Maryland
DEPARTMENT OF HEALTH

Larry Hogan, Governor · Boyd K. Rutherford, Lt. Governor · Dennis R. Schrader, Secretary

December 13, 2021

The Honorable Larry Hogan
Governor
State of Maryland
100 State Circle
Annapolis, MD 21401–1991

The Honorable Bill Ferguson
President of the Senate
H-107 State House
100 State Circle
Annapolis, MD 21401-1991

The Honorable Adrienne A. Jones
Speaker of the House
H-101 State House
100 State Circle
Annapolis, MD 21401-1991

RE: Health-General § 7.5–701(c)—Section 1, Chapter 211 of the Laws of Maryland 2018—Overdose Report (MSAR # 11670)

Dear Governor Hogan, President Ferguson and Speaker Jones:

The Maryland Department of Health (MDH) respectfully submits a revised copy of the annual overdose report. Pursuant to Health-General Article § 7.5–701(c)—Section 1, Chapter 211 of the Laws of Maryland 2018—MDH is required to submit an annual overdose report. The original version of this report was submitted June 29, 2021. Upon additional review, MDH corrected some data labeling issues which are updated in this revised report.

If you have any questions regarding this report, please contact Heather Shek, Maryland Department of Health Director of Governmental Affairs, at (410) 767–5282 or heather.shek@maryland.gov.

Sincerely,

Dennis R. Schrader
Secretary

cc: Aliya Jones, Deputy Secretary, Behavioral Health Administration
Robin E. Rickard, Executive Director, Opioid Operational Command Center
Heather Shek, Director, Office of Governmental Affairs
Sarah Albert, Department of Legislative Services, MSAR # 11670 (5 copies)

Maryland
DEPARTMENT OF HEALTH

Data-Informed Overdose Risk Mitigation (DORM)

2020 Annual Report

Released: June 24, 2021

Updated: September 20, 2021

This report was prepared by the Maryland Department of Health for Governor Larry Hogan pursuant to Maryland Code Annotated, Health-General Article § 7.5–701. A copy of this report was delivered to the Maryland General Assembly pursuant to the Maryland State Government Code § 2-1257 (2019).

Contents

Executive Summary

In 2018, Governor Larry Hogan signed House Bill 922, known as Chapter 211, into law, which requires the Maryland Department of Health (MDH) to produce an annual report examining the prescription and treatment history of individuals in the State of Maryland who suffered fatal overdoses in the preceding four years. The report shall include an assessment of multiple enumerated factors associated with fatal and nonfatal overdose risk and programs targeted at opioid use and misuse, among other issues. This assessment shall further include accessing and, where feasible, establishing links to at least 18 distinct data sources or datasets possessed by multiple state and local agencies. Collectively, the examination, collaboration, assessment, and report are subsequently referred to as the Data-Informed Overdose Risk Mitigation (DORM) initiative. The report is due to the Governor and General Assembly on July 1 of each year, with the statute sunsetting on July 1, 2022.

Data analysis on available overdose-related datasets and identifying overdose risk factors is critical for better understanding how to direct resources and interventions to those at greatest risk of overdose. This initiative is of critical importance, especially at the time of this writing when Maryland is experiencing its highest rate of overdose-related fatalities. In 2020, there were 2,799 unintentional intoxication deaths according to preliminary data provided by the Vital Statistics Administration (VSA). Unintentional intoxication deaths (i.e., fatal overdoses not including suicides) are fatalities resulting from the recent ingestion of or exposure to alcohol and other types of drugs.

In early 2021, the Opioid Operational Command Center (OOCC) was tasked with overseeing the DORM initiative. In close partnership with the Behavioral Health Administration (BHA), the OOCC developed a project plan outlining processes for advancing DORM. DORM will be implemented in two phases. Phase one is focused on identifying and coordinating the centralization of linked overdose datasets and programmatic datasets to establish a broad but holistic profile of health system interactions for people who died from a drug overdose. The goal of phase one is also to garner a better understanding of the demographic characteristics of those who have contact with other public health and public safety systems. Phase two of DORM will be focused on establishing infrastructure to conduct more rigorous analyses of multiple linked datasets that look at relative risk for fatal and non-fatal overdose in Maryland.

There are two primary federal funding sources that support the DORM initiative. In September 2018, MDH was awarded $994,523 under a three-year 2018 Comprehensive Opioid Abuse Site-Based Program (COAP) cooperative agreement with the U.S. Department of Justice, Bureau of Justice Assistance. The COAP award provides funding for program personnel, information technology (IT), and data management services. Additionally, in September 2019, over $800,000 in funds provided to MDH under the federal SUPPORT for Patients and Communities Act (SUPPORT Act) was made available to the project to supplement IT and data management and analysis activities at BHA and the Chesapeake Regional Information Systems for our Patients (CRISP), Maryland's designated Health Information Exchange. The SUPPORT Act funding is provided by the federal Centers for Medicare and Medicaid Services (CMS) and is managed in collaboration with MDH's Office of Health Care Financing and Office of Provider Engagement and Regulation.

The infrastructure that will be established during phase two of DORM will be modeled on analyses presented in the Chapter 55 Overdose Report[1] developed by the Department of Public Health of the Commonwealth of Massachusetts and, in Maryland, on the Predictive Risk Evaluation to Combat Overdose Grant (PRECOG), a partnership between MDH, CRISP, and the Johns Hopkins Bloomberg School of Public Health (JHSPH), which was active from 2015 to 2019. For PRECOG, linked administrative datasets were used to develop predictive risk models (PRM) for overdose in Maryland. Although the primary goal of PRECOG was the development of PRMs to support public health program operations at MDH, the project's data analysis methods and findings are relevant to the DORM project and serve as a useful starting point for future efforts. Significant findings from PRECOG included:

- Fatal opioid overdose is highly concentrated among a small group of Marylanders with identifiable risk factors;
- Analysis of linked agency administrative datasets can be an effective approach for identifying significant overdose risk factors among various populations;
- Patients with opioid use disorder (OUD) who received medication used to treat opioid use disorder (MOUD), such as methadone or buprenorphine, are substantially less likely to overdose than those who do not receive such treatment; and
- Persons involved with the criminal justice system have much higher overdose risk but lower rates of community-based MOUD utilization compared to other Maryland subgroups.[2]

Building on findings from PRECOG, Maryland has expanded programming to respond to those at highest risk of overdose, including through the passage of House Bill 116: Screening and Treatment for Opioid Use Disorder in Correctional Settings during the 2019 Maryland General Assembly session. This bill requires that local detention centers offer all three Food and Drug Administration (FDA) approved MOUDs to inmates with OUD. In addition to being connected with MOUDs, individuals who are released from local detention centers will also receive facilitated reentry services to ensure continuity of treatment upon return to the community.

The following report provides an overview of the findings observed from linking overdose death records with the following datasets: Maryland Medicaid, Public Behavioral Health System (PBHS) claims, Outcome Measurement System (OMS) records, Health Services Cost Review Commission (HSCRC) case mix data, and the Prescription Drug Monitoring Program (PDMP). Additionally, programmatic data is provided from the state's Overdose Response Program (ORP), which is responsible for community-based naloxone distribution and Syringe Service Programs (SSPs). Non-fatal overdose data on individuals who are under community supervision and analysis from the Statewide Unintentional Drug Overdose Reporting System (SUDORS) are included as well. Please note that the subsequent analyses of linked datasets included in this report were submitted by each respective division within MDH. As such, the methodology employed by each contributor (including the denominators for the number of overdose death records used and the precise time frames of analysis) may vary from section to section.

[1] "An Assessment of Fatal and Nonfatal Opioid Overdoses in Massachusetts (2011 – 2015)"; Massachusetts Department of Public Health; August 16, 2017.

[2] "The Predictive Risk Evaluation to Combat Overdose Grant (PRECOG) Final Report"; Johns Hopkins Bloomberg School of Public Health; Submitted to the Maryland Department of Health on September 23, 2019.

Findings from this report indicate that more than half of individuals who died from overdose were eligible for Medicaid services at the time of death. Additionally, nearly 70.0 percent of individuals who died from overdose between 2016 and 2020 had an interaction with a Maryland hospital in the four years preceding their death. Further, overdose decedents who received outpatient mental health services in the Public Behavioral Health System (PBHS) within 30 days of their death were more likely to be active in both mental health and substance use disorder services. Lastly, from 2015 to 2019, 60.0 percent of people who died from an overdose in Maryland had also been prescribed a controlled substance at some point during the same 5-year period. Other findings illustrated in the following sections show that males continue to account for a vast majority of overdose deaths, outnumbering females at a 3:1 ratio. Additionally, there are increasing racial disparities in overdose death rates, with the age-adjusted mortality rate for Black Marylanders surpassing that of white Marylanders in 2019.

Other notable highlights include the expansion of harm reduction services over the past several years. Maryland has a robust network of ORPs that distributes community-based naloxone to individuals at the highest risk for overdose. Reaching individuals who are most likely to experience an overdose with naloxone is a critical strategy for driving down overdose-related mortality in Maryland. Additionally, as SSPs have expanded, the number of linkages to care (including connections to substance use disorder treatment) have increased significantly.

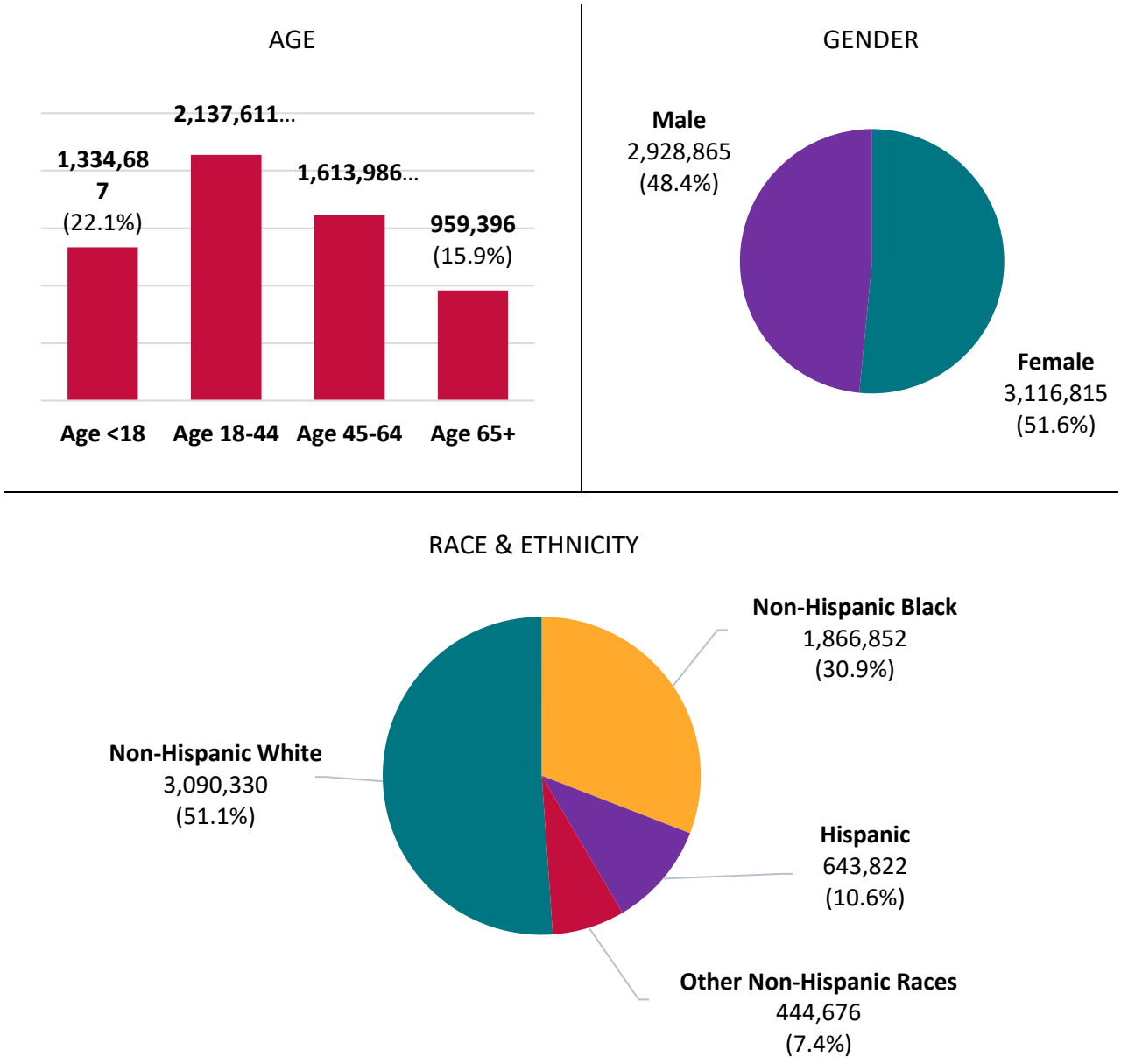
Going forward, the State of Maryland will use findings from this report to identify areas of opportunity for expanding services and for directing resources. Future DORM reports will build upon findings from this study to better understand the relative risk for overdose death based on system interactions.

Maryland Population and Recent Overdose Trends

Population

As of 2019, Maryland had a population of approximately 6,045,680.[3] To help provide context for the data to follow in this report, the charts below illustrate Maryland's population by age, gender, and race/ethnicity.

Figure 1. Population of Maryland by Age, Gender, and Race/Ethnicity

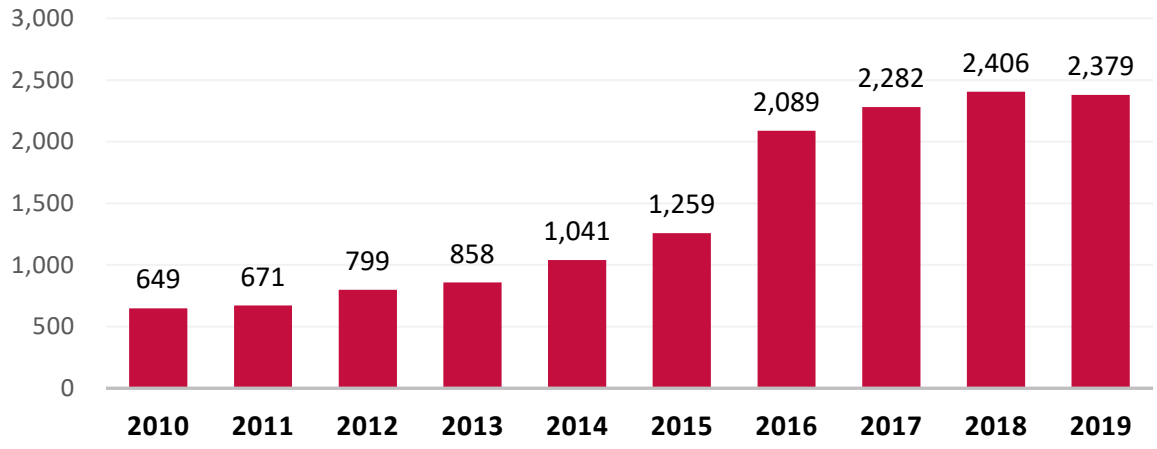


[3] "Maryland Vital Statistics Annual Report 2019"; Vital Statistics Administration, Maryland Department of Health.

Fatal Overdose Trends

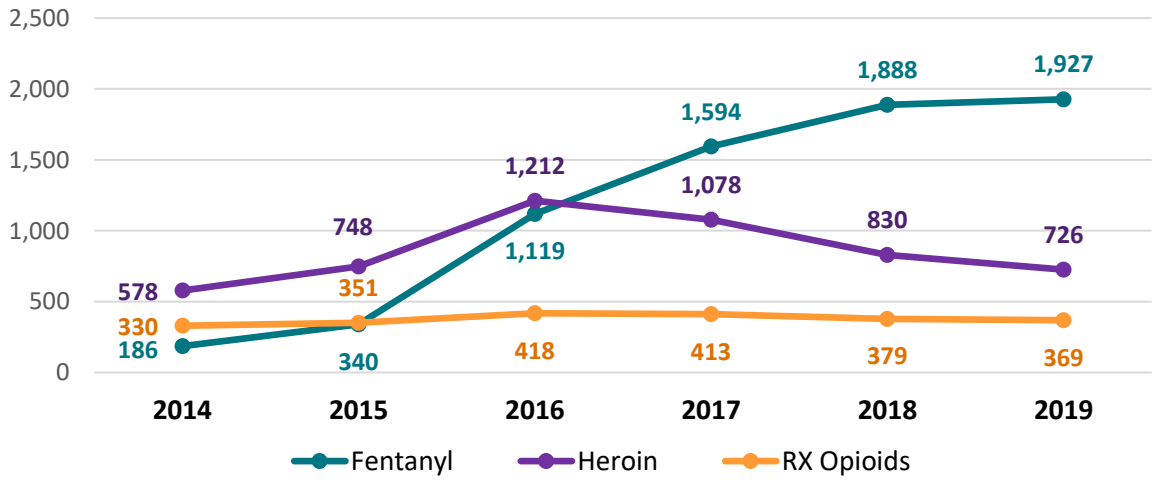
As in other areas of the United States, the number of fatal overdoses has increased dramatically in Maryland in the last 10 years. According to data provided by the Vital Statistics Administration (VSA) of the Maryland Department of Health (MDH), the number of overdose fatalities increased by 266.6 percent between 2010 and 2019. Unintentional intoxication deaths (i.e., fatal overdoses not including suicides) are fatalities resulting from the recent ingestion of or exposure to drugs or alcohol.

Figure 2. Unintentional Intoxication Deaths Involving All Drugs and Alcohol, 2010–2019



Overdose mortality during this timeframe was primarily driven by opioids and, in particular, the dramatic influx of fentanyl into the drug supply. In 2019, opioids were involved in 88.5 percent (2,106 total) of all overdose fatalities, while fentanyl was involved in 91.5 percent (1,927 total) of all opioid-related fatalities. The chart below illustrates the sharp increase in the number of fentanyl-related deaths, which have increased by 466.8 percent since 2015.

Figure 3. Fatal Overdoses by Opioid Type,[4] 2014–2019

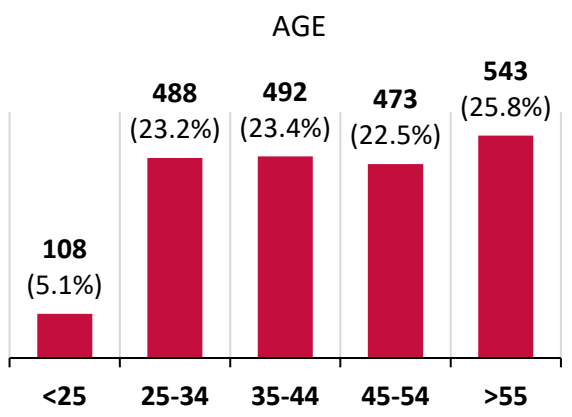


[4] Most overdoses involve the use of more than one substance and, as such, the sum total of individual substance categories may exceed the total number of annual fatal overdoses.

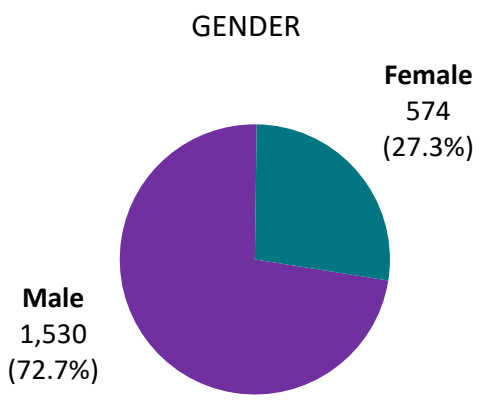
Opioid-Related Fatality Demographics

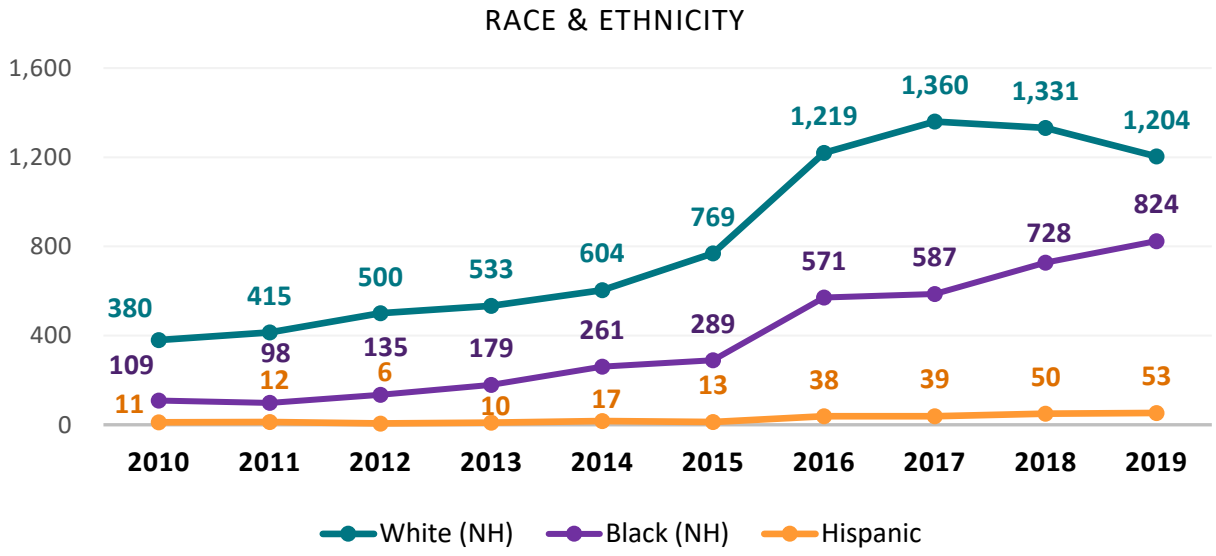
Figure 4, below, illustrates demographic characteristics of opioid-related fatal overdoses in 2019. It includes the number of fatalities by age, gender, and race/ethnicity.

Figure 4: Opioid-Related Fatal Overdoses by Age, Gender, and Race/Ethnicity, 2019



Note: In 2019, age could not be determined in two cases.





From 2017 to 2019, opioid-related fatalities decreased by 11.5 percent among non-Hispanic white Marylanders while increasing by 40.4 percent among non-Hispanic Black Marylanders and by 35.9 percent among Hispanic Marylanders. Overdose deaths involving other races were excluded from the graph above due to relatively small numbers. In 2010, near the beginning of the acceleration in overdose-related fatalities in Maryland, non-Hispanic whites accounted for a vast majority (75.4 percent) of opioid-related intoxication fatalities. Since that time, as shown below in Table 1, the proportion of opioid-related intoxication deaths involving non-Hispanic Blacks has steadily increased, while the proportion of such deaths involving non-Hispanic whites has steadily decreased.

Table 1. Opioid-Related Overdose Fatalities by Race/Ethnicity, 2010–2019

Year	White (NH)	Percent of Total	Black (NH)	Percent of Total	Hispanic	Percent of Total	Other	Percent of Total
2010	380	75.4%	109	21.6%	11	2.2%	4	0.8%
2011	415	78.4%	98	18.5%	12	2.3%	4	0.8%
2012	500	77.2%	135	20.8%	6	0.9%	7	1.1%
2013	533	73.1%	179	24.6%	10	1.4%	7	1.0%
2014	604	68.0%	261	29.4%	17	1.9%	6	0.7%
2015	769	70.6%	289	26.5%	13	1.2%	18	1.7%
2016	1,219	65.7%	571	30.8%	38	2.0%	28	1.5%
2017	1,360	67.7%	587	29.2%	39	1.9%	23	1.1%
2018	1,331	62.1%	728	34.0%	50	2.3%	34	1.6%
2019	1,204	57.2%	824	39.1%	53	2.5%	25	1.2%

As shown above, Maryland's population was 51.1 percent non-Hispanic white, 30.9 percent non-Hispanic Black, and 10.6 percent Hispanic as of 2019. Thus, in 2019, both non-Hispanic white Marylanders and non-Hispanic Black Marylanders bore a disproportionate share of opioid-related fatal overdoses in relation to their respective shares of the state's population. However, the 57.2 percent of opioid-related fatalities involving non-Hispanic white Marylanders was 6.1 percent higher than the cohort's share of the population, while the 39.1 percent of opioid-related fatalities involving non-Hispanic Black Marylanders was 8.2 percent higher.

Another way to illustrate the increasing racial disparity in opioid-related mortality is to look at overdose mortality rates. As illustrated in Table 2, below, the mortality rates for non-Hispanic whites and non-Hispanic Blacks are well above the state average of 34.2. Similar to the trends shown above, since 2017, mortality among non-Hispanic whites has decreased while increasing rapidly among non-Hispanic Blacks. 2019 was the first year since the beginning of the opioid crisis in Maryland in which mortality among non-Hispanic Blacks exceeded that of non-Hispanic whites.

Table 2. Age-Adjusted Opioid-Related Mortality Rate by Race/Ethnicity, 2010–2019[5]

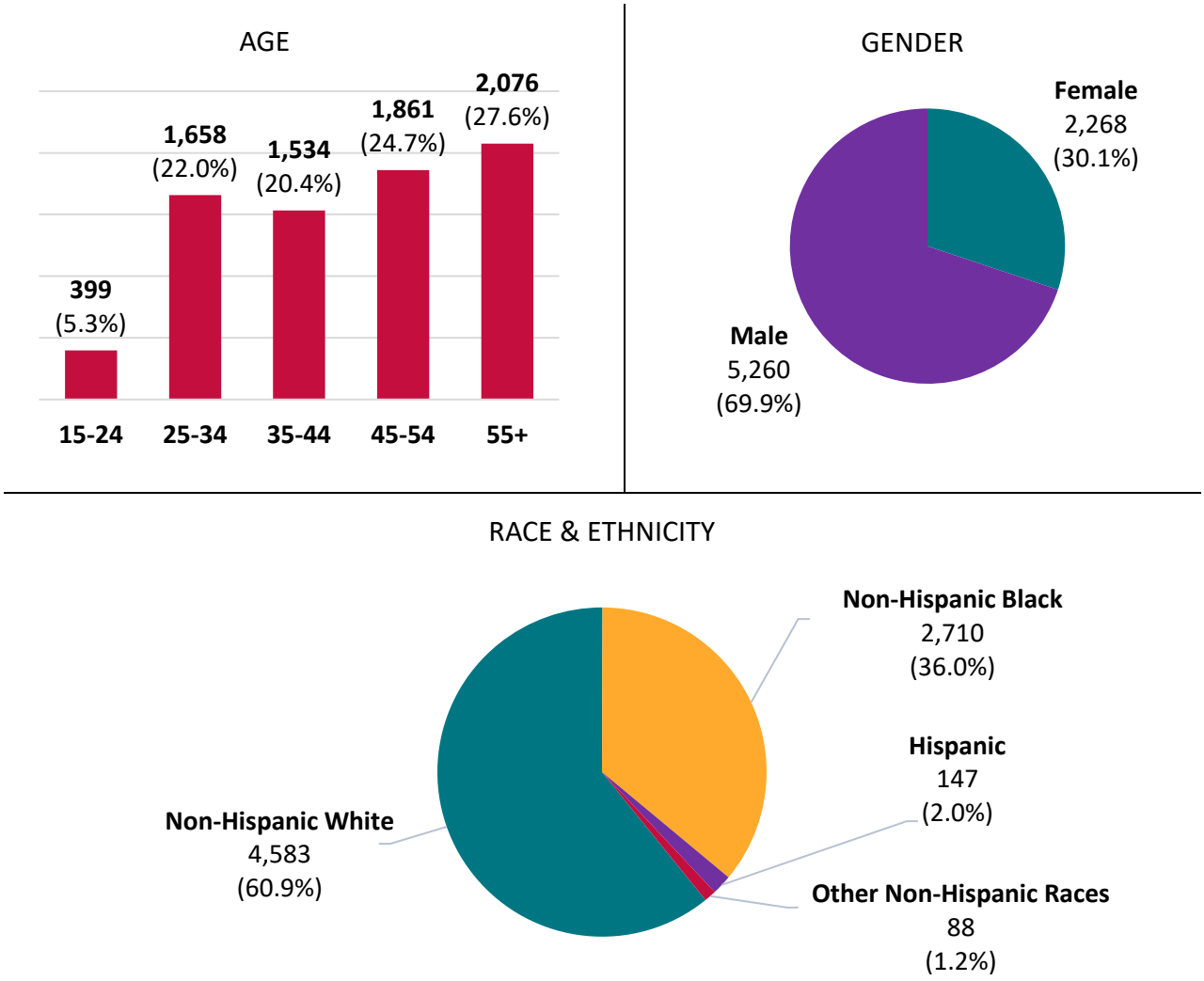
Cohort	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
NH White	12.2	13.0	15.0	16.6	18.7	24.5	39.6	45.6	44.5	40.9
NH Black	5.9	5.0	7.1	9.2	13.5	14.7	28.7	28.8	35.0	41.3
Hispanic	—	—	—	—	—	—	7.6	8.0	7.7	9.7
All Races	8.5	8.5	10.2	11.6	14.0	17.4	29.7	32.4	33.9	34.2

[5] Age-adjusted mortality rates could only be calculated when deaths among a given cohort exceeded 20 per year.

Health Services Cost Review Commission Data Summary

The Health Services Cost Review Commission (HSCRC) collects a variety of demographic, financial, and other clinical information related to patient care (e.g., nature of admission, diagnostic codes, etc.) at acute care and licensed specialty hospitals across the State of Maryland (referred to as "case mix data"). Between 2016 and 2020, 7,528 overdose decedents received care through Maryland's hospital system at some point during the same four-year period. This represents 68.7 percent of the 10,965 individuals who suffered a fatal overdose during this timeframe.

Figure 5. Overdose Decedents with HSCRC Records by Age, Gender, and Race/Ethnicity, 2016–2020



While the vast majority of individuals accessing health services captured in the HSCRC case mix data were aged 55 or older, the age distribution among overdose decedents was largely uniformly split across age groups, regardless of access to services. The majority of individuals accessing health services in Maryland identified as female, while the majority of overdose decedents either with hospital records or without identified as male. The population of overdose decedents tended to be less ethnically diverse

and generally whiter (60.9 percent) than the general population accessing health services in Maryland (which was 50.8 percent non-Hispanic white).

Comparing the populations of overdose decedents between 2016 and 2020 who did not access health services versus those who did, the population tended to be younger (more than half under the age of 45 and the majority between the ages of 25 and 34 versus less than half under the age of 45 and most older than 55), slightly more male (76.9 percent male versus 69.9 percent male), and slightly more ethnically diverse (6.7 percent Hispanic or other versus 3.2 percent Hispanic or other).

Between 2016 and 2020, overdose decedents were far more likely to have: (1) any history of non-fatal overdose; (2) opioid use disorder (OUD); (3) a non-opioid related substance use disorder (SUD); (4) non-poisoning injuries; (5) chronic pain diagnoses; or (6) mental health diagnoses compared to the general population accessing health services. While only 2.1 percent of individuals included in the HSCRC case mix data who did not die from drug or alcohol intoxication between 2016 and 2020 had an overdose-related hospital encounter, 37.0 percent of overdose decedents did experience at least one non-fatal overdose over that same period.

Table 3. HSCRC Encounters by Prior Diagnosis, 2016–2020

Prior Diagnosis	Non-Overdose Decedents with HSCRC Records		Overdose decedents with HSCRC Records	
Total Individuals	3,452,974		7,528	
	N	%	N	%
Overdose-related encounters, ever	72,296	2.1	2,784	37.0
Overdose-related encounters, by substance				
Heroin	17,641	0.5	1,631	21.7
Methadone	2,392	0.1	137	1.8
Other Opioid	30,258	0.9	1,055	14.0
Alcohol	2,639	0.1	131	1.7
Benzodiazepine	10,471	0.3	435	5.8
Cocaine	4,888	0.1	468	6.2
Other Drug*	19,928	0.6	266	3.5
Opioid Use Disorder	83,562	2.4	3,439	45.7
Substance Use Disorder (non-opioid)	317,689	9.2	4,315	57.3
Non-poisoning Injury	1,154,888	33.4	3,880	51.5
Chronic Pain Diagnosis	266,189	7.7	1,966	26.1
Mental Health Diagnosis	735,831	21.3	3,969	52.7

Between 2016 and 2020, the proportion of drug- and alcohol-related overdose decedents accessing health services within the calendar year of their death steadily declined from a high of 55.5 percent in 2016 to a low of 45.2 percent in 2020. However, the total number of intoxication deaths and the number of decedents accessing health services has increased over the same period, with the exception

of a slight dip in both deaths and service access in 2019. Both metrics peaked in 2020, with 2,624 intoxication deaths among Maryland residents aged 15 to 90, and 1,185 of those decedents accessing any health services in the same period.[6]

Among overdose decedents who accessed services during the same calendar year of their death, between 24.7 percent and 30.9 percent received any overdose-related health services. The number of decedents with any drug overdose documented in the HSCRC case mix data ranged from a high of 317 in 2016 to a low of 279 in 2019, with a slight uptick to 293 in 2020. It is important to note, the same decedents may have had non-fatal overdoses in previous years or may have had other non-fatal overdose experiences that did not result in hospitalization and thus would not be counted here. These decedents may have also had multiple overdose-related encounters in this same year, but are only counted once in the tables presented here.

Table 4. HSCRC Encounters by Prior Diagnosis by Year (Ages 15–90), 2016–2020[7]

HSCRC Encounters by Prior Diagnosis	2016		2017		2018		2019		2020	
Total deaths (N)	1,848		2,008		2,241		2,235		2,624	
	N	%	N	%	N	%	N	%	N	%
Any service utilization	1,026	55.5	1,055	52.5	1,106	49.4	1,050	47.0	1,185	45.2
Any overdose-related services	317	30.9	308	29.2	307	27.8	279	26.6	293	24.7
Opioid Use Disorder	369	36.0	364	34.5	379	34.3	369	35.1	376	31.7
Non-Opioid SUD	473	46.1	475	45.0	501	45.3	470	44.8	522	44.1
Non-poisoning Injury	292	28.5	290	27.5	308	27.8	326	31.0	330	27.8
Chronic Pain Diagnosis	176	17.2	154	14.6	194	17.5	165	15.7	182	15.4
Mental Health Diagnosis	413	40.3	440	41.7	469	42.4	453	43.1	487	41.1

[6] The number of fatal overdoses for 2020 is preliminary at the time of this writing.
[7] Ibid.

Medicaid Data Summary

Maryland Medicaid provides health coverage to approximately 1.5 million residents who meet eligibility requirements. Maryland currently operates a bifurcated care delivery system for mental health and substance use disorder benefits (MH/SUD). Managed Care Organizations are responsible for delivering the majority of Medicaid-covered services. Inpatient, emergency, and specialty outpatient MH/SUD services are delivered on a fee-for-service (FFS) basis through an Administrative Services Organization (ASO) model.[8]

Analysis of Medicaid claims data shows that a significant portion of individuals who suffered a fatal overdose were enrolled in Medicaid during the same calendar year of their death. According to a review of Medicaid participant data in calendar year 2019, 1,482 overdose decedents were enrolled in Medicaid at some point during the same calendar year, representing 66.9 percent of the 2,214 overdose decedents from the same year that were included in the analysis. Of that group, 1,408 were enrolled at the time of their death.

Table 5. Number and Percentage of Medicaid Enrollees with a Fatal Overdose, 2019

Any Medicaid Enrollment During Calendar Year		Medicaid Enrollment at Time of Death		Total Overdose Deaths in Data Set
Number	*Percent*	*Number*	*Percent*	
1,482	66.9%	1,408	63.6%	2,214

According to data provided by MDH's Office of Health Care Financing, approximately 1,434 individuals received fee-for-service (FFS) care through Medicaid within the same calendar year experiencing a fatal overdose in 2019. This primarily involved individuals who received ambulatory care visits, outpatient emergency department (ED) visits, and inpatient admissions for behavioral health and somatic conditions.

Table 6. Service Utilization of Medicaid Enrollees before a Fatal Overdose, 2019

Service Type	Number	Percent
Ambulatory Care	899	62.7%
Outpatient ED	672	46.9%
Inpatient Admission	374	26.1%
Total	**1,434**	

Among individuals who were enrolled in Medicaid at the time of their death, approximately 12.1 percent had an emergency department (ED) visit or inpatient hospital admission with a diagnosis of

[8] "Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA) Report for the Centers of Medicare and Medicaid Services"; Maryland Department of Health; October 1, 2020.

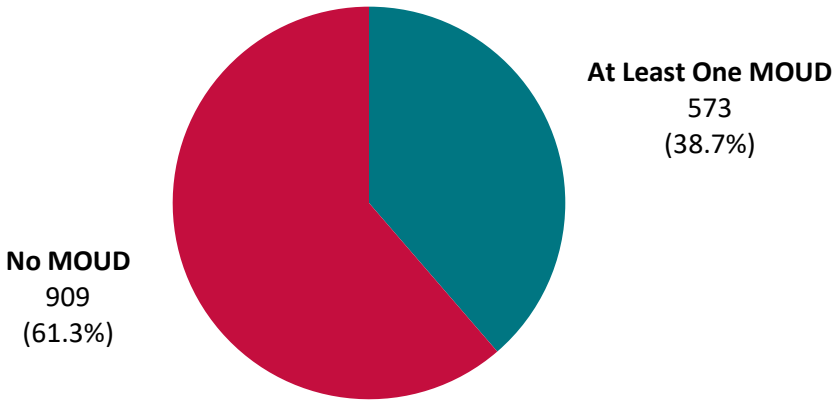
poisoning (i.e., a non-fatal overdose) in the same calendar year in which they suffered a fatal overdose, and 3.5 percent occurred within one day of a visit.

Table 7. Number of Visits and Participants with Enrollment at Time of Death and an ED Visit or Inpatient Admission with a Diagnosis of Poisoning, 2019

Time Frame	Number of Visits	Number of Users	Total Enrollees	Percentage of Total
Within One Year	238	168	1,389	12.1%
Within One Day	56	48	1,389	3.5%

Lastly, among overdose decedents who were enrolled in Medicaid during the same calendar year as their death in 2019, 38.7 percent had received at least one form of MOUD, such as buprenorphine, methadone, or naltrexone. This highlights the opportunities to reach a significant number of individuals who may be in opioid treatment programs or other programs that use MOUD. It also highlights the potential to expand MOUD services for individuals at risk for overdose and who are not receiving MOUD.

Figure 6. Medicaid Participants by MOUD in Calendar Year of Death, 2019



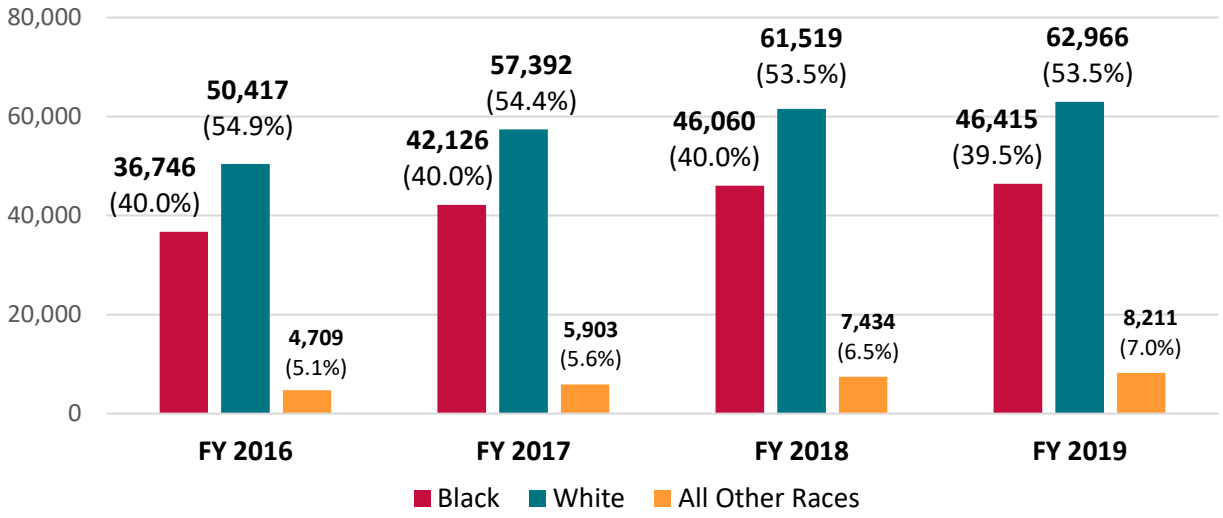
Public Behavioral Health System Data Summary

MDH, through a partnership between BHA and the Office of Health Care Financing, oversees the implementation of the Public Behavioral Health System (PBHS), which consists of publicly funded behavioral health services for eligible low-income Marylanders. The majority of community PBHS services are funded through a managed fee-for-service system. The data shown below are derived from PBHS claims and include demographic trends related to service utilization. The data also show PBHS engagement for individuals who died from an overdose.

PBHS Participant Demographics

According to data on PBHS participants, racial trends in PBHS utilization for SUD services have remained largely consistent in the last several years.[9] In relation to the population analysis presented at the beginning of this report, both white Marylanders and Black Marylanders received a disproportionate share of SUD services in relation to their respective share of Maryland's population. These trends are similar to those observed substance-related fatal overdoses. Utilization among other races (including Asian, Hawaiian/Pacific Islanders, and Native Americans) have increased at faster rates.

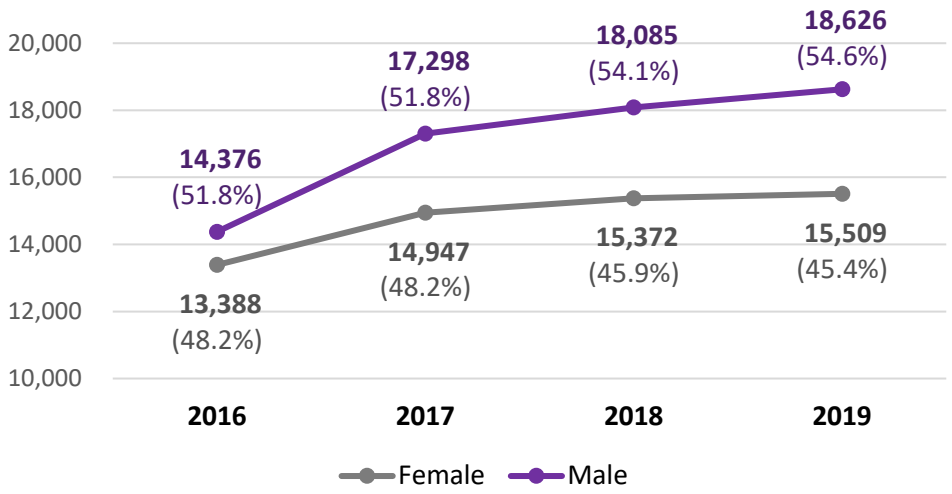
Figure 7. PBHS SUD Service Recipients by Race, 2016–2019



Trends in PBHS SUD service utilization by gender diverged by a marginal amount in the same time frame. While utilization among males and females has increased at similar rates for all SUD services, the use of MOUD services has increased at a faster rate for males (29.6 percent) compared to females (15.8 percent). However, females were much more likely to receive MOUD services than their male counterparts in relation to their share of overdose fatalities.

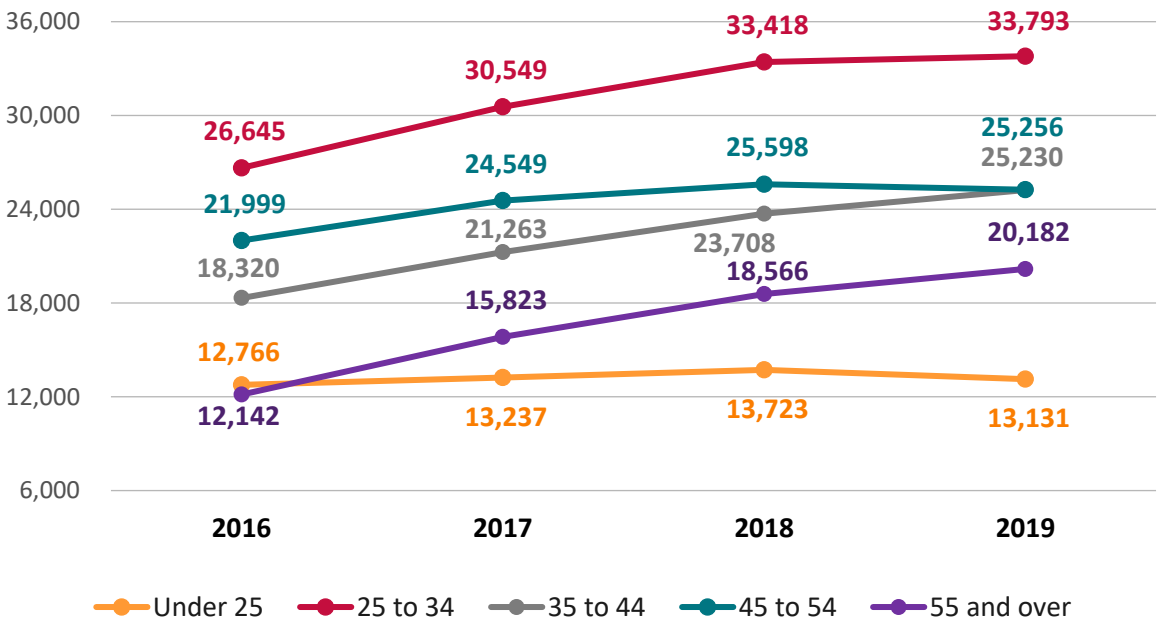
[9] The data in this analysis used PBHS Service Claims data updated through 11/30/2019.

Figure 8. Individuals Receiving PBHS Services for MOUD in Maryland by Gender, 2016–2019



In contrast to the race and gender trends presented above, there has been a significant divergence observed in SUD service utilization by age. For example, rates of SUD service utilization have increased the greatest for individuals aged 55 years and older, increasing by 66.2 percent.

Figure 9. PBHS SUD Service Recipients by Age Group, 2016–2019



PBHS Participant Overdose Fatalities

In 2019, there were 1,349 individuals who suffered a fatal overdose who also had a PBHS claim at some point between 2016 and 2019. This represents 56.8 percent of the 2,377 fatal overdoses that were included in the data set that was used for the analysis. Among overdose decedents with PBHS claims, 543 (or 40.3 percent) had a claim within 30 days of their death. Overdose decedents who received

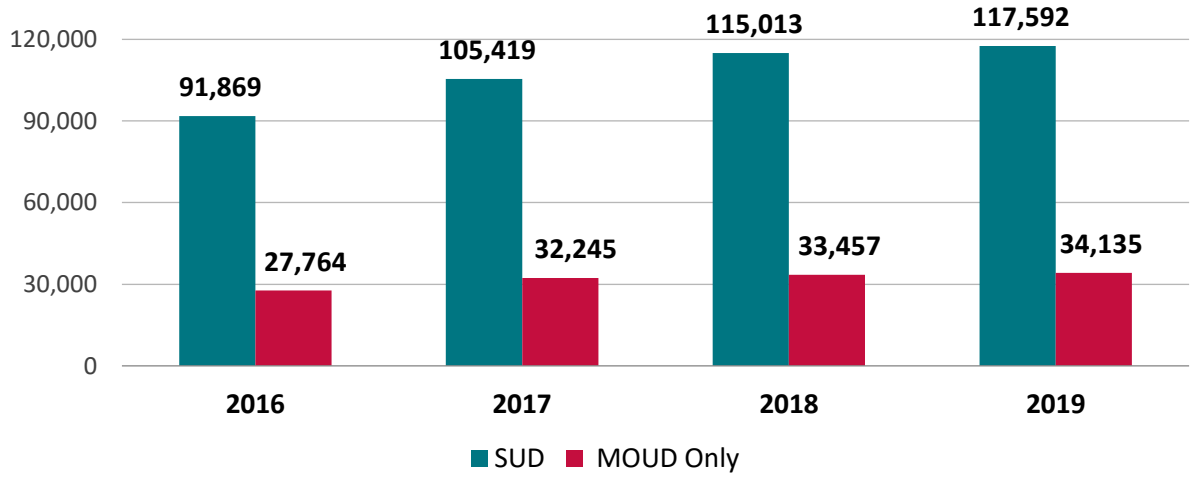
outpatient mental health services in the PBHS system within 30 days of their death were also more likely to receive both mental health and SUD services. This percentage has grown from approximately 75.0 percent in 2015 to over 91.0 percent in 2019.

Table 8. Overdose Decedents with PBHS Claims, Total and within 30 Days of Death, 2019

Service Type	Number	Percentage
Total Deaths	2,377	—
With PBHS Service	1,349	56.8%
PBHS Service within 30 days of death	543	40.3%
Diagnostic Category based on Service Type		
MH Service Only	31	5.7%
SUD Service Only	93	17.1%
Both	419	77.2%

While the number of patients receiving both SUD services and MOUD services has increased by more than 20.0 percent between FY 16 and FY 19, MOUD services have increased at a slightly slower rate (see figure 10, below).

Figure 9. Number of Individuals Receiving SUD and MOUD Services in Maryland, 2016–2019



Outcomes Measurement System (Risk Factors among the PBHS population)

The Outcomes Measurement System (OMS) was developed as a tool for tracking how well the people served in Maryland's Public Behavioral Health System (PBHS) fared over time. Although the OMS was designed to track trends in the PBHS as a whole, clinicians were encouraged to use the information in treatment planning. Data were collected regarding psychiatric symptomatology, substance use, recovery/resilience, legal involvement, health, and other areas. PBHS outpatient service providers were required to submit the OMS Questionnaire on consumers between ages 6 and 64 at admission and about every six months during treatment.

In 2019, 40.8 percent of the 1,349 overdose decedents who were also OMS participants had accessed both mental health and SUD PBHS services within the same calendar year of their death. This exceeded the 33.0 percent that accessed only mental health services and the 26.2 percent that accessed SUD services alone. This indicates that, in Maryland, the risk for overdose may be higher for individuals who receive dual mental health and SUD diagnoses.

Table 9. Overdose Decedents by PBHS Service Type within Year of Death, 2019

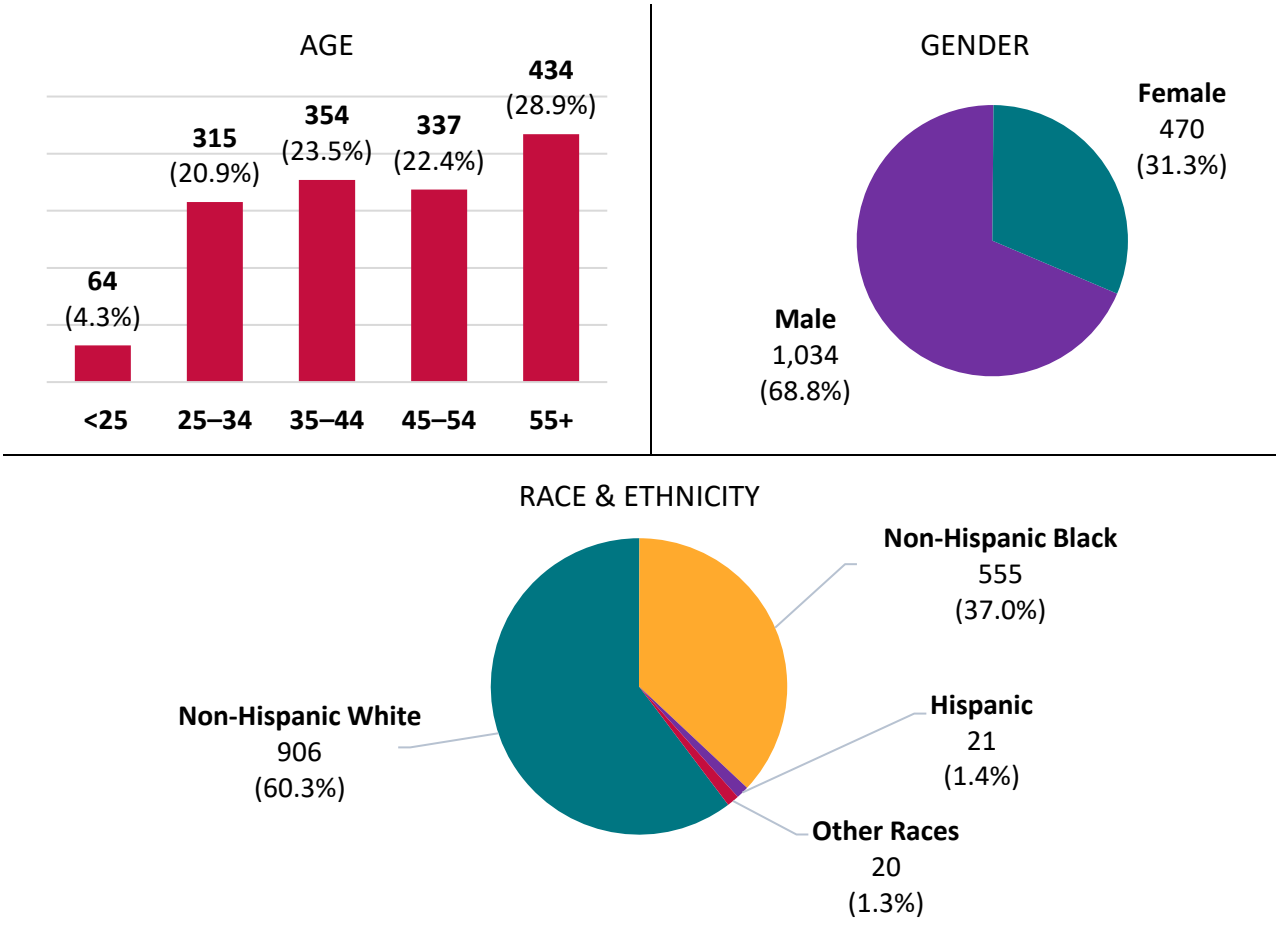
Service Type	Number	Percentage
With PBHS Service	1,349	59.2%
Type of Services Authorized		
MH Service Only	356	33.0%
SUD Service Only	282	26.2%
Both	440	40.8%
Type of service for most recent OMS interview		
MH Services	526	48.8%
SUD Services	552	51.2%

Prescription Drug Monitoring Program Data Summary

Since 2018, healthcare providers who prescribe controlled substances in Maryland have been required to use the Prescription Drug Monitoring Program (PDMP) to support the safe and effective use of prescription drugs. The PDMP collects information on the dispensing of controlled substances to patients in Maryland pursuant to Maryland Health General-Article § 21-2A-04.2. Drug dispensers, including pharmacies and healthcare practitioners, electronically report controlled substance dispensing data to the PDMP. The data below were derived from linking overdose death records with controlled substance dispensing data reported to the Maryland PDMP.

In 2019, non-Hispanic white individuals were overrepresented among overdose decedents who were previously dispensed a controlled substance. While over 57 percent of all decedents were non-Hispanic white (as shown in Table 1), this cohort accounted for 60.3 percent of decedents with a prior controlled substance dispensing. Non-Hispanic Black decedents were underrepresented, accounting for 37.0 percent of all decedents and those decedents previously dispensed controlled substances while making up 39.1 percent of all overdose decedents. In comparison to non-Hispanic Black decedents, a slightly larger proportion of non-Hispanic white decedents had been dispensed buprenorphine products approved for OUD treatment.

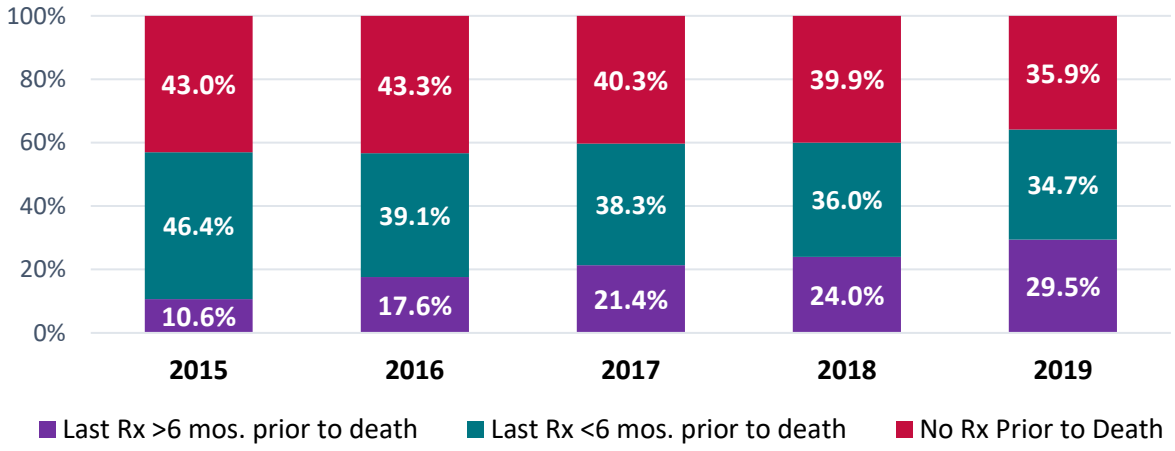
Figure 10. Overdose Decedents Dispensed Rx Controlled Substances by Age, Gender, and Race/Ethnicity, 2019



Overdose decedents age 55 and over had the highest proportion of recent controlled substance dispensing (less than six months prior to death) in 2019 as compared to their younger counterparts, followed by the 35 to 44 age group. Male overdose decedents had a higher proportion of recent dispensing than females in 2019.

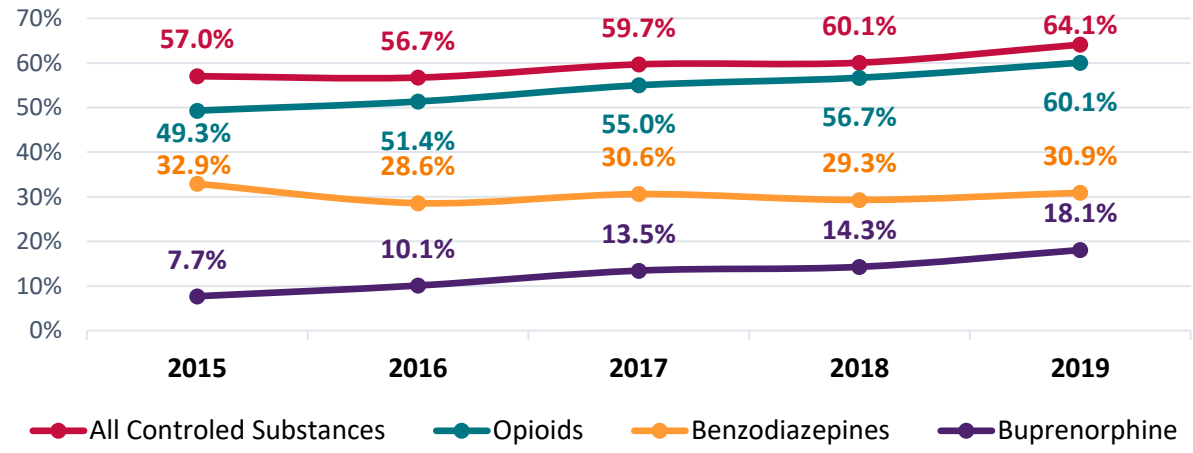
A majority of those who died from an overdose were previously prescribed and dispensed a controlled substance, with 64.1 percent of decedents in 2019 having been dispensed any controlled substance since 2015. At least a third of overdose decedents in any year between 2015 and 2019 were dispensed a drug less than six months prior to their date of death.

Figure 11. Percentage of Annual Overdose Decedents Dispensed Rx Controlled Substances Prior to Death, 2015–2019



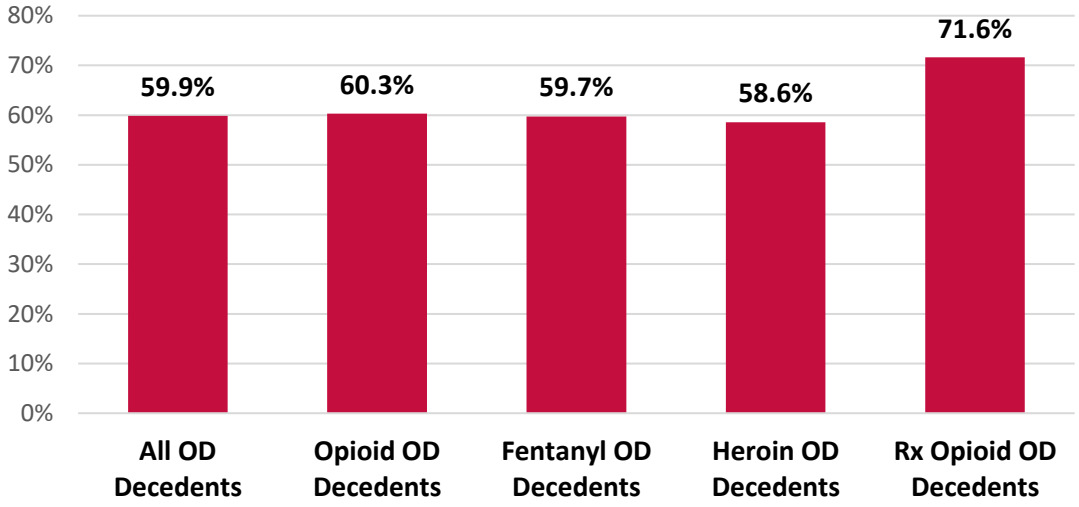
From 2015 to 2019, a steady increase occurred in the proportion of overdose decedents dispensed opioid prescriptions in Maryland, from 49.3 percent in 2015 to 60.1 percent in 2019. The proportion of overdose decedents with dispensing records for buprenorphine products approved for OUD treatment more than doubled between 2015 and 2019, increasing from 7.7 percent to 18.1 percent.

Figure 12. Percentage of Annual Overdose Decedents Dispensed Rx Controlled Substances by Therapeutic Class, 2015–2019



From 2015 to 2019, 59.9 percent of overdose decedents had been dispensed any controlled substance at any time during the five-year period. This percentage was similar for individuals who suffered a fatal overdose involving any opioid, or fentanyl or heroin, specifically. However, the percentage was higher (71.6 percent) for prescription opioid-related overdose decedents.

Figure 13. Percent of Overdose Decedents Dispensed Rx Controlled Substances by Cause of Death Substance, 2015–2019

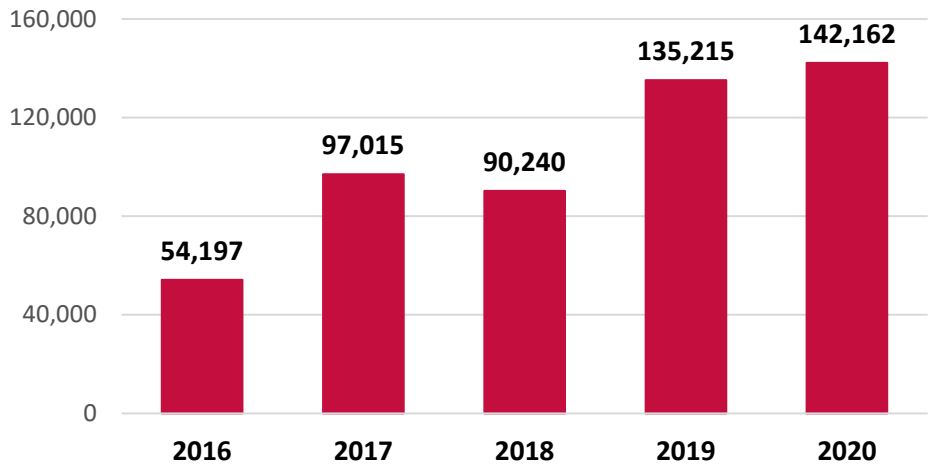


Overdose Response Program Data Summary

The Center for Harm Reduction Services within MDH administers the Overdose Response Program (ORP), which provides the means for training bystanders to administer naloxone in the event of an opioid overdose. MDH authorizes local entities as ORPs, allowing them to provide overdose education and dispense naloxone through partnerships with prescribers.[10]

There are 113 authorized ORPs in Maryland, with at least one in every jurisdiction. In 2020, 142,162 doses of naloxone were dispensed through ORPs.

Figure 14: Naloxone Doses Dispensed through ORPs, 2016–2020



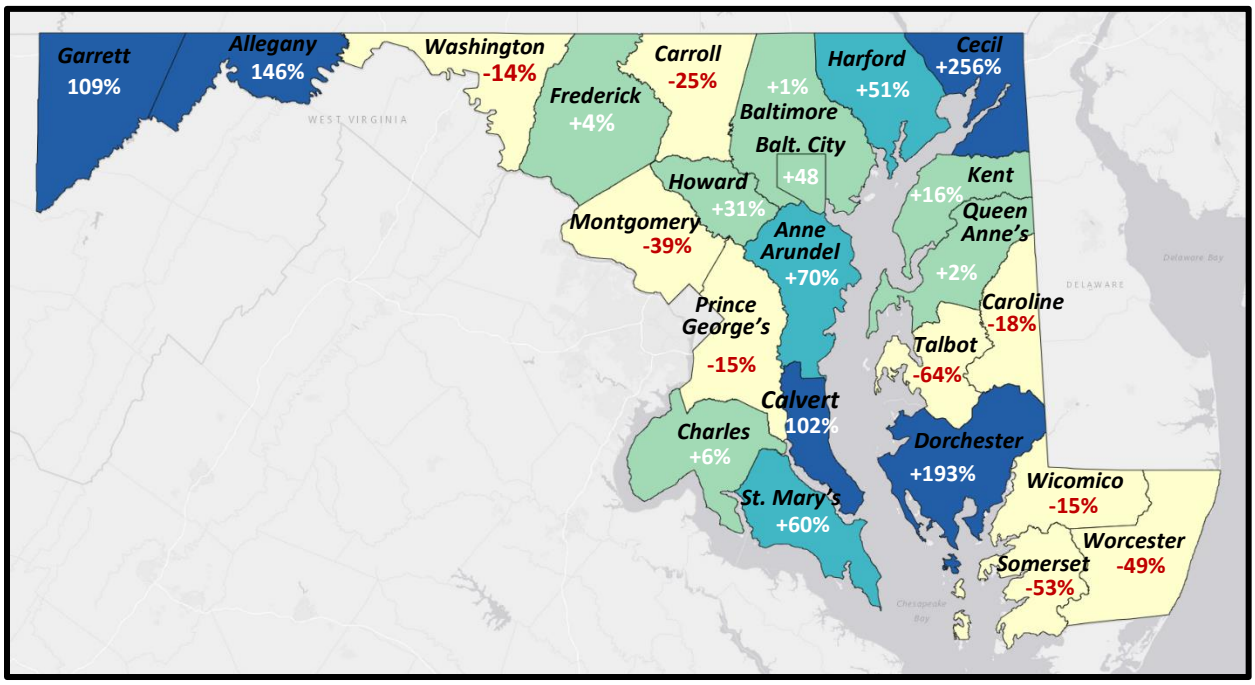
Providing naloxone to individuals who are at the highest risk for overdose is a critical strategy for reducing overdose-related mortality. Targeted naloxone distribution programs work best when: 1) naloxone is provided to people at high risk of experiencing or witnessing overdose; 2) outreach workers, harm reduction staff, and trusted clinicians are properly educated and comfortable distributing naloxone to those using illicit opioids or receiving a high-risk opioid prescription; and 3) people who use drugs and first responders are well informed as to the potential effects and actions of naloxone. Comfort with carrying and administering naloxone is crucial.

To better understand how local jurisdictions are reaching people at the highest risk for overdose with naloxone, CHRS developed a naloxone saturation formula based on previous research that demonstrated the effectiveness of naloxone distribution in reducing opioid-related mortality. One study showed that when naloxone was distributed to people at risk for overdose at 9-20 times greater than the number of overdose deaths, there was a 20.0-30.0 percent reduction in overdose-related deaths. Applying the naloxone saturation formula provides a framework for how to best address naloxone distribution in communities. Technical assistance and resource allocation can be provided to jurisdictions to ensure that jurisdictions are able to reach people at greatest risk for overdose with naloxone and to ensure that naloxone is distributed at levels where it can contribute to the greatest possible decrease in overdose fatalities.

[10] "The Overdose Response Program"; Center for Harm Reduction Services, Maryland Department of Health; https://health.maryland.gov/pha/NALOXONE/Pages/Home.aspx.

The map below shows naloxone saturation in 2020 by jurisdiction. In 2020, nine jurisdictions did not reach naloxone saturation targets, seven jurisdictions were between 0.0 and 49.0 percent above saturation targets, three jurisdictions achieved naloxone saturation between 50.0 and 100.0 percent, and five jurisdictions achieved more than 100.0 percent of their targeted naloxone saturation, according to the applied formula. The CHRS plans to partner with the Johns Hopkins Bloomberg School of Public Health to refine the naloxone saturation formula. Future analysis will look at the association between naloxone saturation and reductions in overdose mortality.

Figure 15. Naloxone Saturation by County, 2020



Syringe Service Programs Data Summary

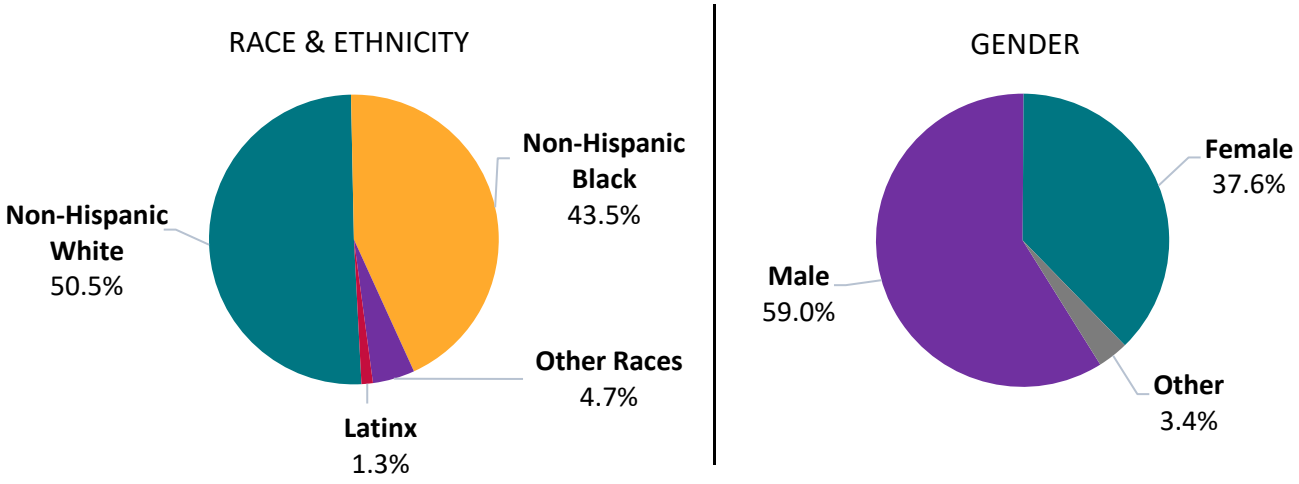
Syringe service programs (SSPs) are community-based programs that offer an array of services, including provisions to curtail the transmission of infectious disease, linkages to substance use treatment and other social support resources, vaccinations, and testing for infectious disease.

There are currently 19 SSPs that have been approved by the MDH Center for Harm Reduction Services, 12 of which are local health departments (Anne Arundel County Health Department, Baltimore City Health Department, Baltimore County Health Department, Calvert County Health Department, Cecil County Health Department, Frederick County Health Department, Howard County Health Department, Montgomery County Health Department, Prince George's County Health Department, St. Mary's County Health Department, Washington County Health Department, and Wicomico County Health Department); and seven are community-based organizations (Baltimore Harm Reduction Coalition, Charm City Care Connection, Health Care for the Homeless, Organization of Hope, Power Inside, SPARC, and Voices of Hope). As of May 1, 2021, there were four approved SSPs that are not yet operational (Calvert County Health Department, Montgomery County Health Department, Power Inside, and Wicomico County Health Department).

In 2020, seven new entities were approved to operate an SSP (Anne Arundel County Health Department, Calvert County Health Department, Health Care for the Homeless, Howard County Health Department, Organization of Hope, SPARC, and Wicomico County Health Department). So far in 2021, three programs have been approved to operate an SSP (Montgomery County Health Department, Power Inside, and Voices of Hope). Two jurisdictions have more than one program; Baltimore City has seven approved programs (Baltimore City Health Department, Baltimore Harm Reduction Coalition, Charm City Care Connection, Health Care for the Homeless, Organization of Hope, Power Inside, SPARC), and Cecil County has two approved programs (Cecil County Health Department and Voices of Hope).

When looking at the racial breakdown of SSP participants, approximately half (50.5 percent) of SSP participants identified as non-Hispanic white, 43.5 percent identified as non-Hispanic Black, and 6.0 percent identified as Latinx or other. By gender, 59.0 percent of SSP participants identified as male, 37.6 percent identified as female, and 3.4 percent identified as other.

Figure 16: SSP Participants by Race/Ethnicity and Gender, 2020



In addition to provisions to prevent the transmission of infectious disease and other complications caused by drug use, SSPs serve as an important healthcare access point for people who use drugs. An important component of SSPs includes providing referrals and linkages to care for participants, including; direct service or referrals to partner substance disorder counseling; treatment and recovery services; overdose education and naloxone distribution; wound care; reproductive health education and services; testing for HIV, viral hepatitis, and sexually transmitted infections; and other social supports, such as including housing support, legal support, insurance enrollment, and food support.

As SSP programming has expanded statewide, there has been a steady increase in SSP enrollment, resulting in a large increase in referrals and linkages to care. In the first quarter of 2020, there were 2,007 individuals enrolled in SSPs with 2,404 linkages or referrals to care. By the fourth quarter of 2020, enrollment in SSPs more than doubled to 4,335 individuals, with participants receiving 8,822 referrals and linkages to care.

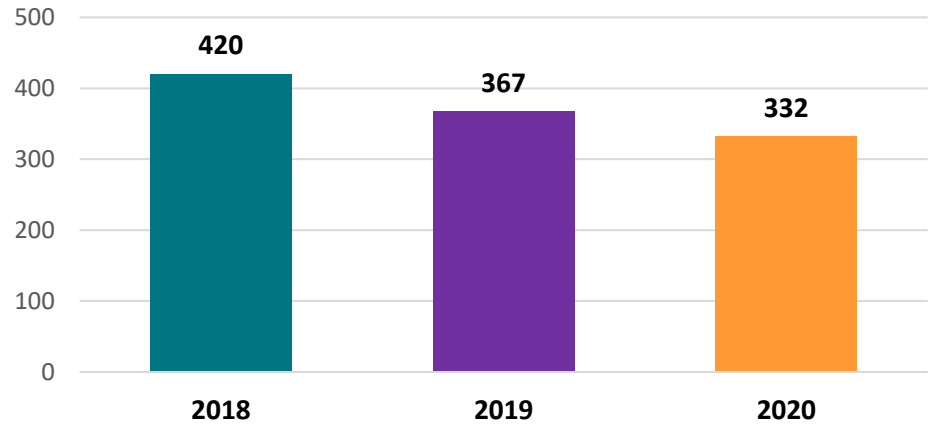
Parole & Probation Supervision Data Summary

To have access to more reliable non-fatal overdose data, the Hogan-Rutherford Administration introduced House Bill (HB) 359 during the 2018 Maryland General Assembly session. HB 359 authorizes emergency medical services (EMS) and law enforcement to report suspected overdoses to the Washington/Baltimore High-Intensity Drug Trafficking Area (HIDTA) Overdose Detection Map application (ODMAP). Information made available through ODMAP assists the Maryland Division of Parole and Probation with identifying individuals who have overdosed and are under community supervision.

If someone under community supervision overdoses, the Division of Parole and Probation is notified through ODMAP. The goal of alerting parole and probation officers of overdoses among people under community supervision is to provide connections to care, including treatment resources.

Since 2018 (the first year of complete data for tracking overdoses among people on parole or probation), non-fatal overdoses among this population have decreased each year. Further analysis into why this number is decreasing is needed, but two potential contributing factors include a decline in the number of individuals placed under community supervision and a decline in the expansion of services and resources (including the expansion of peer recovery support specialists, harm reduction services, and MOUD) during the same time frame. Phase two of the DORM initiative will focus on completing more advanced analysis on public safety data to better understand relative risk for fatal overdose among this population.

Figure 17. Non-Fatal Overdoses among People under Community Supervision, 2018–2020



State Unintentional Drug Overdose Reporting System (SUDORS) Data Summary

SUDORS is an enhanced surveillance system that systematically abstracts information from death certificates, coroner/medical examiner reports, and law enforcement reports to capture details about the circumstances of fatal overdose deaths, including toxicology, death scene investigations, route of administration, and other risk factors and circumstances. SUDORS data can be helpful in identifying trends and increasing understanding of circumstances surrounding a fatal overdose. These data can be used to evaluate current policies and interventions and inform changes.

The Maryland SUDORS program used the National Industry and Occupation Computerized Coding System (NIOCCS) tool made available by the U.S. National Institute for Occupational Safety and Health (NIOSH) to classify industry and occupation for all decedents with usual industry and occupation available on the death certificate. The charts below show opioid decedent workplace analysis data from 2018. Across the state, the industry sector most impacted by fatal overdoses was construction. Individuals that worked in construction accounted for 22.2 percent of the fatal overdoses in Maryland in 2018. Construction was the most common industry among males, non-Hispanic white, non-Hispanic Black, and Hispanic overdose decedents.

The findings also indicate that while construction is the most common sector across the state, the second most common sector varies by jurisdiction of residence. On the Eastern Shore,[11] retail trade was the second most common, whereas it was the fourth most common across the state. In Western Maryland,[12] West-Central Maryland,[13] and Anne Arundel County, accommodation and food services were the second most common industry, which is consistent with the statewide data. In Baltimore City, Baltimore County, and the Capital Region,[14] "not in workforce" was the second most common classification. Statewide, "not in workforce" was the third most common.

Table 10. Opioid Overdose Decedent by Occupation, 2018

Usual Industry Sector	Number	Percent
Construction	468	22.2%
Accommodation and Food Services	174	8.2%
Not in Workforce (student, homemaker, volunteer, unable to work)	169	8.0%
Retail Trade	135	6.4%
Other Services	127	6.0%
Health Care and Social Assistance	126	6.0%
Administrative and Support and Waste Management and Remediation Services	109	5.2%
Manufacturing	109	5.2%

[11] The Eastern Shore consists of Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester Counties.
[12] Western Maryland consists of Allegany, Frederick, Garrett, and Washington Counties.
[13] West-Central Maryland consists of Carroll County and Howard County.
[14] The Capital Region consists of Montgomery County and Prince George's County.

Next Steps

DORM

Maryland is taking multiple steps to ensure that data is used in effective ways to reduce opioid-related morbidity and mortality. To advance the work of DORM in future years, BHA has contracted with the Chesapeake Regional Information Systems for our Patients (CRISP), Maryland's designated Health Information Exchange to provide data management and linkage services, and the Johns Hopkins Bloomberg School of Public Health to provide more complex analyses of linked overdose decedent datasets. Future DORM reports will include analysis of two or more linked datasets to better understand system interactions that are associated with higher risk of fatal overdose.

Program Evaluation

Maryland is pursuing additional evaluation opportunities through the Overdose Data to Action (OD2A) initiative. OD2A is a multi-year cooperative agreement from the Centers for Disease Control and Prevention (CDC) that seeks to provide an interdisciplinary, comprehensive, and cohesive public health approach to the drug overdose crisis. It supports getting high-quality, comprehensive, and timelier data on overdose morbidity and mortality, and to use those data to inform prevention and response activities. OD2A also supports rigorous evaluation projects to help demonstrate achievement of program outcomes; build a stronger evidence base for specific program interventions; clarify the applicability of the evidence base to different populations, settings, and contexts; drive continuous program improvement; and determine whether program strategies are scalable and effective at reaching the target or intended populations. Key evaluation projects include an analytic evaluation of Maryland's PMDP use and its impact on prescriber behavior; an assessment of the extent to which individuals at highest risk of overdose are able to access prevention and harm reduction resources; and the identification of local prevention programs that have the greatest impact on reducing overdose rates at the state and local level.

Collectively, these evaluation efforts will help inform the state's strategy for responding to the overdose crisis. Using data to drive policy, programs, and resources, we believe that we will reduce opioid morbidity and mortality in the State of Maryland.