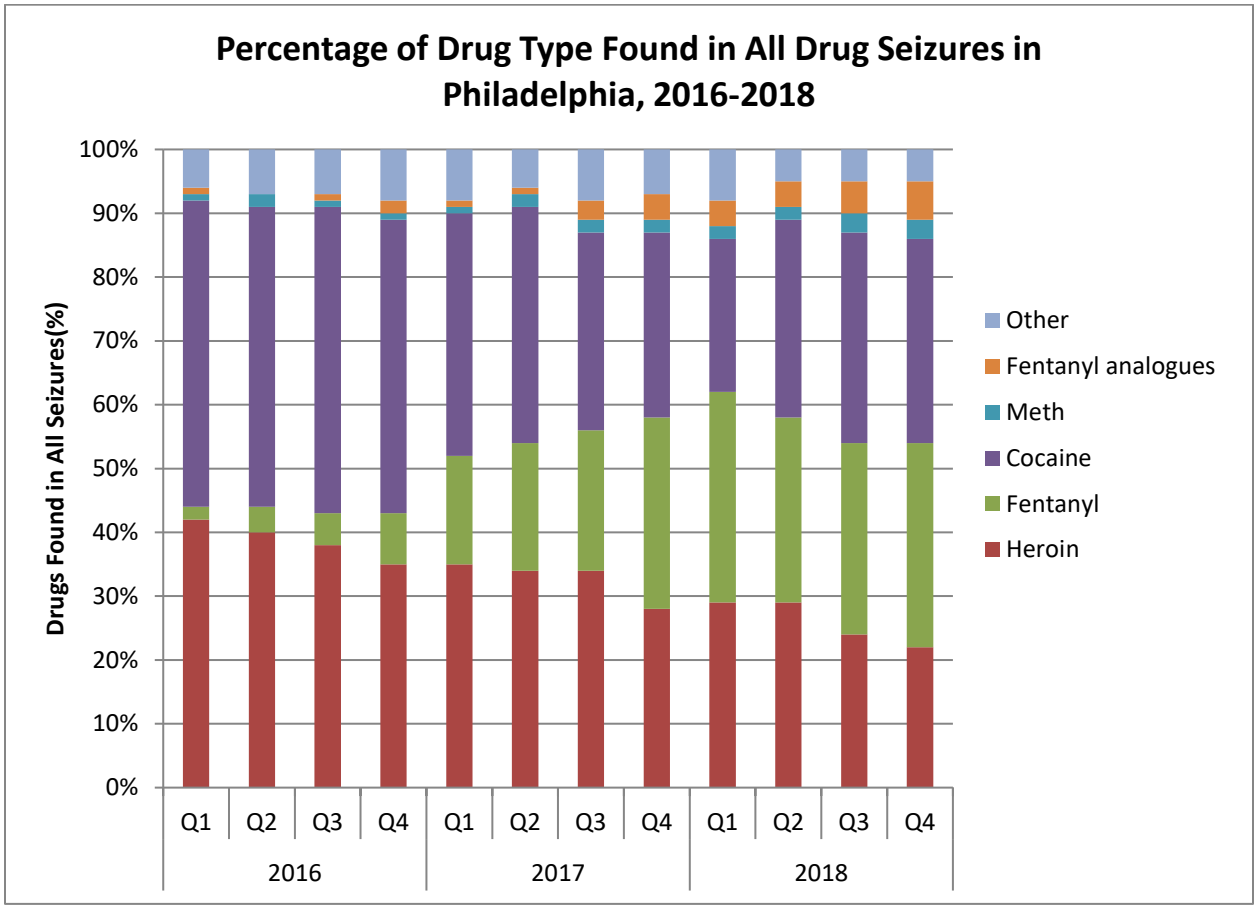

The number of arrests increased in 2012 with spikes in 2014. Arrests have been decreasing since 2017Q2. In 2019Q2, 589 arrests were made.




UCR classification 1805 (seller of heroin) made up the majority of arrests across the years followed closely by 1825 (possession of heroin). In 2019Q2, 211 arrests were made for the possession of heroin, 323 arrests were made for selling heroin, and 55 arrests were made for manufacturing, delivering, or having intention to distribute heroin.

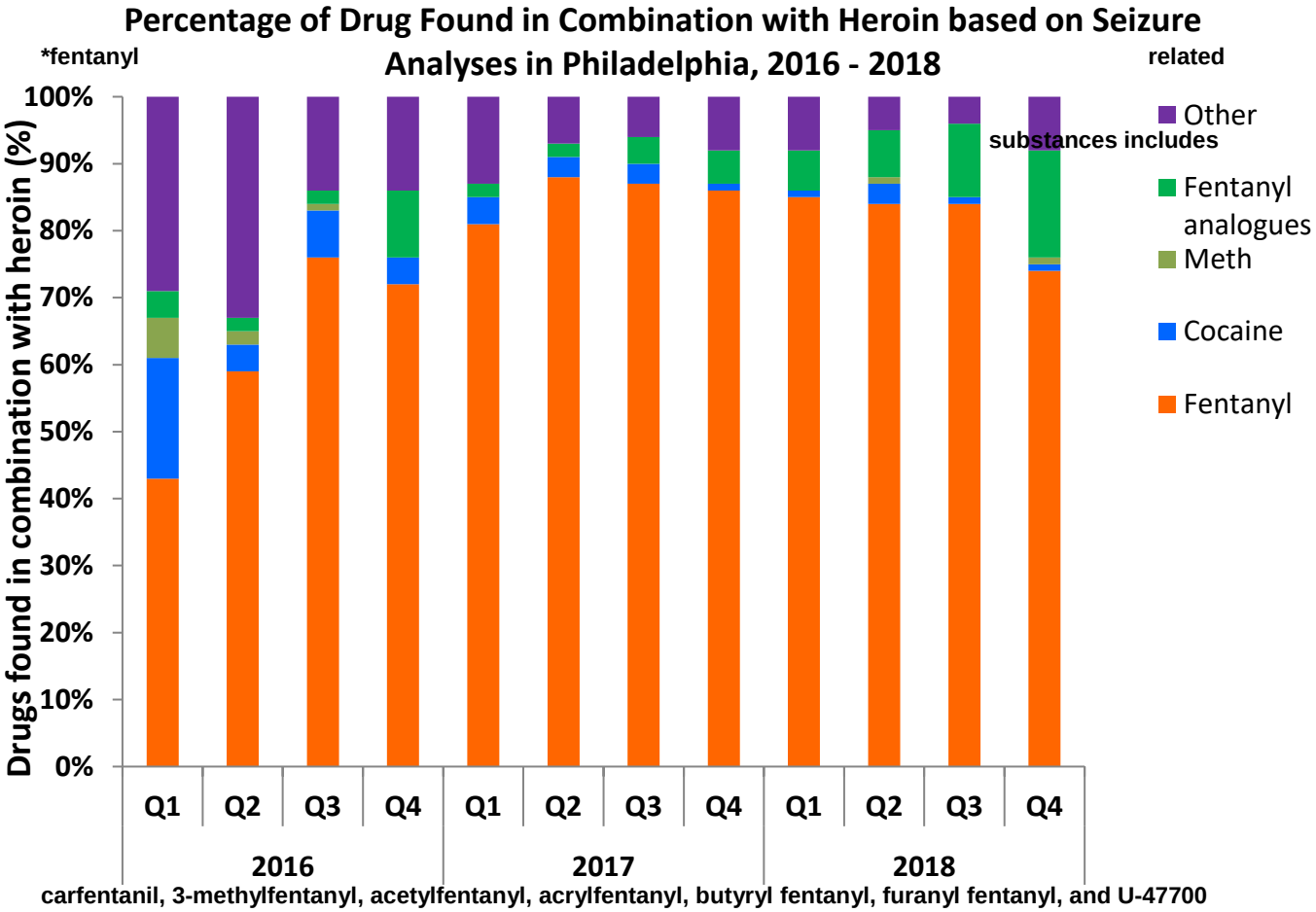
## 2. Seizures

This section also includes data from drug seizures that occurred in Philadelphia County and were analyzed and reported to the National Forensic Laboratory Information System (NFLIS). NFLIS is a system used by the Drug Enforcement Agency (DEA) that systematically collects results from laboratory drug analyses by federal, state, and local forensic laboratories across the country. The dataset displays additional drugs found in combination with heroin in the seizure analysis and drug types found in all drug seizures and are visualized as percentages of presence in the overall dataset.




***fentanyl related substances includes carfentanil, 3-methylfentanyl, acetylfentanyl, acrylfentanyl, butyryl fentanyl, furanyl fentanyl, and U-47700**
****other includes oxycodone, quinine, diphenhydramine, dipyrone, benzocaine, cannabinoids, dimethylsulfone, lactose, tramadol**

Cocaine and heroin were the dominant drugs found in drug seizures. Percentage of fentanyl found in drug seizures began to increase in 2016Q4. Fentanyl surpassed both heroin and cocaine in becoming the dominant drug found in all seizures with 30% in 2017Q4. In 2018Q4, both fentanyl and heroin were the dominant drugs found in seizures with 32%.




***fentanyl related substances includes carfentanil, 3-methylfentanyl, acetylfentanyl, acrylfentanyl, butyryl fentanyl, furanyl fentanyl, and U-47700**

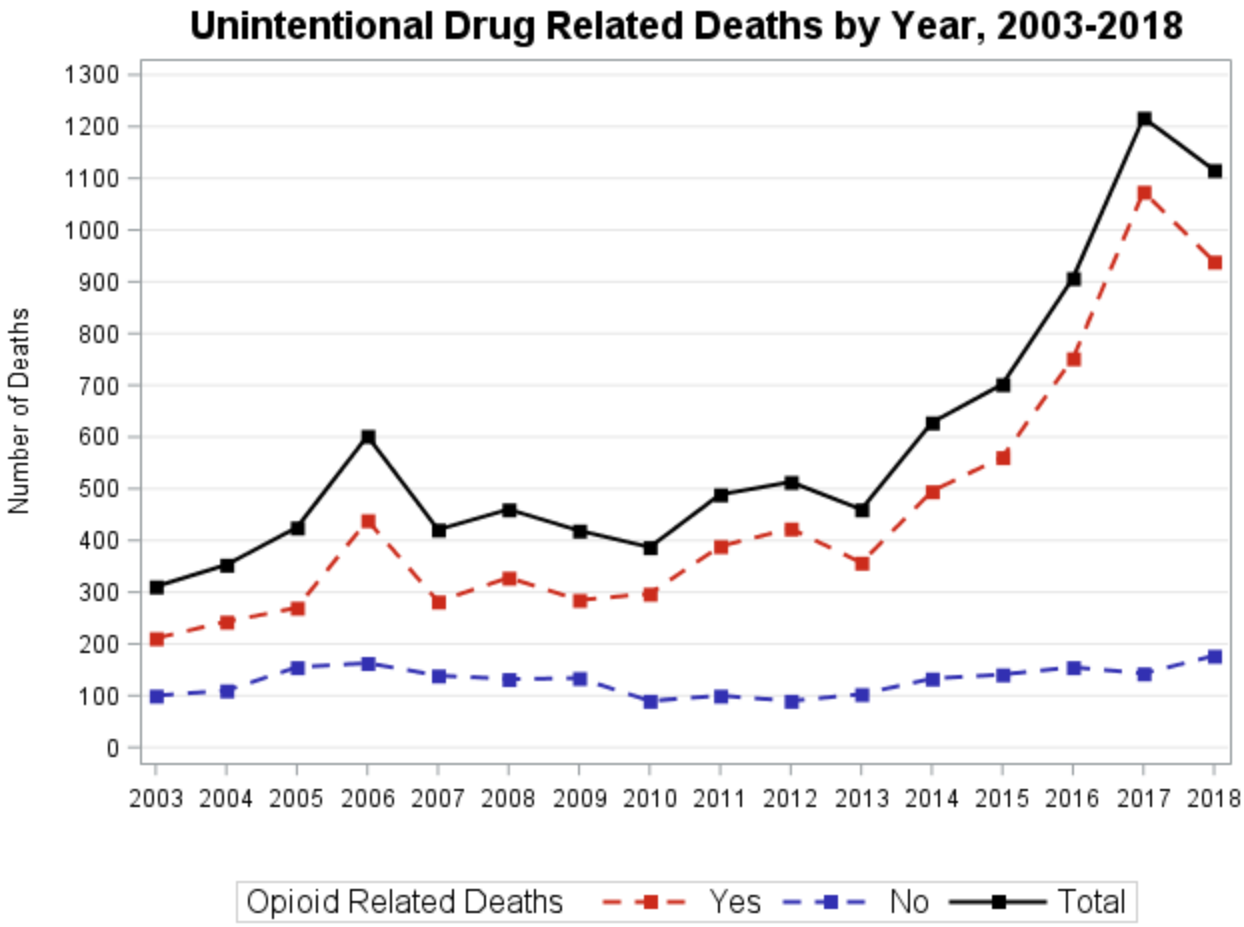
****other includes oxycodone, quinine, diphenhydramine, dipyrone, benzocaine, cannabinoids, dimethylsulfone, lactose, tramadol**

Fentanyl is the dominant drug found in combination with heroin and has increased from 45% in 2016 Q1 to 74% in 2018 Q4. Fentanyl-related substances are also being found in drug seizures, but are much less predominant than pure fentanyl. Fentanyl-related substances are increased from 11% in 2018Q3 to 16% in 2018Q4.

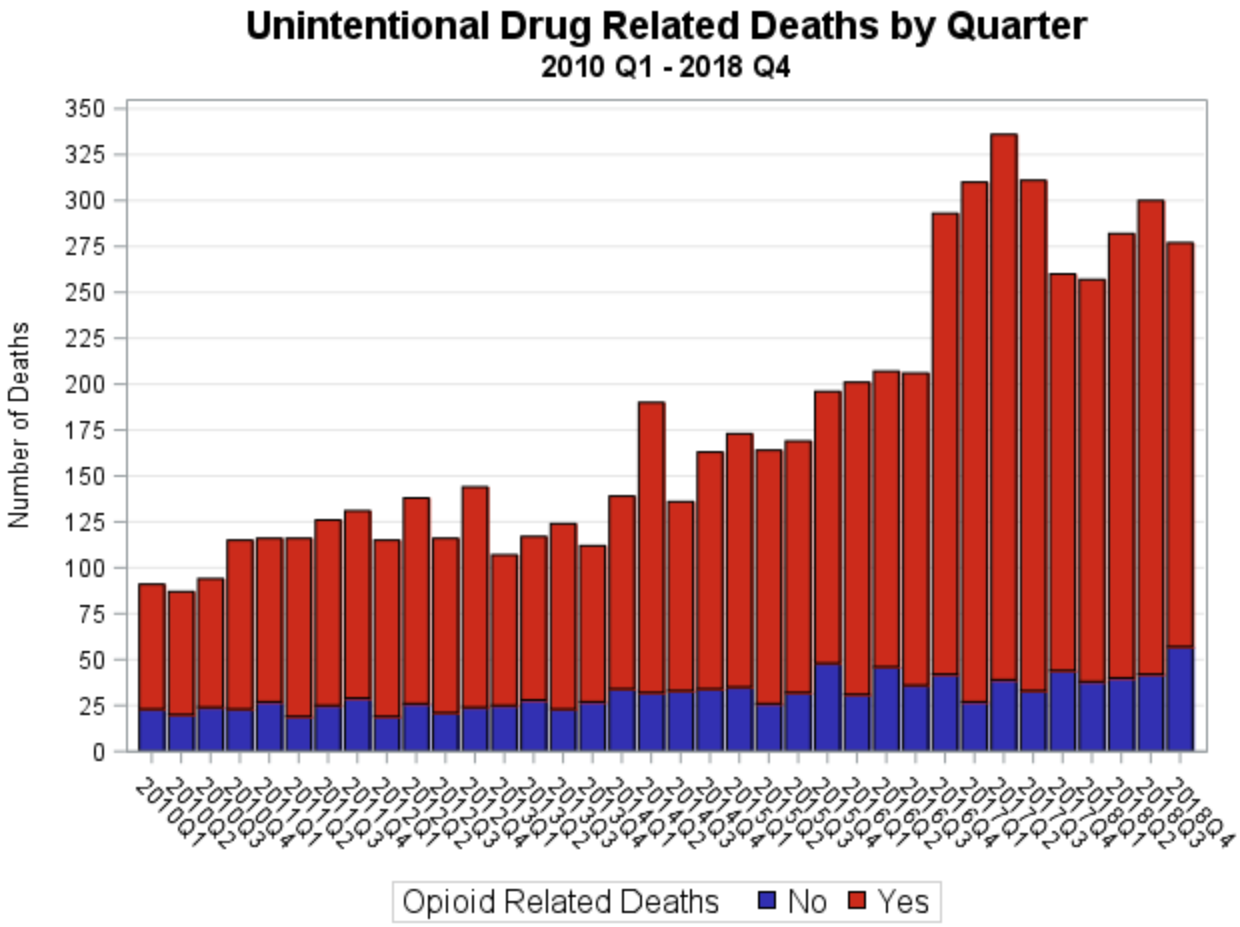
# C. Fatal Overdose

The following section shows data from the Philadelphia Medical Examiner's Office (MEO). This includes any accidental death in which drug intoxication was certified as either the underlying or contributory cause of death on the death certificate regardless of residence or incidence location. Deaths due to carbon monoxide poisoning or alcohol intoxication only were excluded. Non-opioid deaths from 2003-2015 include cases that were negative or were not tested at MEO. Data shown is complete through December 31, 2018.

The major limitation to this dataset is it can take up to 90 days for toxicology reports to be complete, thus delaying data reporting for up to three months.

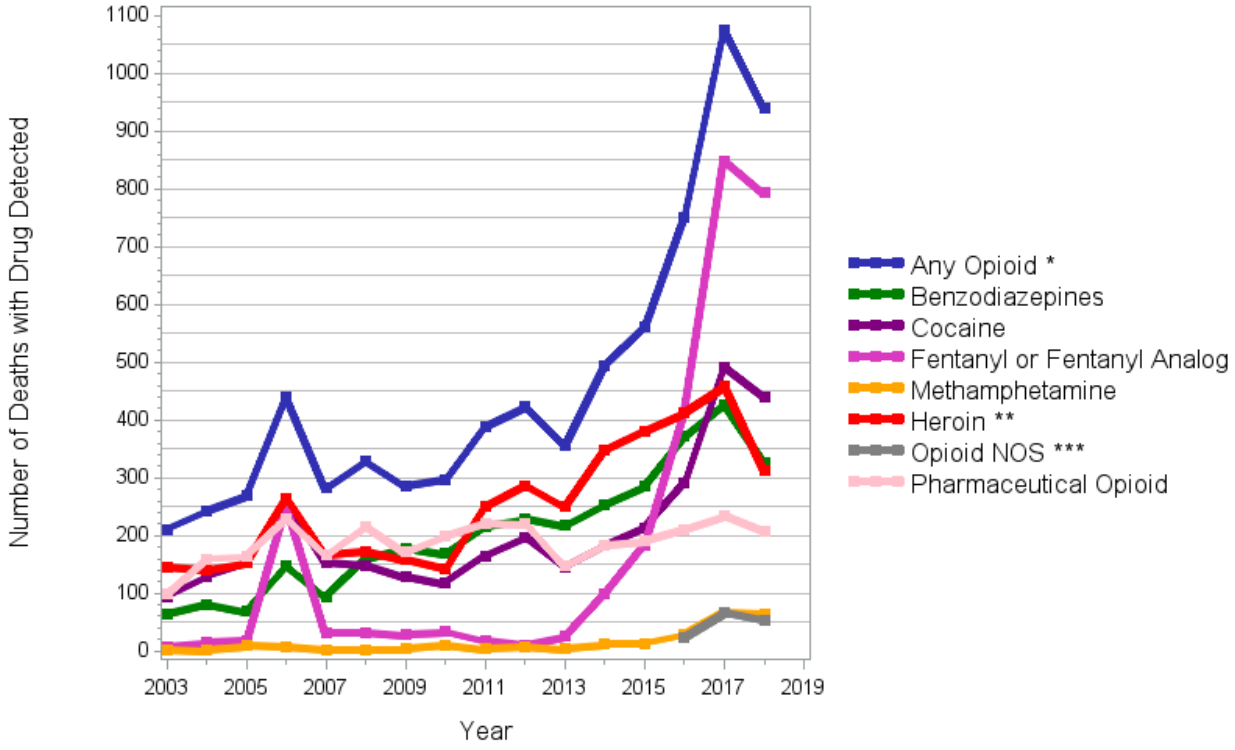



Since 2010, the total number of drug related deaths has increased each year with the exception of 2013. Deaths involving opioids including both heroin and pharmaceuticals represent the majority of drug related deaths each year.



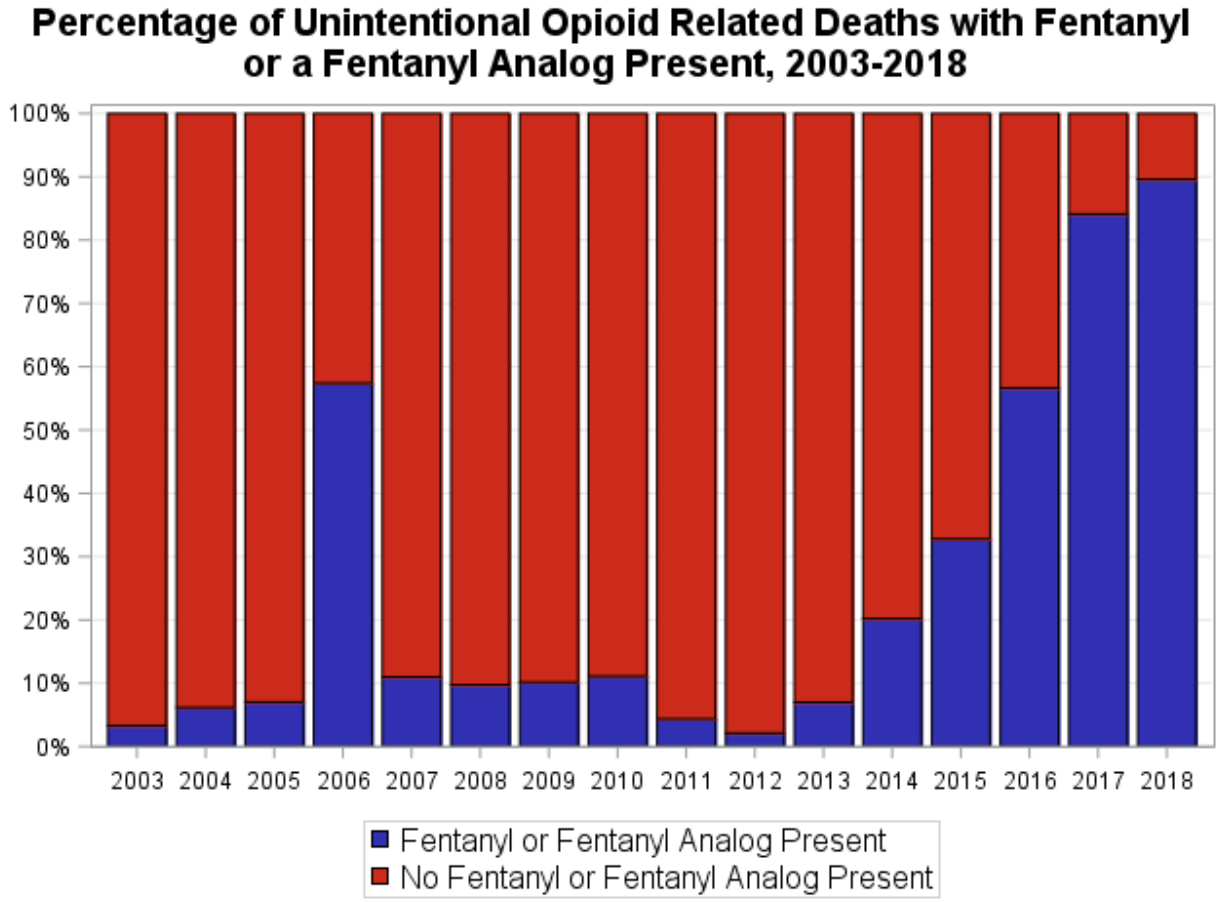

The number of drug related deaths has trended upward since January 2010 with the exception of the last two quarters in 2017. Opioids including both heroin and pharmaceutical opioids are involved in the majority of drug related deaths. In 2018Q4, 220 of 277 deaths were opioid related.

**Number of Opioid Related Deaths with Specific Drug Present, 2003-2018**




* Includes deaths with any opioid including heroin, morphine, or pharmaceutical
** Includes deaths with heroin or morphine detected
*** Includes deaths based on hospital tox
**** Categories are not mutually exclusive as multiple drugs might be detected in the system

Deaths involving any opioid have increased since 2009 with the exception of a decrease seen in 2013. In recent years, the majority of opioid related deaths have included heroin. The number of deaths involving a benzodiazepine and an opioid has slowly increased since 2003. Deaths involving fentanyl or a fentanyl analog remained low until 2014 with the exception of 2006 where deaths involving fentanyl or a fentanyl analog spiked. Fentanyl and fentanyl analog involved deaths began to rise in 2014 and continued to rise through 2017.




The number of unintentional opioid related deaths involving fentanyl or a fentanyl analog remained under 12% through 2013 with the exception of 2006 when a fentanyl outbreak occurred. In 2014, the number spiked and continued to increase through 2018. In 2018, about 90% of opioid related deaths involved fentanyl or a fentanyl analog.

## Unintentional Opioid Related Deaths by Age

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| | (N=296) | (N=389) | (N=423) | (N=356) | (N=495) | (N=561) | (N=752) | (N=1074) | (N=939) |
| **10-14** | 0% | 0% | 0% | 0% | 0% | 0% | 0.13% | 0 % | 0% |
| **15-18** | 0% | 0% | 0% | 0% | 1% | 1% | 1% | 0.19% | 0.11% |
| **19-24** | 6% | 9% | 11% | 6% | 9% | 7% | 8% | 6% | 4% |
| **25-34** | 25% | 26% | 25% | 31% | 28% | 28% | 27% | 27% | 27% |
| **35-44** | 22% | 23% | 25% | 24% | 22% | 23% | 23% | 28% | 24% |
| **45-54** | 29% | 27% | 25% | 24% | 24% | 23% | 25% | 23% | 23% |
| **55+** | 18% | 14% | 13% | 15% | 17% | 19% | 16% | 16% | 21% |

Those between the ages of 25-34 years generally represent the largest age group dying from unintentional drug related deaths involving an opioid. This is followed by those in the 35-44 and 45-54 year age groups. 2016 is the first year where there was a death in the age group below 15.

## Unintentional Opioid Related Deaths by Sex

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| | (N=296) | (N=389) | (N=423) | (N=356) | (N=495) | (N=561) | (N=752) | (N=1074) | (N=939) |
| **Female** | 30% | 25% | 32% | 31% | 33% | 26% | 31% | 25% | 27% |
| **Male** | 70% | 75% | 68% | 69% | 67% | 74% | 69% | 75% | 73% |

Males consistently represent the largest group of those dying from unintentional drug related deaths involving opioids.

## Unintentional Opioid Related Deaths by Race/Ethnicity

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| | (N=296) | (N=389) | (N=423) | (N=356) | (N=495) | (N=561) | (N=752) | (N=1074) | (N=939) |
| **White, Non-Hispanic** | 67% | 63% | 66% | 67% | 63% | 61% | 62% | 63% | 60% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Black, Non-Hispanic** | 26% | 21% | 23% | 19% | 23% | 26% | 23% | 21% | 25% |

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| **Female** | **(N=88)** | **(N=99)** | **(N=135)** | **(N=112)** | **(N=162)** | **(N=147)** | **(N=234)** | **(N=273)** | **(N=250)** |
| **10-14** | 0% | 0% | 0% | 0% | 0% | 0% | 0.47% | 0% | 0% |
| **15-18** | 0% | 0% | 0% | 0% | 1% | 1% | 1% | 0.4% | 0.4% |
| **19-24** | 2% | 7% | 10% | 5% | 7% | 10% | 10% | 6% | 4% |
| **25-34** | 25% | 26% | 22% | 31% | 27% | 24% | 23% | 27% | 26% |
| **35-44** | 18% | 26% | 30% | 25% | 22% | 23% | 21% | 26% | 23% |
| **45-54** | 34% | 27% | 25% | 27% | 25% | 25% | 28% | 25% | 24% |
| **55+** | 20% | 13% | 12% | 12% | 19% | 16% | 17% | 15% | 22% |
| **Male** | **(N=208)** | **(N=290)** | **(N=288)** | **(N=244)** | **(N=333)** | **(N=414)** | **(N=518)** | **(N=801)** | **(N=687)** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Hispanic** | 8% | 14% | 10% | 13% | 14% | 13% | 13% | 14% | 14% |
| **Other, Non-Hispanic** | 0% | 1% | 1% | 1% | 1% | 0% | 2% | 2% | 1% |

White, non-Hispanic individuals consistently represent the largest race/ethnicity group dying from unintentional drug related deaths involving opioids. Black, non-Hispanic individuals represent the second largest race/ethnicity group dying from unintentional drug related deaths involving opioids.

## Unintentional Opioid Related Deaths by Age & Sex

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **10-14** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **15-18** | 0% | 0.34% | 0% | 0% | 1% | 0.48% | 1% | 0.13% | 0% |
| **19-24** | 8% | 10% | 11% | 6% | 10% | 6% | 7% | 6% | 4% |
| **25-34** | 25% | 27% | 27% | 31% | 28% | 29% | 29% | 27% | 28% |
| **35-44** | 24% | 22% | 23% | 24% | 22% | 22% | 24% | 29% | 25% |
| **45-54** | 27% | 27% | 25% | 23% | 23% | 22% | 23% | 22% | 22% |
| **55+** | 16% | 14% | 14% | 16% | 17% | 20% | 16% | 16% | 21% |

For both males and females, those in the 25-34, 35-44, and 45-54 year old age groups make up the largest percentage of unintentional drug related deaths involving an opioid since 2010. For males, those between the ages of 25-34 years represent the largest percentage of unintentional drug related deaths involving an opioid since 2012 until 2017 when those ages of 35-44 became the largest percentage. In 2010, those between the ages of 45-54 years made up the largest percentage of females dying from unintentional drug related deaths involving an opioid, but the percentage has declined since.

## Unintentional Opioid Related Deaths by Race/Ethnicity & Age

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| **White, Non-Hispanic** | **(N=197)** | **(N=246)** | **(N=280)** | **(N=238)** | **(N=312)** | **(N=343)** | **(N=468)** | **(N=679)** | **(N=561)** |
| **10-14** | 0% | 0% | 0% | 0% | 0% | 0% | 0.21% | 0% | 0% |
| **15-18** | 0% | 0.41% | 0% | 0% | 1% | 1% | 1% | 0.15% | 0.18% |
| **19-24** | 7% | 11% | 12% | 7% | 9% | 8% | 9% | 6% | 4% |
| **25-34** | 28% | 28% | 28% | 34% | 29% | 35% | 31% | 30% | 33% |
| **35-44** | 23% | 22% | 23% | 22% | 22% | 22% | 20% | 27% | 25% |
| **45-54** | 28% | 27% | 28% | 24% | 23% | 20% | 24% | 21% | 22% |
| **55+** | 14% | 12% | 9% | 14% | 15% | 15% | 15% | 16% | 15% |
| **Black, Non-Hispanic** | **(N=76)** | **(N=83)** | **(N=99)** | **(N=67)** | **(N=112)** | **(N=145)** | **(N=171)** | **(N=228)** | **(N=239)** |
| **10-14** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **15-18** | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0.43% | 0% |
| **19-24** | 3% | 1% | 9% | 4% | 8% | 3% | 6% | 5% | 4% |
| **25-34** | 14% | 18% | 15% | 15% | 18% | 12% | 13% | 18% | 17% |
| **35-44** | 18% | 30% | 27% | 31% | 16% | 22% | 24% | 23% | 17% |
| **45-54** | 33% | 25% | 20% | 28% | 29% | 31% | 30% | 29% | 22% |
| **55+** | 32% | 25% | 28% | 21% | 29% | 31% | 26% | 24% | 40% |
| **Hispanic** | **(N=23)** | **(N=56)** | **(N=41)** | **(N=47)** | **(N=67)** | **(N=71)** | **(N=99)** | **(N=152)** | **(N=129)** |
| **10-14** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **15-18** | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% |
| **19-24** | 9% | 11% | 10% | 4% | 7% | 6% | 6% | 4% | 4% |
| **25-34** | 30% | 30% | 29% | 36% | 36% | 25% | 28% | 25% | 22% |
| **35-44** | 30% | 20% | 34% | 26% | 28% | 30% | 34% | 39% | 34% |
| **45-54** | 26% | 34% | 17% | 23% | 19% | 25% | 24% | 24% | 26% |
| **55+** | 4% | 5% | 10% | 11% | 7% | 14% | 8% | 8% | 14% |
| **Other, Non-Hispanic** | **(N=0)** | **(N=4)** | **(N=3)** | **(N=4)** | **(N=4)** | **(N=2)** | **(N=14)** | **(N=15)** | **(N=8)** |
| **10-14** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **15-18** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **19-24** | 0% | 25% | 33% | 0% | 25% | 50% | 8% | 13% | 13% |
| **25-34** | 0% | 25% | 33% | 75% | 25% | 50% | 69% | 47% | 50% |
| **35-44** | 0% | 50% | 33% | 25% | 25% | 0% | 23% | 20% | 25% |
| **45-54** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 20% | 12% |
| **55+** | 0% | 0% | 0% | 0% | 25% | 0% | 0% | 0% | 0% |

For white, non-Hispanic individuals, those between the ages of 25-34 years represent the largest percentage of individuals dying from unintentional drug related deaths involving an opioid. For black, non-Hispanic individuals, older age groups (≥45 years old) compose the largest percentage of individuals dying from unintentional drug related deaths involving an opioid. For Hispanic individuals, those in the 25-34, 35-44, and 45-

54 year old age groups represent the largest percentage of individuals dying from unintentional drug related deaths involving an opioid.

## Unintentional Opioid Related Deaths by Race/Ethnicity & Sex

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| **Female** | **(N=88)** | **(N=99)** | **(N=135)** | **(N=112)** | **(N=162)** | **(N=147)** | **(N=234)** | **(N=273)** | **(N=250)** |
| **White, Non-Hispanic** | 59% | 59% | 67% | 69% | 64% | 65% | 63% | 68% | 64% |
| **Black, Non-Hispanic** | 31% | 28% | 27% | 22% | 27% | 29% | 28% | 21% | 27% |
| **Hispanic** | 10% | 12% | 4% | 8% | 9% | 5% | 8% | 10% | 8% |
| **Other, Non-Hispanic** | 0% | 1% | 1% | 1% | 1% | 0% | 1% | 1% | 1% |
| **Male** | **(N=208)** | **(N=290)** | **(N=288)** | **(N=244)** | **(N=333)** | **(N=414)** | **(N=518)** | **(N=801)** | **(N=687)** |
| **White, Non-Hispanic** | 70% | 65% | 66% | 66% | 63% | 60% | 62% | 61% | 58% |
| **Black, Non-Hispanic** | 24% | 19% | 22% | 17% | 21% | 25% | 20% | 21% | 25% |
| **Hispanic** | 7% | 15% | 12% | 16% | 16% | 15% | 16% | 16% | 16% |
| **Other, Non-Hispanic** | 0% | 1% | 0.35% | 1% | 1% | 0.48% | 2% | 2% | 1% |

For both males and females, white, non-Hispanic individuals represent the largest percentage of individuals dying from unintentional drug related deaths involving an opioid.

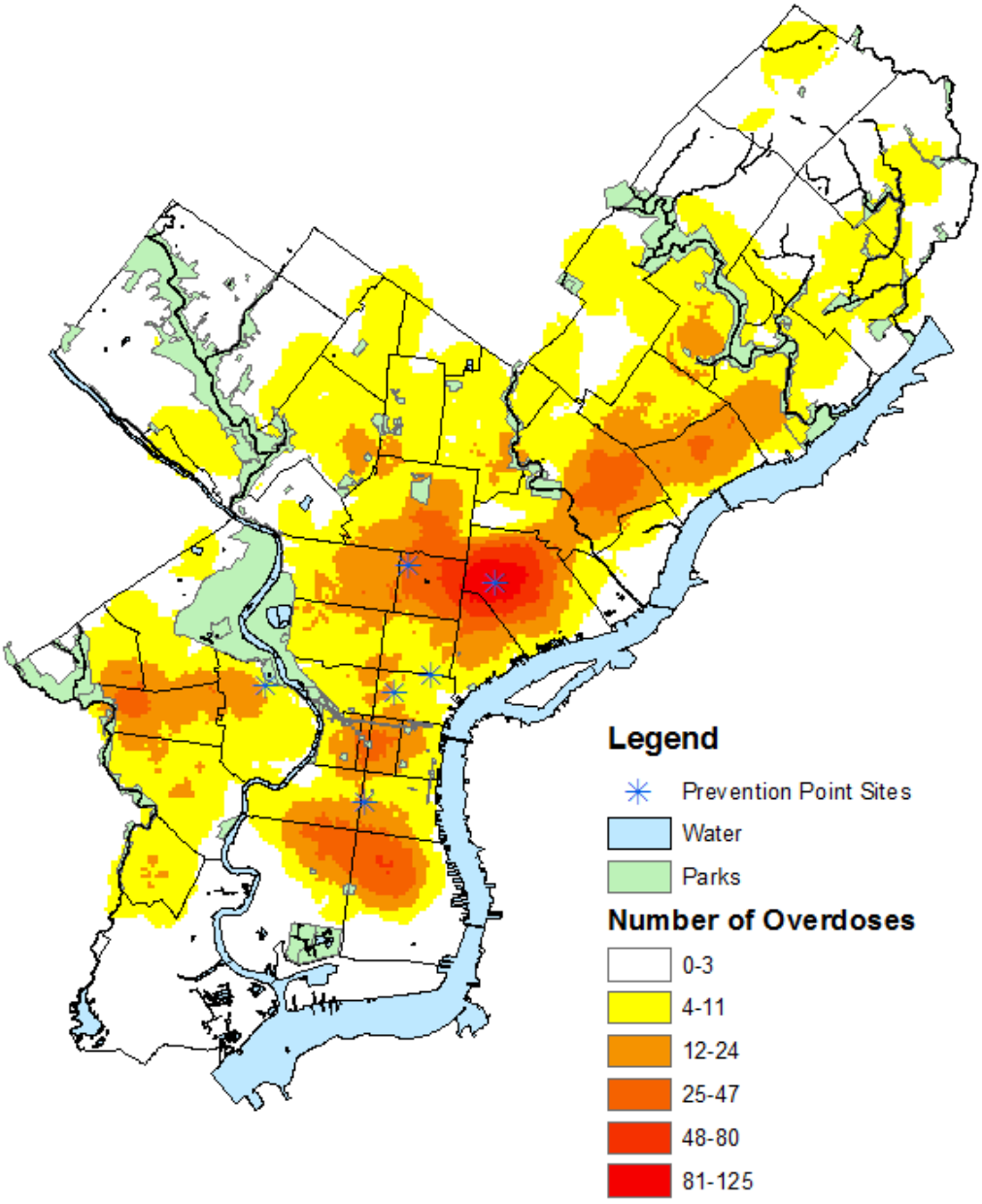
## Demographics of Unintentional Opioid Related Deaths
## Age-Adjusted Rates* per 100,000 Residents
### January 1, 2017- December 31, 2018

| | Age-Adjusted Rate per 100,000 residents |
|---|---|
| **Total** | 49.2 |
| **Sex** | |
| Female | 25.9 |
| Male | 75.5 |
| **Race/Ethnicity**** | |
| White, non-Hispanic | 75.4 |
| Black, non-Hispanic | 32.8 |
| Hispanic | 58.3 |
| **Age***** | |
| 15-24 | 14.1 |
| 25-34 | 63.1 |
| 35-44 | 96.2 |
| 45-54 | 103.0 |
| ≥55 | 47.1 |

**** Rates are calculated using Philadelphia county population denominators from the 2017 American Community Survey 1-year estimates. Rates are adjusted to the 2000 U.S. Standard Population age distribution***
***** Deaths among persons who had race/ethnicity listed as other were too few to calculate rates***
****** Age-specific death rates are listed***

The age-adjusted death rate for unintentional drug related deaths involving an opioid was 49.2/100,000 residents in 2018. The age-adjusted rate of unintentional drug related deaths involving an opioid among men was 2.9 times the rate among women. White, non-Hispanic individuals had the highest rate of unintentional drug related deaths involving an opioid followed by Hispanic individuals. Those between the ages of 35-44 years had the highest rate of unintentional drug related deaths involving an opioid followed by those in the 45-54 and 25-34 year old age groups.

## Unintentional Drug-Related Fatal Overdoses by Incidence, 2018



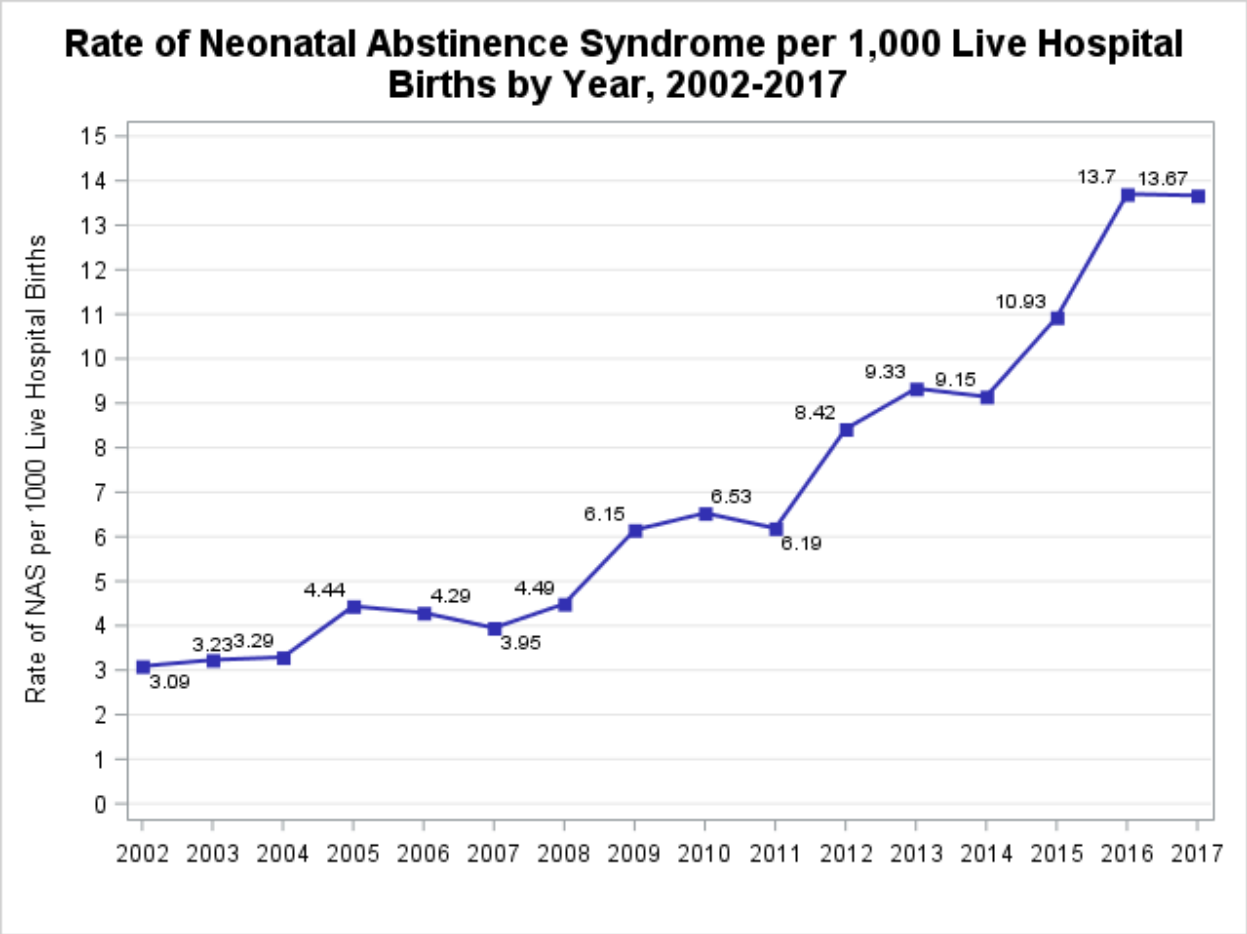

This map illustrates all overdose deaths that occurred in 2018 in Philadelphia. There are several areas of the city where the number of overdose deaths tend to be higher. Generally, these locations align with Prevention Point Philadelphia's needle and syringe exchange sites.

# D. Neonatal Abstinence Syndrome and Maternal Opioid Use or Dependence

The following section includes data from the Pennsylvania Health Care Cost Containment Council (PHC4), an independent state agency that collects information on all inpatient hospitalizations and ambulatory procedures at freestanding clinics in Pennsylvania to monitor health care cost. PHC4 also collects data on neonatal abstinence syndrome (NAS), which is the main consequence of mothers who use opioids while pregnant. NAS is defined as a group of withdrawal symptoms, including diarrhea, fever, irritability, seizures, sweating, and tremors experienced by babies exposed to opioids in utero. Data are de-identified and include detailed patient demographic and utilization information. Each record has one principal diagnosis and up to 17 secondary diagnoses using codes from the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) for data from January 1, 2002 to September 31, 2015 and the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) from October 1, 2015 to December 31, 2017. Data shown in this section are complete through 2017 and are for Philadelphia residents that received care at a hospital in Philadelphia, Bucks, Chester, Delaware, or Montgomery County.

Inpatient discharges with a principal ICD-9-CM diagnosis code of V30-V39 or ICD-10-CM diagnosis code of Z38.0-Z38.8 were identified as live births. Neonatal Abstinence Syndrome (NAS) was identified using ICD-9-CM code 779.5 and ICD-10-CM code P96.1. Possible cases of iatrogenic NAS were identified and excluded from the analysis. Women hospitalized for a live-born delivery were identified using ICD-9-CM diagnosis codes V27.0, V27.2, V27.3, V27.5, and V27.6 and ICD-10-CM diagnosis codes Z37.0, Z37.2, Z37.3, Z37.5, and Z37.6. Of these women, those dependent on opioids, using opioids, and taking long-term methadone or other opiate analgesic (ICD-9-CM: 304.00-304.03, 304.70-304.73, 305.50-305.53, V58.69; ICD-10-CM: F11.00-F11.99, Z79.891) were identified as a maternal hospitalization related to opioid abuse.

There are limitations to this dataset. First, the data is delayed up to two years. Second, all data is de-identified, and thus cannot be matched across city systems. Finally, although NAS is most often associated with opioid withdrawal, it can be used to describe withdrawal from other substances as well.




The rate of NAS has been steadily increasing since 2002 where the rate was 3.09 cases of NAS for every 1,000 live hospital births. By 2017, this rate had more than tripled with 13.67 cases of NAS for every 1,000 live hospital births.

## Cases of NAS vs. All Other Live Hospital Births by Race/Ethnicity

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| **Neonatal Abstinence Syndrome** | **(N=147)** | **(N=137)** | **(N=186)** | **(N=199)** | **(N=201)** | **(N=237)** | **(N=289)** | **(N=276)** |
| **White, Non-Hispanic** | 70% | 76% | 77% | 67% | 64% | 65% | 63% | 59% |
| **Black, Non-Hispanic** | 14% | 12% | 13% | 16% | 17% | 18% | 23% | 28% |
| **Hispanic** | 3% | 2% | 1% | 6% | 5% | 5% | 6% | 4% |
| **Other** | 0% | 2% | 2% | 1% | 3% | 3% | 1% | 4% |
| **Unknown** | 13% | 8% | 7% | 10% | 11% | 9% | 7% | 6% |
| **All Other Hospital Births** | **(N=22,366)** | **(N=22,013)** | **(N=21,901)** | **(N=21,132)** | **(N=21,768)** | **(N=21,440)** | **(N=20,809)** | **(N=19,912)** |
| **White, Non-Hispanic** | 23% | 23% | 23% | 25% | 27% | 28% | 29% | 29% |
| **Black, Non-Hispanic** | 48% | 48% | 48% | 46% | 44% | 45% | 43% | 43% |
| **Hispanic** | 10% | 10% | 10% | 10% | 10% | 11% | 11% | 11% |
| **Other** | 10% | 11% | 11% | 11% | 10% | 10% | 11% | 11% |
| **Unknown** | 8% | 8% | 7% | 9% | 8% | 6% | 6% | 6% |

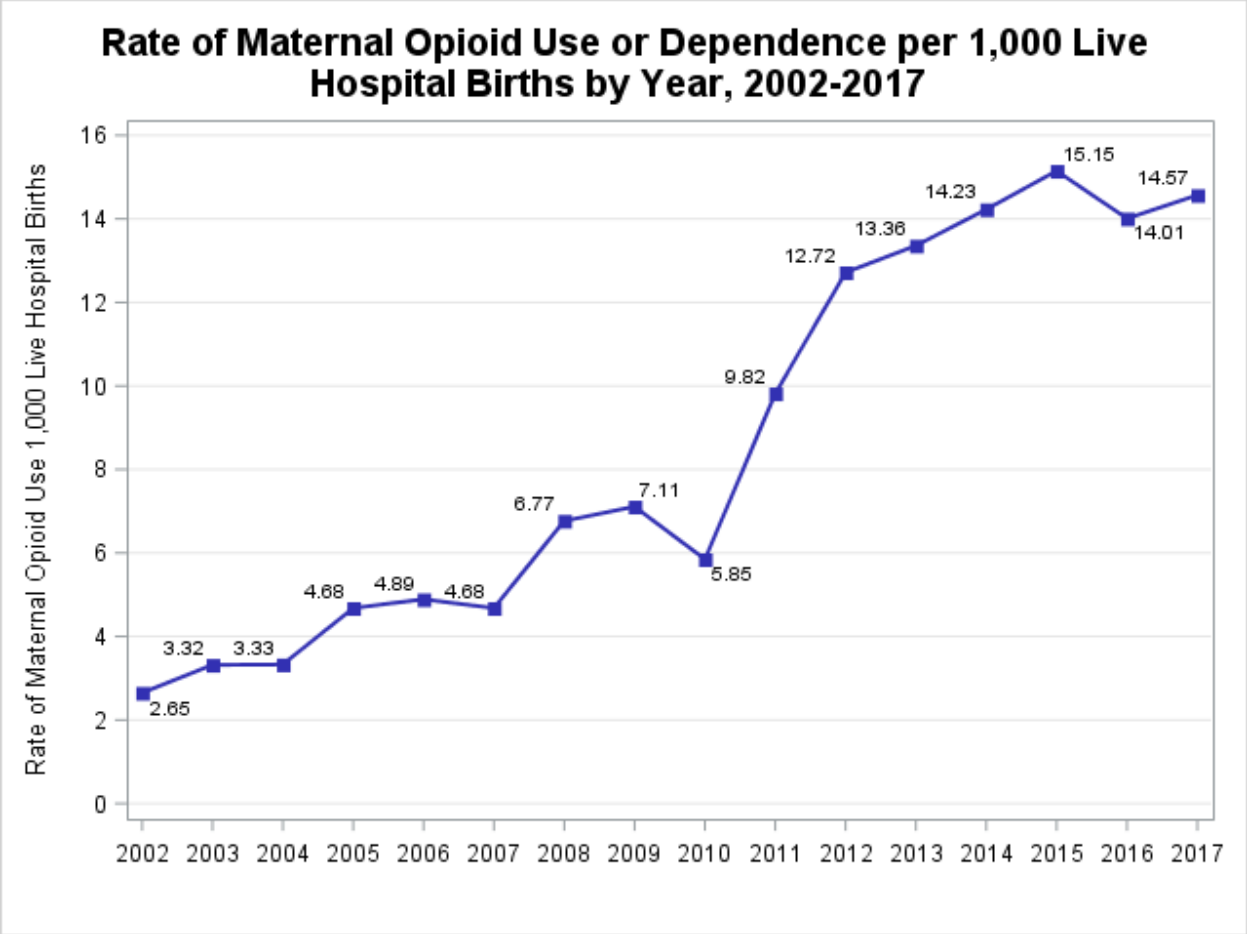
White, non-Hispanic infants are the predominant race/ethnicity group being born with NAS whereas black, non-Hispanic infants represent the predominant race/ethnicity group for all other hospital births.

## Cases of NAS vs. All Other Live Hospital Births by Insurance Payer

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| **Neonatal Abstinence Syndrome** | **(N=147)** | **(N=137)** | **(N=186)** | **(N=199)** | **(N=201)** | **(N=237)** | **(N=289)** | **(N=276)** |
| **Public** | 93% | 91% | 89% | 89% | 81% | 89% | 90% | 94% |
| **Private** | 7% | 8% | 6% | 6% | 8% | 8% | 7% | 4% |
| **Self-Pay/Charity** | 0% | 1% | 5% | 6% | 10% | 3% | 3% | 1% |
| **Unknown** | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 1% |
| **All Other Hospital Births** | **(N=22,366)** | **(N=22,013)** | **(N=21,901)** | **(N=21,132)** | **(N=21,768)** | **(N=21,440)** | **(N=20,809)** | **(N=19,912)** |
| **Public** | 68% | 69% | 69% | 67% | 66% | 66% | 66% | 66% |
| **Private** | 30% | 30% | 30% | 31% | 33% | 33% | 33% | 32% |
| **Self-Pay/Charity** | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Unknown** | 0.33% | 1% | 0.02% | 0.02% | 0.18% | 0.17% | 0.49% | 1% |

The largest percentage of hospital births with NAS is on public insurance than for all other hospital births.




The rate of maternal opioid use or dependence has been increasing since 2002 where 2.65 mothers used opioids per 1,000 live births. Between 2002 and 2015, the rate of maternal opioid use increased more than five-fold with the rate of maternal opioid abuse being 15.15 per 1,000 live births in 2015. In 2016, the rate decreased to 14.01 per 1,000 live births before increasing to 14.57 per 1,000 live births in 2017.

## Mothers with Diagnosis of Opioid Use or Dependence vs. All Other Mothers with Live Born Hospital Deliveries by Age

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| **Mothers with Opioid Use Diagnosis** | **(N=123)** | **(N=219)** | **(N=283)** | **(N=284)** | **(N=304)** | **(N=319)** | **(N=285)** | **(N=295)** |
| **11-18** | 1% | 0% | 2% | 2% | 1% | 1% | 0% | 0% |
| **19-24** | 25% | 22% | 25% | 19% | 20% | 17% | 12% | 14% |
| **25-34** | 70% | 66% | 64% | 66% | 65% | 66% | 73% | 67% |
| **35-44** | 4% | 12% | 9% | 13% | 14% | 16% | 15% | 19% |
| **45+** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **All Other Mothers** | **(N=20,911)** | **(N=22,083)** | **(N=21,966)** | **(N=20,967)** | **(N=21,054)** | **(N=20,739)** | **(N=20,056)** | **(N=19,958)** |
| **11-18** | 9% | 8% | 7% | 6% | 5% | 5% | 4% | 2% |
| **19-24** | 33% | 32% | 31% | 30% | 28% | 27% | 25% | 25% |
| **25-34** | 47% | 48% | 49% | 51% | 53% | 54% | 56% | 56% |
| **35-44** | 11% | 12% | 12% | 13% | 14% | 15% | 15% | 16% |
| **45+** | 0.11% | 0.14% | 0.13% | 0.20% | 0.15% | 0.15% | 0.15% | 0% |

There is a larger percentage of mothers with an opioid use or dependence diagnosis between the ages of 25-34 years than there is for all other mothers.

## Mothers with Diagnosis of Opioid Use or Dependence vs. All Other Mothers with Live Born Hospital Deliveries by Race

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| **Mothers with Opioid Use Diagnosis** | **(N=123)** | **(N=219)** | **(N=283)** | **(N=284)** | **(N=304)** | **(N=319)** | **(N=285)** | **(N=295)** |
| **White, Non-Hispanic** | 67% | 55% | 60% | 52% | 48% | 53% | 59% | 57% |
| **Black, Non-Hispanic** | 14% | 30% | 27% | 34% | 32% | 30% | 28% | 31% |
| **Hispanic** | 2% | 3% | 1% | 3% | 4% | 5% | 7% | 6% |
| **Other** | 2% | 4% | 5% | 3% | 4% | 4% | 2% | 1% |
| **Unknown** | 15% | 8% | 7% | 9% | 12% | 8% | 4% | 5% |
| **All Other Mothers** | **(N=20,911)** | **(N=22,083)** | **(N=21,966)** | **(N=20,967)** | **(N=21,054)** | **(N=20,739)** | **(N=20,056)** | **(N=19,958)** |
| **White, Non-Hispanic** | 25% | 25% | 25% | 25% | 27% | 28% | 29% | 29% |
| **Black, Non-Hispanic** | 46% | 47% | 47% | 45% | 44% | 45% | 43% | 43% |
| **Hispanic** | 10% | 9% | 7% | 8% | 10% | 10% | 11% | 13% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Other** | 11% | 12% | 14% | 12% | 11% | 11% | 11% | 9% |
| **Unknown** | 8% | 7% | 8% | 8% | 8% | 6% | 6% | 5% |

White, non-Hispanic mothers make up the predominant race ethnicity group using or dependent on opioids whereas black, non-Hispanic mothers make up the predominant race/ethnicity group for all other mothers with live born hospital deliveries.

## Mothers with Diagnosis of Opioid Use vs. All Other Mothers with Live Born Hospital Deliveries by Insurance Payer

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| **Mothers with Opioid Use Diagnosis** | **(N=123)** | **(N=219)** | **(N=283)** | **(N=284)** | **(N=304)** | **(N=319)** | **(N=285)** | **(N=295)** |
| **Public** | 95% | 82% | 84% | 83% | 84% | 86% | 94% | 91% |
| **Private** | 4% | 16% | 14% | 16% | 15% | 12% | 6% | 8% |
| **Self-Pay/Charity** | 1% | 0.46% | 1% | 1% | 1% | 2% | 0% | 1% |
| **Unknown** | 0% | 1% | 0% | 0.35% | 0% | 0% | 0% | 0% |
| **All Other Mothers** | **(N=20,911)** | **(N=22,083)** | **(N=21,966)** | **(N=20,967)** | **(N=21,054)** | **(N=20,739)** | **(N=20,056)** | **(N=19,958)** |
| **Public** | 66% | 66% | 66% | 65% | 64% | 65% | 64% | 64% |
| **Private** | 33% | 33% | 33% | 34% | 35% | 34% | 35% | 34% |
| **Self-Pay/Charity** | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| **Unknown** | 0.32% | 1% | 0.02% | 0.02% | 0.17% | 0.18% | 0.40% | 1% |

The largest percentage of mothers with a diagnosis of opioid use is on public insurance than for all other mothers with live born hospital deliveries.

# E. Cases of Acute Hepatitis C

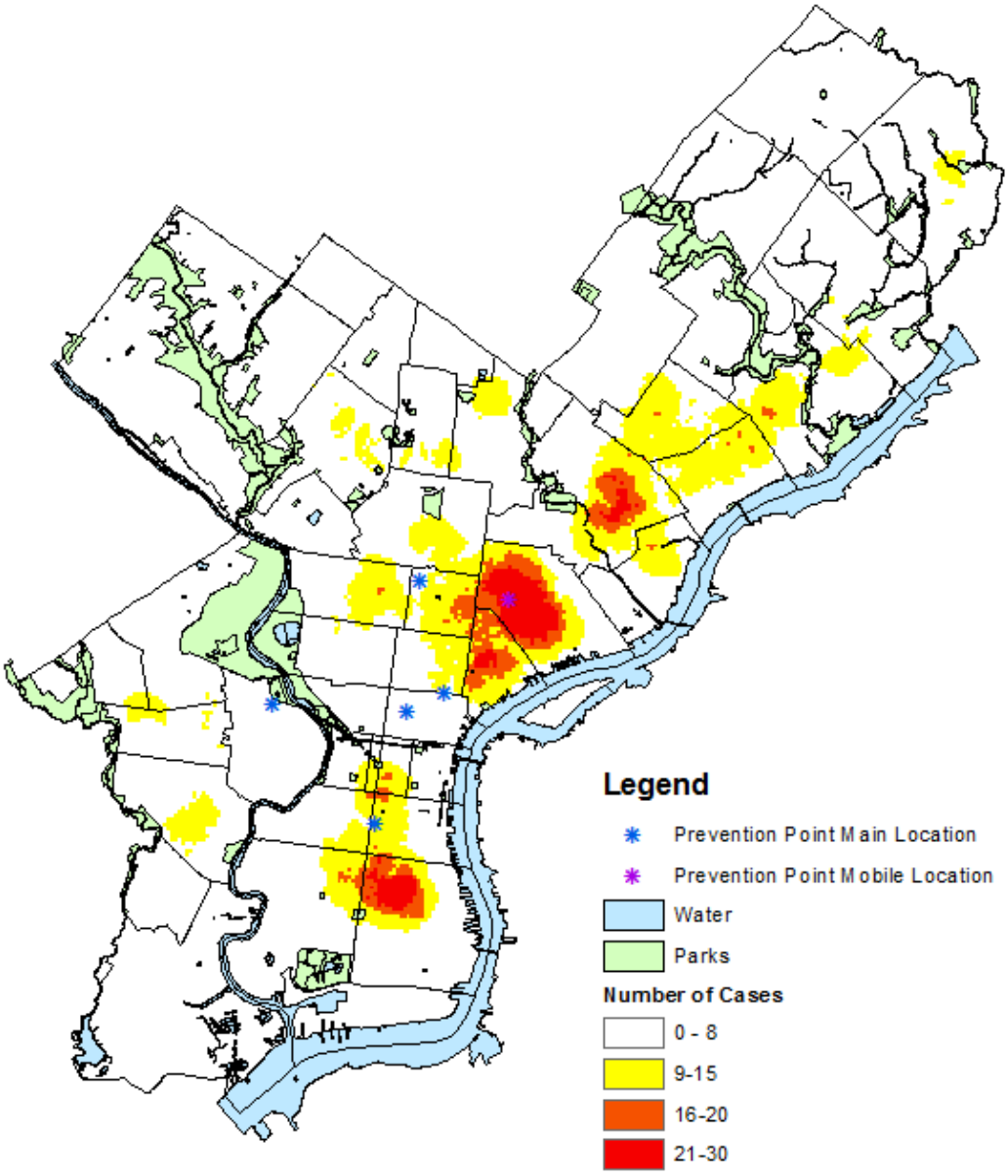
The following section includes data from the Viral Hepatitis Program (HEP) at the Philadelphia Department of Public Health (PDPH). Hepatitis C virus (HCV) infection occurs at very high rates among people who use injection drugs, especially among those who share injecting equipment and other drug paraphernalia. Indeed, 60% of acute HCV patients in Philadelphia reported ever having injected drugs.

A patient is considered to have acute HCV infection if 1) he/she meets clinical criteria (illness with discrete onset of any sign or symptom consistent with acute viral hepatitis AND jaundice OR a peak elevated serum alanine aminotransferase level) AND has a positive HCV detection test (HCV nucleic acid test or HCV antigen test) OR 2) a documented negative HCV test (antibody, antigen, or nucleic acid test) result followed by a positive test result within 12 months. The information in this section includes all acute HCV cases reported to the PDPH between 2012 and 2018.

There are some limitations to this data. First, due to the lack of a specific laboratory test and the general asymptomatic presentation of acute HCV, disease incidence is often underestimated. Second, the demographic and risk factor profile of the individuals tested for HCV may not be representative of the population infected. Finally, although HEP attempts to investigate all cases of acute HCV infection to assess risk factors, some individuals are lost-to-follow-up and risk factor information is not always obtained.

Since injection drug use is a primary risk factor for acute HCV, it is important to emphasize safe injection strategies that can reduce the transmission of HCV and other blood born infectious diseases, such as HIV and viral hepatitis B (HBV).

# Cases of Acute Hepatitis C Infection by ZIP Code, 2012-2018




There are several areas of the city where number of new acute HCV infection tend to be higher. Although some of these locations align with Prevention Point Philadelphia's needle and syringe exchange sites, numbers suggest there are areas in the city that could be serviced by new mobile needle and syringe exchange site locations.

## Acute HCV Cases by Age

| | (N=627) |
|---|---|
| 15-18 | 1% |
| 19-24 | 13% |
| 25-34 | 44% |
| 35-44 | 18% |
| 45-54 | 11% |
| 55-64 | 8% |
| 65+ | 4% |

**** Individuals with missing age information were excluded***

Individuals between the ages of 25-34 years are the predominant age group being diagnosed with acute HCV.

## Acute HCV Cases by Sex

| | (N=627) |
|---|---|
| Female | 47% |
| Male | 53% |

The percentage of male cases of acute HCV is slightly higher than the percentage of females.

## Acute HCV Cases by Race/Ethnicity

| | (N=627) |
|---|---|
| White, Non-Hispanic | 54% |
| Black, Non-Hispanic | 24% |
| Hispanic | 19% |
| Other, Non-Hispanic | 3% |

**** Individuals with missing race/ethnicity information were excluded***

More than 50% of cases that had race/ethnicity information were white, non-Hispanic individuals.

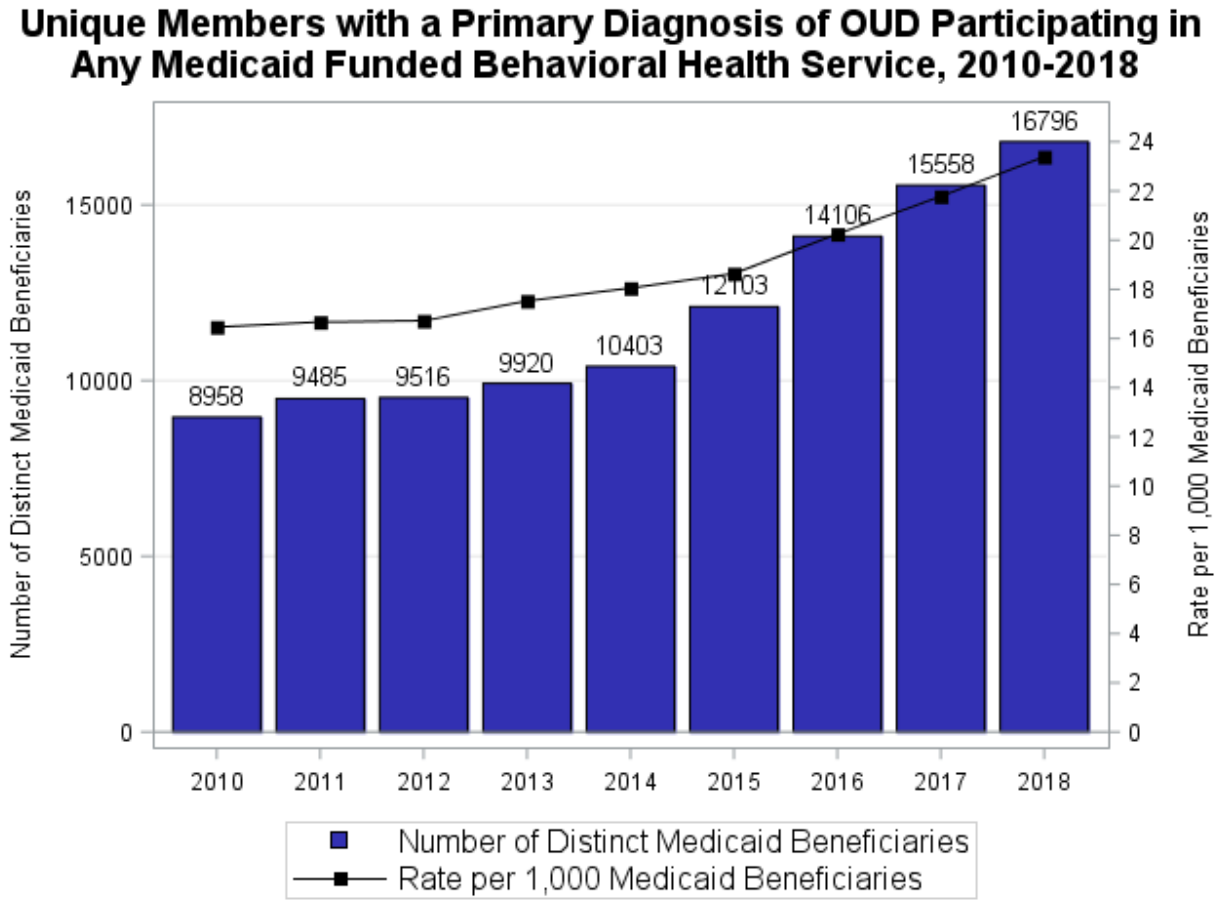
# F. Addiction Treatment Services

The following section includes treatment statistics on individuals with a primary diagnosis of Opioid Use Disorders (OUD) of the Medicaid population in Philadelphia. The treatment data are provided by Community Behavioral Health (CBH), a component of Philadelphia Department of Behavioral Health and disAbility Services. Under the HealthChoices program, CBH care manages mental health and addiction treatment services for Medicaid eligible individuals in Philadelphia. CBH'S paid claims for services from January 1, 2010 to December 31, 2018 are presented.

Prior to the increase in overdose deaths that started in 2014, Governor Corbett initiated major changes to Medicaid eligibility in the Commonwealth of Pennsylvania. Beginning in 2013, Pennsylvania's administration introduced Healthy PA, which included a private insurance option for Medicaid enrollees. This resulted in a loss of eligible individuals in CBH and subsequent reduction in members using addiction treatment services. Decreases in selective addiction treatment services in 2013 and 2014 reflect, in part, decreases in the Medicaid eligible population. In 2015, Governor Wolf terminated the Healthy PA initiative and Pennsylvania expanded Medicaid under the Affordable Care Act.

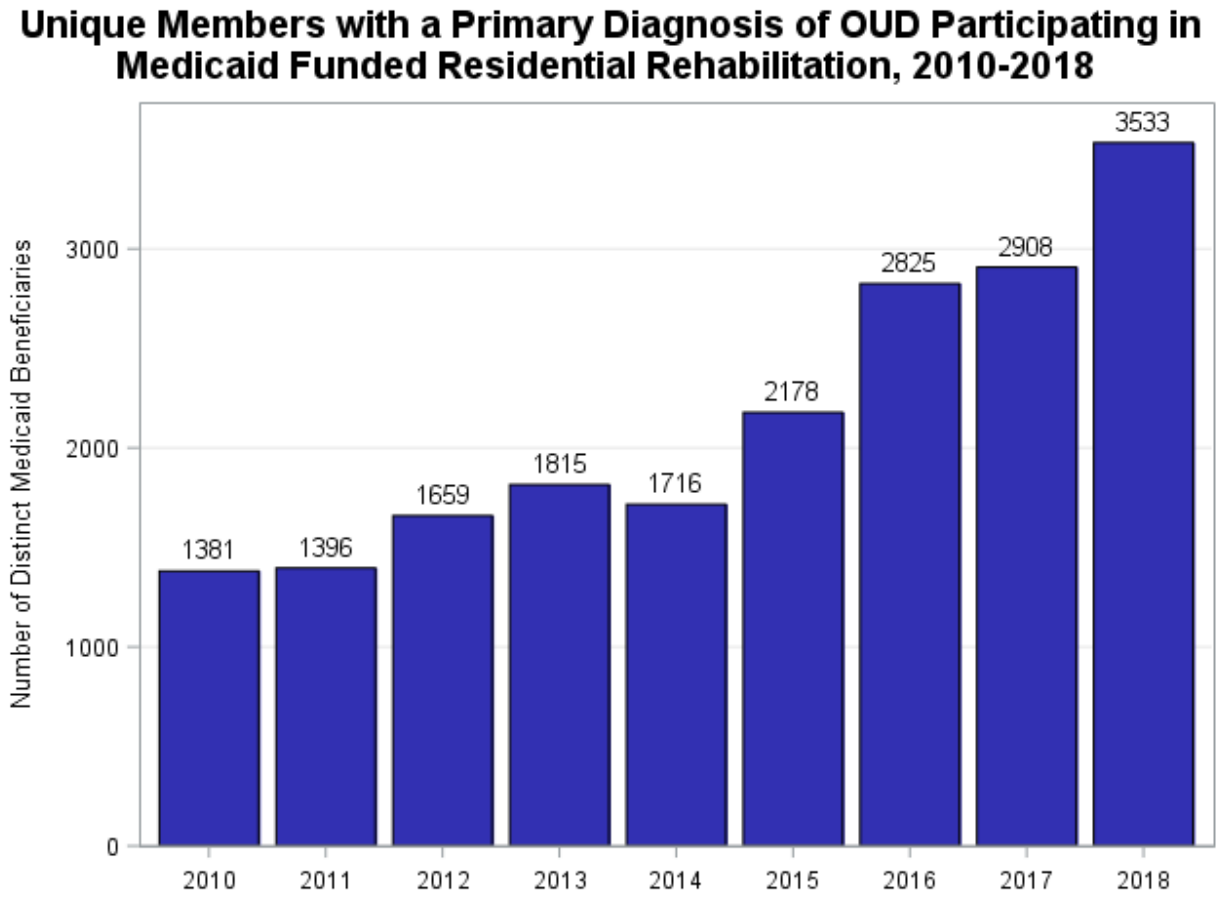
Given the transition between Healthy PA and Medicaid expansion in 2015, we recommend caution in interpreting these treatment statistics for that time period. Additionally, without data from private insurance, the statistics on Medicaid funded addiction treatment provides a partial picture on Philadelphians with opioid use disorder in treatment.

## Any Medicaid Funded Addiction Service




Between 2010 and 2018, the number of unique CBH members with a primary diagnosis of OUD receiving any Medicaid funded addiction treatment service has increased each year. In 2018, there were 16,778 unique members with a primary diagnosis of opioid use disorder participating in behavioral health services with a rate of 23.4 distinct individuals per 1,000 Medicaid beneficiaries.

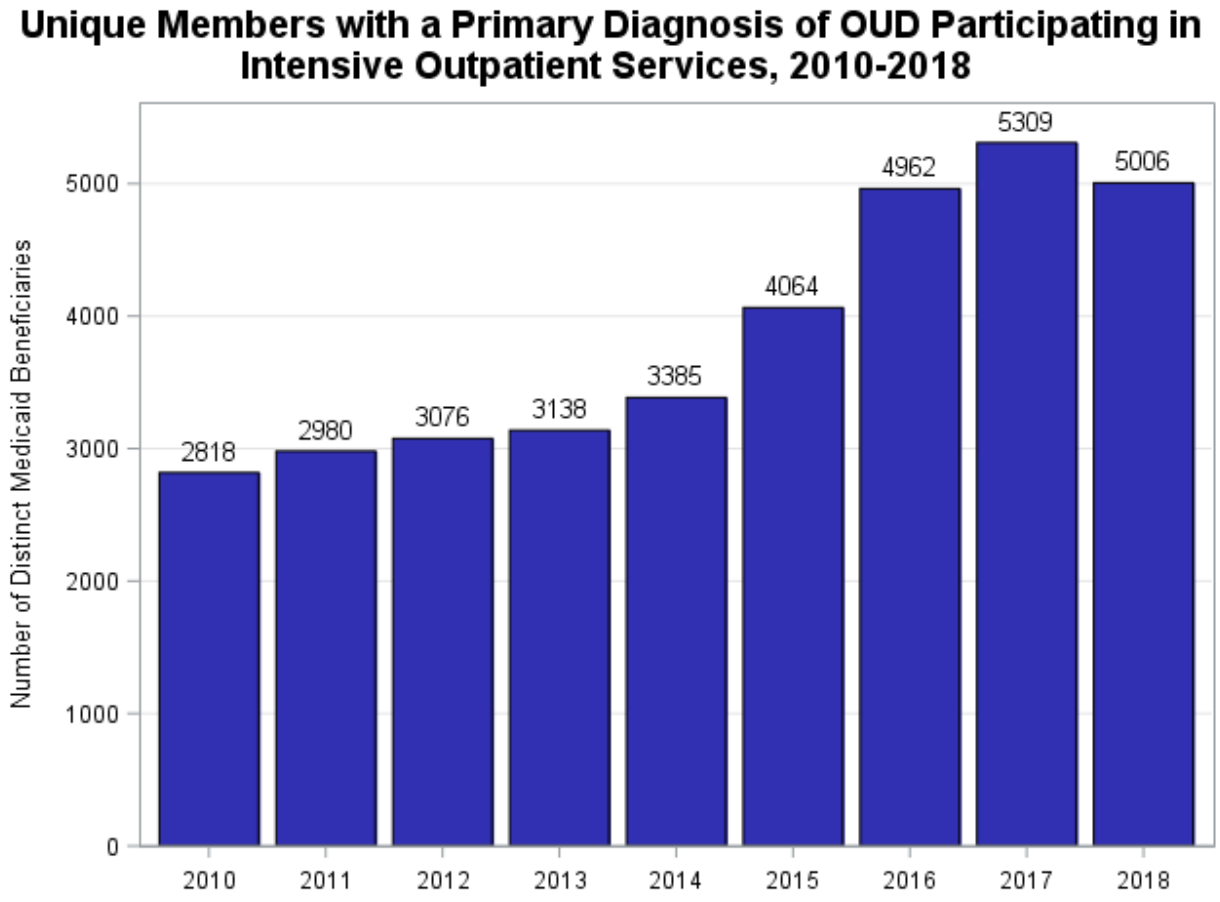
## Medicaid Funded Residential Rehabilitation




Since 2010, the number of individuals with a primary diagnosis of OUD participating in MA funded residential rehabilitation programs has increased each year with the exception of 2014, which may be in part due to the Healthy PA program. In 2018, 3,533 unique individuals were treated in residential rehabilitation programs increasing by 21% from 2017. In response to the opioid epidemic, CBH prioritized access to treatment by removing prior authorizations to residential rehabilitation allowing more members to access the service.

**Residential Rehabilitation -** Services can include hospital and non-hospital based, short and long term residential rehabilitation, and specialty programs such as Journey of Hope and Women with Children.

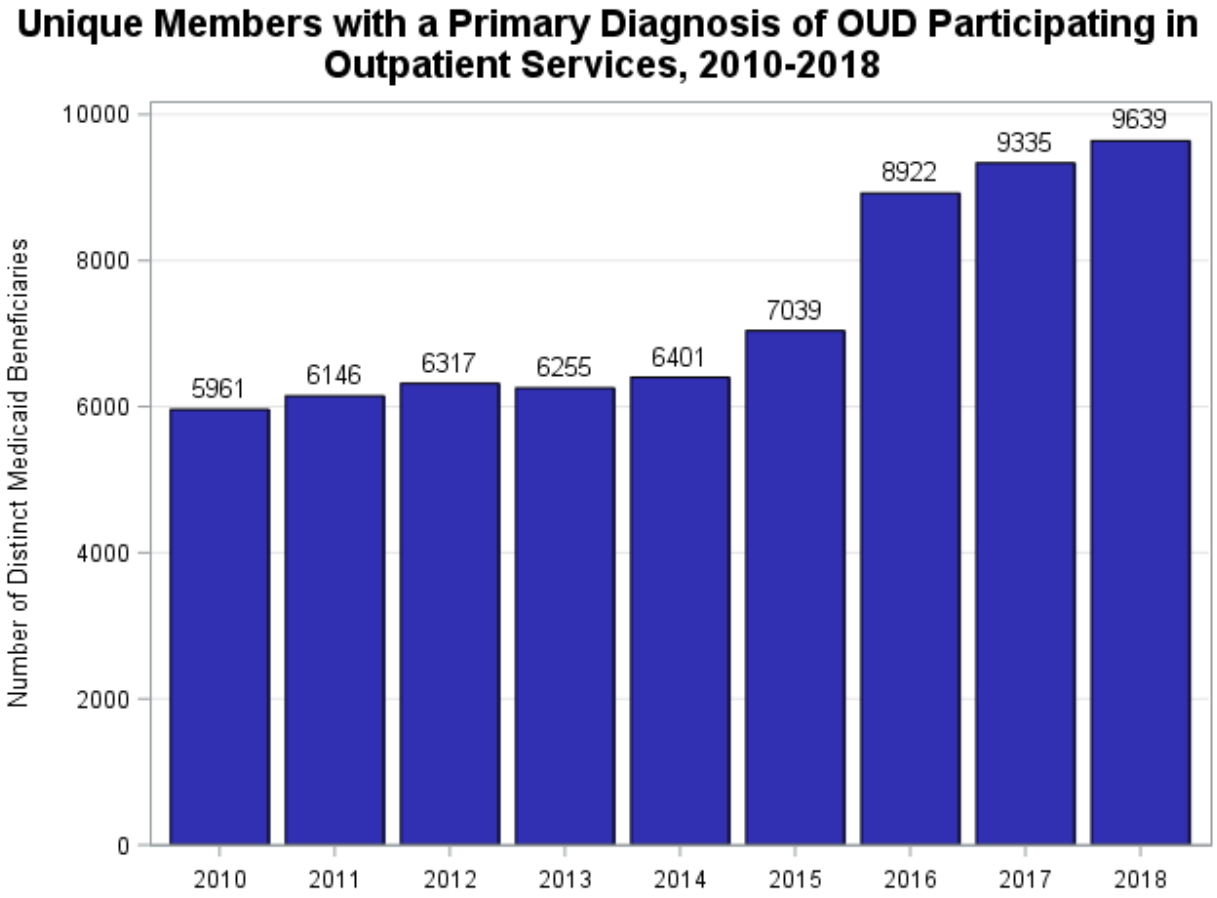
## Medicaid Funded Intensive Outpatient Services




Between 2010 and 2018, the number of unique members with a primary diagnosis of OUD participating in intensive outpatient services has increased. In 2018, the number of unique members participating in intensive outpatient decreased to 5,006, which is attributed to adjustments in CBH's network resulting in individuals using other services.

**Intensive Outpatient** services are D&A outpatient services utilized at an intensive basis, up to 9.75 hours per week.

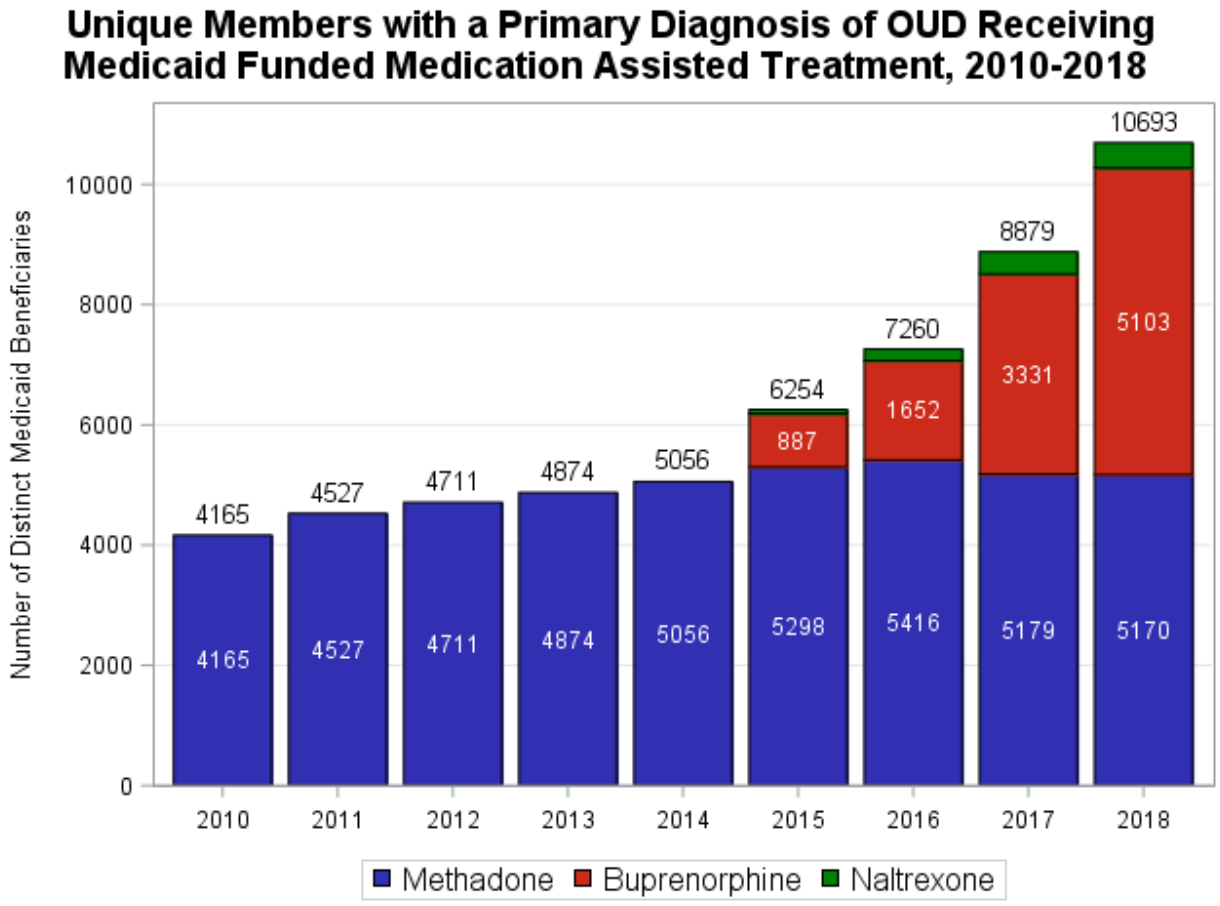
## Medicaid Funded Outpatient Services




Between 2010 and 2018, the number of unique members with a primary opioid use disorder diagnosis participating in drug and alcohol outpatient services continually increased, with the largest increase occurring between 2015 and 2016 of 27%. In 2018, 9,639 unique individuals with a primary opioid use disorder diagnosis received drug and alcohol outpatient services.

**D&A Outpatient -** Services can include assessments or evaluations using American Society of Addiction Medicine (ASAM) or Pennsylvania Client Placement Criteria (PCPC), testing by psychologist, therapy with counselor, psychologist or psychiatrist, individual, group, couple or family therapy, medication administration, evaluation, or management, and collateral services.

## Medicaid Funded Medication Assisted Treatment




The number of individuals with a primary diagnosis of OUD who participated in some form of medication assisted treatment has increased since 2010. In 2018, there were 10,693 individuals with a primary diagnosis of OUD receiving some form of medication assisted treatment, an increase of 20% from the prior year. Of those individuals, 5,170 received methadone, 5,103 received buprenorphine, and 420 received naltrexone as their most recent medication type. The number of individuals receiving buprenorphine increased by 53% from 2017 to 2018.

**Medication assisted treatment** - Services can include methadone maintenance (daily administration or take-home dosage), or any behavioral health services with buprenorphine or naltrexone prescriptions within the same calendar quarter. Note that prescriptions claims are provided by Physical Health Managed Care Organizations (PHMCO), not Community Behavioral Health. Prescription data are presented beginning in 2015 as historical data prior to this time period are unavailable. Members could have received prescriptions for buprenorphine from physical health providers as well as behavioral health providers.

## Unique Members with a Primary Diagnosis of OUD Receiving MA Funded Medication Assisted Treatment by Age

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| | (N=5056) | (N=6254) | (N=7260) | (N=8879) | (N=10693) |
| 18-24 years | 2% | 2% | 2% | 3% | 3% |
| 25-34 years | 33% | 31% | 31% | 31% | 31% |
| 35-44 years | 28% | 30% | 31% | 32% | 32% |
| 45-54 years | 20% | 21% | 21% | 21% | 21% |
| 55-64 years | 14% | 13% | 12% | 11% | 11% |
| 65+ years | 3% | 3% | 3% | 2% | 2% |

Those between the ages of 24-34 and 35-44 years old are the predominant age groups amongst individuals with an OUD participating in MA funded medication assisted treatment.

## Unique Members with a Primary Diagnosis of OUD Receiving MA Funded Medication Assisted Treatment by Sex

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| | (N=5056) | (N=6254) | (N=7260) | (N=8879) | (N=10693) |
| Female | 42% | 42% | 41% | 40% | 39% |
| Male | 58% | 58% | 59% | 60% | 61% |

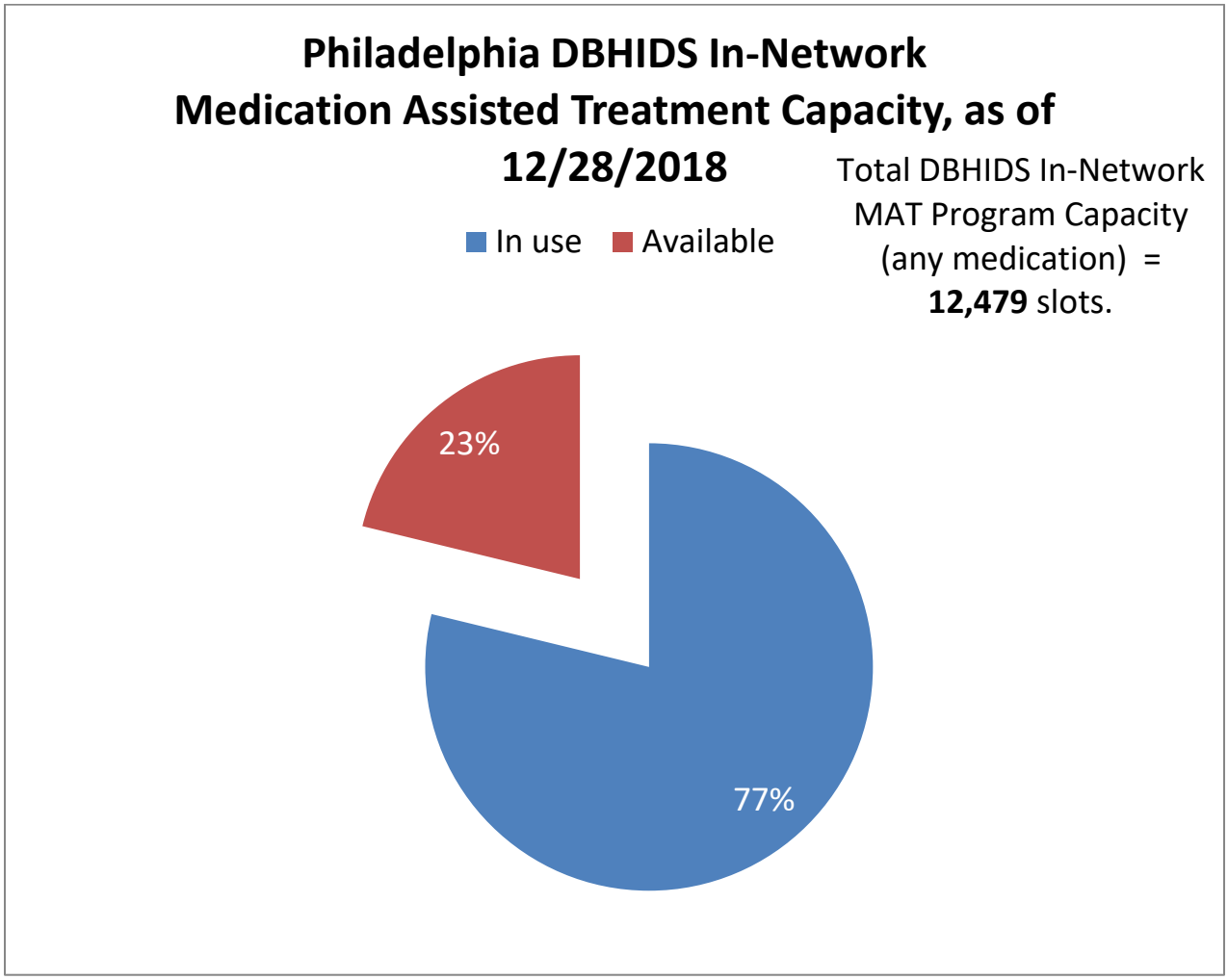
There is consistently larger proportion of males with a primary diagnosis of OUD participating in MA funded medication assisted treatment than females.

## Unique Members with a Primary Diagnosis of OUD Receiving MA Funded Medication Assisted Treatment by Race/Ethnicity

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| | (N=5056) | (N=6254) | (N=7260) | (N=8879) | (N=10693) |
| White, Non-Hispanic | 64% | 63% | 62% | 56% | 50% |
| Black, Non-Hispanic | 21% | 21% | 21% | 24% | 28% |
| Hispanic | 13% | 14% | 14% | 17% | 18% |
| Other | 2% | 2% | 2% | 3% | 3% |

Of those with a primary diagnosis of OUD, white, non-Hispanic individuals are the predominant race and ethnicity group participating in MA funded medication assisted

treatment, however, the percentage of white, non-Hispanic individuals has decreased since 2016.

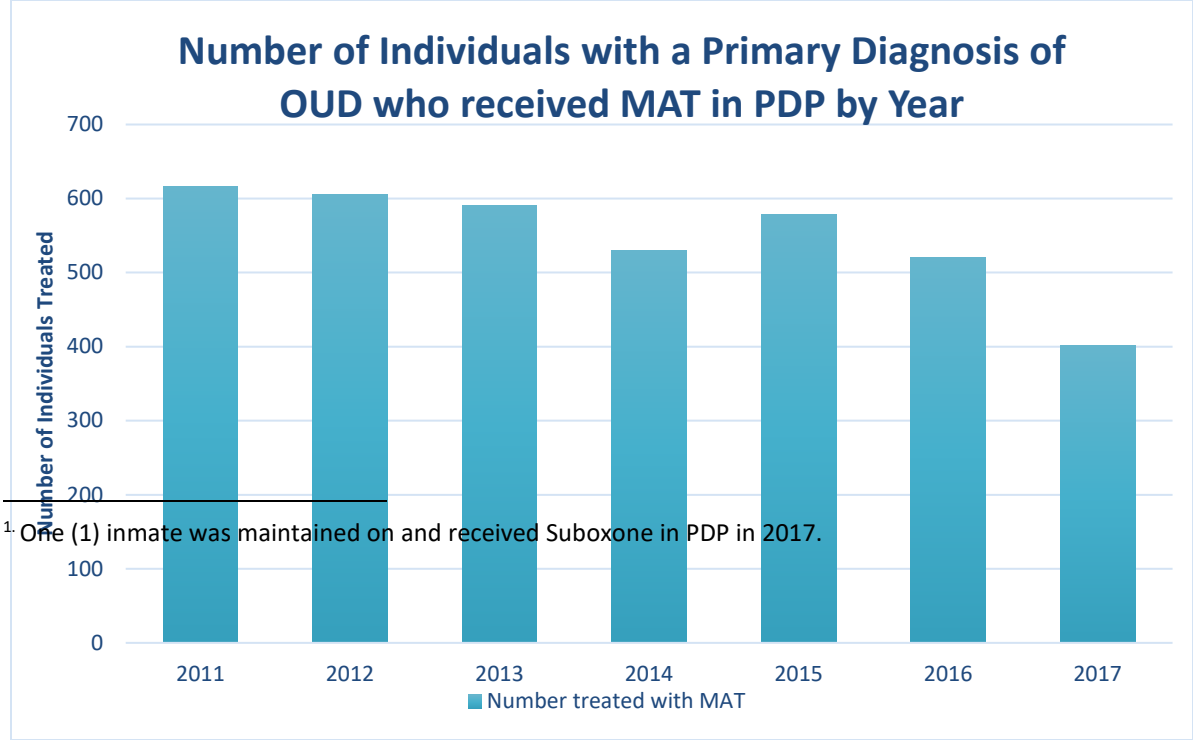



The total DBHIDS Community MAT Program Capacity (any medication) is 12,479 slots. As of December 28, 2018, 2,906 MAT slots are available.

# 2. Medication Assisted Treatment in Philadelphia Department of Prisons

In 2004, the Department of Behavioral Health and Intellectual disAbilities Services (DBHIDS) embarked in an innovative collaboration with NorthEast Treatment Centers (NET) and Philadelphia Department of Prisons (PDP), to implement a medication assisted treatment (MAT) program to address Opioid Use Disorder (OUD) among those incarcerated in Philadelphia. Through the program, individuals who are actively enrolled in a community-based MAT program can continue treatment while incarcerated and transition back to their community-based treatment provider upon discharge from PDP facilities. For this program, NET offers assessments, methadone dosing[1], physician services, individual/group counseling and case management to those incarcerated and eligible for MAT. To ensure continuity of treatment, NET offers "Bridge Dosing" which allows newly released individuals to be dosed at NET until they are readmitted to their original MAT community provider.

Though NET's program began at Philadelphia Department of Prison facilities in 2004, data collection in a consistent manner did not begin until 2010. Due to the implementation process, 2010 data is incomplete, and thus is not included in this report. In 2018 PDP piloted buprenorphine induction, expanding medication assisted treatment (MAT) options for the incarcerated population.




1. One (1) inmate was maintained on and received Suboxone in PDP in 2017.

## Individuals with a Primary Diagnosis of OUD who received Medication Assisted Treatment in PDP by Age Group, 2011-2017

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| | ***n*= 616** | ***n*= 606** | ***n*= 591** | ***n*= 530** | ***n*= 579** | ***n*= 520** | ***n*= 402** |
| **18 to 24 years old** | 11.4% | 11.1% | 8.3% | 4.7% | 4.8% | 4.2% | 4.5% |
| **25 to 34 years old** | 46.6% | 49.0% | 48.6% | 49.1% | 48.4% | 45.4% | 49.5% |
| **35 to 44 years old** | 22.6% | 21.6% | 27.4% | 28.7% | 28.3% | 33.5% | 30.6% |
| **45 to 54 years old** | 15.3% | 13.5% | 11.8% | 12.8% | 14.5% | 10.6% | 10.2% |
| **55 to 64 years old** | 3.7% | 4.6% | 3.7% | 4.5% | 3.3% | 6.0% | 4.7% |
| **65 and above** | 0.5% | 0.2% | 0.2% | 0.2% | 0.7% | 0.4% | 0.5% |

## Individuals with a Primary Diagnosis of OUD who received Medication Assisted Treatment in PDP by Sex, 2011-2017

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| | ***n*= 616** | ***n*= 606** | ***n*= 591** | ***n*= 530** | ***n*= 579** | ***n*= 520** | ***n*= 402** |
| **Female** | 30.5% | 32.0% | 29.9% | 29.2% | 29.5% | 29.6% | 33.8% |
| **Male** | 69.5% | 68.0% | 70.1% | 70.8% | 70.5% | 70.4% | 66.2% |

## Individuals with a Primary Diagnosis of OUD who received Medication Assisted Treatment in PDP by Race/Ethnicity, 2011-2017

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| | ***n*= 616** | ***n*= 606** | ***n*= 591** | ***n*= 530** | ***n*= 579** | ***n*= 520** | ***n*= 402** |
| **White, non-Hispanic** | 72.7% | 71.5% | 74.1% | 68.1% | 71.2% | 74.6% | 67.9% |
| **Black, non-Hispanic** | 14.4% | 15.2% | 13.0% | 14.3% | 13.0% | 10.8% | 12.9% |
| **Hispanic** | 12.3% | 13.2% | 11.8% | 16.8% | 15.4% | 14.4% | 19.2% |
| **Other** | 0.5% | 0.2% | 1.0% | 0.4% | 0.5% | 0.2% | 0.0% |