MARYLAND
STATE CHILD FATALITY REVIEW TEAM
Baltimore, Maryland 21201

June 30, 2025

The Honorable Wes Moore
Governor
State of Maryland
Annapolis, MD 21401-1991

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

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

RE: Health – General Article, §5-704(b)(12) – 2022 Legislative Report of the State Child Fatality Review Team (MSAR #7575)

Dear Governor Moore, President Ferguson, and Speaker Jones:

Pursuant to Health-General Article, §5-704(b)(12), the Maryland State Child Fatality Review Team submits this 2022 report on its progress and accomplishments in calendar year 2022. The report includes data relating to unexpected child deaths in Maryland that occurred in calendar year 2021. These deaths were reported by the Office of the Chief Medical Examiner and reviewed by the local Child Fatality Review team in each jurisdiction.

If you have questions or need further information about this report, please contact me at (410) 935-6428 or richard.lichenstein@maryland.gov.

Sincerely,

Richard Lichenstein, MD

Richard Lichenstein, MD
Chair

Cc: Sarah Case-Herron, JD, Director, Office of Governmental Affairs
Elizabeth Kromm, PhD, MSc, Acting Deputy Secretary, Public Health Services
Shelly Choo, MD, MPH, Director, Maternal and Child Health Bureau
Sarah Albert, Department of Legislative Services (5 copies)

Maryland State Child Fatality Review

2022 Report
Health – General Article §5-704(b)(12)

Wes Moore
Governor

Aruna Miller
Lt. Governor

Meena Seshamani, MD, Ph.D
Secretary of Health

https://health.maryland.gov/CFR

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Acknowledgements

This review of child deaths in Maryland would not be possible without the data, expertise, and collaboration of the Maryland Department of Health Vital Statistics Administration and the Office of the Chief Medical Examiner. The Child Fatality Review Program (the Program) would also like to offer special thanks to the volunteer members of its State Child Fatality Review Team, and local Child Fatality Review Teams in all 24 jurisdictions, for the hours spent in discussion and the serious attention given to this important public health project. A list of State Team members can be found in Appendix A of this document. The Program is grateful for the Maryland Department of Health Maternal and Child Health Bureau staff for their contributions, including Dr. Shelly Choo, NaToya Mitchell, Cassidy Spence, Thuy Nguyen, Jessica Hernandez, and Lindsey Hall. The Program acknowledges the infants and children who passed away, and their families and loved ones. Each death represents a person's life that ended too early.

List of Abbreviations

API	Asian or Pacific Islander
CDC	Centers for Disease Control and Prevention
CDRCRS	National Child Death Review Case Reporting System
CFR	Child Fatality Review
CPS	Child Protective Services
DSS	Department of Social Services
LDSS	Local Department of Social Services
LHD	Local Health Department
MCHB	Maternal and Child Health Bureau
MDH	Maryland Department of Health
MMQRC	Morbidity, Mortality, and Quality Review Committee
NCHS	National Center for Health Statistics
NH	Non-Hispanic
OCME	Office of the Chief Medical Examiner
SIDS	Sudden Infant Death Syndrome
SUID	Sudden Unexpected Infant Death
TANF	Temporary Assistance for Needy Families
VSA	Vital Statistics Administration
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children
ZCTA	ZIP Code Tabulation Area

Overview of Maryland Child Fatality Review

Child Fatality Review (CFR) is a systematic, multi-agency, and multi-disciplinary review of unexpected child deaths. This review process, which began in Los Angeles in 1978 as a mechanism to identify fatal child abuse and neglect, has grown into a national system to examine unexpected child fatalities and to inform prevention efforts.

The purpose of the Maryland State CFR Team (Team) is to prevent child deaths by:

(1) Understanding the causes and incidence of child deaths;
(2) Implementing changes within the agencies represented on the Team to prevent child deaths; and
(3) Advising the Governor, the General Assembly, and the public on changes to law, policy, and practice to prevent child deaths.

The Team envisions the elimination of preventable child fatalities. To achieve this goal, the Team aims to successfully use the CFR process to understand the circumstances around incidents of child fatality and to recommend strategies to prevent future fatalities.

The Maryland CFR Program (Program) was established by statute in Health - General Article, §5-702 and Senate Bill 464 (Chapter 355 of the Acts of 1999). The Program is housed within the Maryland Department of Health (MDH) for budgetary and administrative purposes. The 25-member Team is comprised of representatives from multiple State agencies and professional organizations, as well as two pediatricians and 11 members of the general public with interest and expertise in child safety and welfare, who are appointed by the Governor (see Appendix A). The Team meets at least four times a year to address 13 statutorily mandated duties (see Appendix B).

The Team provides support to local CFR teams that operate in 24 Maryland jurisdictions, including 23 counties and Baltimore City. The local CFR teams receive notice from the Office of the Chief Medical Examiner (OCME) of unexpected resident deaths of children under age 18. The local CFR teams are required to review each of these deaths. Local teams meet at least quarterly to review cases and make recommendations for local level systems changes to statute, policy, or practice to prevent future child deaths, and work to implement these recommendations. This report covers data through the calendar year 2021 for OCME-referred deaths.

Other multidisciplinary groups in Maryland have similar charges to prevent child injury and death. The State Council on Child Abuse and Neglect and the Citizen Review Board for Children examine policies and practices for protecting children. Also, the MDH Morbidity, Mortality, and Quality Review Committee (MMQRC), established by legislation in 2008, is charged with reviewing morbidity and mortality associated with pregnancy, childbirth, infancy, and early childhood. The MMQRC provides another opportunity for review and dissemination of information and recommendations developed through the CFR process. The local CFR teams work collaboratively with local Fetal and Infant Mortality Review teams in several jurisdictions as well as with other review teams, such as pedestrian fatality and overdose fatality programs.

Unexpected Child Deaths – Maryland, 2021

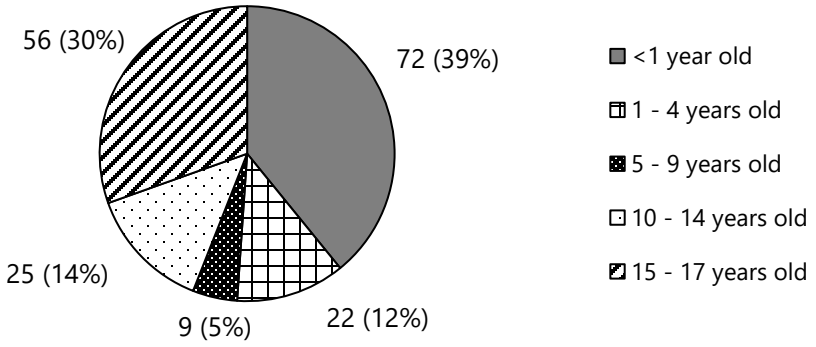
Childhood deaths are a major public health concern, as many of these deaths are preventable. Surveillance of childhood deaths allows public health programs to measure the magnitude of the problem and assess the causes and populations affected; these data are crucial in identifying trends and targeting interventions to prevent childhood deaths. The CFR process reviews all unexpected child deaths referred by OCME as well as other unexpected child deaths among Maryland residents identified by MDH or the Local CFR Teams. Unexpected child deaths include cases of Sudden Unexpected Infant Death (SUID), unintentional injury, homicide, suicide, and some deaths due to natural causes.[1] Epidemiologists within the MDH Maternal and Child Health Bureau (MCHB) analyzed OCME-referred child deaths for this report.

An important aspect of Maryland's CFR review process is the local team's use of additional data sources – including medical records, school district data, police investigations, emergency medical service records, and investigations by the Department of Social Services (DSS) – to improve the overall quality of case review data. Local CFR teams receive ongoing trainings to classify child deaths accurately and consistently. Data were then uploaded to the National Child Death Review Case Reporting System (CDRCRS) (Article – Health – General §5–701 and §5–704). Fatality analysis in this report uses the data as reported to CDRCRS from local CFR teams.

Number of Unexpected Child Deaths by Age Group

In 2021, the OCME referred 184 unexpected child deaths to the local CFR teams for review. Figure 1 shows the distribution of these deaths by age.

Figure 1: Number of Unexpected Child Deaths by Age Group, Maryland, 2021



Source: CDRCRS, as of 6/04/2024.
Percentages may total more than 100% due to rounding.

Seventy-two deaths (39%) occurred among infants (children under one year of age), and fifty-six deaths (30%) occurred among children ages 15 to 17 years old. Of the 184 unexpected child

[1] SUID is the sudden death of an infant less than one year of age that cannot be fully explained after a thorough review of the medical history, a complete autopsy, and examination of the death scene.

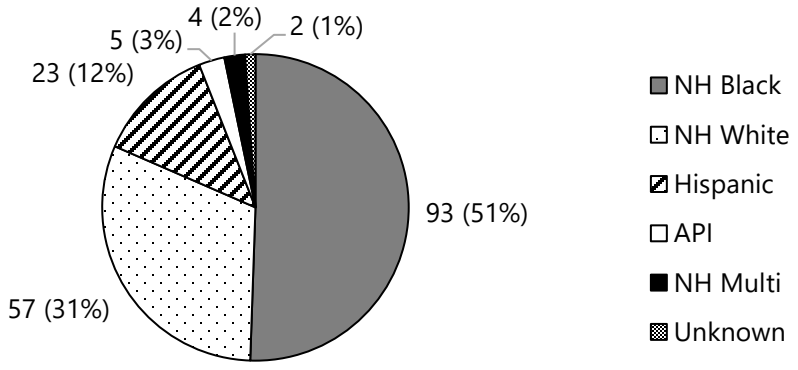
deaths, 106 deaths (58%) occurred among male children and 78 deaths (42%) among female children.

Number of Unexpected Child Deaths by Race/Ethnicity

Starting with the 2021 Maryland Annual Vital Statistics Report, the Vital Statistics Administration (VSA) reported updated race and ethnicity categories based on new standards set by the U.S. Census Bureau and the National Center for Health Statistics (NCHS). Previously, NCHS's 'bridged race' method was used to specify more than one race into a single category. The change to single-race categories – that is, categories for which only one race is reported – includes an additional 'multi-race' category in which two or more races are aggregated.[2] In March 2024, the MCHB Data and Epidemiology team received single-race data from VSA dating back to 2015 to create historical trends. This report and future analyses will reflect single race categories; counts may differ from previous reports.

Figure 2 shows the distribution of unexpected child deaths by race and ethnicity in 2021. Non-Hispanic (NH) Black children had the highest number of unexpected deaths with 93 deaths (51%), which was four times greater than the number of unexpected deaths among Hispanic children and more than one and a half times greater than the number of unexpected deaths among NH White children.

Figure 2. Number of Unexpected Child Deaths by Race/Ethnicity, Maryland, 2021



Source: CDRCRS, as of 6/04/2024.
Percentages may total more than 100% due to rounding
NH - Non Hispanic
API – Asian or Pacific Islander.

[2] For more information, please see "Explanatory Notes" on page xi of the 2021 Maryland Vital Statistics Annual Report.

Unexpected Child Deaths by Manner and Cause of Death

There were 11 deaths in which the manner of death was not reviewed by the CFR teams due to either no autopsy being indicated, the teams not receiving immediate notification of the death, or time/resource constraints at the local health departments (LHDs) and OCME caused by the prolonged COVID-19 pandemic. The number and percentage of child fatality cases occurring in 2021 by manner and cause of death categories are shown in Table 1.

Table 1. Unexpected Child Deaths by Manner and Cause of Death, Maryland 2021

	Number	Percent
Undetermined	**55**	**30%**
Undetermined if medical or external injury	48	26%
External – Poison	2	1%
External – Fire, burn, or electrocution	3	2%
Unknown	2	1%
Accident	**39**	**21%**
External – Motor Vehicle Accident	16	9%
External – Asphyxia	5	3%
External – Drowning	8	4%
External – Other	1	1%
External – Fire, burn, or electrocution	2	1%
External – Fall or crush	4	2%
MedCond* – Other medical	1	1%
MedCond* – Undetermined medical	1	1%
Undetermined if medical or external injury	1	1%
Homicide	**31**	**17%**
External – Weapon (including assault)	24	13%
External – Poison	3	2%
External – Asphyxia	1	1%
External – Other	2	1%
External – Fall or crush	1	1%
Suicide	**22**	**12%**
External – Weapon (including asphyxia)	8	4%
External – Other	3	2%
External – Asphyxia	8	4%
External – Poison	1	1%
External – Fire, burn, or electrocution	1	1%

Table 1. Unexpected Child Deaths by Manner and Cause of Death, Maryland 2021 (Continued)		
	Number	**Percent**
External – Missing	1	1%
Natural	**25**	**16%**
Medical – Cardiovascular	9	5%
Medical – Undetermined medical cause	1	1%
Medical – Asthma	2	1%
Medical – COVID-19	1	1%
Medical – Congenital Anomaly	5	3%
Medical – Neurological, seizure	3	2%
Medical – Malnutrition, Dehydration	1	1%
Medical – Other infection	3	2%
Unknown	**1**	**1%**
External-Other	1	1%
Not Reviewed	**11**	**6%**
Total	**184**	**100%**

Source: CDRCRS, as of 6/04/2024.
Percentages may total more than 100% due to rounding.
MedCond = Medical Condition

Undetermined was the leading manner of child deaths in 2021, which accounted for 30% of all child deaths. Cases that are classified as undetermined include cases that were not possible for the CFR teams to determine if the death was due to an injury or due to a medical cause. Differentiating a cause of death from suicide, homicide, or accidents can also be difficult for the teams to determine. In addition, the lack of consensus among review team members can result in the cause of death being listed as undetermined. A case can be classified as unknown if the team did not have information on the primary cause of death.

In 2021, accidents were the second leading manner of child deaths, accounting for 21% of all child deaths. Motor vehicle accidents[3] were the leading cause of accidental deaths (9% of all deaths). Homicide and suicide accounted for 17% and 12% of child deaths, respectively. Natural causes accounted for 14% of child deaths in 2021, with cardiovascular conditions being the leading cause of natural deaths (5% of all natural deaths). Eleven cases (6%) were not reviewed for a manner and cause of death.

Among the 184 child deaths that occurred in 2021, local CFR teams reported 19 deaths (10%) resulting from confirmed abuse or neglect, the same number of deaths as in 2020. Teams incorporated information from autopsy records, DSS findings, and police investigations. Members

[3]Although the Centers for Disease Control and Prevention uses the term “motor vehicle crash”, the term “accident” is used by the National Center for Fatality Review and Prevention.

of the local CFR team shared their findings, which determined that child abuse or neglect was indicated in the incident that led to the child's death.

Unexpected Child Deaths by Jurisdiction of Residence

In Table 2, the number and percentage of deaths in 2021 are shown by jurisdiction of residence of the child at the time of death. Baltimore City had the highest number of child fatalities reviewed (22%), followed by Prince George's County (13%) and Baltimore County (11%).

Table 2. Unexpected Child Deaths by Jurisdiction of Residence, Maryland, 2021

	Number	Percent
Baltimore City	41	22%
Prince George's	24	13%
Baltimore	21	11%
Anne Arundel	18	10%
Montgomery	12	7%
Cecil	8	4%
Harford	8	4%
Howard	8	4%
St. Mary's	8	4%
Washington	7	4%
Dorchester	6	3%
Wicomico	5	3%
Frederick	4	2%
Allegany	3	2%
Calvert	2	1%
Carroll	2	1%
Queen Anne's	2	1%
Caroline	1	1%
Charles	1	1%
Garrett	1	1%
Somerset	1	1%
Worcester	1	1%
Total	**184**	**100%**

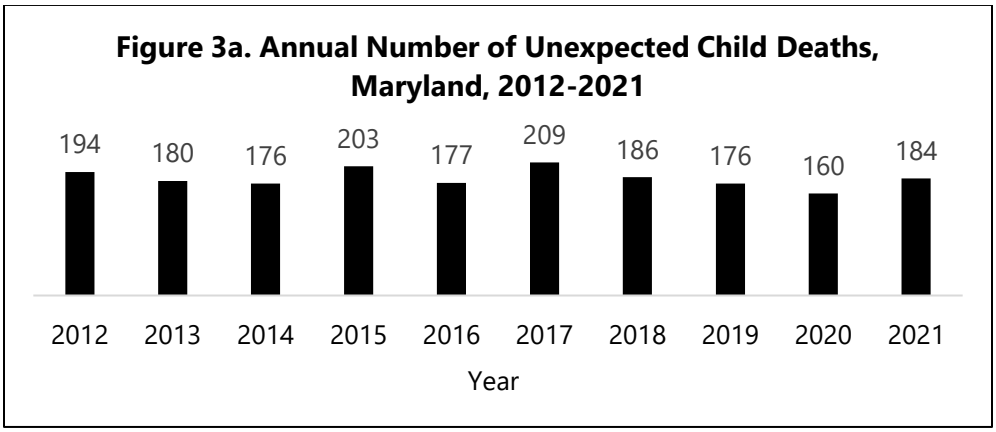
Source: CDRCRS, as of 6/04/2024.
Counties not listed had no unexpected child deaths in 2021.
Percentages may total more than 100% due to rounding.

Trends in Unexpected Child Deaths in Maryland

The data collection efforts of local CFR teams continue to undergo process improvements. Since 2017, reports have relied on child demographic data input by CFR teams into a national database. Prior to 2017, only case details provided by OCME were used for reporting child demographic data. Thus, the annual number of cases by different demographic characteristics may vary from annual reports completed prior to 2017.

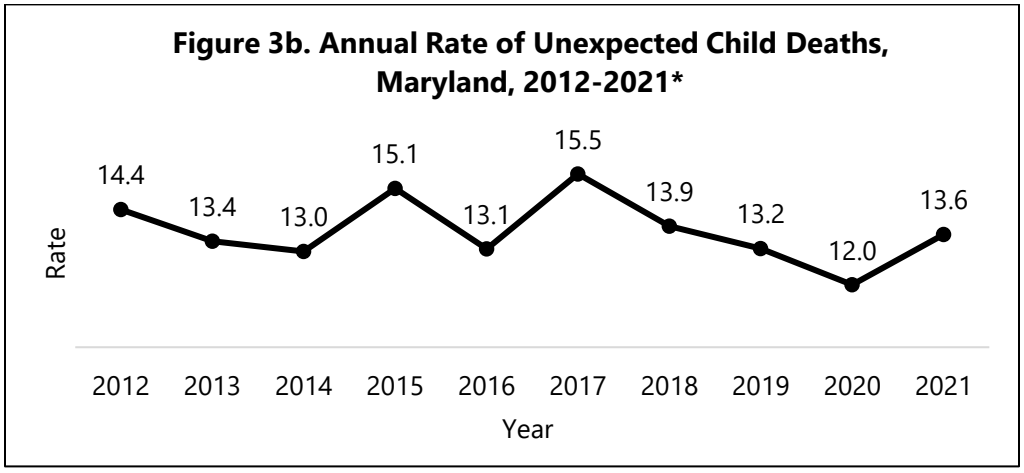
Annual Number and Rate of Unexpected Child Deaths

Figure 3a shows the annual number of unexpected child deaths referred by OCME during the 10-year period from 2012 to 2021. Since 2012, the number of yearly child fatality cases has fluctuated between 160 and 209 annually, with the fewest number of cases occurring in 2020. Since 2012, the number of referred unexpected child deaths has represented about 27% of all deaths of children under 18 years old.



Source: CDRCRS, as of 6/04/2024.

Figure 3b shows the annual rate of unexpected child deaths per 100,000 population for children ages 0 to 17 for the 10-year period from 2012 to 2021. The rate declined by 12% between 2017 and 2021 but increased from 2020 to 2021 by 13%.



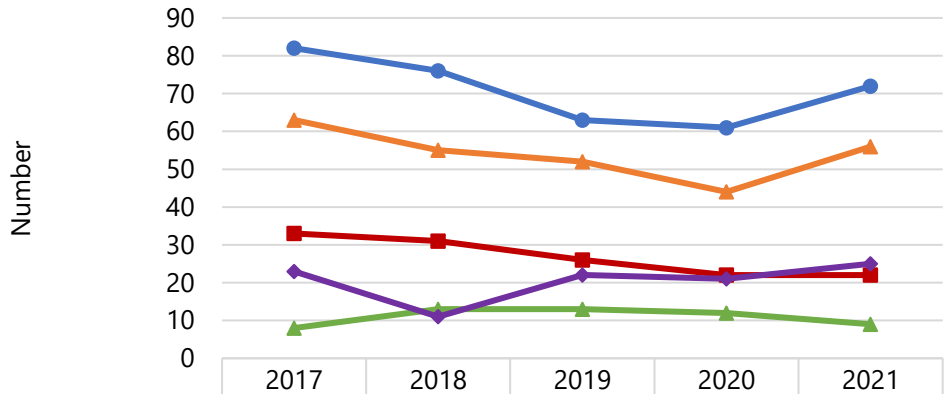
Source: CDRCRS, as of 6/04/2024.

*For 2012-2020, rates per 100,000 population based on National Vital Statistics System population estimates. For 2021, rates per 100,000 population based on US Census Bureau population estimates.

Number and Rates of Unexpected Child Deaths by Age Group

Figure 4a shows the number of child fatality cases by age group over the five-year period from 2017 to 2021. Between 2020 and 2021, the number of deaths increased among <1 year old, 10 to 14-year-old, and 15 to 17-year-old age groups. The number of deaths decreased or remained the same for all other age groups. Among infant deaths, 72% occurred between the ages of 1 month to 6 months, accounting for 28% of all unexpected child deaths.

Figure 4a. Number of Unexpected Child Deaths by Age Group, Maryland, 2017 to 2021 (n=915)

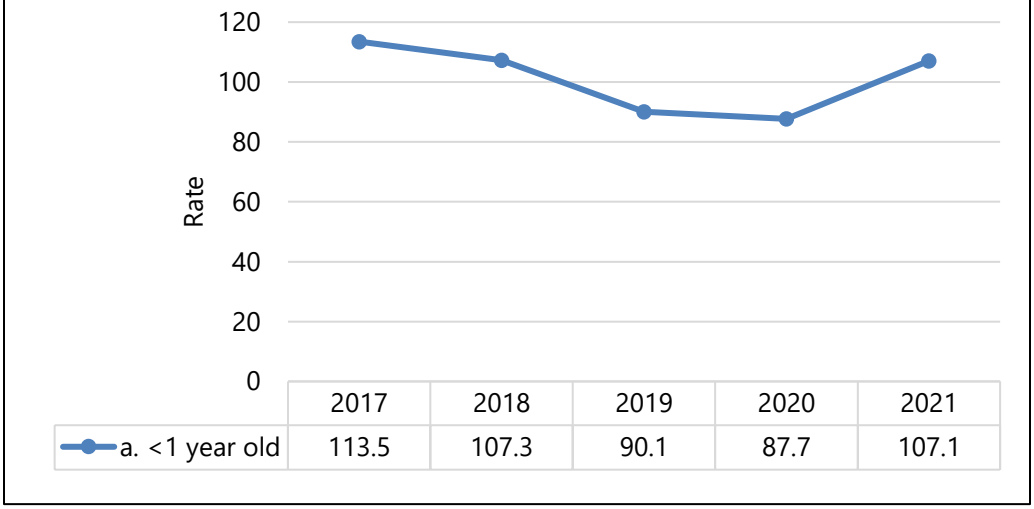


	2017	2018	2019	2020	2021
a. <1 year old	82	76	63	61	72
b. 1 - 4 years old	33	31	26	22	22
c. 5 - 9 years old	8	13	13	12	9
d. 10 - 14 years old	23	11	22	21	25
e. 15 - 17 years old	63	55	52	44	56

Source: CDRCRS, as of 6/04/2024.

Figures 4b and 4c show a much higher rate of unexpected child deaths among infants over the five-year period from 2017 to 2021. The overall rate of deaths among infants in Maryland was over four times higher than the rate among children ages 15 to 17 years old during this period.

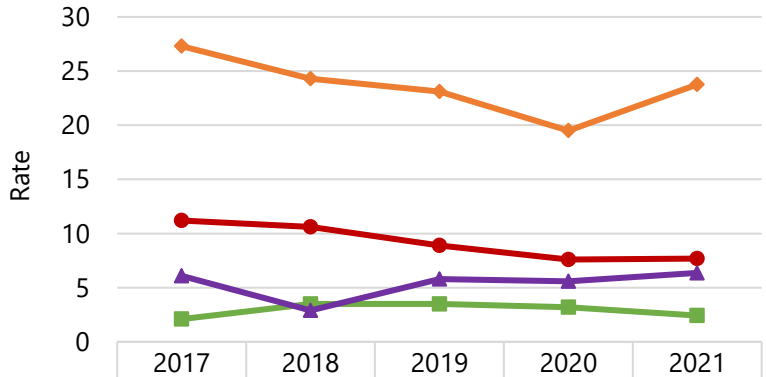
Figure 4b. Rates of Unexpected Child Deaths for Infants <1 Year Old, Maryland, 2017-2021



	2017	2018	2019	2020	2021
a. <1 year old	113.5	107.3	90.1	87.7	107.1

Source: CDRCRS, as of 6/04/2024.
*For 2012-2020, rates per 100,000 population based on National Vital Statistics System population estimates. For 2021, rates per 100,000 population based on US Census Bureau population estimates.

Figure 4c. Rates of Unexpected Child Deaths Children Ages 1 and Older by Age Group, Maryland, 2017-2021*

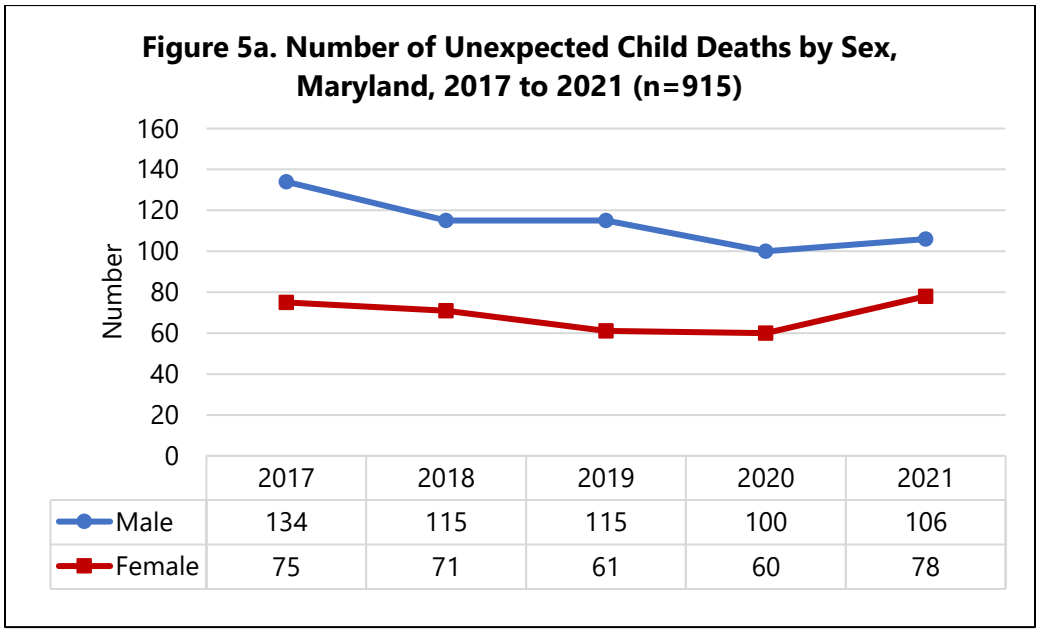


	2017	2018	2019	2020	2021
b. 1 - 4 years old	11.2	10.6	8.9	7.6	7.7
c. 5 - 9 years old^	2.1	3.5	3.5	3.2	2.4
d. 10 - 14 years old^	6.1	2.9	5.8	5.6	6.4
e. 15 - 17 years old	27.3	24.3	23.1	19.5	23.8

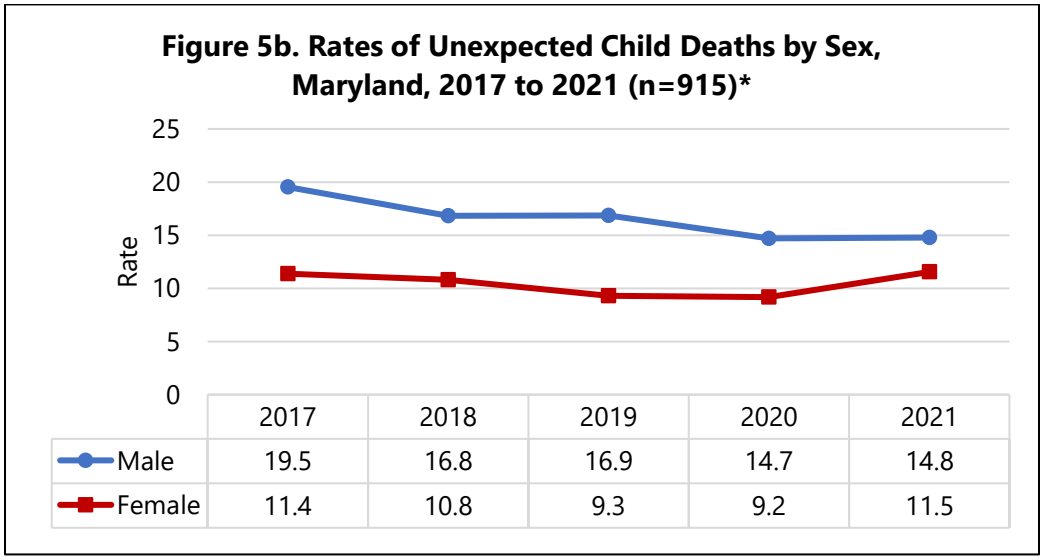
Source: CDRCRS, as of 6/04/2024.
*Rates per 100,000 population based on National Vital Statistics System population estimates.
^Rates with >5 but <20 deaths in the numerator are subject to instability. For the 5–9-year-old age group, all 5 years had numerators in this range. For 10-14 years old, 2018 had a numerator in this range.

Number and Rates of Unexpected Child Deaths by Sex

Between 2017 and 2021, 570 male children and 345 female children died unexpectedly. The number (Figure 5a) and rate (Figure 5b) of unexpected deaths was consistently higher among male children than among female children during that time period. In 2021, the number of unexpected deaths was 36% higher among male children than among female children.



Source: CDRCRS, as of 6/04/2024.



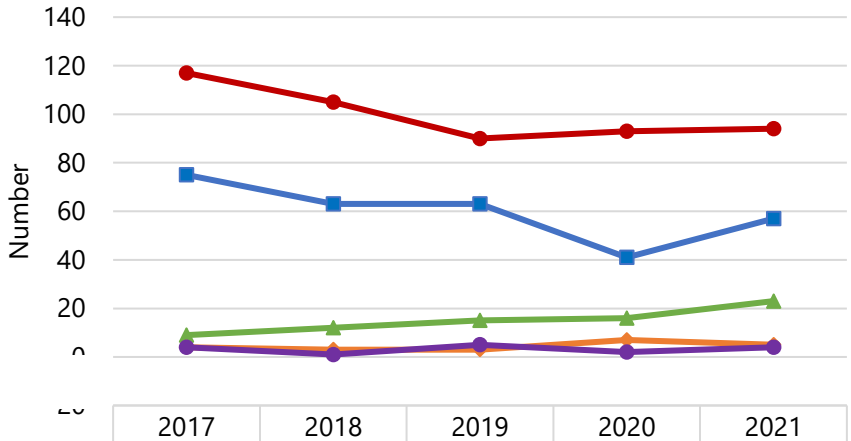
Source: CDRCRS, as of 6/04/2024.

*For 2012-2020, rates per 100,000 population based on National Vital Statistics System population estimates. For 2021, rates per 100,000 population based on US Census Bureau population estimates.

Number and Rates of Unexpected Child Deaths by Race and Ethnicity

Figure 6a shows the number of unexpected child deaths by race and ethnicity, which highlights the continued disparities among racial and ethnic groups in Maryland. In 2021, the number of unexpected child deaths among NH Black children was over one and a half times higher than the number of deaths among NH White children, and more than four times higher than the number of deaths among Hispanic children.

Figure 6a. Number of Unexpected Child Deaths by Race and Ethnicity, Maryland, 2017 to 2021 (n=915)

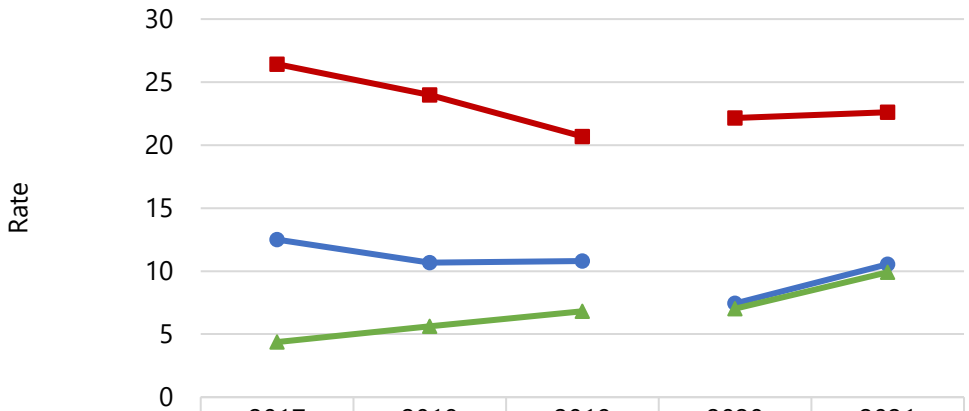


	2017	2018	2019	2020	2021
NH Black	117	105	90	93	94
NH White	75	63	63	41	57
Hispanic	9	12	15	16	23
NH API	4	3	3	7	5
NH Multirace	4	1	5	2	4

Source: CDRCRS, as of 6/04/2024.
Note: Unknown race not shown; 2 cases in 2018 and 1 case in 2020 and 2021 had unknown race.

As mentioned earlier in the report, beginning in 2022, single-race categories will be used instead of bridged race categories. Single-race child population level data was not yet available for years prior to 2020 at the time this report was drafted. Because of this, unexpected child death rates by single-race categories could only be calculated for 2020 and 2021 (Figure 6b). There is a break in figure 6b to illustrate that 2017-2019 rates are not comparable to 2020-2021 rates. Looking at 2020 and 2021, the NH Black unexpected child death rate was over two times higher than the NH White and the Hispanic rate. As more years of single-race population data become available, future reports will include trend graphs that reflect single-race data exclusively.

Figure 6b. Rates of Unexpected Child Deaths by Race and Ethnicity, Maryland, 2017-2021



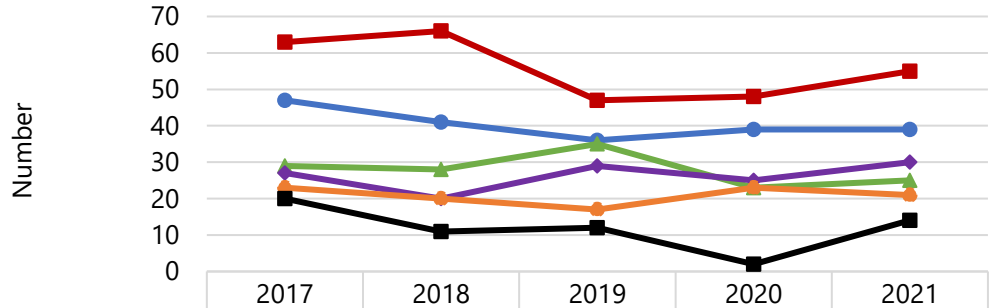
	2017	2018	2019	2020	2021
NH White	12.5	10.7	10.8	7.4	10.5
NH Black	26.4	24.0	20.7	22.1	22.6
Hispanic^	4.4	5.6	6.8	7.0	9.9

Source: CDRCRS, as of 6/04/2024.
*For 2012-2020, rates per 100,000 population based on National Vital Statistics System population estimates. For 2021, rates per 100,000 population based on US Census Bureau population estimates.
^Rates with >5 but <20 deaths in the numerator are subject to instability. For Hispanic, all years except 2021 had a numerator in this range.

Number of Unexpected Child Deaths by Manner of Death

Figure 7 shows the number of unexpected child deaths by manner of death from 2017 to 2021. Undetermined was the leading manner of death for all years, followed by accidents. Additionally, during this period, six percent (6%) of the deaths referred from OCME were not reviewed.

Figure 7. Number of Unexpected Child Deaths by Manner of Death Category, Maryland, 2017 to 2021 (n=915)*



	2017	2018	2019	2020	2021
Undetermined	63	66	47	48	55
Accident	47	41	36	39	39
Natural	29	28	35	23	25
Homicide	27	20	29	25	30
Suicide	23	20	17	23	21
Not Reviewed	20	11	12	2	14

Source: CDRCRS, as of 6/04/2024.
*Undetermined includes unknown (6 cases); Not Reviewed includes pending (1 case) and missing a response (1 case).

Number and Rates of Unexpected Child Deaths by Jurisdiction of Residence

Table 3 shows the number of unexpected child deaths by jurisdiction of residence of the child at the time of death. Baltimore City has had the highest number of resident child deaths for each of the past five years, but overall, the number of resident child deaths has decreased by 16% from 2017 to 2021. Baltimore, Prince George's, Anne Arundel, and Montgomery counties have consistently been in the top five among child deaths. During the five-year period from 2017 to 2021, the number of resident child deaths decreased in Baltimore County by 40% and in Montgomery County by 33%. The number of child deaths increased in Prince George's County by 4% and in Anne Arundel County by 12%.

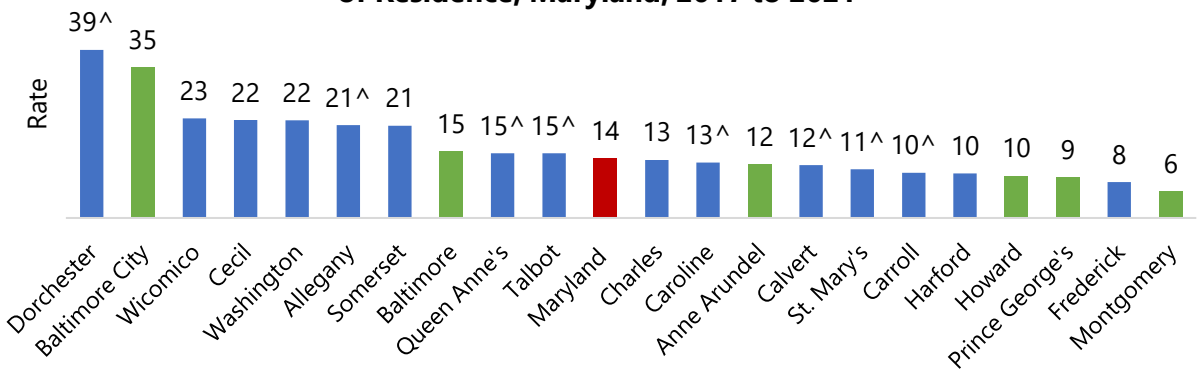
Table 3. Number of Unexpected Child Deaths by Jurisdiction of Residence, Maryland, 2017 to 2021 (n=915)

	2017	2018	2019	2020	2021	Total
Allegany	2	1	5	2	3	13
Anne Arundel	16	9	22	14	18	79
Baltimore	35	24	30	27	21	137
Baltimore City	49	49	36	34	41	209
Calvert	4	2	2	3	2	13
Caroline	0	3	1	0	1	5
Carroll	4	5	3	5	2	19
Cecil	5	4	7	2	8	26
Charles	7	7	6	5	1	26
Dorchester	1	4	1	1	6	13
Frederick	5	5	6	5	4	25
Garrett	0	1	1	0	1	3
Harford	4	6	7	4	8	29
Howard	4	7	7	12	8	38
Kent	2	0	0	2	0	4
Montgomery	18	17	12	14	12	73
Prince George's	23	20	13	14	24	94
Queen Anne's	1	3	1	1	2	8
Somerset	2	0	1	1	1	5
St. Mary's	4	6	2	4	8	24
Talbot	2	1	1	1	0	5
Washington	14	5	6	5	7	37
Wicomico	6	7	4	4	5	26
Worcester	1	0	2	0	1	4
Total	**209**	**186**	**176**	**160**	**184**	**915**

Source: CDRCRS, as of 6/04/2024.

Figure 8 shows the rates of unexpected child deaths by jurisdiction of residence. The rates were highest in Dorchester County (39 unexpected child deaths per 100,000 population), Baltimore City (35 per 100,000 population), Wicomico County (23 per 100,000 population), Cecil County (22 per 100,000 population), and Washington County (22 per 100,000 population). The lowest rate of unexpected child death was among children in Montgomery County at seven deaths per 100,000 population.

Figure 8. Five-year Rates of Unexpected Child Deaths by Jurisdiction of Residence, Maryland, 2017 to 2021*



Source: CDRCRS, as of 6/04/2024.
Rural jurisdictions are coded in blue, urban jurisdictions in green. The Maryland state rate is in red.
*For 2012-2020, rates per 100,000 population based on National Vital Statistics System population estimates. For 2021, rates per 100,000 population based on US Census Bureau population estimates. Minimum five reviewed deaths for inclusion.
^Rates with >5 but <20 deaths in the numerator are subject to instability.

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Sudden Unexpected Infant Deaths in Maryland

According to the Centers for Disease Control and Prevention (CDC), approximately 3,400 infants die suddenly and unexpectedly each year in the United States.[4] While an exact cause of death cannot always be determined, unsafe sleep factors are present in most cases, indicating that the deaths could have potentially been prevented if safe sleep practices were always followed.[5]

The National Center for Fatality Review and Prevention defines SUID as deaths that occur suddenly and unexpectedly in previously healthy infants and have no obvious cause of death prior to investigation (unexplained). In cases of SUID, there are two possible scenarios: 1) all potentially non-natural causes of death cannot reasonably be excluded by the investigation; or 2) there is an issue of concern. Issues of concern include an unsafe sleeping environment or other environmental concerns, previous Sudden Infant Death Syndrome (SIDS) in the immediate family, unexplained injuries that had been healed, parental substance abuse, and other factors.[6]

Even after a thorough investigation, there are some SUID cases in which there is no evidence of a non-natural cause of death or circumstances that cause concern for investigators. These cases fall under the subcategory of SIDS. SIDS is a diagnosis of exclusion, assigned only when all known and possible causes of death have been ruled out.[4]

These SUID cases are often not witnessed, the death scene may be disturbed before it can be examined, key facts may be forgotten or go unreported, and there may be no autopsy finding or medical test to prove the exact cause of death (e.g., suffocation). The mechanisms that lead to many sleep-related deaths include:

- Accidental suffocation by a soft sleep surface (e.g., an adult bed, waterbed mattress, pillows, or soft couch or chair cushions) or other soft materials (e.g., stuffed toys, blankets, or crib bumpers) placed in the infant's sleep environment;
- Overlay when the infant is bed-sharing with another person who rolls on top of or against the infant;
- Wedging or entrapment of the infant between two objects (e.g., a mattress and wall or bed frame, or between furniture cushions); and

  Strangulation when the infant's head and neck become caught between crib railings, or the infant's neck becomes entangled in a cord or other material within the sleep environment.

[4] Centers for Disease Control and Prevention. Underlying cause of death 1999-2020 on CDC WONDER online database, released 2021. Available at: https://wonder.cdc.gov/ucd-icd10.html.

[5] Key components of a safe sleep environment are placing infants to sleep alone on their backs, on a firm sleep surface with no soft objects, and in a smoke-free environment.

[6] National Center for Fatality Review and Prevention. (2020, November). National Center Program Manual. https://ncfrp.org/wp-content/uploads/NCRPCD-Docs/ProgramManual.pdf

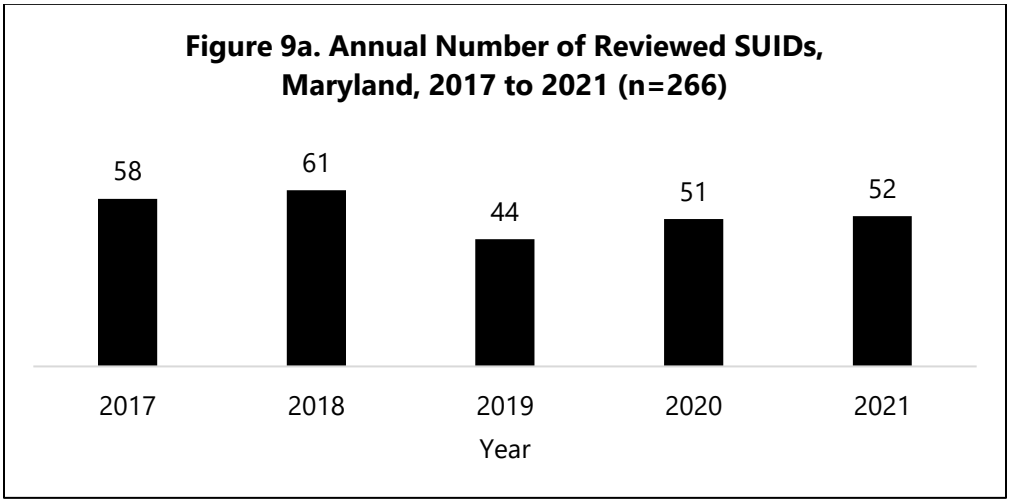
For the purposes of data analysis, a case is considered a SUID if the manner or cause of death meets at least one of the following criteria:

- The cause of death is undetermined or unknown;
- The cause of death was one of the following injury causes:
    - Asphyxia;
    - Undetermined causes; or
    - Unknown causes; and
- The cause of death was one of the following medical causes:
    - SIDS;
    - Undetermined causes; or
    - Unknown causes.

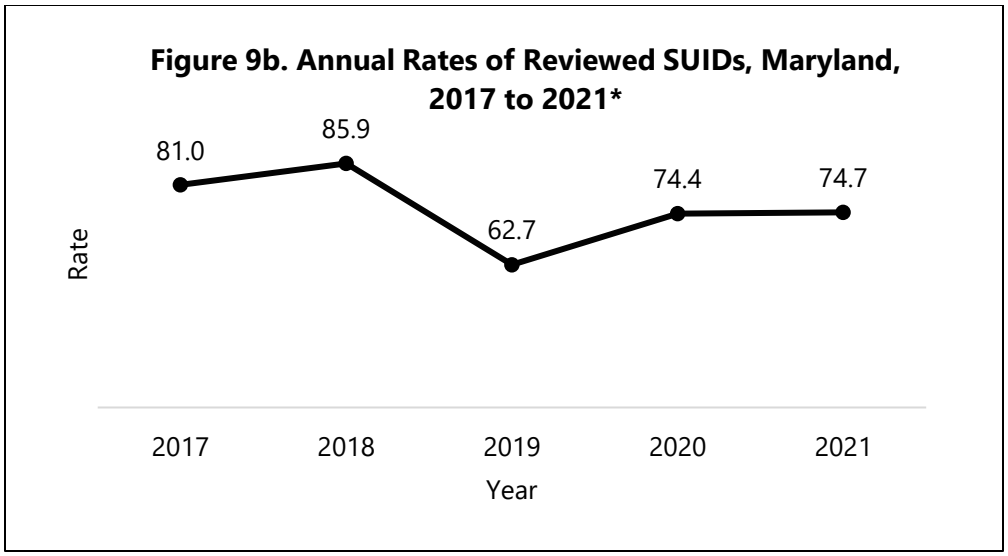
Note that the SUID rates displayed in this section (Figures 9b, 11, 12b, and 13) use live birth data provided by VSA. MCHB conducted all analyses and is responsible for the interpretations and conclusions presented.

Annual Number and Rates of Reviewed SUIDs

Only SUID cases that were reviewed by local teams were included in the analysis. Between 2017 and 2021, there was an average of 53 SUID cases per year referred for review by the local CFR teams in Maryland. A total of 266 reviewed SUID cases occurred between 2017 and 2021 (Figure 9a). None of these deaths were attributed to SIDS. From 2017 to 2021, the annual rate of SUID cases decreased by 8% (Figure 9b).



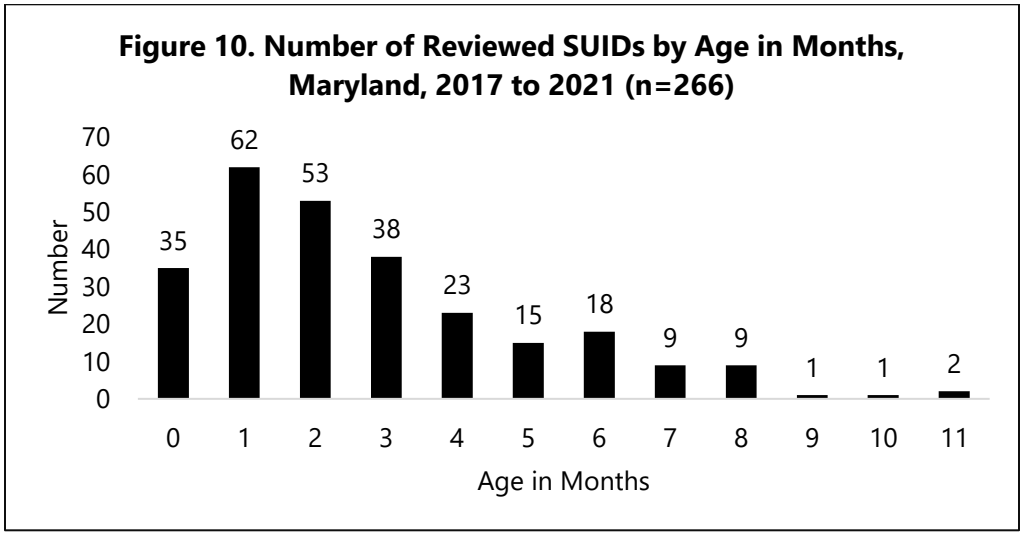
Source: CDRCRS, as of 6/04/2024.



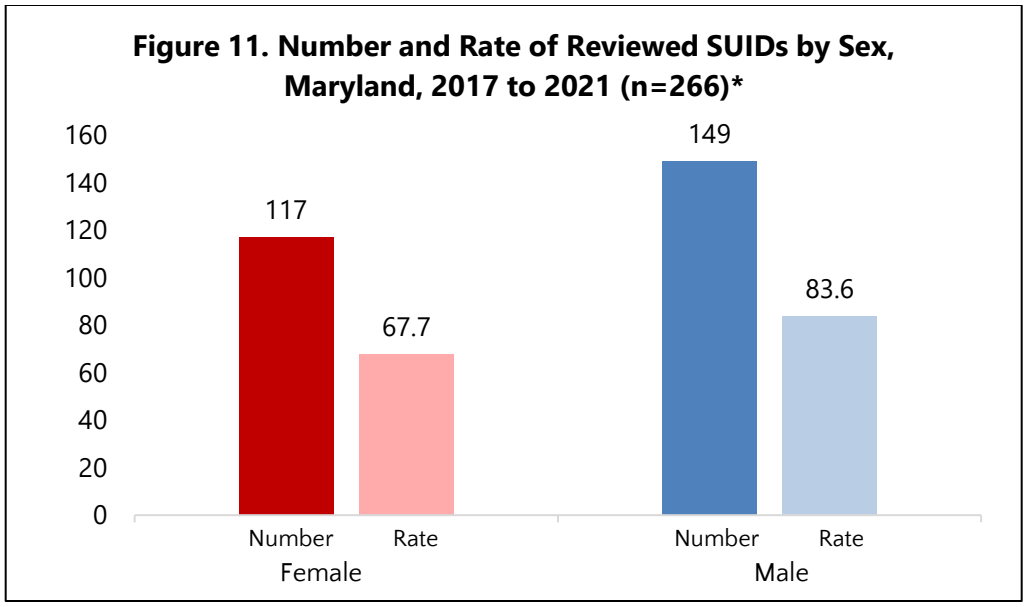
Source: CDRCRS, as of 6/04/2024.
*Rates per 100,000 live births based on VSA live birth data.

Number and Rate of Reviewed SUIDs by Age and Sex

Of the SUID cases during the period from 2017 to 2021, 211 (79%) occurred during the period from birth through four months of age (Figure 10). The majority of SUID deaths occurred at one month of age (23%), followed closely by two months of age (20%). Fifty-six percent (56%) of these deaths occurred among male infants, and 44% occurred among female infants (Figure 11).



Source: CDRCRS, as of 6/04/2024.



Source: CDRCRS, as of 6/04/2024.
*Rates per 100,000 live births based on VSA live birth data.

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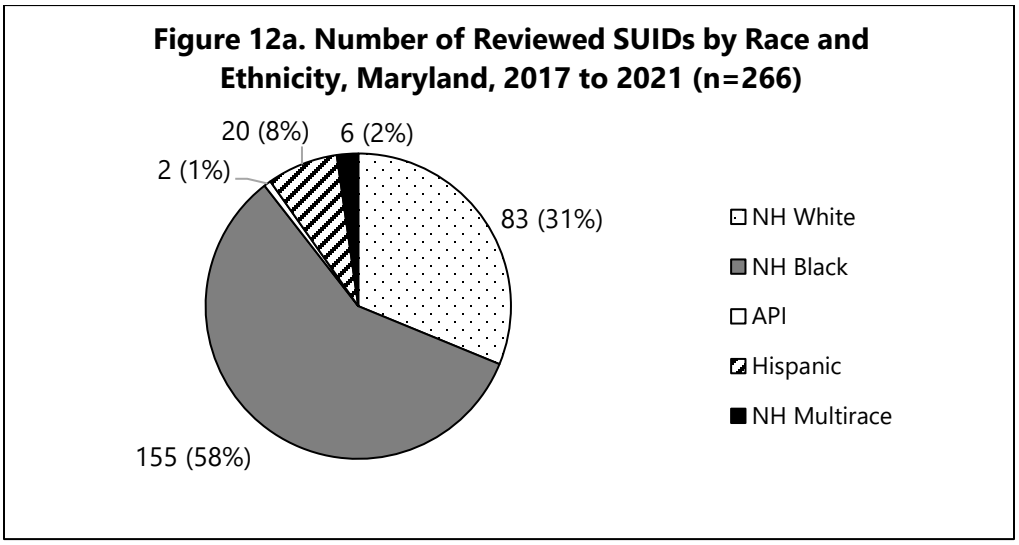
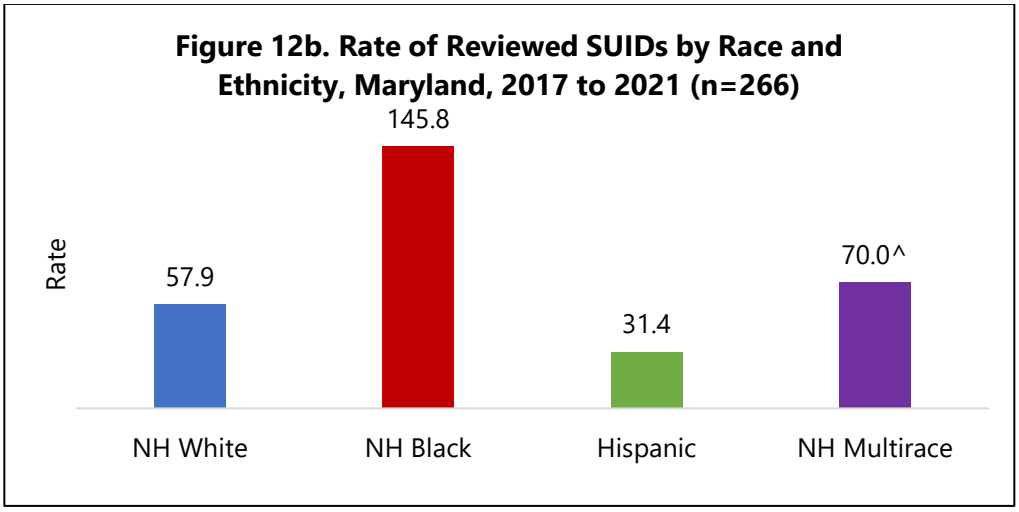
Number of Reviewed SUIDs by Race and Ethnicity

Of the reviewed SUID deaths occurring from 2017 to 2021, 155 deaths (58%) occurred among NH Black infants (Figure 12a). Considering the population of infants by race and ethnicity, the SUID rate among NH Black infants was 2.5 times greater than the rate among NH White infants, and 4.6 times greater than the rate among Hispanic infants. (Figure 12b).



Source: CDRCRS, as of 6/04/2024.
Percentages may total more than 100% due to rounding.



Source: CDRCRS, as of 6/04/2024.
NH API rate not shown since there were less than 5 SUID cases.
*Rates per 100,000 live births based on VSA live birth data.
^Rates with >5 but <20 deaths in the numerator are subject to instability.

Number and Rates of Reviewed SUIDs by Jurisdiction of Residence

Table 4 shows the number of SUIDs by jurisdiction of residence of the infant at the time of death from 2017 to 2021. The largest number of SUIDs occurred among residents of Baltimore City, which accounted for 26% of all SUIDs during this period. The number of SUID cases for many jurisdictions is small, which makes it difficult to identify trends.

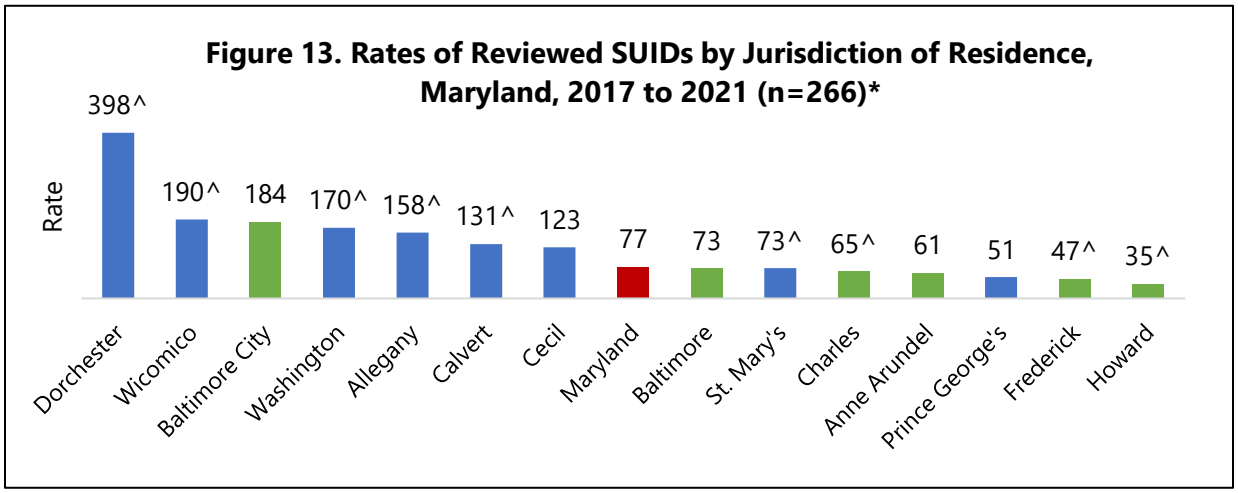
Table 4. Number of Reviewed SUIDs by Jurisdiction of Residence, Maryland, 2017 to 2021 (n=266)

	2017	2018	2019	2020	2021	Total
Baltimore City	14	15	12	15	14	70
Baltimore	11	9	5	6	4	35
Prince George's	4	12	3	3	8	30
Anne Arundel	5	4	2	5	5	21
Montgomery	4	5	2	5	2	18
Washington	7	1	3	1	2	14
Wicomico	2	3	3	2	2	12
Cecil	1	1	0	1	4	7
Dorchester	1	3	0	1	2	7
Frederick	3	1	2	1	0	7
Calvert	2	2	0	2	0	6
Charles	1	1	2	1	1	6
Howard	0	1	3	1	1	6
Allegany	0	0	3	2	0	5
Carroll	0	2	1	1	0	4
Harford	0	0	1	1	2	4
Queen Anne's	1	1	1	0	1	4
St. Mary's	0	0	0	2	3	5
Somerset	1	0	0	1	0	2
Garrett	0	0	1	0	0	1
Kent	1	0	0	0	0	1
Worcester	0	0	0	0	1	1
Total	**58**	**61**	**44**	**51**	**52**	**266**

Source: CDRCRS, as of 6/04/2024.
Counties not listed did not have any SUID deaths from 2017-2021.

The highest number of SUID cases came from more urban areas, but the rates were highest in two of Maryland's rural counties (Figure 13). Infants residing in Dorchester County had the highest rate of SUID cases at 397.5 deaths per 100,000 live births during the period from 2017 to 2021, which was over five times the statewide rate of 76.6 deaths per 100,000 live births during

the same period. Montgomery County had the lowest rate of reportable SUID cases at 29.9 deaths per 100,000 live births from 2017 to 2021, which was less than half of the Statewide rate of SUID cases.



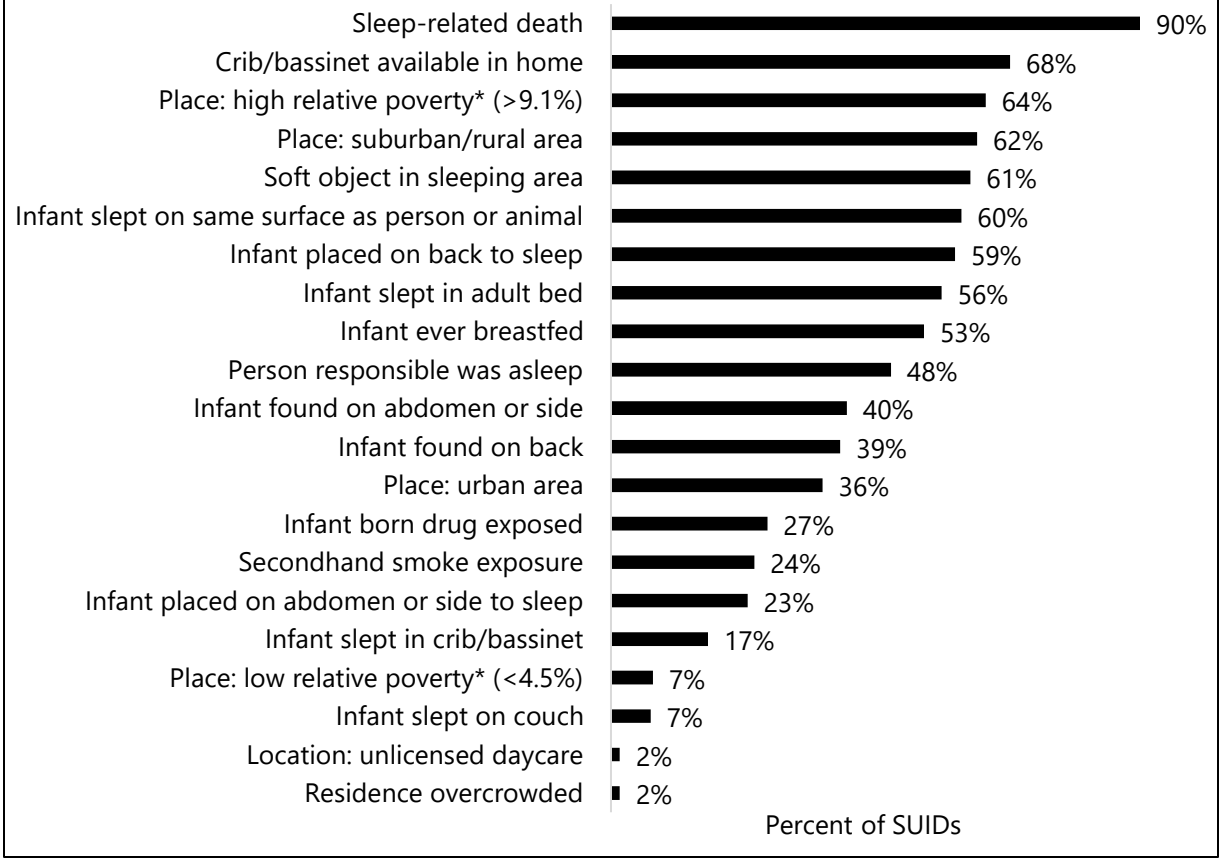
Source: CDRCRS, as of 6/04/2024.
Rural jurisdictions are coded in blue, urban jurisdictions in green. The Maryland state rate is in red.
*Rates per 100,000 live births based on VSA live birth data.
^Rates with >5 but <20 deaths in the numerator are subject to instability.
Counties that had fewer than five SUID cases are not displayed.

Incident Characteristics and Caregiver Characteristics Associated with Reviewed SUIDs

All OCME-referred deaths, including SUIDs, are reviewed by the local CFR team in the jurisdiction of residence. As previously stated, data from these case reviews are entered into CDRCRS, which is maintained by the National Center for the Review and Prevention of Child Death. Maryland data have been entered into the CDRCRS database since January 2010. The SUID case reviews entered in the database were further analyzed to determine more detailed information surrounding these deaths. Information on each item was not available for every case. The specific information may not have been known or reported. Therefore, the numbers of cases shown in Figure 14, Table 5, and Table 6 represent a minimum number of cases with a given incident or caregiver characteristic.

Figure 14 shows incident characteristics of SUIDs in Maryland. The death was determined to be sleep-related in 90% of the 266 SUID cases. Sixty-eight percent (68%) of cases had a crib or bassinet available in the home. Sixty-four percent (64%) of the infants lived in zip codes with high relative poverty. Sixty-two percent (62%) of cases occurred in suburban or rural areas. There was a soft object in the sleeping environment for 61% of cases. In 60% of cases, the infant was sleeping on the same surface as person or animal, otherwise known as “bed-sharing.” Forty percent (40%) of the infants were found on their abdomen or side. Twenty-four percent (24%) of the infants were exposed to secondhand smoke. Two percent (2%) of SUID cases occurred at an unlicensed daycare.

Figure 14. Incident Characteristics of Reviewed SUIDs, Maryland, 2017-2021, (n=266)



Source: CDRCRS, as of 6/04/2024.
Percentages will total more than 100%, as multiple characteristics often applied to the same case.
*Poverty estimates are taken from US Census American Community Survey 2022 five-year ZIP code tabulation area (ZCTA) estimates; 1% of SUID deaths had missing ZCTA information. Poverty rates are defined by the percentage of residents reporting poverty status in the past 12 months on the survey. The low and high poverty percentage cut points used are based on the first and third tertile of Maryland ZCTA poverty rates, respectively.

Table 5 shows the characteristics of the primary caregiver for the infants who died of SUID. A biological parent was the primary caregiver in 253 (95%) of the cases. Sixty percent (60%) of caregivers had a high school education or less, 30% were unemployed, 25% were younger than 25 years old, 24% were receiving social services, 17% were low income, and 15% had a history of substance use. Twelve percent of infants had an open Child Protective Services (CPS) case at the time of death.

Table 5. Caregiver Characteristics Associated with Reviewed SUIDs, Maryland, 2017 to 2021 (n=266)		
	Number	Percent
Primary caregiver was biological parent	253	95%
Primary caregiver obtained 12 years or less of education	160	60%
Infant was ever breastfed	142	53%
Primary caregiver was unemployed	80	30%
Primary caregiver <25 years old	66	25%
Primary caregiver receiving social services*	64	24%
Family with low-income	44	17%
Primary caregiver history of substance abuse	39	15%
Child had open CPS case at death	32	12%

Source: CDRCRS, as of 6/04/2024.
*Social services include Medical Assistance; Temporary Assistance for Needy Families; Special Supplemental Nutrition Program for Women, Infants, and Children; and Supplemental Nutrition Assistance Program.
Percentages will total more than 100%, as multiple characteristics often applied to the same case.

Comparison of Bed-Sharing and Non-Bed-Sharing Among Sleep-Related SUIDs Reviewed

Table 6 compares characteristics of bed-sharing and non-bed-sharing sleep-related SUID cases. More than half of all sleep-related SUID cases from 2017 to 2021 occurred when the infant was bed-sharing. Racial and ethnic disparities persist in SUID bed-sharing, with the number of deaths being twice as high among NH Black infants compared to NH White infants, and more than 16 times higher than among Hispanic infants.

Of the SUID deaths involving bed-sharing, 44% of caregivers had a history of substance misuse or use disorder. Approximately 21% of these families were receiving social services at the time of the infant's death. This highlights an opportunity for health care providers and social service agencies to reinforce safe sleep practices with the parent or caregiver of an infant, and underscores the importance of identifying families with risk factors that can contribute to SUID fatalities so that they can be educated on safe sleep practices.

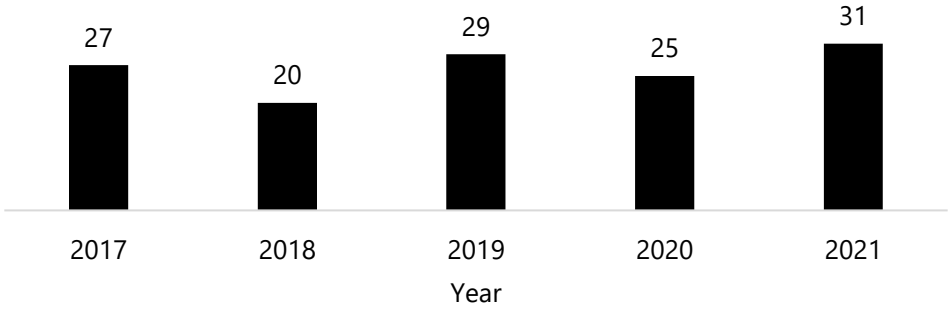
Table 6. Comparison of Bed-Sharing and Non-Bed-Sharing Among Sleep-Related SUIDs Reviewed, Maryland, 2017 to 2021 (n=232) **		
	Non-bed-sharing (n=79) n (%)	**Bed-sharing (n=153) n (%)**
Place		
Urban area	21 (26.6)	63 (41.2)
Suburban/rural area	58 (73.4)	89 (58.2)
Secondhand smoke exposure	18 (22.8)	45 (29.4)
Infant sleep position and environment		
Placed on stomach or side to sleep	22 (27.9)	37 (24.2)
Placed on back to sleep	54 (68.3)	90 (58.8)
Sleeping in crib or bassinet*	37 (46.8)	2 (1.3)
Sleeping in adult bed*	20 (25.3)	123 (80.4)
Sleeping on couch*	2 (2.5)	16 (10.5)
Crib or bassinet available in home	60 (76.0)	108 (70.6)
Characteristics of infant		
Infant's mean age (months)	2.8	2.8
Race – NH Black	40 (50.6)	96 (62.7)
NH White	26 (32.9)	47 (30.7)
Hispanic*	11 (86.1)	6 (3.9)
Breastfed	44 (55.7)	82 (53.6)
Characteristics of primary caregiver		
High school education or less	47 (59.5)	103 (67.3)
Receives social services^	23 (29.1)	32 (20.9)
Low income	14 (17.7)	15 (9.8)
Characteristics of caregiver at time of death		
Biological parent	57 (72.1)	134 (87.6)
<25 years old	18 (22.8)	33 (21.6)
Male	11 (13.9)	30 (19.6)
History of substance abuse	23 (29.1)	67 (43.8)
Impaired by drugs or alcohol	1 (1.3)	16 (10.5)

*Denotes differences that are greater than would be expected by chance alone, i.e., a statistically significant difference at $p<0.05$.
**Unknown bed-sharing status cases not included in this table.
^Social services includes Women, Infants, and Children, Home Visiting, Temporary Assistance for Needy Families, Medicaid, Food Stamps/SNAP/EBT, Section 8 housing, and Social Security Disability Insurance.

Child Deaths by Homicide in Maryland

Death by homicide was the third leading manner of reviewed unexpected child deaths during the five-year period from 2017 to 2021, accounting for 14% of all deaths. Death by homicide was the leading manner of death among children ages 15-17 during this period, accounting for 29% of deaths. Only homicide deaths that were reviewed by the local teams were included in this analysis.

Figure 15. Annual Number of Reviewed Child Fatalities by Homicide, Maryland, 2017-2021 (n=132)

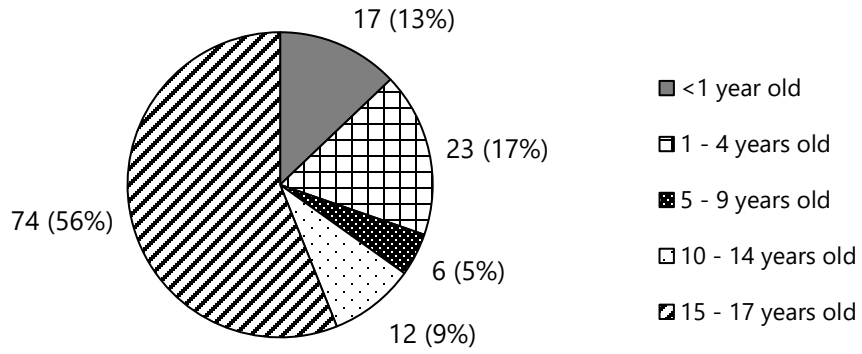


Source: CDRCRS, as of 6/04/2024.

Number of Reviewed Child Fatalities by Homicide by Age Group and by Sex

Of the 132 deaths by homicide occurring in the five-year period from 2017 to 2021, 56% were among teens ages 15-17 (Figure 16). Seventeen percent (17%) of deaths were among children ages one to four, and 13% were among infants under the age of one. Seventy-three percent (73%) of deaths by homicide occurred among male children and 27% among female children.

Figure 16. Number of Reviewed Child Fatalities by Homicide by Age Group, Maryland, 2017-2021 (n=132)

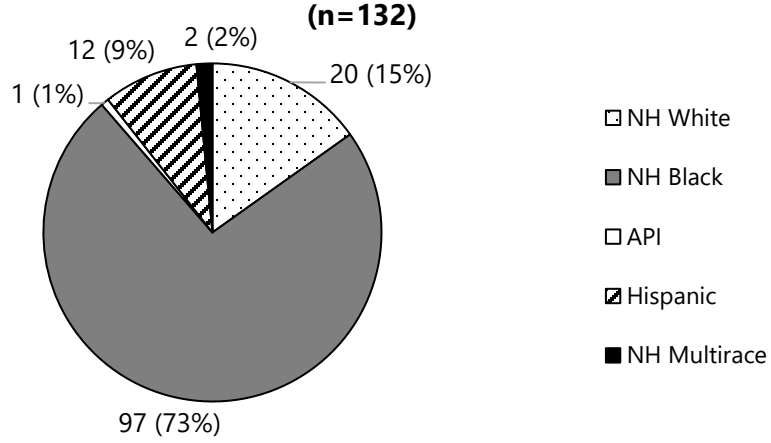


Source: CDRCRS, as of 6/04/2024.
*Percentages may total more than 100% due to rounding.

Number of Reviewed Child Fatalities by Homicide by Race and Ethnicity, and by Jurisdiction

Seventy-four percent (74%) of deaths by homicide occurred among NH Black children, 14% among NH White children, and 9% among Hispanic children (Figure 17).

Figure 17. Number of Reviewed Child Fatalities by Homicide by Race and Ethnicity, Maryland, 2017-2021 (n=132)



Source: CDRCRS, as of 6/04/2024.
*Percentages may total more than 100% due to rounding.

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Deaths by homicide by jurisdiction of residence are shown in Table 7. Between 2017 and 2021, Baltimore City had the highest number of homicide deaths (65 cases), followed by Anne Arundel County (15 cases) and Baltimore County (11 cases).

Table 7. Number of Reviewed Child Fatalities by Homicide by Jurisdiction of Residence*, Maryland, 2017-2021 (n=132)

	2017	2018	2019	2020	2021	Total
Baltimore City	12	14	15	12	12	65
Anne Arundel	6	0	4	3	2	15
Baltimore	2	1	6	1	4	14
Prince George's	2	1	1	2	5	11
Charles	1	3	0	1	0	5
Frederick	0	0	0	2	2	4
Harford	1	0	1	1	1	4
Howard	1	0	0	2	0	3
St. Mary's	0	1	0	0	2	3
Cecil	1	0	1	0	0	2
Washington	0	0	0	1	1	2
Allegany	0	0	0	0	1	1
Dorchester	0	0	0	0	1	1
Wicomico	1	0	0	0	0	1
Worcester	0	0	1	0	0	1
Total	**27**	**20**	**29**	**25**	**31**	**132**

Source: CDRCRS, as of 6/04/2024.
*Counties not listed had no child fatalities due to homicide from 2017-2021.

Number and Percent of Reviewed Child Fatalities by Homicide by Cause of Death

Table 8 shows the deaths by homicide by cause of death. Weapons were the leading cause of death by homicide (83%), which included firearm (62% of cases) and knife/sharp instrument (5% of cases). Homicide by poisoning made up 8% of cases, and fire, burn, or electrocution made up 2% of cases.

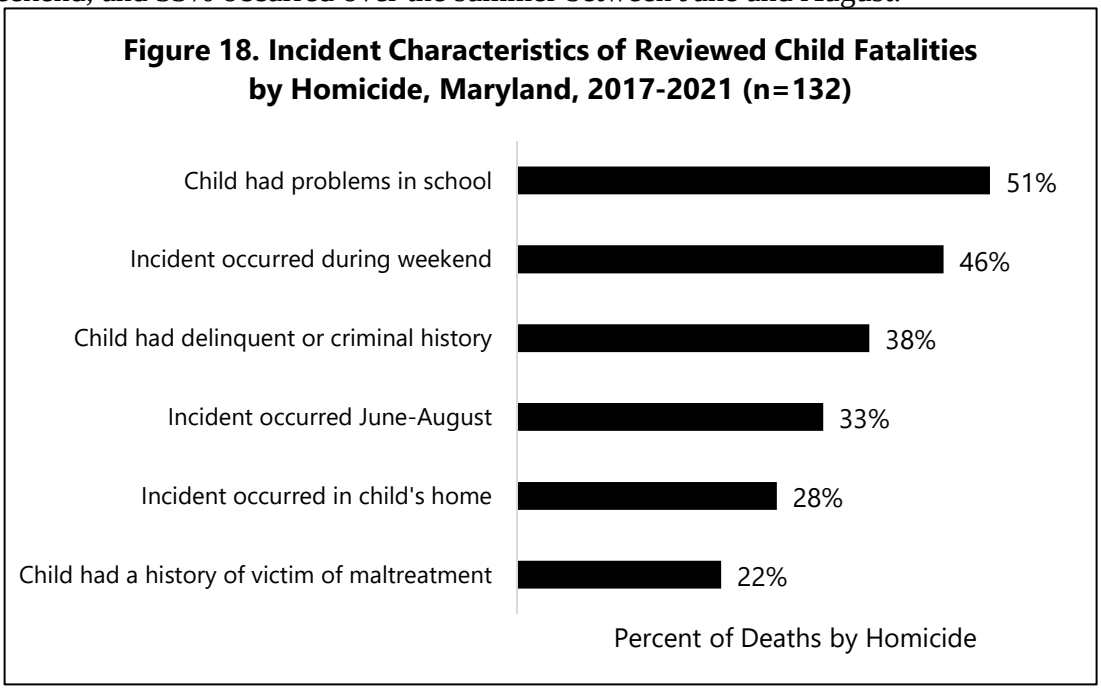
Table 8. Number and Percent of Reviewed Child Fatalities by Homicide, by Cause of Death, Maryland, 2017-2021 (n=132)		
	Number	Percent
External-Weapon	110	83%
External-Poison	11	8%
External-Other	4	3%
External-Fire, burn, electrocution	2	2%
External-Asphyxia	1	1%
External-Fall, crush	1	1%
External-Undetermined	1	1%
MedCond*-Prematurity	1	1%
Undetermined if medical or external injury	1	1%
Total	**132**	**100%**

Source: CDRCRS, as of 6/04/2024.
*MedCond= Medical Condition

Incident Characteristics of Reviewed Child Fatalities by Homicide

Figure 18 shows incident characteristics of children who died by homicide in Maryland. Fifty-one percent (51%) of the children had problems in school. Thirty-eight percent (38%) had a history of delinquent or criminal history. Twenty-eight percent (28%) of incidents occurred in the child's home, and 22% had a history of maltreatment. Forty-six percent (46%) occurred over the weekend, and 33% occurred over the summer between June and August.

Figure 18. Incident Characteristics of Reviewed Child Fatalities by Homicide, Maryland, 2017-2021 (n=132)



Source: CDRCRS, as of 6/04/2024.
Percentages will total more than 100%, as multiple characteristics often applied to the same case.

Characteristics of Firearm and Non-Firearm Reviewed Child Fatalities by Homicide

Table 9 compares characteristics of firearm and non-firearm homicide deaths. Homicides caused by both firearms and non-firearms were more common among males and NH Black children. Homicides caused by firearm were more common among children aged 10 and older, children who had problems in school, and children who had a history of substance use. Fifty-five percent (55%) of the non-firearm cases were child abuse or neglect, and in 45% of the non-firearm cases the perpetrator was the biological parent.

Table 9. Differences in Characteristics of Firearm and Non-Firearm Reviewed Child Fatalities by Homicide, Maryland, 2017-2021 (n=131)

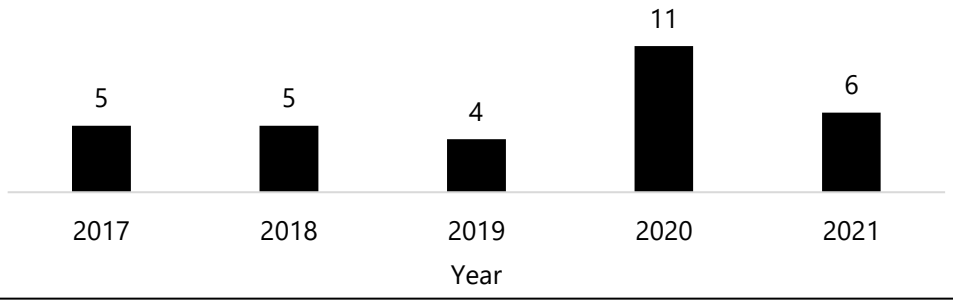
	Non-Firearm (n=53) n (%)	Firearm (n=78) n (%)
Place		
Urban area	27 (50.9)	51 (65.4)
Suburban/rural area	25 (47.2)	26 (33.3)
Incident occurred in child's home*	29 (54.7)	8 (10.3)
Demographic Characteristics of Child		
Gender: Male*	31 (58.5)	65 (83.3)
Race: NH Black	36 (67.9)	61 (78.2)
Age: 10 years or older*	13 (24.5)	72 (92.31)
Insurance: Medicaid	35 (66.0)	55 (70.5)
Incident Characteristics		
Child had delinquent or criminal history	6 (11.3)	44 (56.4)
Child had problems in school*	9 (17.0)	58 (74.4)
Child had history as victim of maltreatment	14 (26.4)	15 (19.2)
Child had open CPS case at time of death	4 (7.6)	3 (3.9)
Child had history of substance abuse*	3 (5.7)	30 (38.5)
Child abuse/neglect*	29 (54.7)	6 (7.7)
Person responsible was biological parent*	24 (45.3)	3 (3.9)
Person responsible had delinquent or criminal history*	20 (37.7)	4 (5.1)

Source: CDRCRS, as of 6/04/2024.
*Denotes differences that are greater than would be expected by chance alone, i.e. a statistically significant difference at $p<0.05$.

Child Deaths by Poisoning, Overdose, or Acute Intoxication in Maryland

Poisoning, overdose, or acute intoxication contributed to 31 unexpected child deaths during the five-year period from 2017 to 2021 (Figure 19). Only deaths which were reviewed by the local teams were included in this analysis. Eight of these deaths (26%) were of an accidental manner, eleven (35%) were homicide, six (19%) were suicide, and for six (19%) the manner was undetermined.

Figure 19. Annual Number of Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication, Maryland, 2017-2021 (n=31)

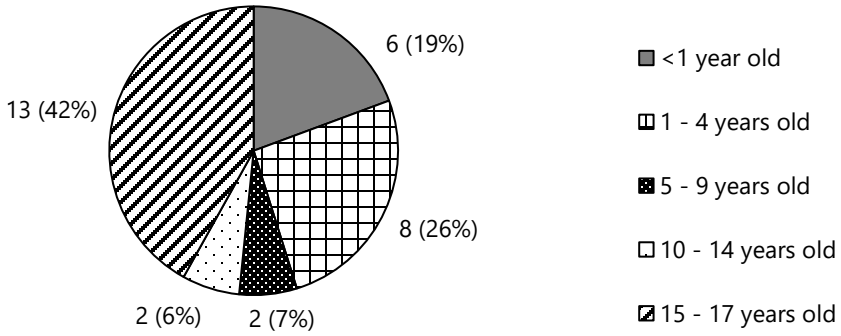


Source: CDRCRS, as of 6/04/2024.

Number of Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication by Age Group and by Sex

Of the 31 deaths by poisoning, overdose, or acute intoxication occurring in the five-year period from 2017 to 2021, 42% were among children ages 15-17 (Figure 20). Fifty-five percent (55%) of deaths by poisoning, overdose, or acute intoxication occurred among male children, and 45% among female children.

Figure 20. Number of Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication by Age Group, Maryland, 2017-2021 (n=31)



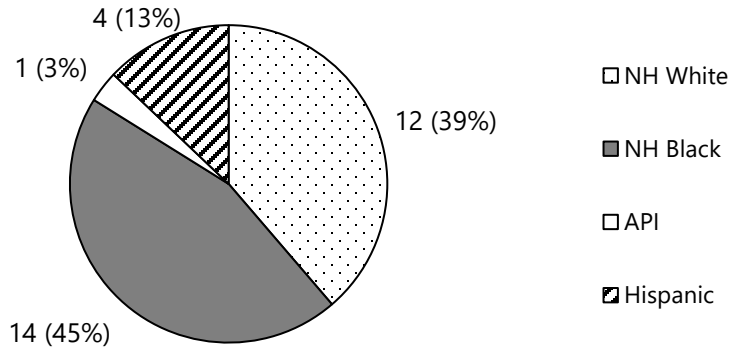
Source: CDRCRS, as of 6/04/2024.

Percentages may total more than 100% due to rounding.

Number of Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication by Race and Ethnicity

Forty-five percent (45%) of the deaths by poisoning, overdose, or acute intoxication occurred among NH White children, 39% among NH Black children, and 13% among Hispanic children (Figure 21).

Figure 21. Number of Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication by Race and Ethnicity, Maryland, 2017-2021 (n=31)



Source: CDRCRS, as of 6/04/2024.
Percentages may total more than 100% due to rounding.

Number of Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication by Jurisdiction of Residence

Deaths by poisoning, overdose, or acute intoxication by jurisdiction of residence are shown in Table 10. Baltimore County had the highest number of deaths by poisoning, overdose, or acute intoxication (12 cases), followed by Baltimore City (five cases).

Table 10. Number of Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication by Jurisdiction of Residence*, Maryland, 2017-2021 (n=31)

	2017	2018	2019	2020	2021	Total
Baltimore	1	3	2	3	3	12
Baltimore City	1	1	0	3	0	5
Anne Arundel	0	0	1	1	0	2
Howard	0	0	0	1	1	2
Montgomery	1	0	0	0	1	2
Washington	0	0	1	0	1	2
Cecil	1	0	0	0	0	1
Charles	0	1	0	0	0	1
Frederick	0	0	0	1	0	1
Prince George's	0	0	0	1	0	1
Talbot	0	0	0	1	0	1
Wicomico	1	0	0	0	0	1
Total	**5**	**5**	**4**	**11**	**6**	**31**

Source: CDRCRS, as of 6/04/2024.

*Counties not listed had no child fatalities by poisoning, overdose, or acute intoxication reviewed from 2017-2021.

Substances Implicated in Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication

Table 11 shows the substances implicated in the deaths by poisoning, overdose, or acute intoxication from 2017-2021. Due to many of the cases involving more than one substance, the cases shown do not add up to the number of overdose deaths. Illicit and prescription opioids were involved in the most cases with 18 (58%) and 15 (48%), respectively. Illicit fentanyl was implicated in 26% of cases and prescription antidepressants were implicated in 22% of cases. Other prescription medications including anti-psychotics and anti-epilepsy drugs were found in 16% of cases.

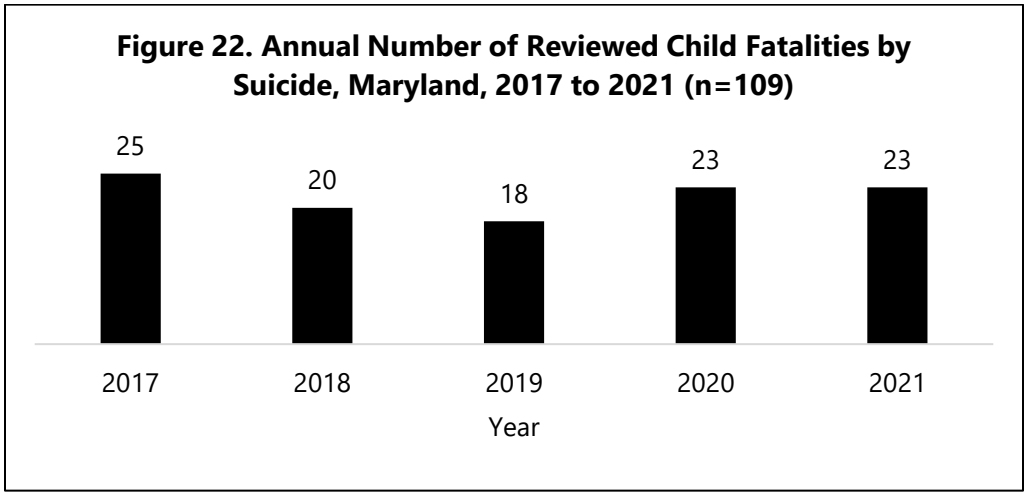
Table 11. Substances Implicated in Reviewed Child Fatalities by Poisoning, Overdose, or Acute Intoxication, Maryland, 2017-2021 (n=31)

Substance	Number* (%) of Deaths
Prescription – Pain medication – Opioid	18 (58%)
Illicit – Pain medication – Opioid	15 (48%)
Illicit – Fentanyl	8 (26%)
Prescription – Antidepressant	7 (22%)
Prescription – Other	5 (16%)
Illicit – Heroin	4 (13%)
Prescription – Methadone	3 (10%)
Illicit – Cocaine	3 (10%)
Over-the-counter medication	2 (6%)
Alcohol	2 (6%)

Source: CDRCRS, as of 6/04/2024.
*Due to many cases involving more than one substance, cases will not add up to the number of overdose deaths.

Child Deaths by Suicide in Maryland

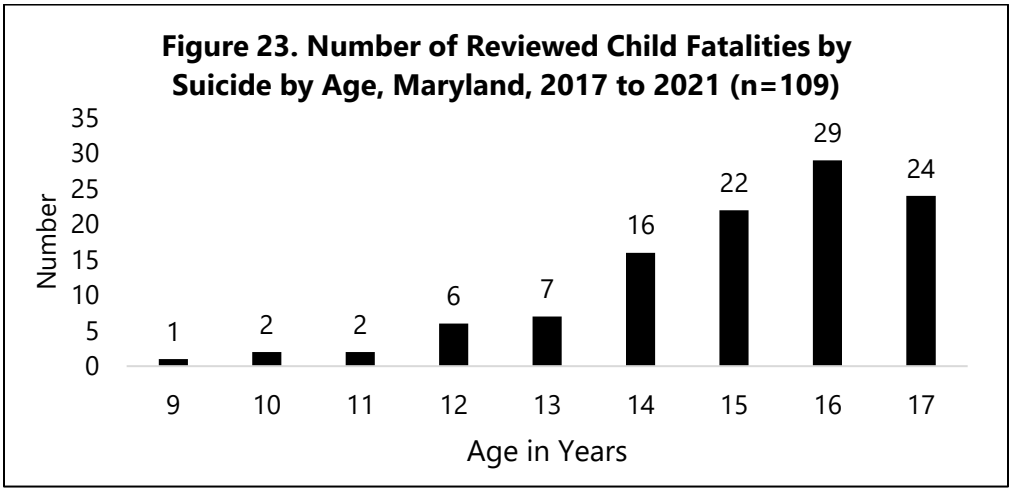
Death by suicide was the fifth leading manner of reviewed unexpected child deaths during the five-year period from 2017 to 2021, accounting for 11% of deaths. Only deaths which were reviewed by the local teams were included in this analysis. Death by suicide was the second leading manner of death for children ages 15 to 17 during the same period, accounting for 28% of reviewed deaths. The highest number of cases were seen in 2017 with 25 cases, and the number of cases remained stable between 2020 and 2021 at 23 cases (Figure 22).



Source: CDRCRS, as of 6/04/2024.

Number of Reviewed Child Fatalities by Suicide by Age and by Sex

Of the 109 deaths by suicide occurring in the five-year period from 2017 to 2021, 83% were among children ages 14 to 17 (Figure 23). Seventy-two percent (72%) of deaths by suicide were male children and 28% were female children.

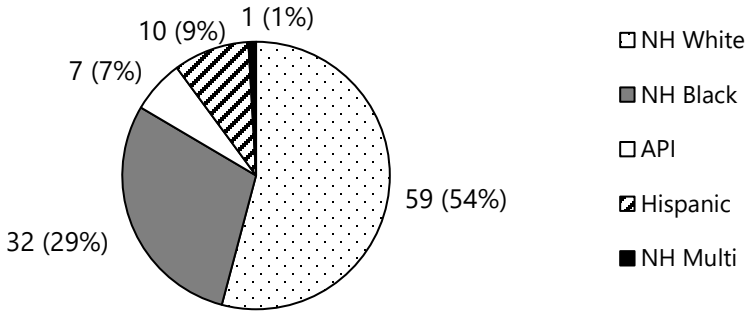


Source: CDRCRS, as of 6/04/2024.

Number of Reviewed Child Fatalities by Suicide by Race and Ethnicity, and by Jurisdiction

Fifty-four percent (54%) of deaths by suicide were NH White children, 29% were NH Black children, 9% were Hispanic children, and 7% were API children (Figure 24).

Figure 24. Number of Reviewed Child Fatalities by Suicide by Race and Ethnicity, Maryland, 2017 to 2021 (n=109)



Source: CDRCRS, as of 6/04/2024.
Percentages may total more than 100% due to rounding.

Number of Reviewed Child Fatalities by Suicide by Jurisdiction of Residence

Deaths by suicide by jurisdiction of residence are shown in Table 12. Baltimore County had the largest number of suicide deaths between 2017 and 2021 with 21 cases, followed by Howard County with 13 cases, and Montgomery County with 11 cases.

Table 12. Number of Reviewed Child Fatalities due to Suicide by Jurisdiction of Residence, Maryland, 2017 to 2021 (n=109)

	2017	2018	2019	2020	2021	Total
Baltimore	7	3	3	6	2	21
Howard	2	3	2	3	3	13
Montgomery	4	2	0	5	0	11
Anne Arundel	0	0	4	2	4	10
Prince George's	1	1	1	3	3	9
Baltimore City	2	0	2	1	3	8
Harford	0	2	0	1	2	5
Frederick	0	2	1	0	1	4
Allegany	2	1	0	0	0	3
Calvert	1	0	1	0	1	3
Cecil	1	1	1	0	0	3
Dorchester	0	1	0	0	2	3
St. Mary's	2	1	0	0	0	3
Washington	1	0	1	0	1	3
Carroll	0	1	1	0	0	2
Charles	0	1	1	0	0	2
Kent	1	0	0	1	0	2
Queen Anne's	0	0	0	1	1	2
Wicomico	1	1	0	0	0	2
Total	**25**	**20**	**18**	**23**	**23**	**109**

Source: CDRCRS, as of 6/04/2024.
Counties not listed had no child fatalities due to Suicide from 2017-2021.

Number and Percent of Reviewed Child Fatalities by Suicide, by Cause of Death

Table 13 shows the deaths by suicide by cause of death. Asphyxia was the leading cause of death among suicide cases (52%), followed by firearm (33%), and poisoning (6%). All 58 of the asphyxia deaths were due to hanging.

Table 13. Number and Percent of Reviewed Child Fatalities by Suicide, by Cause of Death, Maryland, 2017 to 2021 (n=109)

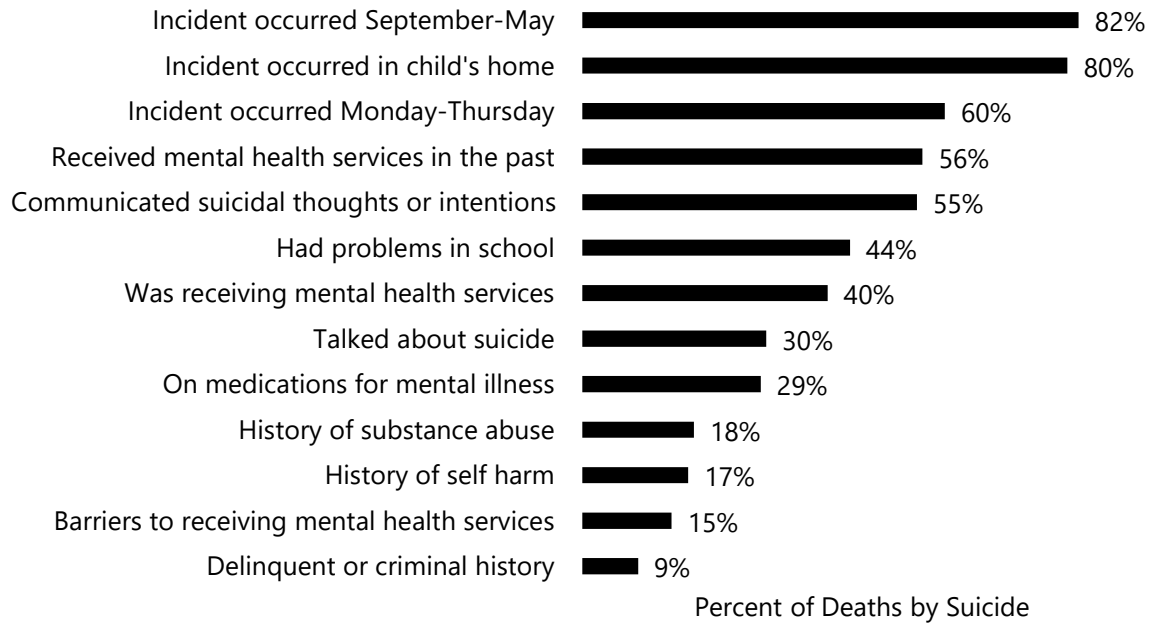
	Number	Percent
Asphyxia	58	53%
Firearm	36	33%
Poison	7	6%
Fall or Crush	2	2%
Drowning	1	1%
Other	1	1%
Missing (manner)	4	4%
Total	**109**	**100%**

Source: CDRCRS, as of 6/04/2024.

Incident Characteristics of Reviewed Child Fatalities by Suicide

Figure 25 shows incident characteristics of children who died by suicide in Maryland from 2017 to 2021. Eighty-two percent (82%) of cases occurred during the school year and 80% of cases occurred in the child's home. Fifty-six percent (56%) of children had ever received mental health services, 40% were receiving mental health services at the time of death, and 29% were on medications for mental illness. Fifty-five percent (55%) of children had communicated their suicidal thoughts or intentions. Local teams reported that 15% of children who died by suicide had issues which prevented them from receiving mental health services, such as lack of parental follow through with mental health service recommendations. Eighteen percent (18%) of children had a history of substance abuse, and 17% had a history of self-harm.

Figure 25. Incident Characteristics of Reviewed Child Fatalities by Suicide, Maryland, 2017 to 2021 (n=109)*



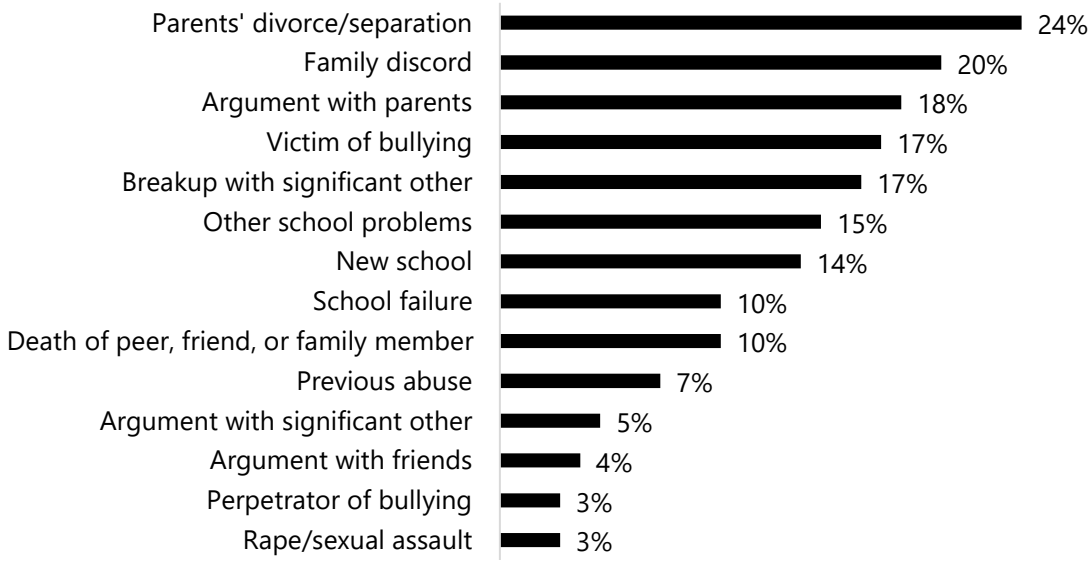
Source: CDRCRS, as of 6/04/2024

*Percentages will total more than 100%, as multiple characteristics often applied to the same case.

Life Stressors of Reviewed Child Fatalities by Suicide

Figure 26 shows life stressors occurring in the lives of children who died by suicide around the time of their death. Twenty-four percent (24%) of children who died by suicide were impacted by their parents' divorce or separation, 20% were experiencing family discord, and 18% were having arguments with parents. Seventeen percent (17%) were experiencing a breakup with a significant other or had been a recent victim of bullying. Fourteen percent (14%) were attending a new school, and 15% were experiencing other problems at school.

Figure 26. Life Stressors Reported in of Reviewed Child Fatalities by Suicide, Maryland, 2017 to 2021 (n=109)*



Source: CDRCRS, as of 6/04/2024.
*Percentages will total more than 100%, as multiple characteristics often applied to the same case.

Differences in Characteristics of Firearm and Asphyxia Reviewed Child Fatalities by Suicide

Table 14 compares characteristics of asphyxia (hanging) and firearm suicide deaths. Suicides by asphyxia and by firearm were more common among children who were male, NH White race, and private health insurance. Previous communication of suicidal thoughts or ideations were more commonly reported among suicide deaths by asphyxia.

Table 14. Differences in Characteristics of Firearm and Asphyxia Reviewed Child Fatalities by Suicide, Maryland, 2017 to 2021(n=93)

	Firearm n (%)	Asphyxia n (%)
Demographic Characteristics of Child		
Gender: Male*	33 (91.7)	40 (70.1)
Race: NH White*	25 (69.4)	25 (56.1)
Race: NH Black	8 (22.2)	19 (33.3)
Age: 15 to 17 years old	28 (77.8)	34 (59.7)
Insurance: Medicaid*	6 (16.7)	23 (40.4)
Insurance: Private	20 (55.6)	24 (42.1)
Health Characteristics of Child		
Received mental health services in the past	16 (44.4)	33 (57.9)
Currently receiving mental health services	10 (27.8)	25 (43.9)
On medications for mental illness	6 (16.7)	18 (31.6)
Incident Characteristics		
Occurred in child's home	29 (80.6)	49 (86.0)
Child communicated suicidal thoughts or intentions*	14 (38.9)	35 (61.4)
Previous suicide attempts	1 (2.8)	7 (12.3)

Source: CDRCRS, as of 6/04/2024.
*Denotes differences that are greater than would be expected by chance alone, i.e., a statistically significant difference at $p<0.05$.

Impact of COVID-19 on Child Fatalities and Child Fatality Review in Maryland

In 2021, COVID-19 was reported to be the immediate or underlying cause of death in three cases. Two out of three children lived in an area in which a stay-at-home order was not in place at the time of their death. All three children were exposed to COVID-19 within 14 days of their death.

The local teams noted in 32 cases that COVID-19 indirectly contributed to the death but was not the immediate or underlying cause of death. Of the three direct cases and 32 indirect cases, 23 noted disruptions or significant changes to school, 12 noted disruptions or significant changes to medical care, eight noted disruptions or significant changes to the living environment, seven noted disruptions or significant changes to mental health or substance use care, and two noted disruptions or significant changes to daycare (Table 15). A stay-at-home order was in place when the death occurred for 11 of the cases. Four cases noted disruptions or significant changes to employment, one case noted disruptions or significant changes to social services, and one case noted disruptions or significant changes to legal proceedings.

In 2021, the COVID-19 pandemic impacted the team's ability to conduct child fatality reviews by causing reviews to be conducted remotely for 21 case reviews and by causing the team leaders to be redirected to the COVID-19 response for 35 case reviews (Table 15).

Table 15. Impact of COVID-19 in Death Reviews, Maryland, 2021 (n=35)		
	Number	**Percent of 2021 COVID-Cases (n=35)**
Family Experienced Significant Changes		
School	23	66%
Daycare	2	6%
Employment	4	11%
Social services (unemployment assistance, TANF, WIC)	1	3%
Living environment	8	23%
Medical care	12	34%
Mental health or substance use	7	20%
Legal proceedings within criminal, civil, or family courts	1	3%
Stay at home order was in place at the time of child's death	11	31%
Child exposed to COVID-19 within 14 days of death	3	9%
COVID-19 impact on 2021 team reviews		
Remote reviews negatively impacted review process	21	60%
Team leaders redirected to COVID-19 response	35	100%

Source: CDRCRS, as of 6/04/2024.

Role of the Local Health Departments

The LHDs in 24 Maryland jurisdictions, including 23 counties and Baltimore City, play a pivotal role in reviewing child fatality cases and entering data into the CDRCRS. In addition, the LHDs also implement prevention initiatives to reduce child and infant fatalities in their jurisdiction. These initiatives include educating parents and caregivers on infant safe sleep; disseminating infant safe sleep materials such as infant safe sleep brochures, cribs that meet the U.S. Consumer Product Safety Commission's safety standards, and car seats. They also partner with internal and external programs to encourage early and consistent prenatal and postnatal care. A few examples of preventive initiatives from the LHDs as follows:

- Baltimore County Department of Health partnered with Towson University's Public Relations Unit to develop a public education campaign about early signs of pregnancy and the importance of early and consistent prenatal care, with an emphasis on healthy birth spacing.
- Carroll County Health Department developed a subcommittee called Physical Injury Prevention which focuses on reducing poor choices due to stress and fatigue, as well as physical abuse in the early years. The subcommittee helped caregivers identify stressors, support persons, community partners, hotlines, and emergency numbers. The subcommittee developed a printed form that was distributed at the hospitals, health clinics, health departments, child protective services, and other organizations/places that families frequent. In addition, Carroll County's labor and delivery care manager made calls to every first-time pregnant mom during the first trimester (upon hospital notification of pregnancy) and reviewed guidance for pregnancy, infant safe sleep, substance use in pregnancy with the expectant birthing people.
- Prince George's County Health Department provided pack-n-play cribs to birthing people who did not have a safe place for their infant to sleep.
- Washington County Health Department developed "A-B-C-Ds of Safe Sleep" rack card and a mythbusters handout on infant safe sleep; in addition, the department successfully partnered with the local department of social services (LDSS) to play safe sleep videos in loops at the LDSS' lobby. The Washington County Health Department's CFR Team also worked to identify births with a high risk of congenital syphilis and contacted families to educate and encourage appropriate follow-up.

Local CFR Teams at the LHDs develop and implement recommendations and activities based on the findings of their CFR case reviews, and the recommendations identified in the Annual Legislative Report. Furthermore, Surveillance and Quality Improvement programs at the LHDs are required to implement health equity activities, including workforce development, analyzing program data by racial/ethnic group to inform program design and measure progress, pursuing program or community policy change, making data available to their target community, and engaging communities in program development and evaluation.

Summary and Recommendations

Between 2017 and 2021, 915 unexpected child deaths were referred by OCME to the CFR Program and reviewed by local teams. The majority of these reviews involved infants under one year old, accounting for 39% of the cases, followed closely by cases involving children ages 15-17 years old (30%). The number of reviews between 2017 and 2021 decreased by 20% for NH Black children and increased by over 100% for Hispanic children. Most cases with a known cause of death were considered accidents. Between 2017 and 2021, Baltimore City had the highest number of resident child deaths reviewed at 23% of cases, followed by Baltimore County at 15% of cases. The rates of unexpected child death were highest in Dorchester County at 39 deaths per 100,000 population, followed by Baltimore City at 35 deaths per 100,000 population.

The annual rate of SUID cases reviewed decreased by 8% between 2017 and 2021. Between 2017 and 2021, there were 265 SUIDs reviewed by local teams. The majority of SUID cases were two months old (23%), followed by one month old (20%). Fifty-eight percent (58%) of SUID cases occurred among NH Black infants. In 2021, the number of SUID cases reviewed among NH Black infants was over one and a half times greater than the number reviewed among NH White infants, and more than seven times greater than the number reviewed among Hispanic infants. The largest number of SUIDs occurred among residents of Baltimore City, which accounted for 26% of all SUIDs between 2017 and 2021. Dorchester County had the highest rate of SUID cases at 398 deaths per 100,000 live births followed by Wicomico County at 190 deaths per 100,000 live births. Approximately 90 percent (90%) of SUID cases reviewed were sleep-related.

Death by homicide was the fourth leading manner of reviewed unexpected child deaths during the five-year period from 2017-2021. Of the 131 deaths by homicide occurring in the five-year period from 2017 to 2021, over 56% were among teens ages 15-17. Seventy-three percent (73%) of deaths by homicide occurred among male children and 74% of deaths by homicide occurred among NH Black children. Weapons were the leading cause of death by homicide (83%). Between 2017 and 2021, Baltimore City had the highest number of homicide deaths (50%).

Poisoning, overdose, or acute intoxication contributed to 31 unexpected child deaths during the five-year period from 2017 to 2021. Of the 31 deaths, 42% were among children ages 15-17, and 45% occurred among NH White children. Between 2017 and 2021, Baltimore County had the highest number of deaths by poisoning, overdose, or acute intoxication (39%). Illicit opioid pain medications were found in the majority of incidents.

Between 2017 and 2021, there were 109 suicides reviewed by local teams, in which 83% were among teens ages 14 to 17 years old. Fifty-four percent (54%) of deaths by suicide occurred among NH White children, 29% among NH Black children, 9% among Hispanic children, and 7% among API children. Approximately 71% of deaths by suicide occurred among male children. The largest number of suicides occurred among residents of Baltimore County, which accounted for 19% of all suicides reviewed during this period. Asphyxia was the leading cause of death by suicide (52%) followed by firearm (33%). Over half of children who died by suicide

had communicated suicidal thoughts or intentions, 44% had problems in school, and 40% were receiving mental health services at the time of death

Recommendations Related to Child Fatality

In response to the 2021 review of referred child deaths in Maryland, and in an effort to enhance the process of generating recommendations and translating them into actionable steps; the Team solicited recommendations from the local CFR teams and crafted them into SMART (specific, measurable, achievable, relevant, and time-bound) recommendations. The Team put forth the following recommendations and proposed actions for the State agencies represented on the Team.

1. The Team will explore the feasibility of establishing a process for local CFR teams to review near fatalities, such as non-fatal overdose and gunshot wounds, and for collecting and analyzing near-fatality data as part of the State CFR Program's scope of work. By the end of State Fiscal Year 2025, the Team will develop a policy and process for reviewing near fatality cases, and pilot the process with one jurisdiction, focusing on one type of near fatality condition.

2. By the end of State Fiscal Year 2025, the team will establish consistent messaging for the prevention of infant sleep-related deaths, suicides, and overdose fatalities. This involves identifying, adopting, and when necessary, developing, materials to be utilized by key partners, including LHDs, hospitals, clinical providers, and community-based organizations.

3. The Team will identify and promote opportunities for training for key partners, including healthcare systems, LHDs, hospitals, clinical providers, and community-based organizations, to address the leading causes of child fatality in Maryland, and the contributing social determinants of health and racial disparities.

a. To address infant sleep-related fatalities, which is the leading cause of postnatal infant death in Maryland, the Team will support birthing hospitals in the implementation of the Safe Sleep Act of 2024 and provide technical assistance and training on infant safe sleep within the hospital, and for families post-delivery during State Fiscal Year 2025.

b. To address adolescent suicide and overdose fatalities, the Team will review the findings of the MDH Behavioral Health Administration's Needs Assessment, and identify opportunities for training, collaboration, and resource allocation, during State Fiscal Year 2025.

Appendix A: 2021 State Child Fatality Review Team

Health-General Article §5-703(a), Annotated Code of Maryland provides that the Team shall be a multidisciplinary and multi-agency review team, composed of at least 25 members, including:

(1) Attorney General – Christle Sheppard Southall, Esq, designee;

(2) Chief Medical Examiner – Victor Weedn, MD ;

(3) Secretary of Human Services – Jacqueline Gray, designee;

(4) Secretary of Health – Sadie Peters, MD, designee;

(5) State Superintendent of Schools – Lynne Muller, PhD, designee;

(6) Secretary of Juvenile Services – Jennifer Maehr, MD, designee;

(7) Deputy Director of the Division of Children and Youth of the Governor's Office of Crime Prevention, Youth, and Victim Services or the Deputy Director's - Vacant

(8) Secretary of State Police – Sgt. David Sexton, designee;

(9) President of the State's Attorneys' Association – Debbie Feinstein, JD, designee;

(10) Chief of the Division of Vital Records – Monique Wilson, DrPH;

(11) A representative of the Center for Infant and Child Loss – LaToya Bates, LCSW-C, Director, Center for Infant and Child Loss;

(12) Director of the Behavioral Health Administration – Maria-Radowski-Stanco, MD, designee;

(13) Two pediatricians with experience in diagnosing and treating injuries and child abuse and neglect, appointed by the Governor from a list submitted by the state chapter of the American Academy of Pediatrics:

Richard Lichenstein, MD, FAAP;
Leen Dev, MD; and

Eleven members of the general public with interest or expertise in child safety or welfare, appointed by the Governor, including child advocates, CASA volunteers, health and mental health professionals, and attorneys who represent children. In 2021, there were 10 members of the general public and one vacancy.

Richelle J. Cricks, CNM, MSN
Patricia K. Cronin, LCSW-C
Mary C. Gentile, LCSW-C
Cynthia Wright Johnson
Ivone Kim, MD
Sharyn King
Laurel Moody, RN, MS
Shantell Roberts
Joyce P. Williams, DNP
Anntinette Williams, LICS

Appendix B: State Child Fatality Review Team Duties

Health-General Article, §5-704 (b), sets forth the Team's 13 duties. To achieve its purpose, the State CFR Team shall:

1) Undertake annual statistical studies of the incidence and causes of child fatalities in the State, including an analysis of community and public and private agency involvement with the decedents and their families before and after the deaths;
2) Review reports from local teams;
3) Provide training and written materials to the local teams established under §5-705 of this subtitle to assist them in carrying out their duties, including model protocols for the operation of local teams;
4) In cooperation with the local teams, develop a protocol for child fatality investigations, including procedures for local health departments, law enforcement agencies, local medical examiners, and local departments of social services, using best practices from other states and jurisdictions;
5) Develop a protocol for the collection of data regarding child deaths and provide training to local teams and county health departments on the use of the protocol;
6) Undertake a study of the operations of local teams, including the State and local laws, regulations, and policies of the agencies represented on the local teams, recommend appropriate changes to any regulation or policy needed to prevent child deaths, and include proposals for changes to State and local laws in the annual report required by paragraph (12) of this subsection;
7) Consider local and statewide training needs, including cross-agency training and service gaps, and make recommendations to member agencies to develop and deliver these training needs;
8) Examine confidentiality and access to information laws, regulations, and policies for agencies with responsibility for children, including health, public welfare, education, social services, mental health, and law enforcement agencies, recommend appropriate changes to any regulations and policies that impede the exchange of information necessary to protect children from preventable deaths, and include proposals for changes to statutes in the annual report required by paragraph (12) of this subsection;
9) Examine the policies and procedures of the State and local agencies and specific cases that the State Team considers necessary to perform its duties under this section, in order to evaluate the extent to which State and local agencies are effectively discharging their child protection responsibilities in accordance with:
    i) The State plan under 42 U.S.C. §5106a(b);
    ii) The child protection standards set forth in 42 U.S.C. §5106a(b); and
    iii) Any other criteria that the State Team considers important to ensure the protection of children;

10) Educate the public regarding the incidence and causes of child deaths, the public role in preventing child deaths, and specific steps the public can undertake to prevent child deaths;

11) Recommend to the Secretary any regulations necessary for its own operation and the operation of the local teams;

12) Provide the Governor, the public, and subject to §2-1257 of the State Government Article, the General Assembly with annual written reports, which shall include the State Team's findings and recommendations; and

13) In consultation with local teams:

    i) Define "near fatality"; and

    ii) Develop procedures and protocols that local teams and the State Team may use to review cases of near fatality.