



Maryland
DEPARTMENT OF HEALTH

Maryland Suspected Non-Fatal Opioid Overdose Trends Annual Report

REPORTING PERIOD: JANUARY - DECEMBER 2024

Maryland Department of Health

Office of Preparedness and Response

Overdose Data to Action Drug Overdose Surveillance and Epidemiology (OD2A DOSE) Team

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Reporting Period: January – December 2024

Executive Summary (1/2)

The purpose of this report is to provide an overview of trends in suspected non-fatal opioid overdose across the state of Maryland. This report presents de-identified Emergency Medical Services and Emergency Department (ED) data obtained from the syndromic surveillance platform, ESSENCE (see the “About This Report” section for more details).

In 2024, there were 18,929 EMS calls for suspected non-fatal drug overdose in Maryland, corresponding to 306.8 calls per 100,000 state population. The 2024 count represents a 11.7% decrease since 2023. Nearly two-thirds (60.2%) of all 2024 EMS calls for suspected non-fatal drug overdose involved opioids. Specifically, there were 11,391 EMS calls for suspected non-fatal opioid overdose, corresponding to 184.6 calls per 100,000 state population and representing a 17.2% decrease since 2023. While the data is preliminary, EMS calls for suspected non-fatal opioid overdose continue to trend downward in 2025.

Disparities in EMS calls for suspected non-fatal opioid overdose by age, race and geography are apparent. Among older adults (ages 60+), the highest proportion (64.8%) of EMS calls for suspected non-fatal opioid overdose occurred amongst Black or African American Marylanders. While EMS call rates were highest in Baltimore City, the rate among Black individuals (1,100.3 calls per 100,000 Black Baltimoreans) was 1.4x that of White individuals (782.2 calls per 100,000 White Baltimoreans).

There were 6,481 EMS calls during which naloxone was administered at least once by EMS (referred to as “EMS Naloxone administration encounters”), and a total of 7,325 doses of naloxone were administered by EMS. These 2024 counts represent a 21.3% decrease in EMS naloxone administration encounters and total doses administered since 2023. The ratio of total doses administered by EMS to EMS administration encounters is 1.1, suggesting that a single dose of naloxone was generally sufficient to restore breathing after a suspected overdose. This ratio has remained consistent since 2020. Prior to EMS arrival, a total of 633 bystanders administered naloxone to a person suspected of overdosing, with laypersons (29.5%) and law enforcement (28.4%) comprising the majority of bystanders in 2024.

Reporting Period: January – December 2024

Executive Summary (2/2)

In 2024, there were 20,449 ED visits for suspected non-fatal drug overdose in Maryland, corresponding to 331.4 visits per 100,000 state population. The 2024 count represents a 19.9% decrease since 2023. Over one-third (36.8%) of all 2024 ED visits for suspected non-fatal drug overdose involved opioids. Specifically, there were 7,532 visits for suspected non-fatal opioid overdose, corresponding to 122.1 calls per 100,000 state population and representing a 18.5% decrease since 2023. While the data is preliminary, ED visits for suspected non-fatal opioid overdose also continue to trend downward in 2025.

Disparities in ED visits for suspected non-fatal opioid overdose by age, race and geography are also apparent. Among older adults (ages 60+), the highest proportion (70.3%) of ED visits for suspected non-fatal opioid overdose occurred amongst Non-Hispanic (NH) Black individuals, as was observed in the EMS data. While ED visit rates were once again highest in Baltimore City, the rate among NH Black individuals (758.0 visits per 100,000 NH Black Baltimoreans) was nearly double that of NH White individuals (383.4 visits per 100,000 NH White Baltimoreans). The rate of ED visits for suspected non-fatal opioid overdose in rural counties (75.4 visits per 100,000 rural Marylanders) was approximately half the rate in urban counties (141.4 visits per 100,000 urban Marylanders), corresponding to a rate ratio of 0.53. Similarly, the rate of EMS calls for suspected non-fatal opioid overdose in rural counties (149.4 per 100,000 rural Marylanders) was about 25% lower than the rate in urban counties (199.2 per 100,000 urban Marylanders), corresponding to a rate ratio of 0.75. For both EMS calls and ED visits, the urban-rural rate ratios were statistically significant. It should be noted that most counties in Maryland (18/24) are rural, and the lower rate in those counties may be associated with reduced access to healthcare.

Although suspected non-fatal overdoses continue to decline, it is recommended to continue building on surveillance and prevention efforts targeting populations that are disproportionately burdened, particularly older NH Black adults. In addition, efforts should continue to address polysubstance use, given that non-opioid drugs (e.g. stimulants and depressants) remained involved in suspected non-fatal overdose visits in 2024.

Emergency Medical Services (EMS) Data

About Emergency Medical Services (EMS) Data

- The original source of EMS data is MIEMSS (Maryland Institute for Emergency Medical Services Systems); this data has been integrated into MD ESSENCE since October 2019.
- MD ESSENCE receives data from 27 jurisdictional EMS programs representing all counties in the state as well as Baltimore City, Annapolis, Baltimore-Washington International Airport, and the National Air Guard.
- EMS data only includes race information (not ethnicity). Race groups included are White, Black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Not Reported, Not Applicable and Hispanic or Latino (treated as a race group). For Calendar Year 2024, there is only one race value per EMS record.
- EMS data only includes sex as recorded by EMS provider(s). Sexes included are male, female and unknown.
- Jurisdictional EMS data in this report is grouped by incident county.
- Counts of <11 and rates with numerators <11 have been hidden to protect patient privacy in accordance with established data use agreements.
- Due to data exchange issues, EMS data for August 2022 and November 2024 are not fully represented. Calls for these periods may be underestimated.

EMS Calls for Suspected Non-Fatal Drug Overdose

Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Overdose (All Drugs)

In 2024†, there were **18,929** EMS calls for suspected non-fatal drug overdose†, compared to **21,447** in 2023 (a 11.7% decrease). 60.2% of suspected non-fatal drug overdose EMS calls in 2024 were for opioid overdose.

FIGURE 1. Number and Rate (per 100,000 population) of EMS Calls for Suspected Non-Fatal Overdose (All Drugs) by Year - Maryland, 2020-2024†

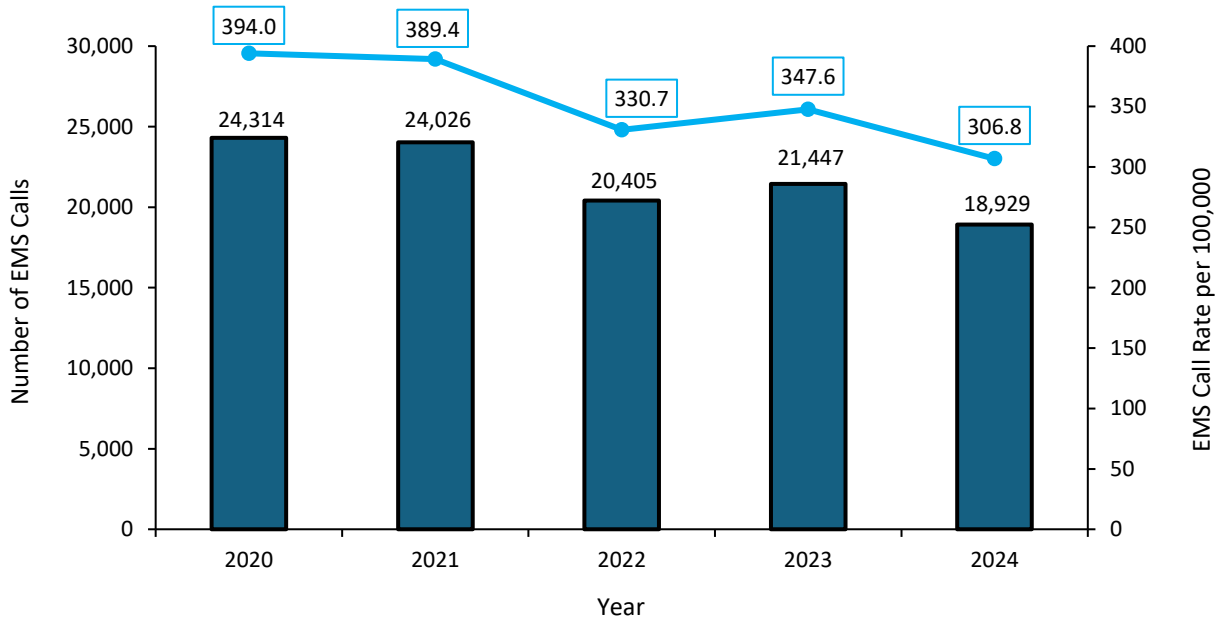
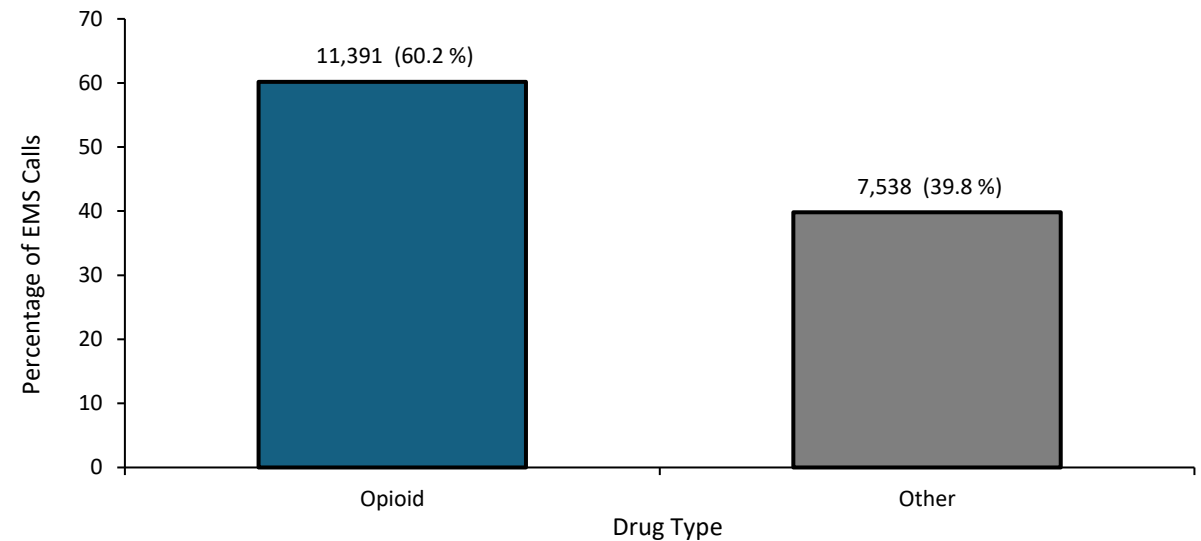


FIGURE 2. Percentage of EMS Calls for Suspected Non-Fatal Overdose by Drug Type* - Maryland, 2024†



*"Other" includes any non-opioid drugs which may be prescribed, over-the-counter, or illicit.
%Other = %All Drug - %Opioid

Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Opioid Overdose

In 2024†, **11,391** EMS calls were for suspected non-fatal opioid overdose†, compared to **13,751** in 2023 (a 17.2% decrease).

FIGURE 3. Number and Rate (per 100,000 population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Year — Maryland, 2020-2024†

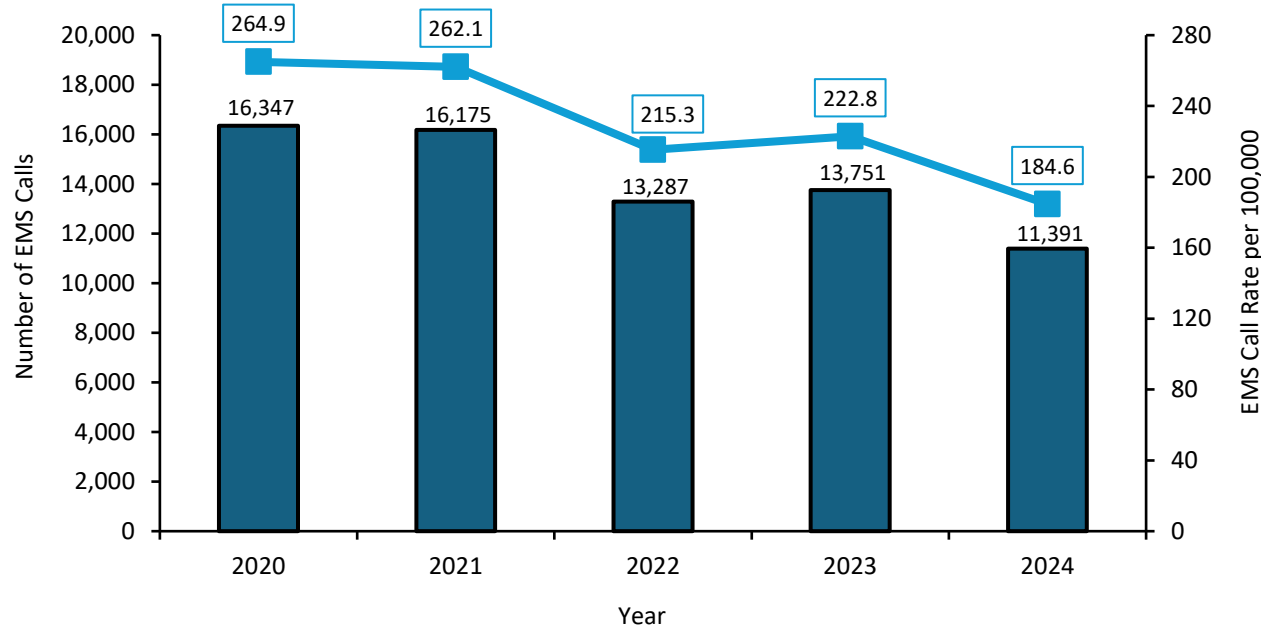
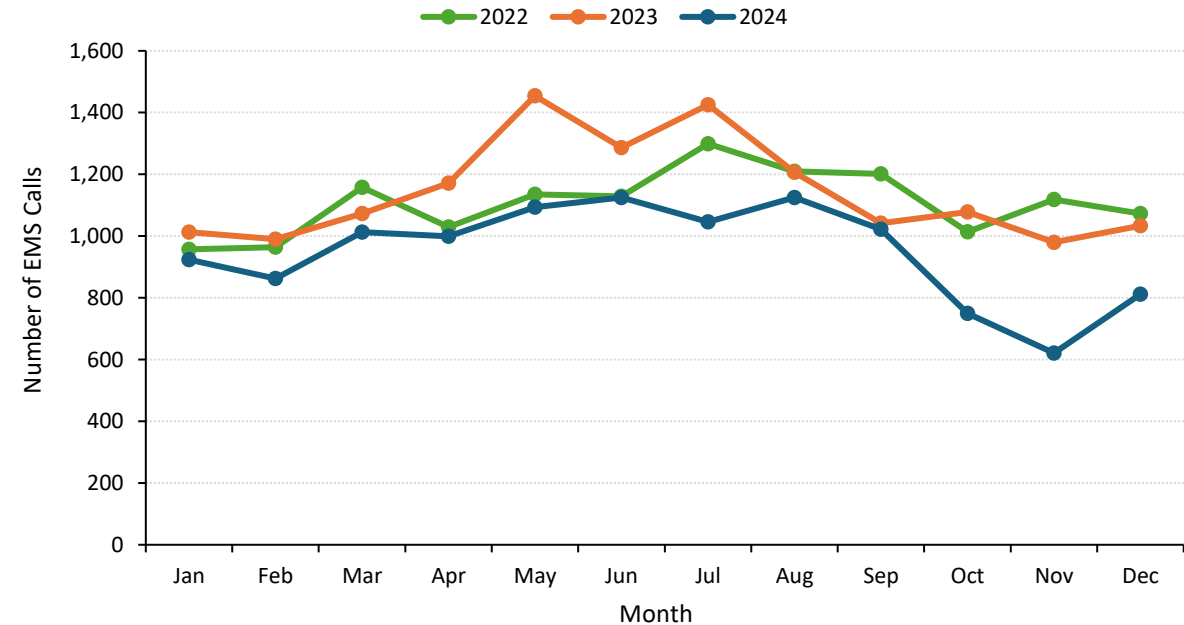


FIGURE 4. Number of EMS Calls for Suspected Non-Fatal Opioid Overdose By Month — Maryland, 2022-2024†



EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 5. Rate (per 100,000 population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Transport Utilization Outcome - Maryland, 2024

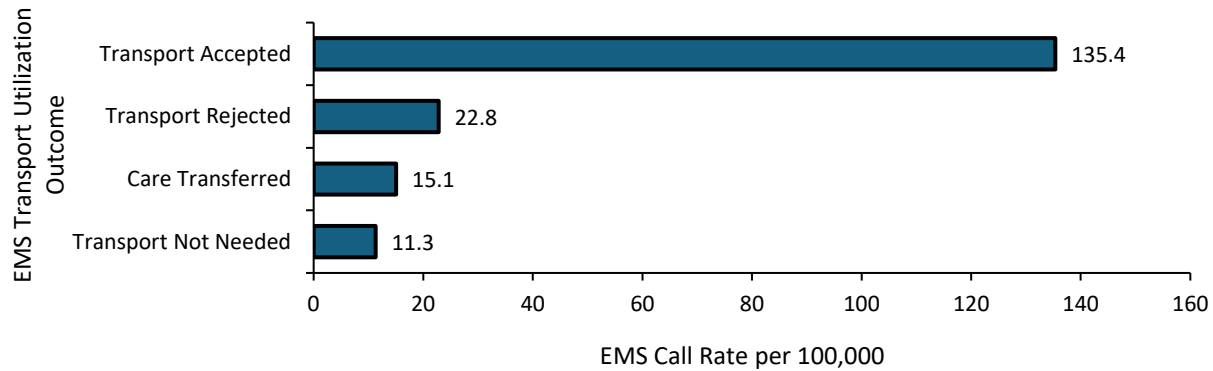


FIGURE 6. Rate (per 100,000 population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Initial Patient Acuity Level - Maryland, 2024

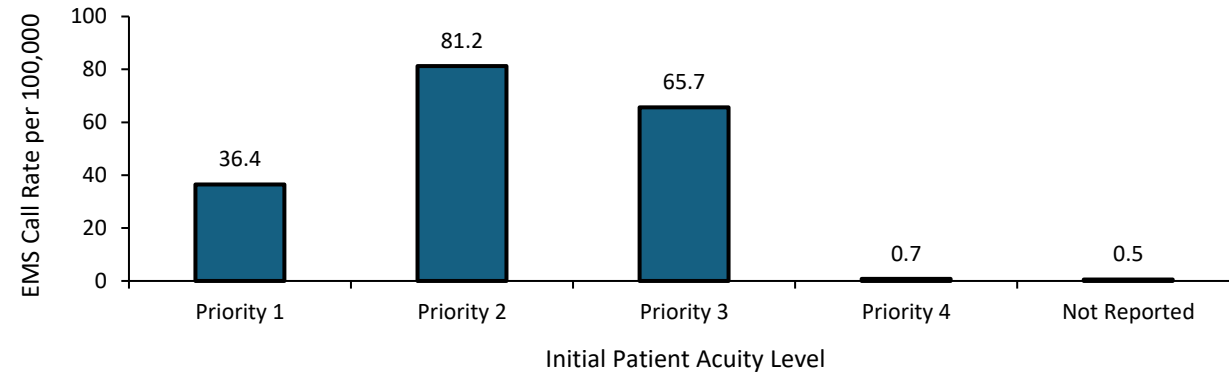


FIGURE 5 depicts the number of EMS calls for suspected non-fatal opioid overdose categorized by EMS transportation utilization outcome. These outcomes describe how the patient used or did not use EMS transportation, as explained below in detail:

- **“Transport Accepted”**: patient was treated and transported by this EMS unit, refused care but accepted transport by this unit, or was unconscious and transported by this unit.
- **“Transport Rejected”**: patient refused treatment and transport, was treated but refused transport, or was treated but transported by private vehicle (refusal form required).
- **“Care transferred”**: patient transferred care to another EMS unit, was treated but transported by law enforcement, treated but transferred care to a telehealth provider or treated but transferred care to another provider on scene (non-EMS).
- **“Transport not needed”**: patient was treated and released per protocol or when no treatment was required at the time.

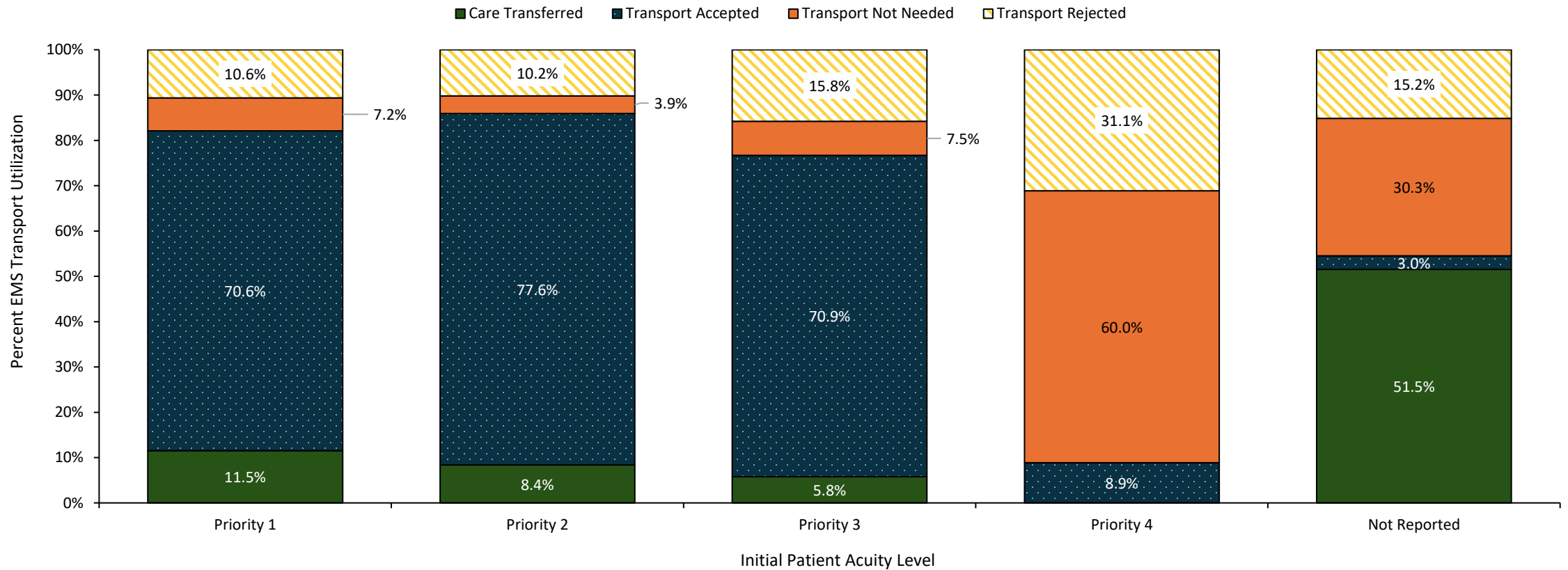
FIGURE 6 represents the number of EMS calls for suspected non-fatal opioid overdose categorized by initial acuity level as recorded by EMS. These levels describe the condition that the patient is in upon EMS arrival.

- **Priority 1**: Critical.
- **Priority 2**: Stable.
- **Priority 3**: Minor.
- **Priority 4**: No Care Indicated.
- **Not Reported**: Acuity level not recorded or recorded as “null”.

Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Opioid Overdose

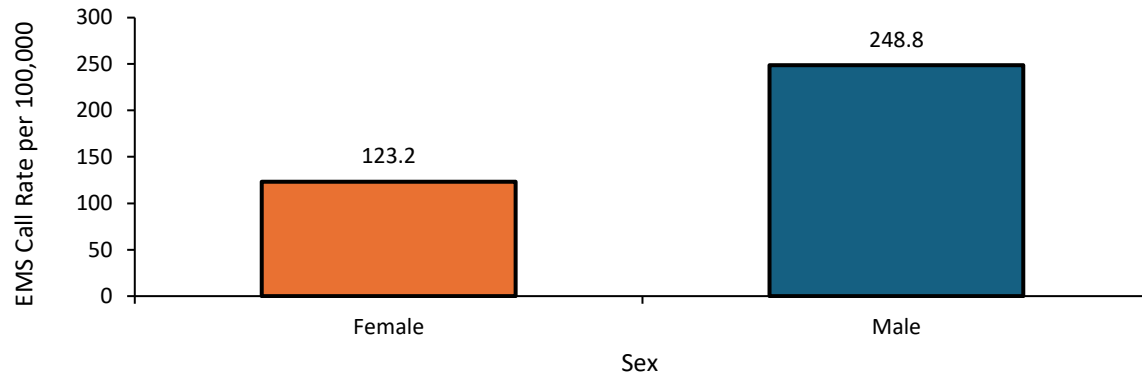
FIGURE 7. Percentage of EMS Transport Utilization Outcomes by Initial Patient Acuity for Suspected Non-Fatal Opioid Overdose Calls - Maryland, 2024



Reporting Period: January – December 2024

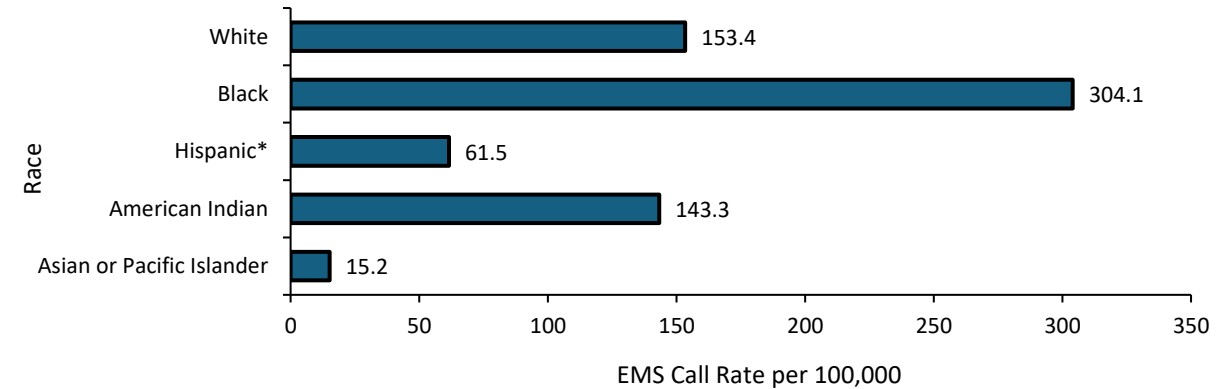
EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 8. Rate (per 100,000 sex population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Sex* - Maryland, 2024



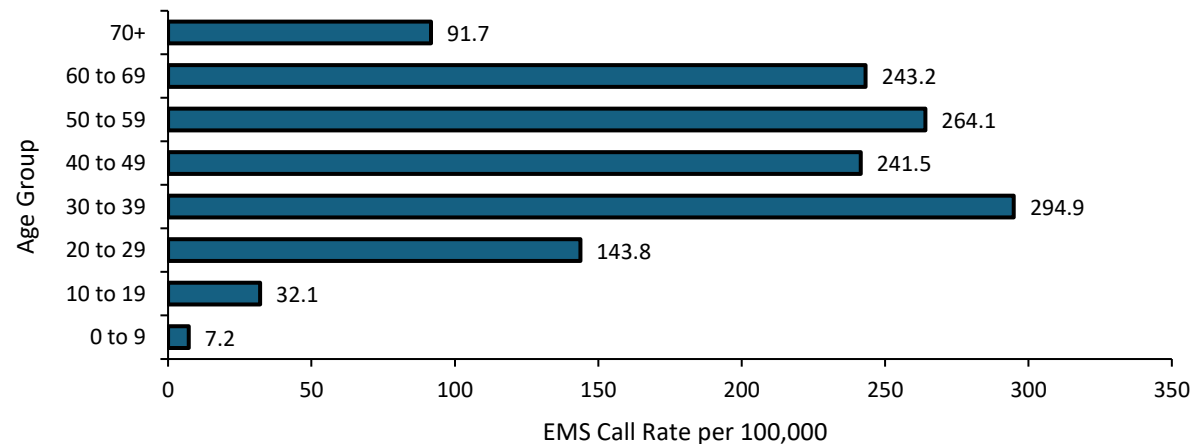
* Sex reported in MD ESSENCE may not reflect self-identified sex and/or gender. Rates for unknown are not shown to protect patient privacy. Counts for this group were reported as <11 in MD ESSENCE.

FIGURE 9. Rate (per 100,000 race population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Race* - Maryland, 2024



*Race reported in MD ESSENCE may not reflect self-identified race.

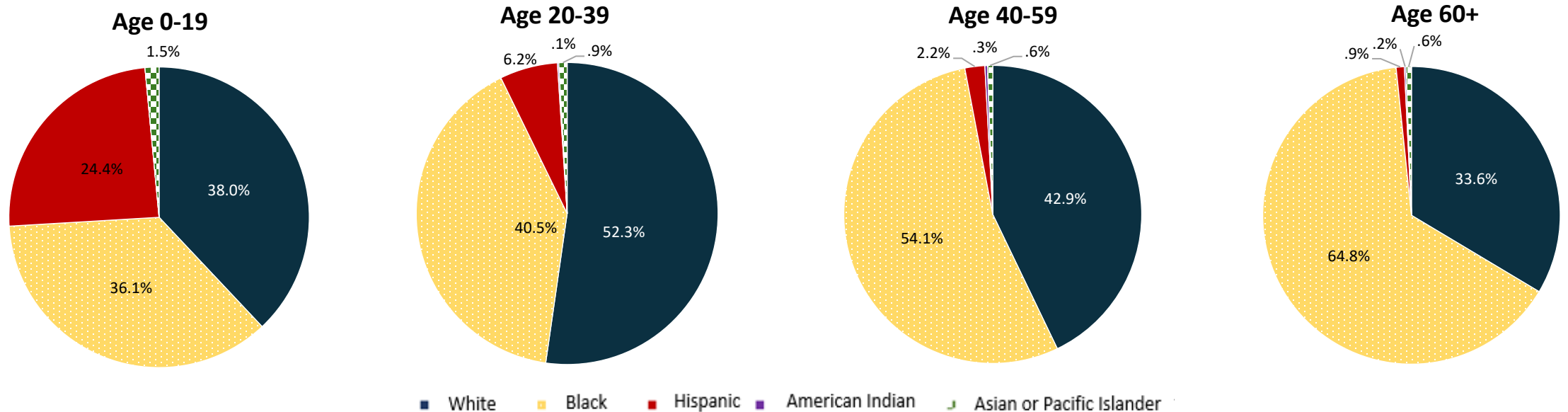
FIGURE 10. Rate (per 100,000 age group population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Age Group - Maryland, 2024



Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 11. Number and Percentage of EMS Calls for Suspected Non-Fatal Opioid Overdose by Age Group and Race* – Maryland, 2024



Age Group	White	Black	Hispanic*	American Indian	Asian or Pacific Islander
0-19	101	96	65	hidden	hidden
20-39	1,770	1,371	210	hidden	30
40-59	1,666	2,104	84	11	22
60+	792	1,528	21	hidden	14
Total	4,329	5,099	380	20	70

*Race reported in MD ESSENCE may not reflect self-identified race.

Please note: For certain age groups, counts for Asian or Pacific Islander and American Indian or Alaska Native sub-groups have been hidden to protect patient privacy because their EMS call counts were reported as <11 in MD ESSENCE.



Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 12. Rate (per 100,000 jurisdiction population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Incident County and Quarter - Maryland 2024[†]

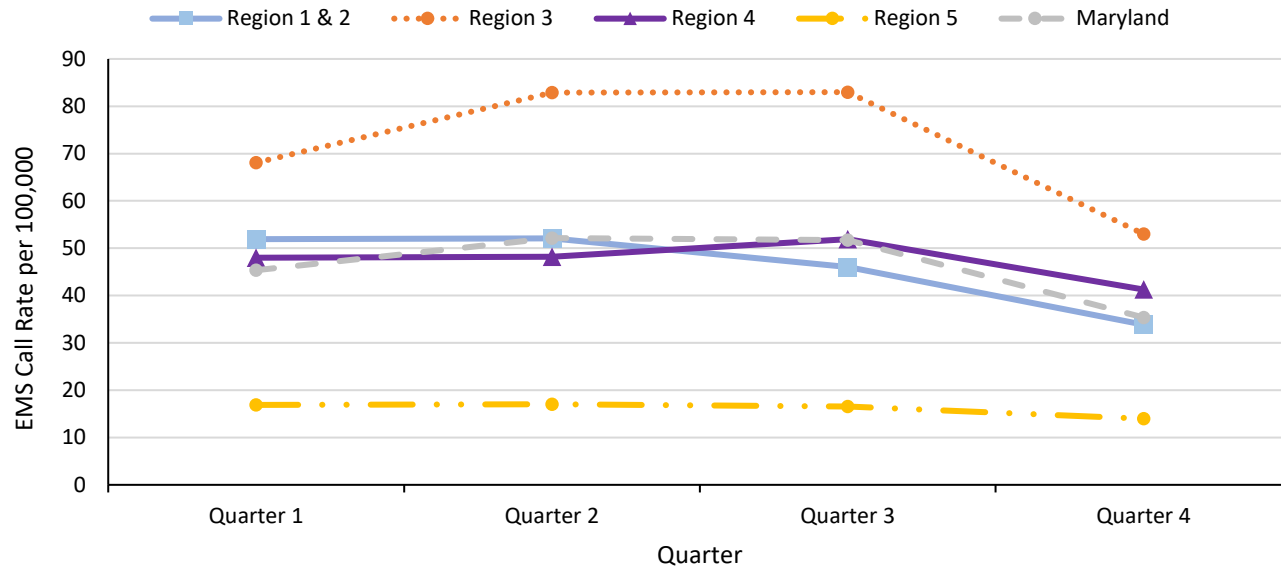
Incident County	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Allegany	85.6	70.8	59.0	36.9
Anne Arundel	34.4	39.1	35.7	25.0
Baltimore City	219.5	273.4	274.4	164.6
Baltimore County	30.7	39.8	37.5	29.2
Calvert	27.7	24.5	19.2	16.0
Caroline	35.9	74.8	77.8	32.9
Carroll	21.2	20.1	33.8	14.9
Cecil	60.4	69.9	83.4	79.5
Charles	19.0	23.7	23.7	17.8
Dorchester	42.9	73.6	64.4	39.9
Frederick	20.3	23.2	24.3	20.0
Garrett	<i>hidden</i>	<i>hidden</i>	38.3	<i>hidden</i>
Harford	25.9	32.8	36.2	23.6
Howard	18.6	13.2	13.8	13.2
Kent	62.3	72.7	57.1	72.7
Montgomery	12.5	11.8	13.9	9.1
Prince George's	17.0	18.0	16.8	17.2
Queen Anne's	47.1	19.6	29.4	<i>hidden</i>
Somerset	72.9	72.9	77.0	44.6
St. Mary's	44.6	41.1	25.4	25.4
Talbot	29.2	31.8	<i>hidden</i>	<i>hidden</i>
Washington	98.0	99.3	81.3	61.9
Wicomico	48.0	25.9	37.5	26.9
Worcester	31.9	35.7	31.9	30.0
Maryland	45.3	52.1	51.7	35.4

Please note: Certain quarterly rates for Garrett, Queen Anne's and Talbot counties have been hidden to protect patient privacy. EMS call counts for these jurisdictions were reported as <11 in MD ESSENCE.



EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 13. Rate (per 100,000 jurisdiction population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Incident Region and Quarter - Maryland 2024†



Incident Region	Jurisdictions Included
Regions 1 & 2	Allegany County, Frederick County, Garrett County, Washington County
Region 3	Anne Arundel County, Baltimore City, Baltimore County, Carroll County, Harford County, Howard County
Region 4	Caroline County, Cecil County, Dorchester County, Kent County, Queen Anne’s County, Somerset County, Talbot County, Wicomico County, Worcester County
Region 5	Calvert County, Charles County, Montgomery County, Prince George’s County, St. Mary’s County

Incident Region	Quarter 1 (January to March)	Quarter 2 (April to June)	Quarter 3 (July to September)	Quarter 4 (October to December)
Region 1 & 2	51.9	52.1	46.1	33.8
Region 3	68.1	82.9	83.0	53.0
Region 4	48.0	48.2	51.9	41.3
Region 5	16.9	17.0	16.5	14.0
Maryland	45.3	52.1	51.7	35.4

EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 14. Rate (per 100,000 jurisdiction population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Incident County - Maryland, 2024

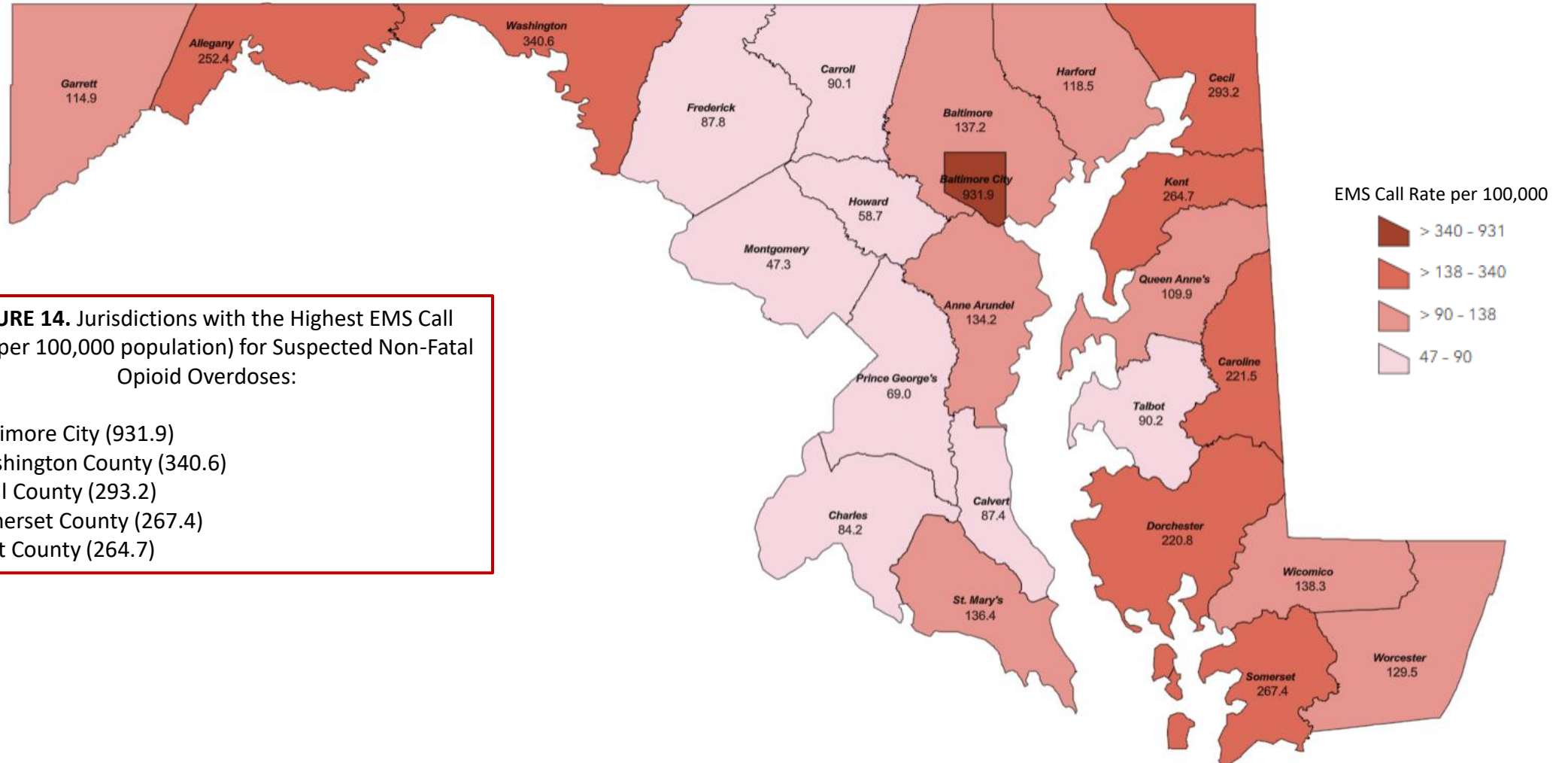


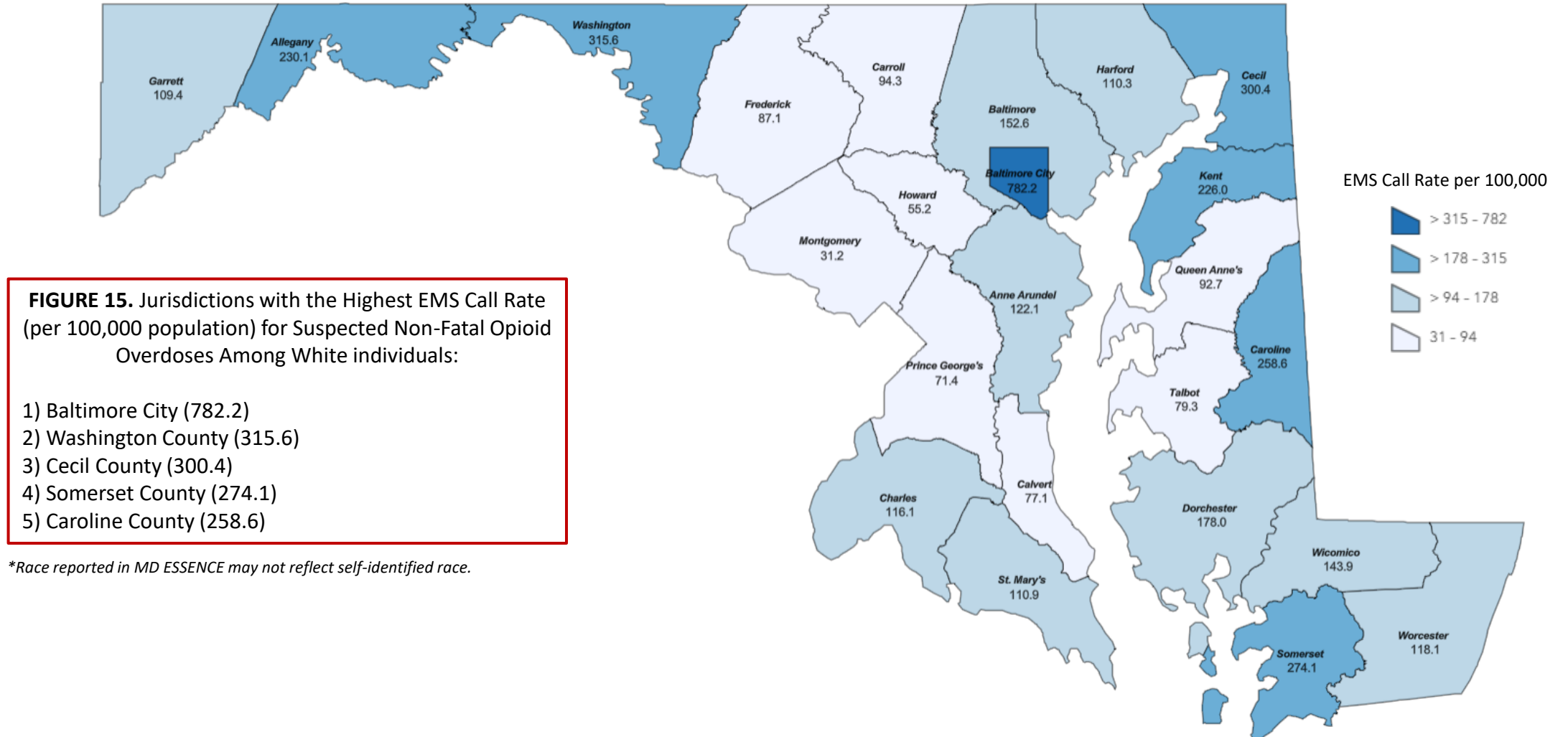
FIGURE 14. Jurisdictions with the Highest EMS Call Rate (per 100,000 population) for Suspected Non-Fatal Opioid Overdoses:

- 1) Baltimore City (931.9)
- 2) Washington County (340.6)
- 3) Cecil County (293.2)
- 4) Somerset County (267.4)
- 5) Kent County (264.7)

Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 15. Rate (per 100,000 jurisdiction population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Incident County for White Individuals* - Maryland, 2024



Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 16. Rate (per 100,000 jurisdiction population) of EMS Calls for Suspected Non-Fatal Opioid Overdose by Incident County for Black Individuals* - Maryland, 2024

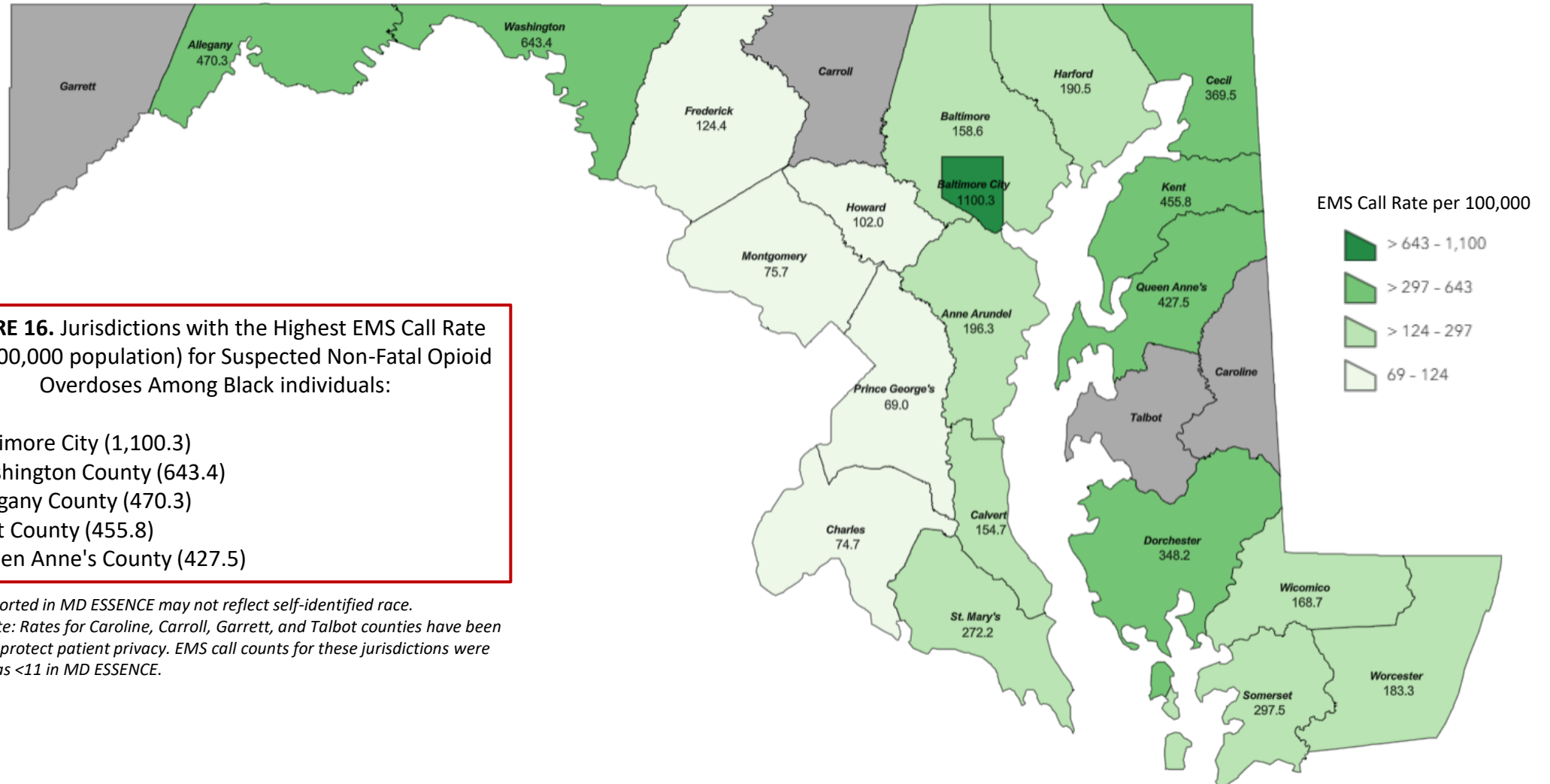


FIGURE 16. Jurisdictions with the Highest EMS Call Rate (per 100,000 population) for Suspected Non-Fatal Opioid Overdoses Among Black individuals:

- 1) Baltimore City (1,100.3)
- 2) Washington County (643.4)
- 3) Allegany County (470.3)
- 4) Kent County (455.8)
- 5) Queen Anne's County (427.5)

*Race reported in MD ESSENCE may not reflect self-identified race.
Please note: Rates for Caroline, Carroll, Garrett, and Talbot counties have been hidden to protect patient privacy. EMS call counts for these jurisdictions were reported as <11 in MD ESSENCE.

EMS Calls for Suspected Non-Fatal Opioid Overdose

Figure 17. EMS Calls for Suspected Non-Fatal Opioid Overdose by Urbanicity – Maryland, 2024

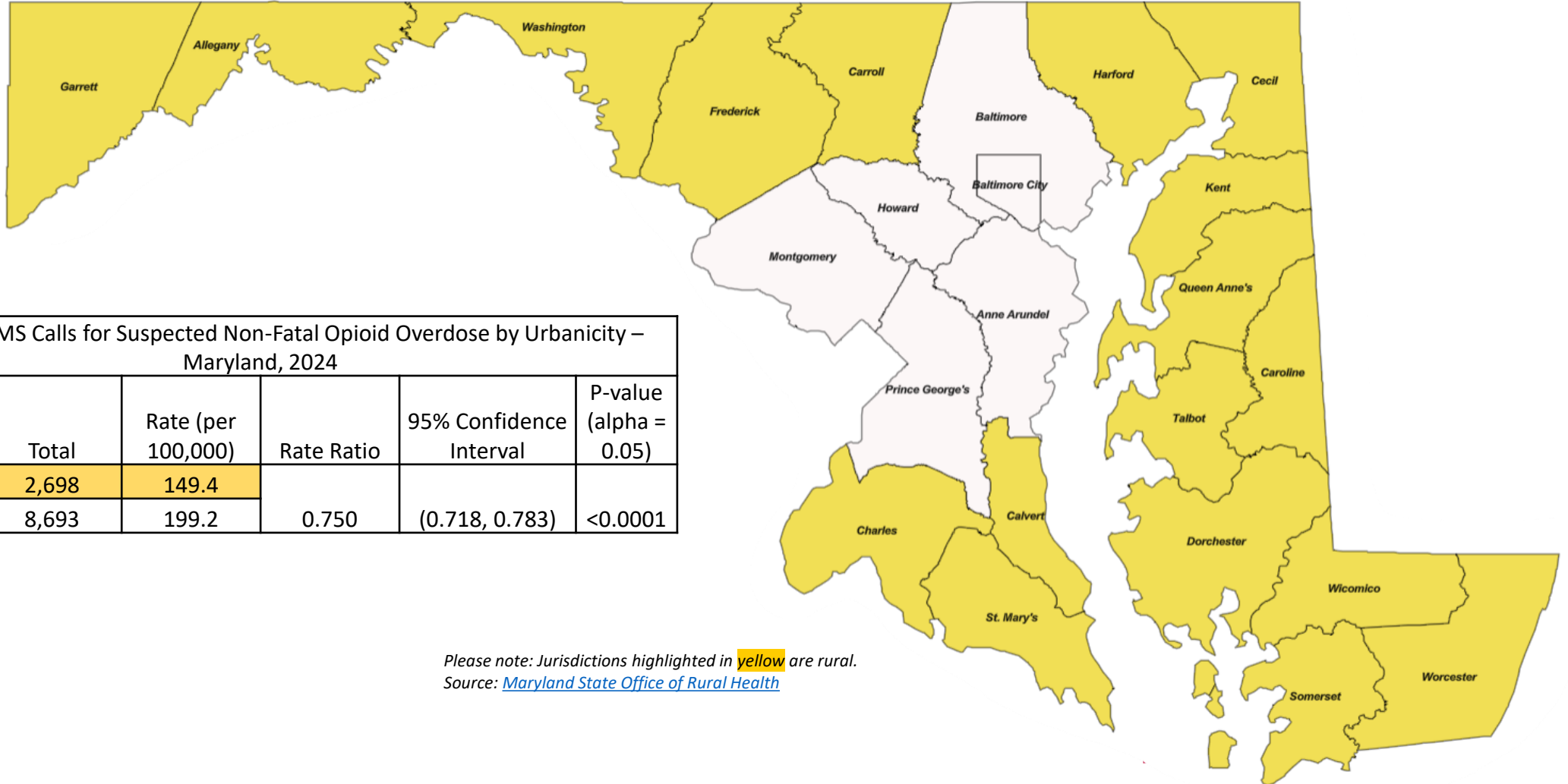


Figure 17. EMS Calls for Suspected Non-Fatal Opioid Overdose by Urbanicity – Maryland, 2024					
	Total	Rate (per 100,000)	Rate Ratio	95% Confidence Interval	P-value (alpha = 0.05)
Rural	2,698	149.4	0.750	(0.718, 0.783)	<0.0001
Urban	8,693	199.2			

Please note: Jurisdictions highlighted in yellow are rural.
 Source: [Maryland State Office of Rural Health](#)

Key Findings: EMS Calls for Drug Overdose

- In 2024, there were 18,929 EMS calls for suspected non-fatal overdose for all drugs in Maryland, corresponding to 306.8 calls per 100,000 state population. The 2024 count represents a 11.7% decrease since 2023 (**Figures 1 & 3**).
 - Nearly two-thirds (60.2%) of all 2024 EMS calls for suspected non-fatal overdoses involved opioids (**Figures 2**).
- In 2024, patients accepted transport by EMS during the majority (70.0%+) of EMS calls for suspected non-fatal opioid overdose in which patient acuity levels were Critical (Priority 1), Stable (Priority 2), and Minor (Priority 3). Among 60.0% of EMS calls with a patient acuity level of Care Not Given (Priority 4), transport was rejected (**Figures 5-7**).
- The highest rates of EMS calls for suspected non-fatal opioid overdose in 2024 were among males (248.8 per 100,000 males in Maryland), Black individuals (304.1 per 100,000 Black Marylanders), and those 30-39 years old (294.9 per 100,000 30-39-year-old Marylanders). White (153.4) and American Indian (143.3) groups, as well as those 50-59 years old (264.1 per 100,000), had the second highest rates by race and age group respectively (**Figures 8-10**).
- Overall, 2024 EMS call rates for suspected non-fatal opioid overdose by incident county were highest in Baltimore City (931.9 per 100,000 jurisdiction population), Washington County (340.6) and Cecil County (293.2) (**Figure 14**).
 - The rate ratio of EMS calls for suspected non-fatal opioid overdose in rural counties compared to urban counties was 0.750 (95% confidence interval: (0.718, 0.783); $p < 0.0001$). (**Figure 17**).

EMS Naloxone Administration Encounters

Reporting Period: January – December 2024

EMS Naloxone Administration Encounters

In 2024, there were **6,481** EMS naloxone administration encounters (calls where naloxone was administered by EMS)[†], compared to **8,236** encounters in 2023 (a 21.3% decrease).

FIGURE 18. Number and Rate (per 100,000 population) of EMS Naloxone Administration Encounters by Year – Maryland, 2020-2024[†]

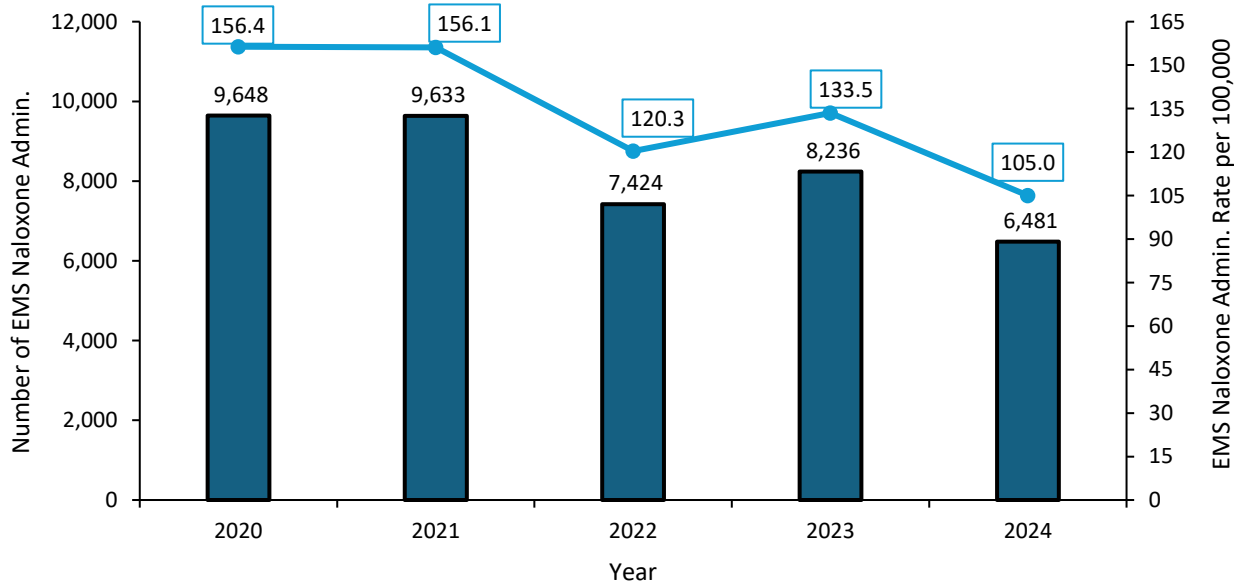
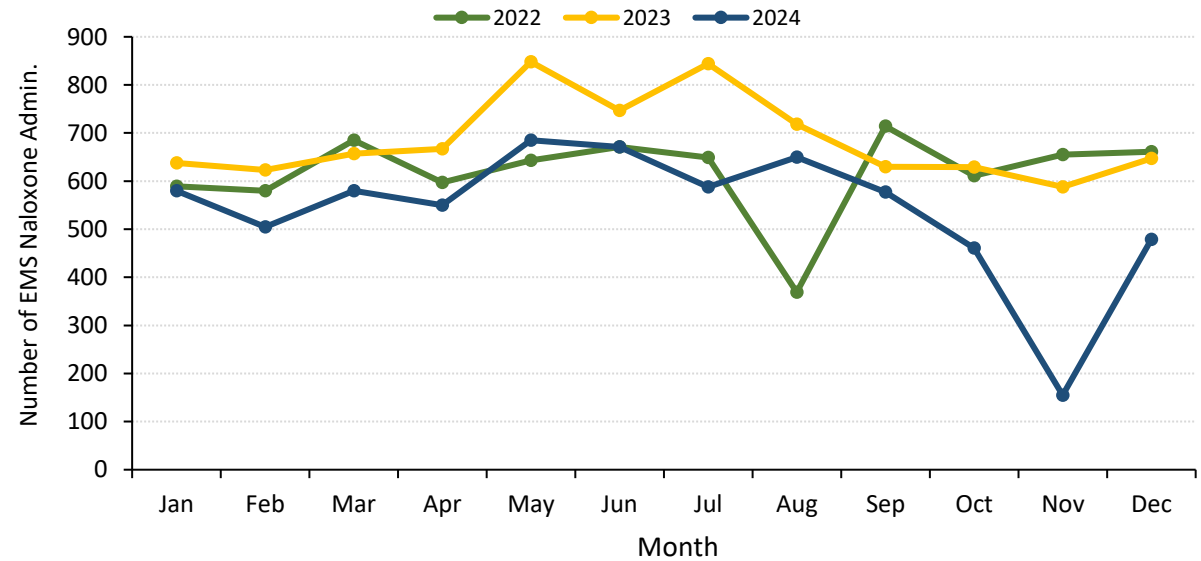


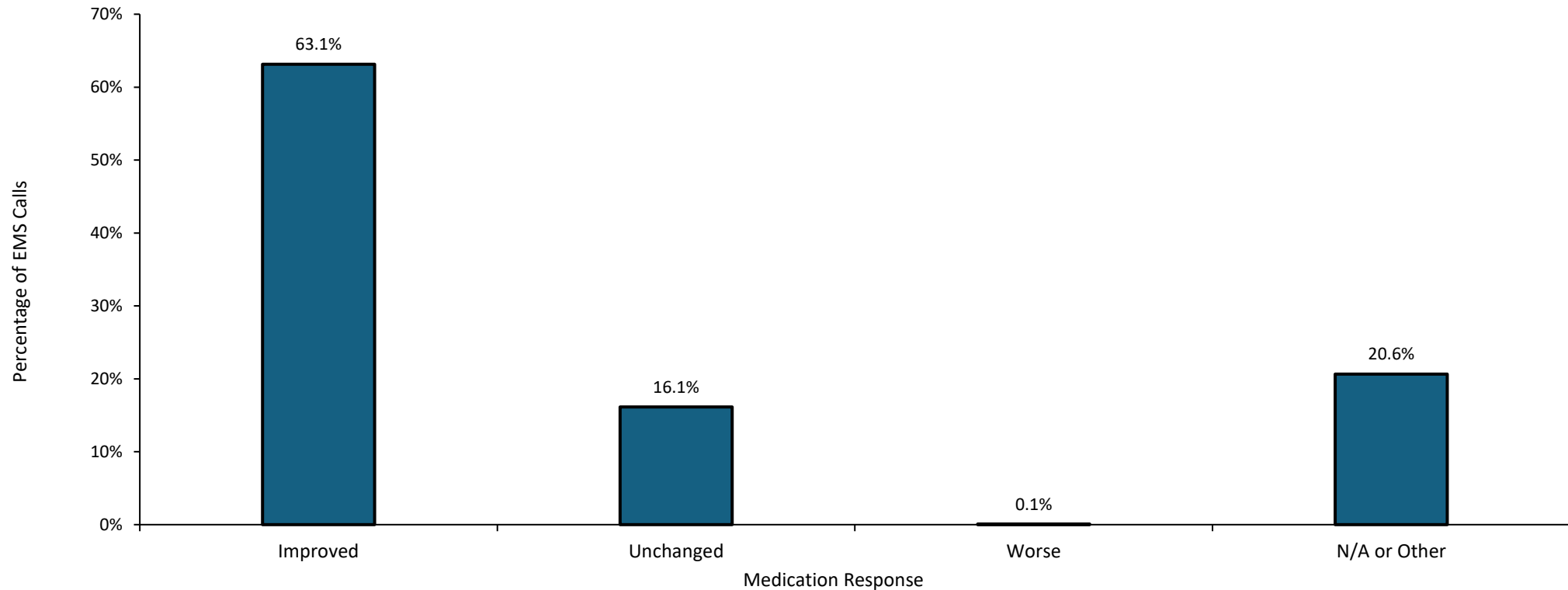
FIGURE 19. Number of EMS Calls Where Naloxone Was Administered by Month— Maryland, 2022-2024[†]



Reporting Period: January – December 2024

EMS Naloxone Administration Encounters

FIGURE 20. Percentage of Patient's Responses Post-Administration Encounter of Any Medication Administered by EMS - Maryland, 2024



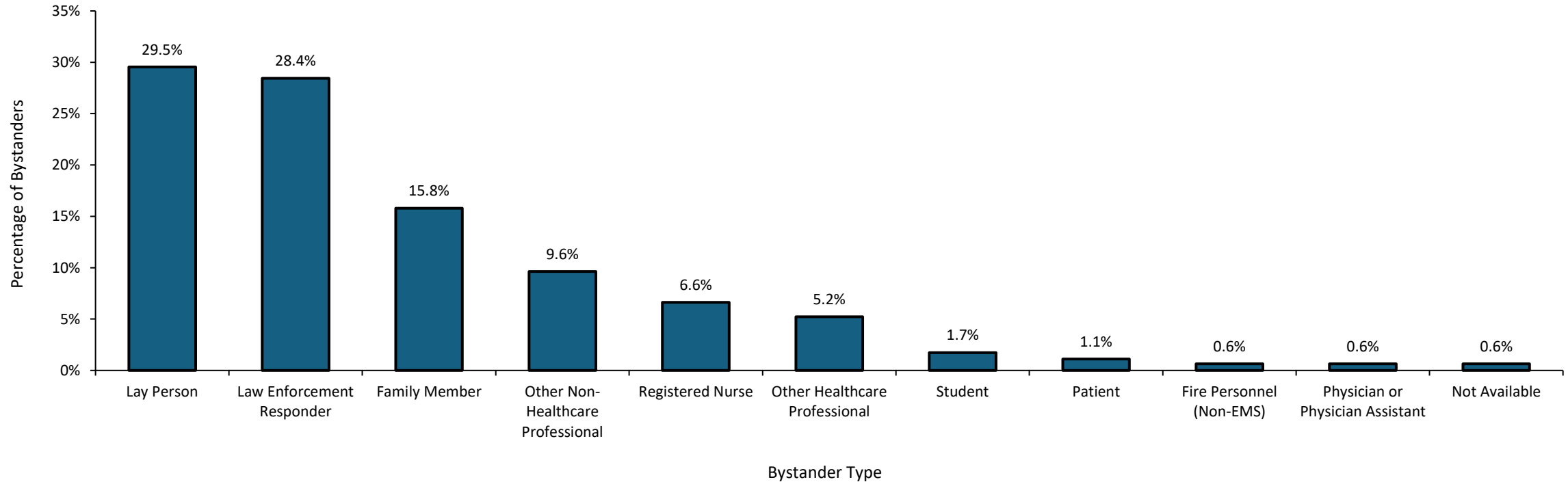
Please note: Naloxone may not be the only medication administered by EMS during these encounters. Other medications typically administered include epinephrine, glucose, oxygen, normal saline, etc.

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EMS Naloxone Administration Encounters

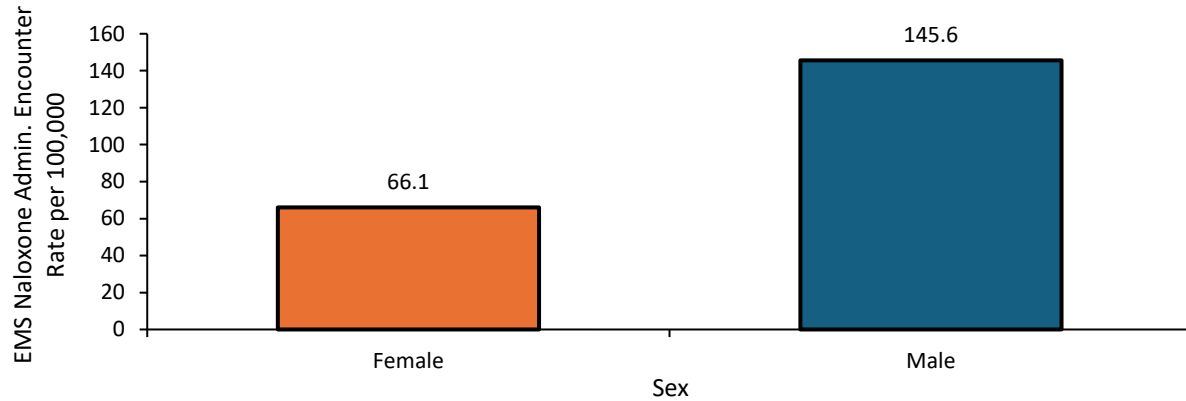
From January to December 2024, **633** bystanders administered naloxone prior to EMS arrival.

FIGURE 21. Bystanders Administering Naloxone Prior to EMS Arrival - Maryland, 2024



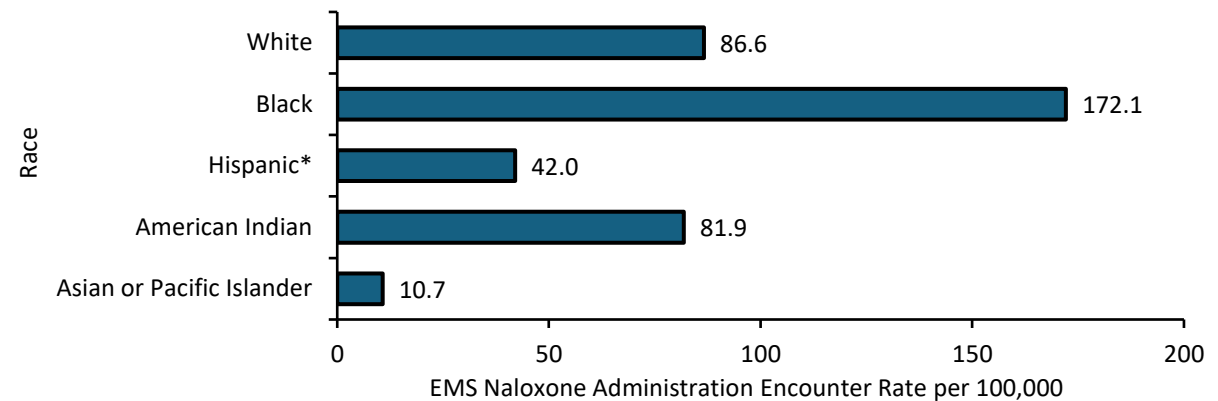
EMS Naloxone Administration Encounters

FIGURE 22. Rate (per 100,000 sex population) of EMS Naloxone Administration Encounters by Sex* - Maryland, 2024



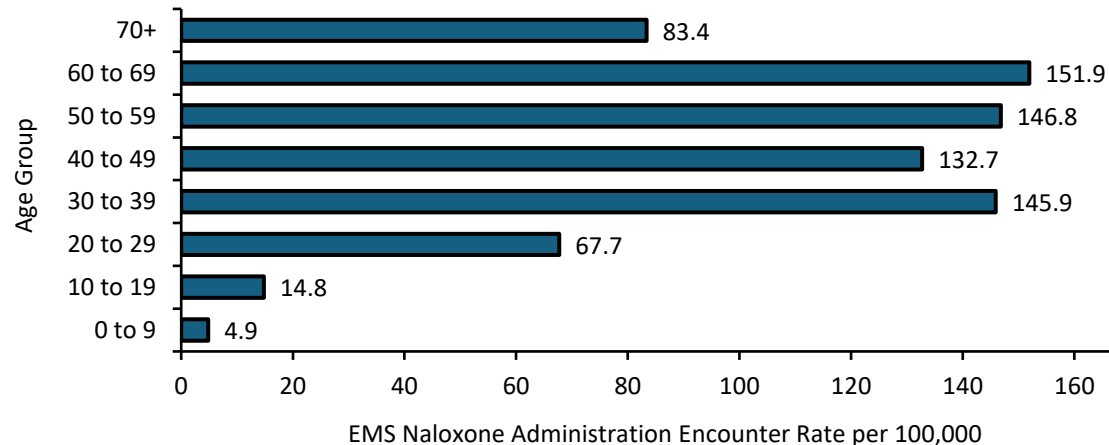
* Sex reported in MD ESSENCE may not reflect self-identified sex and/or gender.

FIGURE 23. Rate (per 100,000 race population) of Naloxone Administration Encounters By Race* - Maryland, 2024



* Race reported in MD ESSENCE may not reflect self-identified race.

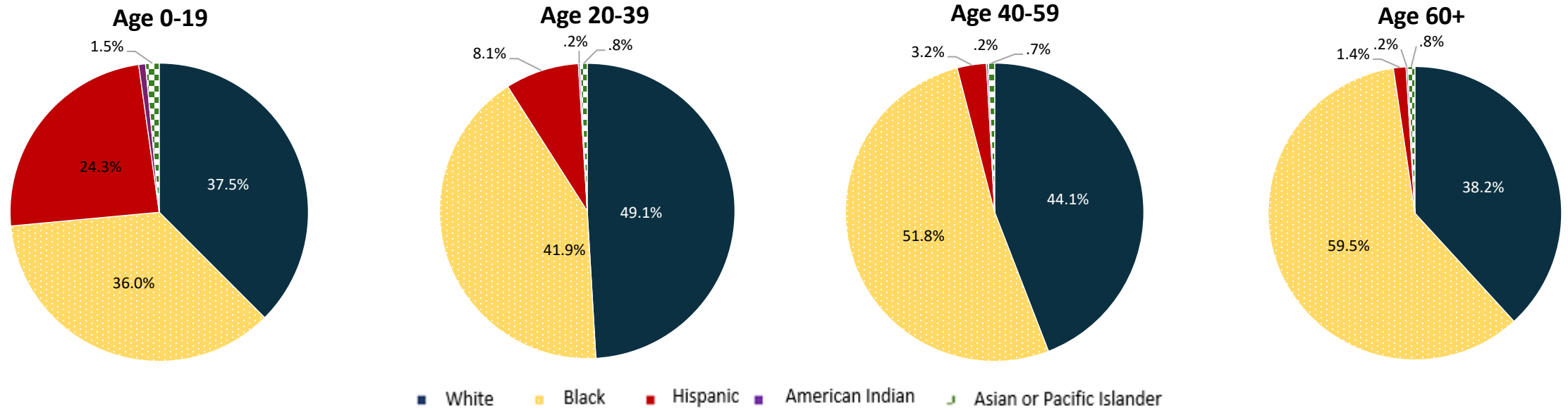
FIGURE 24. Rate (per 100,000 age group population) of EMS Naloxone Administration Encounters By Age Group - Maryland, 2024



Reporting Period: January – December 2024

EMS Naloxone Administration Encounters

FIGURE 25. Number and Percentage of EMS Naloxone Administration Encounters by Age Group and Race* – Maryland, 2024



Age Group	White	Black	Hispanic*	American Indian	Asian or Pacific Islander
0-19	51	49	33	hidden	hidden
20-39	814	695	134	hidden	13
40-59	949	1,115	68	hidden	15
60+	636	990	23	hidden	13
Total	2,450	2,837	258	11	43

*Race reported in MD ESSENCE may not reflect self-identified race.
 Please note: For certain age groups, counts for for Asian or Pacific Islander and American Indian or Alaska Native sub-groups have been hidden to protect patient privacy because these groups were reported as having <11 EMS naloxone administrations in MD ESSENCE.



Reporting Period: January – December 2024

EMS Naloxone Administration Encounters

FIGURE 26. Rate (per 100,000 jurisdiction population) of EMS Naloxone Administration Encounters by Incident County and Quarter - Maryland 2024†

Incident County	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Allegany	72.3	64.9	45.7	35.4
Anne Arundel	24.2	26.6	24.0	13.4
Baltimore City	101.5	132.0	125.1	66.4
Baltimore County	19.8	24.7	20.0	13.5
Calvert	25.6	22.4	18.1	hidden
Caroline	29.9	56.9	44.9	hidden
Carroll	14.3	10.9	17.2	10.3
Cecil	39.3	39.3	42.2	41.2
Charles	17.2	21.3	26.7	18.4
Dorchester	36.8	58.3	52.1	hidden
Frederick	7.8	11.8	12.1	8.6
Garrett	hidden	hidden	38.3	hidden
Harford	20.6	25.9	24.8	10.7
Howard	9.6	9.6	10.8	7.2
Kent	hidden	57.1	hidden	hidden
Montgomery	8.6	9.0	10.3	4.9
Prince George's	15.7	15.8	16.0	13.2
Queen Anne's	37.3	hidden	23.6	hidden
Somerset	56.7	56.7	77.0	hidden
St. Mary's	38.5	28.9	21.0	21.9
Talbot	hidden	hidden	hidden	hidden
Washington	49.0	51.0	39.3	28.4
Wicomico	38.4	21.1	28.8	20.2
Worcester	30.0	33.8	28.2	hidden
Maryland	27.0	30.9	29.4	17.7

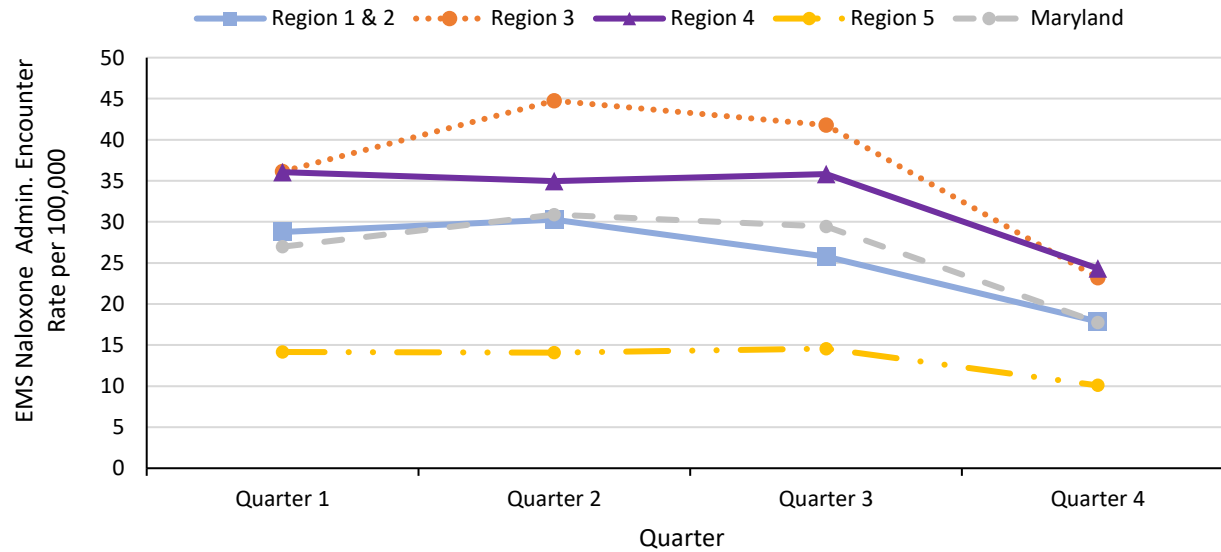
Please note: For certain quarters, rates for Calvert, Caroline, Dorchester, Garrett, Kent, Queen Anne's, Somerset, Talbot and Worcester counties have been hidden to protect patient privacy. EMS Naloxone Administration Encounter counts for these jurisdictions were reported as <11 in MD ESSENCE.



Reporting Period: January – December 2024

EMS Naloxone Administration Encounters

FIGURE 27. Rate (per 100,000 jurisdiction population) of EMS Naloxone Administration Encounters by Incident Region and Quarter - Maryland 2024†



Incident Region	Jurisdictions Included
Regions 1 & 2	Allegany County, Frederick County, Garrett County, Washington County
Region 3	Anne Arundel County, Baltimore City, Baltimore County, Carroll County, Harford County, Howard County
Region 4	Caroline County, Cecil County, Dorchester County, Kent County, Queen Anne's County, Somerset County, Talbot County, Wicomico County, Worcester County
Region 5	Calvert County, Charles County, Montgomery County, Prince George's County, St. Mary's County

Incident Region	Quarter 1 (January to March)	Quarter 2 (April to June)	Quarter 3 (July to September)	Quarter 4 (October to December)
Region 1 & 2	28.8	30.3	25.8	17.9
Region 3	36.1	44.8	41.8	23.2
Region 4	36.1	35.0	35.8	24.3
Region 5	14.1	14.1	14.6	10.1
Maryland	27.0	30.9	29.4	17.7

Reporting Period: January – December 2024

EMS Naloxone Administration Encounters

FIGURE 28. Rate (per 100,000 jurisdiction population) of EMS Naloxone Administration Encounters by Incident County - Maryland, 2024

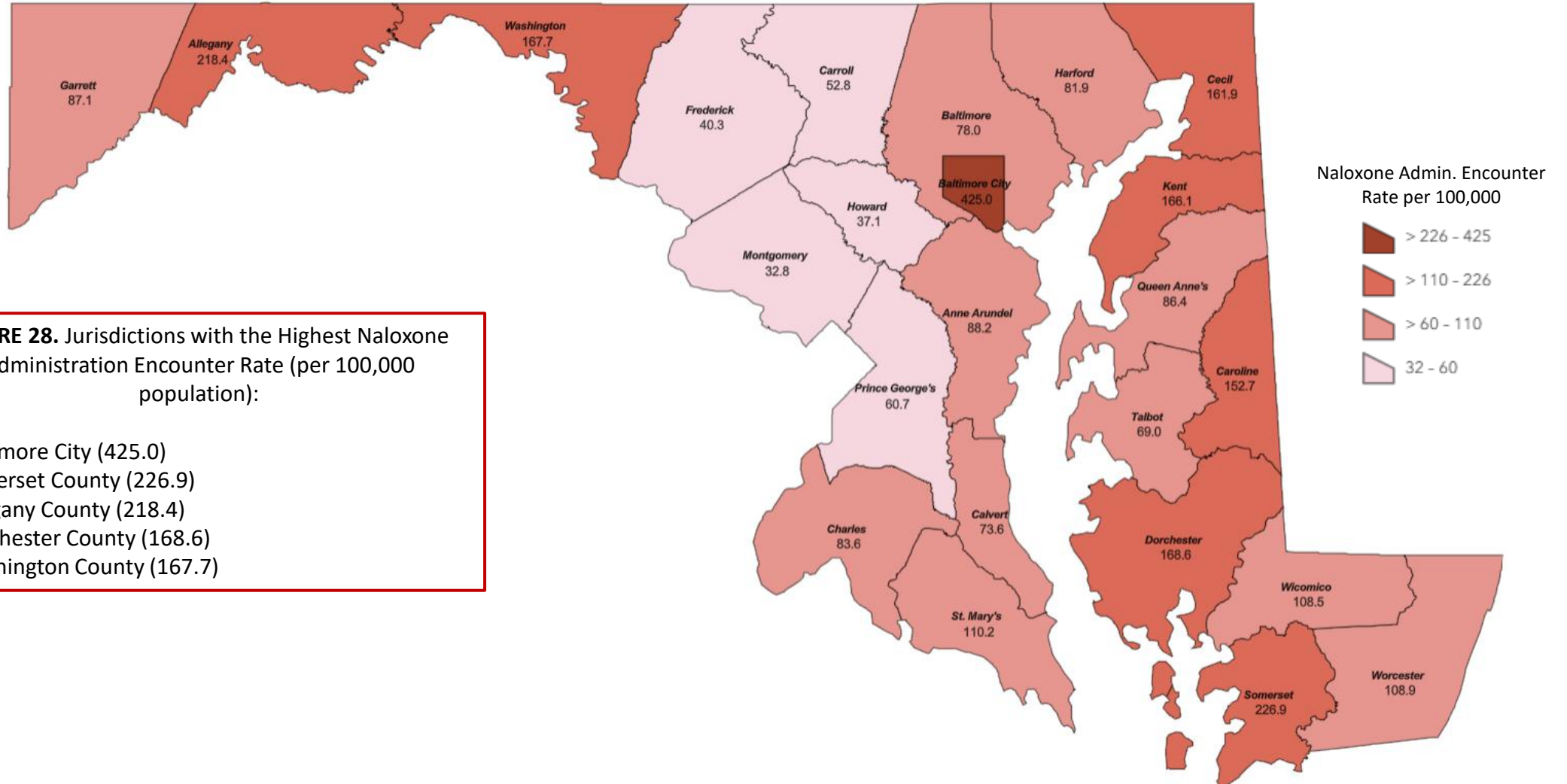


FIGURE 28. Jurisdictions with the Highest Naloxone Administration Encounter Rate (per 100,000 population):

- 1) Baltimore City (425.0)
- 2) Somerset County (226.9)
- 3) Allegany County (218.4)
- 4) Dorchester County (168.6)
- 5) Washington County (167.7)

EMS Naloxone Administration Encounters

FIGURE 29. Rate (per 100,000 jurisdiction population) of EMS Naloxone Administration Encounters by Incident County, Among White Individuals* - Maryland, 2024

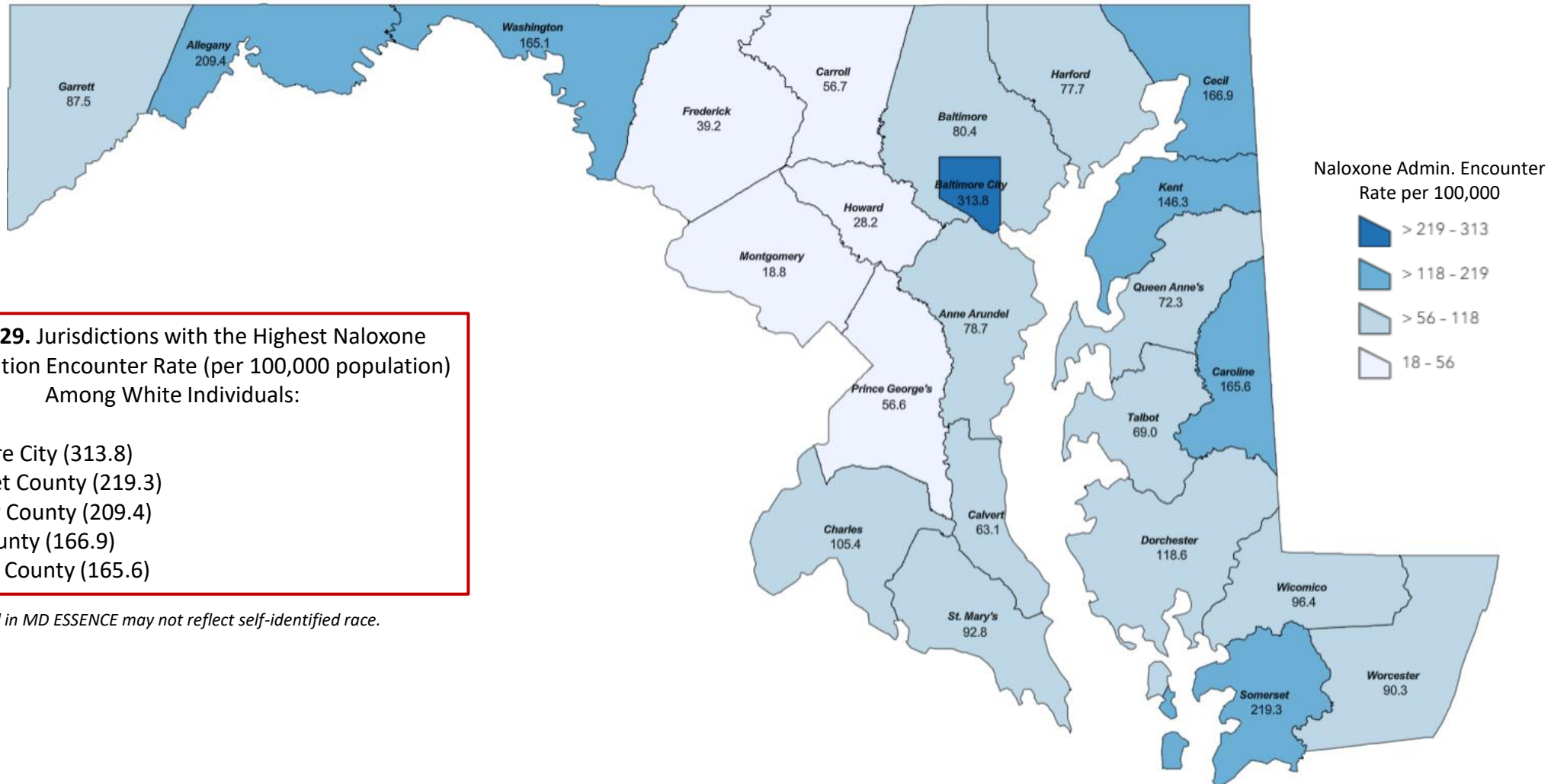


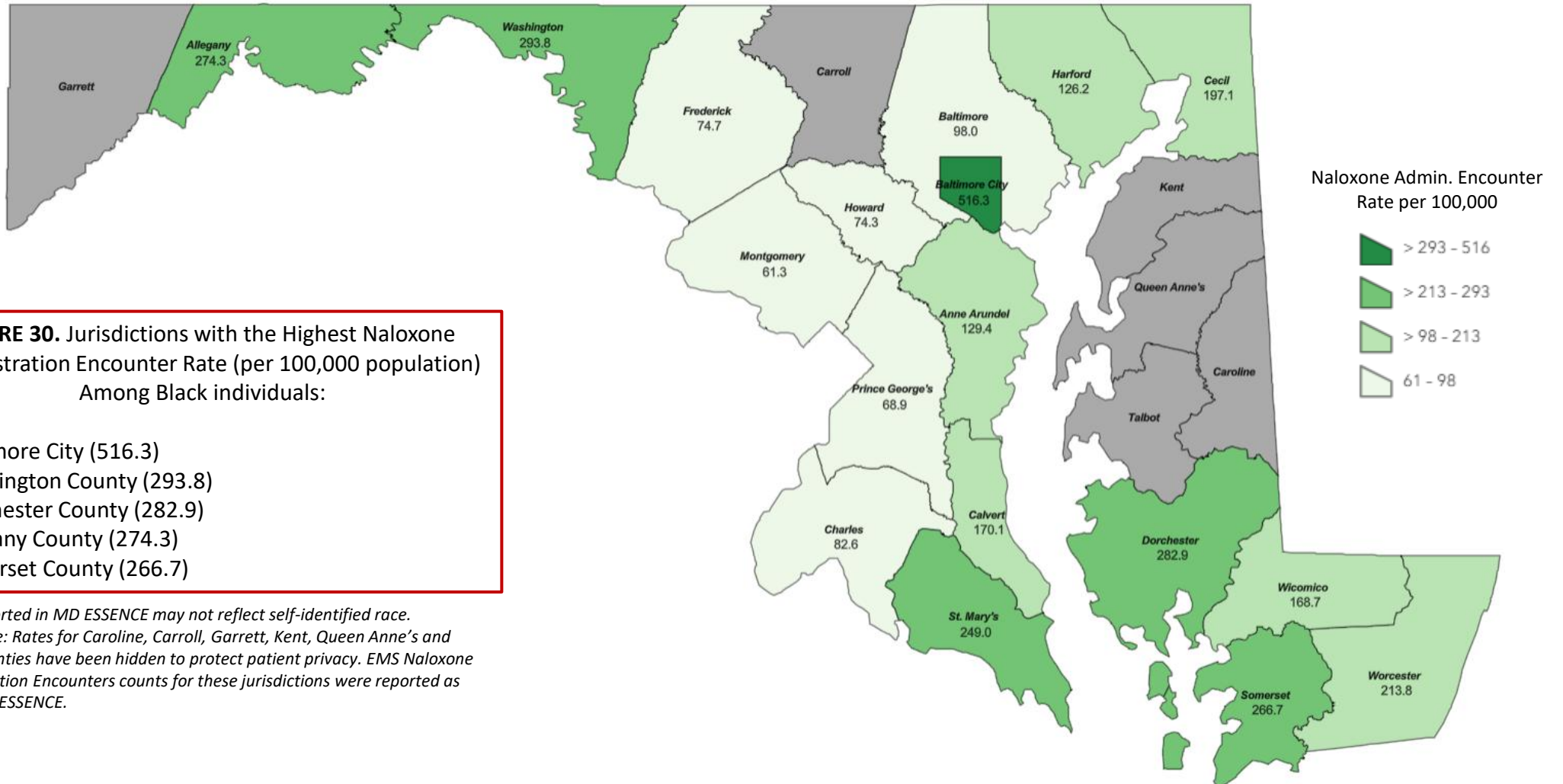
FIGURE 29. Jurisdictions with the Highest Naloxone Administration Encounter Rate (per 100,000 population) Among White Individuals:

- 1) Baltimore City (313.8)
- 2) Somerset County (219.3)
- 3) Allegany County (209.4)
- 4) Cecil County (166.9)
- 5) Caroline County (165.6)

*Race reported in MD ESSENCE may not reflect self-identified race.

EMS Naloxone Administration Encounters

FIGURE 30. Rate (per 100,000 jurisdiction population) of EMS Naloxone Administration Encounters by Incident County, Among Black Individuals - Maryland, 2024



EMS Naloxone Administration Encounters

Figure 31. EMS Naloxone Administration Encounters by Urbanicity – Maryland, 2024

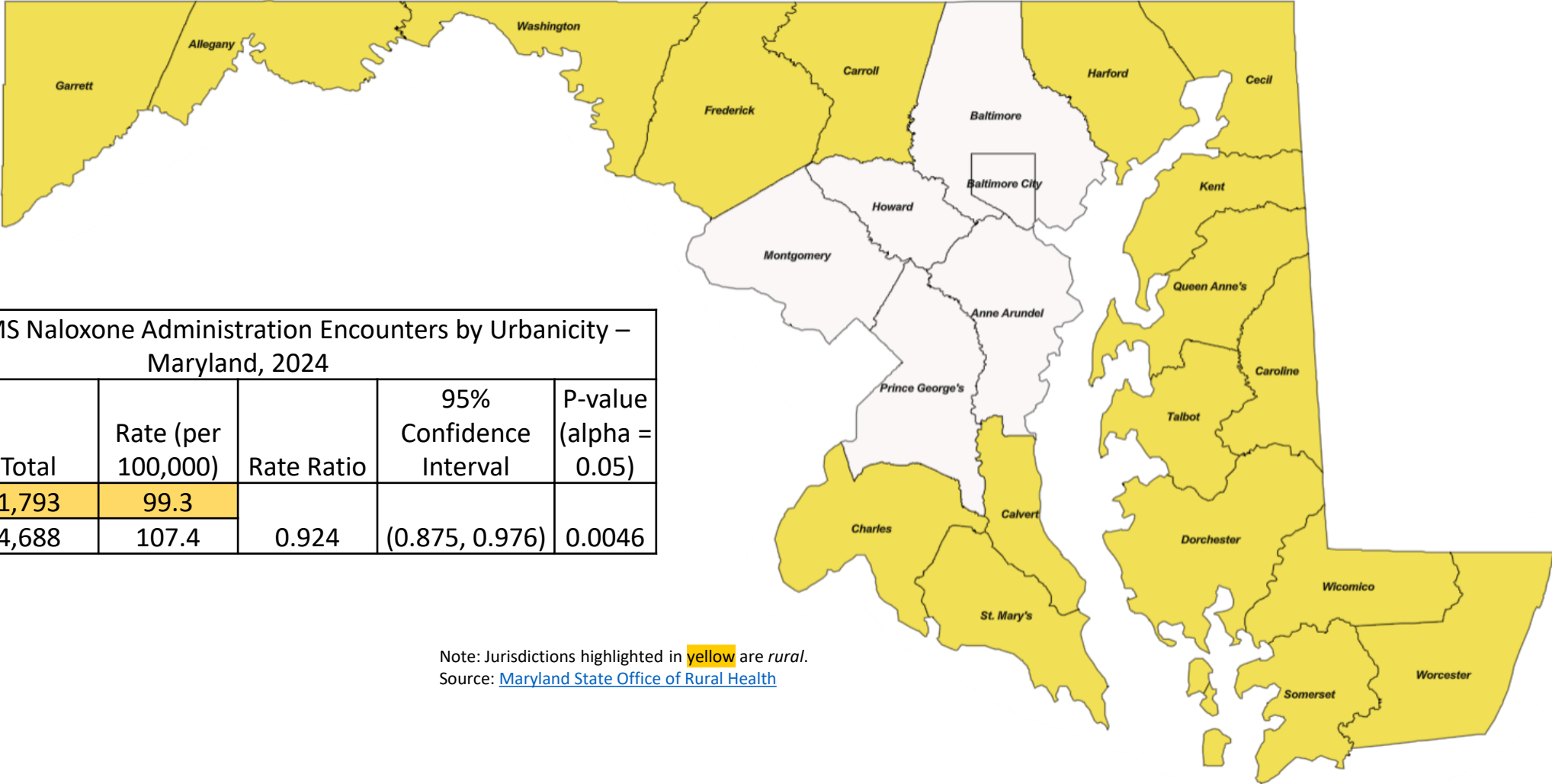


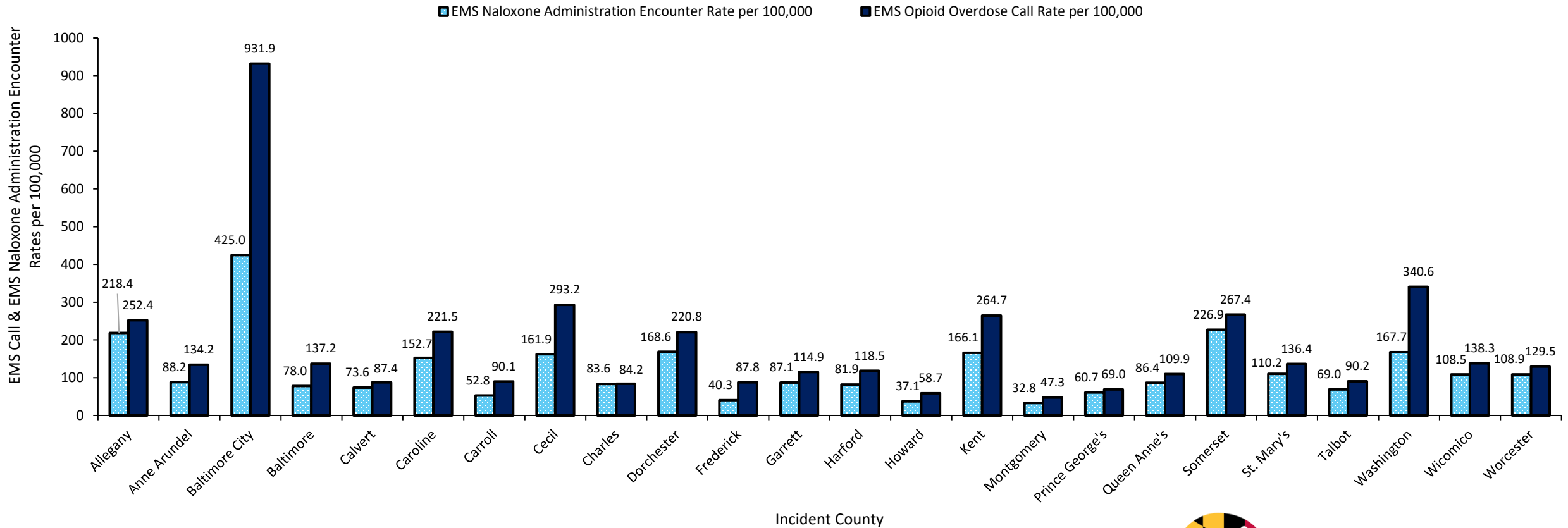
Figure 31. EMS Naloxone Administration Encounters by Urbanicity – Maryland, 2024					
	Total	Rate (per 100,000)	Rate Ratio	95% Confidence Interval	P-value (alpha = 0.05)
Rural	1,793	99.3	0.924	(0.875, 0.976)	0.0046
Urban	4,688	107.4			

Note: Jurisdictions highlighted in yellow are rural.
 Source: [Maryland State Office of Rural Health](#)

Reporting Period: January – December 2024

EMS Calls for Suspected Non-Fatal Opioid Overdose & EMS Naloxone Administration Encounters

FIGURE 32. Rates (per 100,000 jurisdiction population) of EMS Calls for Suspected Non-Fatal Opioid Overdose and EMS Naloxone Administration Encounters by Incident County - Maryland, 2024†



33 †Due to data exchange issues, EMS data for November 2024 are not fully represented.

Key Findings: EMS Naloxone Admin. Encounters

- In 2024, there were 6,481 EMS Naloxone administration encounters (EMS calls during which naloxone was administered at least once by EMS) in Maryland, corresponding to 105.0 naloxone administration encounters per 100,000 state population. The 2024 count represents a 21.3% decrease since 2023 (**Figure 18**).
- In 2024, improvement was observed among the majority (63.1%) of EMS naloxone administration encounters, post-administration of any medication by EMS (**Figure 20**).
 - The highest percentage of bystanders administering naloxone prior to EMS arrival in 2024 were Lay Persons (28.8%), Law Enforcement Responders (27.7%), and Family Members (15.4%) (**Figure 21**).
- The highest rates of naloxone administration encounters in 2024 were among (**Figures 22 - 24**):
 - Males (145.6 per 100,000 Males in Maryland)
 - Black individuals (172.1 per 100,000 Black Marylanders)
 - Adults aged 60-69 years old (151.9 per 100,000 60-69-year-olds in Maryland).
- Overall, 2024 EMS naloxone administration encounter rates by incident county were highest in Baltimore City (425.0 per 100,000 jurisdiction population), Somerset County (226.9) and Allegany County (218.4) (**Figure 28**).
 - The rate ratio of EMS naloxone administration encounters in rural counties compared to urban counties was 0.924 (95% confidence interval: (0.875, 0.976); p=0.0046) (**Figure 31**).
- For more recent data on EMS Naloxone Administration Encounters, please visit the Maryland Department of Health Interactive Dashboard at: [\(MDH\) Interactive Dashboard](#)

EMS Naloxone Doses Administered

EMS Naloxone Doses Administered

In 2024, there were **7,325** doses of naloxone administered by EMS[†], compared to **9,310** doses in 2023 (a 21.3% decrease). Between 2020-2024, the yearly ratio of EMS naloxone doses administered to EMS naloxone administration encounters remained stable – approximately **1** dose was administered by EMS per encounter.

FIGURE 33. Number of EMS Naloxone Administration Encounters and Total Naloxone Doses Administered by EMS by Year - Maryland, 2020-2024[†]

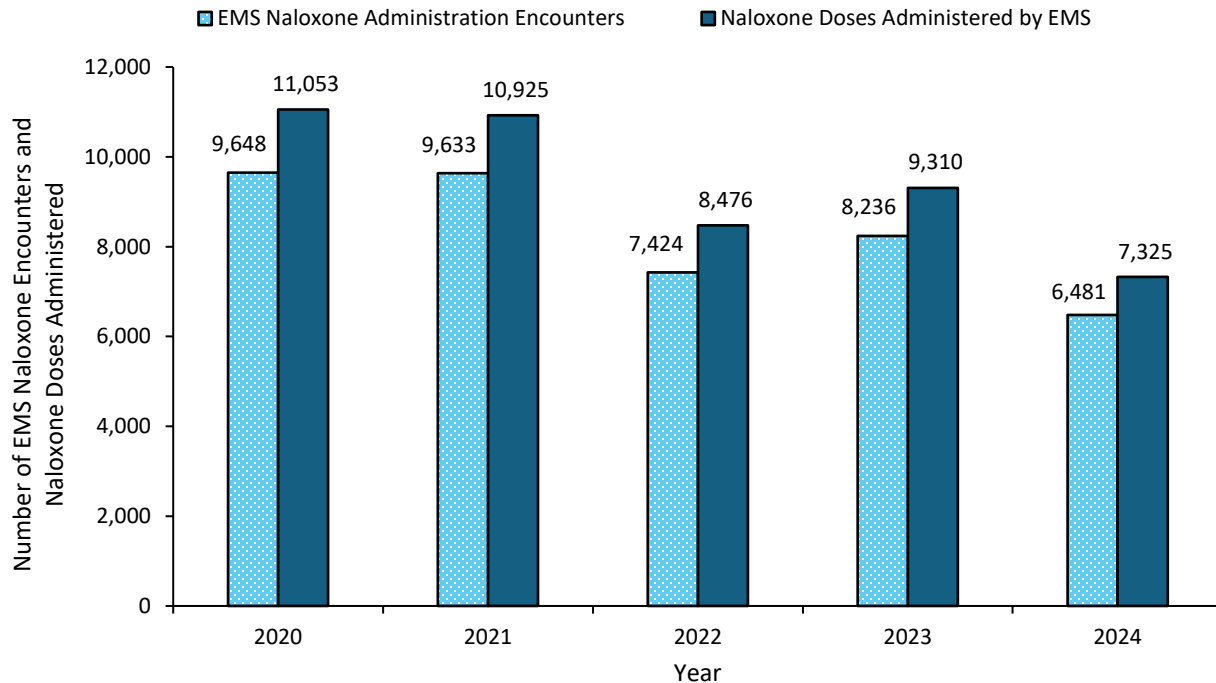


FIGURE 34. Yearly Ratio of EMS Naloxone Doses Administered to EMS Naloxone Administration Encounters - Maryland, 2020-2024[†]

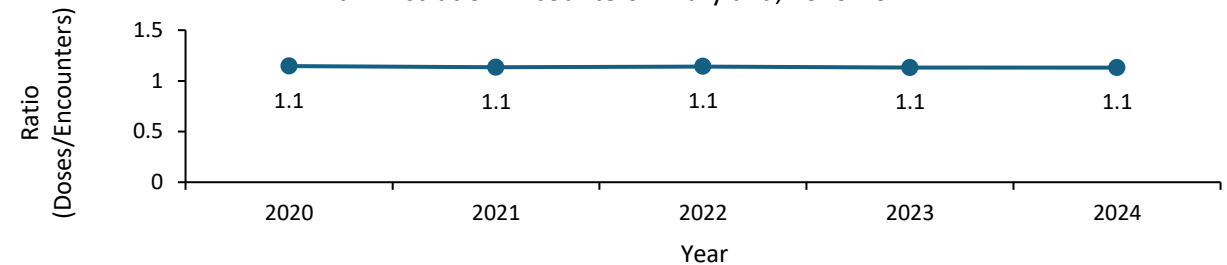
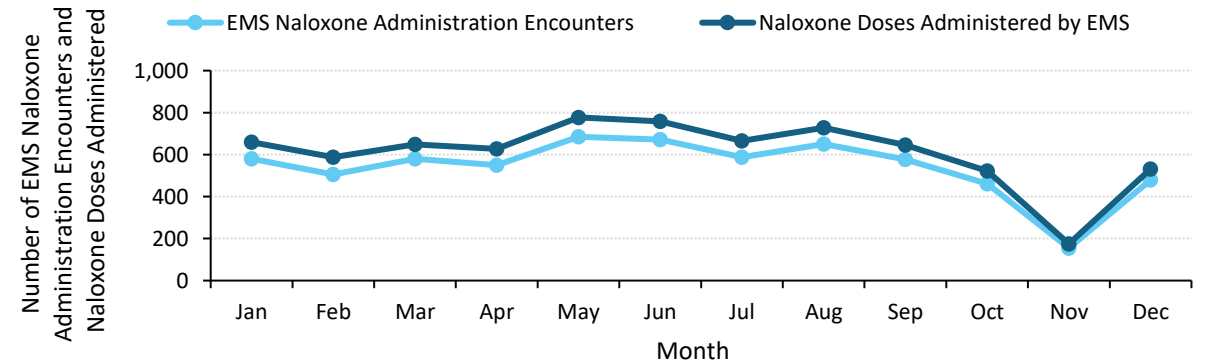


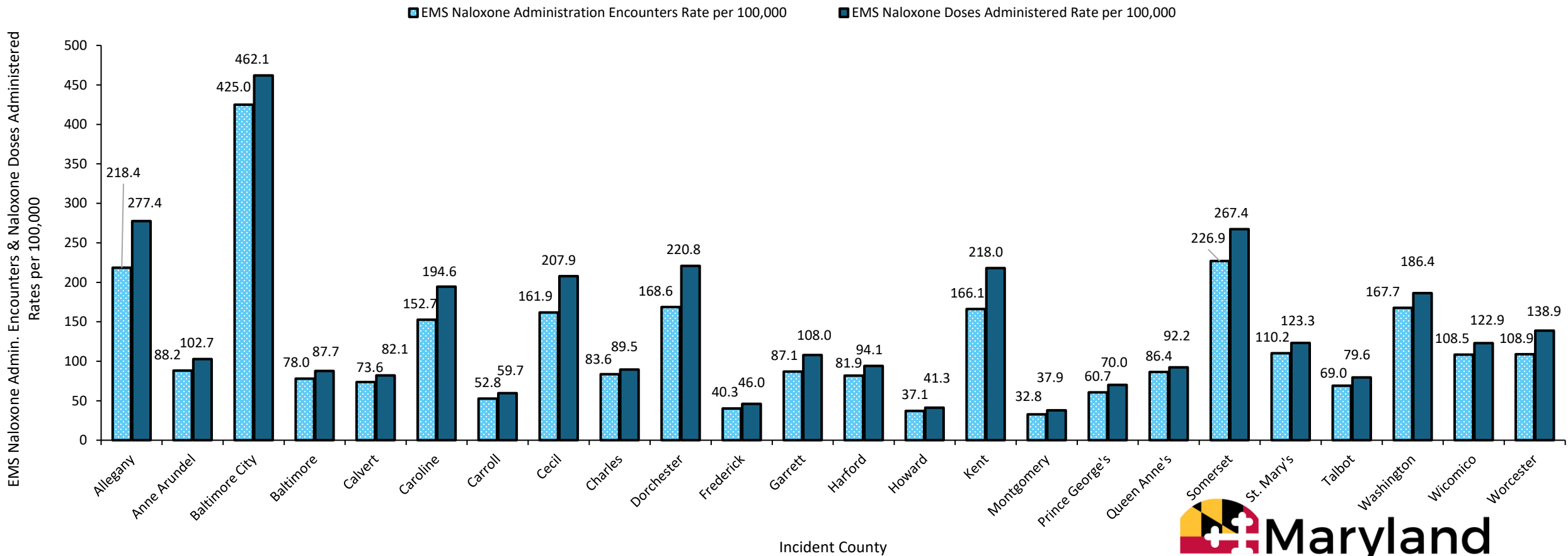
FIGURE 35. Number of EMS Naloxone Administration Encounters and EMS Naloxone Doses Administered by Month — Maryland, 2024[†]



Reporting Period: January – December 2024

EMS Naloxone Doses Administered

FIGURE 36. Rates (per 100,000 jurisdiction population) of EMS Naloxone Administration Encounters and EMS Naloxone Doses Administered by Incident County - Maryland, 2024†



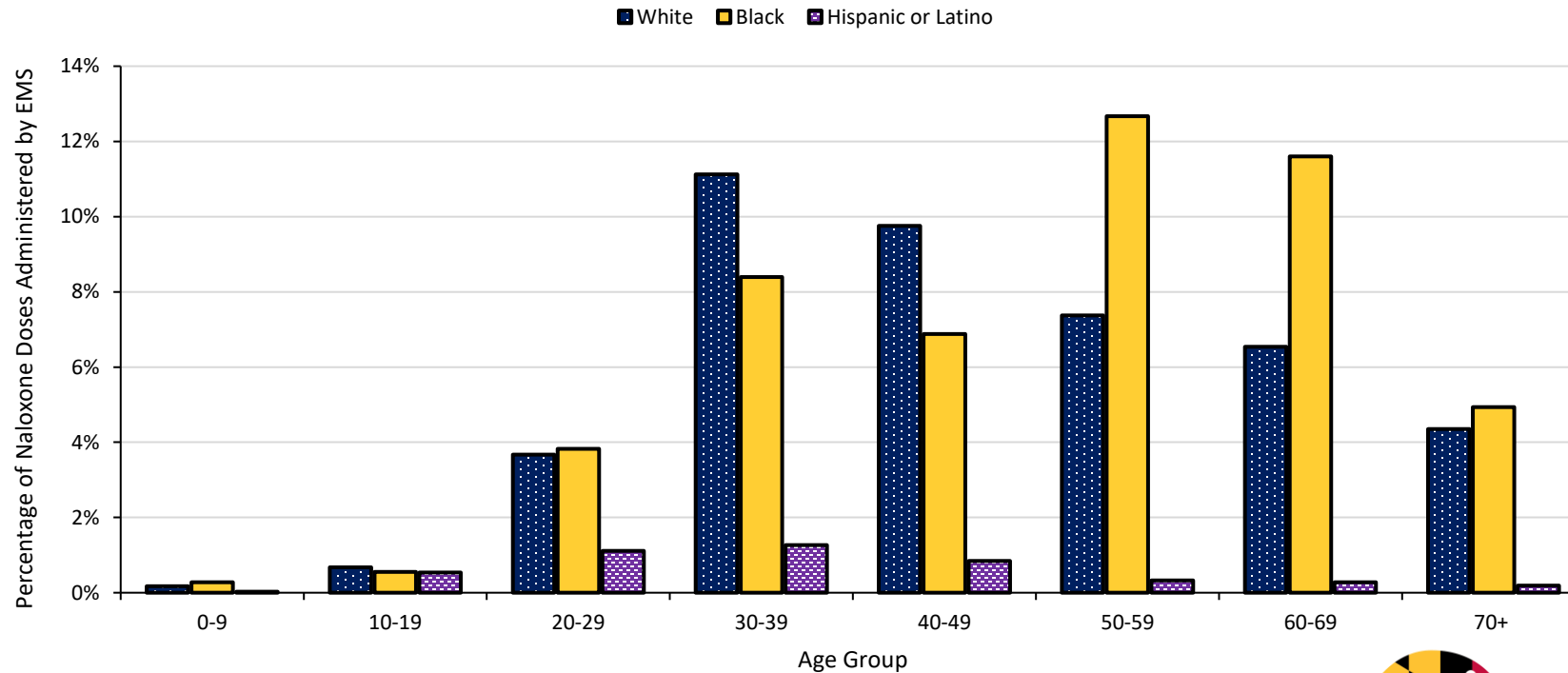
37 †Due to data exchange issues, EMS data for November 2024 are not fully represented.

Reporting Period: January – December 2024

EMS Naloxone Doses Administered

In 2024, White individuals had the highest percentage of naloxone doses administered by EMS in the **30-39 (11.1%)** and **40-49 (9.8%)** age groups. Black individuals had the highest percentage of naloxone doses administered by EMS in the **50-59 (12.7%)** and **60-69 (11.6%)** age groups.

FIGURE 37. Percentage of Naloxone Doses Administered by EMS by Race and Age - Maryland, 2024



Key Findings: EMS Naloxone Doses

- In 2024, 7,325 naloxone doses were administered by EMS. The 2024 count represents a 21.3% decrease since 2023 (**Figure 33**).
- The ratio of naloxone doses administered to EMS naloxone administration encounters remained stable per year. Approximately one (1) dose of naloxone was administered by EMS per encounter (**Figure 34**).
- Overall, 2024 the highest rates of EMS naloxone doses administered by incident county rates were in Baltimore City (462.1 per 100,000 jurisdiction population), Allegany County (277.4), and Somerset County (267.4) (**Figure 36**).
- In 2024, the highest percentage of naloxone doses administered among White individuals was in the 30-39 age group (11.1%) and among Black individuals in the 50-59 age group (12.7%) (**Figure 37**).

Emergency Department (ED) Data

About ED Data

- The original source of Emergency Department (ED) data is CRISP (Chesapeake Regional Information System for our Patients).
- MD ESSENCE captures ED data from 49 acute care hospitals and free-standing Emergency Room's around the state of Maryland.
- ED data received includes race and ethnicity information. Race groups included are White, Black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Other Race and Not Reported. Ethnicities included are Hispanic or Latino, Not Hispanic or Latino and Not Reported. Hispanic individuals can be of any race.
- ED data received only includes sex as recorded by ED provider(s). Sexes included are male, female and unknown.
- Jurisdictional ED data in this report is grouped by county of patient residence.
- Counts of <11 and rates with numerators <11 have been hidden to protect patient privacy in accordance with established data use agreements.

ED Visits for Suspected Non-Fatal Drug Overdose

Reporting Period: January – December 2024

ED Visits for Suspected Non-Fatal Overdose (All Drugs)

In 2024, there were **20,449** non-fatal drug overdose ED visits, compared to **25,529** in 2023 (a 19.9% decrease). 36.8% of the ED visits for suspected non-fatal drug overdose in 2024 were for suspected non-fatal opioid overdose.

FIGURE 38. Number and Rate (per 100,000 population) of Emergency Department Visits for Suspected Non-Fatal Overdose (All Drug) by Year - Maryland, 2016-2024

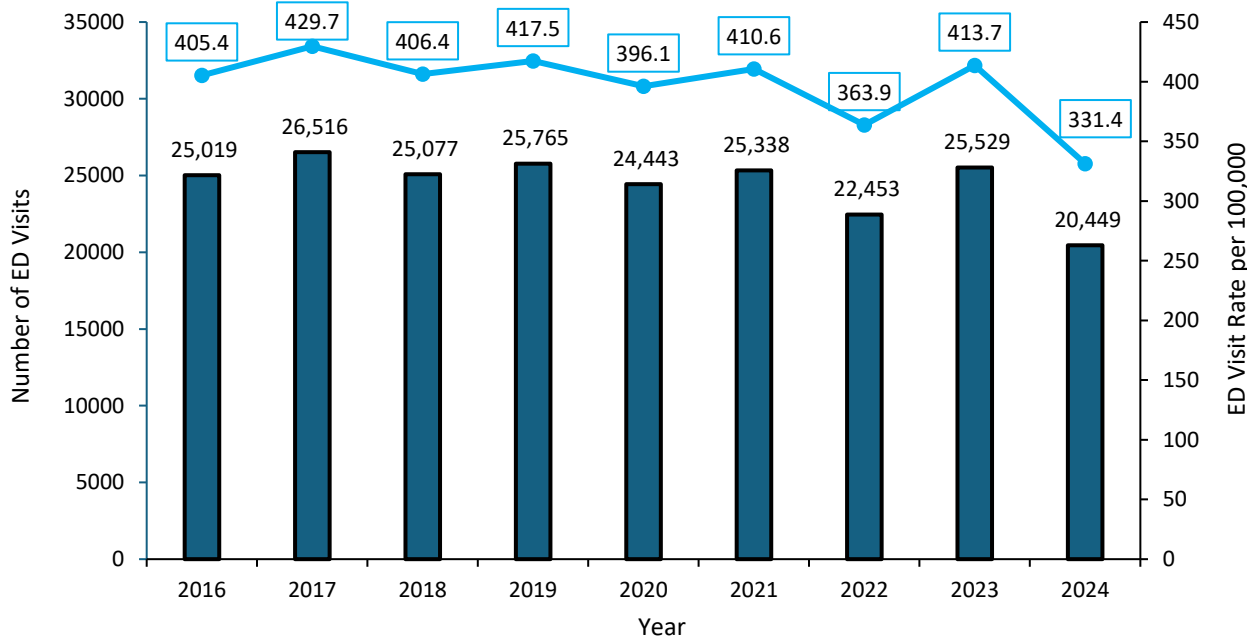
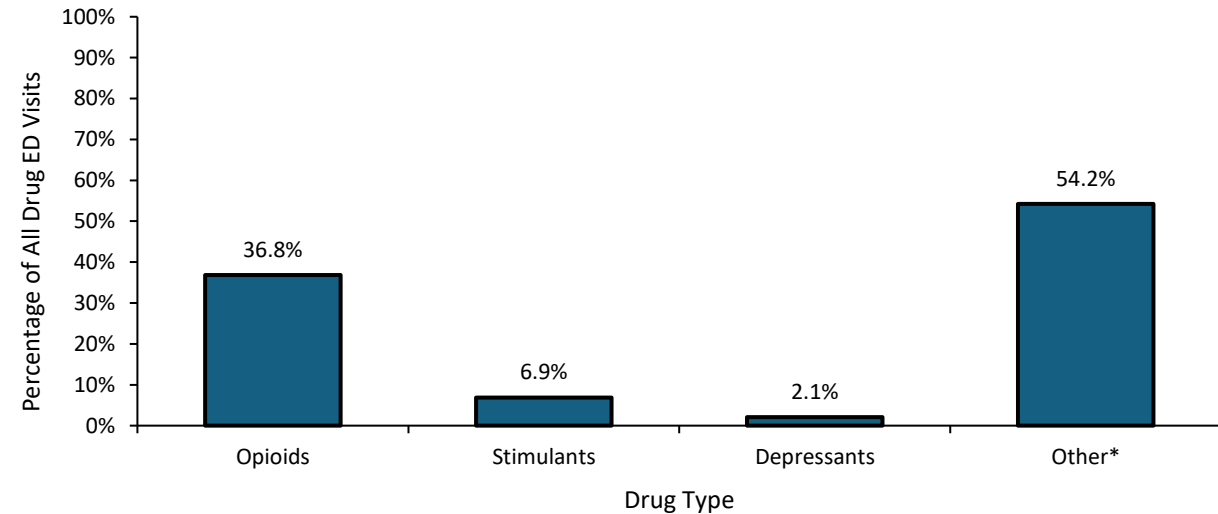


FIGURE 39. Percentage of Emergency Department Visits for Suspected Non-Fatal Overdose by Drug Type - Maryland, 2024



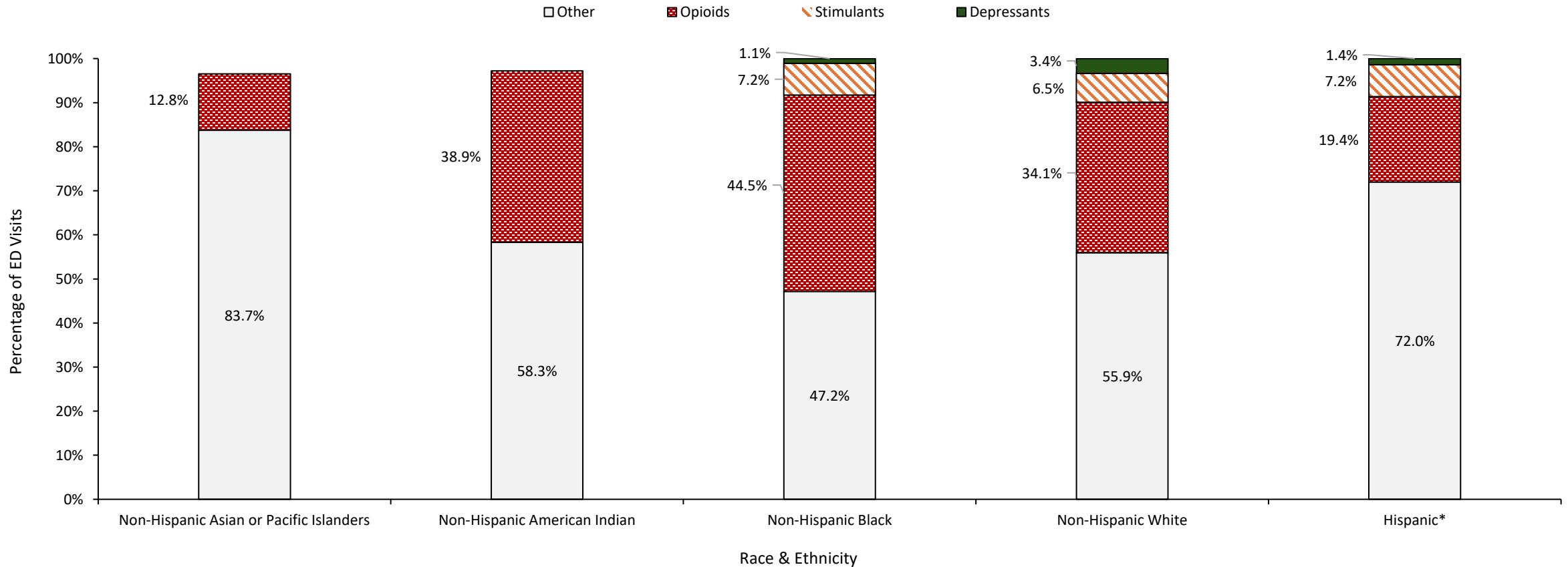
**Other" includes drugs not classified as opioids, stimulants or depressants, such as over-the-counter products, psychedelics, cannabinoids, dissociatives, etc.

% Other = [ED Visits captured by All Drugs Query – (ED Opioids Visits + ED Stimulants Visits + ED Benzodiazepine Visits)] / (ED Visits captured by All Drugs Query) * 100%

Reporting Period: January – December 2024

ED Visits for Suspected Non-Fatal Overdose (All Drugs)

FIGURE 40. Percentage of Emergency Department Visits for Suspected Non-Fatal Overdose by Drug Type, Race & Ethnicity - Maryland, 2024



*Hispanic individuals can be of any race. Race and ethnicity reported in MD ESSENCE may not reflect self-identified race and/or ethnicity.

Please note: Percentages of ED visits for Non-Hispanic (NH) Asian or Pacific Islander and NH American Indian or Alaska Native groups for stimulants and depressants have been hidden to protect patient privacy because these groups were reported as having <11 ED visits in MD ESSENCE. Therefore, the percentages for these groups will not add up to 100%.

Reporting Period: January – December 2024

ED Visits for Suspected Non-Fatal Overdose (All Drugs)

FIGURE 41. Number and Percentages of Emergency Department Visits for Suspected Non-Fatal Overdose by Drug Type and County of Patient Residence - Maryland, 2024

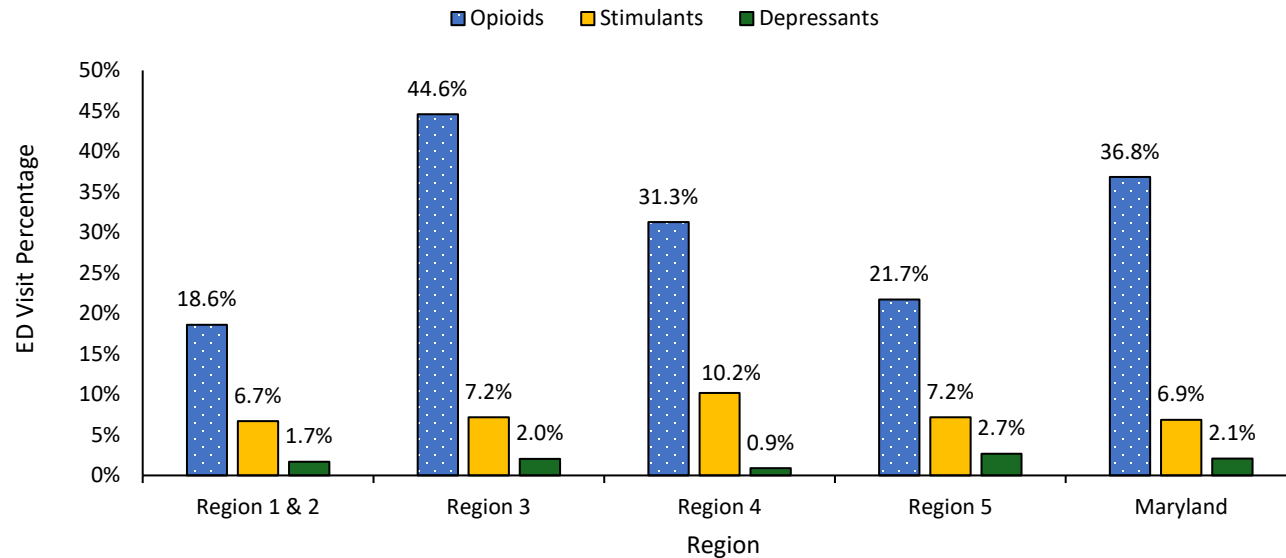
County of Residence	All Drug	Opioids (n, %)		Stimulants (n, %)		Depressants (n, %)	
Allegany	260	82	31.5%	18	6.9%	hidden	hidden
Anne Arundel	1,900	649	34.2%	119	6.3%	37	2.0%
Baltimore City	6,477	3,449	53.3%	477	7.4%	67	1.0%
Baltimore County	3,086	1,245	40.3%	253	8.2%	103	3.3%
Calvert	195	36	18.5%	14	7.2%	hidden	hidden
Caroline	91	20	22.0%	hidden	hidden	hidden	hidden
Carroll	530	199	37.6%	53	10.0%	41	7.7%
Cecil	413	192	46.5%	16	3.9%	hidden	hidden
Charles	434	84	19.4%	18	4.2%	hidden	hidden
Dorchester	161	47	29.2%	hidden	hidden	hidden	hidden
Frederick	593	74	12.5%	28	4.7%	15	2.5%
Garrett	72	14	19.4%	hidden	hidden	hidden	hidden
Harford	702	229	32.6%	21	3.0%	hidden	hidden
Howard	452	91	20.1%	19	4.2%	12	2.7%
Kent	56	17	30.4%	hidden	hidden	hidden	hidden
Montgomery	2,038	377	18.5%	141	6.9%	68	3.3%
Prince Georges	1,433	359	25.1%	99	6.9%	21	1.5%
Queen Annes	102	16	15.7%	hidden	hidden	hidden	hidden
Somerset	96	18	18.8%	hidden	hidden	hidden	hidden
St. Marys	342	109	31.9%	46	13.5%	20	5.9%
Talbot	99	29	29.3%	hidden	hidden	hidden	hidden
Washington	570	108	19.0%	48	8.4%	hidden	hidden
Wicomico	245	66	26.9%	hidden	hidden	hidden	hidden
Worcester	102	22	21.6%	hidden	hidden	hidden	hidden
Maryland	20,449	7,532		1,403		425	

Please note: Counts and percentages for jurisdictions for Allegany, Calvert, Caroline, Cecil, Charles, Dorchester, Garrett, Harford, Kent, Queen Anne's, Somerset, Talbot, Washington, Wicomico, and Worcester counties have been hidden to protect patient privacy. ED Visit counts for these jurisdictions were reported as <11 in MD ESSENCE. Percentages displayed for each county may not add up to 100% as the All Drug query captures overdoses involving substances other than opioids, stimulants and depressants as well.



ED Visits for Suspected Non-Fatal Overdose (All Drugs)

FIGURE 42. Percentages of Emergency Department Visits for Suspected Non-Fatal Overdose by Drug Type and Region of Patient Residence - Maryland, 2024



Region of Residence	Jurisdictions Included
Regions 1 & 2	Allegany County, Frederick County, Garrett County, Washington County
Region 3	Anne Arundel County, Baltimore City, Baltimore County, Carroll County, Harford County, Howard County
Region 4	Caroline County, Cecil County, Dorchester County, Kent County, Queen Anne’s County, Somerset County, Talbot County, Wicomico County, Worcester County
Region 5	Calvert County, Charles County, Montgomery County, Prince George’s County, St. Mary’s County

Region of Residence	All Drug	Opioids (n, %)	Stimulants (n, %)	Depressants (n, %)
Region 1 & 2	1,495	278 18.6%	100 6.7%	25 1.7%
Region 3	13,147	5,862 44.6%	942 7.2%	269 2.0%
Region 4	1,365	427 31.3%	139 10.2%	12 0.9%
Region 5	4,442	965 21.7%	318 7.2%	119 2.7%
Maryland	20,449	7,532	1,403	425

ED Visits for Suspected Non-Fatal Opioid Overdose

In 2024, there were **7,532** ED visits for suspected non-fatal opioid overdose compared to **9,245** in 2023 (a 18.5% decrease).

FIGURE 43. Number and Rate (per 100,000 population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose By Year — Maryland, 2016-2024

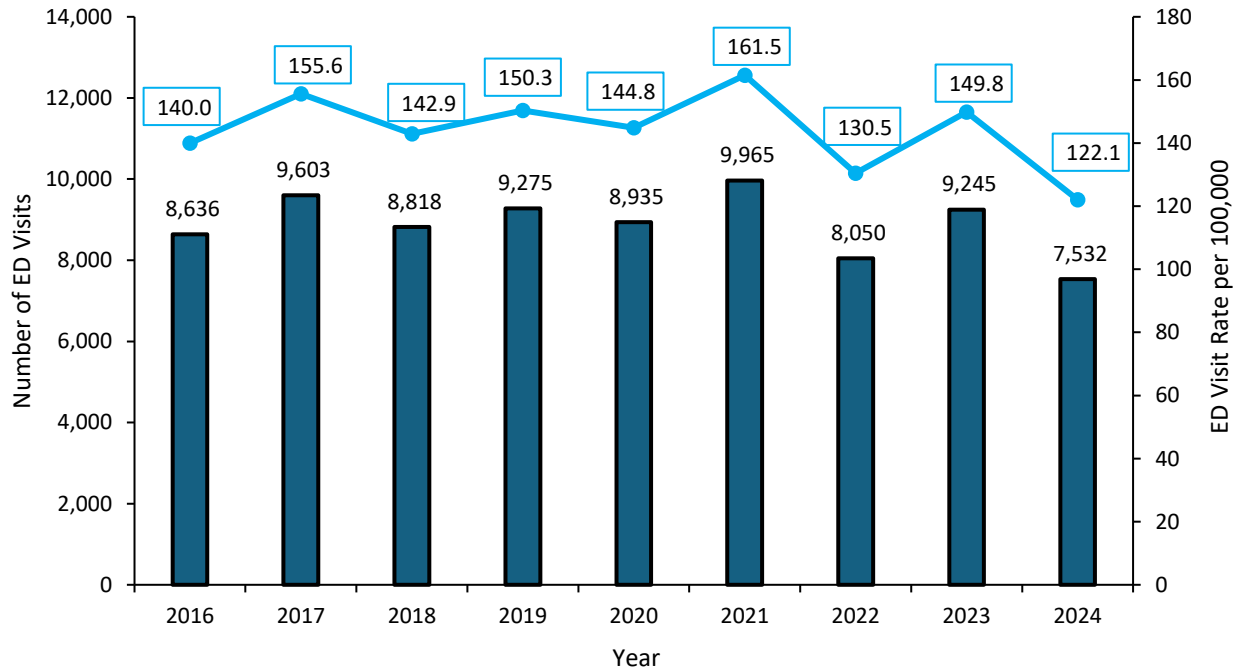
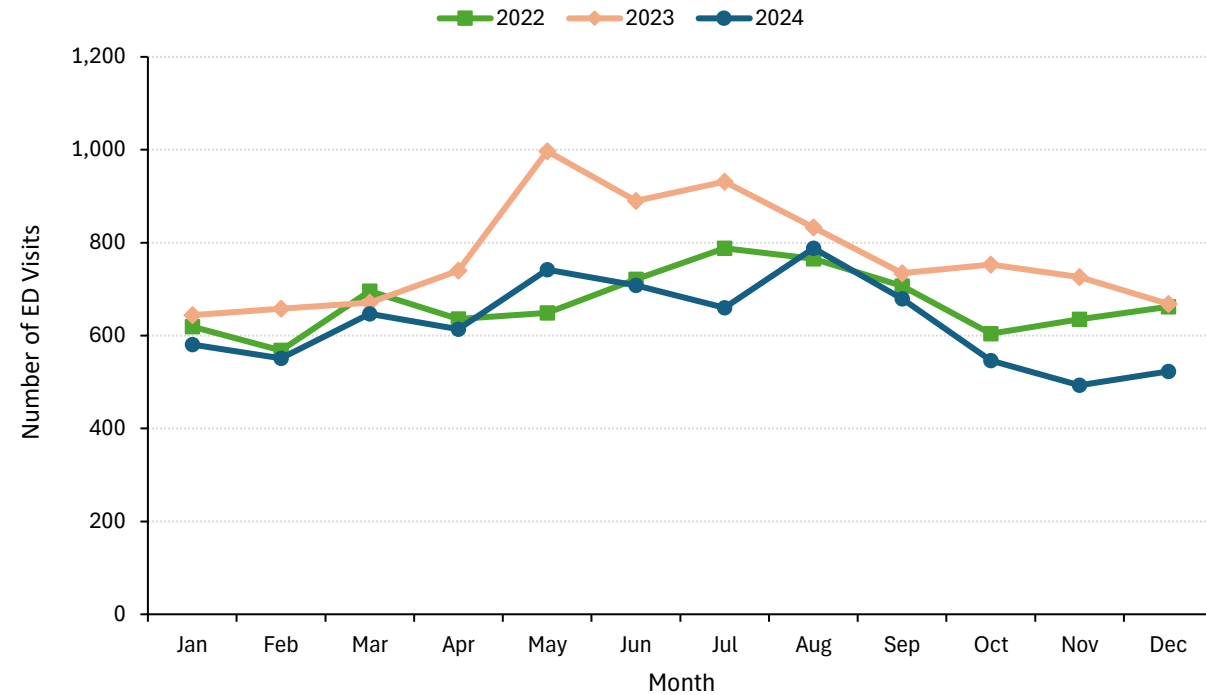
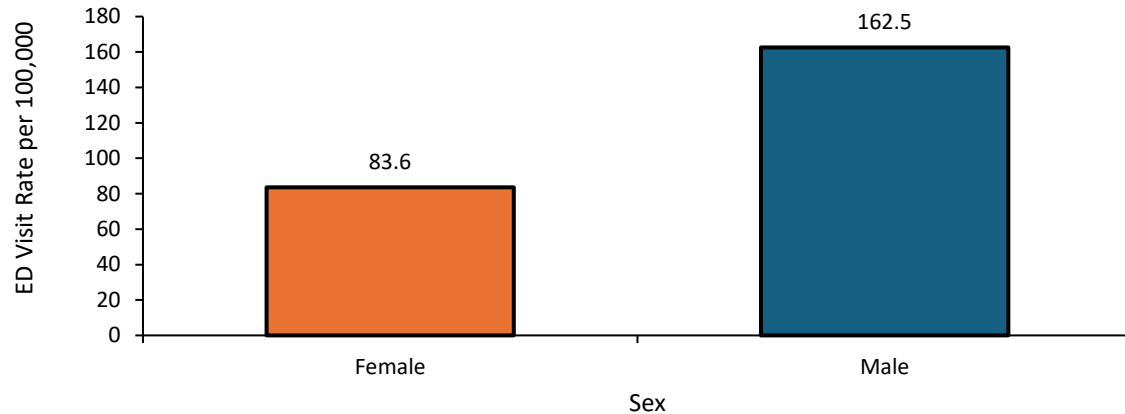


FIGURE 44. Number of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose By Month — Maryland, 2022-2024



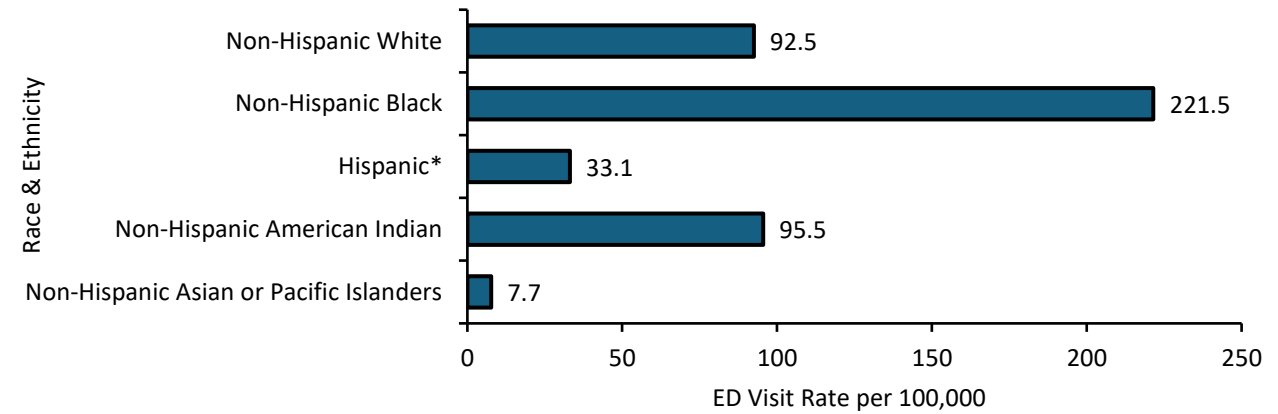
ED Visits for Suspected Non-Fatal Opioid Overdose

FIGURE 45. Rate (per 100,000 sex population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose by Sex* - Maryland, 2024



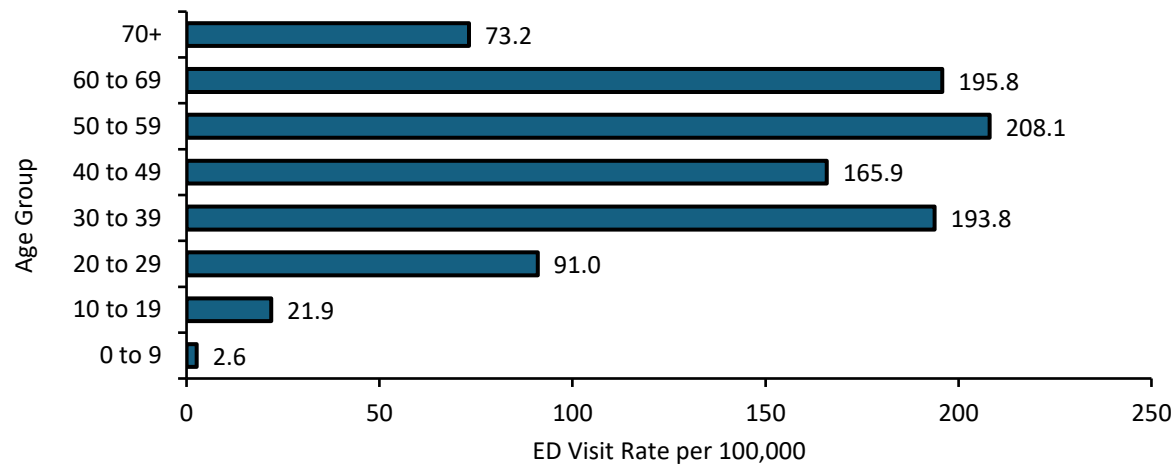
*Sex reported in MD ESSENCE may not reflect self-identified sex and/or gender.

FIGURE 46. Rate (per 100,000 race population) of Emergency Department visits for Suspected Non-Fatal Opioid Overdose By Race & Ethnicity - Maryland, 2024



*Race and ethnicity reported in MD ESSENCE may not reflect self-identified race and/or ethnicity. Hispanic can be of any race.

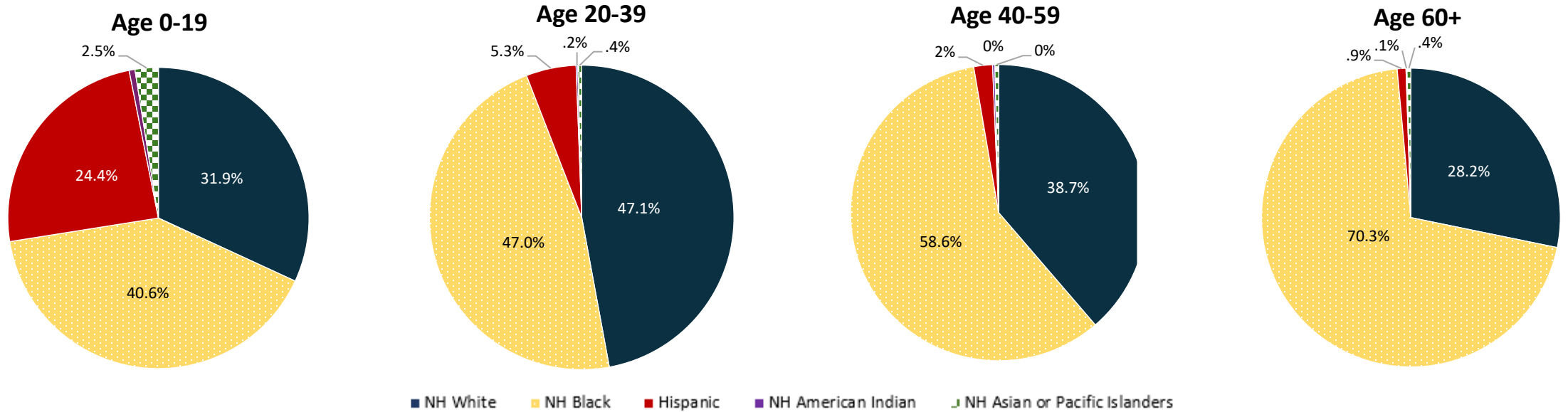
FIGURE 47. Rate (per 100,000 age group population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose By Age Group - Maryland, 2024



Reporting Period: January – December 2024

ED Visits for Suspected Non-Fatal Opioid Overdose

FIGURE 48. Percentage of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose by Age Group, Race & Ethnicity* – Maryland, 2024



Age Group	Non-Hispanic White	Non-Hispanic Black	Hispanic*	Non-Hispanic American Indian	Non-Hispanic Asian or Pacific Islander
0-19	51	65	39	hidden	hidden
20-39	1,045	1,043	118	hidden	hidden
40-59	1,117	1,692	59	hidden	12
60+	537	1,338	18	hidden	hidden
Total	2,750	4,138	234	14	33

*Hispanic individuals can be of any race. Race and ethnicity reported in MD ESSENCE may not reflect self-identified race and/or ethnicity. Please note: For certain age groups, totals for NH Asian or Pacific Islander and NH American Indian sub-groups have been hidden to protect patient privacy because these groups were reported as having <11 ED visits in MD ESSENCE.

Reporting Period: January – December 2024

ED Visits for Suspected Non-Fatal Opioid Overdose

FIGURE 49. Rate (per 100,000 jurisdiction population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose by Region of Patient Residence and Quarter – Maryland, 2024

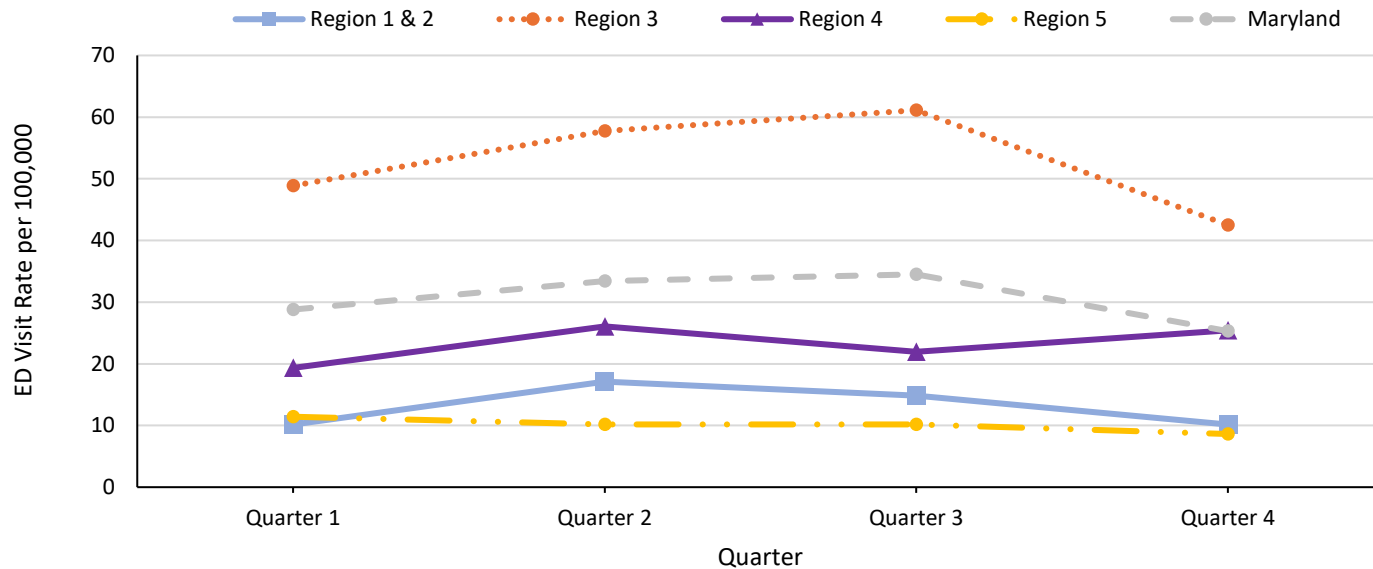
Region of Residence	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Allegany	28.0	45.7	32.5	<i>hidden</i>
Anne Arundel	28.6	31.5	26.9	22.8
Baltimore City	135.5	163.2	180.7	118.0
Baltimore County	33.9	41.7	40.0	31.1
Calvert	<i>hidden</i>	16.0	<i>hidden</i>	<i>hidden</i>
Caroline	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>
Carroll	31.0	22.9	36.1	24.1
Cecil	28.7	42.2	47.9	65.2
Charles	14.2	13.6	9.5	12.4
Dorchester	<i>hidden</i>	39.9	36.8	39.9
Frederick	<i>hidden</i>	8.6	7.1	7.1
Garrett	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>
Harford	18.3	24.8	26.7	17.5
Howard	6.6	6.9	8.7	5.1
Kent	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>
Montgomery	10.3	7.8	9.6	8.0
Prince Georges	10.2	10.0	9.1	8.3
Queen Annes	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>
Somerset	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>
St. Marys	29.7	23.6	26.2	15.7
Talbot	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>
Washington	12.9	20.0	21.3	15.5
Wicomico	23.1	21.1	13.4	<i>hidden</i>
Worcester	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>	<i>hidden</i>
Maryland	28.8	33.4	34.5	25.3

Please note: For certain quarters, rates for Allegany, Calvert, Caroline, Dorchester, Frederick, Garrett, Kent, Queen Anne’s, Somerset, Talbot, Wicomico, and Worcester county have been hidden to protect patient privacy. ED Visit counts for these jurisdictions were reported as <11 in MD ESSENCE.



ED Visits for Suspected Non-Fatal Opioid Overdose

FIGURE 50. Rate (per 100,000 region population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose by Region of Patient Residence and Quarter – Maryland, 2024



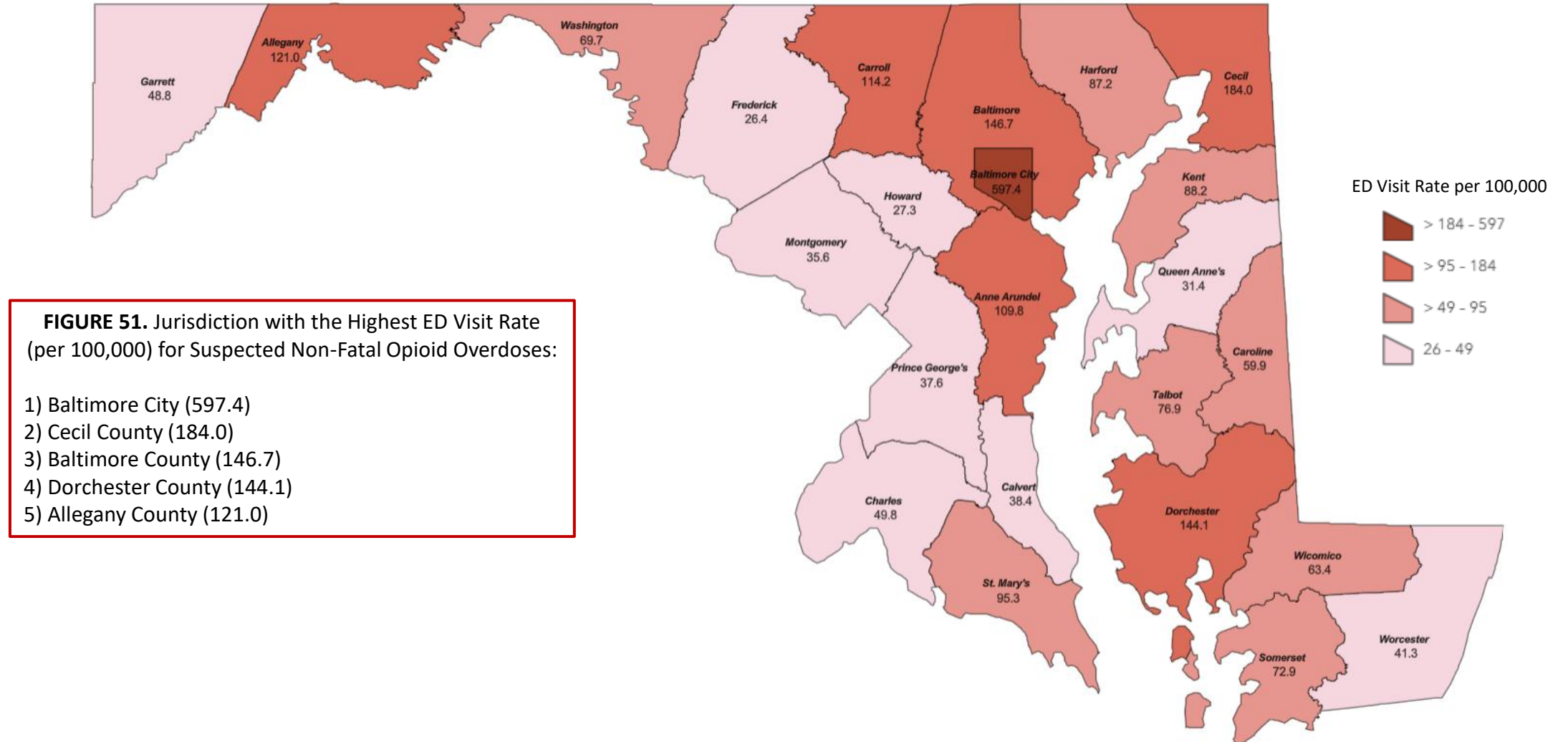
Region of Residence	Jurisdictions Included
Regions 1 & 2	Allegany County, Frederick County, Garrett County, and Washington County
Region 3	Anne Arundel County, Baltimore City, Baltimore County, Carroll County, Harford County, and Howard County
Region 4	Caroline County, Cecil County, Dorchester County, Kent County, Queen Anne’s County, Somerset County, Talbot County, Wicomico County, and Worcester County
Region 5	Calvert County, Charles County, Montgomery County, Prince George’s County, and St. Mary’s County

Region of Residence	Quarter 1 (January to March)	Quarter 2 (April to June)	Quarter 3 (July to September)	Quarter 4 (October to December)
Region 1 & 2	10.2	17.1	14.9	10.2
Region 3	48.9	57.7	61.1	42.5
Region 4	19.3	26.1	21.9	25.4
Region 5	11.4	10.2	10.2	8.6
Maryland	28.8	33.4	34.5	25.3

Reporting Period: January – December 2024

ED Visits for Suspected Non-Fatal Opioid Overdose

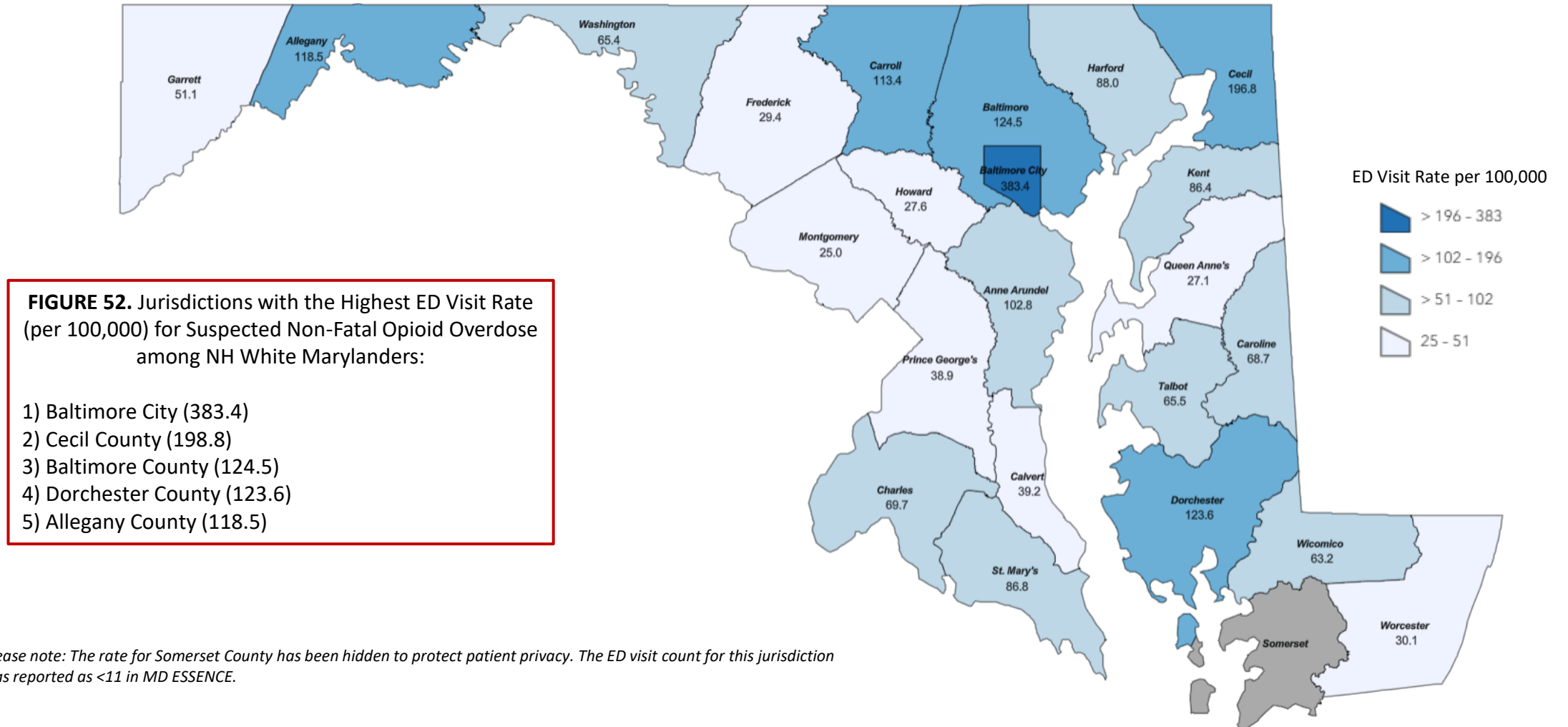
FIGURE 51. Rate (per 100,000 jurisdiction population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose by County of Patient Residence - Maryland, 2024



Reporting Period: January – December 2024

ED Visits for Suspected Non-Fatal Opioid Overdose

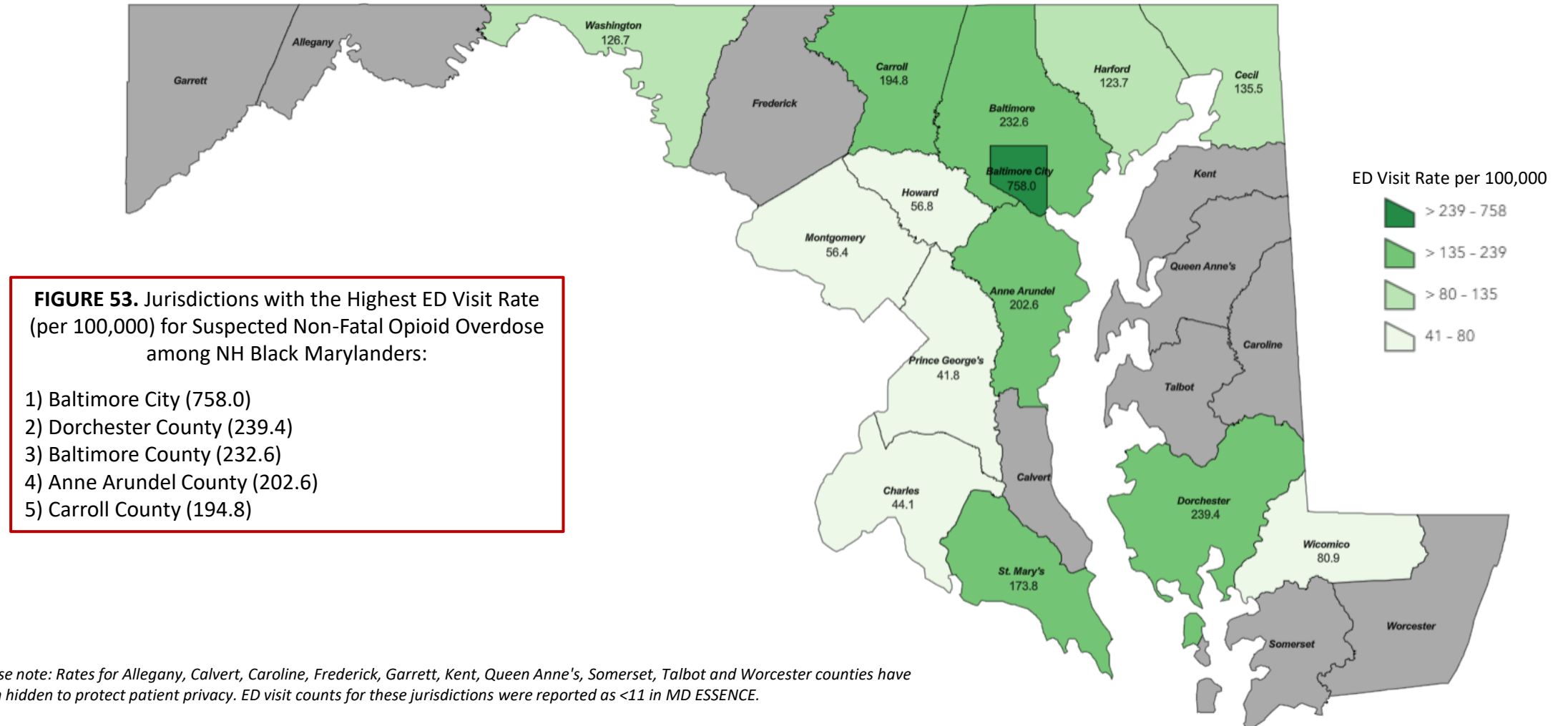
FIGURE 52. Rate (per 100,000 jurisdiction population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose by County of Patient Residence for Non-Hispanic White Marylanders - Maryland, 2024



Please note: The rate for Somerset County has been hidden to protect patient privacy. The ED visit count for this jurisdiction was reported as <11 in MD ESSENCE.

ED Visits for Suspected Non-Fatal Opioid Overdose

FIGURE 53. Rate (per 100,000 jurisdiction population) of Emergency Department Visits for Suspected Non-Fatal Opioid Overdose by County of Patient Residence for Non-Hispanic Black Marylanders - Maryland, 2024



ED Visits for Suspected Non-Fatal Opioid Overdose

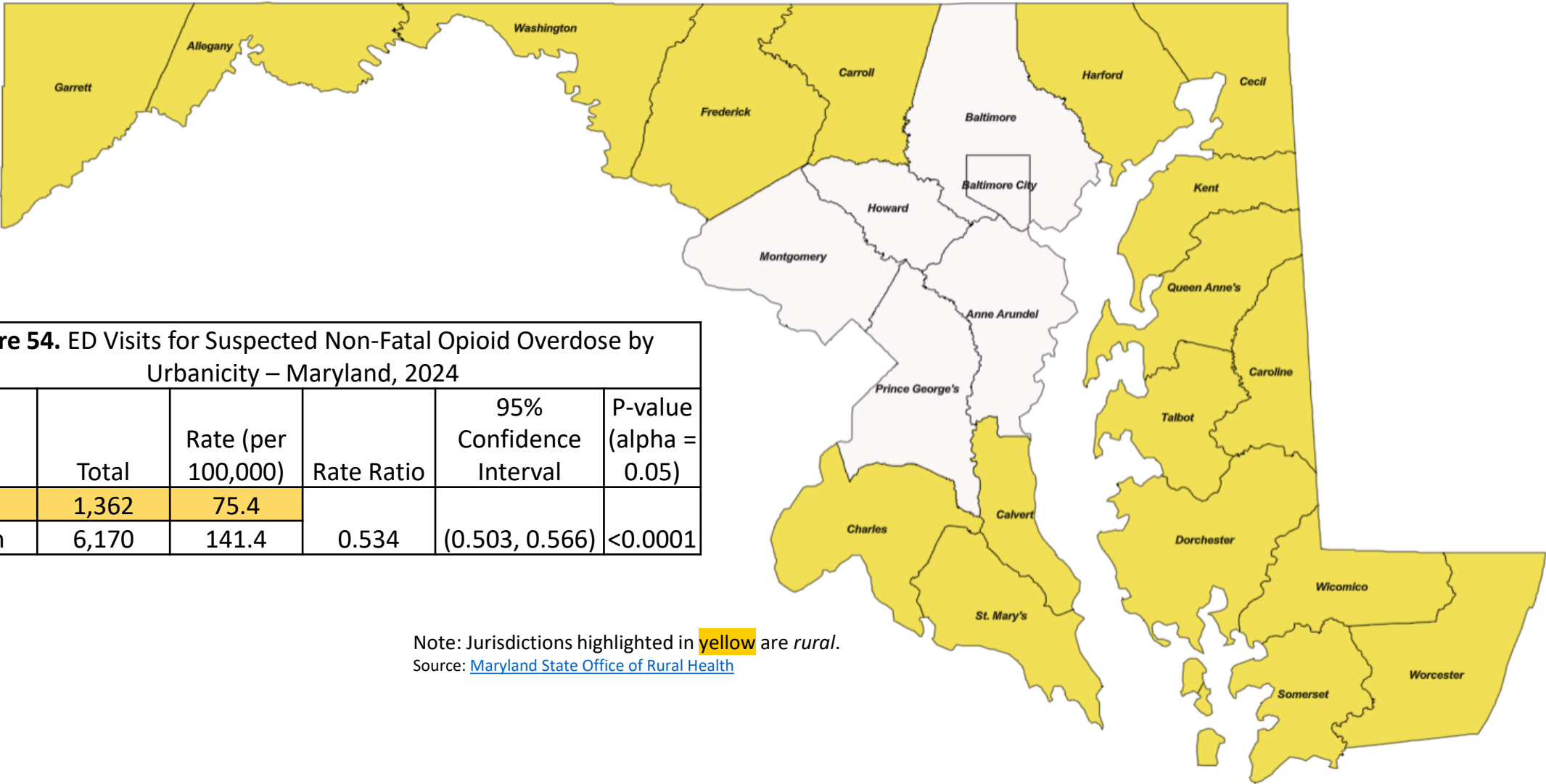


Figure 54. ED Visits for Suspected Non-Fatal Opioid Overdose by Urbanicity – Maryland, 2024

	Total	Rate (per 100,000)	Rate Ratio	95% Confidence Interval	P-value (alpha = 0.05)
Rural	1,362	75.4	0.534	(0.503, 0.566)	<0.0001
Urban	6,170	141.4			

Note: Jurisdictions highlighted in yellow are rural.
 Source: [Maryland State Office of Rural Health](#)

Key Findings: ED Visits for Drug Overdose

- In 2024, there were 20,449 ED visits for suspected non-fatal drug overdose in Maryland, corresponding to 331.4 visits per 100,000 state population. The 2024 count represents a 19.9% decrease since 2023 (**Figure 38**). Over one-third (36.8%) of all 2024 ED visits for suspected non-fatal drug overdose involved opioids (**Figure 39**) as was seen in 2023.
- Opioid-involved visits constituted the highest proportion of 2024 ED visits for suspected non-fatal drug overdose across all racial and ethnic groups (**Figure 48**) and jurisdictions (**Figure 49**), followed by stimulants and depressants.
 - More than half (53.3%) of ED visits for suspected non-fatal drug overdose in Baltimore City involved opioids, followed by 46.5% visits in Cecil County and 40.3% of visits in Baltimore County (**Figure 49**).
- The following trends in opioid-involved visits by ten-year age group, race and ethnicity were observed (**Figure 48**):
 - Among 0–19-year-olds, the percentages of ED visits for suspected non-fatal opioid overdose were similar across NH Black/African-American individuals (40.6%), NH White individuals (31.9%) and Hispanic individuals (24.4%).
 - Among 20-39-year-olds, nearly half of ED visits for suspected non-fatal opioid overdose involved NH White individuals (47.1%), followed by NH Black individuals (47.0%).
 - For ages 40 and older, most ED visits (*over 55%*) for suspected non-fatal opioid overdose involved NH Black individuals.
- Overall, 2024 ED visits for suspected non-fatal opioid overdose by county of patient residence were highest in Baltimore City (597.4 per 100,000 jurisdiction population), Cecil County (184.0) and Allegany County (218.4) (**Figure 51**).
 - The rate ratio of ED visits for suspected non-fatal opioid overdose in rural counties compared to urban counties was 0.534 (95% confidence interval: (0.503, 0.566); $p < 0.0001$) (**Figure 54**).
- For more recent data on ED visits for suspected non-fatal opioid overdoses, please visit the Maryland Department of Health Interactive Dashboard at: [\(MDH\) Interactive Dashboard](#)

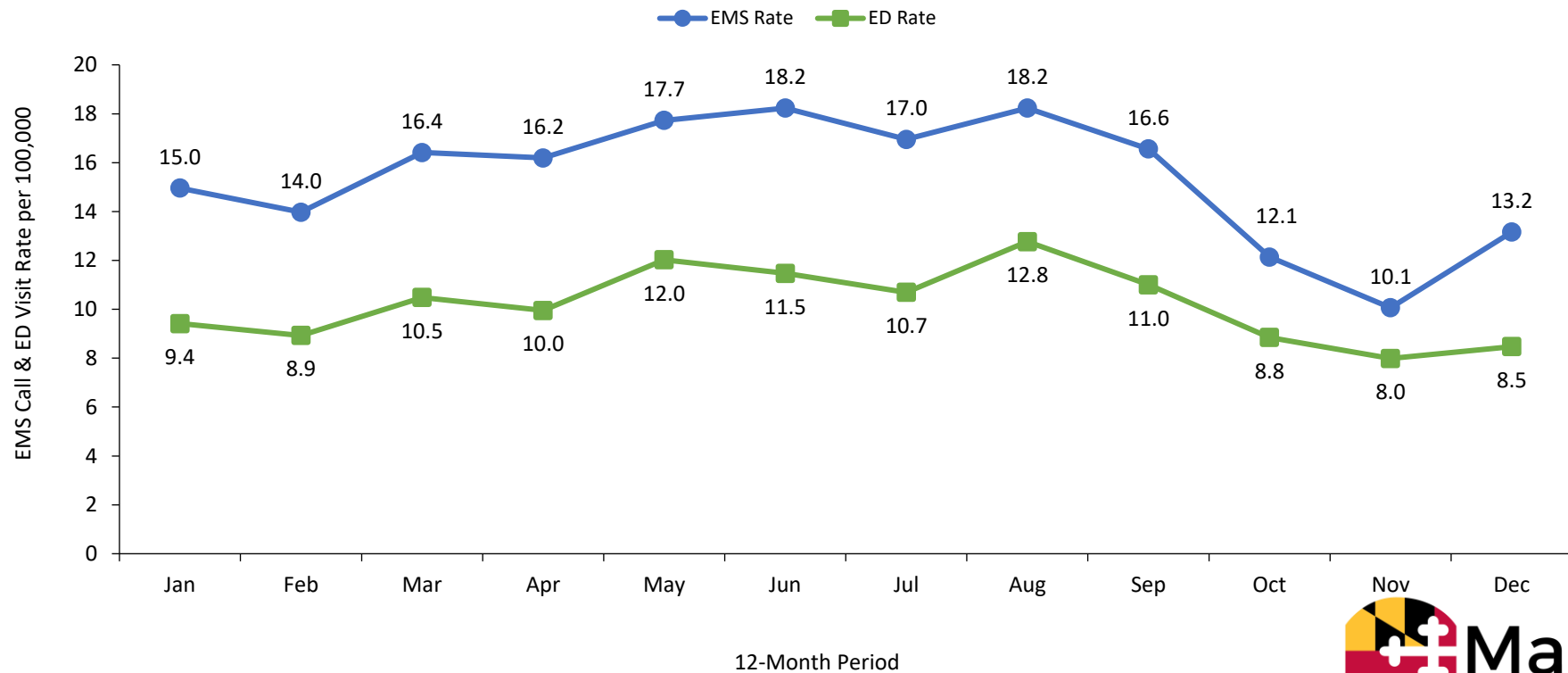
Comparison of EMS & ED Data Trends

Reporting Period: January – December 2024

Summary of ED Visits and EMS Calls for Suspected Non-Fatal Opioid Overdose

In 2024, there were **11,391** EMS calls and **7,532** ED visits for suspected non-fatal opioid overdose.

FIGURE 55. Rate (per 100,000 population) of EMS Calls & ED Visits for Suspected Non-Fatal Opioid Overdose By Month - Maryland, 2024†



Reporting Period: January – December 2024

Summary of ED Visits and EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 56. Rates (per 100,000 population) of Emergency Department Visits & EMS Calls for Suspected Non-Fatal Opioid Overdose By Race & Ethnicity* - Maryland, 2024

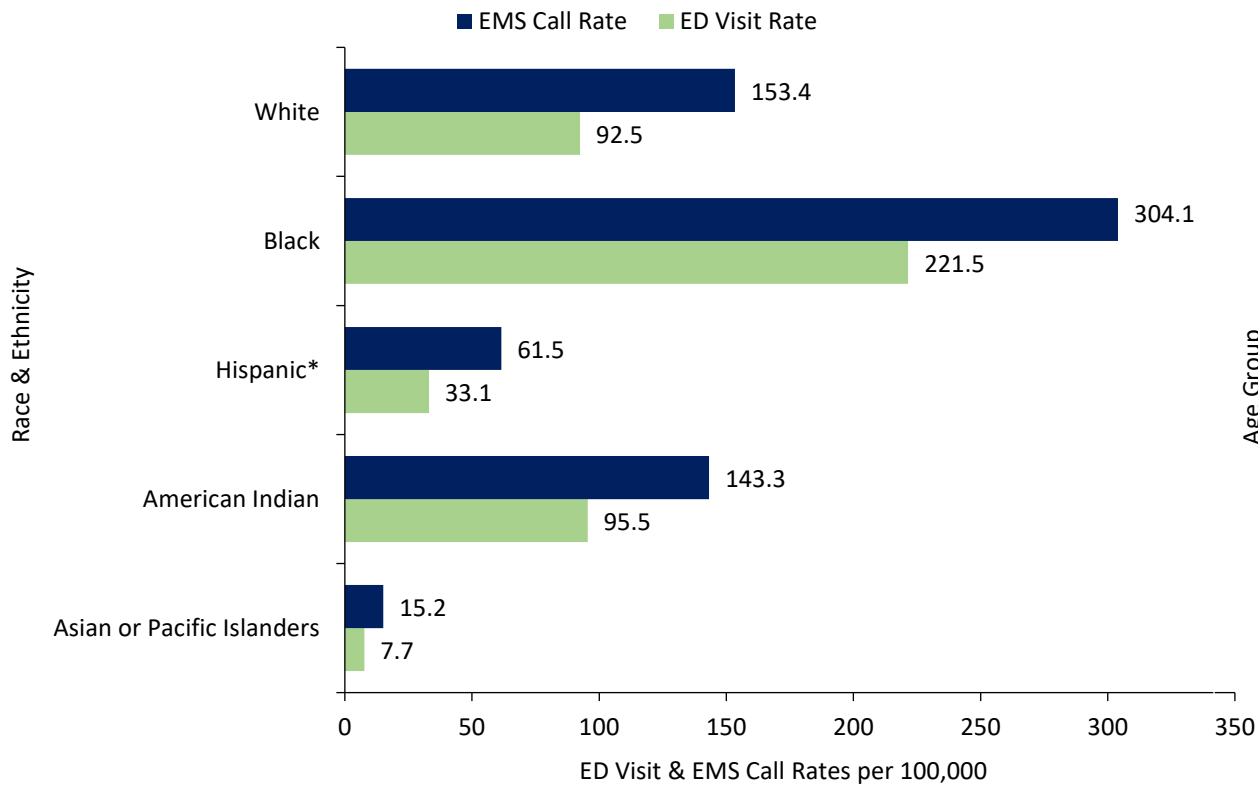
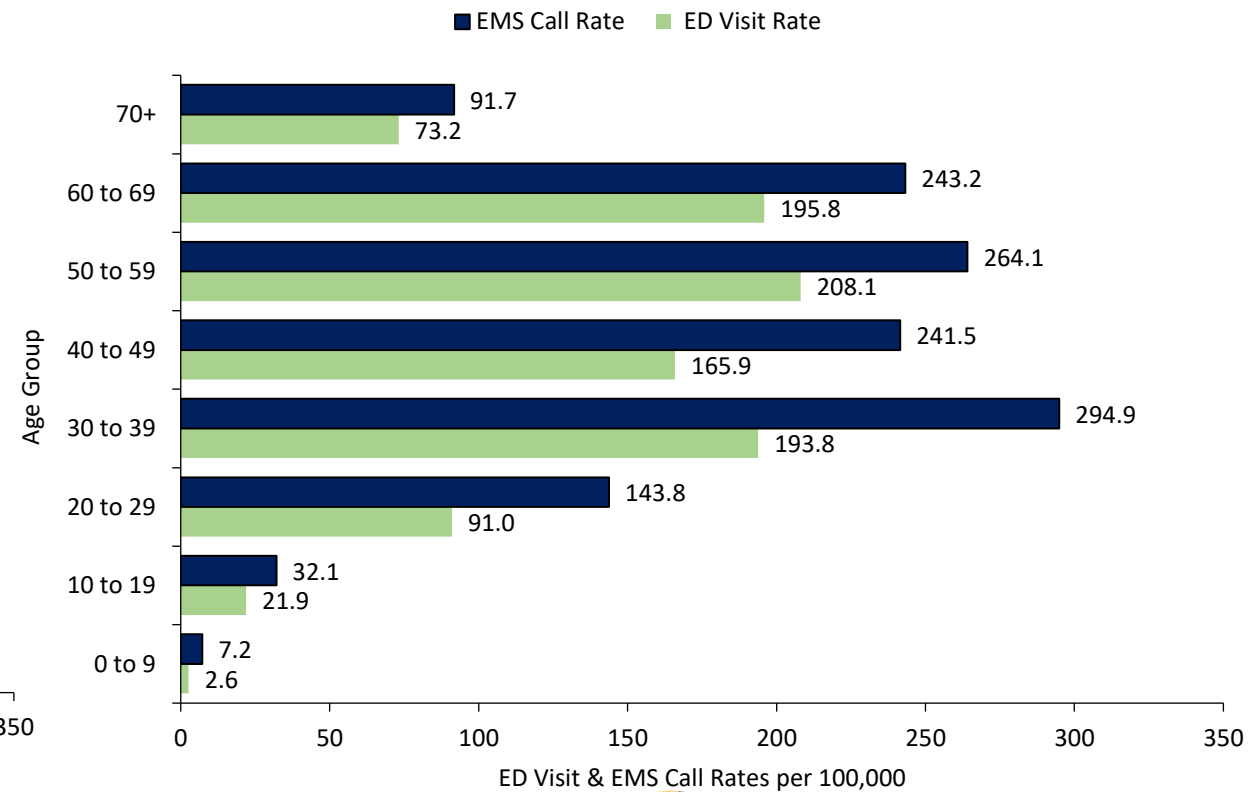


FIGURE 57. Rates (per 100,000 population) of Emergency Department Visits & EMS Calls for Suspected Non-Fatal Opioid Overdose By Age Group - Maryland, 2024



*Race and ethnicity reported in MD ESSENCE may not reflect self-identified race and/or ethnicity.

Reporting Period: January – December 2024

Summary of ED Visits and EMS Calls for Suspected Non-Fatal Opioid Overdose

FIGURE 58. EMS Calls & ED Visits for Suspected Non-Fatal Opioid Overdose by Sex, Race, Ethnicity* and Age Group – Maryland, 2024

ED Visits - Males							
	<20	20-29	30-39	40-49	50-59	60-69	70+
NH American Indian	hidden	hidden	hidden	hidden	hidden	hidden	hidden
NH Asian or Pacific Islander	hidden	hidden	hidden	hidden	hidden	hidden	hidden
NH Black	36	225	461	334	858	790	181
NH White	29	138	462	384	268	204	75
Hispanic	21	51	36	17	19	hidden	hidden
TOTAL	88	418	963	744	1,149	1,005	260

ED Visits - Females							
	<20	20-29	30-39	40-49	50-59	60-69	70+
NH American Indian	hidden	hidden	hidden	hidden	hidden	hidden	hidden
NH Asian or Pacific Islander	hidden	hidden	hidden	hidden	hidden	hidden	hidden
NH Black	29	111	243	188	311	264	102
NH White	22	90	353	275	189	139	119
Hispanic	18	21	hidden	13	hidden	hidden	hidden
TOTAL	72	224	609	481	511	410	227

EMS Calls - Males							
	<20	20-29	30-39	40-49	50-59	60-69	70+
American Indian	hidden	hidden	hidden	hidden	hidden	hidden	hidden
Asian or Pacific Islander	hidden	hidden	14	hidden	hidden	hidden	hidden
Black	51	282	612	479	1,029	895	232
White	60	266	786	580	400	313	135
Hispanic	35	89	83	41	21	12	hidden
TOTAL	147	644	1,496	1,108	1,464	1,224	374

EMS Calls - Females							
	<20	20-29	30-39	40-49	50-59	60-69	70+
American Indian	hidden	hidden	hidden	hidden	hidden	hidden	hidden
Asian or Pacific Islander	hidden	hidden	hidden	hidden	hidden	hidden	hidden
Black	44	163	308	222	371	301	99
White	41	190	526	429	256	202	141
Hispanic	30	22	16	15	hidden	hidden	hidden
TOTAL	117	380	856	673	637	509	247

60 *Sex, race and ethnicity reported in MD ESSENCE may not reflect self-identified sex, race and/or ethnicity. EMS call and ED visit counts for certain groups have been hidden to protect patient privacy. Counts for these groups were reported as <11 in MD ESSENCE.



Key Findings: Comparison of EMS & ED Data Trends

- In 2024, there were a total of 11,391 EMS calls and 7,532 ED visits for suspected non-fatal opioid overdose in Maryland.
- Comparing racial groups, the highest rates of EMS calls and ED visits for suspected non-fatal opioid overdose in 2024 were among the following Black individuals (EMS rate: 304.1 calls per 100,000 Black Marylanders; ED rate: 221.5 visits per 100,000 Black Marylanders). These rates are approximately double the rates among White individuals (EMS: 153.4 per 100,000; ED: 92.5 per 100,000) (**Figure 56**).
- Among males, the highest counts of both EMS calls and ED visits were among Black males in the 50-59 and 60–69 year-old age groups. Among females, the highest counts of both EMS calls and ED visits were among White females in the 30–39 year-old age group and Black females in the 50-59 and 60–69 year-old age groups (**Figure 58**).

Summary of Trends & Suggestions for Public Health Practice

Summary of EMS Call Data Trends

EMS Calls for Suspected Non-Fatal Overdose, MD, 2024			
Overdose Type	Total	2024 Rate (per 100,000)	Direction of Change (2024 vs. 2023)
All Drugs	18,929	306.8	↓
Opioid	11,391	184.6	↓
Heroin	3,369	54.6	↓

EMS Naloxone Administration, MD, 2024			
	Total	2024 Rate (per 100,000)	Direction of Change (2024 vs. 2023)
Encounters	6,481	105.0	↓
Doses	7,325	118.7	↓

Summary of ED Visit Data Trends

ED Visits for Suspected Non-Fatal Overdose, MD, 2024			
Overdose Type	Total Visits	2024 Rate (per 100,000)	Direction of Change (2024 vs. 2023)
All Drugs	20,449	331.4	↓
Opioid	7,532	122.1	↓
Heroin	1,128	18.3	↓
Fentanyl	764	12.4	↓
Benzodiazepine	425	6.9	↓
Stimulant	1,403	22.7	↓
Cocaine	1,073	17.4	↓

Methamphetamine has been excluded from this table as the CDC Methamphetamine v1 Parsed query is new and undergoing validation.

Summary of EMS Data Trends

In 2024, among Marylanders, EMS calls...



for suspected non-fatal ***all drug, opioid, and heroin*** overdose **decreased** (compared to 2023)



for suspected non-fatal ***opioid*** overdose and total naloxone doses administered by EMS among **adults ages 50-59 and 60-69** were the **absolute highest** among **Black individuals** (compared to other race groups)



for suspected non-fatal ***opioid*** overdose and naloxone administration encounters were the **absolute highest**, and had the **absolute highest rate difference**, among **residents of Baltimore City** (compared to other counties)



where naloxone was administered at least once and total naloxone doses administered by EMS had an approximate **relationship of 1 to 1**, suggesting that a **single dose of naloxone was generally sufficient** to restore breathing after a suspected overdose

Summary of ED Data Trends

In 2024, among Marylanders, ED visits...



for suspected non-fatal ***all drug, opioid, heroin, fentanyl, benzodiazepine, stimulant, and cocaine*** overdose **decreased** (compared to 2023)



for suspected non-fatal ***opioid*** overdose among **adults ages 50-59 and 60-69** were the **absolute highest** among **NH Black individuals** (compared to other race/ethnicity groups)

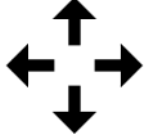

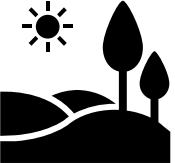


for suspected non-fatal ***opioid and stimulant*** overdose were the **highest** among **residents of Baltimore City** (compared to other counties)



for suspected non-fatal ***opioid*** overdose were **higher** among **residents of urban counties** (compared to rural counties)

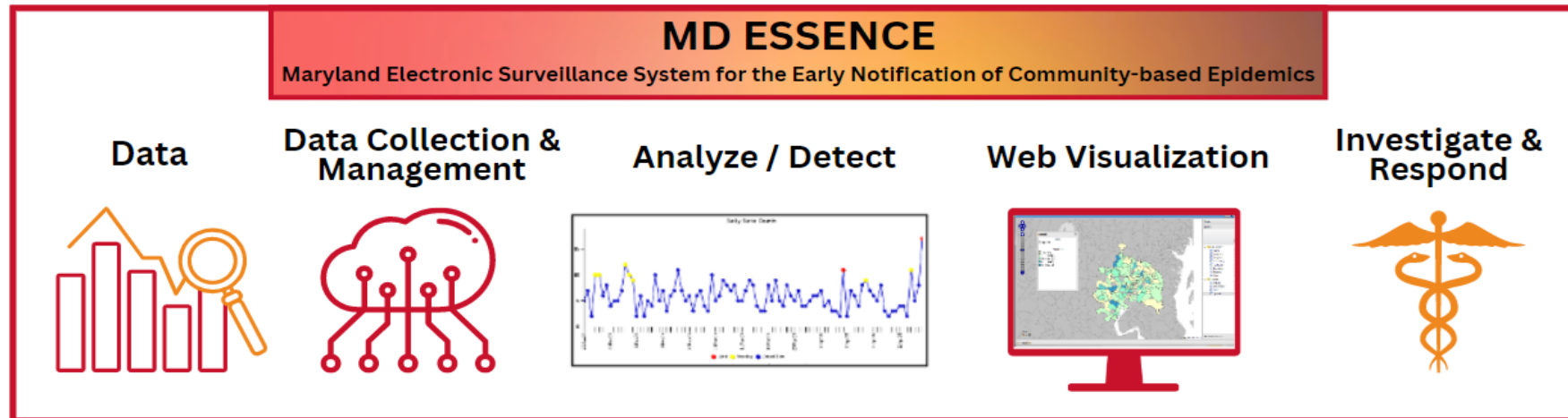
Suggestions for Public Health Practice

What?	How Does Our Data Support It?
 <p>Overdose surveillance and prevention efforts should focus on overdoses involving opioids and non-opioids (e.g. stimulants and depressants).</p>	<p>Although stimulant and depressant-involved ED visits saw a decrease since 2023, these drug types remained involved in non-fatal overdose visits in 2024.</p>
 <p>Target outreach and prevention efforts (e.g. Narcan training) to older adults, particularly older Black adults. Ensure that these efforts are grounded in an understanding of social determinants of health.</p>	<p>The absolute highest EMS call and ED visit rates for suspected non-fatal opioid overdose among adults ages 50-59 and 60-69 were among Black individuals, in 2024.</p>
 <p>Overdose prevention efforts should be tailored differently based on urbanicity.</p>	<p>We see higher rates of ED visits for suspected non-fatal overdose in urban areas compared to rural, but most of Maryland is rural.</p>

About This Report

Background

Unless stated otherwise, the data in this report is from **MD ESSENCE** (Electronic Surveillance of the Early Notification of Community-based Epidemics), which is Maryland's statewide web-based syndromic surveillance platform. MD ESSENCE is managed and utilized by the Maryland Department of Health's Office of Preparedness and Response (OP&R) and is available to MDH and local health department (LHD). ESSENCE receives near real-time, pre-confirmed health data from traditional and non-traditional sources, such as demographic information and the reason for an individual's visit to a health facility. This data can be queried for symptoms and syndromes associated with particular conditions to detect, analyze and monitor potential events of public health interest sooner than traditional surveillance.



Disclaimer: ESSENCE is best used as an early warning system to monitor trends and direct the attention of limited staff to data features that merit further investigation.

Utilizing ESSENCE in Overdose Surveillance

The CDC's OD2A (Overdose Data to Action) Program focuses on obtaining high quality, comprehensive data on overdose morbidity and mortality to analyze and create innovative prevention and response activities. Specifically, OD2A supports the use of syndromic surveillance to monitor and analyze suspected non-fatal overdoses through its Drug Overdose Surveillance and Epidemiology (DOSE) system.

The DOSE system:

- Provides timelier data on suspected non-fatal overdoses treated in emergency departments
- Identifies changes in suspected overdose trends and emerging substances
- Promotes situational awareness and readiness for a coordinated public health response at the local, state and national level

ESSENCE helps the DOSE team at OP&R to monitor and analyze trends in suspected non-fatal overdoses across Maryland, by querying emergency medical services (EMS) and emergency department (ED) data for overdose-related symptoms and syndromes, using overdose syndrome definitions, also referred to as "queries" (see next page), built into ESSENCE.

As of the date of publishing this report:

- EMS data is pulled from MD ESSENCE using the following MDH queries: EMS All Drug v1, EMS Opioid Overdose v1 and EMS Naloxone.
- ED data is pulled from MD ESSENCE using the following CDC queries: [All Drug Overdose v3 Parsed](#), [All Opioid Overdose v4 Parsed](#), [Fentanyl Overdose v2 Parsed](#), [Heroin Overdose v5 Parsed](#), [All Stimulant Overdose v4 Parsed](#), [Cocaine Overdose v2 Parsed](#) and [Benzodiazepine Overdose v2 Parsed](#).

What is a Query?



CDC Opioid Overdose v4 Parsed

Category: CDC Opioid Overdose v4 Parsed

Group: Uncategorized

Fields Searched: Undefined

Definition:

Search CC and DD Parsed Free Text: (,^narcan^,OR,^naloxo^,OR,^;T40[012346][X0129]
[14]A^,OR,^;F11[129]2^,OR,^;9650[0129];^,OR,^;E850[012]^,OR,^;295174006;^,OR,^;295175007;^,OR,^;295176008;^,OR,^
(,(,^poison^,OR,^verdo[se][se]^,OR,^over
dose^,OR,^overose^,OR,^ovrdose^,OR,^nodding^,OR,^!nod!,OR,^snort^,OR,^in[gj]est^,OR,^intoxic^,OR,^unresponsiv^,OR,^
of consciousness^,ANDNOT,(,^without loss of consciousness^,OR,^no loss of consciousness^,OR,^denie[sd] loss of
consciousness^,OR,^negative loss of consciousness^),OR,(,^shortness of breath^,OR,^short of breath^),ANDNOT,
(,^denies short^,OR,^no shortness^),OR,^altered mental status^),AND,(,^her[io][oi]n^,OR,^!hod!,OR,^speedball^,OR,^speed
ball^,OR,^dope^,OR,^opioid^,OR,^op[io][oi]d^,OR,^opiate^,OR,^opate^,OR,^op[iu]
[ui]m^,OR,^opum^,OR,^methadone^,OR,^suboxone^,OR,(,^oxymor^,OR,^oxyco^,OR,^oxyi^,OR,^loxy!,),ANDNOT,(,loxy
sat!,OR,^loxy state!,OR,^oxy high^,OR,^oxy low^,OR,^loxy mask!,OR,^oxy given^,OR,^!given oxy!,OR,^oxy clean^,OR,^!low
oxy!,OR,^!high oxy!,OR,^!placed on oxy!,OR,^!pulse oxy!,OR,^oxy deep cleaner^,OR,^!not enough oxy!,OR,^oxy
level^),),OR,^percoc^,OR,^vicod^,OR,^fent^,ANDNOT,(,^received fentanyl^,OR,^administered fentanyl^,OR,^given
fentanyl^,OR,^fentanyl en route^,OR,^fentanyl enr^,OR,^fent en route^,OR,^fentanyl given^,OR,^fentynl given^,OR,^gave
fent^,OR,^gave fentanyl^,OR,^given fentanyl^,OR,^mcg fent^,OR,^mcg of fent^,OR,^fentanyl 50^,OR,^fentanyl
75^,OR,^fentanyl 50^,OR,^50 fentanyl^,OR,^fentanyl 100^,OR,^100 fentanyl^,OR,^fentanyl 150^,OR,^120 fent
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pta^,OR,^!fentynl 100!,OR,^fentynyl 100^,OR,^fentynal 50^,OR,^fentynl 50^,OR,^fent 50^,OR,^fent 100^,OR,^fent
150^,OR,^diffently^,OR,^!received fent!,OR,^!recieved fent!,OR,^!given 50!,OR,^!given 100!,OR,^!given 150!,OR,^!gave
50!,OR,^!gave 100!,OR,^!gave 150!,OR,^!doses of fent!,),OR,^phent^,ANDNOT,
(,^stephentown^,OR,^phentermine^,OR,^phentxr^,OR,^phentemine^),OR,^hydrocod^,OR,^morphin^,ANDNOT,(,^given
morphin^,OR,^gave morphin^,OR,^10 milligram of morphin^,OR,^milligram morphin^,OR,^4 morphin^,OR,^rec[ei][ei]ved
morphin^),OR,^cod[ei]

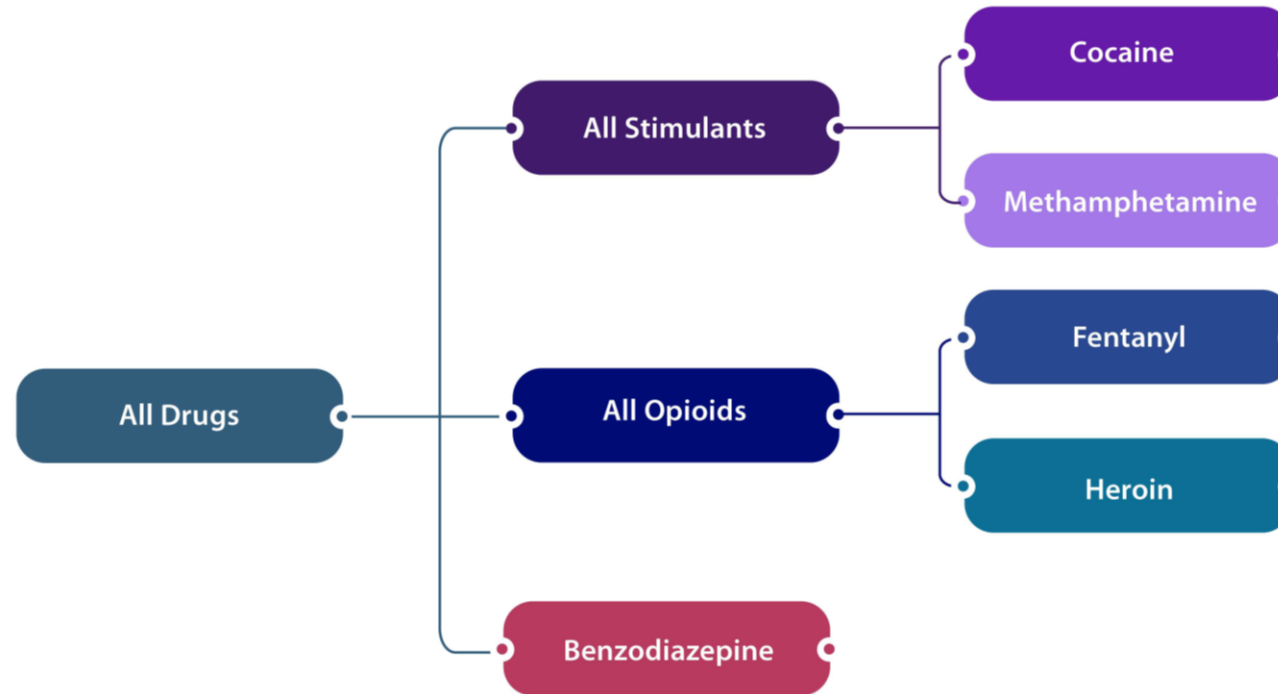
Excerpt from ED Visit Query: CDC Opioid Overdose version 4 Parsed

A query (or syndrome definition) is a set of criteria used to identify ED visits and EMS calls that are most likely associated with a specific condition or disease. The queries used in this report search specific fields in ED visit and EMS call records for keywords and codes associated with overdose.

This query searches ED visit records to identify visits for suspected non-fatal opioid overdoses.



CDC DOSE Queries



This diagram shows how the CDC queries are grouped. The broadest query is *All Drugs*, which capture overdoses also identified by the *All Stimulants*, *All Opioids* and *Benzodiazepine* queries. Nested within the *All Stimulants* query are the *Cocaine* and *Methamphetamine* queries, while the *All Opioids* query contains the *Fentanyl* and *Heroin* queries. By nesting each substance under its drug class, trends in ED visits for non-fatal overdose can be compared across specific drugs and drug classes.

Population Data Sources

For Estimates by County:

- U.S. Census Bureau, U.S. Department of Commerce. "ACS Demographic and Housing Estimates." American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP05, 2023, [https://data.census.gov/table/ACSDP5Y2023.DP05?q=DP05&g=040XX00US24,24\\$0500000](https://data.census.gov/table/ACSDP5Y2023.DP05?q=DP05&g=040XX00US24,24$0500000).

For Estimates By Sex, Age and Race:

- Maryland Department of Health, Vital Statistics Administration, "Maryland Vital Statistics Annual Report 2022."
https://health.maryland.gov/vsa/Documents/Reports%20and%20Data/Annual%20Reports/2022%20Annual%20Report_Final_v1024.pdf

Note: [The Maryland State Office of Rural Health](#) has designated 18 out of 24 jurisdictions as rural. The rural population estimate used is a sum of the 2023 ACS 5-Year population estimates for all 18 rural jurisdictions; the urban population estimate is a sum of the 2023 ACS 5-Year population estimates for all 6 urban jurisdictions.

Terms Used In This Report (1/2)

- Bystander: a person who is present at the scene of an overdose, is not a responding an EMS professional, and steps in to prevent or mitigate the overdose prior to EMS arrival.
- Opioids: includes prescribed and illicit opioids. Overdose syndrome definition terms include opioid, heroin, dope, methadone, suboxone, oxycodone, fentanyl, hydrocodone, morphine, codeine, buprenorphine, and other common street, brand and generic names.
- Stimulants: includes prescribed and illicit stimulants. Overdose syndrome definition terms include stimulant, cocaine, amphetamine, methamphetamine, bath salt and other common street, brand and generic names.
- Depressants: includes prescribed and illicit benzodiazepines. Overdose syndrome definition terms include benzodiazepine, lorazepam, alprazolam, clonazepam, diazepam and other common street, brand and generic names.
- Other: For EMS data, “other” includes any substances not classified as opioids, such as over-the-counter products, stimulants, benzodiazepines, cannabinoids, etc. For ED data, “other” includes drugs not classified as opioids, stimulants OR depressants (per above definitions), such as over-the-counter products, psychedelics, cannabinoids, dissociatives, etc.

Terms Used in This Report (2/2)

- **Rate***: A measure of the frequency with which an event occurs in a defined population over a specified period. Rates allow for valid comparisons of event frequency between different locations, time periods and populations.

Example Calculation - Rate of ED Visits for Suspected Non-Fatal Overdose, 2024, Maryland:

$$\frac{\text{\# ED visits for suspected nonfatal overdose, Maryland, 2024}}{\text{2023 ACS population estimate for Maryland}} * 100,000$$

- All rates are calculated per 100,000 population. For example, ED visit rates for each county are calculated per 100,000 county population; EMS call rates for each race are calculated per 100,000 individuals within each race group.
- County population estimates are obtained from the U.S. Census Bureau’s American Community Survey (ACS) 5-Year Estimates for 2023.
- Age-, sex- and race-specific population estimates are obtained from 2022 Maryland Vital Statistics Annual Report.
- Counts for Asian and Native Hawaiian or Other Pacific Islander categories are combined into 1 category, “Asian or Pacific Islander”, to match the racial categories in the 2022 Maryland Vital Statistics Annual Report. “Not Reported” and “Other Race” categories are excluded from rate calculations.

Example Rate Calculations

Variable	Example Calculation
County or State	$\frac{\# \text{ ED visits for suspected nonfatal overdose among Allegany County residents}}{\text{Population estimate for Allegany County}} * 100,000$
Sex	$\frac{\# \text{ ED visits for SNFO among males residing in MD}}{\text{Pop. estimate for males in MD}} * 100,000$
Age Group (0-9)	$\frac{\# \text{ ED visits for SNFO among 0-9 year olds residing in MD}}{\sum(\text{Pop. estimates for } <1 + 1-4 + 5-9 \text{ age groups in MD})} * 100,000$
Age Group (10-19, 20-29, 30-39, 40-49, 50-59, 60-69)	$\frac{\# \text{ ED visits for SNFO among 10-19 year olds residing in MD}}{\sum(\text{Pop. estimates for 10-14 + 15-19 age groups in MD})} * 100,000$
Age Group (70+)	$\frac{\sum(\# \text{ ED visits for SNFO among 70-79 year olds} + \# \text{ ED visits for SNFO among 80+ year olds residing in MD})}{\sum(\text{Pop. estimates for 70-74} + 75-79 + 80-84 + 85+ \text{ age groups in MD})} * 100,000$
Race and Ethnicity Group (NH Black, NH White, NH American Indian, Hispanic)	$\frac{\# \text{ ED visits for suspected nonfatal overdose among NH Whites residing in MD}}{\text{Pop. estimate for NH Whites in MD}} * 100,000$
Race and Ethnicity Group (NH Asian or Pacific Islander only)	$\frac{\sum(\# \text{ ED visits for SNFO among NH Asians} + \# \text{ ED visits for SNFO among NH Native Hawaiian or Other Pacific Islanders residing in MD})\ddagger}{\text{Pop. estimate for NH Asian or Pacific Islanders in MD}} * 100,000$

‡ These counts are combined into 1 category to match the 2022 Maryland Vital Statistics Administration report race category, “Asian or Pacific Islander”. SNFO = suspected non-fatal overdose.

Data Disclaimers

- This report is primarily focused on trends in suspected non-fatal opioid overdose, with limited information on suspected non-fatal overdose involving other drugs/drug classes.
- The syndromic classification of suspected non-fatal overdoses is based on information included in the chief complaint/narrative (ED and EMS) and discharge diagnosis fields (ED only). These fields capture reported information (e.g., substances a patient thinks they used) and provider impressions. Discharge diagnosis codes are preliminary and may not reflect the final diagnosis, which would instead be reflected in hospital billing data.
- The overdose data presented in this report do not reflect overdoses confirmed through laboratory/toxicological testing.
- The queries we use are built using syndrome definitions, which contain key words/phrases (spelled correctly and misspelled) that ESSENCE searches for in chief complaint and discharge diagnosis data. Syndrome definitions are comprehensive and regularly revised but may not capture 100% of all overdose-related calls/visits (see slide 3).
- A single overdose event may involve multiple substances (e.g., opioids and stimulants), meaning that corresponding EMS call(s) and/or ED visit(s) may be captured by more than one query. Counts presented in this report are not de-duplicated.
- Syndromic data is dynamic. The counts, percentages, and rates in this report reflect the data available at the time of publication and may differ to those published in previous reports.
- The naloxone data in this report include naloxone administrations for any reason including but not limited to suspected non-fatal overdose. Due to data exchange issues, naloxone data (Fig. 17-18) for August 2022 and November 2024 are not fully represented.
- Noting the above, the data in this report should be used to understand trends in suspected non-fatal opioid overdose in Maryland and should not be used to determine overdose counts or the burden of overdose associated with a particular substance in the state.

Contact Information

Overdose Data to Action Drug Overdose Surveillance and Epidemiology (OD2A DOSE) Team

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Hanover, MD 21076

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