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**Child Death Report
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Acknowledgements

The Child Death Report 2014 was produced by the Office of Surveillance and Quality Initiatives, Maryland Department of Health and Mental Hygiene. It presents information on the distribution and causes of child deaths in Maryland. The data presented in this report are the most recent available, representing deaths occurring from 2010 to 2012.

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The report can be found at: <http://phpa.dhmh.maryland.gov/mch/SitePages/cfr-home.aspx>

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Definitions

- **Infant Death:** Death occurring to a person under one year of age.
- **Infant mortality rate:** Number of infant deaths per 1,000 live births.
- **Neonatal death:** Death occurring to an infant under 28 days of age.
- **Neonatal mortality rate:** Number of neonatal deaths per 1,000 live births.
- **Postneonatal death:** Death occurring to an infant between 28 days and one year of age.
- **Postneonatal death rate:** Number of postneonatal deaths per 1,000 live births.
- **Child death:** Death occurring to a child between one year and up to varied upper age limits in adolescence. For the purpose of this report, the upper age limit is 17 years. It is important to note that sometimes childhood deaths are understood to also include death to infants.
- **Child death rate:** Number of child deaths per 100,000 population in specified group.

To overcome the problems associated with the statistical manipulation of small numbers of events, some of the information in this report is based on combined years of data.

Main Findings

- Of the 695 children under 18 years of age who died in 2012, 66% were infants and 34% were children aged 1-17 years.
- Infant mortality decreased by 6%, from 6.7 per 1,000 live births in 2011 to 6.3 per 1,000 live births in 2012. This change was not statistically significant.
- The leading causes of infant death (in rank order) were disorders related to short gestation and low birth weight, congenital malformations, Sudden Infant Death Syndrome (SIDS), and maternal complications.
- Child mortality (1-17 years) decreased by 1%, from 18.8 per 100,000 population in 2011 to 18.6 per 100,000 in 2012. This change was not statistically significant.
- Among children aged 1-17 years, the leading causes of death for the period 2010-2012 were unintentional injuries, homicide, malignant neoplasms and diseases of the heart. Of the unintentional injuries, motor vehicle collisions caused 52.7% of deaths to children.
- Children aged 15-17 years were impacted more by motor vehicle injury deaths and homicides than younger children.
- The rate of homicide deaths was greater in infancy (7.4 per 100,000) than for any childhood age group between the years of 2010 and 2012.
- Black non-Hispanic children were at over seven times greater risk of homicide than White non-Hispanic children.
- In 2012, Black non-Hispanic infants died at 2.7 times the rate of White non-Hispanic infants (10.4 vs. 3.8 per 1,000 live births). Similarly, Black non-Hispanic children (1-17 years) died at 1.5 times the rate of White-non Hispanic children (22.2 vs. 15.3 per 100,000).
- Between the five-year periods 2003-2007 and 2008-2012, Maryland had a 12% reduction in the overall infant mortality rate, which was statistically significant. Four counties (Baltimore, Charles, Montgomery and Prince George's) also had statistically significant decreases in infant mortality over this same time period.
- For children aged 1-17 years, the statewide child death rate decreased by 16.1% between 2003-2007 and 2008-2012, which was statistically significant. There were also statistically significant decreases in the child mortality rate in Baltimore City as well as Calvert and Prince Georges Counties between the two five-year periods.

Population Demographics

Table 1. Population Distribution of Children (<18 years) by Race/Ethnicity, Maryland, 2012

	Population (<18 years)	% of Total
All Races/Ethnicities	1,343,800	
White non-Hispanic	641,517	47.7
Black non-Hispanic	449,573	33.5
Hispanic	162,374	12.1
Asian non-Hispanic	86,380	6.4
Native American non-Hispanic	3,956	0.3

Data Source: MD DHMH, Vital Statistics Administration

In 2012, Maryland had an estimated population of 5.88 million, of which an estimated 1.34 million were under 18 years old. This group corresponds to 23% of the state population, which is comparable to national data. For the first time, all minorities combined represented over half of the state's child population, reaching 52.3%, while non-Hispanic White children accounted for 47.7%.

According to the U.S. Census Current Population Survey, approximately 13.6% of children in Maryland were in poverty, much lower poverty than the 21.8% recorded nationwide in 2012, and one of the lowest rates in the country compared to other states. Health insurance coverage reached 92.5% of the child population in 2012. Nationally, an estimated 91.1% of children had health insurance coverage in 2012.

Table 2. Population Distribution of Children (<18 years) by Age, Maryland, 2012

	Number of Children	% of Total
Total (<18 years)	1,343,800	
< 1 year	71,976	5.4
1-4 years	293,248	21.8
5-9 years	369,293	27.5
10-14 years	376,851	28.0
15-17 years	232,432	17.3

Data Source: MD DHMH, Vital Statistics Administration

Overall Trends in Child Deaths

Figure 1. Infant Mortality Rates, Maryland, 2003-2012

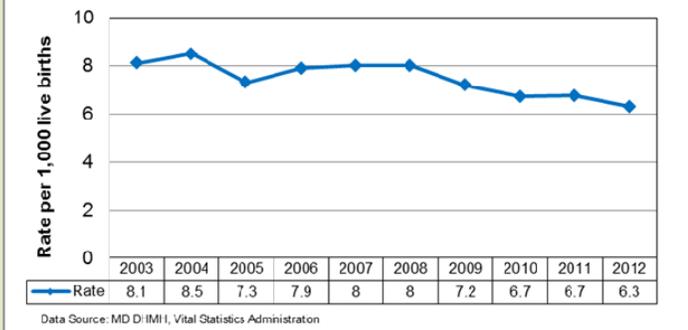


Table 3. Infant Deaths: Number and Infant Mortality Rate, Maryland, 2003-2012

	Number of Deaths	Rate
2003	610	8.1
2004	632	8.5
2005	545	7.3
2006	615	7.9
2007	622	8
2008	617	8
2009	541	7.2
2010	496	6.7
2011	493	6.7
2012	458	6.3

Data Source: MD DHMH, Vital Statistics Administration

In 2012, there were 695 deaths of infants and children under the age of 18 years in Maryland. This age range was utilized for this report because it encompasses the ages for which the State Child Fatality Review Team has responsibility. Over the past ten years, the infant mortality rate has decreased from 8.1 per 1,000 live births in 2003 to 6.3 per 1,000 live births in 2012, which represents a 22% decrease (Table 3 and Figure 1).

Maryland's child death rate also declined between the years 2003 and 2012, from 25.6 deaths per 100,000 population in 2003 to 18.6 in 2012, a decrease of 27% (Table 4 and Figure 2). The child death rate has been relatively stable over the past three years.

Figure 2. Child (1-17) Death Rates, 2003-2012

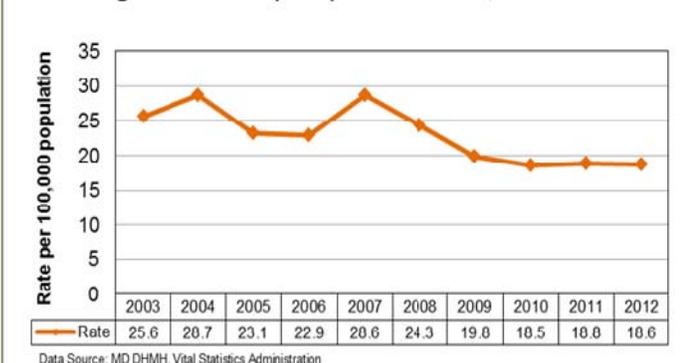


Table 4. Child Deaths (1-17 years): Number and Rate, Maryland, 2003-2012

	Number of Deaths	Rate
2003	334	25.6
2004	374	28.7
2005	301	23.1
2006	296	22.9
2007	366	28.6
2008	307	24.3
2009	253	19.8
2010	237	18.5
2011	239	18.8
2012	237	18.6

Data Source: MD DHMH, Vital Statistics Administration

Trends in Infant Mortality

Table 5. Number of Infant, Neonatal, and Postneonatal Deaths by Race/Ethnicity, Mortality Rates and Change in Rates from 2007-2009 to 2010-2012, Maryland

	Number of Deaths		Mortality Rates*		% Change**	Rates Differ Significantly***
	2007-2009	2010-2012	2007-2009	2010-2012		
Infant Mortality						
All Races/Ethnicities	1780	1447	7.7	6.6	-14.7	Yes
White non-Hispanic	540	411	5.1	4.1	-19.8	Yes
Black non-Hispanic	1052	834	13.7	11.6	-15.7	Yes
Asian non-Hispanic	67	61	4.2	3.8	-10.6	No
Hispanic	103	129	3.4	4.2	24.7	No
Neonatal Mortality						
All Races/Ethnicities	1289	1061	5.6	4.8	-13.7	Yes
White non-Hispanic	380	302	3.6	3.0	-16.2	Yes
Black non-Hispanic	762	611	9.9	8.5	-14.7	Yes
Asian non-Hispanic	54	48	3.4	3.0	-12.7	No
Hispanic	81	91	2.6	3.0	11.9	No
Postneonatal Mortality						
All Races/Ethnicities	491	386	2.1	1.8	-17.5	Yes
White non-Hispanic	160	109	1.5	1.1	-28.2	Yes
Black non-Hispanic	290	223	3.8	3.1	-18.2	Yes
Asian non-Hispanic	13	13	0.8	0.8	-1.8	No
Hispanic	22	38	0.7	1.2	72.0	Yes

Data Source: MD DHMH, Vital Statistics Administration

* Rate per 1000 live births

** Percent change is based on the exact rates and not the rounded rates presented here

*** Z Test, $p < 0.05$

The infant mortality rate for all races/ethnicities decreased by 14.7% between the three year periods of 2007-2009 and 2010-2012. The neonatal mortality rate and the postneonatal mortality rate decreased by 13.7% and 17.5%, respectively (Table 5). All of these decreases were statistically significant.

Of all races and ethnicities, Hispanics were the only group that saw an increase in the infant, neonatal and postneonatal mortality rates. The biggest increase was observed in the postneonatal mortality rate, which grew by 72%.

Trends in Child Deaths

Table 6. Number of Child Deaths by Race/Ethnicity and Age, Mortality Rates and Percent Change in Rates from 2007-2009 to 2010-2012, Maryland

	Number of Deaths		Mortality Rates*		% Change**	Rates Differ Significantly***
	2007-2009	2010-2012	2007-2009	2010-2012		
1-17 years						
All Races/Ethnicities	926	713	24.2	18.6	-23.1	Yes
White non-Hispanic	428	308	21.9	16.6	-24.1	Yes
Black non-Hispanic	392	323	32.6	25.0	-23.3	Yes
Asian non-Hispanic	32	22	17.9	9.3	48.3	Yes
Hispanic	69	51	19.5	11.8	-39.5	Yes
Age Group						
1-4 years	252	197	28.0	22.4	-20.1	Yes
5-9 years	137	123	12.6	11.2	-11.2	No
10-14 years	196	140	17.7	12.3	30.2	Yes
15-17 years	341	253	47.1	35.6	-24.4	Yes

Data Sources: Deaths: MD DHMH, Vital Statistics Administration

* Rate per 10,000 population in specified group

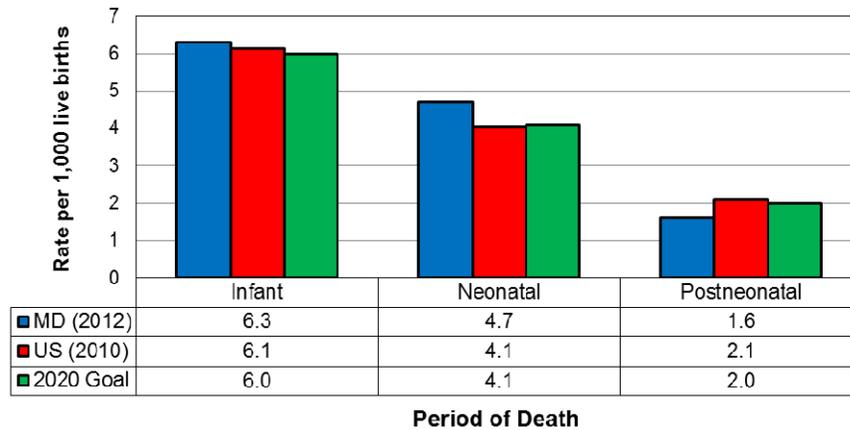
** Percent change is based on the exact rates and not the rounded rates presented here

*** Z Test, p<0.05

For children ages 1 through 17 years, the mortality rate in the period from 2010 to 2012 fell by 23.1% compared to the 2007-2009 period. This decrease was statistically significant. With respect to race and ethnicity, all groups saw statistically significant decreases in mortality rates between these periods. Each age group, with the exception of 5-9 year olds, also had a statistically significant decrease in their respective mortality rates (Table 6).

Comparison to National Statistics

Figure 3. Infant Mortality Rates, Maryland (2012) and United States (2010)



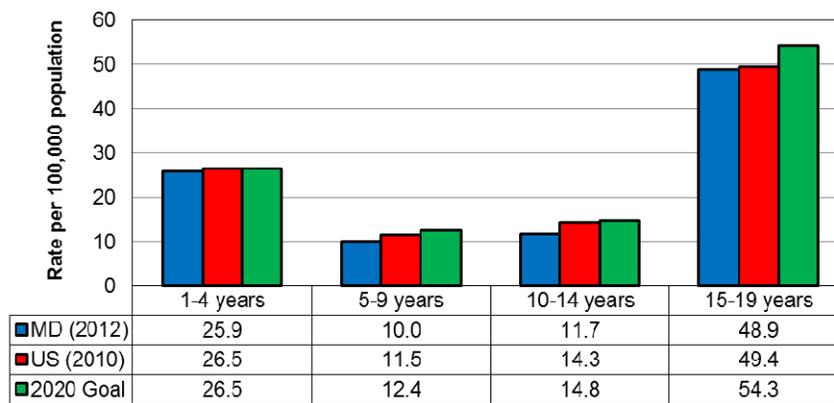
Data Sources: MD DHMH, Vital Statistics Administration, National Center for Health Statistics, Healthy People 2020

National objectives for infant and child mortality have been established in the Healthy People 2020 project of the United States Department of Health and Human Services, which is a continuation of Healthy People 2010.

In Maryland, infant and neonatal mortality rates in 2012 exceeded the national average and the 2020 goals. The postneonatal mortality rate in Maryland, however, was below the national average and the 2020 goal.

Maryland child death rates in 2012 for all age groups were below national rates and 2020 goals.

Figure 4. Child (1-19 years) Death Rates, Maryland (2012) and United States (2010)



Data Sources: MD DHMH, Vital Statistics Administration, National Vital Statistics System, Healthy People 2020

Child Death Demographics

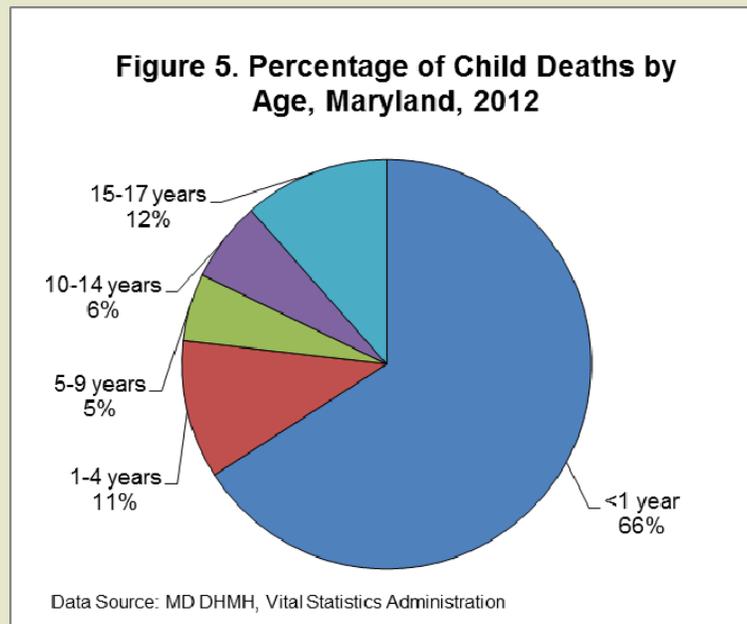


Table 7. Child Deaths (<18 years), Maryland, 2012

Age Group	# of Deaths	% of Total
<1 year	458	65.9%
1-4 years	76	10.9%
5-9 years	37	5.3%
10-14 years	44	6.3%
15-17 years	80	11.5%

Data Source: MD DHMH, Vital Statistics Administration

Table 8. Infant Deaths by Sex, Maryland, 2012

Sex	# of Deaths	% of Total
Male	235	51.3%
Female	223	48.7%

Data Source: MD DHMH, Vital Statistics Administration

Of the 695 child deaths that occurred in 2012, 66% were in the first year of life. Therefore, efforts to lower overall child deaths must be coordinated with activities specifically aimed at addressing infant deaths. Although mortality rates fall after infancy, they rise again during adolescence. Increased efforts to reduce unintentional and intentional injury deaths in older children are necessary.

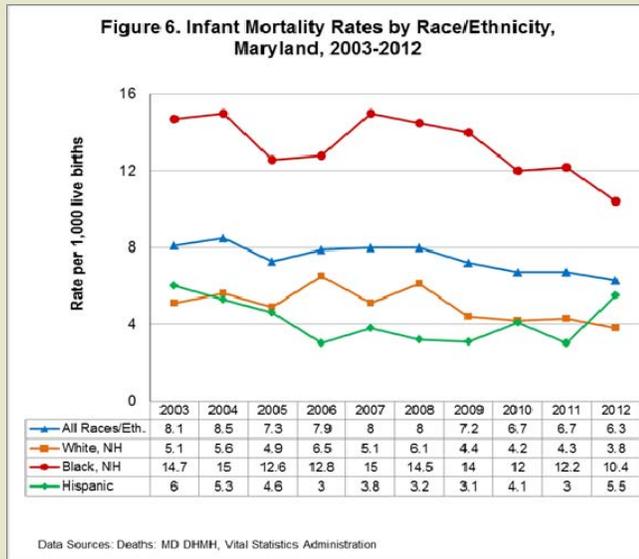
In 2012, 51.3% of the infant deaths occurred in boys (Table 8). Of the 253 deaths among 1 to 17 year old children, 58.2% occurred in boys (Table 9).

Table 9. Child (1-17 years) Deaths by Sex and Age Group, Maryland, 2012

Sex	# of Deaths by Age Group				Total 1-17	% of Total
	1-4 years	5-9 years	10-14 years	15-17 years		
Male	41	21	26	50	138	58.2%
Female	35	16	18	30	99	41.8%
Both Sexes	76	37	44	80	237	

Data Source: MD DHMH, Vital Statistics Administration

Child Death Demographics



Despite the recent decreases in the infant mortality rate among non-Hispanic Blacks, this group has consistently faced rates higher than other racial and ethnic groups. In 2012, Black infants died at 2.7 times the rate of White infants (Figure 6). Non-Hispanic Black infants accounted for 54.4% of all infant deaths (Table 10).

Table 10. Infant Deaths by Race/Ethnicity, Maryland, 2012

Race/Ethnicity	# of Deaths	% of Total
All Races/Ethnicity	458	
White, non-Hispanic	126	27.5%
Black, non-Hispanic	249	54.4%
Asian, non-Hispanic	21	4.6%
Other, non-Hispanic	6	1.3%
Hispanic	56	12.2%

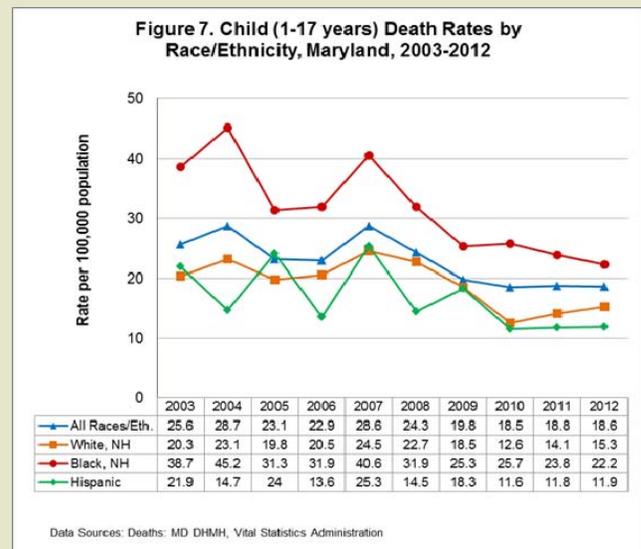
Data Source: MD DHMH, Vital Statistics Administration

Table 11. Child (1-17 years) Deaths by Race/Ethnicity, Maryland, 2012

Race/Ethnicity	# of Deaths	% of Total
All Races/Ethnicity	237	
White, non-Hispanic	112	47.3%
Black, non-Hispanic	99	41.8%
Asian, non-Hispanic	4	1.7%
Other, non-Hispanic	3	1.3%
Hispanic	18	7.6%
Native American	1	0.4%

Data Source: MD DHMH, Vital Statistics Administration

Racial disparity was evident in child deaths in Maryland as well. The rate of deaths in non-Hispanic Black children ages 1 through 17 years was 1.5 times higher than that of non-Hispanic White children (Figure 7). Between 2010 and 2012, there has been a decline in the death rate of Black children, and a slight increase in death rates for White and Hispanic children.



Causes of Infant Death

Table 12. Leading Causes of Infant Mortality, Maryland, 2012

Rank	Cause of Death	# of Deaths	% of Total
1	Short gestation, Low birth weight	127	27.7%
2	Congenital abnormalities	70	15.3%
3	SIDS	47	10.3%
4	Maternal complications	33	7.2%
5	Complications of placenta, cord, and membranes	24	5.2%
	All other causes	157	34.3%
	All causes	458	

Data Source: MD DHMH, Vital Statistics Administration

Table 13. Leading Causes of Neonatal Mortality, Maryland, 2012

Rank	Cause of Death	# of Deaths	% of Total
1	Short gestation, Low birth weight	123	36%
2	Congenital abnormalities	54	16%
3	Maternal complications	33	10%
4	Complications of placenta, cord, and membranes	23	7%
5	Respiratory distress	14	4%
5	Bacterial sepsis of newborn	14	4%
	All other causes	78	23%
	All causes	339	

Data Source: MD DHMH, Vital Statistics Administration

Table 14. Leading Causes of Postneonatal Mortality, Maryland, 2012

Rank	Cause of Death	# of Deaths	% of Total
1	SIDS	44	37.0%
2	Congenital abnormalities	16	13.4%
3	Diseases of the circulatory system	8	6.7%
4	Accidents	6	5.0%
5	Assault (homicide)	5	4.2%
	All other causes	40	33.6%
	All causes	119	

Data Source: MD DHMH, Vital Statistics Administration

Understanding the underlying cause of death in childhood is necessary in order to develop strategies to prevent these events when possible. Specific causative factors vary significantly depending on the age of the child.

In the first year of life, the leading cause of death was prematurity and low birth weight, which accounted for 27.7% of all infant deaths in Maryland in 2012 (Table 12). Nationally, the leading cause of infant death is congenital abnormalities.

In the neonatal period, prematurity and low birth weight accounted for 36% of deaths in 2012 (Table 13).

After the first month of life, Sudden Infant Death Syndrome (SIDS) and congenital anomalies were the leading causes of infant death, accounting for 37% and 13.4% of postneonatal deaths, respectively (Table 14).

Sudden Infant Death Syndrome

Table 15. Infant Deaths Due to SIDS by Race/Ethnicity, Maryland, 2010-2012

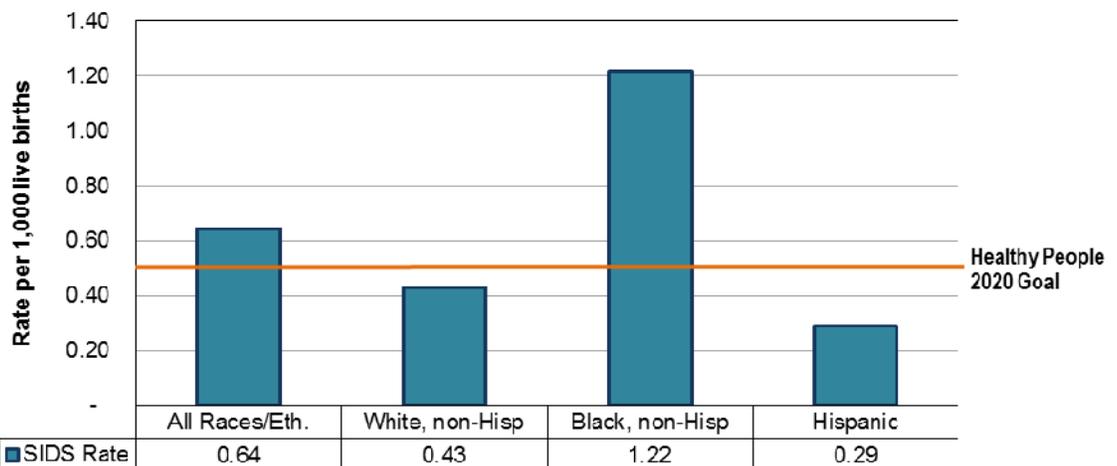
Race/Ethnicity	# of Deaths
All Races/Ethnicities	141
White non-Hispanic	43
Black non-Hispanic	88
Asian non-Hispanic	1
Other non-Hispanic	0
Hispanic	9

Data Source: MD DHMH, Vital Statistics Administration

SIDS is the sudden death of a child under one year of age, which cannot be explained after a thorough investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history. SIDS is the third leading cause of infant mortality and the leading cause of death in the first year of life beyond the neonatal period. SIDS is of particular public health concern because it can be reduced through safe infant sleeping practices.

In Maryland, the infant mortality rate due to SIDS decreased by 25.6% between the periods 2007-2009 (0.86 deaths per 1,000 live births) and 2010-2012 (0.64 deaths per 1,000 live births). In 2010-2012, there were 141 SIDS deaths. Of those, 43 (30.5%) were among non-Hispanic White infants and 88 (62.4%) were among non-Hispanic Black infants (Table 15). The rate of SIDS deaths in Black infants was 2.8 times the rate in White infants (Figure 8). Maryland's average SIDS death rate in 2010-2012 of 0.64 was higher than the 2010 national rate of 0.52 per 1,000 live births. The Healthy People 2020 goal calls for reducing death from SIDS to no more than 0.50 per 1,000 live births.

Figure 8. Infant Mortality Rate Due to SIDS, Maryland, 2010-2012



Data Source: MD DHMH, Vital Statistics Administration, U.S. Department of Health and Human Services, Healthy People 2020

Sudden Unexpected Infant Deaths (SUID)

Table 16. Infant Deaths Due to SUIDS by Race/Ethnicity, Maryland, 2010-2012

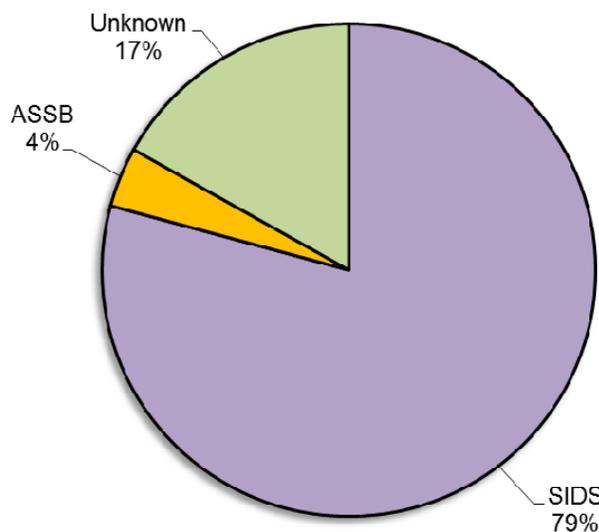
Race/Ethnicity	# of Deaths	Rate*
All Races/Ethnicities	178	0.81
White non-Hispanic	54	0.54
Black non-Hispanic	106	1.47
Asian non-Hispanic	3	*
Other non-Hispanic	1	*
Hispanic	14	0.45

Data Source: MD DHMH, Vital Statistics Administration
 * Rate per 1,000 live births (rate not calculated for <5 events)

SUIDs are an expanded category of sudden infant deaths which include deaths due to SIDS, as well as deaths due to accidental suffocation or strangulation, and deaths of unknown cause. These causes of death are grouped together to help identify sleep-related deaths, including those where co-sleeping may have occurred.

As a result of more thorough death scene investigations, some deaths which were previously attributed to SIDS are now being attributed to accidental suffocation. Between 2010 and 2012, there were 7 infant deaths attributed to unsafe sleep, which accounted for 4% of all SUIDs in the period. Many jurisdictions in Maryland have implemented interventions to reduce sleep-related infant deaths, emphasizing the ABC's of safe sleep: that infants should sleep **A**lone, on their **B**ack, in a **C**rib.

Figure 9. Percent of Total SUIDs by Cause of Death, Maryland, 2010-2012



Data Source: MD DHMH, Vital Statistics Administration
 SIDS: Sudden Infant Death Syndrome
 ASSB: Accidental Suffocation or Strangulation in Bed

Causes of Death among Older Children

Table 17 and Figure 10 show the causes of death by major category among children 1-17 years for the period 2010-2012, and in 2012, respectively. Over this period, injuries (unintentional injury, homicide and suicide) represented over 43% of childhood deaths. Unintentional injuries were the leading cause of death in all age groups, as shown in Table 18.

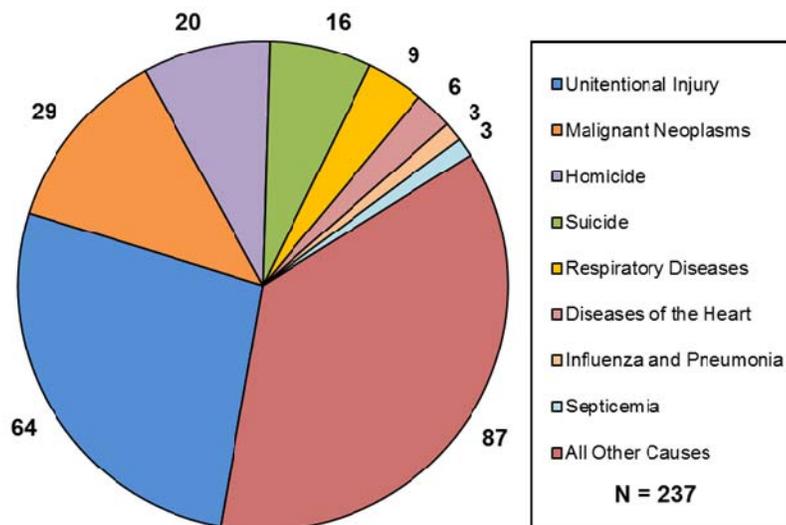
In addition to being classified according to cause of death, death is also classified by manner as natural, accident (unintentional), homicide, suicide, and undetermined. A death due to a natural cause can result from one of many serious health conditions, including congenital anomalies, genetic disorders, cancers, and infections. Many of these conditions are not believed to be preventable to the same extent to which unintentional injuries, homicides or suicides are preventable.

Table 17. Leading Causes of Death among Children aged 1-17 years, Maryland, 2010-2012

Rank	Cause of Death	# of Deaths	% of Total
1	Unintentional Injury	188	26.4
2	Malignant Neoplasms	83	11.6
3	Homicide	77	10.8
4	Suicide	43	6.0
5	Diseases of the Heart	26	3.6
6	Chronic Lower Respiratory Diseases	17	2.4
7	Influenza and Pneumonia	12	1.7
8	Septicemia	8	1.1
9	Cerebrovascular Diseases	6	0.8
	All other causes	253	35.5
	Total	713	

Data Source: MD DHMH, Vital Statistics Administration

Figure 10. Number of Child (1-17 years) Deaths by Cause of Death, Maryland, 2012



Data Source: MD DHMH, Vital Statistics Administration

Causes of Death among Older Children

Table 18. Leading Causes of Death among Children by Age Group, Maryland, 2010-2012.

Rank	Cause of Death	Age Group			
		1-4 years	5-9 years	10-14 years	15-17 years
1	Cause of Death	Unintentional Injury	Unintentional Injury	Unintentional Injury	Unintentional Injury
	# of Deaths	43	39	36	70
	% of Deaths in Age Group	21.8%	31.7%	25.7%	27.7%
2	Cause of Death	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	Homicide
	# of Deaths	17	20	23	48
	% of Deaths in Age Group	8.6%	16.3%	16.4%	19.0%
3	Cause of Death	Homicide	Homicide	Suicide	Suicide
	# of Deaths	16	3	11	31
	% of Deaths in Age Group	8.1%	2.4%	7.9%	12.3%
4	Cause of Death	Diseases of the Heart	Diseases of the Heart	Homicide	Malignant Neoplasms
	# of Deaths	6	3	10	23
	% of Deaths in Age Group	3.0%	2.4%	7.1%	9.1%
5	Cause of Death	Influenza and Pneumonia	Chronic Lower Respiratory Diseases	Diseases of the Heart	Diseases of the Heart
	# of Deaths	5	3	7	10
	% of Deaths in Age Group	2.5%	2.4%	5.0%	4.0%

Data Source: MD DHMH, Vital Statistics Administration

Injuries were the leading cause of death in children aged 1-17 years, with unintentional injuries accounting for most of the injury-related deaths in all childhood age groups (Table 18). Many of these injury-related deaths are preventable.

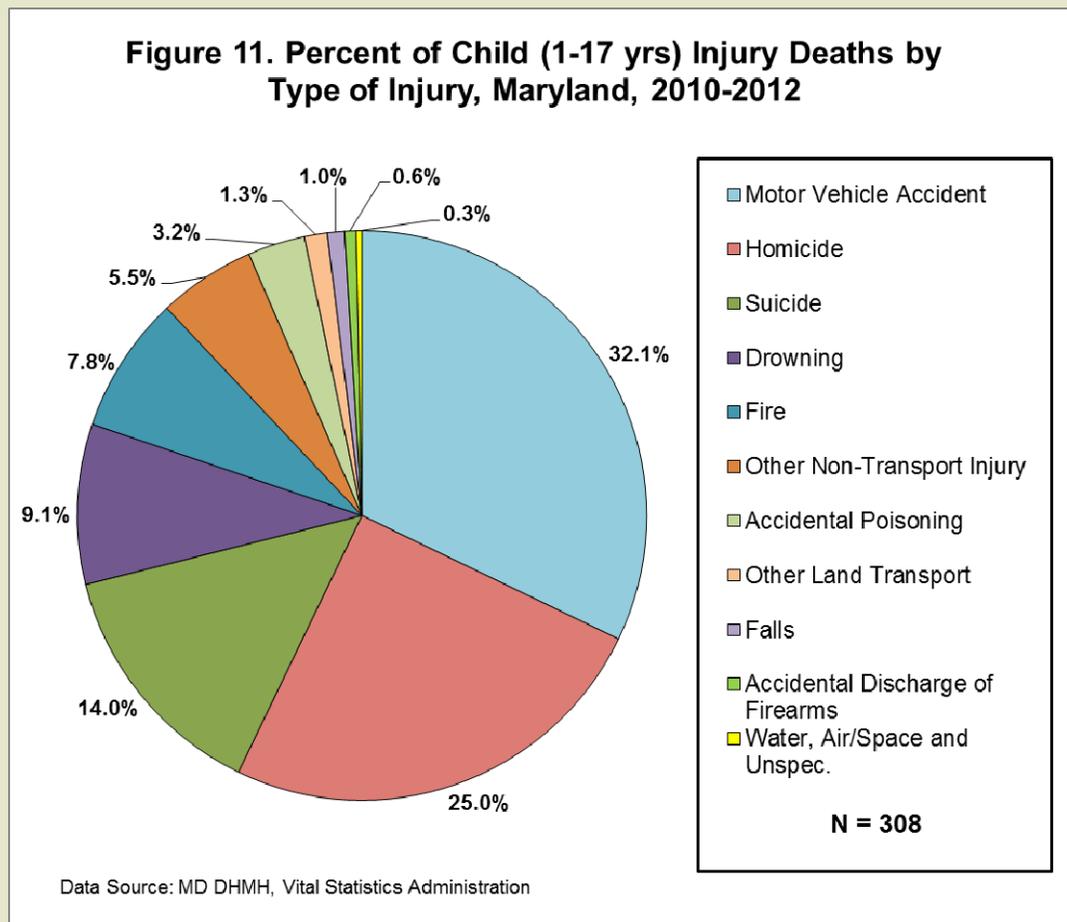
Homicides were one of the five leading causes of death in all four age groups, and suicide was the third leading cause among adolescents aged 10-14 and 15-17 years.

Injury Related Deaths

Of all injury related deaths occurring from 2010 to 2012 among children ages 1 to 17 years, 61% were unintentional injuries. Homicide and suicide (intentional injuries) represented 25% and 14% of all fatal injuries, respectively (Figure 11).

Fifty two per cent of all injury related deaths occurred among non-Hispanic Black children and 41% among non-Hispanic White children (Table 19). Homicide and fire deaths were more common among Black children, while motor vehicle accidents and suicide were more common among White children.

The number of injury deaths among male children was substantially higher than among females for most injury types. Overall 67.5% of injury deaths occurred among male children (Table 20). Deaths among male children accounted for 74% of all homicides, 88% of all suicides, and 85% of all drowning deaths.



Injury Related Deaths

Table 19. Child (1-17 years) Injury Related Deaths by Type of Injury and Race/Ethnicity, Maryland, 2010-2012.

	White, Non-Hispanic	Black, Non-Hispanic	Other, Non-Hispanic	Hispanic+	Total Deaths	% of All Injury Deaths
Transport Injuries	60	37	4	3	104	33.8%
Motor Vehicle Accident	56	36	4	3	99	32.1%
Other Land Transport	3	1	0	0	4	1.3%
Water, Air/Space and Unspecified Transp.	1	0	0	0	1	0.3%
Non-Transport Injuries	65	122	9	8	204	66.2%
Homicide by Firearm	6	47	0	0	53	17.2%
Homicide by Other Means	3	19	2	0	24	7.8%
Suicide by Other Means	15	10	1	2	28	9.1%
Drowning	12	11	2	3	28	9.1%
Fire	6	16	0	2	24	7.8%
Other Non-Transport Injury	6	6	4	1	17	5.5%
Suicide by Firearm	11	4	0	0	15	4.9%
Accidental Poisoning	4	6	0	0	10	3.2%
Falls	2	1	0	0	3	1.0%
Accidental Discharge of Firearms	0	2	0	0	2	0.6%
All Injuries	125	159	13	11	308	

Data Source: MD DHMH, Vital Statistics Administration

† Includes all deaths to persons of Hispanic origin of any race.

Table 20. Child (1-17 years) Injury Related Deaths by Type of Injury and Gender, Maryland, 2010-2012

	Male	Female	Total Deaths	% of Male Injury Deaths	% of Female Injury Deaths
Transport Injuries	59	45	104	56.7%	43.3%
Motor Vehicle Accident	58	41	99	58.6%	41.4%
Other Land Transport	1	3	4	25.0%	75.0%
Water, Air/Space and Unspecified Transp.	0	1	1	0.0%	100.0%
Non-Transport Injuries	149	55	204	73.0%	27.0%
Homicide by Firearm	42	11	53	79.2%	20.8%
Homicide by Other Means	15	9	24	62.5%	37.5%
Suicide by Other Means	24	4	28	85.7%	14.3%
Drowning	24	4	28	85.7%	14.3%
Fire	9	15	24	37.5%	62.5%
Other Non-Transport Injury	9	8	17	52.9%	47.1%
Suicide by Firearm	14	1	15	93.3%	6.7%
Accidental Poisoning	7	3	10	70.0%	30.0%
Falls	3	0	3	100.0%	0.0%
Accidental Discharge of Firearms	2	0	2	100.0%	0.0%
All Injuries	208	100	308	67.5%	32.5%

Data Source: MD DHMH, Vital Statistics Administration

Injury Related Deaths

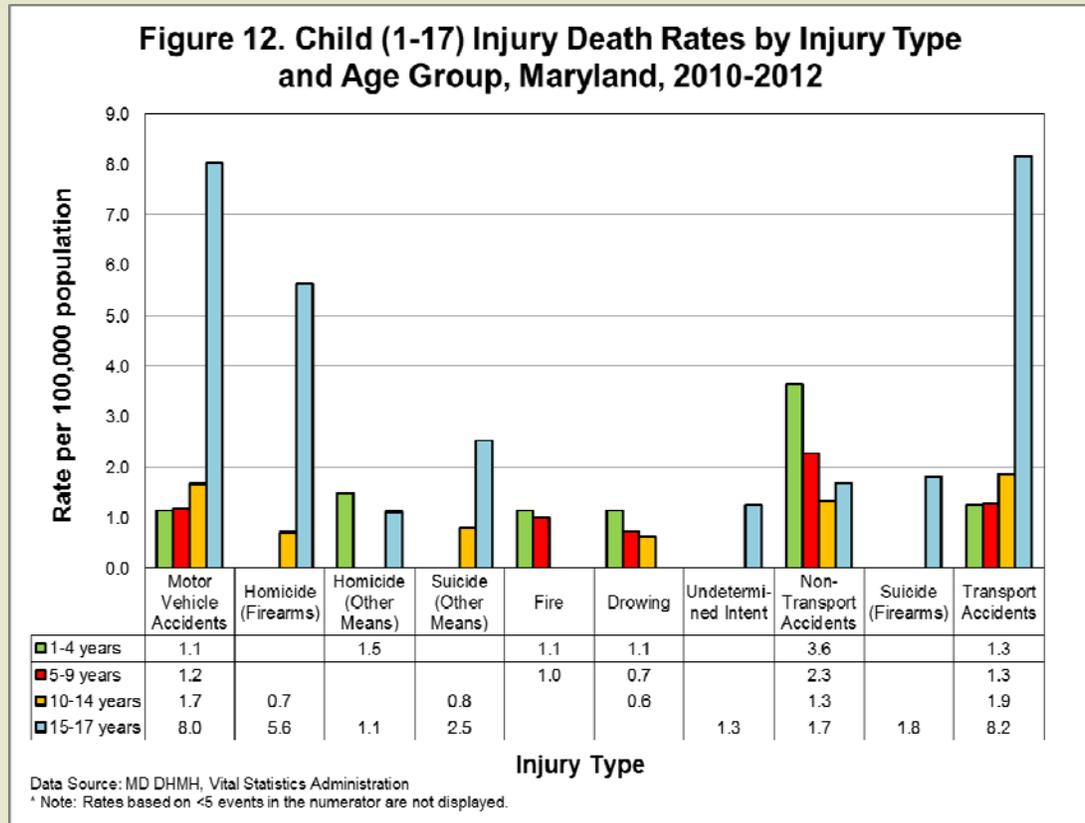


Figure 12 shows the injury death rates by age group during the period 2010 to 2012. Adolescents between the ages of 15 and 17 years had the highest rates of injury deaths for most types of injuries.

Death rates for very young children (1-4 years) by drowning, fire, non-transport injuries, and homicides by means other than firearms were higher than the rates for adolescents (15-17 years). Of unintentional injuries, transportation injuries were the leading cause of death among children.

The rate of deaths due to injury among children of all age groups declined more than 35% from 12.4 per 100,000 population in the three year period 2007-2009 to 8.0 in the period 2010-2012. This change was statistically significant.

Transportation Related Deaths

Table 21. Child (1-17 years) Deaths Due to Transportation Collisions, Maryland, 2010-2012

Type of Injury	# of Deaths	% of Total
Unspecified Transport Accident	19	18.3%
Passenger (Car, Truck or Van)	18	17.3%
Pedestrian (collision with car, truck or van)	15	14.4%
Driver (Car, Truck or Van)	9	8.7%
Motorcycle Rider	6	5.8%
Pedestrian (collision with bus or train)	2	1.9%
Water Transport Accident	1	1.0%
All Terrain Vehicle Rider	1	1.0%
All Transport Collisions	104	

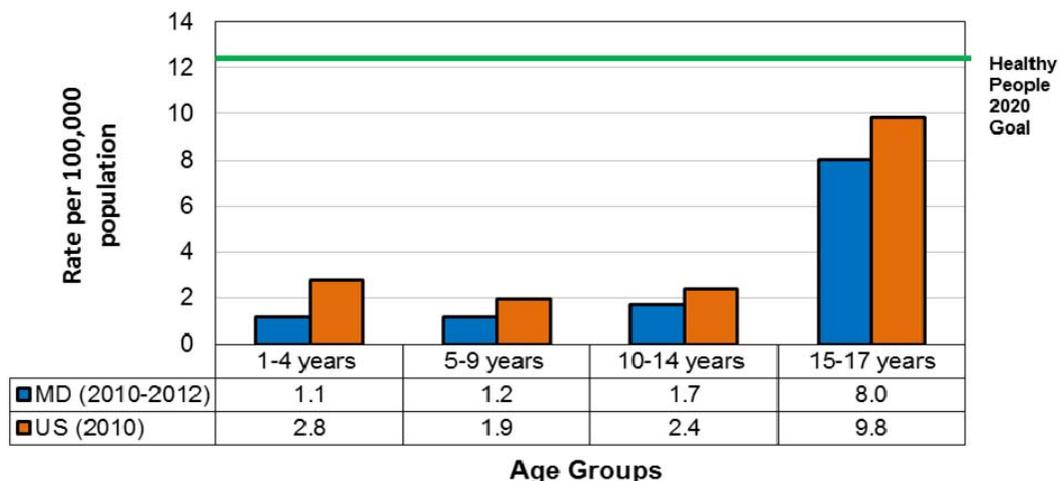
Data Source: MD DHMH, Vital Statistics Administration

Between 2010 and 2012, 104 children ages 1-17 years were killed in vehicle crashes (Table 21). Of the 99 motor vehicle related deaths, 58 (59%) occurred among boys and 41 (41%) occurred among girls (Table 20). The majority of deaths from motor vehicles crashes occurred among non-Hispanic White children (Table 19).

Adolescents age 15-17 years have the highest death rate from motor vehicle collisions compared to other age groups (Figure 13).

In 2010-2012, the death rate due to motor vehicle collisions among children decreased by 34% compared with the previous three year period, dropping from 12.2 to 8.0 per 100,000 population. This change was statistically significant.

Figure 13. Child (1-17 years) Motor Vehicle-Related Death Rates, Maryland, 2010-2012, and U.S., 2010



Data Source: MD DHMH, Vital Statistics Administration, CDC National Center for Injury Prevention and Control, US Department of Health and Human Services, Healthy People 2020

Homicides

Table 22. Child (0-17 years) Deaths Due to Homicide by Race/Ethnicity, Maryland, 2010-2012

Race/Ethnicity	By Firearm		By Other Means		Total	
	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000
White, Non-Hispanic	6	0.3	9	0.5	15	0.8
Black, Non-Hispanic	47	3.6	29	2.2	76	5.9
Hispanic	0	-	0	-	0	-
All Races/Ethnicities	53	1.4	40	1.0	93	2.4

Data Source: MD DHMH, Vital Statistics Administration

Rates based on <5 events in the numerator are not displayed

There were 93 homicides in the period 2010-2012 among infants and children age 0 to 17 years. The homicide rate among non-Hispanic Black children was over seven times higher than the rate among non-Hispanic White children (Table 22; Figure 14). There were no reported homicide deaths of infants or children of Hispanic origin.

Of the 53 firearm-related deaths, 42 (79%) were among males and 11 (21%) among females (Table 23). The greatest number of homicides occurred in the oldest children and most often involved the use of firearms; 75% of firearm-related deaths were among adolescents aged 15-17 years, representing a rate of 6.8 per 100,000 population (Table 24). The homicide rate for infants (under one year of age) was higher than all other age groups; 16 infants were victims of homicide, representing a rate of 7.4 per 100,000 population. None of these infant deaths involved firearms.

Table 23. Child (0-17 years) Deaths Due to Homicide by Sex, Maryland, 2010-2012

Gender	By Firearm		By Other Means		Total	
	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000
Male	42	2.0	22	1.1	64	3.1
Female	11	0.6	18	0.9	29	1.5

Data Source: MD DHMH, Vital Statistics Administration

Rates based on <5 events in the numerator are not displayed

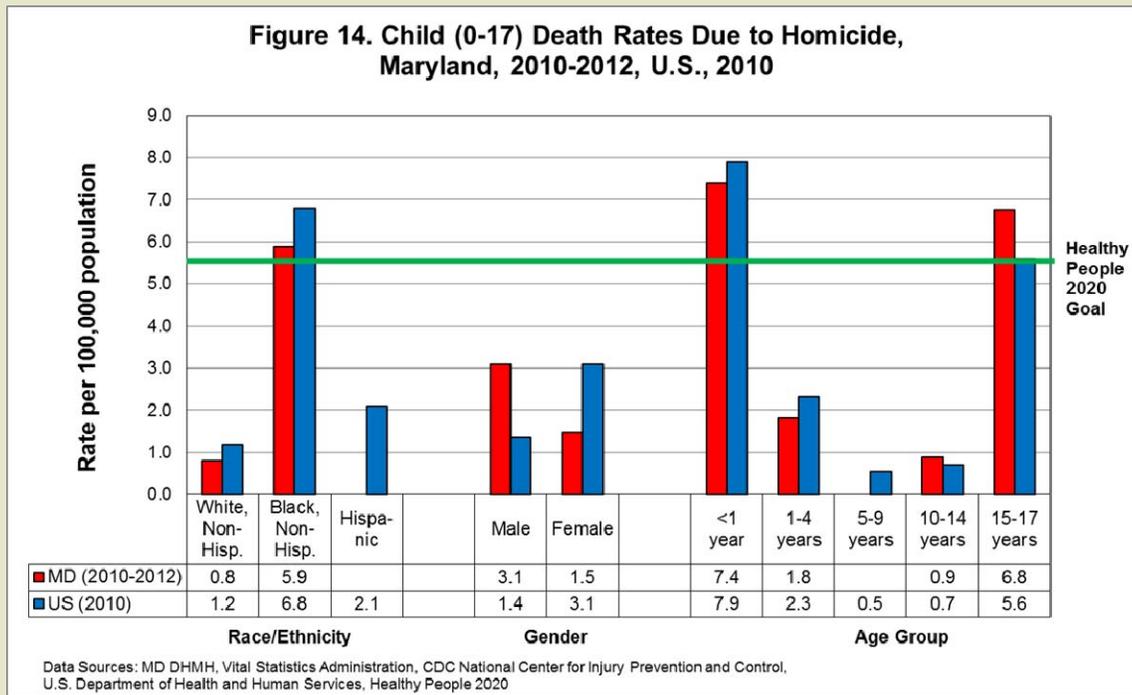
Homicides

Table 24. Child (0-17 years) Deaths Due to Homicide by Age Group, Maryland, 2010-2012

Age Group	By Firearm		By Other Means		Total	
	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000
<1 year	0	-	16	7.4	16	7.4
1-4 years	3	-	13	1.5	16	1.8
5-9 years	2	-	1	-	3	-
10-14 years	8	0.7	2	-	10	0.9
15-17 years	40	5.6	8	1.1	48	6.8

Data Source: MD DHMH, Vital Statistics Administration
 Rates based on <5 events in the numerator are not displayed

Maryland's homicide rate in 2010-2012 for children over 15 years was 1.2 points higher than the 2010 national rate (Figure 14). The Healthy People 2020 goal calls for reducing the homicide rate for children of all races, genders, and ages to no more than 5.5 per 100,000 population. In 2012, Maryland's total homicide rate for children was 7.0 per 100,000 population.



Suicides

Table 25. Child (10-17 years) Deaths Due to Suicide by Sex, Maryland, 2010-2012

Gender	By Firearm		By Other Means		Total	
	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000
Male	13	1.4	24	2.5	37	3.9
Female	1	-	4	-	5	0.6
Total	14	0.8	28	1.5	42	2.3

Data Source: MD DHMH, Vital Statistics Administration
Rates based on <5 events in the numerator are not displayed

Suicide among young people is a significant public health problem in the U.S., and it is the third leading cause of death among youth, ages 10-17, in Maryland (Table 18). The National Institute of Mental Health reports that risk factors that are associated with suicide include mental illness, substance abuse, family violence, and incarceration.

Of the 42 children aged 10-17 years who committed suicide between 2010 and 2012, 37 were males and 5 were females, representing rates of 3.9 and 0.6 per 100,000 population, respectively (Table 25). Non-Hispanic White children were more likely to commit suicide than non-Hispanic Black children (Table 26). Older children (15-17 years) had a suicide rate 4.4 times higher than that for children ages 10-14 years (Table 27).

Table 26. Child (10-17 years) Deaths Due to Suicide by Race/Ethnicity, Maryland, 2010-2012

Race/Ethnicity	By Firearm		By Other Means		Total	
	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000
White non-Hispanic	10	1.1	15	1.6	25	2.7
Black non-Hispanic	4	-	10	1.6	14	2.2
Asian, non-Hispanic	0	-	1	-	1	-
Hispanic	0	-	2	-	2	-

Data Source: MD DHMH, Vital Statistics Administration
Rates based on <5 events in the numerator are not displayed

Suicides

Table 27. Child (10-17 years) Deaths Due to Suicide by Age Group, Maryland, 2010-2012

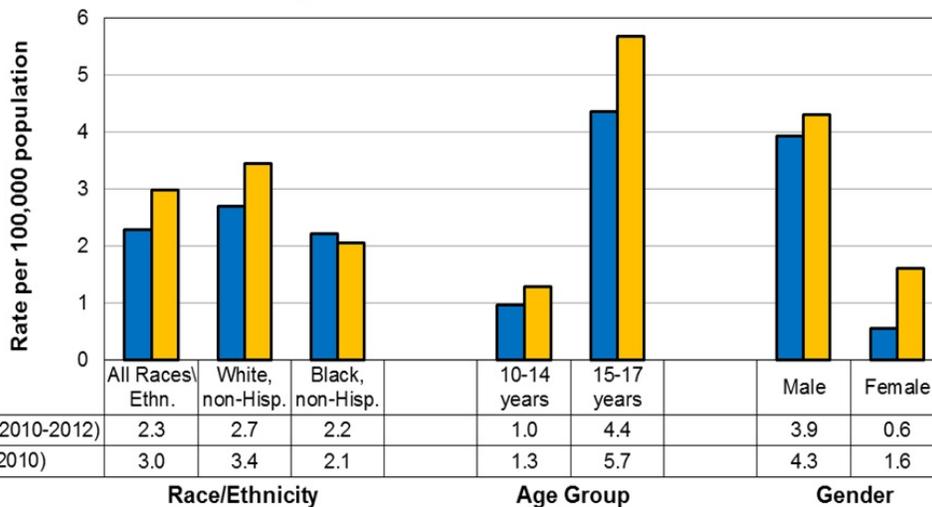
Age Group	By Firearm		By Other Means		Total	
	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000	# of Deaths	Rate per 100,000
10-14 years	2	-	9	0.8	11	1.0
15-17 years	13	1.8	18	2.5	31	4.4

Data Source: MD DHMH, Vital Statistics Administration
 Rates based on <5 events in the numerator are not displayed

For the period 2010-2012, Maryland's overall suicide rate among children was lower than the national rate for 2010 (Figure 15). Only the suicide rate for non-Hispanic Black children was higher than the national average.

Compared to the 2007-2009 period, the suicide rate decreased for non-Hispanic White children, females, and children 15-17 years old, but increased for Blacks, males, and children 10-14 years old.

Figure 15. Child (10-17) Death Rates Due to Suicide, Maryland, 2010-2012, U.S., 2010



Data Source: MD DHMH, Vital Statistics Administration,
 CDC National Center for Injury Prevention and Control.

Child Deaths in Maryland Jurisdictions

Measures to reduce child deaths often originate in local areas through public health and public policy interventions. Specific causes of death may vary in different geographic locations. Data showing the occurrence of infant and child deaths by Maryland jurisdiction are included in the following pages. In these tables and maps, an average rate over five years is used for comparison because a small number of deaths in a jurisdiction in a single year may result in considerable variation, which may not indicate an actual significant change. Even with multi-year windows, however, some counties did not have enough events to make rates reliable. Rates were not calculated if there were fewer than five deaths in a jurisdiction. The tables also include an analysis of the change in the rate in jurisdictions over a ten-year period.

Maryland's overall infant mortality rate decreased significantly (12.0%) between 2003-2007 and 2008-2012 (Table 28). Baltimore, Charles, Montgomery, and Prince George's Counties also had statistically significant declines in infant mortality rates between these two five-year periods.

Among children ages 1-17 years, there was a significant decline in the state's average child mortality rate between 2003-2007 and 2008-2012, with a decrease of 16.1% from 25.6 to 21.5 per 100,000 population (Table 29). Baltimore City as well as Calvert and Prince George's Counties had statistically significant declines in their child mortality rates between these two five-year periods. Between these two time periods, Caroline County had a statistically significant increase in its rate.

Figure 16 shows a map of the five-year average infant mortality rates by jurisdiction (2008-2012). Figure 17 shows a map of the five-year average child death rates by jurisdiction (2008-2012).

The numbers of infant deaths by jurisdiction by year (2008 through 2012) are shown in Appendix A. The numbers of childhood deaths by jurisdiction over these same years are shown in Appendix B.

Child Deaths in Maryland Jurisdictions

Table 28. Infant Mortality by Jurisdiction, Maryland, 2003-2007, 2008-2012.

Region	Jurisdiction	# of Deaths 2003-2007	# of Deaths 2008-2012	Mortality Rate* 2003-2007	Mortality Rate* 2008-2012	%Change in Rate **	Rates differ Significantly? ***
Northwest Area	Garrett	6	7	3.8	4.9	29.1	No
	Allegany	27	19	8.0	5.4	-33.1	No
	Washington	52	45	5.8	5.1	-11.3	No
	Frederick	71	67	4.7	4.7	1.3	No
Baltimore Metro Area	Baltimore City	574	527	12.2	11.4	-6.8	No
	Baltimore	373	325	7.7	6.6	-14.4	Yes
	Anne Arundel	246	209	7.1	6.0	-15.9	No
	Carroll	37	31	3.8	3.8	-0.5	No
	Howard	102	92	5.9	5.4	-8.4	No
	Hartford	88	64	5.9	4.6	-22.0	No
National Capital Area	Montgomery	429	342	6.3	5.1	-18.3	Yes
	Prince George's	666	571	10.6	9.3	-11.8	Yes
Southern Area	Calvert	27	25	5.4	5.4	0.4	No
	Charles	87	59	9.2	6.4	-30.6	Yes
	Saint Mary's	51	41	7.1	5.7	-20.3	No
Eastern Shore Area	Cecil	33	29	5.2	4.9	-6.6	No
	Kent	5	6	-	6.4	-	-
	Queen Anne's	14	14	5.4	5.7	5.8	No
	Caroline	11	20	4.9	9.3	90.0	No
	Talbot	10	11	5.5	6.4	15.5	No
	Dorchester	23	25	12.4	12.5	0.9	No
	Wicomico	56	50	9.0	7.8	-13.5	No
	Somerset	19	11	14.4	8.4	-42.0	No
	Worcester	17	15	7.1	6.6	-8.1	No
	Maryland	3024	2605	8.0	7.0	-12.0	Yes

Data Source: MD DHMH, Vital Statistics Administration

*Rate per 1000 live births. Rates with 5 events or less in the numerator are not displayed

** Percent change is based on the exact rates and not the rounded rates presented here.

*** Z Test, p<0.05

Child Deaths in Maryland Jurisdictions

Table 29. Child (1-17) Deaths by Jurisdiction, Maryland, 2003-2007, 2008-2012.

Region	Jurisdiction	# of Deaths 2003-2007	# of Deaths 2008-2012	Mortality Rate* 2003-2007	Mortality Rate* 2008-2012	%Change in Rate **	Rates differ Significantly? ***
Northwest Area	Garrett	12	5	37.1	-	-	-
	Alegany	17	13	25.3	20.7	-18.2	No
	Washington	49	37	32.3	23.4	-27.6	No
	Frederick	62	44	22.8	15.9	-30.3	No
Baltimore Metro Area	Baltimore City	339	251	45.6	38.5	-15.6	Yes
	Baltimore	181	180	21.3	21.7	1.7	No
	Anne Arundel	121	94	20.5	16.1	-21.5	No
	Carroll	45	47	22.6	24.3	7.5	No
	Howard	66	59	19.5	16.9	-13.1	No
	Hartford	65	49	22.3	17.3	-22.1	No
National Capital Area	Montgomery	180	171	16.6	15.5	-6.6	No
	Prince George's	297	209	28.7	21.7	-24.4	Yes
Southern Area	Calvert	41	24	38.1	22.2	-41.7	Yes
	Charles	49	43	27.8	23.7	-14.7	No
	Saint Mary's	29	21	24.3	16.4	-32.3	No
Eastern Shore Area	Cecil	34	35	29.3	29.7	1.4	No
	Kent	2	5	-	-	-	-
	Queen Anne's	16	10	31.1	18.8	-39.7	No
	Caroline	8	21	21.4	54.7	156.2	Yes
	Talbot	6	12	17.7	35.1	98.7	No
	Dorchester	10	9	30.7	27.5	-10.4	No
	Wicomico	24	20	23.9	19.3	-19.2	No
	Somerset	4	2	-	-	-	-
Worcester	14	8	31.2	18.2	-41.6	No	
	Maryland	1671	1369	25.6	21.5	-16.1	Yes

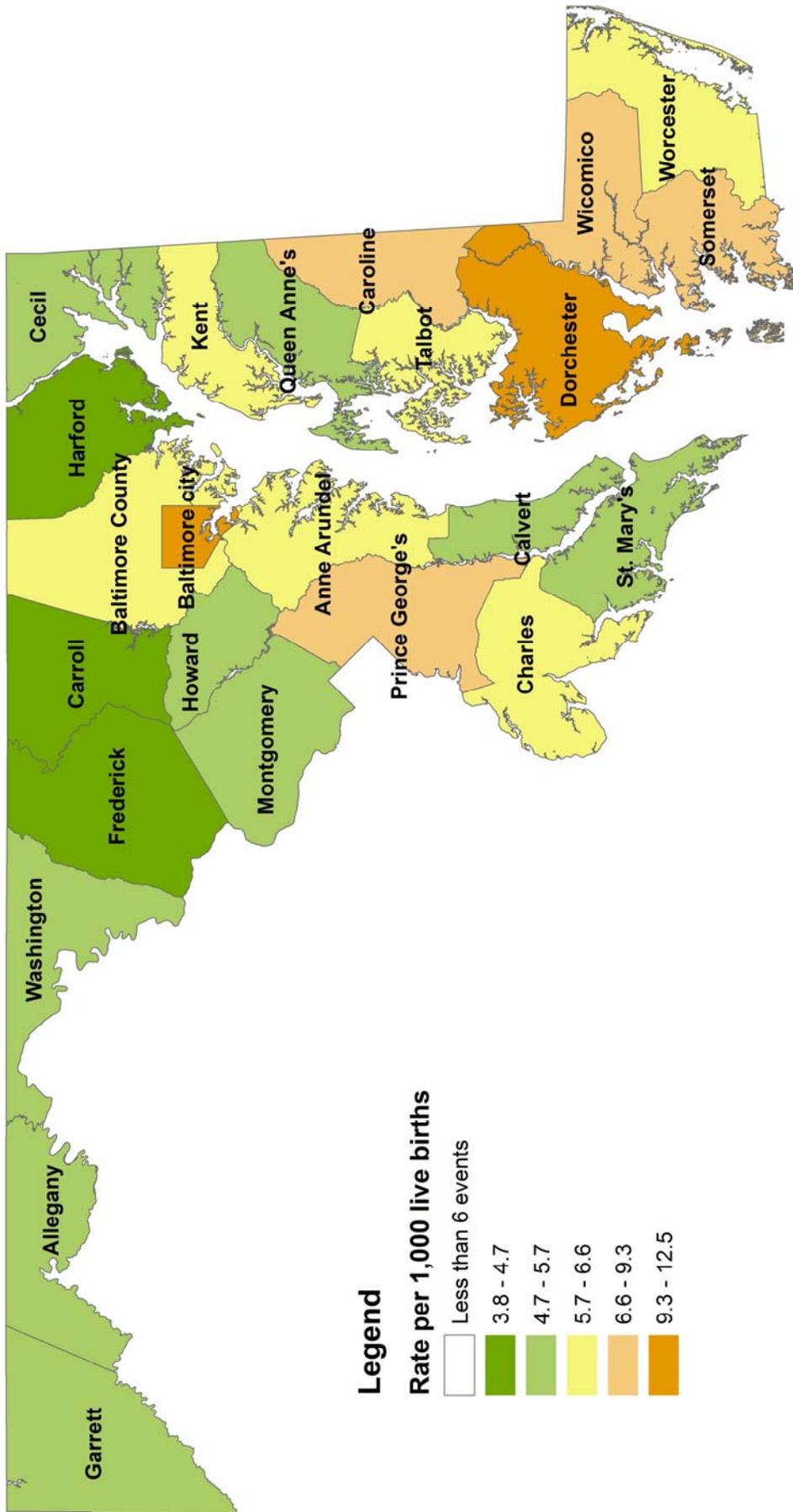
Data Source: M D DHM H, Vital Statistics Administration

*Rate per 100,000 population, Rates with 5 events or less in the numerator are not displayed

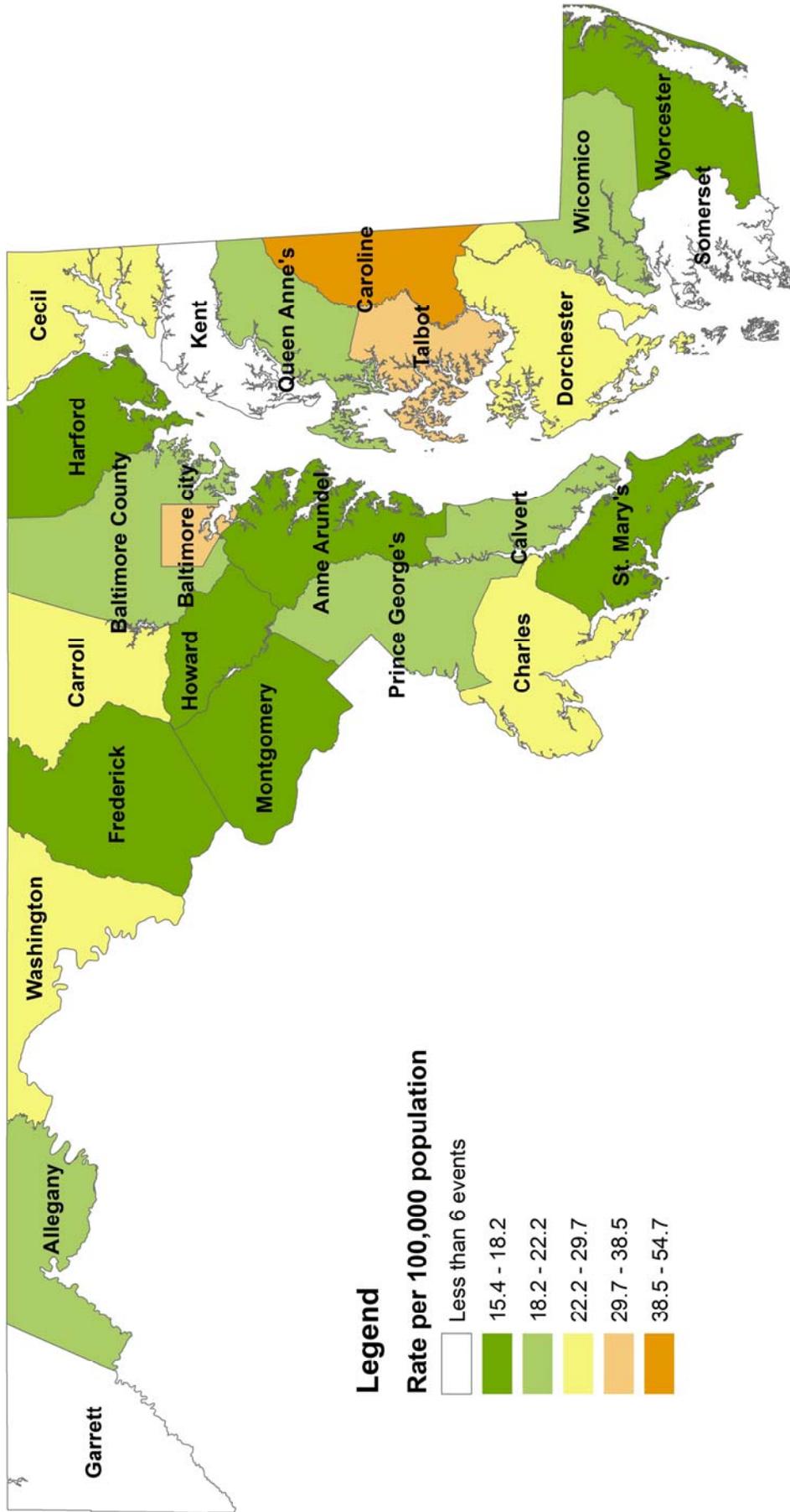
** Percent change is based on the exact rates and not the rounded rates presented here.

*** Z Test, $p < 0.05$

Infant Death Rates by Jurisdiction, Maryland, 2008-2012.



Child (1-17 years) Death Rates by Jurisdiction, Maryland, 2008-2012.



Conclusion

Both infant mortality and child death rates have decreased significantly in Maryland over the past ten years. Even with this decrease, the infant mortality rate remains above the national average. Child death rates for all age groups are slightly below national averages. Infant deaths account for two thirds of all deaths among children under the age of 18 years. The most common causes of death in infants, children and adolescents are frequently related to preventable factors. Provision of data that describes the extent, distribution and risk factors of childhood deaths is vital to policy makers, health professionals and communities to enable them to make decisions about allocation of resources and institution of effective strategies to prevent future child fatalities, and to monitor progress. The data presented here serve to inform the prevention efforts and policy recommendations made by statewide and local groups, enhancing their ability to understand the circumstances surrounding the deaths of children in their jurisdictions.

Appendix A. Number of Infant (<1 year) Deaths by Jurisdiction and Year, Maryland, 2008-2012

Table A. Infant Deaths by Jurisdiction, Maryland, 2008-2012.

Region	Jurisdiction	Year					Total
		2008	2009	2010	2011	2012	2008-2012
Northwest Area	Garrett	3	0	3	1	0	7
	Allegany	6	1	5	5	2	19
	Washington	10	13	11	4	7	45
	Frederick	25	11	9	10	12	67
Baltimore Metro Area	Baltimore City	120	128	98	93	88	527
	Baltimore	73	73	66	62	51	325
	Anne Arundel	62	35	33	35	44	209
	Carroll	6	7	8	4	6	31
	Howard	13	23	23	16	17	92
	Harford	16	9	15	10	14	64
National Capital Area	Montgomery	76	74	57	69	66	342
	Prince George's	137	106	110	115	103	571
Southern Area	Calvert	7	4	3	7	4	25
	Charles	15	12	10	15	7	59
	Saint Mary's	15	8	11	3	4	41
Eastern Shore Area	Cecil	4	4	7	10	4	29
	Kent	1	2	0	2	1	6
	Queen Anne's	2	3	5	2	2	14
	Caroline	6	3	3	3	5	20
	Talbot	1	1	1	7	1	11
	Dorchester	8	9	4	1	3	25
	Wicomico	8	12	7	10	13	50
	Somerset	2	3	0	4	2	11
	Worcester	1	0	7	5	2	15
	Maryland	617	541	496	493	458	2605

Data Source: M D DHM H, Vital Statistics Administration

Appendix B. Number of Child (1-17 years) Deaths by Jurisdiction and Year, Maryland, 2008-2012

Region	Jurisdiction	Year					Total 2007-2012
		2008	2009	2010	2011	2012	
Northwest Area	Garrett	2	2	0	0	1	5
	Allegheny	4	5	3	0	4	16
	Washington	7	3	8	8	5	31
	Frederick	9	13	6	11	8	47
Baltimore Metro Area	Baltimore City	56	42	39	43	35	215
	Baltimore	52	29	23	30	27	161
	Anne Arundel	21	13	14	23	20	91
	Carroll	13	7	3	8	10	41
	Howard	15	12	8	10	9	54
	Hartford	4	8	11	9	13	45
National Capital Area	Montgomery	38	29	35	19	31	152
	Prince George's	46	46	43	45	31	211
Southern Area	Calvert	2	5	6	6	4	23
	Charles	7	6	6	10	8	37
	Saint Mary's	5	7	6	2	3	23
Eastern Shore Area	Cecil	5	10	9	6	7	37
	Kent	2	0	1	0	0	3
	Queen Anne's	3	1	2	3	2	11
	Caroline	5	3	5	1	6	20
	Talbot	1	3	3	2	4	13
	Dorchester	3	0	1	2	0	6
	Wicomico	3	4	5	1	8	21
	Somerset	1	3	0	0	0	4
	Worcester	3	2	0	0	1	6
	Maryland	307	253	237	239	237	1273

Data Source: M D DHM H, Vital Statistics Administration



Department of Health and Mental Hygiene

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
Joshua M. Sharfstein, Secretary

Office of Surveillance and Quality Initiatives
Maternal and Child Health Bureau
Prevention and Health Promotion Administration

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