Non-Fatal Suspected Drug Overdose Syndromic Surveillance Data Report, Connecticut

This report was developed by the Connecticut Department of Public Health (DPH), Injury and Violence Surveillance Unit (IVSU). Data are gathered from the Electronic Surveillance System for the Early Notification of Community-based Epidemics called ESSENCE (see Technical Notes), which provides access to near real-time emergency department (ED) and urgent care (UC) visits in Connecticut (CT). The variables analyzed in this report were extracted through filtering records based on Syndromic Surveillance Definitions utilized by CDC, described below. These categories included All Drug Overdose, All Opioid Overdose, All Stimulant Overdose, and Benzodiazepine Overdose. Data from this report are provided for situational awareness and are considered preliminary. Therefore, caution should be used when interpreting these results. For the monthly drug overdose death report in Connecticut, access: CT DPH - IVSU - Overdose Statistics.

Key Findings About Suspected Drug Overdose: From January 2020 to December 2024*	
2024 Data Overview	The preliminary 2024 data show that there were 11,639 suspected drug overdose ED visits as of April 2025 in CT (n=2,806 in Quarter 1, n=3,030 in Quarter 2, n=3,053 in Quarter 3, and n=2,750 in Quarter 4) (Figure 1a).
Comparison Between 2023 and 2024 Data	In the same period in 2023, from January to December, there were 14,308 suspected drug overdose ED visits (n=3,658 in Quarter 1, n=3,934 in Quarter 2, n=3,637 in Quarter 3, and n=3,079 in Quarter 4) (Figure 1a). As of April 2025, there was an 18.65% decrease (n=2,669) in visits as compared to 2023.
Demographic Data	For suspected and opioid drug categories in 2020 to 2024: • Males had higher rates (represented as count per 100,000 CT residents) of suspected overdose than females. In 2024, rates for male and female patients were, respectively, 399.88 vs. 258.98 (Figure 3b) for any suspected drug overdose and 154.65 vs. 62.53 for opioid overdose (Figure 6a). • The age group 35-44 had the highest rate of suspected drug overdose visits in 2024 (517.43 per 100,000 population). From 2020 to 2022, the rate for the age group <25 years old increased (from 216.13 to 279.56) (Figure 2b). Similarly, from 2020 to 2022, the rate for the age group 55-64 years old increased (from 371.65 to 453.33) (Figure 2b). • From January 2020 to December 2024, the non-Hispanic Black or African American population had the highest rate of ED visits for suspected drug and opioid drug categories analyzed as compared to other races and ethnicity (Figures 4b - all drugs and 6b - opioids).
Anomaly Alert Surveillance/ Evaluation	The IVSU team receives and reviews alerts for possible drug overdose incidents that exceed constant and statistically determined thresholds. Alerts are categorized by geographies, including municipality, local health department, and county, as well as age group (all ages and under 18). Anomaly alerts are assessed based on frequency, pattern, and recent trends. Upon review, staff determine whether the incident requires further follow up or escalation with stakeholders including local health departments and other local-level partners.

**** Data for 2024 may change due to the processing of pending cases.***

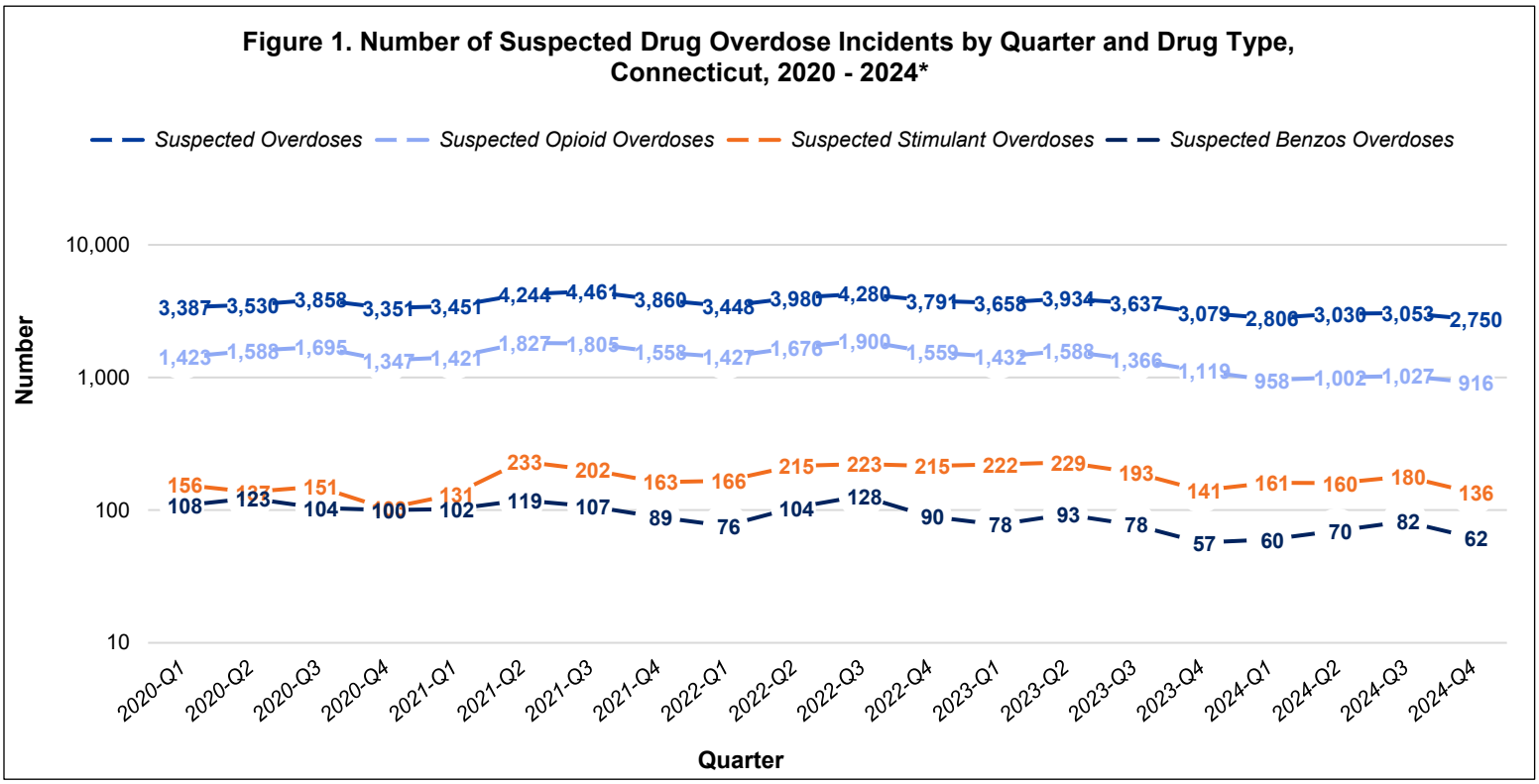
1. Suspected non-fatal drug overdoses, Connecticut, January 2020 – December 2024*.

Table 1. represents counts of suspected drug overdose incidents by year. Annual drug overdose data show that 2024 had the lowest number of suspected drug overdoses. In 2024, the suspected benzodiazepine drug overdose death numbers were lower when compared to previous years. **Figure 1**. represents the counts of suspected drug overdose incidents by quarter and drug type. Drug overdose data show that there were slight increases in overdose incidents between Quarter 2 and Quarter 3 of each year. Drug overdoses involving opioids had the highest number of incidents for all quarters. The number of benzodiazepine-involved non-fatal drug overdoses were lowest across all quarters when compared to other drug types.

Table 1. Number of Suspected Drug Overdoses by Year and Drug Type

YEAR	SUSPECTED OVERDOSES	SUSPECTED STIMULANT OVERDOSES	SUSPECTED OPIOID OVERDOSES	SUSPECTED BENZO OVERDOSES
2020	14,126	547	6,053	435
2021	16,016	729	6,611	417
2022	15,499	819	6,562	398
2023	14,308	785	5,505	306
2024	11,639	637	3,903	274

Figure 1. Number of Suspected Drug Overdose Incidents by Quarter and Drug Type, Connecticut, 2020 - 2024*



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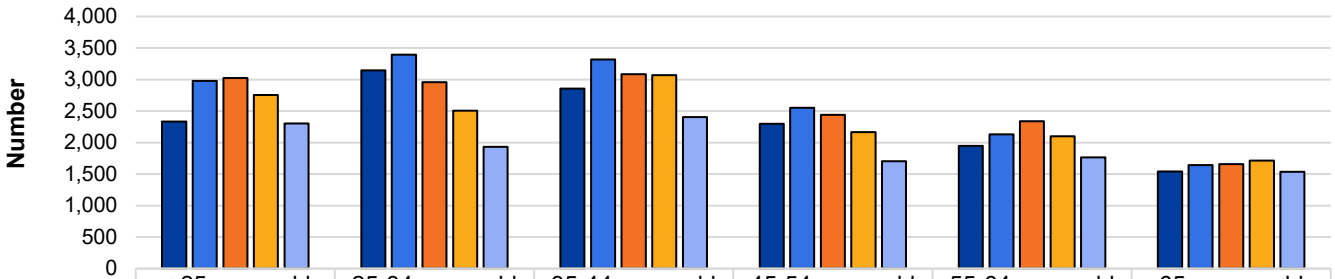
2. Suspected non-fatal drug overdoses by age-groups, Connecticut, January 2020 – December 2024*.

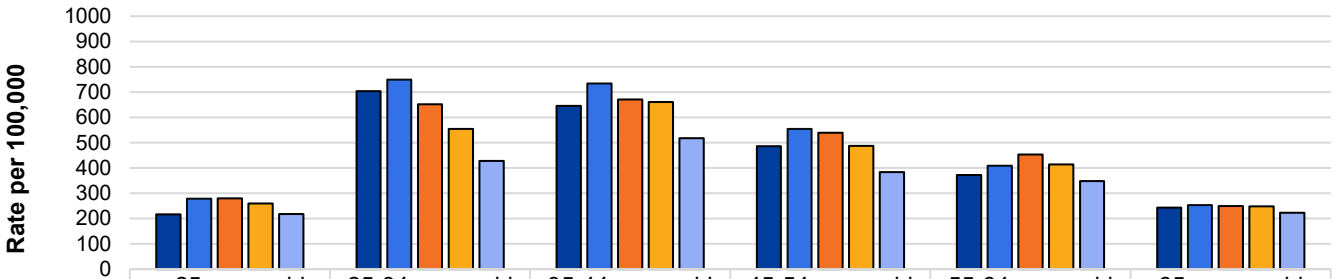
Figure 2a. Displays the counts of suspected drug overdose incidents by year and age-group. Over the past 5 years, the highest number of suspected non-fatal drug overdose was seen among the 25-34 and 35–44-year-old age groups. But in the past 2 years, the under 25 age group surpassed the 25-34 year-olds.
Figure 2b. Displays the rate of suspected non-fatal drug overdoses by age-groups. Suspected non-fatal drug overdose rates were highest among the 35–44-year-old age groups between 2020 and 2024. Data shows that for all age groups, except for those 65 and older, there have been slight declines in trends since 2022.

Figure 2a. Number of Suspected Non-Fatal Drug Overdoses by Age-Group, Connecticut, 2020-2024*



	< 25 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65+ years old
2020	2,332	3,147	2,858	2,298	1,948	1,543
2021	2,976	3,394	3,320	2,553	2,129	1,644
2022	3,025	2,957	3,084	2,437	2,338	1,658
2023	2,752	2,507	3,071	2,164	2,099	1,715
2024	2,300	1,934	2,404	1,701	1,764	1,536

Figure 2b. Age-Specific Rate of Suspected Non-Fatal Drug Overdoses per 100,000 Residents by Age-Group, Connecticut, 2020-2024*

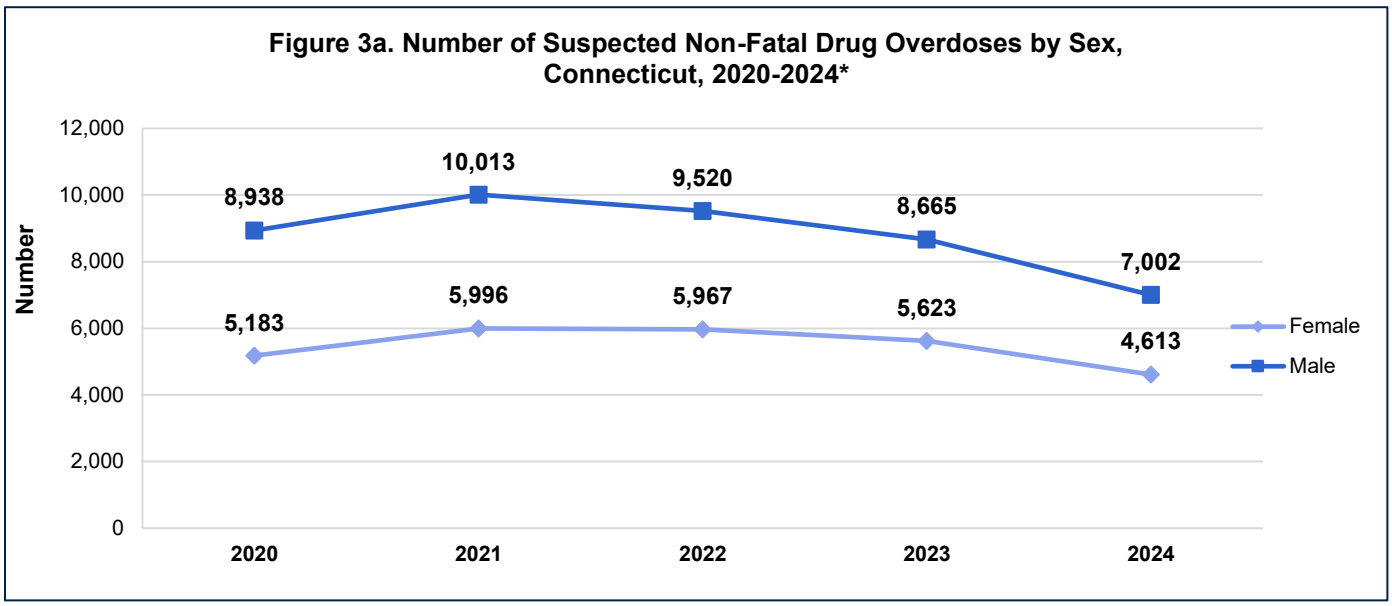


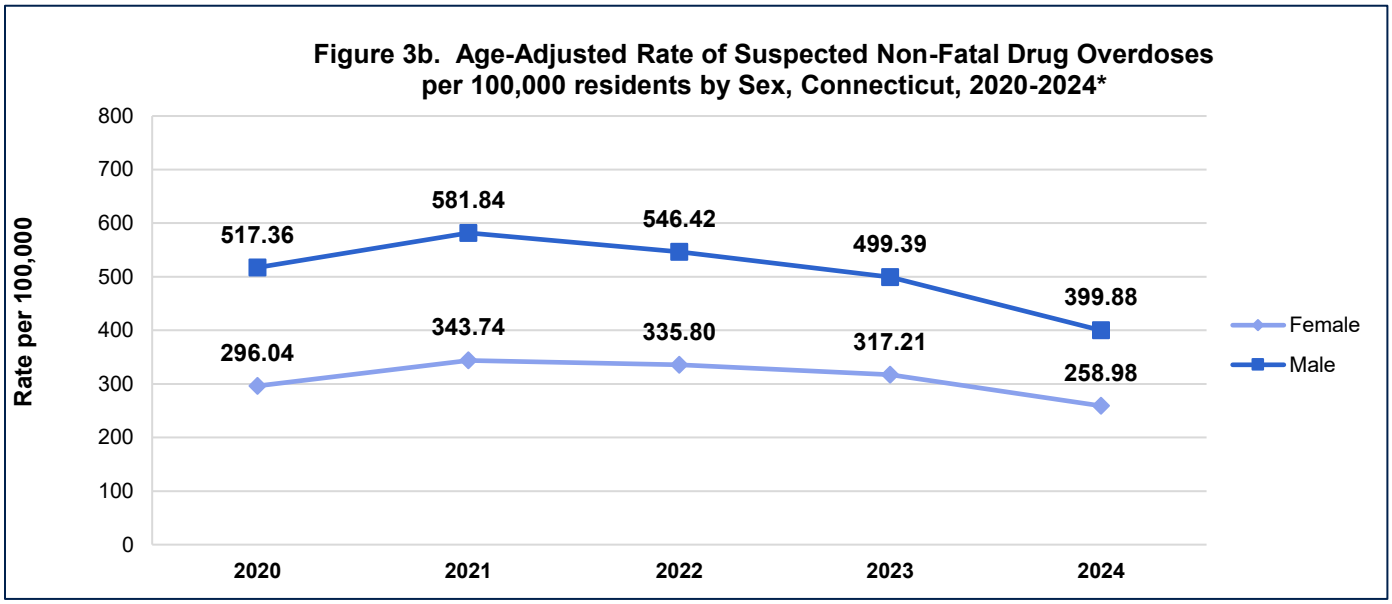
	< 25 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65+ years old
2020	216.13	703.11	645.7	486.59	371.65	243.13
2021	278.01	749.32	734.64	554.95	408.64	253.22
2022	279.56	652.06	670.59	539.51	453.33	249.96
2023	260.04	553.95	660.99	487.31	414.13	248.27
2024	217.33	427.34	517.43	383.04	348.04	222.36

**** Data for 2024 may change due to the processing of pending cases.***

3. Suspected non-fatal drug overdoses by sex, Connecticut, January 2020 – December 2024*

Figure 3a. Displays the counts of suspected non-fatal drug overdose incidents by sex. Annual drug overdose data show that the number of drug overdose incidents were higher among males when compared to females during 2020-2024. Since 2021, the number of incidents has decreased.
Figure 3b. Represents the rates of suspected drug overdose incidents by sex. Drug overdose data show that rates of non-fatal drug overdose incidents were higher among males when compared to females during 2020-2024. Overall, the trends appear to have slightly decreased for both males and females since 2021.



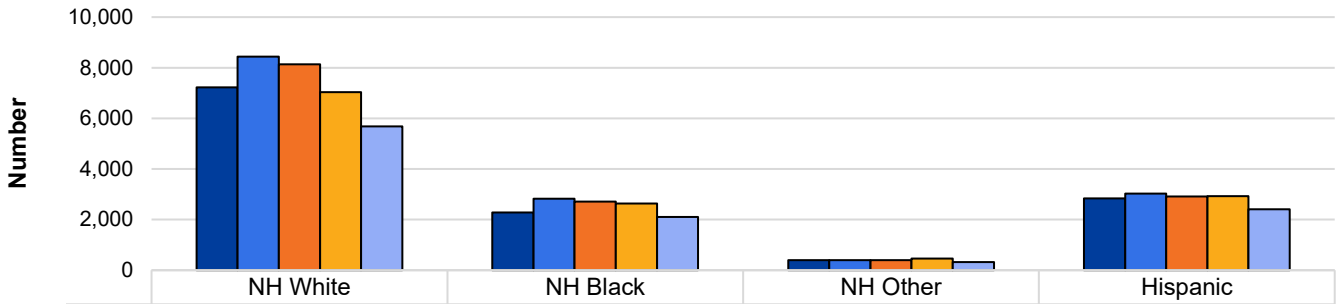


**** Data for 2024 may change due to the processing of pending cases.***

4. Suspected non-fatal drug overdoses by race and ethnicity, Connecticut, January 2020 – December 2024*.

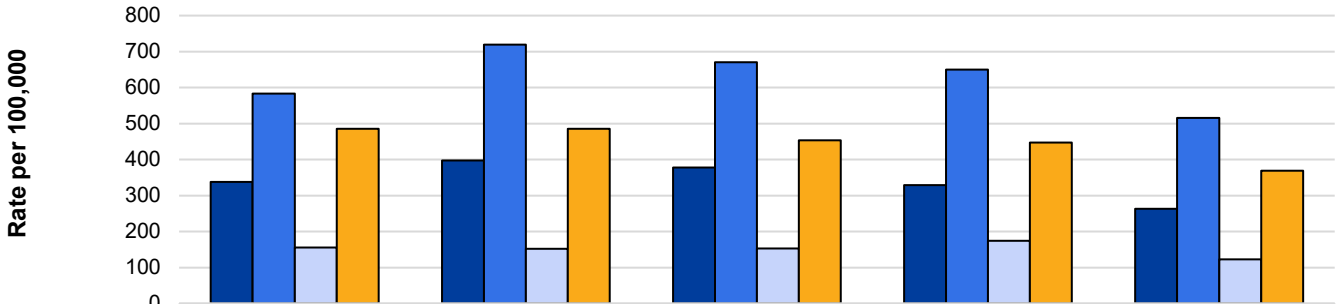
Figure 4a. Displays the number of suspected drug overdose incidents by race and ethnicity. The number of drug overdose incidents was higher among the non-Hispanic White race. Since 2021, with the exception of the NH Other race group, the number of non-fatal overdose incidents has been decreasing.
Figure 4b. Represents the rates of suspected drug overdose incidents by race and ethnicity. Overall, the rates of non-fatal drug overdose were highest among the non-Hispanic Black population when compared to all race-ethnicities. Since 2021, with the exception of the NH Other race group, the rates of non-fatal overdose incidents have been decreasing.

Figure 4a. Number of Suspected Non-Fatal Drug Overdoses by Race-Ethnicity, Connecticut, 2020-2024*



	NH White	NH Black	NH Other	Hispanic
2020	7,227	2,276	393	2,844
2021	8,444	2,822	396	3,030
2022	8,141	2,707	402	2,918
2023	7,041	2,631	460	2,923
2024	5,680	2,100	322	2,414

Figure 4b. Age-Adjusted Rate of Suspected Non-Fatal Drug Overdoses per 100,000 residents by Race-Ethnicity, Connecticut, 2020-2024*



	2020	2021	2022	2023	2024
NH White	337.94	397.19	377.71	328.67	263.32
NH Black	583.06	719.35	670.79	649.77	515.66
NH Other	155.87	152.12	152.70	174.75	122.49
Hispanic	485.56	485.86	453.84	447.43	369.12

**** Data for 2024 may change due to the processing of pending cases.***

5. Suspected non-fatal drug overdose involving opioids, Connecticut, January 2020 – December 2024*.

Figure 5a. Displays the rates of non-fatal drug overdose involving opioids by year. Since 2021, the rates of opioid drug overdoses have been decreasing.
Figure 5b. Represents the rates of non-fatal opioid drug overdoses by age-groups. Non-fatal opioid overdose rates were highest among the 35–44-year-old age groups between 2021 and 2024. Data shows that for all age groups, there were declines in trends since 2022.

Figure 5a. Age-Adjusted Rate of Suspected Drug Overdoses and Opioid Overdoses per 100,000 Residents by Year, Connecticut, January 2020 - January 2024*

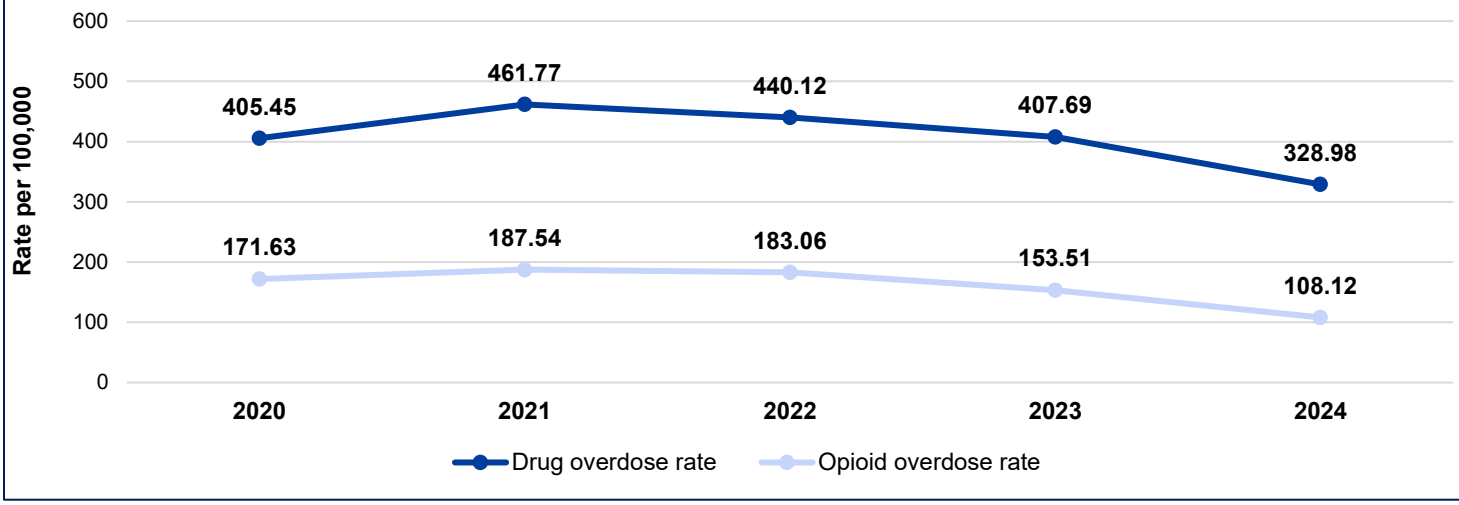
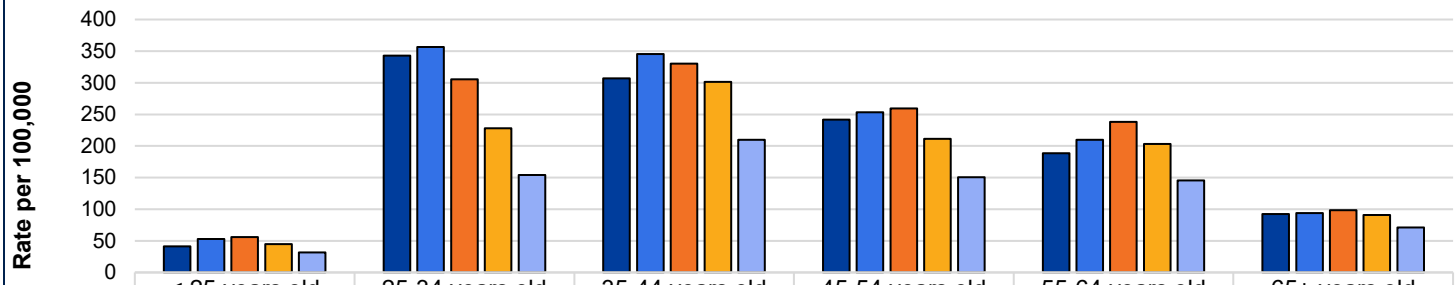


Figure 5b. Age-Specific Rate of Suspected Non-Fatal Opioid Overdoses per 100,000 Residents by Age-Group, Connecticut, 2020-2024*



	< 25 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65+ years old
2020	41.06	342.96	306.81	241.81	188.69	92.34
2021	53.06	356.55	345.19	253.24	209.98	93.8
2022	55.91	305.41	330.29	259.24	238.11	98.6
2023	44.88	227.81	301.33	211.45	203.42	91.06
2024	31.47	154.23	209.86	150.43	145.41	71.22

**** Data for 2024 may change due to the processing of pending cases.***

6. Suspected non-fatal drug overdose involving opioids, Connecticut, January 2020 – December 2024*.

Figure 6a. Displays the rates non-fatal drug overdose involving opioids by sex. Annual drug overdose data show that rates of non-fatal opioid overdose incidents were higher among males when compared to females during 2020-2024. Overall, the difference in trends appear to have slightly decreased for both males and females since 2021.
Figure 6b. Represents the rates of suspected opioid overdose incidents by race and ethnicity. The rates of non-fatal opioid overdose incidents were highest among the non-Hispanic Black population when compared to all races and ethnicity. Overall, the trends of non-fatal opioid drug overdose incidents by race and ethnicity have decreased between 2021 and 2024.

Figure 6a. Age-Adjusted Rate of Non-Fatal Suspected Opioid Overdoses per 100,000 residents by Sex, Connecticut, 2020-2024*

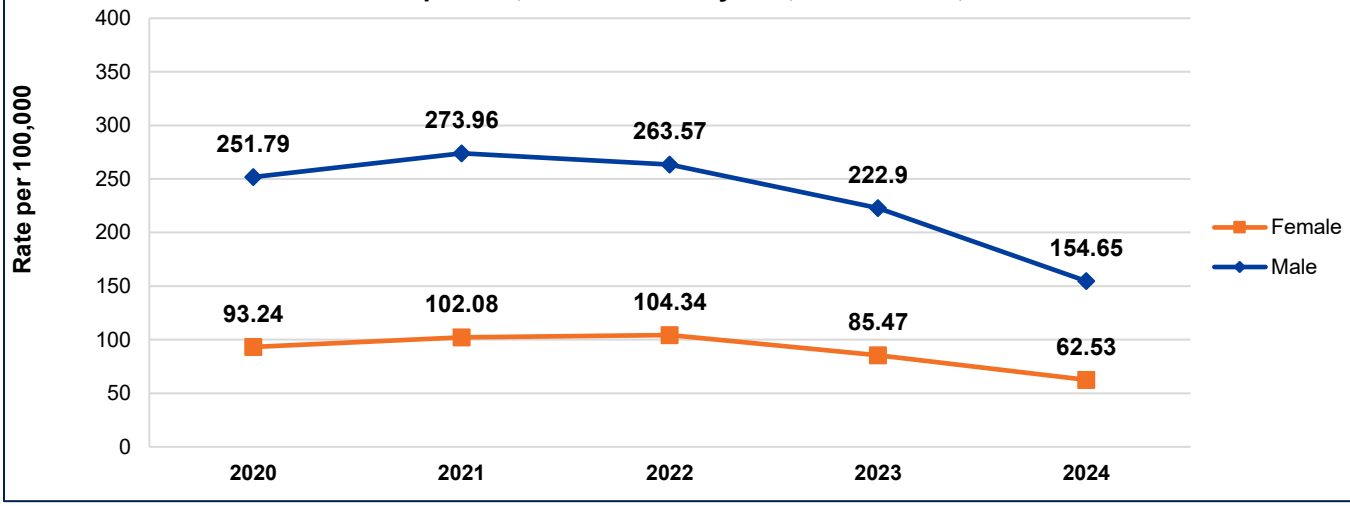
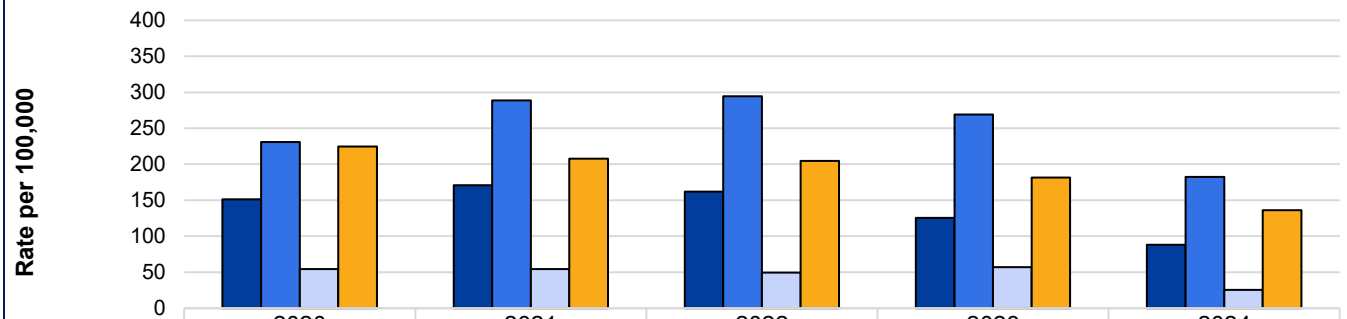


Figure 6b. Age-Adjusted Rate of Non-Fatal Suspected Opioid Overdoses per 100,000 residents by Race-Ethnicity, Connecticut, 2020-2024*



	2020	2021	2022	2023	2024
NH White	151.32	170.84	162.20	125.48	88.12
NH Black	230.79	288.72	294.49	269.00	182.40
NH Other	54.55	54.57	49.46	57.00	25.62
Hispanic	224.64	207.75	204.77	181.71	136.30

**** Data for 2024 may change due to the processing of pending cases.***

Technical Information

About ESSENCE

ESSENCE is a tool developed by the Johns Hopkins University Applied Physics Laboratory. Although it was originally intended to tackle threats of bioterrorism, the platform has since been expanded to capture health indicators, to aid in early detection of health conditions[1]. It provides near real-time syndromic surveillance data to rapidly assess trends and maintain awareness of changes in suspected non-fatal drug overdose-related ED visits at the state and local level.

Syndromic Surveillance Definitions

ESSENCE utilizes the same definitions as the Drug Overdose Surveillance and Epidemiology (DOSE) System by the Centers for Disease Control and Prevention (CDC). The DOSE system uses standardized syndromic surveillance definitions for suspected non-fatal all drug, benzodiazepine-, cocaine-, fentanyl-, heroin-, methamphetamine-, all opioid-, and all stimulant-involved overdoses established by the CDC. All definitions are drawn from multiple fields within ED data to classify visits as overdose-related[2]. ED visits are identified according to diagnostic codes used for clinical diagnosis and insurance billing purposes, specifically, ICD-10-CM codes. It also utilizes the free text field called "chief complaint", which represents the purpose of an ED visit. The syndromic surveillance definitions are not mutually exclusive but rather reflect nesting potentially overlapping drug categories and some overdose visits may involve multiple substances (e.g., a given overdose-related ED visit may involve both opioids and stimulants).

1. Burkom H, Loschen W, Wojcik R, Holtry R, Punjabi M, Siwek M, Lewis S Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Overview, Components, and Public Health Applications JMIR Public Health Surveill 2021;7(6):e26303. https://publichealth.jmir.org/2021/6/e26303
2. Centers for Disease Control and Prevention (CDC). About the Drug Overdose Surveillance and Epidemiology (DOSE) System. About nonfatal overdose syndromic surveillance data. Accessed on September 17th, 2024: https://www.cdc.gov/overdose-prevention/data-research/facts-stats/about-dose-system.html