

# **OVERDOSE DATA TO ACTION**

**TRENDS IN SUBSTANCE USE, OVERDOSE, AND TREATMENT  
IN THE QUINNIPIACK VALLEY HEALTH DISTRICT AND NEW HAVEN**

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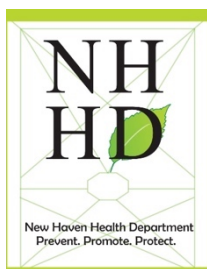
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# EXECUTIVE SUMMARY

This report focuses on the four-town Quinnipiack Valley Health District (QVHD), including the towns of Bethany, Hamden, North Haven, and Woodbridge, plus New Haven, which is served by the New Haven Health Department (NHHD). Collectively, the five-town area is referred to as the “region.”

## FATAL OVERDOSES

- 2020 was a record-high year for fatal overdoses in the five-town region, with 141 overdose deaths recorded, representing an increase of 40 percent from the previous year.
- Regionwide, between 2016 and 2020, there were 498 overdose deaths for an average of 100 per year.
- The regional overdose fatality rate in 2020 was 5.8 per 100,000 residents, higher than the state average of 3.3 per 100,000. New Haven had the highest rate in the region—8.8 per 100,000.
- The top five substances involved in overdose deaths in the region since 2016 are fentanyl, heroin, cocaine, ethanol, and benzodiazepines.
- In 2020, 94 percent of overdose deaths involved opioids, 84 percent involved fentanyl, 27 percent involved heroin, 47 percent involved cocaine, and 7 percent involved amphetamines. All substances but heroin represent an increase over 2019 shares.
- Fentanyl prevalence increased 350 percent between December 2018 and December 2020. It is now associated with an average of 10 fatal overdoses per month in the five-town region.
- Xylazine is an emerging substance of concern. Since mid-2019, ten overdose deaths in the region involved xylazine, but relevant information may not have been recorded prior to that time.
- Overdose death rates by race and ethnicity are beginning to converge. Regionally, the overdose fatality rate for the Black population is 6.2 per 100,000; for the white population, 7.2 per 100,000; and for the Latino population, 4.5 per 100,000.

## ACCIDENTAL, NONFATAL OVERDOSES

- There were 2,441 accidental, nonfatal overdoses recorded in the region between 2018 and 2020, for an average of 814 per year. The number of these overdoses increased 38 percent from 2019 to 2020.
- By ZIP code, rates of nonfatal overdoses are highest in 06519 (The Hill) and 06510 (downtown New Haven, which appears to be used as a default New Haven ZIP code). Every ZIP code in the region recorded at least 25 nonfatal overdoses between 2018 and 2020.
- By sex, males are about twice as likely to overdose as females in the region.
- In the suburban towns of North Haven and Woodbridge, overdoses are more common among people ages 15-34, while in New Haven and Hamden they are highest among ages 35-54.

- Nonfatal overdoses are most common among the Black population in New Haven; among the white population in Bethany, North Haven, and Woodbridge; and among Latinos in Hamden.

## INTENTIONAL, NONFATAL OVERDOSES

- There were 669 intentional overdoses recorded in the region between 2018 and 2020, for an average of 223 per year.
- Substances other than opioids and stimulants comprise the majority of intentional overdoses—except in 2020 in the NHHD area.
- There is greater parity in intentional overdose rates by sex and race, but differences in age are consistent with accidental and fatal overdoses, regionally.

## 9-1-1 CALLS INVOLVING OPIOID OVERDOSE

- Between June 1, 2019, and July 14, 2021 there were 560 calls for opioid overdose in the region and West Haven.
- ZIP code 06510 (Downtown New Haven) had the highest rate of opioid overdose calls: 104.8 per 10,000 population. Note that this area of New Haven attracts many nonresidents.
- ZIP code 06511 (Central New Haven) had the highest count of opioid overdose calls: 146.

## CONTROLLED SUBSTANCE PRESCRIPTIONS

- Between 2006 and 2014, New Haven County had the highest number of opioid pills dispensed per person in Connecticut—approximately 34 per person per year.
- Pharmacies in North Haven dispensed the most pills per person between 2006 and 2014, at 291 per person over the 9-year period. All towns except North Haven dispensed fewer pills per person than the state average.
- Opioid prescriptions have decreased, both as a count and share of all controlled substance prescriptions.

## ENCOUNTERS FOR MEDICAL AND SOCIAL ASSISTANCE

- Hospital encounter rates for substance use increased during the period from 2012-2014 to 2015-2017 in New Haven, Hamden, and statewide. In the remaining three towns in the region, hospital encounter rates held relatively steady.
- 211 calls for substance use help increased 20 percent from 2019 to 2020, for a total of 675 regionally in 2020.
- New Haven had the highest rate of 211 calls regionally, with an annualized rate of 4.9 calls per 1,000 adults, more than twice the statewide rate.
- Syringe surveillance programs in the region distributed hundreds of thousands of medical, sexual health, and substance use harm reduction items between 2017 and 2019.

- Needle exchange rates are 1.5 syringes distributed per 1 collected in the QVHD, 1.6 syringes distributed per 1 collected in the NHHD.

## SOCIOECONOMIC FACTORS

- Socioeconomic factors contributing to substance use include geography (urban compared to rural areas), a history of justice involvement, low formal educational attainment, low employment, low income, and housing instability.
- Regional disparities in socioeconomic factors relate to a legacy of racial discrimination.
- People experiencing the challenges that contribute to substance use often experience many or all of them simultaneously. Residents experiencing these compound needs are disproportionately located in ZIP code 06519 (The Hill) and 06511 (Central New Haven).

## USER EXPERIENCES OF OVERDOSE

- In 2021, QVHD surveyed 54 people who had experienced overdose at some point in the past. Of those, 70 percent had overdosed at least once within the past year.
- 69 percent of users believed they overdosed on heroin, but only 9 percent thought fentanyl was involved. This contrasts sharply with 84 percent of fatal overdoses involving fentanyl according to the medical examiner's office.
- 28 percent of users were in medication assisted treatment at the time of their last overdose.
- Of those not in any kind of treatment, a lack of interest was reported to be the greatest barrier to seeking treatment. However, most reported feeling ready to make a change in their lives following their most recent overdose.

## PROVIDER EXPERIENCES OF TREATMENT PROGRAMS

- Providers mentioned technology as one of the biggest barriers to accessing treatment, especially relating to COVID-19 pandemic precautions. However, many organizations made phones and tablets available for clients to help address this issue.
- Issues harder to resolve for clients were a lack of transportation, unstable housing situations, and other basic needs that prevented access to or continuation of services.

## TREATMENT ADMISSIONS

- New England ranks highest amongst all U.S. regions, and Connecticut ranks third highest in the nation by state, for substance use treatment admissions.
- Connecticut admitted 2,236 patients per 100,000 population to substance use treatment facilities in 2018.
- Alcohol is the most common primary substance for treatment admissions, but heroin admissions have doubled since 2010.

- Statewide, alcohol admissions in 2018 were 758 per 100,000 residents, heroin admissions were 708 per 100,000, and non-heroin opiate admissions were 93 per 100,000.
- Statewide, opioid-related admissions increased by 15 percent between 2014 and 2018.
- New Haven and Woodbridge stand out with exceptionally high growth rates in opioid-related treatment admissions, 68 percent, and 67 percent respectively.

## MEDICATION ASSISTED TREATMENT

- 30 percent of admissions to treatment centers in 2018 had medication assisted treatment available.
- There is approximately one medication assisted treatment licensed practitioner per 1,017 adults in the region, the majority of whom are located in New Haven.

## NALOXONE AVAILABILITY

- According to treatment providers, cost and training can be a barrier to acquiring naloxone, though many providers are trained to use it and have it available at their facilities.
- Fifty-eight percent of users who responded to the overdose experience survey said they or someone nearby had naloxone available when they last overdosed, but that share was slightly lower (52 percent) among people who overdosed in a public area.
- In all, 23 percent of respondents said they were alone during their last overdose and had no naloxone available nearby.
- Only 31 percent of respondents said they knew where to obtain naloxone.
- Of users who knew where to get naloxone, most said they acquired it through Sex Workers and Allies Network (SWAN; note: SWAN helped administer the survey).
- Between June 1, 2019, and July 14, 2021 there were 577 overdose runs in the region where naloxone was administered. Of those, 17 percent involved bystanders administering the first dose of naloxone before first responders arrived.
- Across Hamden, New Haven, and North Haven, there are 35 pharmacies with pharmacists able to prescribe and dispense naloxone, making those locations a one-stop-shop for obtaining naloxone.

# RECOMMENDATIONS

- Request and analyze additional data to better understand:
  - Trends in overdoses specifically among the homeless population.
  - Trends in nonfatal overdoses among younger people in suburban towns.
  - Trends in nonfatal overdoses among smaller racial/ethnic groups, such as the Asian, Native American, and Pacific Islander population. These trends may need to be compared to statewide information.
  - The role of various socioeconomic factors in drug use and overdose.
  - Specific substances involved in nonfatal overdoses among demographic groups.
  - Specific substances and prior engagement with health care professionals for individuals who intentionally overdose.
  - Whether and if the locations of pharmacies with pharmacists able to prescribe and dispense naloxone influences the number of prescriptions for naloxone picked up at those locations.
- Educate drug users on the prevalence of fentanyl in drug supply and the risks of using drugs laced with fentanyl, including increased fatality.
- Provide additional fentanyl rapid test strips trusted outreach networks and programs and educate drug users on how to test samples for fentanyl.
- Expand the use of naloxone by advocating for policies that increase its affordability and availability.
- Invest in public health training programs that help resolve stigma surrounding obtaining a naloxone prescription.
- Educate the public on importance of naloxone in reversing overdose and invest in programs to provide training and materials to acquire it more easily. This may be effective in reducing overdose deaths in public areas where users may not have naloxone available and before first responders can arrive.
- Encourage policies that may support the co-prescription of naloxone with controlled substance opioids (e.g., pain management).
- Further analyze data to determine whether more medication assisted treatment is needed in the region. This may include analyzing whether existing programs are consistently at capacity or whether more provider training is needed.
- Explore strategies to improve treatment retention and reduce recidivism / relapse for drug users who are in treatment. Where possible, combine efforts and funding to include programs that expand access to technology or transportation.
- Invest in multi-pronged programs that include upstream factors related to substance use including formal education, job training, and housing programs.
- Invest in additional materials and outreach programs facilitated by organizations trusted by users, such as SWAN and other organizations that focus on or are led by underserved communities.

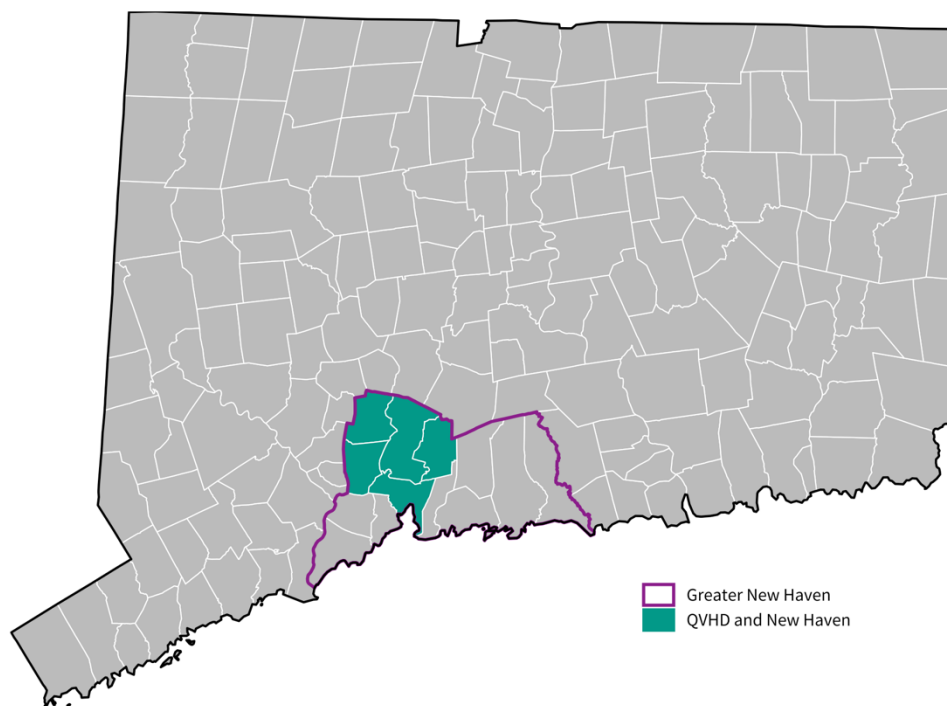
# INTRODUCTION

This report summarizes data trends related to overdose, substance use, harm prevention, and related metrics. It also provides recommendations to inform programs developed by the Quinnipiack Valley Health District (QVHD) and New Haven Health Department's (NHHD) joint effort to reduce overdoses through the Overdose Data to Action (OD2A) grant administered through the Connecticut Department of Public Health (CTDPH) via the Centers for Disease Control and Prevention (CDC). This report was compiled between March and June, 2021, using the latest available data.

The data that follow describe the four-town Quinnipiack Valley Health District (including the towns of Bethany, Hamden, North Haven, and Woodbridge) along with New Haven. Collectively, this report will refer to that grouping of five towns as the “region.”

The region comprises a large portion of the 13-town Greater New Haven area. Some data presented in this report are only available for the Greater New Haven area and will be indicated.

**Figure 1: Map of Five-Town Region within Greater New Haven and Connecticut**



# DRUG USE TRENDS

This section includes information on fatal and nonfatal overdoses, controlled substances, and encounters for medical or social assistance related to substance use.

## FATAL OVERDOSES

In 2018, 25 percent of adults in the Greater New Haven region said they knew someone who had died of overdose, including 5 percent who lost a family member, and 13 percent who knew two or more people who had died.<sup>1</sup> Overdose prevention is informed by an awareness of the potentially fatal consequences of overdose. Information on the demographics of people dying from overdose, as well as the substances involved in fatal overdoses, may help improve the circumstances leading to these fatalities.

## OVERDOSE FATALITIES

Between 2016 and 2020, the five-town region recorded 498 overdose deaths—an average of 100 per year. The number of overdoses peaked in 2020, with 141 in the five-town area, eclipsing the previous record high in 2019 by 40 percent.

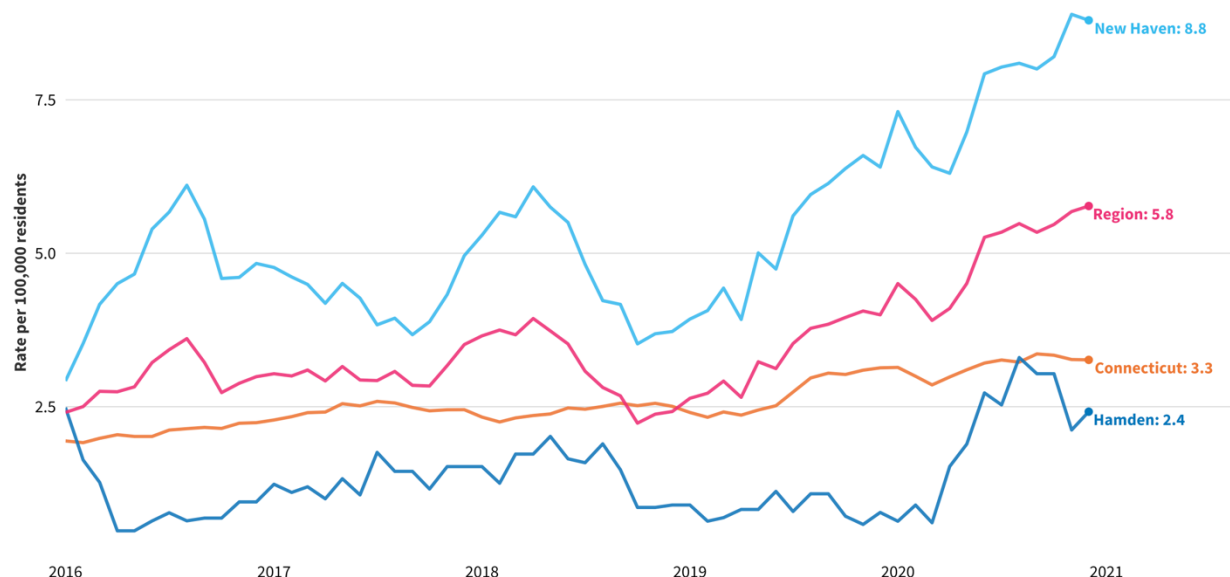
**Table 1. Overdose deaths: counts, and averages by area, 2016–2020**

	2016	2017	2018	2019	2020	2016–2020 Total	2016–2020 Annual Average
Bethany	0	3	1	0	0	4	1
Hamden	7	9	8	6	15	45	9
New Haven	78	70	69	89	120	426	85
North Haven	2	5	2	5	4	18	4
Woodbridge	1	1	0	1	2	5	1
Region	88	88	80	101	141	498	100
Connecticut	931	1,033	1,021	1,196	1,372	5,553	1,111

Regionally, the six-month rolling average of age-adjusted fatal overdoses is 5.8 per 100,000 population—higher than the statewide average of 3.3 per 100,000. After appearing to decline in late 2018, these rates increased sharply through the end of 2020.

### Figure 2: Age-Adjusted Rate of Drug-Related Fatalities, 2016–2020

Six-month rolling average for areas with five or more deaths per year



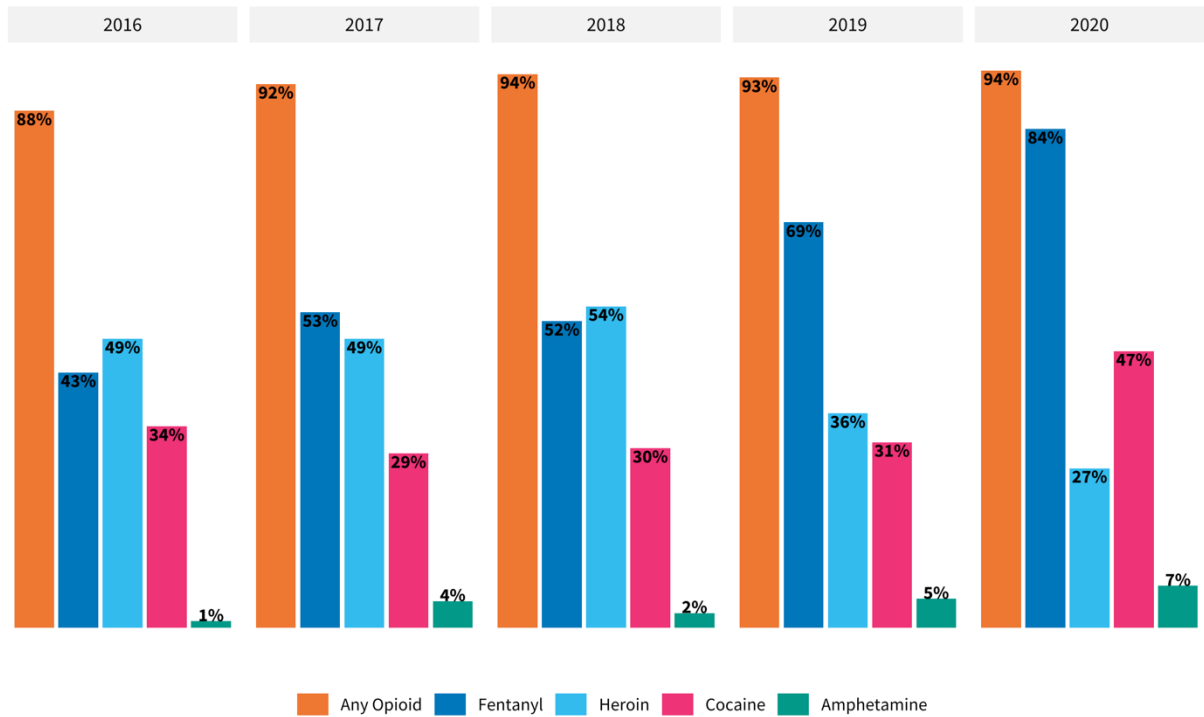
*Because of their low fatal overdose counts, rolling averages are not available for Bethany, North Haven, or Woodbridge. Overdose deaths from those towns are counted in the regional rolling average.*

The increase in overdose deaths in 2020 may be related to the social and economic impact of the ongoing COVID-19 pandemic. Although vaccines are currently available to most of the population in Connecticut, uptake remains uneven across the state. Vaccination rates lag among residents of color and residents in lower income areas compared to white residents and residents in wealthier towns and neighborhoods. The economic impacts, such as job losses, have also been divergent across communities. The uneven recovery in this new phase of the pandemic may foreshadow another record-high year for overdose deaths in the area in 2021.

## TRENDS BY SUBSTANCE

The vast majority of overdose deaths in the region involve opioids. However, the share of deaths involving heroin appears to have declined since 2018. Deaths involving amphetamines comprise a small but rising share of regional overdose fatalities. Between 2016 and 2019, approximately one-third of overdose deaths involved cocaine, but that share increased to nearly half in 2020.

**Figure 3: Share of Regional Overdose Deaths Involving Select Substances, 2016–2020**



Several substances are tracked in fatal overdoses. The table below summarizes the count of deaths by substance for the period from 2016 to 2020. Polysubstance overdoses are common, so the values in Table 2 do not add up to the total number of overdose deaths (see Table 1).

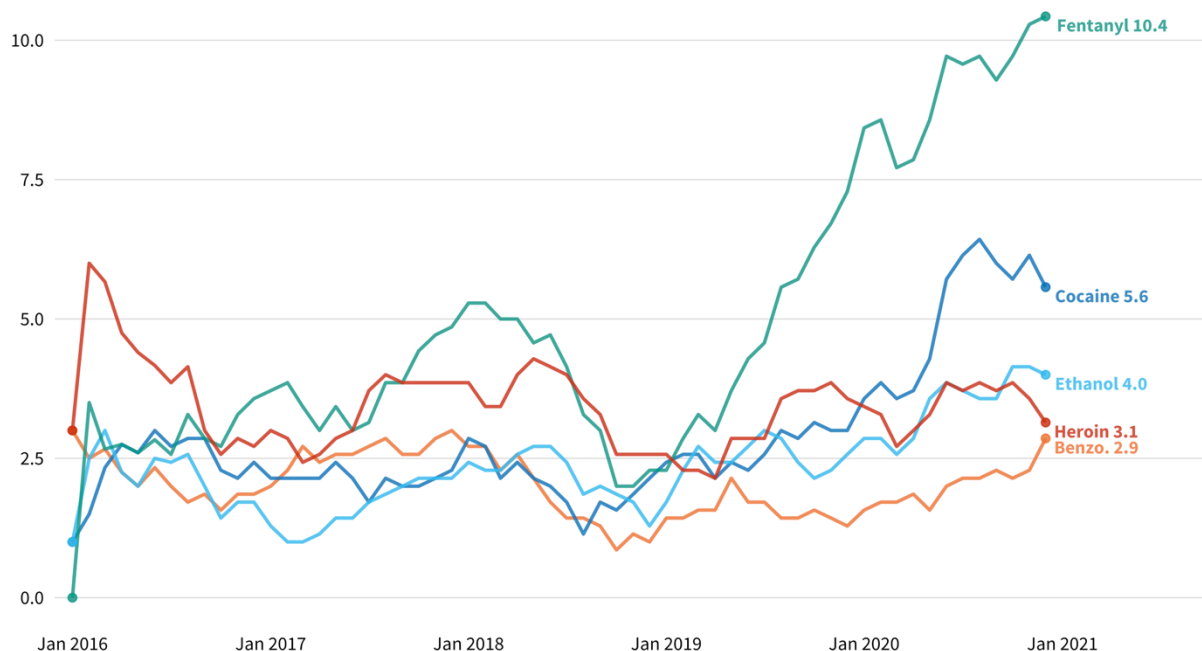
According to data through the end of December 2020, fentanyl is the most common substance present in fatal overdoses. It is followed closely by heroin and cocaine, both substances in which fentanyl is a common adulterant.

**Table 2. Overdose deaths by substance and area, pooled 2016–2020 data**

Substance	Bethany	Hamden	New Haven	North Haven	Woodbridge
Fentanyl	2	31	268	11	3
Heroin	2	21	166	8	2
Cocaine	1	16	156	5	0
Ethanol	1	11	131	5	0
Benzodiazepines	0	11	101	8	2
Methadone	0	7	61	3	1
Fentanyl analogues	0	6	42	2	0
Oxycodone	0	5	37	2	1
Amphetamines	0	4	18	0	0
Opiates (NOS)	0	0	14	0	0
PCP	0	1	13	0	0
Tramadol	0	1	12	0	1
Xylazine	0	2	8	0	0
Hydromorphone	1	1	6	0	0
Hydrocodone	1	0	5	1	0
Buprenorphine	0	1	4	1	0
Morphine (not heroin)	0	2	3	0	0
Oxymorphone	0	0	3	0	0
Antihistamines	0	0	2	0	0

Fentanyl's alarming prevalence in fatal overdoses has steeply increased in recent years. The figure below illustrates the trend in the top five substances involved in fatal overdoses regionally. Fentanyl has increased in prevalence by more than 350 percent since December 2018 and now associated with more than 10 deaths every month in the five-town area—nearly twice as many as cocaine, the next most common substance found in fatal overdoses regionwide.

**Figure 4: Average Monthly Drug-Related Fatalities Regionwide, by Substance, 2016–2020**  
Six-month rolling crude average for top five substances



## EMERGING SUBSTANCES

Xylazine, a sedative drug used in veterinary applications, is on the rise in the illicit drug supply since it is commonly incorporated as a cutting agent in other substances, such as heroin.<sup>2</sup> While naloxone can reverse overdose involving opioids, there is no specific antidote for xylazine, making it particularly deadly.

Data on xylazine in overdose deaths is limited in Connecticut and may not have been systematically collected prior to 2019. Since mid-2019, there have been 10 overdose deaths involving xylazine in the five-town region: two in Hamden and eight New Haven (see Table 2).<sup>3</sup> Seven of the 10 deaths were among males, but otherwise no discernable trends are evident by race/ethnicity or age.

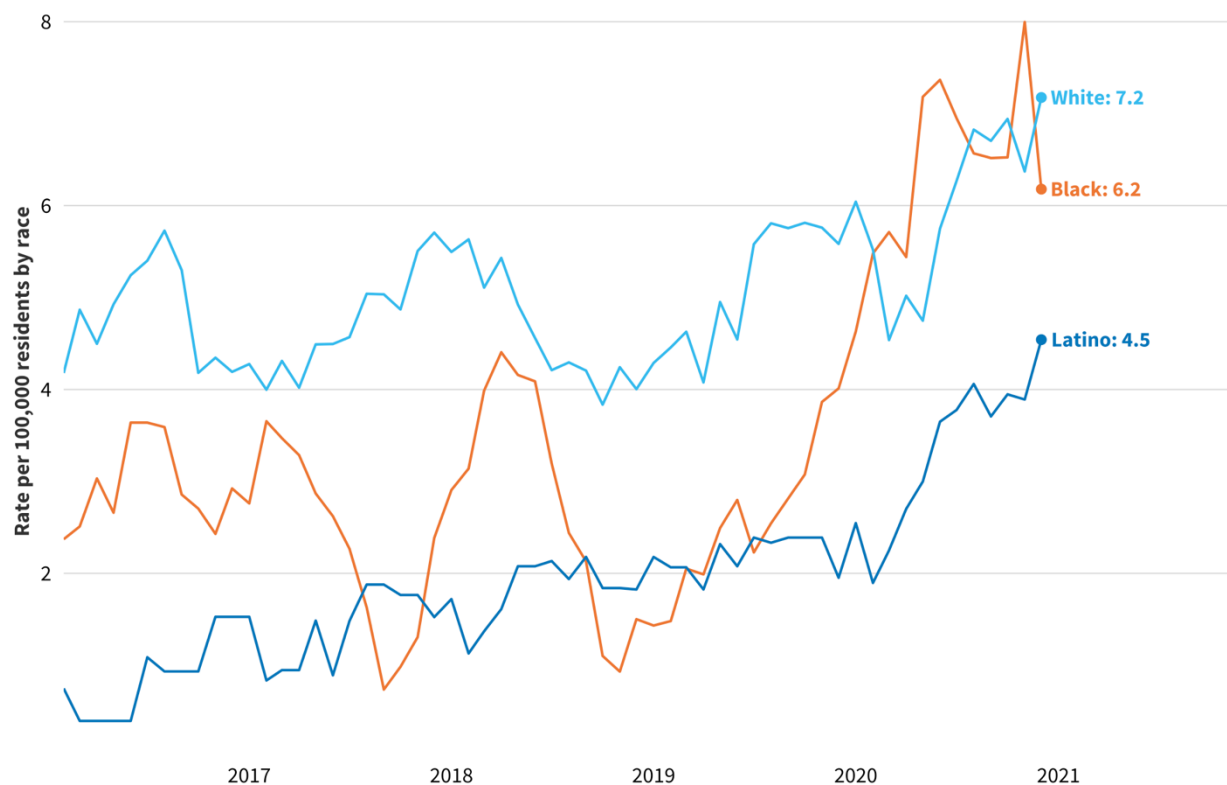
## OVERDOSE FATALITIES BY RACE, ETHNICITY, AGE, AND SEX

Overdose fatalities are more common among males than females. Regionwide, between 2016 and 2020, an average of 24 deaths per year were among females, or 24 percent of all overdose deaths. Due to small fatality counts in many towns, trends by race/ethnicity and age will combine deaths by sex.

Age-adjusted overdose death rates by race/ethnicity in the region began to converge in 2020, with the rate for Black populations now comparable to that of the white population.

**Figure 5: Regional Age-Adjusted Overdose Death Rates by Race/Ethnicity, 2016–2020**

Six-month rolling average for groups with five or more deaths per year



Regionally, the median age at death for overdose fatalities are highest among the Black population (48 years) and lowest among the white population (42 years). Regional trends are not significantly different from statewide trends, though variation exists at the town-level.

**Table 3. Median age at death (years) by race/ethnicity (pooled 2016–2020 data)**

Area	White	Black	Latino	Asian	All other races/ethnicities
Bethany	27	N/A	N/A	N/A	N/A
Hamden	41	43	45	N/A	N/A
New Haven	43	48	43	N/A	42
North Haven	40	N/A	N/A	N/A	N/A
Woodbridge	33	N/A	N/A	N/A	N/A
Region	42	48	43	N/A	42
Connecticut	42	49	42	34	41

*Values are suppressed for races/ethnicities with fewer than five total overdose deaths in the area in the five-year period.*

## NONFATAL OVERDOSES

Nonfatal overdoses in this section are split into two subgroupings: accidental and intentional. Intentional overdoses are determined by medical professionals to be the result of self-harm, where accidental overdoses can occur when too much of a drug is taken or the wrong drug was taken. Although both subgroups share similar characteristics, there are notable differences, including the nature of the primary substance of overdose.

### ACCIDENTAL, NONFATAL OVERDOSES

Between 2018 and 2020, there was an average of 814 accidental, nonfatal overdoses per year in the region, but the annual data show a strong upward trend. There is an annual average of eight accidental, nonfatal overdoses per fatal overdose regionally.

***Data in this section were provided by ZIP code. In this section, rates will be given per 10,000 population. Refer to Table 5 for populations by ZIP code. Use caution comparing these values to values in Figures 2 and 5.***

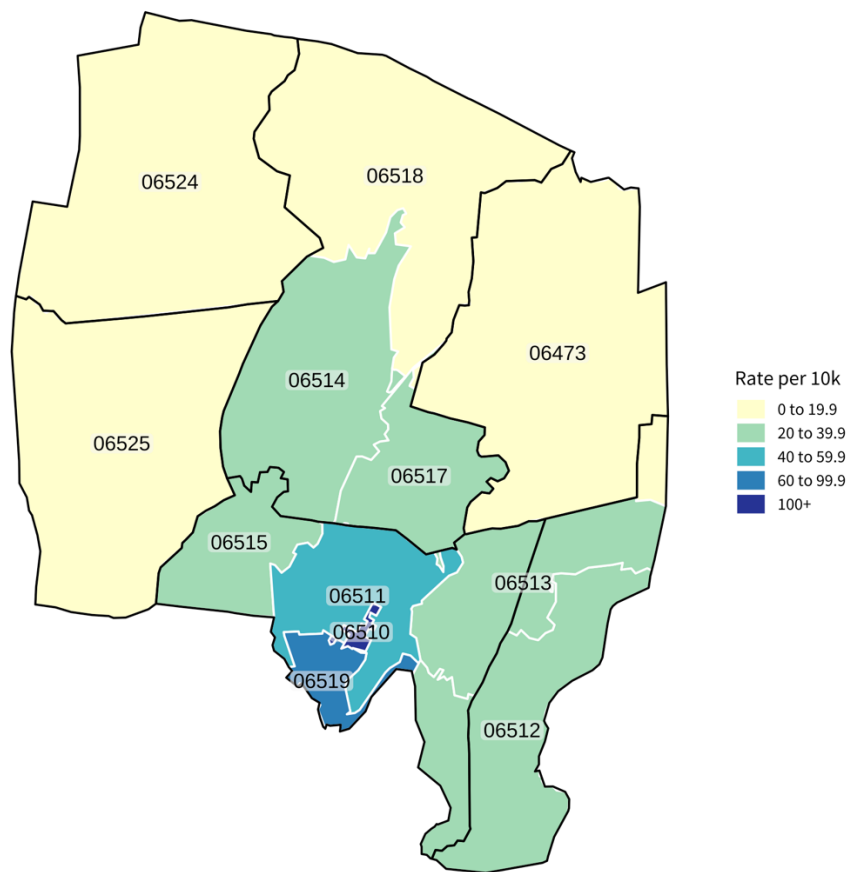
**Table 4. Accidental, nonfatal overdoses by area, 2018–2020**

Area	2018	2019	2020	2018–2020 Total	2018–2020 Annual Average
Bethany	5	12	10	27	9
Hamden	109	126	156	391	130
New Haven*	524	551	790	1,865	622
North Haven	47	42	43	132	44
Woodbridge	9	5	15	29	10
Region	694	736	1,011	2,441	814

*\*Data were received by ZIP code and aggregated up to the town level for this table. East Haven and New Haven share two ZIP codes (06212 and 06213). For those, counts have been weighted by the share of the population living in New Haven. The downside of this approach is that it assumes an even distribution of overdoses across the population, which is not likely.*

Downtown New Haven (06510) has the highest rate of accidental, nonfatal overdoses in the region. However, this area is New Haven's central business district. It is geographically small and has a comparatively low population, so it may be used as a default ZIP code for New Haven overdoses.

**Figure 6: Annual Average Rate of Accidental, Nonfatal Overdoses by ZIP Code, 2018–2020**



**Table 5. Accidental, nonfatal overdoses by ZIP Code (pooled 2018–2020 data)**

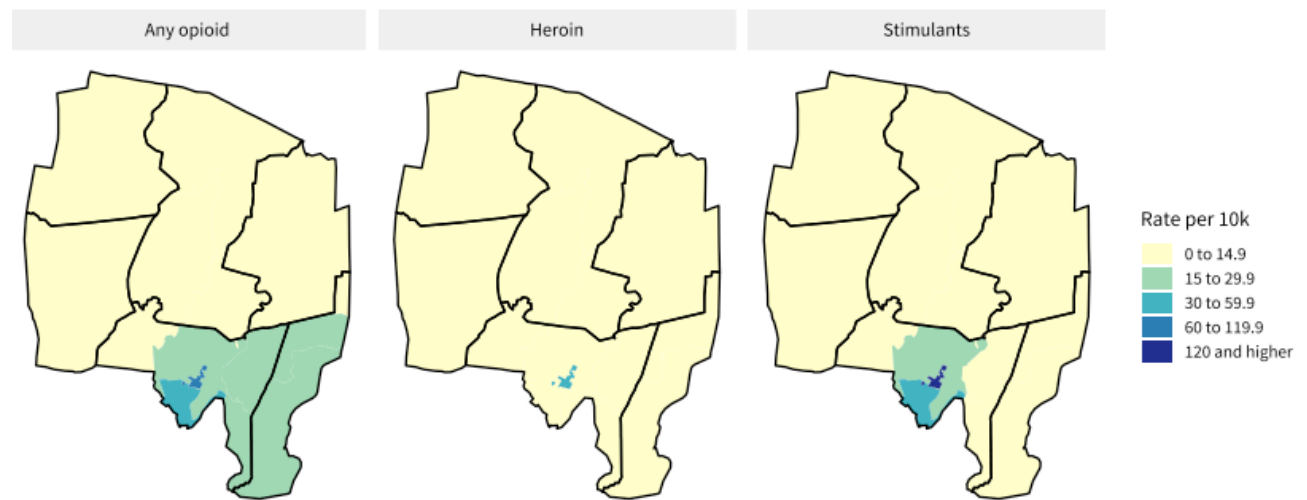
ZIP Code	Primary town	Population (2019)	Total accidental, nonfatal overdoses (2018–2020)	Annual rate per 10k, 2018–2020 (shown on map above)
06473	North Haven	24,108	132	18.3
06510*	New Haven	2,576	180*	232.9*
06511	New Haven	53,707	798	49.5
06512†	New Haven, East Haven	28,444	327	38.3
06513†	New Haven, East Haven	40,037	448	37.3
06514	Hamden	27,534	233	28.2
06515	New Haven	18,344	137	24.9
06517	Hamden	14,313	87	20.3
06518	Hamden	19,024	71	12.4
06519	New Haven	15,690	289	61.4
06524	Bethany	5,513	27	16.3
06525	Woodbridge	8,827	29	11.0

\* 06510 appears to be used as a default ZIP code for New Haven, so this rate may be artificially high.

† ZIP codes 06512 and 06513 are split between New Haven and East Haven. This table includes all nonfatal overdoses for 06512 and 06513 regardless of town of residence.

As with fatal overdoses, opioids are the most common substance involved in accidental, nonfatal overdoses.

**Figure 7: Annual Average Rate of Accidental, Nonfatal Overdoses by ZIP Code and Substance, 2018–2020**

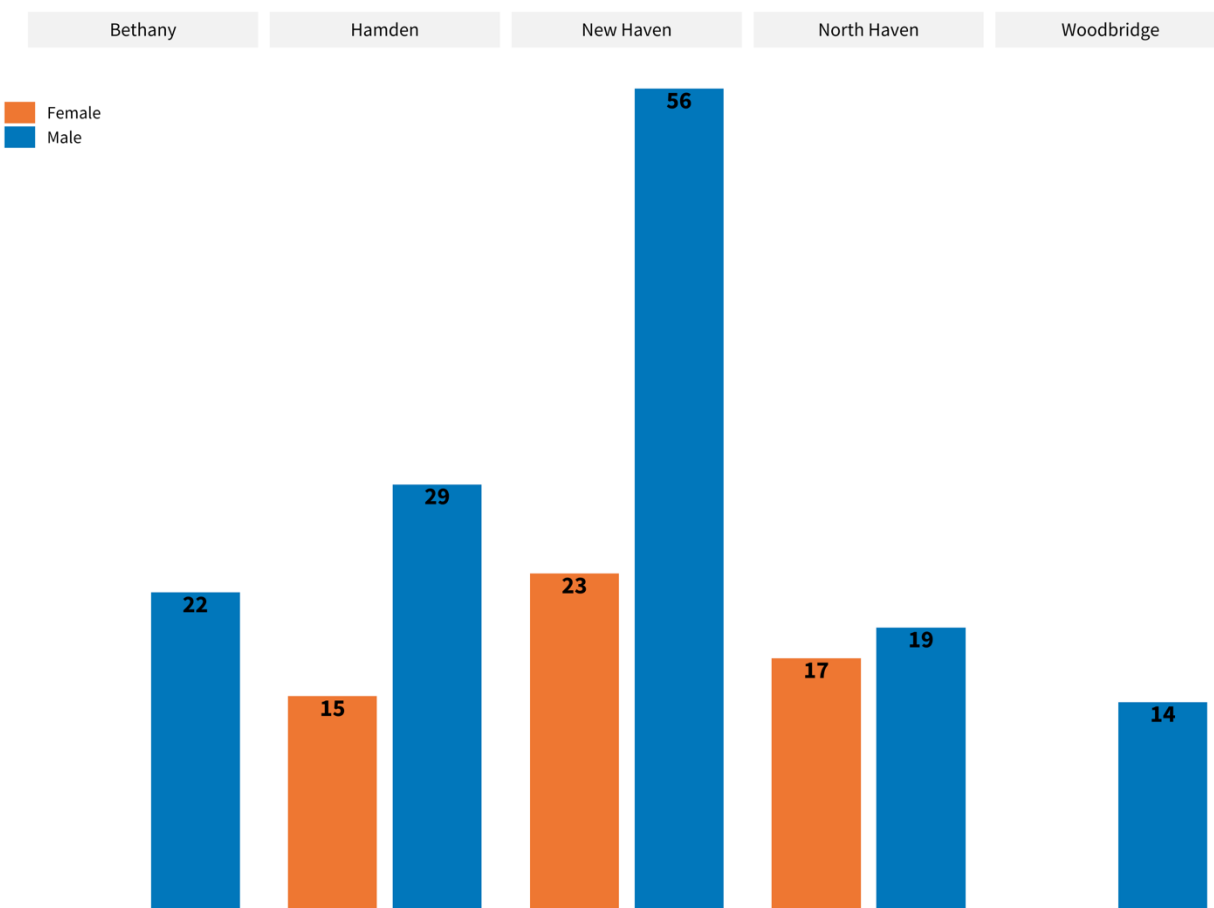


The charts that follow in this section group accidental, nonfatal overdoses involving any drug and all ZIP codes belonging to each town in order to disaggregate by demographics. Two ZIP codes (06512 and 06513) are split between New Haven and East Haven. In the data below, overdoses in those ZIP codes are weighted by the share of the population residing in New Haven.

As with fatal overdoses, accidental, nonfatal overdoses are more common among males, who are about twice as likely to overdose as females. North Haven is a notable exception, where males and females are nearly as likely as one another to overdose.

**Figure 8: Annual Average Rate of Accidental, Nonfatal Overdoses per 10,000 Population by Town and Sex, 2018–2020**

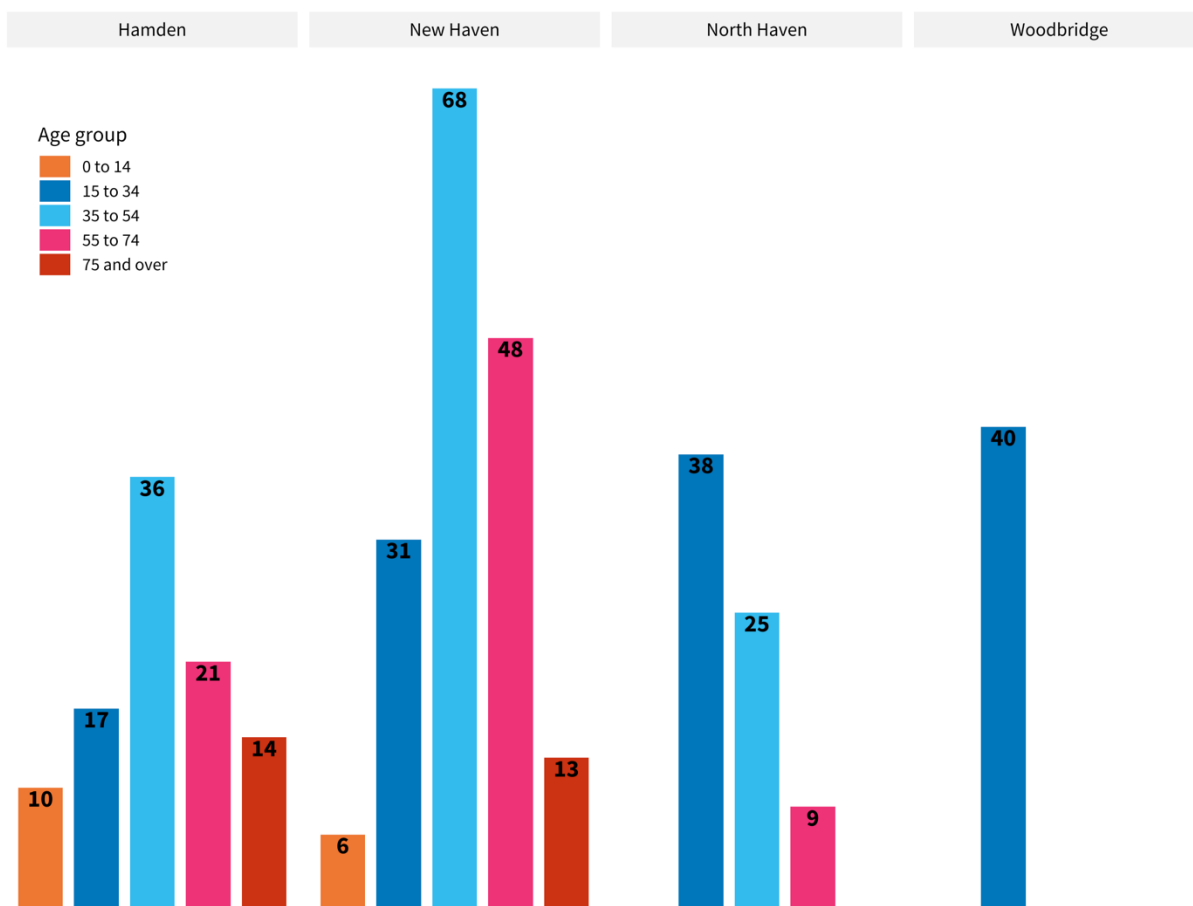
For groups with five or more nonfatal, accidental overdoses per year



The suburban towns of North Haven and Woodbridge have high rates of accidental, nonfatal overdoses among people ages 15 to 34. In New Haven and Hamden, overdoses are most common among adults ages 35 to 54. Accidental overdoses among older adults, ages 55 to 74, are also elevated in New Haven. Bethany had no single age group with five or more nonfatal overdoses per year.

**Figure 9: Annual Average Rate of Accidental, Nonfatal Overdoses per 10,000 Population by Town and Age Group, 2018–2020**

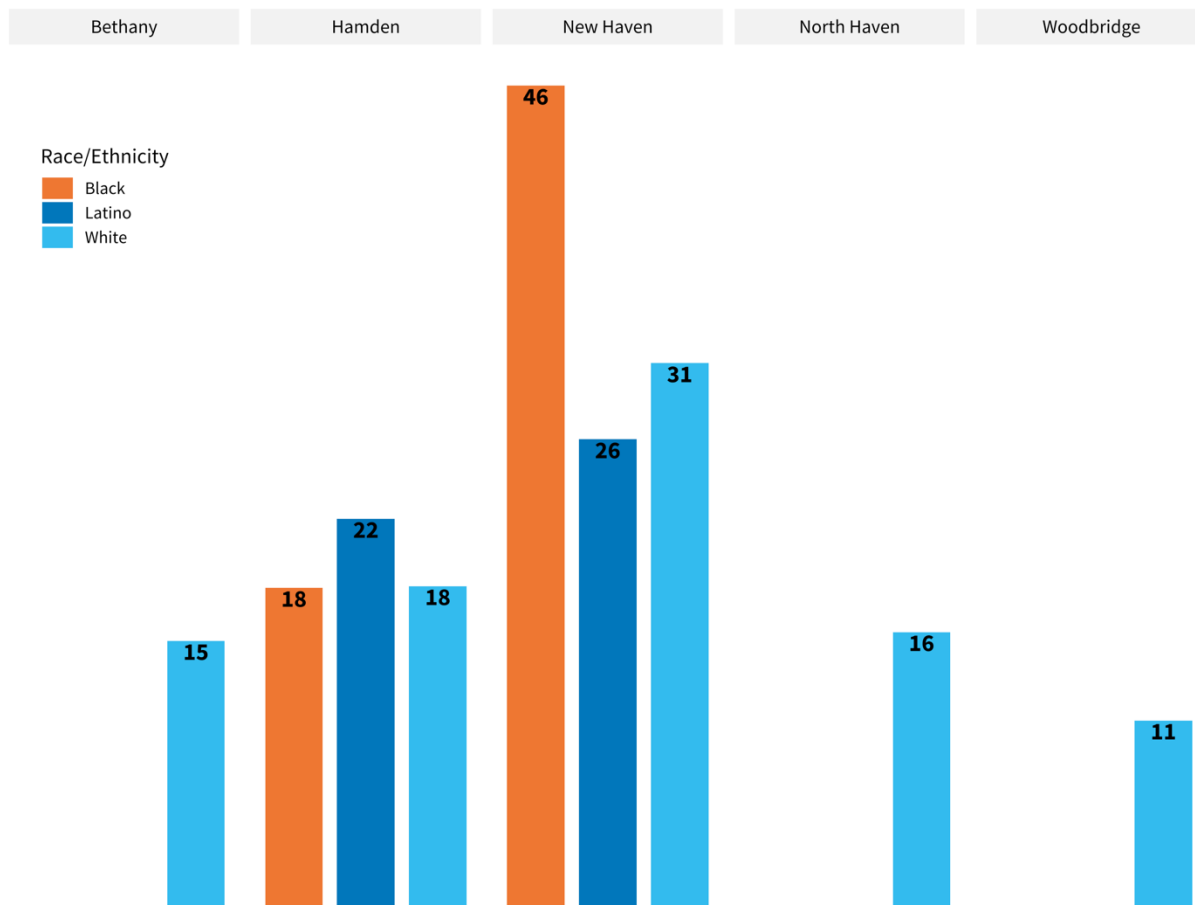
For groups with five or more nonfatal, accidental overdoses per year



Accidental, nonfatal overdoses are most common among the Black population in New Haven and among Latinos in Hamden. In Bethany, North Haven, and Woodbridge, trends are only discernible among the white population.

**Figure 10: Annual Average Rate of Accidental, Nonfatal Overdoses per 100,000 Population by Town and Race/Ethnicity, 2018–2020**

For groups with five or more nonfatal, accidental overdoses per year



*Data are not available to disaggregate by both race and ethnicity. While “Latino” above indicates Latino/Hispanic of any race, white and Black may include people of Latino/Hispanic ethnicity. Data for Asian, Native American, and Pacific Islander populations are available but too small to aggregate into rates (those groups have fewer than five accidental, nonfatal overdoses per year).*

## INTENTIONAL, NONFATAL OVERDOSES

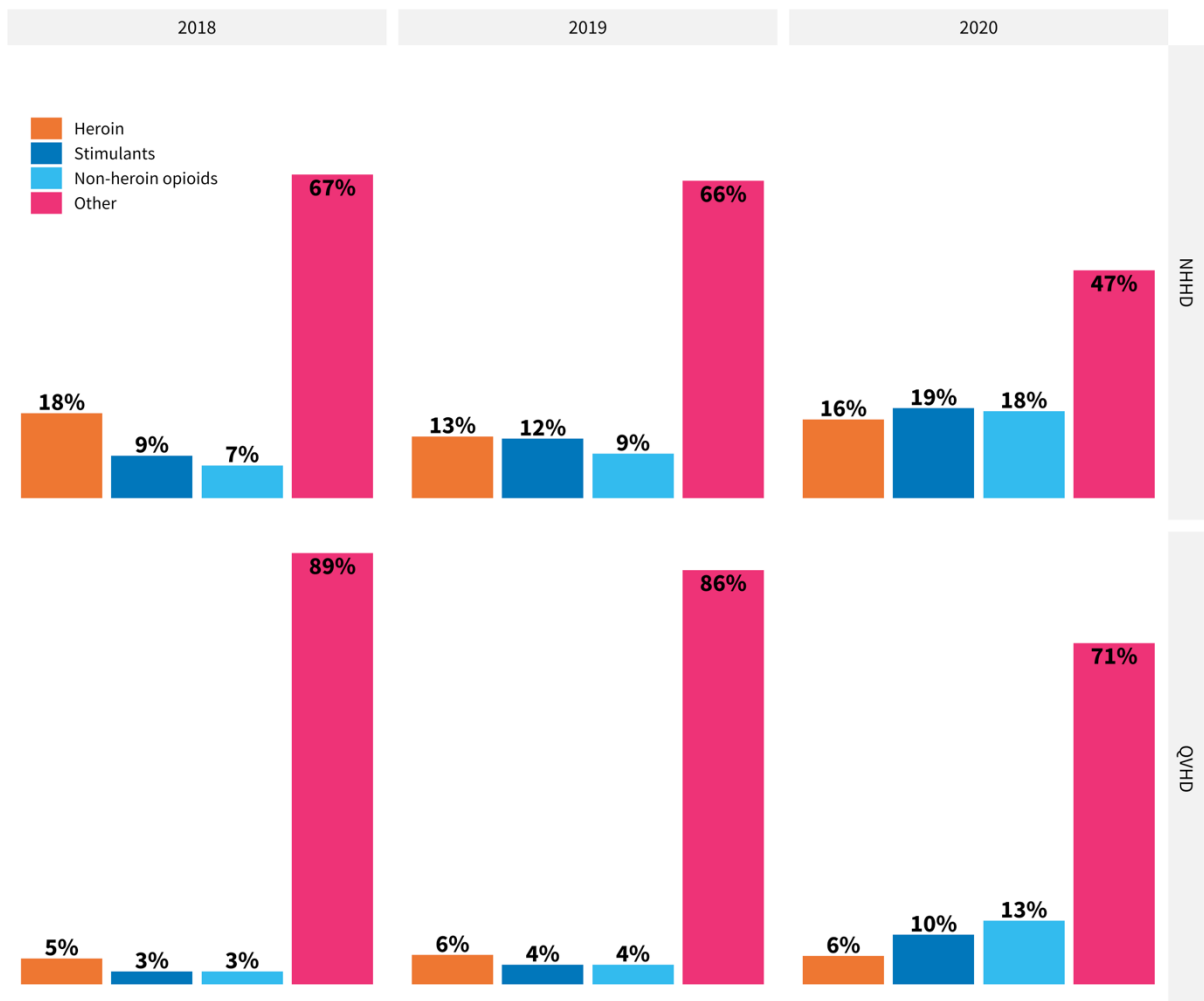
There are generally fewer intentional overdoses per year than accidental overdoses, but more than fatal overdoses. Regionwide, between 2018 and 2020, there were approximately two intentional, nonfatal overdoses per fatal overdose. Because of the relatively small numbers in many QVHD towns, the disaggregated data below will be grouped into two areas: NHHD (New Haven) and QVHD (including the remaining four towns).

**Table 6. Intentional, nonfatal overdoses by area, 2018–2020**

Area	2018	2019	2020	2018–2020 Total	2018–2020 Annual Average
Bethany	0	4	7	11	4
Hamden	26	33	43	102	34
New Haven	148	195	172	515	172
North Haven	9	11	16	36	12
Woodbridge	2	1	2	5	2
Region	185	244	240	669	223

Substances other than opioids and stimulants are often involved in intentional overdoses. These include alcohol, barbiturates, benzodiazepines, and other substances. However, in the NHHD region, opioids and stimulants comprise greater shares of intentional overdoses, and in 2020 made up the majority of those overdoses (see Figure 11 on the following page).

**Figure 11: Share of Intentional, Nonfatal Overdoses by Substance, Year, and Area, 2018–2020**

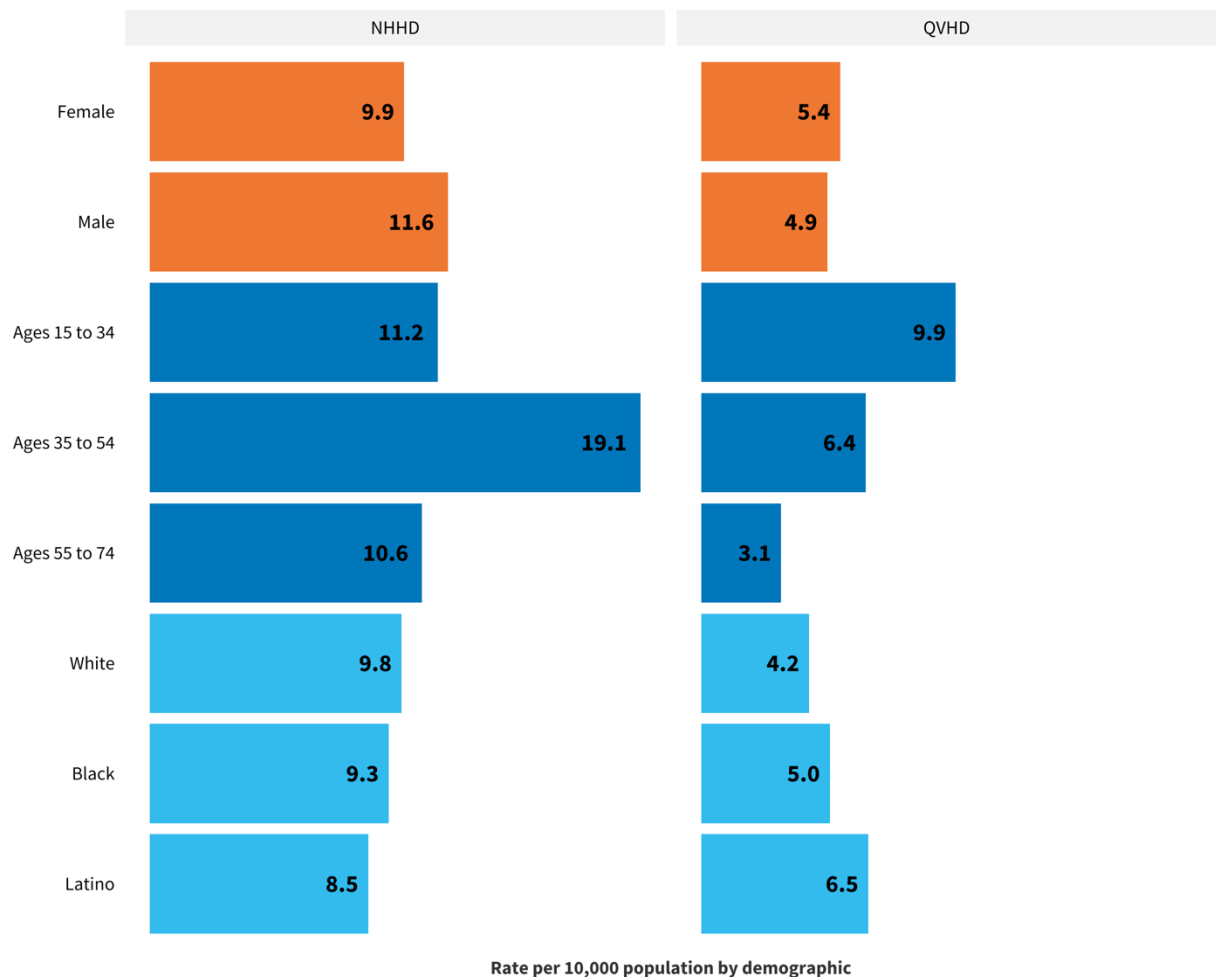


Other substances involved in intentional overdoses include alcohol, barbituates, and benzodiazepines, among others.

Contrasted with fatal and accidental, nonfatal overdoses, there is more parity between sexes in intentional, nonfatal overdoses. Intentional, nonfatal overdose rates for males and females are relatively similar in the QVHD area. In the QVHD area, rates for females are slightly higher than those for males. However, intentional overdose trends in age and race/ethnicity are similar to trends in fatal and accidental overdoses. In both areas, intentional overdose rates are relatively similar for Black and white populations, but rates are highest among the white population in the NHHH area and the Latino population in the QVHD area (due in part to the relatively small Latino population).

**Figure 12: Annual Average Rate of Intentional, Nonfatal Overdoses by Area and Select Demographics, 2018–2020**

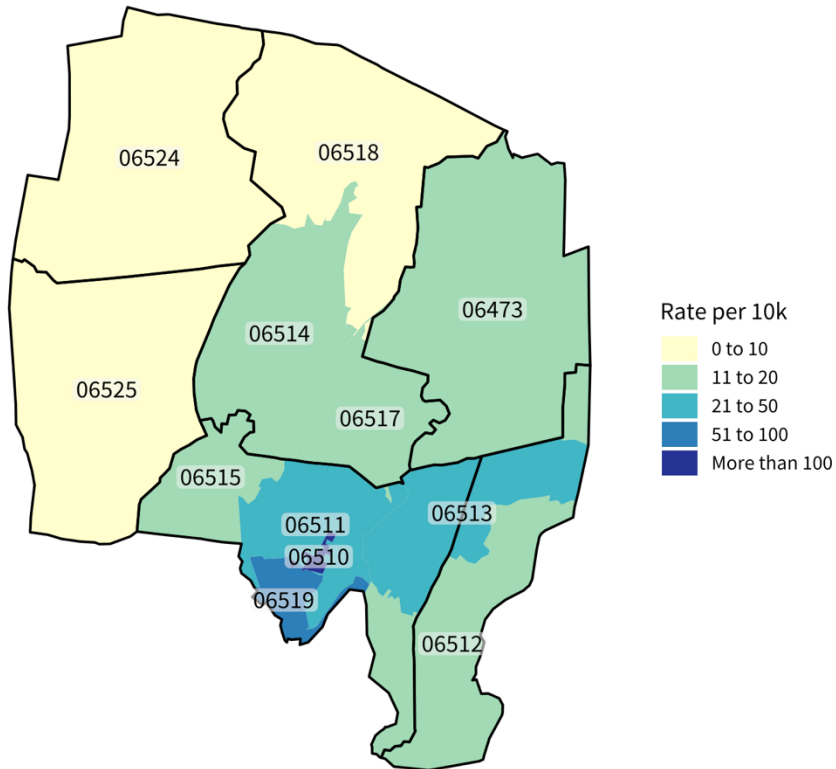
For groups with five or more intentional, nonfatal overdoses per year



## 9-1-1 CALLS INVOLVING OPIOID OVERDOSE

As part of the Statewide Opioid Reporting Directive (SWORD), first responders call in suspected opioid overdoses to the Connecticut Poison Control Center (CPCC). These data do not include overdoses that were not called into CPCC or overdoses where 9-1-1 was not called. While these do not capture all overdoses in the region, they can identify geographical patterns of overdose. The online platform, ODMAP, includes a heatmap that helps further specify geographical areas where overdoses occur.

**Figure 13: Opioid Overdose Runs, per 10,000 Population, June 1, 2019–July 14, 2021**



**Table 7: Overdose runs by ZIP code, June 1, 2019–July 14, 2021**

ZIP Code	Primary Town	Population (2019)	Overdoses reported to CPCC	Rate per 10,000 (shown on map above)
06473	North Haven	24,108	28	11.6
06510	New Haven	2,576	27	104.8
06511	New Haven	53,707	146	27.2
06512	New Haven, East Haven*	28,444	41	14.4
06513	New Haven, East Haven*	40,037	121	30.2
06514	Hamden	27,534	41	14.9
06515	New Haven	18,344	30	16.4
06517	Hamden	14,313	20	14.0
06518	Hamden	19,024	10	5.3
06519	New Haven	15,690	84	53.5
06524	Bethany	5,513	4	7.3
06525	Woodbridge	8,827	8	9.1

\* ZIP codes 06512 and 06513 are split between New Haven and East Haven. This table includes all overdose runs for 06512 and 06513 regardless of town of residence.

## CONTROLLED SUBSTANCES

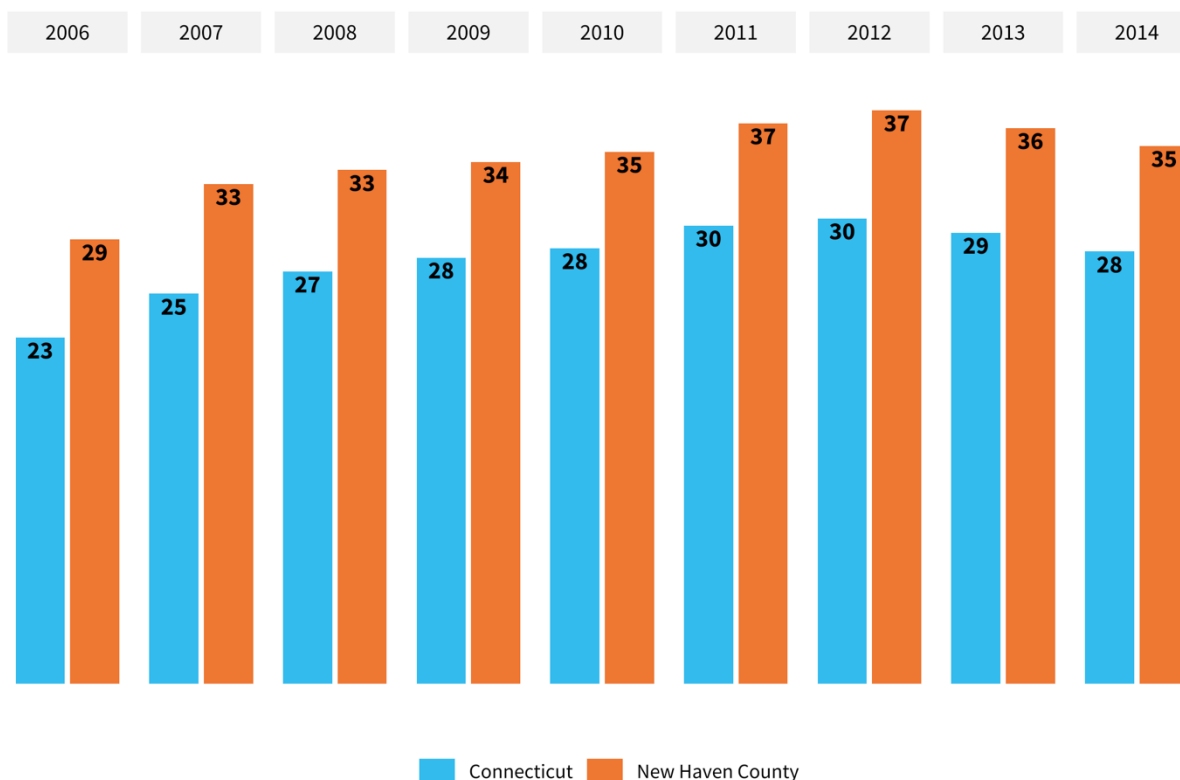
Opioids prescribed for pain management may lead to an opioid addiction. Tracking the number of opioid prescriptions pills administered is one way to understand if there is a potential for opioid pills to be misused. However, data tracking efforts towards this purpose can be piecemeal. In this section, data come from separate sources and cannot be combined. Therefore, this section follows each dataset chronologically.

### PRESCRIPTION OPIOID PILLS

The Washington Post acquired and published a large database of opioid pills as they are created and transported from manufacturer to pharmacy.<sup>4</sup> The data below summarize the available information from that database for the five-town region, New Haven County, and Connecticut.

Of all eight Connecticut counties, New Haven County pharmacies sold the most opioid pills per capita, averaging 34 per person per year between 2006 and 2014.

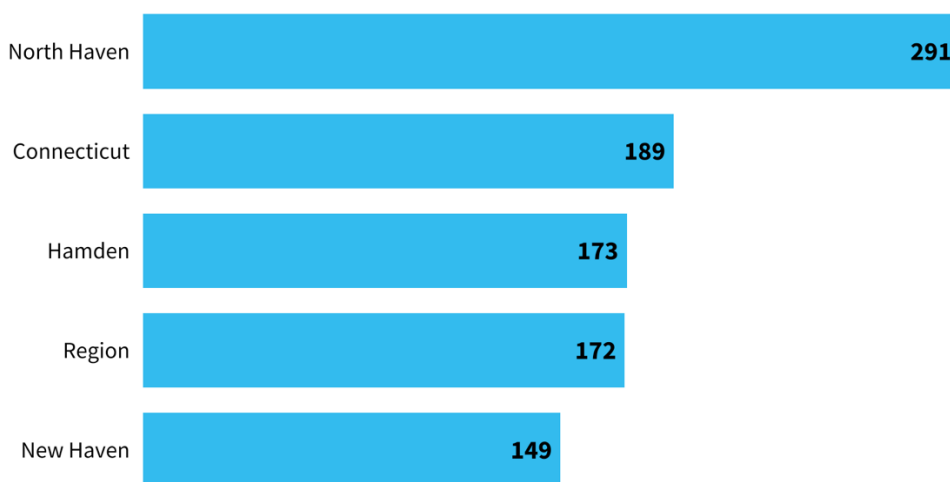
**Figure 14: Prescription Opioid Pills Dispensed Annually per Person, 2006–2014**



Due to limitations of this dataset, for this analysis, pills are aggregated by pharmacy and grouped into areas by pharmacy location. Towns without pharmacies will have 0 pills administered, even though they likely have residents who had opioid prescriptions filled elsewhere.

North Haven pharmacies sold more opioid pills per capita (291 per person over the 9-year period) than Hamden (173) and New Haven (149). Notably, every town in the region except North Haven have per capita rates lower than the state average (189).

**Figure 15: Prescription Opioid Pills Dispensed per Person, 2006–2014**



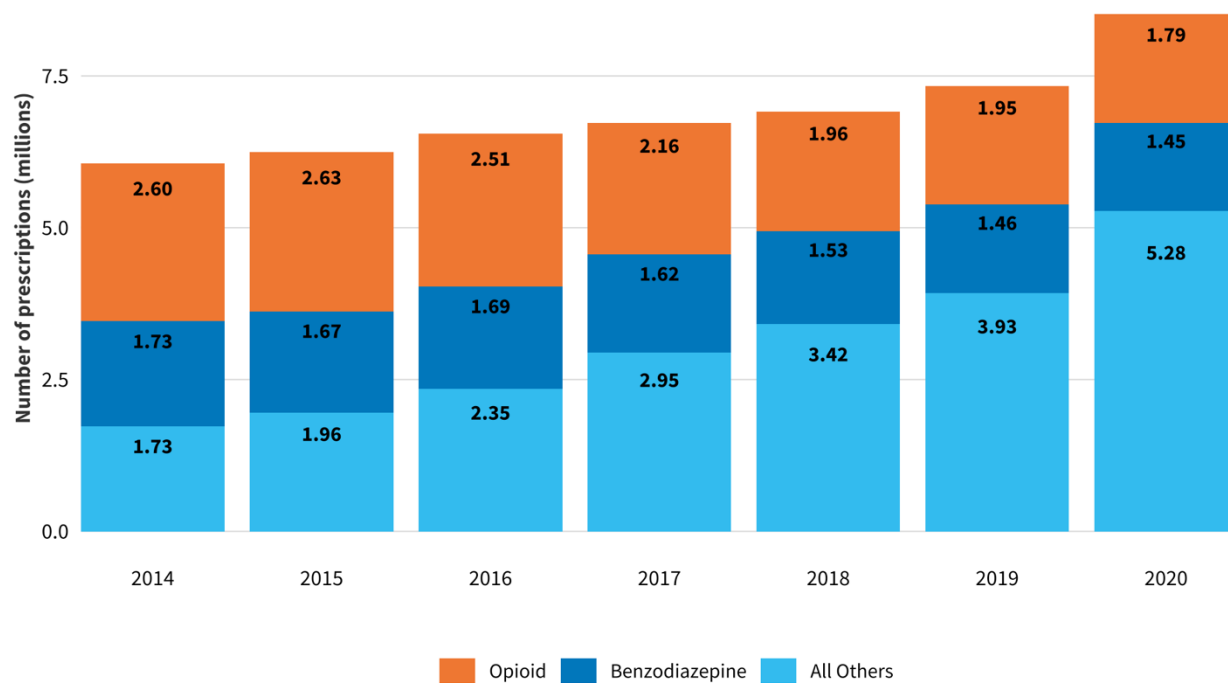
## CONTROLLED SUBSTANCE PRESCRIPTIONS

States that utilize a prescription drug monitoring program (PDMP) have at their disposal a useful database for tracking controlled substances administered to patients at pharmacies. Pharmacists track the number of controlled substances dispensed by entering relevant information into a database when filling prescriptions. It is important to note that these data differ from the data above in that they are prescriptions, not pills. The Connecticut Department of Public Health only provides these data at the state level to the public.

Not all controlled substances are opioids. Controlled substance prescriptions in general have increased since 2014, but the number of prescriptions for opioids and benzodiazepines have decreased as a share of controlled substance prescriptions between 2014 and 2020. Since the increase in controlled substance prescriptions during this time was driven largely by an increase in Schedule II prescriptions (which include barbiturates—sedatives used to treat sleep disorders—in addition to opioids and benzodiazepines), the increase in controlled substance prescriptions may be due to an increase in barbiturate prescriptions.<sup>6</sup>

In 2020, of the more than 8.5 million prescriptions for controlled substances that were filled in Connecticut, 1.8 million (21 percent) were for opioids.

**Figure 16: Controlled Substance Prescriptions by Type, Connecticut, 2014–2020**



Other controlled substances include barbiturates and hypnotics often prescribed for sleep disorders.

## ENCOUNTERS FOR MEDICAL AND SOCIAL ASSISTANCE

Information about requests for medical or social assistance related to substance use can help reveal insights related to readiness for treatment or the need for naloxone and other harm prevention materials. These services may be a point of contact to identify upstream mechanisms that contribute to substance misuse and overdose.

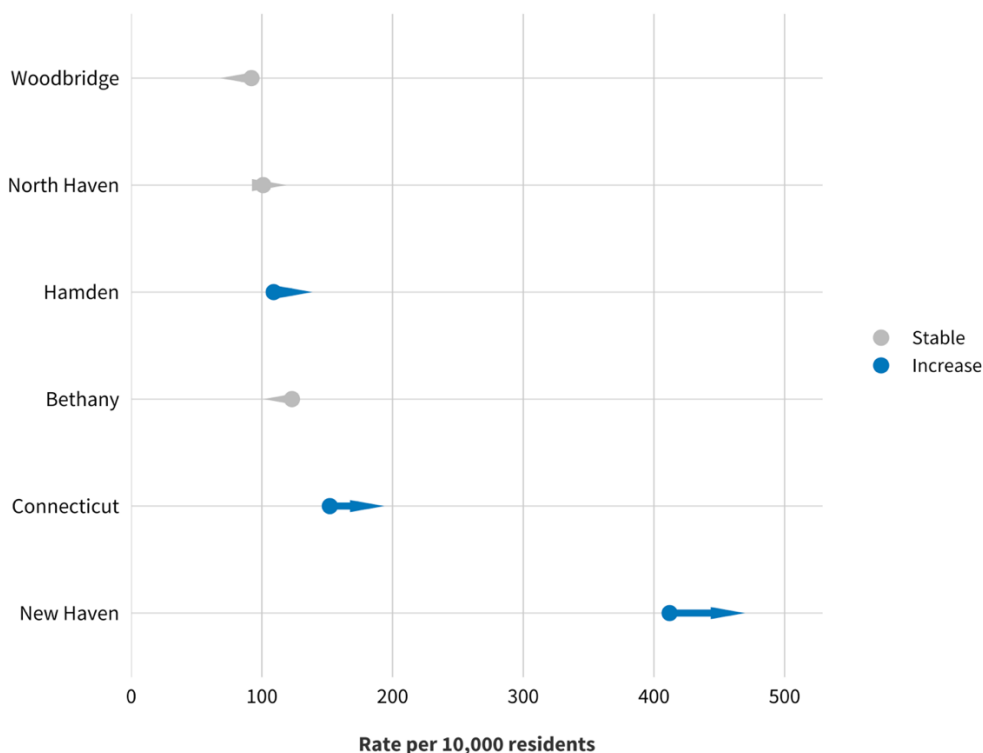
### HOSPITAL ENCOUNTERS RELATED TO SUBSTANCE USE

From 2012 to 2017, age-adjusted hospital encounters for substance use rose in Connecticut overall, as well as in Hamden and New Haven. Encounter rates were relatively stable (i.e., the rate of change was less than 10 percent) in Bethany, North Haven, and Woodbridge. Encounters include hospitalizations as well as emergency department visits. Notably, since the period covered by the data in Figure 16, overdose fatalities and nonfatal overdoses have increased in New Haven and Hamden.

Within the region, hospital encounters were most common among adults ages 20 to 44 except in New Haven, where they were most common among adults ages 45 to 64.<sup>5</sup> This also aligns with the relatively older ages of residents who overdosed in New Haven compared with the rest of the region.

**Figure 17: Age-Adjusted Substance Use Hospital Encounter Rates**

Change from 2012–2014 to 2015–2017



## 2-1-1 REQUESTS FOR HELP WITH SUBSTANCE USE

Connecticut 2-1-1 (CT211) provides an invaluable service to residents by connecting them with resources to help address pressing social needs, including help with substance use. These resources may include treatment or harm reduction programs.

Requests for substance use assistance increased in 2020, possibly aligned with the impacts of the COVID-19 pandemic and other trends described in this report. In 2020, CT211 received 675 calls for assistance regarding substance use and addiction from residents of the region—a 20 percent increase in call volume from 2019. Averaged over the three-year period, the call rate for the region (3.3) exceeds the rate for the state (2.2) and is highest in New Haven (4.9).

**Table 8. Summary details of CT211 requests for substance use services, 2018–2020**

Area	2018 calls	2019 calls	2020 calls	Adult population (2019)	3-year annualized rate per 1,000 adults
Bethany	8	2.5*	9	4,405	1.5
Hamden	58	83	71	50,484	1.4
New Haven	468	453	566	100,915	4.9
North Haven	22	20	27	19,493	1.2
Woodbridge	1	2.5*	2	6,775	0.3
Region	557	561	675	182,072	3.3
Connecticut	6,161	5,755	6,346	2,831,241	2.2

*\* Indicates value has been interpolated from suppressed counts.*

## SYRINGE SURVEILLANCE PROGRAM ITEMS ADMINISTERED

Syringe surveillance programs are harm reduction services intended to help people who inject drugs. In addition to providing needle exchanges, these programs provide other items that help reduce injury or infection and provide information on treatment options for clients served. For the purposes of this report, individual items have been grouped into broad categories.

Between 2017 and 2019, hundreds of thousands of items were provided to clients in the Quinnipiack Valley and New Haven Health Districts (see table on the following page). Items are distributed by the Yale New Haven Health Community Health Care Van and SWAN. The data appear to jump sharply from 2017 to 2018 while the number of clients remained steady, possibly due to the programs handing out more materials to clients who then distribute to others in their social networks.

The programs distribute more syringes than they collect, although counts of both dispensed and collected syringes appear to be increasing, indicating expanding use of that service. The table below summarizes the client and distribution counts for those three years.

**Table 9. Syringe surveillance program clients served, items distributed, and syringes exchanged, 2017–2019**

Health District	Measure	2017	2018	2019	2017–2019 Total	2017–2019 Annual Average
QVHD	Clients served	16	16	17	49	16
	Sexual health items given	112	116	324	552	184
	Medical items given	90	2,156	3,403	5,649	1,883
	Substance harm prevention items given	35	3,529	1,394	4,958	1,653
	Syringes collected	1,084	2,167	3,468	6,719	2,240
	Syringed distributed	806	3,180	6,180	10,166	3,389
NHHD	Clients served	535	559	557	1,651	550
	Sexual health items given	5,507	9,155	12,646	27,308	9,103
	Medical items given	25,201	186,611	177,607	389,419	129,806
	Substance harm prevention items given	8,017	113,858	103,271	225,146	75,049
	Syringes collected	25,900	141,366	230,797	398,063	132,688
	Syringed distributed	39,507	201,947	385,912	627,366	209,122

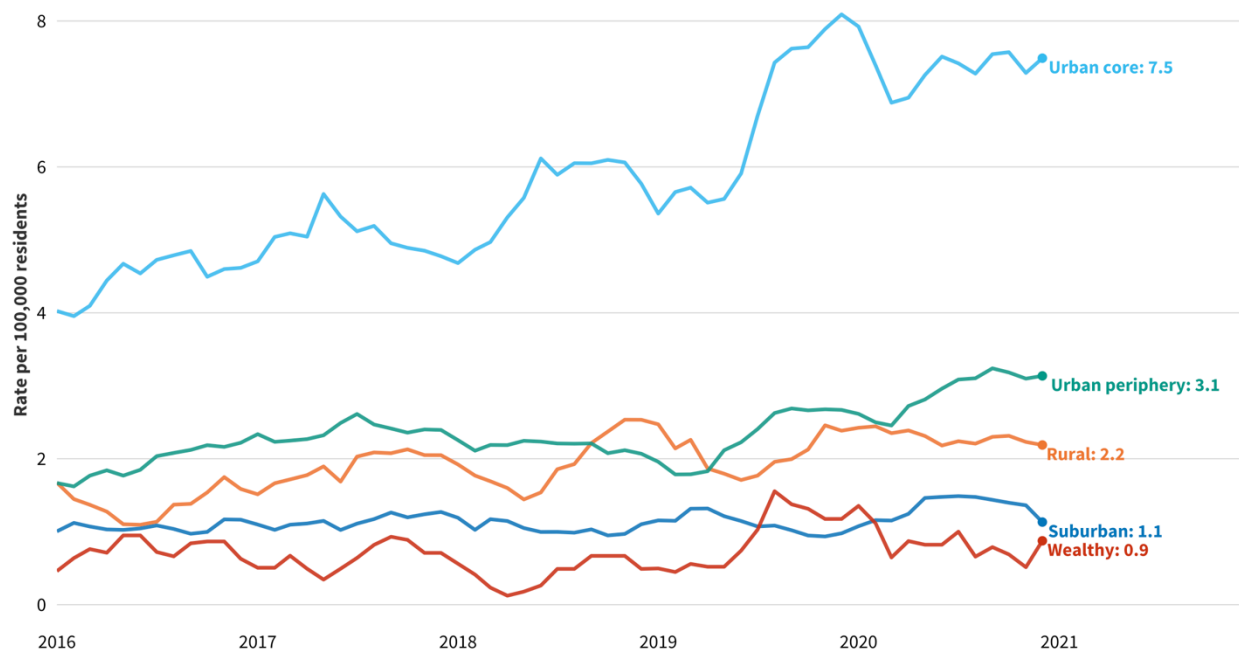
# SOCIOECONOMIC FACTORS

Although not all overdoses in the region relate to opioids, the vast majority of fatal overdoses—94 percent—do involve those substances, and a large body of clinical research conducted confirms that the opioid epidemic is not simply the sum of individual addictions. Socioeconomic forces shape an environment of risk for residents of the region. The following indicators are correlated with overdose rates. They provide insight into the complex set of upstream factors to our current opioid crisis.

## GEOGRAPHY

Although the opioid epidemic is sometimes thought of as a problem that disproportionately impacts rural regions, analysis of nationwide data from 2008 to 2015 shows that nonrural residents were at 45 percent greater risk of opioid overdose death than rural residents.<sup>7</sup> Pharmaceutical promotion of opioid medications to physicians also occurs more frequently in urban areas.<sup>8</sup> Perhaps not surprisingly, in Connecticut, the opioid epidemic has been hitting the Urban Core the hardest.<sup>9</sup>

**Figure 18: Age-Adjusted Rate of Opioid-Related Fatalities by 5CT Designation, 2016–2020**  
Six-month rolling average



See footnote 9 for a list of towns by 5CT designations.

## JUSTICE INVOLVEMENT

The criminal justice system creates an enduring environment of risk for overdose or drug-related deaths.<sup>10</sup> According to Connecticut's Office of Policy and Management, in 2016, 52 percent of people who died from an overdose had been incarcerated at some point in their lives.<sup>11</sup> Another study found that, among women in the New Haven area, those who were recently released from prison were the most vulnerable to overdose.<sup>12</sup> The experience of incarceration can lead to personal trauma, disruption of social networks, interruptions to medical care, and barriers to employment that worsen the same factors that may have driven substance use in the first place.

## EDUCATION, EMPLOYMENT, AND POVERTY

Drug users with higher levels of formal education tend to have more resources for reestablishing their livelihood such as employment prospects, stronger support networks, and access to treatment.<sup>13</sup> Low levels of formal education are often associated with fewer opportunities for employment and lower income.

The poverty rate differs significantly across the region. For individuals experiencing poverty, common jobs often come with greater risk of on-the-job injuries and a greater probability of being prescribed opioids.<sup>14</sup> Given the ongoing COVID-19 pandemic and impending sunset of expanded unemployment benefits, those who seek employment at these higher-risk positions may also become more susceptible to illness and health-related job loss, potentially jeopardizing the stabilizing effect of employment on substance use prevention.

An inclusive economy is important for reducing overdose rates. One study found that a one percentage point increase in county-level unemployment is associated with a 3.6 percent increase in the opioid death rate.<sup>15</sup> Unemployed individuals are on average 2.5 times more likely to experience a fatal overdose than those that are employed.<sup>16</sup> Many drug users actively seek work, but cannot secure a job because of mandatory drug tests or lack of transportation.<sup>17</sup> One individual who had experienced an opioid overdose in New Haven reported: "What I want is to magically have a job when I get out [of the hospital] so that I can actually get an apartment and just show everybody that I can go to work every day and do everything that I used to do."<sup>18</sup> Employment is doubly important because proof of a reliable source of income is required for stable housing—yet another important socioeconomic factor for mitigating drug overdoses.

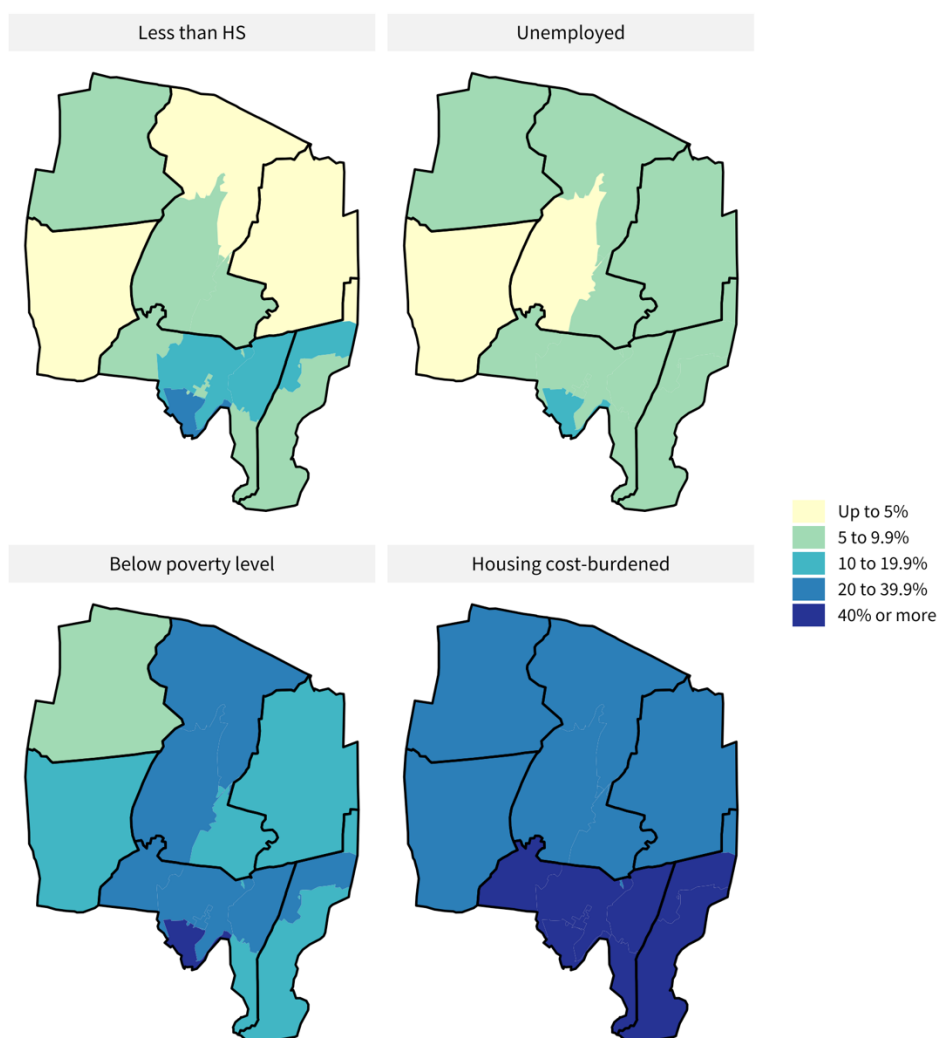
## HOUSING

Studies show that improving housing is an important pillar to slowing the opioid crisis. Housing First policies, which prioritize rehousing adults, have resulted in significant improvements for people with substance use disorders.<sup>19</sup> Longitudinal housing relocation studies show that when people move to neighborhoods with more economic advantage, drug use decreases.<sup>20</sup>

In 2018, 9 percent of adults in the Greater New Haven area said they had had difficulty paying for housing or shelter for their family in the past 12 months.<sup>21</sup> Housing cost burden—paying more than 30 percent of household income to housing costs—is a common and growing problem in the region. Precarious housing makes people significantly more vulnerable to overdoses. One study participant in New Haven remarked: “The only way I’ll be able to control [my drug use] is run away from people and going to work and going home...I can’t be out in the streets, which is what I am all day, every day, because I have nowhere to go.”<sup>22</sup>

Drug overdoses are also a serious problem for homeless populations. According to one national study, in some communities, overdoses caused one in three deaths among homeless adults under the age of 45.<sup>23</sup> Addressing these challenges will require both establishing more affordable and dignified housing as well as targeted treatment and harm reduction.

**Figure 19: Selected Socioeconomic Indicators by ZIP Code, 2019**



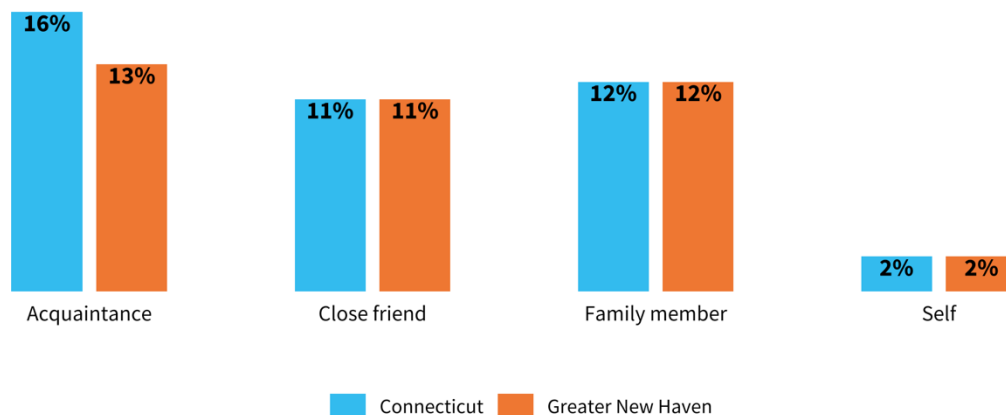
# OVERDOSE EXPERIENCES AND TREATMENT AVAILABILITY

The lived expertise of those who have survived overdose help contextualize the experiences of substance use and perceptions of available treatment.

## OVERDOSE EXPERIENCES

In 2018, 31 percent of adults in the Greater New Haven area said they knew at least one person who had misused opioids at some point during the past three years. Of those, 6 percent said they misused opioids themselves, and 74 percent said a family member or close friend did. The chart below scales these numbers to the share of adults in the Greater New Haven area. These compare closely to the statewide responses, with more people statewide having an acquaintance who has misused opioids in the past three years.

**Figure 20: Share of Adults Who Knew Someone Who Misused Opioids in the Past Three Years, by Relationship to Respondent, 2018**



In March, 2021, QVHD partnered with Sex Workers and Allies Network (SWAN) and the Yale School of Medicine’s Community Health Care Van to administer a survey on overdose experiences (henceforth referred to as the QVHD overdose survey). A total of 54 responses were recorded, including 37 from males and 17 from females—approximately reflecting the proportion of each sex who overdose. Forty-six percent identified themselves as white, 11 percent as Black, and 31 percent as Latino. The median age of survey respondents was 45 years. While not a representative sample of the general or substance-using population, the survey provides invaluable insight into perceptions and experiences of overdose.

Of the 54 respondents, 42 resided in New Haven, three in other QVHD towns and nine in nearby towns not included in the QVHD region or New Haven. For the purposes of this report, all responses will be aggregated (including those from outside the study region).

Seventy percent of the QVHD survey respondents had overdosed in the past year. When asked about the number of times the respondent had overdosed in the past 12 months, responses ranged from one to 12 times, with a median of one time.

Sixty-nine percent of respondents said they believed their overdose involved heroin, but only 9 percent believed their overdose involved fentanyl. This stands in stark contrast with data in Figure 3 showing that fentanyl was present in 84 percent of fatal overdoses in 2020 and suggests that users may be unaware of how prevalent fentanyl is in the drug supply.

Most respondents reported being at a residence or hotel when they last overdosed, though several were in a park, parking lot, street, or other public area. About half were alone when they overdosed. People who overdosed in residences more often reported that they or someone nearby had naloxone available. Expanding naloxone outreach to include members of the community who may not be users but who spend time in locations where users may overdose could be an effective strategy to increase naloxone availability in these locations.

**Table 10. Users who were alone during their last overdose by location, 2021**

Location of overdose	Total count who overdosed at location	Share who said they were alone	Share who said they or someone nearby had naloxone available	Share who were alone and had no naloxone available
Residence/Hotel	29	50%	68%	14%
Public Space	23	43%	52%	26%
Other	2	100%	0%	100%
All locations (total)	54	49%	58%	23%

## BARRIERS AND ACCESS TO TREATMENT

### BARRIERS

In the 2021 QVHD overdose survey, 16 respondents were in treatment at the time of their last overdose, and 15 of those were in medication assisted treatment. Among respondents who were not in treatment at the time of their last overdose, a lack of interest was reported as the main barrier to seeking treatment. However, survey respondents were asked how ready they were to make a change in their life following their last overdose, on a scale of 1 (not ready) to 10 (very ready). Fifty percent answered 10. The median response was 8.5.

Treatment providers have a slightly different perspective on barriers to treatment. In February and March, 2021, QVHD engaged in key informant interviews with staff at 11 substance use treatment

centers and related service providers across the region.<sup>24</sup> Topics discussed included treatment options available to clients, intake and payment requirements, perceptions of barriers to treatment, and the use and distribution of naloxone. In contrast to the responses from those who experienced overdose, no providers interviewed mentioned a lack of interest among clients.

While many providers offer low or no-cost treatment to those without health insurance, some medication assisted treatment in the region relies on sliding scale payment or must be billed through insurance if the patient is insured. For many, cost can be a major barrier to treatment.

Another barrier mentioned by several providers was access to technology, both in the form of needing to meet virtually with a clinician for a screening, and in the need for personal devices to keep in contact with patients. Many providers utilize a peer support/coach model that aims to keep clients engaged in programs and connected to referral services for social needs. Patients without cell phones are unable to maintain contact with coaches. Some providers made tablets and phones available at their facility, but the patient must use them onsite. Transportation, however, was another barrier mentioned by providers.

More generally, providers disclosed that many patients lacked basic needs—like stable housing, food, and employment—that help improve resilience and reduce the chance of future overdose. This is a more difficult problem for treatment providers to address. Many rely on extensive referral networks and social assistance programs, which often fall out of the purview of overdose-related grant funding. Furthermore, it can be difficult for overdose treatment providers to ensure patients connect or follow through with referrals.

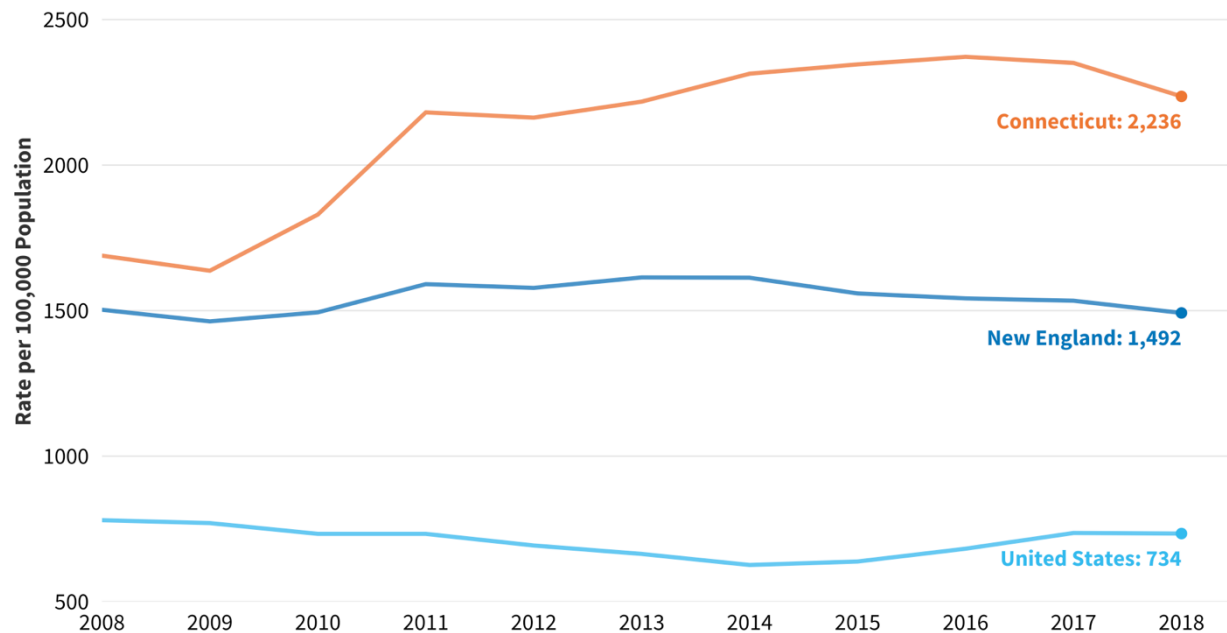
## TREATMENT ADMISSIONS

For those who do receive treatment, the most thorough data available is through the SAMHSA Treatment Episode Dataset. Due to privacy restrictions, these data are only available at the state level, but they include client and treatment level information on admissions to drug treatment facilities. Facilities receiving specific state and federal funding are required to report data annually, making the dataset a useful resource to infer the state of substance use treatment at the state level.<sup>25</sup>

Between 2008 and 2018, New England had the highest rate of admissions to substance use treatment facilities of all U.S. regions. In 2018, the rate of admissions in New England was 1,492 per 100,000 people. Connecticut's rate exceeded that: 2,236 per 100,000 people in 2018 (see Figure 20 on the following page). In fact, Connecticut has the highest admissions rate in New England and third highest of states in the nation behind only Maryland and Delaware.

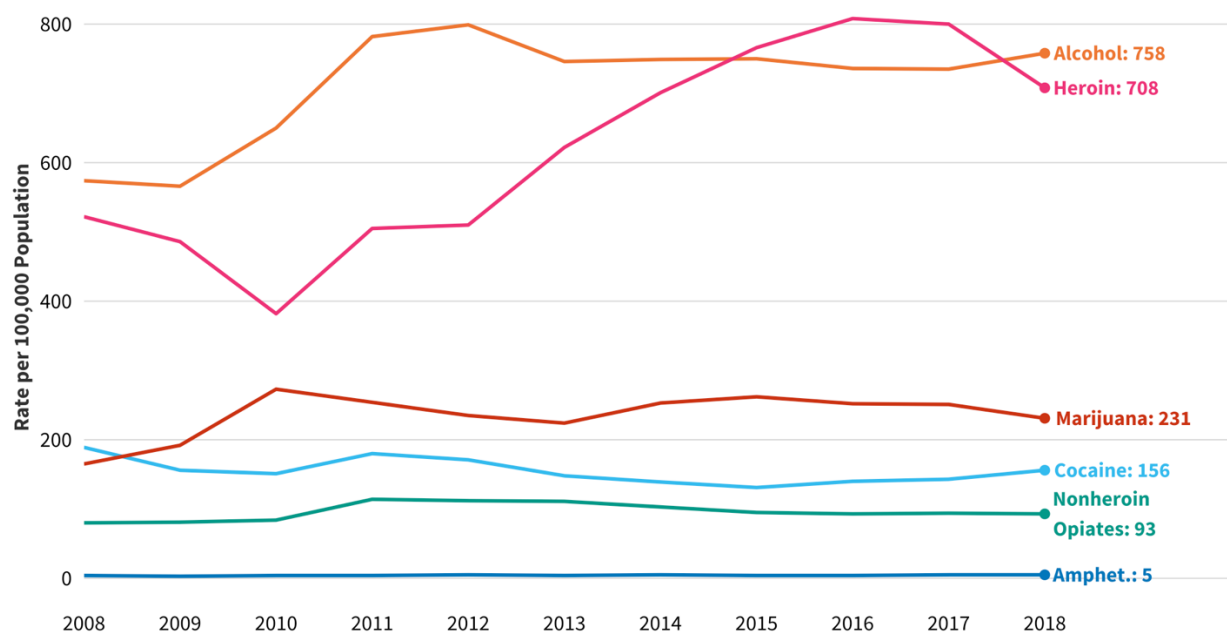
In 2018, Connecticut ranked tenth nationwide for the rate of treatment admissions that had illicit opioids (e.g., heroin) listed as the primary substance for treatment. The remaining five New England states were also in the top 10 on this measure.

**Figure 21: Drug Treatment Admission Rates by Area, 2008–2018**



Alcohol remains the most prevalent primary substance for treatment statewide. Admissions related to heroin have nearly doubled since 2010, while those related to non-heroin opiates and synthetics held relatively steady.

**Figure 22: Drug Treatment Admission Rates by Primary Substance, Connecticut, 2008–2018**



Locally, admissions specifically related to opioids—the most common substances found in fatal overdoses regionally and statewide—have increased since 2014. Table 11 below summarizes the count of admissions by a patient’s town of residence (Note: these are not unduplicated client admissions—if an individual entered treatment twice, they would count as two admissions). Statewide, admissions increased by 15 percent between 2014 and 2018, but regionally, all towns but Hamden saw growth rates higher than that. New Haven and Woodbridge stand out with exceptionally high growth rates, 68 percent and 67 percent respectively, indicating that there may be increased demand for opioid-related treatment in these areas.

**Table 11. Opioid treatment admissions by area, FY 2014–2018**

Patient’s Residence Area	FY 2014 admissions rate per 100,000	FY 2018 admissions rate per 100,000	Percent change FY 2014–2018
Bethany	415	527	27%
Hamden	422	477	13%
New Haven	1,097	1,843	68%
North Haven	446	530	19%
Woodbridge	190	316	67%
Connecticut	1,108	1,271	15%

## MEDICATION ASSISTED TREATMENT

In 2018, 30 percent of treatment admissions related to any opioids in Connecticut had medication assisted treatment available to patients.<sup>26</sup>

There are 179 providers in the region authorized to provide medication assisted treatment (e.g., buprenorphine treatment), or approximately one provider for every 1,017 adults in the five-town area. Because of the volume of hospitals and clinics in New Haven compared to surrounding towns, there are significantly more providers in New Haven than any other town in the region.

**Table 12. Medication assisted treatment certified providers by area, 2021**

Area	Number of providers	Number of adults (2019)	Adults per provider
Bethany	0	4,405	N/A
Hamden	8	50,484	6,310
New Haven	162	100,915	623
North Haven	7	19,493	2,785
Woodbridge	2	6,775	3,388
Region	179	182,072	1,017
Connecticut	945	2,831,241	2,996

*Providers may offer services at multiple locations. This table is a deduplicated list of providers by towns where their services are offered. That is, a provider serving two locations in Hamden is counted once for Hamden, but a provider serving one location in Hamden and one location in New Haven is counted once each for those towns.*

In the QVHD overdose survey, 16 respondents said they were engaged in treatment at the time of their last overdose, and 15 of those were in medication assisted treatment. Because those users were in treatment during their last overdose indicates that treatments fall short in their ability to prevent relapse if clients lose interest or engagement over time. Additionally, outpatient treatment programs

may need to repeatedly engage patients to prevent overdose. Relapse is unfortunately very common in any substance use treatment program, so additional analysis to determine which engagement methods or programs work to reduce relapse may be beneficial.

## NALOXONE USE AND AVAILABILITY

In Connecticut, any prescriber, including primary care doctors, may write a prescription for naloxone to any person. Retail pharmacies can dispense naloxone to those with a prescription, and many pharmacies (including 35 in the region)<sup>27</sup> have pharmacists who are authorized to prescribe, train, and dispense naloxone (see footnote 27 for a list of pharmacies), making those locations a one-stop-shop for receiving naloxone.

Most commercial insurance policies as well as Medicaid cover naloxone prescriptions, although there may be a copay to consumers. However, public knowledge of naloxone's broad availability may be limited, and stigma remains around acquiring naloxone prescriptions, especially relating to the inclusion of a naloxone prescription on an individual's electronic medical record. Still, one strategy for reducing overdoses related to opioids as well as increasing awareness of the availability of naloxone may be the co-prescription of naloxone with controlled substance opioids.

During QVHD's interviews with 11 area treatment providers, many were asked about their facility's use and distribution of naloxone. Many treatment centers that provided clinical treatment were able to prescribe naloxone, but individuals need to be trained on its use before they can pick up a prescription (pharmacists can provide training). One provider said fewer than 5 percent of naloxone prescriptions given by their hospital were picked up, indicating that training, cost, or general stigma may be a barrier for patients. In other facilities, staff were trained on how to use naloxone and had it available for emergency use but did not prescribe or dispense it to patients.

Between June 1, 2019 and July 14, 2021, 661 reported overdoses in the region and West Haven were logged into ODMAP by emergency services and first responders. Of those, 577 (84 percent) received naloxone. While first responders were often the parties responsible for administering the first dose of naloxone, 17 percent of overdose calls involved naloxone being given by a bystander or other individual.<sup>28</sup> Only 31 percent of QVHD overdose survey respondents said they knew where to get naloxone, but 58 percent said they or someone else had naloxone available the last time they overdosed (see Table 10). Of those who had it available, 42 percent said they received it from SWAN (Note: SWAN helped administer the survey). Another 26 percent said they received it from some other community outreach group in the New Haven area. These community outreach organizations may be most effective in getting naloxone into the hands of people likely to overdose or be near others who may experience overdoses, but broader policy revisions may be a more effective way to increase the availability and affordability of naloxone to any who wish to carry it.

# NOTES AND REFERENCES CITED

1 DataHaven analysis of responses from the DataHaven Community Wellbeing Survey. For more information on Greater New Haven, see <https://ctdatahaven.org/wellbeingsurvey>.

2 Reyes, JC, Negrón, JL, Colón, HM, Padilla, AM, Millán, MY., Matos, TD, & Robles, RR (2012). The emerging of xylazine as a new drug of abuse and its health consequences among drug users in Puerto Rico. *J Urban Health* 89, 519–526. <https://doi.org/10.1007/s11524-011-9662-6>

3 See notes for Figure 2.

4 For additional information on The Washington Post’s coverage of its acquisition of ARCOS data and major findings, see references at <https://wpinvestigative.github.io/arcos/>.

5 See notes for Figure 17.

6 Connecticut Department of Health and Human Services (2021). Controlled substance prescriptions by DEA schedule per year. <https://data.ct.gov/Health-and-Human-Services/Column-Chart-CS-Prescriptions-by-DEA-Drug-Schedule/r23v-q7ww>.

7 Altekruze SF, Cosgrove CM, Altekruze WC, Jenkins RA, Blanco C (2020). Socioeconomic risk factors for fatal opioid overdoses in the United States: Findings from the Mortality Disparities in American Communities Study (MDAC). *PLoS ONE* 15(1): e0227966. <https://doi.org/10.1371/journal.pone.0227966>

8 Nguyen T, Andraka-Christou B, Simon K, Bradford WD (2019). Comparison of rural vs urban direct-to-physician commercial promotion of medications for treating opioid use disorder. *JAMA Netw Open* 2(12). <https://doi.org/10.1001/jamanetworkopen.2019.16520>

9 The table below lists each town by its Five Connecticut designation. See notes for Figure 18.

Cluster	Towns
Urban Core	Bridgeport, Hartford, New Britain, <b>New Haven</b> , New London, Waterbury
Urban Periphery	Ansonia, Bloomfield, Branford, Bristol, Danbury, Derby, East Hartford, East Haven, Enfield, Groton, <b>Hamden</b> , Manchester, Meriden, Middletown, Milford, Naugatuck, Newington, Norwalk, Norwich, Plainville, Rocky Hill, Stamford, Stratford, Torrington, Vernon, West Hartford, West Haven, Wethersfield, Windham, Windsor Locks
Suburban	Avon, Barkhamsted, Berlin, <b>Bethany</b> , Bethel, Bolton, Bridgewater, Brookfield, Burlington, Canton, Cheshire, Chester, Clinton, Colchester, Columbia, Cromwell, Durham, East Granby, East Hampton, Ellington, Essex, Fairfield, Farmington, Glastonbury, Granby, Guilford, Haddam, Hebron, Killingworth, Lyme, Madison, Marlborough, Middlebury, Middlefield, Monroe, New Fairfield, New Hartford, Newtown, North Branford, <b>North Haven</b> , Old Lyme, Old Saybrook, Orange, Oxford, Prospect, Redding, Roxbury, Salem, Shelton, Sherman, Simsbury, Somers, South Windsor, Southbury, Southington, Suffield, Tolland, Trumbull, Wallingford, Watertown, Westbrook, Windsor, Wolcott, Woodbury
Rural	Andover, Ashford, Beacon Falls, Bethlehem, Bozrah, Brooklyn, Canaan, Canterbury, Chaplin, Colebrook, Cornwall, Coventry, Deep River, East Haddam, East Lyme, East Windsor, Eastford, Franklin, Goshen, Griswold, Hampton, Hartland, Harwinton, Kent, Killingly, Lebanon, Ledyard, Lisbon, Litchfield, Mansfield,

	Montville, Morris, New Milford, Norfolk, North Canaan, North Stonington, Plainfield, Plymouth, Pomfret, Portland, Preston, Putnam, Salisbury, Scotland, Seymour, Sharon, Sprague, Stafford, Sterling, Stonington, Thomaston, Thompson, Union, Voluntown, Warren, Washington, Waterford, Willington, Winchester, Woodstock
Wealthy	Darien, Easton, Greenwich, New Canaan, Ridgefield, Weston, Westport, Wilton, <b>Woodbridge</b>

10 Joudrey, PJ, Khan, MR, Wang, EA et al. (2019) A conceptual model for understanding post-release opioid-related overdose risk. *Addict Sci Clin Pract* 14, 17. <https://doi.org/10.1186/s13722-019-0145-5>

11 Kuzyk, I, Baudoin, K, Bobula, K (2018) Mortality among ex-prisoners, CT OPM, Criminal Justice Policy & Planning Division. <https://portal.ct.gov/-/media/OPM/CJPPD/CjResearch/MainNav/Prisonermortalityfinal03232018pdf.pdf>

12 Lamonica, AK, Boeri, M, Turner, J (2021). Circumstances of overdose among suburban women who use opioids: Extending an urban analysis informed by drug, set, and setting, *Int J of Drug Pol* 90, 103082. <https://doi.org/10.1016/j.drugpo.2020.103082>.

13 Martins SS, Kim JH, Chen LY, Levin D, Keyes KM, Cerdá M, Storr CL (2015). Nonmedical prescription drug use among US young adults by educational attainment. *Soc Psychiatry Psychiatr Epidemiol* 50(5): 713-24. <https://doi.org/10.1007/s00127-014-0980-3>. Erratum in *Soc Psychiatry Psychiatr Epidemiol* 50(5): 843.

14 Dasgupta, N, Beletsky, L, Ciccarone, D (2018). Opioid crisis: no easy fix to its social and economic determinants. *Am J of Pub Health* 108: 182-186. <https://doi.org/10.2105/AJPH.2017.304187>

15 Hollingsworth, A, Ruhm, CJ, Simon K (2017). Macroeconomic conditions and opioid abuse. NBER Working Paper No. 23192.

16 See note 7 above.

17 See note 12 above.

18 Cherner, RA, Aubry, T, Sylvestre, J, Boyd, R, Pettey, D (2017). Housing First for adults with problematic substance use, *J of Dual Diagnosis* 13(3), 219-229. <https://doi.org/10.1080/15504263.2017.1319586>

19 Hawk K, Grau LE, Fiellin DA, Chawarski M, O'Connor PG, Cirillo N, Breen C, D'Onofrio G (2020). A qualitative study of emergency department patients who survived an opioid overdose: Perspectives on treatment and unmet needs. *Acad Emerg Med*. <https://doi.org/10.1111/acem.14197>

20 Linton, SL, Haley, DF, HunterJones, J, Ross, Z, Cooper, HLF (2017). Social causation and neighborhood selection underlie associations of neighborhood factors with illicit drug-using social networks and illicit drug use among adults relocated from public housing. *Soc Sci & Med* 185: 81-90. <https://doi.org/10.1016/j.socscimed.2017.04.055>.

21 DataHaven analysis of responses from the DataHaven Community Wellbeing Survey.

22 See note 19 above.

23 Bauer, LK, Brody, JK, León, C, & Baggett, TP (2016). Characteristics of homeless adults who died of drug overdose: a retrospective record review. *J of Health Care for the Poor and Underserved* 27(2): 846-859. <https://doi.org/10.1353/hpu.2016.0075>

24 Structured interviews were conducted with staff from Bridges Health Care, Connecticut Community for Addiction Recovery (CCAR), Clifford Beers, Connecticut Mental Health Clinic Substance Abuse Treatment Center, Cornell Scott-Hill Health, Fair Haven Community Health Care, Fellowship Place, Liberty Community Services, New Haven Re-Entry Program, Yale Center for Injury and Violence Prevention, and Yale New Haven Health Emergency Department.

25 In Connecticut, facilities that are required to report treatment episodes include those receiving state or public funding, those licensed through CTDPH, some facilities treating people under age 18, and general hospitals funded by the Social Security Administration.

26 See notes for Figure 21.

27 Data retrieved from CTDPH Prescription Monitoring Program controlled substances data via <https://data.ct.gov/Health-and-Human-Services/Connecticut-Prescriptions-per-Year/bi8r-vhrp>. There are 35 pharmacies in Hamden, New Haven, and North Haven with pharmacists available to prescribe, train on, and dispense naloxone. There are no pharmacies in Bethany or Woodbridge.

Town	Count	Names and locations of pharmacies
Hamden	10	Dixwell Pharmacy, 2380 Dixwell Ave.; CVS #775, 2045 Dixwell Ave.; Walgreens #02410, 1697 Whitney Ave.; Rite Aid #10375, 2175 Dixwell Ave.; Walgreens #05406, 1191 Dixwell Ave.; Annex Pharmacy, 2380a Dixwell Ave.; Walgreens #09101, 2505 Whitney Ave.; Shoprite, 2100 Dixwell Ave.; Outpatient Pharmacy Services at Yale New Haven Health, 1100 Sherman Ave.; CVS# 11081, 1245 Dixwell Ave.
New Haven	20	Visels Drug Store, 714 Dixwell Ave.; Walgreens #03579, 1471 Whalley Ave.; Rite Aid #1882, 325 Ferry St.; Walgreens #09785, 436 Whalley Ave.; Rite Aid #441, 66 Church St.; CVS #811, 1150 Whalley Ave.; Walgreens #06474, 88 York St.; CVS #2259, 215 Whalley Ave.; Cornell Scott - Hill Health Center Pharmacy, 428 Columbus Ave.; Walgreens #06914, 87 Foxon St.; Apothecary & Wellness Center, 1450 Chapel St.; Berney's Pharmacy, 615 Howard Ave.; Hancock Pharmacy, 306 Grand Ave.; Walgreens #13969, 55 Park St.; Hancock Pharmacy At Long Wharf, 1 Long Wharf Dr.; Chapel Street Pharmacy, 1245 Chapel St.; My Fair Haven Pharmacy, 72 Grand Ave; Rite Aid #6708, 249 Legion Ave; Community Health Pharmacy, 210 Dixwell Ave.; CVS # 11007, 123 Church St.

North Haven	5	North Haven Pharmacy, 278 Maple Ave.; Rite Aid #1033, 85 Middletown Ave.; Walgreens #09071, 49 Washington Ave.; CVS #692, 162 Washington Ave.; CVS #17034, 200 Universal Dr.
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28 See notes for Figure 13.

# FIGURE AND TABLE NOTES

## FIGURES

### **Figure 1. Map of Five-Town Region within Greater New Haven and Connecticut**

TIGER shapefiles compiled by DataHaven via Kyle Walker (2020). tigris: Load Census TIGER/Line Shapefiles. R package version 1.0. <https://CRAN.R-project.org/package=tigris>.

### **Figure 2. Age-Adjusted Rate of Drug-Related Fatalities, 2016–2020**

Connecticut Office of the Chief Medical Examiner (OCME), Accidental drug-related deaths, 2016–2020 via <https://data.ct.gov/Health-and-Human-Services/Accidental-Drug-Related-Deaths-2012-2018/rybz-nyjw>. Compiled by DataHaven, combined with CDC standard population weights and population data via American Community Survey (ACS), 2015–2019 5-year estimates.

### **Figure 3. Share of Regional Overdose Deaths Involving Select Substances, 2016–2020**

See notes for Figure 2.

### **Figure 4. Average Monthly Drug-Related Fatalities Regionwide, by Substance, 2016–2020**

See notes for Figure 2.

### **Figure 5. Regional Age-Adjusted Overdose Death Rates by Race/Ethnicity, 2016–2020**

See notes for Figure 2.

### **Figure 6. Annual Average Rate of Accidental, Nonfatal Overdoses by ZIP Code, 2018–2020**

Connecticut Department of Public Health (CTDPH) EpiCenter accidental, nonfatal overdoses. Acquired by QVHD through request, compiled by DataHaven and combined with population data via ACS 2015–2019 5-year estimates.

### **Figure 7. Annual Average Rate of Accidental, Nonfatal Overdoses by ZIP Code and Substance, 2018–2020**

See notes for Figure 6.

### **Figure 8. Annual Average Rate of Accidental, Nonfatal Overdoses per 100,000 Population by Town and Sex, 2018–2020**

See notes for Figure 6.

### **Figure 9. Annual Average Rate of Accidental, Nonfatal Overdoses per 100,000 Population by Town and Age Group, 2018–2020**

See notes for Figure 6.

**Figure 10. Annual Average Rate of Accidental, Nonfatal Overdoses per 100,000 Population by Town and Race/Ethnicity, 2018–2020**

See notes for Figure 6.

**Figure 11. Share of Intentional, Nonfatal Overdoses by Substance, Year, and Area, 2018–2020**

Connecticut Department of Public Health (CTDPH) EpiCenter intentional, nonfatal overdoses. Acquired by QVHD through request, compiled by DataHaven and combined with population data via ACS 2015–2019 5-year estimates.

**Figure 12. Annual Average Rate of Intentional, Nonfatal Overdoses by Area and Select Demographics, 2018–2020**

See notes for Figure 11.

**Figure 13. Overdose Runs Involving Opioids, per 1,000 Population by ZIP Code, June 1, 2019–July 14, 2021**

Summary of SWORD data provided to DataHaven by QVHD. These data include 101 overdose runs in 06516 (West Haven) which are not included in this map but mentioned in the text regarding naloxone use by bystanders (see page 39).

**Figure 14. Prescription Opioid Pills Dispensed Annually per Person, 2006–2014**

U.S. Drug Enforcement Administration’s Automation of Reports and Consolidated Orders System (ARCOS) via Steven Rich, Andrew Ba Tran, and Aaron Williams (2021). Arcos: Load ARCOS Prescription Data Prepared by the Washington Post. package version 1.27. <https://CRAN.R-project.org/package=arcos>.

**Figure 15. Prescription Opioid Pills Dispensed per Person, 2006–2014**

See notes for Figure 14.

**Figure 16. Controlled Substance Prescriptions by Type, Connecticut, 2014–2020**

CTDPH Prescription Monitoring Program controlled substances data via <https://data.ct.gov/Health-and-Human-Services/Connecticut-Prescriptions-per-Year/bi8r-vhrp>

**Figure 17. Age-Adjusted Substance Use Hospital Encounter Rates**

Greater New Haven 2019 Community Index / Yale-New Haven Hospital Community Health Needs Assessment (2019).

**Figure 18. Age-Adjusted Rate of Opioid-Related Fatalities by 5CT Designation, 2016–2020**

See notes for Figure 2. The Five Connecticuts is a system used to classify individual towns into one of five categories (Wealthy, Suburban, Rural, Urban Periphery, and Urban Core) based on the median household income, population density, and poverty rate of each town. In many cases, results for any individual town in Connecticut will be like other towns within its grouping. The original classification

system for the Five Connecticuts was developed in: Levy, Don, Orlando Rodriguez, and Wayne Villemez. 2004. The Changing Demographics of Connecticut - 1990 to 2000. Part 2: The Five Connecticuts. Storrs, Connecticut: University of Connecticut, The Connecticut State Data Center, Series, no. OP 2004-01. The classification system was updated for DataHaven by Don Levy using 2010 Census data.

**Figure 19. Selected Socioeconomic Indicators by ZIP Code, 2019**

DataHaven analysis of ACS 2015–2019 5-year estimates. Educational attainment refers to the highest level of formal education for the population ages 25 and up, with “Less than HS” referring to individuals who have not completed high school or equivalent education. Unemployment measures the civilian unemployment rate for the population ages 16 and up. The poverty rate refers to the share of the population whose income falls below the poverty limit, approximately \$25,750 for a family of four in 2019. Cost-burden refers to households who pay 30 percent or more of their household income towards housing costs. These data pre-date and thus do not reflect the economic consequences COVID-19 pandemic.

**Figure 20. Share of Adults Who Knew Someone Who Misused Opioids in the Past Three Years, by Relationship to Respondent, 2018**

DataHaven analysis of questions from the 2018 DataHaven Community Wellbeing Survey.

**Figure 21. Drug Treatment Admission Rates by Area, 2008–2018**

Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality. Treatment Episode Data Set (TEDS): 2018. Admissions to and Discharges from Publicly Funded Substance Use Treatment. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2020.

**Figure 22. Drug Treatment Admission Rates by Primary Substance, Connecticut, 2008–2018**

See notes for Figure 21.

## TABLES

**Table 1. Overdose deaths: counts, and averages by area, 2016–2020**

See notes for Figure 2.

**Table 2. Overdose deaths by substance and area, pooled 2016–2020 data**

See notes for Figure 2.

**Table 3. Median age at death (years) by race/ethnicity (pooled 2016–2020 data)**

See notes for Figure 2.

**Table 4. Accidental, nonfatal overdoses by area, 2018–2020**

See notes for Figure 5.

**Table 5. Accidental, nonfatal overdoses by ZIP Code (pooled 2018–2020 data)**

See notes for Figure 5.

**Table 6. Intentional, nonfatal overdoses by area, 2018–2020**

See notes for Figure 10.

**Table 7. Overdose runs by ZIP code, June 1, 2019–July 14, 2021**

See notes for Figure 13.

**Table 8. Summary details of CT211 requests for substance abuse services, 2018–2020**

DataHaven analysis of data from Connecticut 2-1-1 calls for substance abuse services via ct.211.counts.org combined with population data via ACS 2015–2019 5-year estimates.

**Table 9. Syringe surveillance program clients served, items distributed, and syringes exchanged, 2017–2019**

DataHaven analysis of syringe surveillance program inventory data requested by QVHD. Items in the Medical category include alcohol swabs, antibiotic ointment, Band-Aids, lip savers, vitamin C, and wound care kits. Items in the Sexual Health category include female condoms, male condoms, lubricant, and dental dams. Items in the Substance Harm Prevention category include cooker, cotton (filter), sterile mixing/rinse water, tourniquet (tie), baggies, crack kits (A.K.A. Kinzly's kit), fentanyl test strips, and lighter.

**Table 10. Users who were alone at their last overdose, 2021**

DataHaven analysis of overdose experience survey data, developed by QVHD and administered by SWAN and YNNH Community Health Care Van, 2021. Areas in the Residence/Hotel category include the respondent's house/apartment, a friend's house/apartment, and hotel/motel. Areas in the Public Space category include street, sidewalk, roadway, public restroom, public park, public use area, parking lot, and motor vehicle. Areas in the Other category were only listed as "other."

**Table 11. Opioid treatment admissions by area, FY 2014–2018**

Connecticut Department of Mental Health and Addiction Services, Opioid Admissions and Unduplicated Clients by Town, 2013-2018 via <https://data.ct.gov/Health-and-Human-Services/Opioid-Admissions-and-Unduplicated-Clients-by-Town/xwxg-macz>. Compiled by DataHaven, combined population data via (ACS) 5-year estimates.

**Table 12. Medication assisted treatment certified providers by town, 2021**

SAMHSA Buprenorphine Practitioner Locator data via [https://www.samhsa.gov/medication-assisted-treatment/practitioner-program-data/treatment-practitioner-locator?field\\_bup\\_state\\_value=8](https://www.samhsa.gov/medication-assisted-treatment/practitioner-program-data/treatment-practitioner-locator?field_bup_state_value=8) compiled by DataHaven combined with population data via ACS 2015–2019 5-year estimates.