



pennsylvania
DEPARTMENT OF HEALTH

Pennsylvania Child Death Review Annual Report

2015

(Deaths Occurring in 2012)

**The Bureau of Family Health,
Division of Child and Adult Health Services
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The 2015 Child Death Review Annual Report is a publication of the Pennsylvania Department of Health (DOH) under the requirements of Act 87 of 2008. The department would like to acknowledge the contribution of the Child Death Review (CDR) local teams and the Pennsylvania Chapter, American Academy of Pediatrics.

This report presents information on the distribution and causes of child deaths in Pennsylvania and reflects information collected on death certificates and during the child death review process. The data contained in this report came from a variety of sources. The vital statistics data presented in this report were provided by the DOH, Bureau of Informatics and Information Technology (BIIT). Death review data were obtained through the Web-based National Child Death Review Case Reporting System. This system was developed in collaboration between the National Maternal and Child Health (MCH) Center for Child Death Review and state Child Death Review programs and was supported, in part, by a grant from the MCH Bureau (Title V, Social Security Act), Health Resources and Services Administration, U.S. Department of Health and Human Services.

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About this Report

This report is based on death year and not review year. It focuses on those deaths occurring in 2012 and the reviews of those deaths. It incorporates data from multiple sources, including DOH, BIIT, The National Center for Child Death Review Case Reporting System, The National Center for Health Statistics (The Centers for Disease Control and Prevention) and the Pennsylvania Pregnancy Risk Assessment Monitoring System (PA PRAMS).

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Act 87 of 2008: Pennsylvania’s Public Health Child Death Review Act of October 8, 2008 (see Appendix C).

Child: According to the Pennsylvania Public Health Child Death Review Act, a child is defined as an individual 21 years of age and under. Reviews are conducted on deaths occurring in this age group.

Child death rate: Number of child deaths per 100,000 population in specified group.

Child death review (CDR): A multi-agency, multi-disciplinary process that routinely and systematically examines the circumstances surrounding child deaths in a given geographical area and a given age group.

Infant death: Death occurring to a person under 1 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.

Pennsylvania Child Death Review Program: The Pennsylvania CDR Program is designed to promote the safety and well-being of children and reduce preventable child fatalities through timely reviews of child deaths.

Pennsylvania State Child Death Review Team: The Pennsylvania CDR Team is comprised of representatives from agencies and organizations that focus on children in Pennsylvania. Aggregated information is shared with legislators and state policy makers in order to concentrate funding and program priorities on appropriate prevention strategies.

Pennsylvania’s Child Death Review local teams: Local teams are comprised of community participants representing organizations and agencies that serve and protect children within their respective counties. CDR team members review child deaths and analyze data in order to develop prevention strategies. There are currently 63 local review teams covering all 67 counties statewide.

Postneonatal death: Death occurring to an infant between 28 days and 364 days.

Postneonatal death rate: Number of postneonatal deaths per 1,000 live births.

Data in this Report
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 (three-year sums).
Data appearing in this report came from multiple sources. For that data provided by the Pennsylvania Department of Health, Bureau of Informatics and Information Technology, the department specifically disclaims responsibility for any analyses, interpretations, or conclusions.

There were more deaths of children in 2012 than in 2011. There were 2,066 deaths of children in 2012, reflecting a 3.5 percent increase from 1,996 deaths in 2011. Of those deaths, 1,355 were reviewed. As in 2011, a significant portion of all deaths were those occurring in infants (under 1 year of age). Nearly half of all child deaths occurred in infants (47.8 percent). Less than one quarter (23.6 percent) occurred in children 1 through 17 years of age, and 28.7 percent occurred in children 18 through 21 years of age. As in 2011, the 2012 data revealed cause and manner profiles unique to various age groupings. As expected, the leading cause of death changed with age. The following are the main findings:

- The infant mortality rate increased 7.7 percent from 6.5 per 1,000 resident live births in 2011 to 7.0 in 2012. Most of the increase occurred among neonatal deaths where the rate rose from 4.5 to 5.0, while the postneonatal mortality rate remained 2.0. However, a comparison of two three-year periods, 2007–2009 and 2010–2012, revealed the infant mortality rate decreased significantly by 5.5 percent from 7.3 to 6.9.
- While black infants comprised 14.5 percent of Pennsylvania’s 2012 infant population, black infant deaths comprised 31.1 percent of the state’s total infant deaths. In 2012, black infants died at 2.8 times the rate of white infants and 4.5 times the rate of Asian/Pacific Islander infants.
- The five leading causes of infant death (in rank order) were (1) disorders related to length of gestation and fetal malnutrition; (2) congenital malformations, deformations, chromosomal abnormalities; (3) newborn affected by maternal factors and by complications of pregnancy, labor, and delivery, (4) sudden infant death syndrome (SIDS); and (5) other symptoms, signs, and abnormal clinical and laboratory findings not elsewhere classified. Within the postneonatal age group, SIDS was the leading cause of death, comprising 20.1 percent of all deaths within that age group.
- While there was very little change in the overall rate of death among children 1 through 17 years of age between 2011 and 2012, the rate among black children remained significantly higher (1.7 times) than the rate among white children within this age group.
- Male injury-related deaths comprised over three-quarters (76.3 percent) of the total (2,257) injury-related deaths in children 1 through 21 years of age for the three-year period 2010 through 2012.
- Pennsylvania’s rate of homicide deaths for children 1 through 17 years of age is 1.2 times less than the national rate for that age group. The rate of homicide deaths for children 18 through 21 years of age is 1.3 times greater than the national rate.
- For the three-year period 2010–2012, the rate of deaths caused by accidental drug poisoning was 3.7 times higher in children 20 through 21 years of age than it was in children 15 through 19 years of age.



The CDR program is administered by the Pennsylvania departments of Health and Human Services. Additional support is provided by the Pennsylvania Chapter of the American Academy of Pediatrics. The mission of the Pennsylvania CDR Program is to promote the safety and well-being of children and reduce preventable child fatalities. This is accomplished through timely reviews of child deaths.

The death of a child is a community responsibility, and an effective child death review requires multidisciplinary participation. Through better understanding of how and why children die, preventive measures can be tailored to keep kids alive and improve the health and safety of Pennsylvania's children. It is important to remember that many of the deaths in childhood could be prevented with appropriate interventions in both the public and private sectors. Improved maternal and prenatal health could lead to the prevention of many infant deaths. Expansion and enhancement of educational outreach and awareness campaigns could potentially lead to a reduction in deaths in children of all ages. Improved, well-coordinated services could lead to a more effective and targeted intervention.

Currently, all 67 counties in Pennsylvania are covered by one of the 63 local review teams (see appendix A). Local team members are comprised of community leaders who represent organizations and agencies that serve and protect children within their respective counties. Diverse organizational representation includes Department of Health agencies and others. CDR teams analyze data in order to develop the most effective prevention strategies to reduce preventable child deaths in Pennsylvania. Teams design prevention education, trainings, and recommendations for legislation and public policy. A statewide multidisciplinary team, comprised of local professionals and representatives of state agencies, review data submitted by local teams and develop protocols and prevention strategies for child death review.

It is important to recognize that the number of deaths reviewed will not equal the number of deaths that occurred. Teams review deaths after investigations are completed and death certificates are filed with the Pennsylvania Department of Health, Vital Statistics Administration. Most deaths are reviewed six to nine months after they occurred. In Pennsylvania, deaths occurring in children 21 years of age and under are reviewed. This includes infant deaths, and deaths of children 1 through 17 years of age, as well as deaths of children 18 through 21 years of age. These age groupings frequently appear separately because they represent periods in which the data reveal uniquely different behaviors, circumstances, and death profiles.

Deaths in 2012 and the reviews of those deaths are the basis for this report. There were 2,066 total deaths of children 21 years of age and under occurring that year. Of the total, 47.8 percent occurred in infants, 23.6 percent occurred in children ages 1 through 17 years, and 28.7 percent occurred in children ages 18 through 21 years. The percentage of all child deaths reviewed increased slightly from 65.4 percent in 2011 to 65.6 percent in 2012 (Table 1).

Table 1. Deaths and Reviews by Age, Pa., Death Year 2012			
Age group	Number of deaths in 2012	Number of reviews of 2012 deaths	Percent of deaths reviewed
< 1 year (infants)	987	671	68.0%
Neonatal (< 28 days)	699	481	68.8%
Postneonatal (28 – 364 days)	288	190	66.0%
1–17 years	487	294	60.4%
18–21 years	592	390	65.9%
Total (< 22 years)	2,066	1,355	65.6%
Data Sources: DOH, BIIT and the National Center for Child Death Review Case Reporting System			

Population

Pennsylvania is a geographically large, diverse state spanning a wide range of population centers. Pennsylvania's urban-rural contrasts are significant across its 67 counties. Based on U.S. Census Bureau estimates for 2012, Pennsylvania continues to be the sixth most populated state in the nation with an overall population of 12,763,536. According to the Center for Rural Pennsylvania, based on 2010 population data, 48 of the state's 67 counties are defined as rural, with less than 284 persons per square mile. The state's southeastern region contains the highest concentration of population, including children and child deaths.

Of the state's total population, 3,508,690 were children 21 years of age and under, representing 27.5 percent of the state's total population. The state's child population under 18 years was 2,736,740 in 2012, and it represented 21.4 percent of the total population. From 2011 to 2012, there was a slight increase in the proportion of children under 18 years of age represented by children less than 1 year. It increased from 5.1 to 5.3 percent (Table 2).

Age	Number of children	Percent of child population*
Infants (< 1 year)	145,394	5.3
1-4 years	574,309	21.0
5-9 years	748,984	27.4
10-14 years	778,466	28.4
15-17 years	489,587	17.9
Total (< 18 years)	2,736,740	100.0
* Percent of population of the specified age group Data source: Pennsylvania State Data Center at Penn State Harrisburg		

According to a one-year estimate of the U.S. Census Bureau's American Community Survey for 2012, Pennsylvania's population of children 18 through 21 years was 771,950. That represents a 1.6 percent decrease from 2011 when there were an estimated 784,416 children in that age group.

Child Population by Race/Ethnicity

An examination of Pennsylvania's child population by race and ethnicity revealed a similar profile to that realized in 2011 across four categories (Table 3). As in 2011, Pennsylvania's 2012 population of minority children (black, Asian/Pacific Islander, and others combined) comprised approximately 22 percent of the state's population under 18 years.

Race/Hispanic origin	Population (under 18 years)		Percent of total	
	2011	2012	2011	2012
Total (all races)	2,757,244	2,736,740	100.0	100.0
White	2,148,751	2,123,395	77.9	77.6
Black	397,933	396,637	14.4	14.5
Asian/Pacific Islander	89,661	92,680	3.3	3.4
Hispanic origin (all races)	267,139	275,511	9.7	10.1

Data sources: Pennsylvania State Data Center at Penn State Harrisburg

Economic and Health Insurance Status

Pennsylvania's population and economic activity are unevenly distributed, with a high concentration of population and income in the southeastern region. The state's only four counties with an estimated median household income above \$60,000 in 2012 are all located in the southeast region. However, it also within that region that the estimated highest, 2012 county child poverty rate was realized.

While the estimated median household income in the U.S. increased by 1.7 percent from 2011 to 2012, it increased by 2.0 percent in Pennsylvania over that period. In 2012, the state's overall poverty rate (all ages) was 13.7 percent, and its child (under 18 years of age) poverty rate was 19.6 percent. Both remained lower than the national rates that year (U.S.: overall 15.9; child, 22.6). Child poverty rates by Pa. county ranged from 7.5 percent to 37.0 percent (Table 4).

Measure	U.S.	Pa.	High Pa. county	Low Pa. county
Estimated median household income	\$51,371	\$51,225	\$82,456	\$34,693
Child poverty rate (< 5 years of age)	25.6%	22.6%	NA	NA
Child poverty rate (< 18 years of age)	22.6%	19.6%	37.0%	7.5%
All ages in poverty	15.9%	13.7%	26.7%	5.8%

Data source: U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE)
Notes: SAIPE estimates for child poverty rates (< 5 years of age) were only available on state and national level.

Examined over a five-year period, the percentage of people in poverty increased both nationally and in Pennsylvania. Nationally, the poverty rate for people of all ages rose 20.5 percent from 13.2 percent in 2008 to 15.9 percent in 2012. In Pennsylvania, it rose 13.2 percent from 12.1 percent in 2008 to 13.7 percent in 2012. Nationally, the poverty rate for children under 18 years of age rose 24.2 percent from 18.2 percent in 2008 to 22.6 percent in 2012. Pennsylvania's child poverty rate in that same age group rose 18.1 percent from 16.6 percent in 2008 to 19.6 percent in 2012.

In Pennsylvania, uninsured children and teens not eligible for or enrolled in Medical Assistance are eligible for the Children’s Health Insurance Program (CHIP). CHIP is provided by private health insurance companies that are licensed and regulated by the Pennsylvania Insurance Department.

An examination of the U.S. Census Bureau’s 2012 Small Area Health Insurance Estimates revealed that, while 92.5 percent of children under 19 years of age were covered by health insurance nationally, 94.7 percent were covered in Pennsylvania. That year, the uninsured rate by Pennsylvania county for that age group ranged from 3.7 percent to 11.7 percent (Table 5).

Table 5. Uninsured Children Under 19 Years of Age, Comparison: Pa. and U.S., 2012				
	U.S.	Pa.	High Pa. county	Low Pa. county
Uninsured (children under 19 years of age)	7.5%	5.3%	11.7%	3.7%
Data source: U.S. Census Bureau, Small Area Health Insurance Estimates				

Examined over a five-year period, Pennsylvania’s uninsured rate (under 19 years of age) decreased 10.2 percent from 5.9 percent in 2008 to 5.3 percent in 2012. Nationally, the uninsured rate decreased 22.7 percent from 9.7 percent in 2008 to 7.5 percent in 2012. It should be noted that Pennsylvania continues to have more children under 19 years of age insured, than are insured nationally.

In 2012, there were 2,066 deaths of children 21 years of age and under in Pennsylvania. Of those total deaths, 1,474 occurred in children under 18 years of age. Infant deaths accounted for 67.0 percent of all the deaths occurring in children under 18 years, and they comprised close to half, 47.8 percent, of all the deaths occurring in children 21 years of age and under. Overall, deaths of infants comprise the largest group of child deaths. It is important to note, infant mortality rates are calculated differently than other child death rates. They are the number of deaths per 1,000 live births.

An examination of Pennsylvania’s infant mortality rate over a 10-year period revealed that it decreased 4.1 percent from 7.3 per 1,000 live births in 2003 to 7.0 per 1,000 live births in 2012 (Table 6). Over that same period of time, Pennsylvania’s death rate in children ages 1 through 17 years declined by 22.3 percent from 24.2 to 18.8 per 100,000 population (Table 7).

Table 6. Number of Infant Deaths with Mortality Rates, Pa., 2003–2012

Year	Number of deaths	Rate per 1,000 live births
2003	1,060	7.3
2004	1,026	7.1
2005	1,047	7.2
2006	1,122	7.5
2007	1,123	7.5
2008	1,090	7.3
2009	1,044	7.2
2010	1,035	7.3
2011	930	6.5
2012	987	7.0

Data source: DOH, BIIT

Table 7. Number of Child Deaths (1–17 years) with Associated Mortality Rates, Pa., 2003–2012

Year	Number of deaths	Rate per 100,000 population
2003	665	24.2
2004	660	24.1
2005	659	24.1
2006	579	21.3
2007	608	22.6
2008	547	20.5
2009	497	18.4
2010	482	18.2
2011	490	18.7
2012	487	18.8

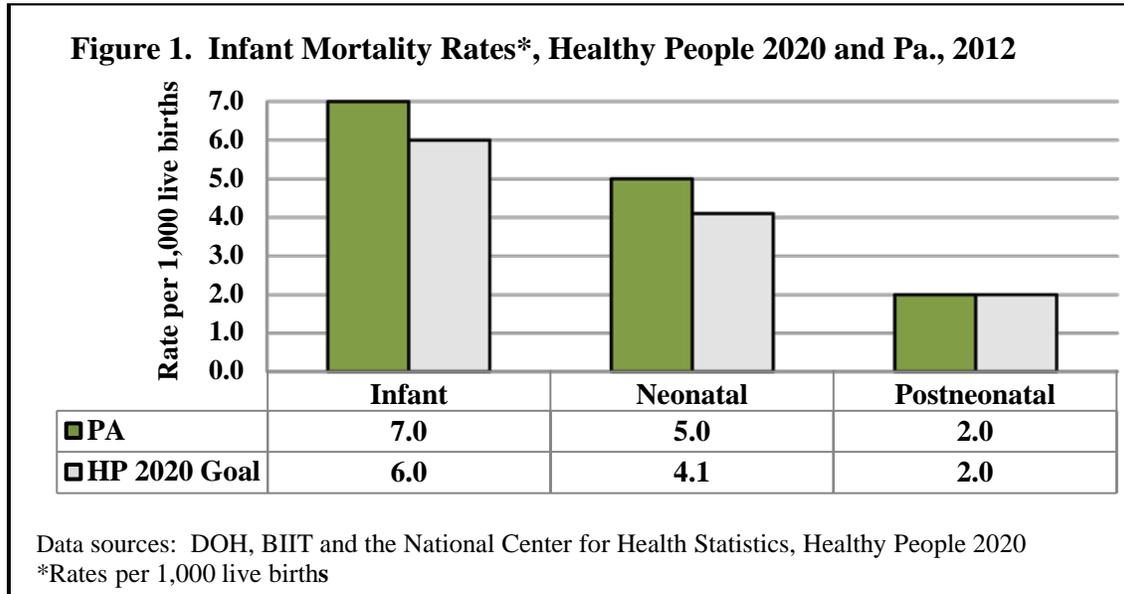
Data source: DOH, BIIT. Population source: U.S. Bureau of Census for 2010. Pennsylvania State Data Center at Penn State Harrisburg for non-census years.

A comparison of mortality rates in two recent three-year periods (2007-2009 and 2010-2012) revealed an overall infant mortality rate decrease of 5.2 percent. This decrease was determined to be statistically significant at the 95 percent confidence level. Examining the breakdown of infant mortality by infant age revealed the neonatal mortality rate decreased by 2.7 percent, and the postneonatal mortality rate decreased by 10.7 percent. Of those, only the postneonatal decrease was determined to be statistically significant at the 95 percent confidence level. All races, except Asian/Pacific Islander, realized an infant mortality rate decrease determined to be statistically significant. Between these two time periods, the Hispanic infant mortality rate rose by 7.4 percent (Table 8).

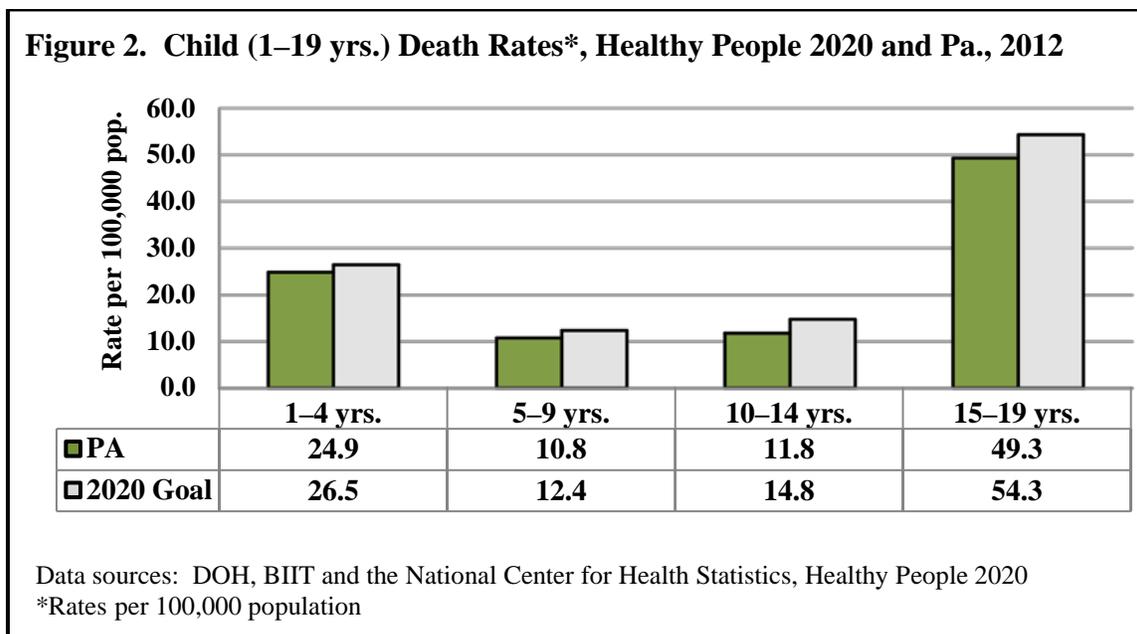
Table 8. Number of Infant, Neonatal, and Postneonatal Deaths by Race/Ethnicity with Infant Mortality Rates and Percent Change in Those Rates from 2007–2009 to 2010–2012, Pa.						
	Number of deaths		Infant mortality rates*		Percentage change in rate**	Rates differ significantly [^]
	2007–2009	2010–2012	2007–2009	2010–2012		
Infant mortality (< 1 year of age)						
All races/ethnicities	3,257	2,952	7.3	6.9	-5.2	Yes
White	2,030	1,753	6.3	5.8	-8.6	Yes
Black	1,063	913	16.0	14.2	-11.4	Yes
Asian/Pacific Islander	69	53	4.2	3.1	-25.4	No
Hispanic (all races)	280	301	6.7	7.2	+7.4	No
Neonatal mortality (birth through 27 days)						
All races/ethnicities	2,233	2,078	5.0	4.9	-2.7	No
White	1,397	1,239	4.3	4.1	-6.2	No
Black	705	606	10.6	9.4	-11.3	Yes
Asian/Pacific Islander	54	43	3.3	2.5	-22.6	No
Hispanic (all races)	187	216	4.5	5.2	+15.5	No
Postneonatal mortality (28 through 364 days)						
All races/ethnicities	1,024	874	2.3	2.1	-10.7	Yes
White	633	514	2.0	1.7	-14.1	Yes
Black	358	307	5.4	4.8	-11.6	No
Asian/Pacific Islander	15	10	0.9	0.6	-35.2	No
Hispanic (all races)	93	85	2.2	2.0	-8.6	No
Note: Hispanic Origin can be of any race						
* Rate per 1,000 live births						
** Percentage change is based on the exact rates and not the rounded rates presented here.						
[^] Significance is determined at the 95% confidence level.						

Infant Mortality Rates Healthy People 2020 and Pennsylvania Comparison

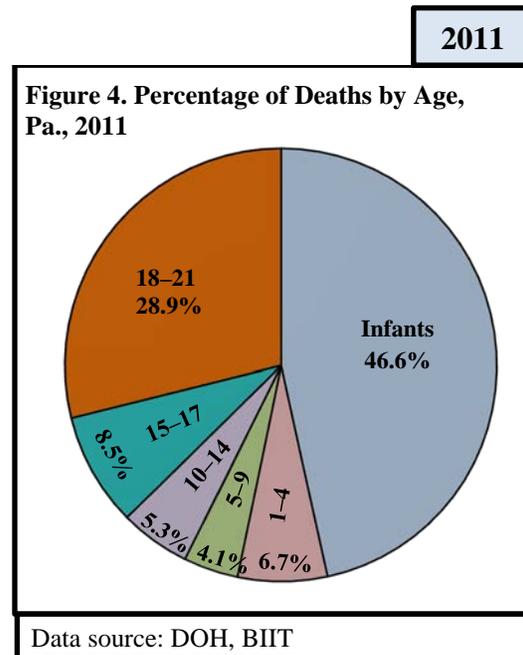
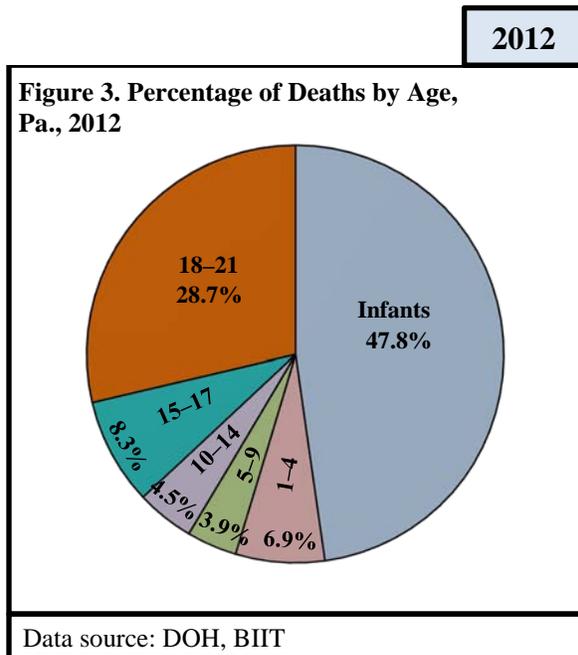
National objectives for infant and child mortality have been established in the Healthy People 2020 project of the United States Department of Health and Human Services. Pennsylvania's 2012 infant mortality rates were higher in two of the three infant age categories. Pennsylvania achieved the Healthy People 2020 objective of reducing infant mortality to the target rate in only the postneonatal category (Figure 1).



Pennsylvania's 2012 child death rates surpassed the Healthy People 2020 goals in all age groups (Figure 2).



Close to half of all deaths of persons 21 years of age and younger in 2012 occurred during the first year of life. In 2012, 47.8 percent of all child deaths were infant deaths. That was an increase of 2.6 percent from 2011, when 46.6 percent of all child deaths were infant deaths. The next highest percentage, 28.7 percent, occurred in children 18 through 21 years of age. As with the 2010 and 2011 data, the 2012 data revealed falling mortality rates after infancy and rising rates during adolescence. This reflects the rise in unintentional and intentional injury deaths in older children.



Child death data examined by sex revealed that the number of deaths in boys was significantly higher than those in girls, in every age category. In 2012, 54.2 percent of the infant deaths with a known sex occurred in boys (Table 9). Of the total 1,079 deaths among children aged 1 through 21 years, 71.0 percent were in males. There were over three times the number of male deaths as female deaths within the age group of 18 through 21 years (Table 10).

Table 9. Infant Deaths by Sex, Pa., 2012

Sex	Number of deaths	Percent of total
Male	533	54.2
Female	450	45.8
Total*	987	100.0

*Total number of deaths shown does not reflect sum due to unknowns.
Data source: DOH, BIIT

Table 10. Number of Deaths by Sex and Select Age Groups with Percent, Pa., 2012

Sex	Number of deaths by age group					Total (1-21 years)	Percent of total
	1-4	5-9	10-14	15-17	18-21		
Male	86	48	58	125	449	766	71.0
Female	57	33	34	46	143	313	29.0
Total	143	81	92	171	592	1,079	100.0

Data source: DOH, BIIT

Black children remain at increased risk of dying across all age categories. While black infants comprised 14.5 percent of Pennsylvania’s 2012 infant population, black infant deaths comprised 31.1 percent of the state’s total infant deaths that same year (Table 11). In 2012, black infants died at 2.8 times the rate of white infants and 4.5 times the rate of Asian/Pacific Islander infants (Figure 5).

Table 11. Infant Deaths by Race/Ethnicity, Pa., 2012

Race/ethnicity	Number of infant deaths	Percent of total
All races	987	100.0
White	520	52.7
Black	307	31.1
Asian/Pacific Islander	19	1.9
Hispanic origin	110	11.1

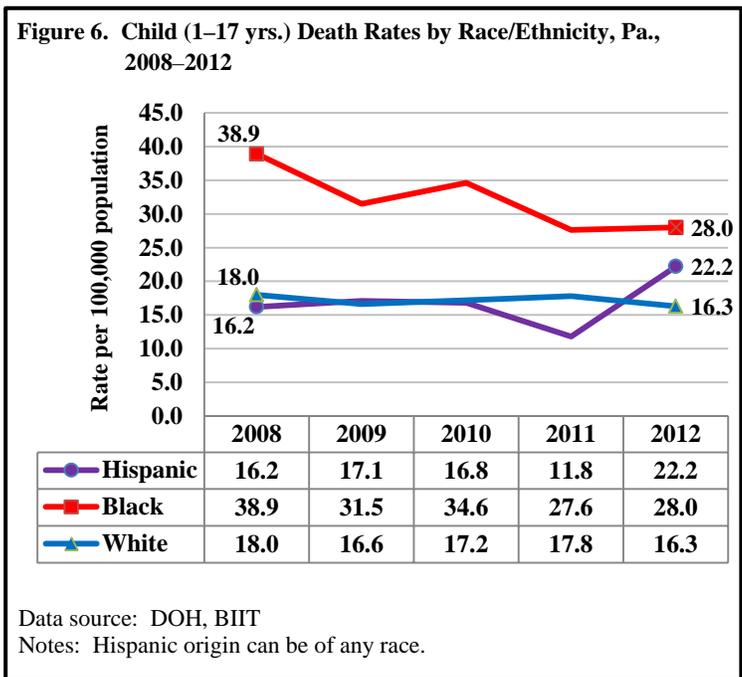
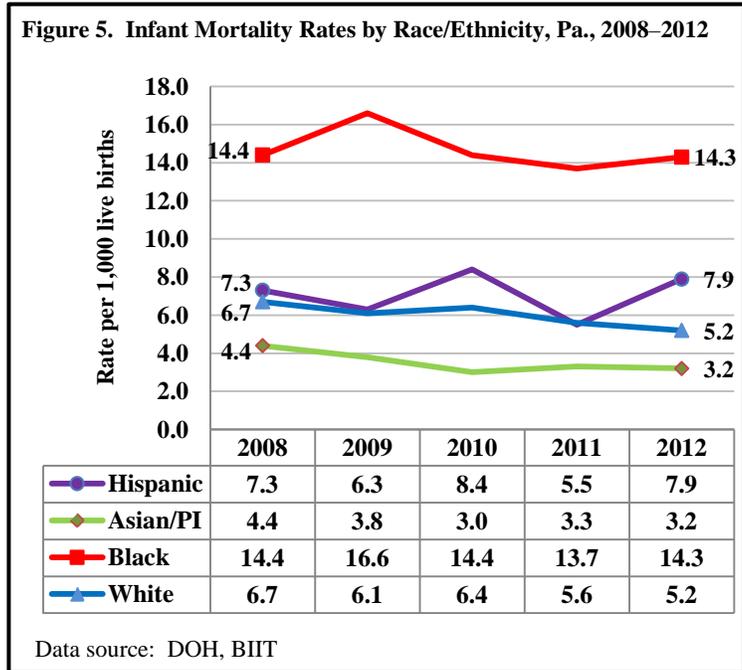
Data source: DOH, BIIT
Note: Hispanic origin can be of any race

While black children comprised 14.5 percent of Pennsylvania’s child population within the age range of 1 through 17 years, their deaths represented 21.6 percent of the deaths in that age range (Table 12). Examining the rate of death per 100,000 population revealed black children died at 1.7 times the rate of white children 2012 (Figure 6).

Table 12. Deaths by Race/Ethnicity in Children 1–17 years of age, Pa., 2012

Age in years	Race/ethnicity	Number of deaths	Percent of total
1–17	All races	487	100.0
	White	328	67.4
	Black	105	21.6
	Asian/Pacific Islander	7	ND
	Hispanic	58	11.9

Data source: DOH, BIIT
Notes: Percentages based on less than 10 events are considered statistically unreliable and are not displayed (ND). Hispanic origin can be of any race.



Cause and Manner of Death

The cause and manner of death are determinations made by either the coroner or medical examiner. Pennsylvania has county government medical examiner offices in Philadelphia, Allegheny, and Delaware counties, and elected coroners in the other 64 counties. Conclusions are made following either an autopsy or medical review of the death. The cause of death is the physical condition that directly contributed to the person's death. The underlying cause of death is either the disease or injury that initiated the train of morbid events leading directly to death or the circumstances of the accident or violence that produced the fatal injury.¹ Causes of death on the death certificate represent a medical opinion that might vary among individual medical-legal officers. The manner of death relates to the circumstances of the accident or violence that produced the fatal injury. The five categories of manner of death are natural, homicide, suicide, accident, and undetermined.

ICD codes are alphanumeric designations given to every diagnosis, description of symptoms, and cause of death attributed to human beings. These classifications are developed, monitored, and copyrighted by the World Health Organization (WHO). In the United States, the National Center for Health Statistics oversees all changes and modifications to the ICD codes, in cooperation with WHO. ICD codes are used to classify a cause of death. Every cause-of-death statement is coded and tabulated according to these classifications. The most current list of codes in use is ICD-10, reflecting the tenth revision.



One of the more difficult tasks of the medical examiner or coroner is to determine whether a death is an accident or the result of intent to end life. The medical examiner or coroner must use all information available to make a determination about the death. This may include information from his or her investigation, police reports, staff investigations, and discussions with the family and friends of the decedent. Determining the manner and cause of death can be straightforward, or it may take weeks to determine.

Leading Causes of Infant Deaths

The child death review process includes gathering available information related to the child's death, and it is not limited to only those items contained within death certificates. This includes, among others, information derived from traffic and law enforcement reports and hospital records. Ultimately, child death review is a mechanism to more accurately describe the causes and circumstances of death among children. Understanding causes of childhood deaths is important when developing strategies to prevent them. Pennsylvania engages a well-organized, multidisciplinary child death review process that facilitates accurate and consistent reporting.

Specific causative factors vary significantly depending on the age of the child. The leading cause of mortality during the first year of life in Pennsylvania in 2012 was disorders related to length of gestation and fetal malnutrition (Table 13). Nationally, the leading cause of infant death in 2012 was congenital malformations, deformations, and chromosomal abnormalities.

Rank	Cause of death	Number of deaths	Percent of total
1	Disorders related to length of gestation and fetal malnutrition	217	22.0
2	Congenital malformations, deformations, chromosomal abnormalities	165	16.7
3	Newborn affected by maternal factors and by complications of pregnancy, labor, and delivery	137	13.9
4	Sudden infant death syndrome (SIDS)	63	6.4
5	Other symptoms, signs, and abnormal clinical and laboratory findings not elsewhere classified	48	4.9
	All other causes	357	36.2

Note: Percentages may not total 100 due to rounding.
Data source: DOH, BIIT

An examination of the 2012 data for those infants less than 28 days of age revealed the same leading cause of death, disorders related to length of gestation, and fetal malnutrition. As in 2010, this was followed by newborns being affected by maternal factors and by complications of pregnancy, labor, and delivery (Table 14).

Rank	Cause of death	Number of deaths	Percent of total
1	Disorders related to length of gestation and fetal malnutrition	211	30.2
2	Newborn affected by maternal factors and by complications of pregnancy, labor, and delivery	136	19.5
3	Congenital malformations, deformations, chromosomal abnormalities	119	17.0
4	Other perinatal conditions	64	9.2
5	Infections specific to the perinatal period	34	4.9
	All other causes	135	19.3

Data source: DOH, BIIT

Prematurity Developments and Strategies

Preterm birth is the birth of an infant before 37 weeks of pregnancy. According to the Centers for Disease Control and Prevention (CDC), in 2012, preterm birth affected more than 450,000 babies (one of every nine infants born in the United States). More infants die from preterm-related problems than from any other single cause. Some premature babies require special care and spend weeks or months hospitalized in a neonatal intensive care unit. Those who survive may face lifelong problems, such as intellectual disabilities, cerebral palsy, breathing and respiratory problems, visual problems (including retinopathy of prematurity), hearing loss, and feeding and digestive problems. Preterm births cost the U.S. health care system more than \$26 billion in 2005.^{2,3} Prematurity remains a significant health issue in Pennsylvania and the United States. According to the March of Dimes, after rising by 36 percent over 25 years (1981-2006), our country's preterm birth rate has been steadily declining. However, at 11.4 percent it remains higher than that of most developed nations.⁴

Of the total number of 2012 neonatal deaths in Pennsylvania, almost one-third (211 deaths) were due to disorders related to length of gestation and fetal malnutrition (Table 14). As the leading cause of death, it comprised 30.2 percent of all neonatal deaths. In 2011, this category comprised 27.2 percent of the total, and in 2010, it comprised 25.5 percent. In the deaths reviewed associated with prematurity, 86.4 percent were determined to have been likely not preventable, and less than 1 percent (0.6 percent) were determined to have been likely preventable.

The March of Dimes Prematurity Campaign funds research and advocates for legislation that improves care for moms and babies. Their Healthy Babies are Worth the Wait® initiative is a comprehensive approach to preventing preterm births, with a focus on reducing elective deliveries before 39 weeks gestation. It involves an education and awareness campaign, hospital quality improvement, and community intervention programs.

In 2014, Pennsylvania joined participating states in the Collaborative Improvement & Innovation Network (CoIIN) to Reduce Infant Mortality, sponsored by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services. This initiative is a public-private partnership to reduce infant mortality and improve birth outcomes. Participants learn from one another and national experts, share best practices and lessons learned, and track progress toward shared benchmarks. One of the top priorities of this initiative is to reduce elective deliveries at less than 39 weeks of pregnancy.

The Bureau of Family Health is working with Albert Einstein Healthcare Network (AEHN) and Lancaster General Hospital (LGH) to offer prenatal care through Centering Pregnancy Programs. Many Philadelphia women are considered at risk due to previous adverse pregnancy outcomes, as well as socioeconomic factors such as high poverty and crime rates. Philadelphia has one of the highest rates of infant mortality and low birth weight rates in Pennsylvania, and Lancaster city's rates of low birth weight and infant mortality are higher than the Pennsylvania average. Centering Pregnancy works to promote healthy behaviors and reduce health care disparities and infant mortality.

Of the 987 infant deaths in 2012, 70.8 percent occurred during the neonatal period, and 29.2 percent occurred during the postneonatal period (Figure 7). Table 15 displays the five leading causes of death during the postneonatal period.

Figure 7. Infant Deaths by Neonatal Stage, Pa., 2012

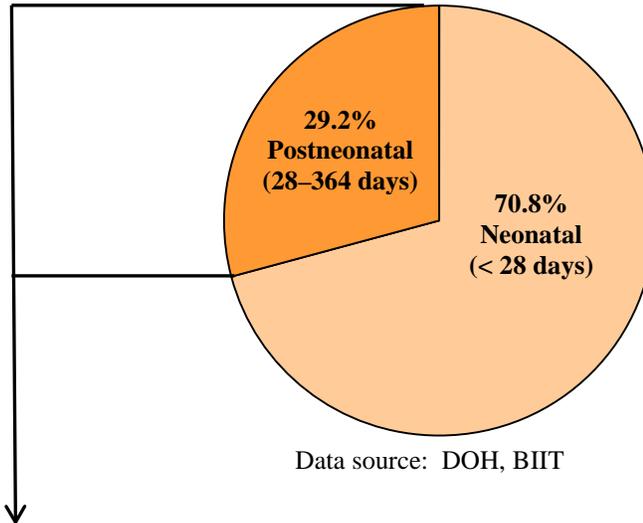


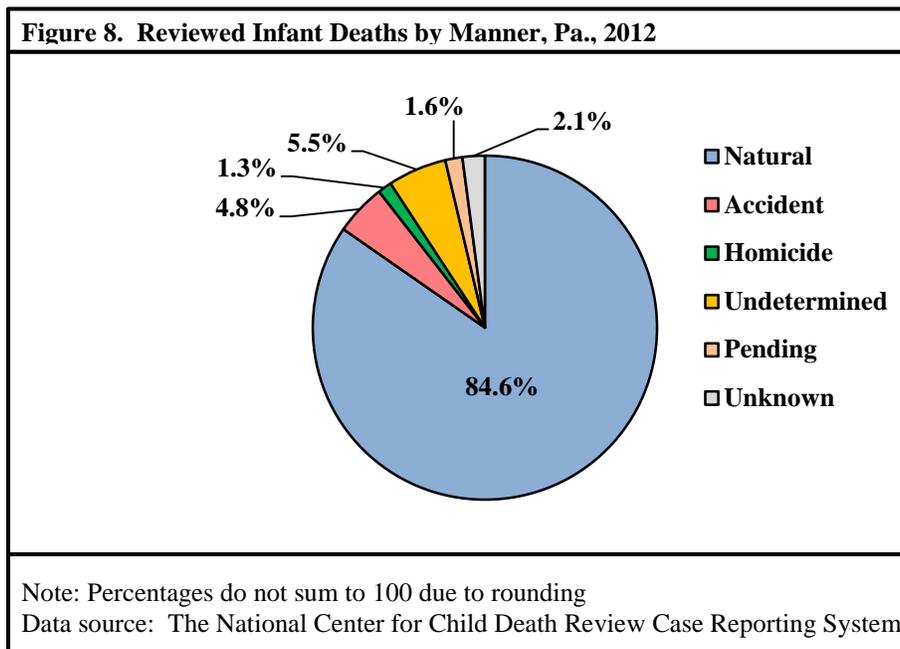
Table 15. Leading Causes of Postneonatal (28–364 days) Mortality, Pa., 2012			
Rank	Cause of death	Number of deaths	Percent of total
1	Sudden infant death syndrome	58	20.1
2	Congenital malformations, deformations, chromosomal abnormalities	46	16.0
3	Other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified	41	14.2
4	Accidents	29	10.1
5	Diseases of the respiratory system	23	8.0
	All other causes	91	31.6

Data source: DOH, BIIT

The data revealed an increase from 2011 in the number and percentage of postneonatal deaths caused by sudden infant death syndrome (SIDS). Based on the 2011 infant death data, SIDS was the second highest cause of postneonatal deaths with 47 deaths, whereas, in 2012, it was the leading cause with 58 deaths (see section on SUID and SIDS, page 21).

Reviewed Infant Deaths by Manner

An examination of the data associated with the 671 infant deaths reviewed revealed 84.6 percent were ones in which the manner of death was determined to be natural (Figure 8). Most of these babies were born prematurely and/or born at a low birth-weight (less than 2,500 grams). Both prematurity and low birth weight remain the greatest predictors of infant mortality. In the 568 reviewed cases wherein the manner of death was natural, intrauterine smoke exposure was present in 72 cases, and late (greater than six months) or no prenatal care initiation was associated with 47 cases. Of the 32 infant deaths reviewed wherein the manner of death was determined to be accidental, most (30) involved asphyxia.

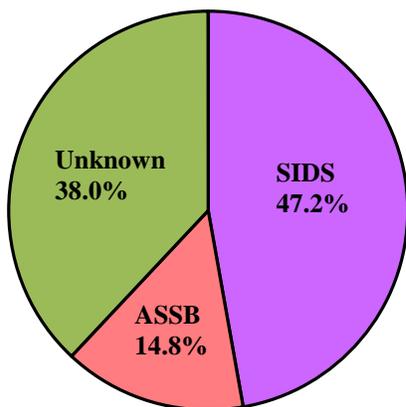


Sudden unexpected infant deaths (SUIDs) are defined as deaths in infants that occur suddenly and unexpectedly and whose cause of death is not immediately obvious prior to investigation. Each year in the United States, there are about 3,500 SUIDs. The three commonly reported types of SUID are:

- Sudden Infant Death Syndrome (SIDS).
- Unknown cause.
- Accidental suffocation and strangulation in bed (ASSB) [including bed linen, mother’s body and pillow].

These causes of death are grouped together to help identify sleep-related deaths, including those where bed sharing may have occurred. As a result of more thorough death scene investigations, some deaths previously attributed to SIDS are now being attributed to accidental suffocation. Nationally, approximately 45 percent of SUIDs are attributable to SIDS, 24 percent to accidental suffocation and strangulation in bed (ASSB), and 31 percent to unknown cause.⁵ For the three-year period 2010 through 2012, there were 392 cases of SUID in Pennsylvania, and, as realized nationally, SIDS comprised close to half (Figure 9). Over 40 percent of all cases of SUID during that three-year period occurred among black infants (Table 16).

Figure 9. Percent of SUIDs by Cause of Death, Pa., 2010–2012



Data source: DOH, BIIT
 Notes: SIDS (sudden infant death syndrome) and ASSB (accidental suffocation or strangulation in bed)

Table 16. Number of SUIDs by Race and Ethnicity, Pa., 2010–2012	
Race/Ethnicity	Number of SUIDs
All races	392
White	202
Black	161
Asian/PI	3
Hispanic	29

Data source: DOH, BIIT
 Notes: SUIDs correspond to ICD-10 Codes R95, R99 and W75. Hispanic origin can be of any race.

An examination of Pennsylvania’s 2012 infant death data revealed that SIDS is the leading cause of death for infants in the postneonatal period (Table 15). In 2012, SIDS was the fourth leading cause of death among all infants. That reflects an increase in the number of cases from, and its ranking in, 2011, when it was the fifth leading cause of death among all infants.

Many SIDS deaths are associated with sleep, and infants who die of SIDS show no signs of trauma. SIDS remains of particular public health concern because it can be addressed through safe sleep practices. During the three-year period 2010-2012, there were 185 deaths due to SIDS in Pennsylvania. Examining the rate per 1,000 live births revealed that, over that period, the state's black infants died of SIDS at 2.3 times the rate of white infants (Table 17).

SIDS is the sudden death of an infant that cannot be explained after a thorough investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history.

Table 17. Infant Deaths and Mortality Rates Due to SIDS by Race/Ethnicity, Pa., 2010–2012

Race/Ethnicity	Number of deaths due to SIDS	Infant mortality rate due to SIDS
All races	185	0.4
White	113	0.4
Black	58	0.9
Asian/Pacific Islander	2	ND
Hispanic	14	0.3

Data source: DOH, BIIT
 Notes: Hispanic origin can be of any race. ND: Not Displayed when count < 10

A comparison of two, non-overlapping, three-year periods (2007 through 2009 and 2010 through 2012) revealed a significant decrease in the number and rate of SIDS deaths. However, caution should be taken when interpreting this, since some deaths that were previously attributed to SIDS are increasingly becoming attributed to accidental suffocation due to improvements in death scene investigations.

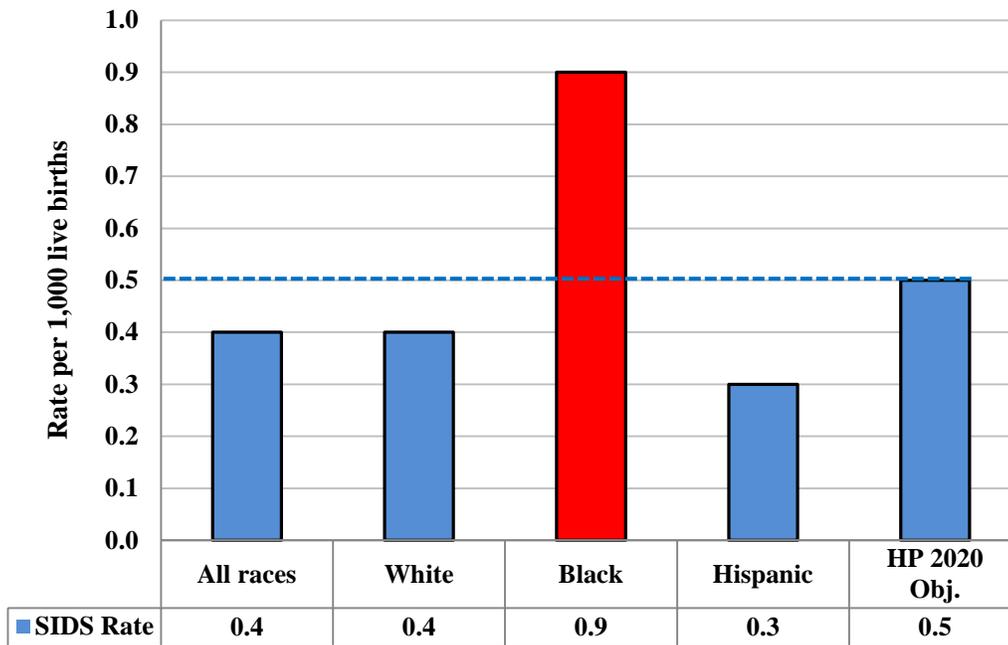
Table 18. Comparison of Infant Deaths Due to SIDS, Pa., 2007–2009 and 2010–2012

2007–2009		2010–2012	
Number of SIDS deaths	Infant mortality rate due to SIDS*	Number of SIDS deaths	Infant mortality rate due to SIDS*
249	0.6	185	0.4

Data source: DOH, BIIT
 * Per 1,000 live births

Pennsylvania's overall SIDS mortality rate for the three-year period 2010 through 2012 surpassed the Healthy People 2020 target objective of 0.5 infant deaths per 1,000 live births. Only the state's black infant mortality rate failed to achieve it (Figure 10).

Figure 10. Infant Mortality Rate Due to SIDS, by Race/Ethnicity, Pa., 2010–2012



Data sources: DOH, BIIT, and the U.S. Department of Health and Human Services, Healthy People 2020

Safe Sleep

It is commonly recognized that babies placed on their stomach or sides to sleep are at greater risk for SIDS than babies who are placed on their backs to sleep. According to the American Academy of Pediatrics (AAP) Task force on Infant Sleep Position and Sudden Infant Death Syndrome, belly-sleep has up to 12.9 times the risk of death as back-sleep. In 1992, the American Academy of Pediatrics recommended placing babies on their backs to sleep. As a result of growing public awareness and successful intervention strategies, the rate of SIDS deaths has declined nationwide. Despite a reduction in the incidence of SIDS since 1992, the decline plateaued in recent years. Furthermore, according to the AAP, concurrently, other causes of SUID that occur during sleep (including suffocation, asphyxia, and entrapment) and ill-defined or unspecified causes of death have increased in incidence. Consequently, in 2011, the AAP expanded the recommendations from focusing only on SIDS to focusing on a safe sleep environment.

There are ways for parents and caregivers to reduce the risk of SIDS and other sleep-related causes of infant death. The primary aim is to create the safest possible sleep environment.

A cornerstone of the AAP expanded recommendations is room-sharing without bed-sharing. Infants' cribs, portable cribs, play yards or bassinets should be placed in the parents' bedroom close to the parents' bed. According to AAP, evidence supports this sleeping arrangement for decreasing the risk of SIDS by as much as 50 percent.⁶

Sleep-Related Deaths Reviewed

There were 80 sleep-related, infant deaths reviewed. Of those, most (58 cases) involved infants less than 3 months of age at time of death. Ninety-five percent of all cases reviewed were ones in which the infant had not yet reached 6 months of age. Of the total, 56.3 percent were male and 43.8 percent were female. Approximately two-thirds (66.3 percent) of the reviewed cases were ones in which the infant was black, and 27.5 percent were ones in which the infant was white. Table 19 below summarizes the cross-tabulation of infant age and cause of death associated with those cases.

Age group	SIDS	Asphyxia	Medical condition	Undetermined	All other causes	Total
0–1 Month	5	11	0	0	10	26
2–3 Months	9	12	3	0	8	32
4–5 Months	4	6	0	0	8	18
6–7 Months	0	0	0	0	0	0
8–11 Months	1	2	0	0	1	4
Total (< 1 Year)	19	31	3	0	27	80

Data source: The National Center for Child Death Review Case Reporting System

Various circumstances and factors related to those deaths were captured during the investigations and review processes. Of those sleep-related deaths reviewed:

- 71.3 percent were ones in which the infant was not in a crib or bassinette.
- 52.5 percent were ones in which the infant was sleeping with one or more other people.
- 41.3 percent were ones in which the infant was not sleeping on his/her back.
- 12.5 percent were ones in which unsafe bedding or toys were identified.
- 11.3 percent were ones in which an obese adult was sleeping with the child.
- 3.8 percent were ones in which an adult was drug impaired.
- 1.3 percent were ones in which the caregiver/supervisor fell asleep while breast feeding.
- 1.3 percent were ones in which an adult was alcohol impaired.

Initiatives and Developments on Safe Sleep

In 2010, the Pennsylvania legislature enacted SIDS legislation (Act 73 of 2010, Sudden Infant Death Syndrome Education and Prevention Program Act) that requires hospitals to provide SIDS education to new parents.

In 2011, the Department of Health developed a statewide SIDS initiative aimed at developing a consistent message related to SIDS and safe sleep practices. This program conducts regional educational symposia, supports statewide collaboration to promote education and awareness, and facilitates a Safe Sleep Ambassador education/outreach program. It also provides grant opportunities for new Cribs for Kids chapters across the commonwealth. The Bureau of Family Health sustains a SIDS Awareness Program that establishes standards for educating new families on SIDS and safe sleep practices. Since risk factors associated with SIDS and ASSB are similar, strategies to prevent both SIDS and ASSB are also similar.



In 2013, after planning and interagency collaboration at the Pa. Department of Health, the department issued a policy statement on safe sleep that is closely aligned with the recommendations made by AAP. This policy statement provides the weight of department support for encouraging the use of techniques that reduce the risk of death due to SIDS and unsafe sleep practices and represents the first time the department has taken a formal position on safe sleep.

In 2014, as a strategy for examining why children are dying in Pennsylvania and applying lessons learned from information gleaned from local child death review teams, the department delivered two, two day trainings to address Sudden Unexplained Infant Death Scene Investigation and related topics, including the importance of safe sleep. Over 250 professionals participated in the sessions aimed at providing cross system training to improve and foster collaboration and communication among those who are involved in all aspects of Infant and Child Death investigations, with the ultimate goal of improving standards by which Pennsylvania responds to such deaths.

In 2015, the work of numerous statewide focus groups culminated in a statewide Safe Sleep Summit in Harrisburg. It brought stakeholders together in an effort to develop and refine priorities, as well as a unified message, around infant safe sleep. The department recognizes the importance of providing education and outreach to further safe sleep practices as a means to improve outcomes.

For the three-year period 2010-2012, accidents (unintentional injuries) were the leading cause of death in all children 1 through 21 years of age. For children 1 through 17 years of age, malignant neoplasms (cancer) was the second leading cause of death, and for those children 18 through 21 years of age, assault (homicide) was the second leading cause of death (Table 20).

Table 20. Leading Causes of Death by Select Age Groups, Pa., 2010–2012				
Age group	Rank	Underlying cause of death*	Number of deaths	Percent of total
1–17 years	1	Accidents [^]	525	36.0
	2	Malignant neoplasms	178	12.2
	3	Intentional self-harm (suicide)	131	9.0
	4	Assault (homicide)	125	8.6
	5	Congenital malformations, deformations, and chromosomal abnormalities	79	5.4
		All other causes	421	28.9
		Total	1,459	100.0
18–21 years	1	Accidents	804	44.9
	2	Assault (homicide)	382	21.4
	3	Intentional self-harm (suicide)	256	14.3
	4	Malignant neoplasms	84	4.7
	5	Diseases of the heart	43	2.4
		All other causes	220	12.3
		Total	1,789	100.0
Data source: DOH, BIIT				
* The underlying cause of death is either the disease or injury that initiated the train of morbid events leading directly to death or the circumstances of the accident or violence that produced the fatal injury.				
[^] Accidents - Based on the ICD-10 codes within the following ranges: V01–X59, Y85–Y86				
Notes: Percentages may not total 100 due to rounding.				

A further breakdown of these age groupings revealed intentional self-harm (suicide) was the second leading cause of death among children 15 through 17 years of age. Within that 3-year age range, suicides comprised 18.0 percent of the deaths, and homicides (third leading cause) comprised 13.2 percent. As a proportion of overall deaths within specific age groups, accidents were the highest in the group of children 18 through 21 years of age, wherein they comprised 44.9 percent of the deaths (Table 21).

Table 21. Top Five Causes of Death for Select Age Groups, Pa., 2010–2012

Cause of death ranking	Age in years				
	1–4	5–9	10–14	15–17	18–21
1 (Most)	Accidents	Accidents	Accidents	Accidents	Accidents
Number of deaths	125	75	96	229	804
Percent of deaths in age group	31.0	32.5	31.6	44.0	44.9
2	Malignant neoplasms	Malignant neoplasms	Malignant neoplasms	Intentional self-harm (suicide)	Assault (homicide)
Number of deaths	43	52	48	94	382
Percent of deaths in age group	10.7	22.5	15.8	18.0	21.4
3	CMD and CA*	Assault (homicide)	Intentional self-harm (suicide)	Assault (homicide)	Intentional self-harm (suicide)
Number of deaths	42	11	36	69	256
Percent of deaths in age group	10.4	4.8	11.8	13.2	14.3
4	Assault (homicide)	Influenza and pneumonia	CMD and CA*	Malignant neoplasms	Malignant neoplasms
Number of deaths	31	9	17	35	84
Percent of deaths in age group	7.7	ND	5.6	6.7	4.7
5	Diseases of heart	CMD and CA*	Assault (homicide)	Diseases of heart	Diseases of heart
Number of deaths	13	9	14	15	43
Percent of deaths in age group	3.2	ND	4.6	2.9	2.4

Data source: DOH, BIIT

*CMD and CA: Congenital malformations, deformations, and chromosomal abnormalities

Reviewed Deaths by Manner

Of the total 2,066 child deaths in 2012 (all ages), 1,355 were reviewed. Over half (748) of the reviewed deaths were ones in which the manner of death was determined to be natural. Natural was the leading manner of death among children aged 1 through 14 years. Accident was the leading manner of death among children aged 15 through 21 years. Of the 240 reviewed cases in which accident was the identified manner of death (all ages), 186 involved children aged 15 through 21 years. In those cases in which the manner of death was determined to be homicide, there were over two times as many cases among children aged 18 through 21 years (99 cases) than there were among all other children combined, ages 1 through 17 years (39 cases) [Table 22].

Table 22. Manner of Death for Select Age Groups, Pa., 2012

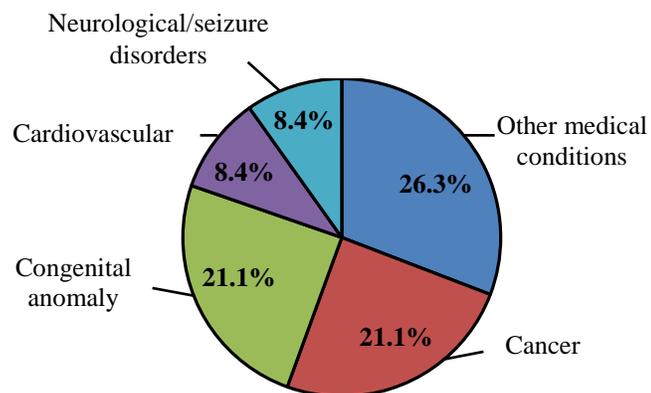
Manner of death ranking	Age in years		
	1–14	15 – 17	18–21
1 (Most)	Natural	Accident	Accident
Number of deaths reviewed	95	38	148
Percent of reviewed deaths in age group	50.5	35.8	37.9
2	Accident	Natural	Homicide
Number of deaths reviewed	54	24	99
Percent of reviewed deaths in age group	28.7	22.6	25.4
3	Homicide	Homicide	Suicide
Number of deaths reviewed	16	23	62
Percent of reviewed deaths in age group	8.5	21.7	15.9
4	Suicide	Suicide	Natural
Number of deaths reviewed	7	18	61
Percent of reviewed deaths in age group	3.7	17.0	15.6
5	Pending + Undetermined + Unknown	Pending + Undetermined + Unknown	Pending + Undetermined + Unknown
Number of deaths reviewed	16	3	20
Percent of reviewed deaths in age group	8.5	2.8	5.1
Total	All manners of death	All manners of death	All manners of death
Number of deaths reviewed	188	106	390
Percent of reviewed deaths in age group	100.0	100.0	100.0

Note: Percentages do not total 100 due to rounding.

Data source: The National Center for Child Death Review Case Reporting System

An examination of the 95 reviewed deaths in children 1 through 14 years of age in which the manner of death was determined to be natural revealed other medical conditions (26.3 percent), followed next by cancer (21.1 percent) and congenital anomaly (21.1 percent) as the leading causes of death in that subgroup (Figure 10).

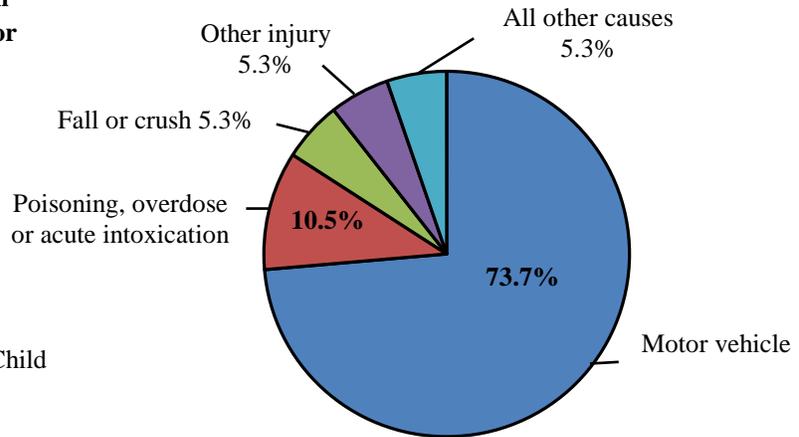
Figure 10. Reviewed Cause of Death in Children 1 through 14 years of Age for which the Manner of Death was Natural, Pa., 2012



Data source: The National Center for Child Death Review Case Reporting System

Of the 38 reviewed deaths in children 15 through 17 years of age in which the manner of death was determined to be accident, the leading cause of death was motor vehicle accident (73.7 percent). That was followed next by poisoning, overdose or acute intoxication (10.5 percent) [Figure 11].

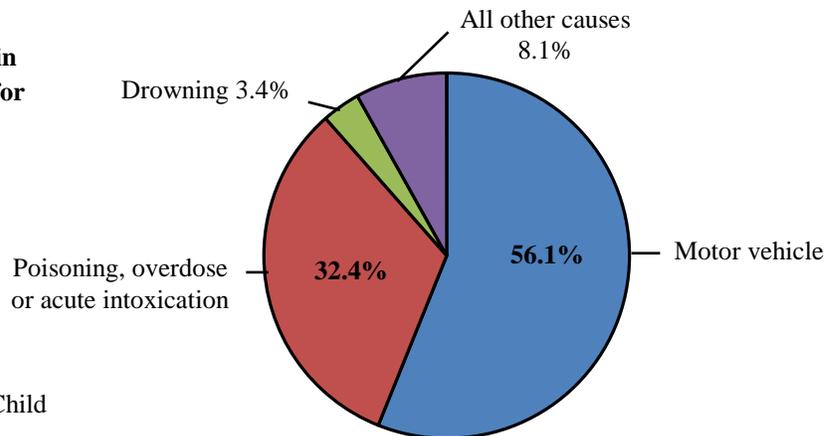
Figure 11. Reviewed Cause of Death in Children 15 through 17 years of Age for which the Manner of Death was Accident, Pa., 2012



Data source: The National Center for Child Death Review Case Reporting System

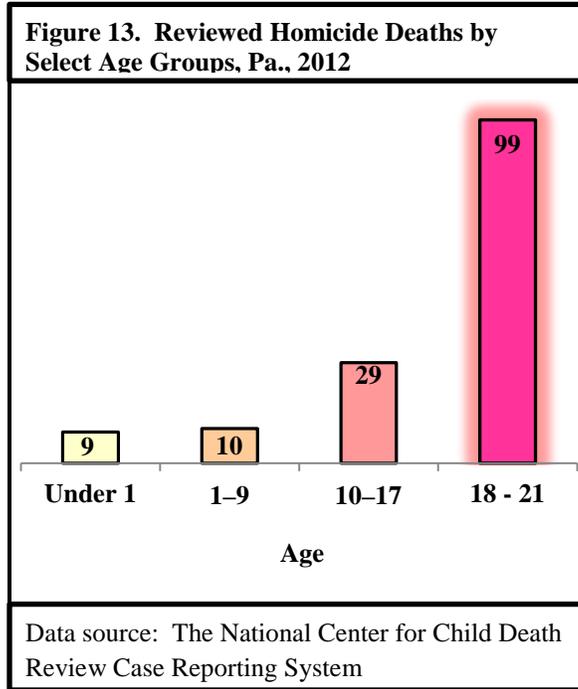
Of the 148 reviewed deaths in children 18 through 21 years of age in which the manner of death was determined to be accident, the leading cause of death was motor vehicle accident (56.1 percent). That was followed next by poisoning, overdose, or acute intoxication (32.4 percent) [Figure 12].

Figure 12. Reviewed Cause of Death in Children 18 through 21 years of Age for which the Manner of Death was Accident, Pa., 2012

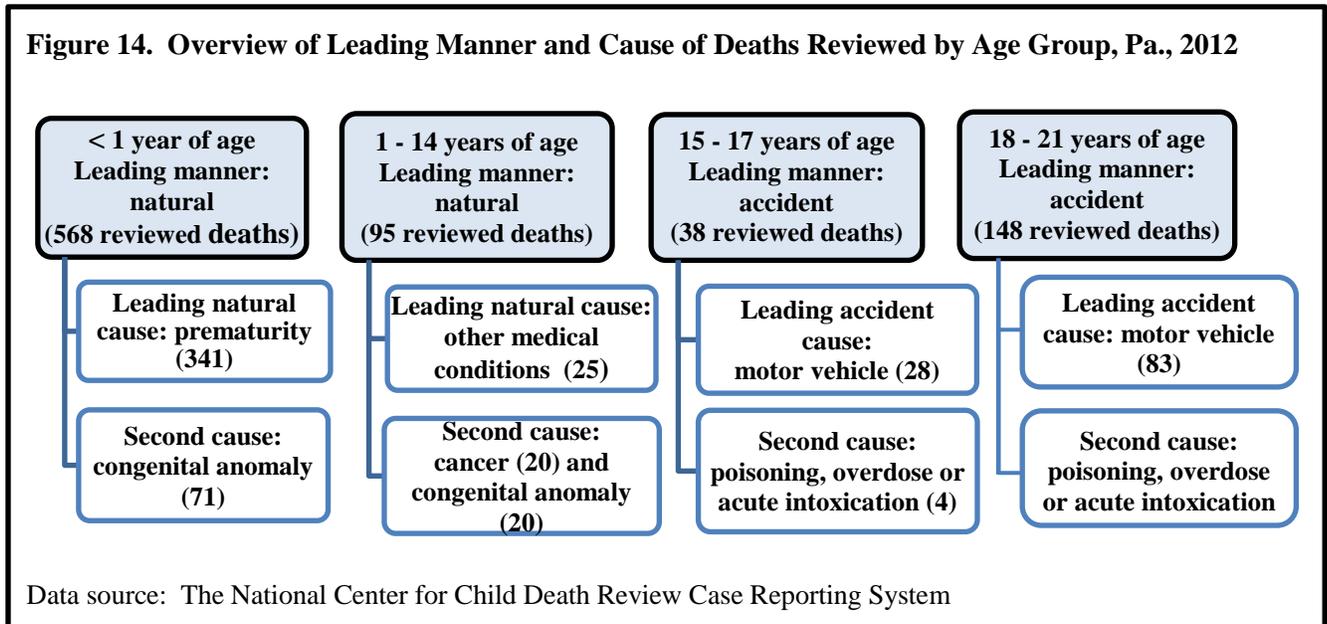


Data source: The National Center for Child Death Review Case Reporting System

There were a total of 147 homicide deaths reviewed. As expected, an examination of the data revealed that over two-thirds (67.3 percent) occurred in children 18 through 21 years of age (Figure 13).



Reviewed Deaths by Manner and Cause



Injury-Related Deaths in Children 1 through 17 Years of Age by Intent

In the public health context, intentional injury deaths are those occurring with the intent to cause harm. Unintentional injury deaths are those in which the act that resulted in death was one that was not deliberate, willful, or planned.

During the three-year period 2010 through 2012, Pennsylvania's 795 injury related deaths in children 1 through 17 years of age comprised 54.5 percent of the 1,459 total deaths in that age range. Accidents are unintentional injuries, and they were the leading cause of injury deaths in children 1 through 17 years of age over that three-year period. Accidents comprised 66.0 percent of all injury deaths in children 1–17 years. Of the total accident deaths in that age range, motor vehicle accidents comprised the largest category (Table 23).

Intentional or unintentional	Type of injury	Number of deaths	Percent of total injury deaths
Unintentional (accidents)	Motor vehicle accidents	263	33.1
	Drowning and submersion	70	8.8
	Other non-transport accidents	68	8.6
	Smoke, fire and flames	62	7.8
	Accidental poisoning and exposure to noxious substances	31	3.9
	Other transport accidents	18	2.3
	Falls	13	1.6
Unintentional injury total =		525	66.0
Intentional	Assault (homicide) by firearm	83	10.4
	Intentional self-harm (suicide) by other means	76	9.6
	Intentional self-harm (suicide) by firearm	55	6.9
	Assault (homicide) by other means	42	5.3
	Legal intervention (law enforcement)	1	ND
Intentional injury total =		257	32.3
Undetermined intent =		13	1.6
Total injury deaths (1–17 years of age) =		795	100.0
Data source: DOH, BIIT			
Notes: Percentages based on less than 10 events are considered statistically unreliable and are not displayed (ND). See technical notes (Appendix D) for the ICD codes used for the cause of death categories shown.			
Percentages do not total 100 due to rounding.			

Injury-Related Deaths in Children 18 through 21 Years of Age by Intent

Accidents comprised 55.0 percent of all injury deaths in children 18 through 21 years of age for the three-year period 2010 through 2012. As with younger children, motor vehicle accidents comprised the highest portion of all accident deaths in this age group.

The proportion of all injury deaths identified as intentional is higher in older children. This is expected given that older children are more likely to commit self-harm or assault. Intentional injury deaths comprised 43.8 percent of the total injury deaths in children 18 through 21 years of age. That is 1.4 times greater than the percentage of intentional injury deaths in children 1 through 17 years of age (32.3 percent). Table 24 provides a breakdown of injury related deaths by intent and type of injury for children 18 through 21 years of age.

Table 24. Injury-Related Deaths in Children 18 through 21 Years of Age by Intent, Pa., 2010–2012			
Intentional or unintentional	Type of injury	Number of deaths	Percent of total injury deaths
Unintentional (accidents)	Motor vehicle accidents	454	31.1
	Accidental poisoning and exposure to noxious substances	253	17.3
	Other non-transport accidents	41	2.8
	Drowning and submersion	21	1.4
	Other transport accidents	17	1.2
	Falls	11	0.8
	Smoke, fire and flames	7	ND
Unintentional injury total =		804	55.0
Intentional	Assault (homicide) by firearm	353	24.1
	Intentional self-harm (suicide) by other means	146	10.0
	Intentional self-harm (suicide) by firearm	110	7.5
	Assault (homicide) by other means	29	2.0
	Legal intervention (law enforcement)	3	ND
Intentional injury total =		641	43.8
Undetermined intent =		17	1.2
Total injury deaths (18–21 years of age) =		1,462	100.0
Data source: DOH, BIIT			
Notes: Percentages based on less than 10 events are considered statistically unreliable and are not displayed (ND). See technical notes (Appendix D) for the ICD codes used for the cause of death categories shown.			

Injury-Related Deaths by Sex of the Child

When the injury-related data was examined by the sex of the child, it revealed a significant imbalance. Male injury-related deaths comprised over three-quarters (76.3 percent) of the total (2,257) injury-related deaths in children 1 through 21 years of age for the three-year period 2010 through 2012. The number of male injury-related deaths exceeded the number of female injury-related deaths in every subcategory, unintentional and intentional. The number of deaths for males by homicide by firearm was 11.5 times greater. The number of deaths for males by intentional self-harm (suicide) by firearm was 6.5 times greater. The number of deaths for males by intentional self-harm (suicide) by other means was 2.6 times greater. The number of deaths for males by motor vehicle accident was 2.2 times greater. The closest parity reached was within the two categories of (1) other transport accidents and (2) smoke, fire, and flames, wherein the number of deaths for males was only 1.2 times greater in each.

Injury Deaths by Type and Select Age Groups

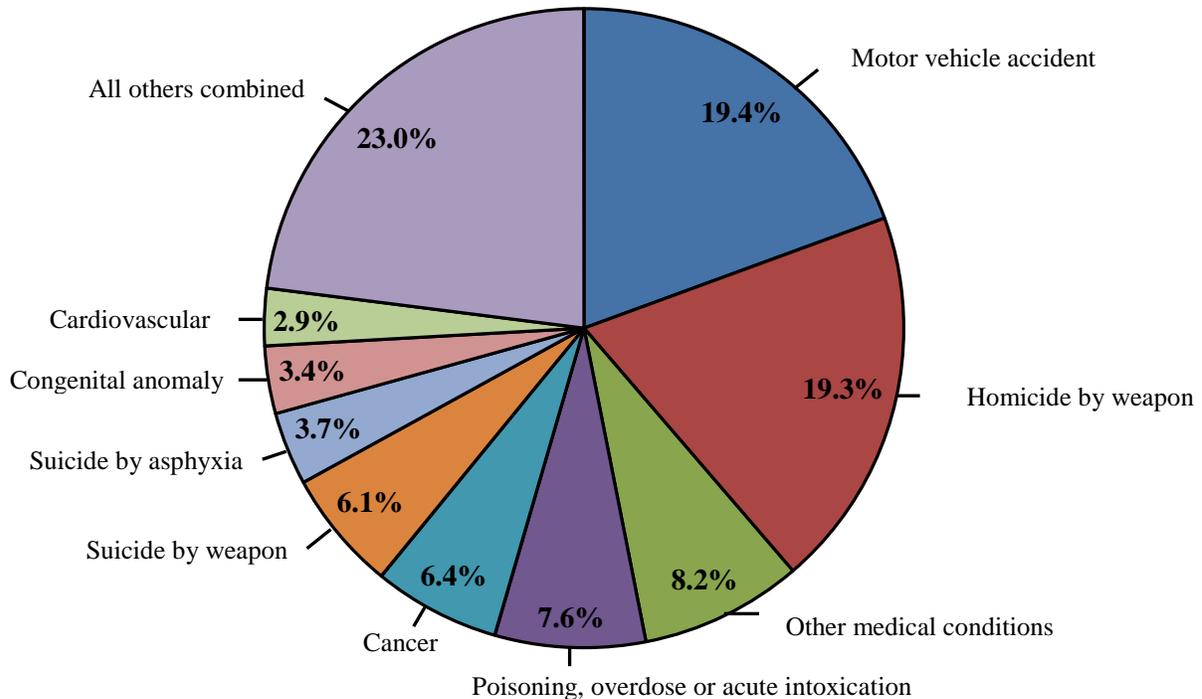
For the period 2010 through 2012, the number of injury deaths attributed to motor vehicle accidents exceeded the number of deaths attributable to any other category, across all age groups. However, specific age groups were associated with various types of injury deaths. For children 1 through 9 years of age, drowning and submersion was the second highest category (43 deaths), followed next by smoke, fire, and flames (41 deaths). For children 10 through 17 years of age, two categories reflected the second highest number of deaths: (1) assault (homicide) by firearm (75 deaths) and (2) intentional self-harm (suicide) by other means (75 deaths). For children 18 through 21 years of age, assault (homicide) by firearm was the second highest category (353 deaths) [Table 25].

Injury type	1–4	5–9	10–14	15–17	Total 1–17	Total 18–21	Total 1–21
Motor vehicle accidents	34	28	37	164	263	454	717
Assault (homicide) by firearm	5	3	9	66	83	353	436
Accidental poisoning and exposure to noxious substances	4	0	3	24	31	253	284
Intentional self-harm (suicide) by other means	0	1	24	51	76	146	222
Intentional self-harm (suicide) by firearm	0	0	12	43	55	110	165
Other non-transport accidents	23	15	20	10	68	41	109
Assault (homicide) by other means	26	8	5	3	42	29	71
Smoke, fire and flames	24	17	16	5	62	7	69
Drowning and submersion	32	11	8	19	70	21	91
Other transport accidents	2	1	9	6	18	17	35
Falls	6	3	3	1	13	11	24
Legal intervention (law enforcement)	0	0	0	1	1	3	4
Undetermined intent	7	1	2	3	13	17	30
Total all types	163	88	148	396	795	1,462	2,257
Data source: DOH, BIIT See technical notes (Appendix D) for the ICD codes used for the cause of death categories shown.							

Reviewed Injury Deaths

Of the total 2012 injury-related deaths reviewed in children 1 through 21 years of age (684 cases), motor vehicle accidents (19.4 percent), and homicides by weapon (19.3 percent) were the leading causes of death. The next highest frequency of cause of death within the reviewed cases was those identified with other medical conditions (Figure 15).

Figure 15. Percent of Reviewed Deaths by Cause for Children 1 through 21 Years of Age, Pa., 2012



Data source: The National Center for Child Death Review Case Reporting System
Year of Death: 2012

Injury Deaths and Weapons

Most of the 177 injury-related, reviewed deaths caused by a weapon occurred in males (164 cases) [Table 26]. Almost three-quarters (74.0 percent) of all weapon deaths reviewed occurred in children 18 through 21 years of age. Within the cases reviewed, firearms were the most frequently encountered weapon across all age groups (91.5 percent) [Table 27]. An examination of the review data by race/ethnicity revealed that deaths involving weapons were disproportionately represented within the black population (66.1 percent).

Sex	Type of weapon					Total
	Firearm	Person's body part	Sharp	Blunt	Unknown	
Male	151	5	5	2	1	164
Female	11	0	2	0	0	13
Total	162	5	7	2	1	177

Data source: The National Center for Child Death Review Case Reporting System
Year of Death: 2012

Age in Years	Type of weapon					Total
	Firearm	Person's body part	Sharp	Blunt	Unknown	
< 1	0	1	0	0	0	1
1-4	1	1	0	0	0	2
5-9	1	3	1	0	0	5
10-14	7	0	0	1	1	9
15-17	29	0	0	0	0	29
Total < 17	38	5	1	1	1	46
18-19	54	0	2	0	0	56
20-21	70	0	4	1	0	75
Total 18-21	124	0	6	1	0	131
Overall total < 22	162	5	7	2	1	177

Data source: The National Center for Child Death Review Case Reporting System
Year of Death: 2012

Firearms and Manner of Death

Most deaths involving firearms were intentional deaths (160 cases). Homicides and suicides together comprised over 98.8 percent of all deaths reviewed involving firearms. Homicides alone comprised 74.1 percent of all deaths reviewed involving firearms (Table 28).

Unintentional Accident	Intentional	
	Suicide	Homicide
2	40	120

Data source: The National Center for Child Death Review Case Reporting System
Year of Death: 2012

Of the 162 reviewed deaths in which firearms were used, 18 cases involved licensed firearms, 18 cases involved firearms that were not licensed, and 126 cases involved firearms for which the licensing status was unknown. Of the 18 licensed firearms, the firearm ownership was as follows:

- seven owned by parent;
- three owned by self;
- three owned by friend or acquaintance;
- one owned by other relative;
- one owned by law enforcement;
- one owned by other; and
- two ownership unknown.

An examination of the review data related to firearms revealed the following uses of firearms at the time of incident:*

- self-injury (39 cases);
- commission of crime (39 cases);
- argument (24 cases);
- other (14 cases);
- gang-related activity (12 cases);
- drive-by shooting (8 cases);
- showing gun to others (5 cases);
- playing with weapon (4 cases);
- self-defense (3 cases);
- random violence (2 cases);
- intimate partner violence (1 case);
- child was a bystander (2 cases);
- jealousy (1 case); and
- all other categories including unknown combined (40 cases).

*Note: the categories above (leading uses of weapons at time of incident) are not mutually exclusive. Therefore, their total exceeds the total number of reviewed firearm cases (162).

Drowning Death Demographics

Of the 24 drowning deaths reviewed, 15 occurred in children 15 through 21 years of age, and nine occurred in children under 15 years of age. Examined by sex, 22 cases involved males and two cases involved females. The black population was disproportionately represented. Of the total, 50.0 percent involved black children and 45.8 percent involved white children. Examined by location of death, most (12 cases) occurred in a lake, river, pond, or creek. Five children under 10 years of age drowned in pools, hot tubs, or spas (Table 29). Of the 12 cases in which the drowning occurred in a lake, river, pond, or creek, four cases involved the use of alcohol and/or drugs prior to the incident, and six cases involved locations wherein there was no barrier to the water. Of the five cases in which the drowning occurred in pool, hot tub, or spa, three cases involved locations wherein there were no barriers to the water, and two cases involved unsupervised children.

Table 29. Reviewed Drowning Deaths by Age Group and Location, Pa., 2012

Age group (in yrs.)	Lake/river /pond/ creek	Ocean	Quarry/ gravel pit	Canal	Pool/ hot tub/ spa	Well/ cistern	Bathtub	Other	Unknown	Total
< 1	0	0	0	0	0	0	0	0	0	0
1–4	0	0	0	0	3	0	0	1	0	4
5–9	1	0	0	0	2	0	0	0	0	3
10–14	1	0	0	0	0	0	1	0	0	2
15–17	0	0	0	0	0	0	0	0	0	0
18–19	3	0	0	0	0	0	1	1	0	5
20–21	7	0	0	0	1	0	0	2	0	10
Unknown	0	0	0	0	0	0	0	0	0	0
Total	12	0	0	0	6	0	2	4	0	24

Data source: The National Center for Child Death Review Case Reporting System
Year of Death: 2012

Poisoning, Overdose, or Acute Intoxication Death Demographics

There were 62 cases reviewed involving poisoning, overdose or acute intoxication. As expected, most (85.5 percent) of these deaths occurred in children 18 through 21 years of age, and more than half (59.7 percent) occurred in those between 20 and 21 years of age. Fifty cases involved males and 12 cases involved females. In 85.5 percent of the cases, the child was white. In 9.7 percent of the cases the child was black, and in 4.8 percent of the cases the child was multi-racial. Most (41 cases) involved accidental overdose (Table 30). Prescription drugs were the most frequent substance involved in these deaths, comprising 69.4 percent of the total deaths reviewed (Table 31).

Poisoning, overdose or acute intoxication

An examination of the review data associated with those involving prescription drugs (43 cases) revealed that, in 38 of those cases, it was unknown where the substance was stored (open area, open cabinet, unlocked cabinet, etc.).

Incident resulted from	Number of cases reviewed
Accidental overdose	41
Adverse effect, not overdose	4
Deliberate poisoning	2
Acute intoxication	5
Unknown	10
Total	62

Data source: The National Center for Child Death Review Case Reporting System, Year of Death: 2012

Age group (in years)	Deaths reviewed	Type of substance				
		Prescription drug	Over the counter drug	Cleaning substance	Other	Unknown
< 1	2	2	0	0	1	0
1–4	2	0	2	0	0	0
5–9	0	0	0	0	0	0
10–14	0	0	0	0	0	0
15–17	5	4	1	0	1	0
18–19	16	13	2	0	10	1
20–21	37	24	1	0	21	3
Unknown	0	0	0	0	0	0
Total	62	43	6	0	33	4

Data source: The National Center for Child Death Review Case Reporting System, Year of Death: 2012
 Note: Rows do not sum to totals because more than one type of poison could have been involved.

An examination of Pennsylvania’s death certificate data for the three-year period 2010-2012 revealed that the rate of deaths caused by accidental drug poisoning was 3.7 times higher in children 20 through 21 years of age as it was in children 15 through 19 years of age (Table 32).

Age group	Count	Population	Rate**
15–19	102	2,657,908	3.8
20–21	163	1,171,699	13.9

* ICD-10 Codes: X40–X44
 ** Rate is per 100,000 population of specified age.
 ^ Population 20–21 is provided by the American Community Survey; all other population data are estimates provided by the Pennsylvania State Data Center for non-census years, and the U.S. Census for 2010.
 Source: Pennsylvania Department of Health, Certificates of Death

According to the CDC, almost all prescription drugs involved in overdoses (nationally) come from prescriptions originally; very few come from pharmacy theft. Once prescribed and dispensed, prescription drugs are frequently diverted to people using them without prescriptions. More than three out of four people who misuse prescription painkillers use drugs prescribed to someone else.⁷



CDC recently released the Vital Signs report, which indicated that health care providers wrote 259 million prescriptions for painkillers in 2012, enough for every American adult to have a bottle of pills.⁸ The four categories of prescription-type drugs (pain relievers, tranquilizers, stimulants, and sedatives) cover numerous medications that currently are or have been available by prescription. They also include drugs within these groupings that originally were prescription medications but currently may be manufactured and distributed illegally, such as methamphetamine, which is included under stimulants. The percentage of persons aged 12 or older who used prescription-type psychotherapeutic drugs nonmedically in 2013 (2.5 percent) was similar to the percentages in 2010 to 2012 (ranging from 2.4 to 2.7 percent). Nonmedical use of prescription drugs among youths aged 12 to 17 in 2013 was the second most prevalent illicit drug use category, with marijuana being first. The most prevalent category of misused prescription drugs among youths in 2013 was pain relievers. Rates averaged across 2012 and 2013 show that more than half of the nonmedical users of pain relievers, tranquilizers, stimulants, and sedatives aged 12 or older got the prescription drugs they most recently used "from a friend or relative for free." More than four in five of these nonmedical users who obtained prescription drugs from a friend or relative for free indicated that their friend or relative had obtained the drugs from one doctor (Figures 16 and 17).⁹

Figure 16: Source Where User Obtained

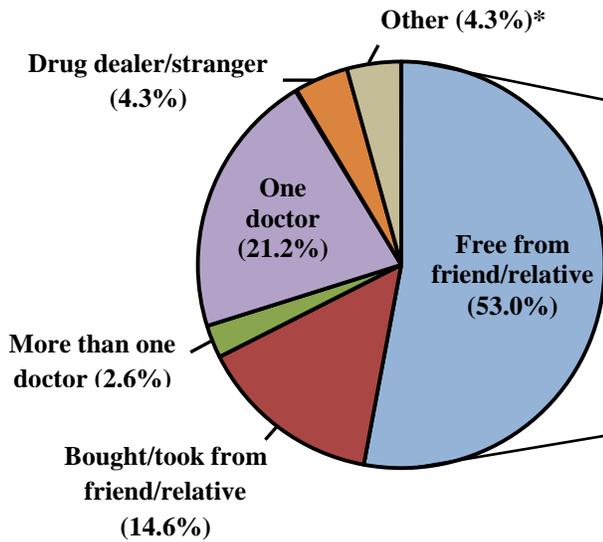


Figure 17: Source Where Friend/Relative Obtained

- One doctor (83.8%)
- More than one doctor (3.3%)
- Free from friend/relative (5.1%)
- Bought/took from friend/relative (4.9%)
- Drug dealer/stranger (1.4%)
- Bought on Internet (0.3%)
- Other (1.2%)*

* The other category includes the sources “Wrote Fake Prescription,” “Stole from Doctor’s Office/Clinic/Hospital/Pharmacy,” and “Some Other Way.” Source: Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality

Prescription Drug Abuse in Pennsylvania

Prescription drug abuse in Pennsylvania is at epidemic levels, which has left professionals, including those in the public health sector, scrambling to address the rapidly growing problem. Addiction to prescription pills has proven to be more deadly than some illegal drugs. According to the Centers for Disease Control, prescription drug overdoses in 2007 resulted in four times as many deaths as heroin overdoses and twice as many as cocaine. And that trend has continued.

Across the region, the number of overdose deaths from prescription and illegal drugs has increased dramatically. Lawmakers and communities have been left with the task of curbing the spread of drug abuse by any means necessary. In 2014, former Governor Tom Corbett signed into law Senate Bills 1164 and 1180, as well as House Bill 1864, fulfilling recommendations developed by the Heroin and Other Opioids Workgroup to address the heroin and opioid prescription drug abuse problem in Pennsylvania. Recommendations of the work group included the expansion of current initiatives, collaboration between both public and private sectors, and working with state lawmakers.

Senate Bill 1164 provides legal protections for witnesses, or Good Samaritans, seeking medical help at the scene of an overdose. In addition, it allows Naloxone to be prescribed to a third party, such as a friend or family member, and administered by law enforcement and firefighters.

Senate Bill 1180 established the Achieving Better Care by Monitoring All Prescriptions Program database within the Department of Health. The electronic data monitoring system maintains a record of controlled substances that are prescribed and dispensed in the commonwealth, for the purpose of improving patient care.



House Bill 1846 removed the incentive to over-prescribe costly drugs, helping to slow the growing dependency on powerful painkillers and curbing the abuses and dangers of patients visiting multiple physicians to obtain the same prescription medication. While House Bill 1846 placed certain limits on physician dispensing, it did not limit prescriptions by a physician nor prohibit the dispensing of drugs by an outpatient provider. The provider can continue to prescribe as they have in the past, and the patient will have immediate access to medication if deemed necessary by their treating physician.

In 2014, local child death review teams examined the circumstances associated with child deaths impacted by drug use. Of them, an 11-month-old child died due to an acute heroin overdose. At least one of the child's caretakers had a significant history of substance abuse, including the use of heroin, as realized when the mother tested positive for opiates at the time of the child's birth. Another youth, aged 15, completed suicide by taking a mix of prescription pain medications, as well as over the counter medications. Yet another youth, also 15 years of age, struggled with drug use for three years before suffering an accidental overdose of opiates and other prescription medication.

The problem of drug abuse, specifically prescription drug abuse and overdose, is complex and multi-faceted. There are many factors which play into the problem, such as insufficient oversight that would curtail inappropriate and excessive prescribing of medications, specifically painkillers. Also, there exists a dangerous belief held by many that prescription drugs are not dangerous, which is associated with increased use. These factors make it difficult to develop interventions to decrease usage across the commonwealth.

An effective response in any community relies on a multi-pronged, targeted, and sustained approach. This can only be achieved through a coordinated effort among social service agencies, public health providers and policymakers, clinical medicine, public safety professionals, and other stakeholders. Additionally, because opioid analgesics are centrally involved in prescription drug abuse and overdose, the situation is further complicated because of the often unmet need for adequate pain treatment. Therefore, any strategy to address prescription drug abuse must also balance the legitimate needs of patients and ensure that access to pain treatment is not unnecessarily restricted

Prescription Drug Database for Pennsylvania

Until recently, Pennsylvania's physicians lacked a tool for tracking patients who move from physician to physician looking to secure prescription drugs. Signed into law by former Governor Tom Corbett in 2014, Senate Bill 1180 created a controlled substance database called the Achieving Better Care by Monitoring All Prescriptions Program (ABC-MAP) within the Pennsylvania Department of Health. This new law gives Pennsylvania physicians access to a statewide controlled substance database, giving them better knowledge of prescriptions written for and filled by patients. The bill was intended to take effect on June 30, 2015, with the creation of an oversight board taking effect 90 days later. The board will consist of the Secretaries of Health (who serves as chairperson), Human Services, Drug and Alcohol Programs, State, Aging, the Insurance Commissioner, the State Police Commissioner, the Attorney General, and the Physician General if the Secretary of Health is not a physician. However, as of the date of this report, there remains uncertainty in regard to available funding for this project. Key provisions in the bill include:

- Prescribers are not required to submit prescribing information to the program but will be required to query the database the first time they prescribe each patient a controlled substance or if the prescriber believes, using sound clinical judgment, that a patient may be abusing or diverting drugs.
- Prescribers are permitted to designate employees who can access the database but must give preference to a professional nurse licensed by the State Board of Nursing, if one is available.
- Prescribers are able to query the program for an existing patient and prescriptions written using his or her own Drug Enforcement Agency number.
- Dispensers are required to submit information to the database within 72 hours after dispensing a controlled substance. Prescribers who dispense at licensed health care facilities will be exempt from this requirement if the quantity they dispense is limited to an amount adequate to treat a patient for a maximum of five days, with no refills.
- Dispensers are able to query the database for a current patient to whom he or she is dispensing or considering dispensing any controlled substance.¹⁰

Act 139 and Naloxone (Narcan)

In 2014, former Governor Tom Corbett signed Act 139 allowing first responders (law enforcement, fire fighters, and emergency medical services) to administer naloxone to individuals experiencing an opioid overdose. Additionally, individuals, such as friends or family members in a position to assist a person at risk of experiencing an opioid related overdose, may also receive a prescription for naloxone. Naloxone, also known by the brand name Narcan, is a prescription medicine that rapidly reverses heroin and other opioid overdoses. When administered during an overdose, naloxone blocks the effects of opioids on the brain and restores breathing within two to eight minutes. Naloxone has been used safely by emergency medical professionals for more than 40 years and has only one function: to reverse the effects of opioids on the brain and respiratory system in order to prevent death.

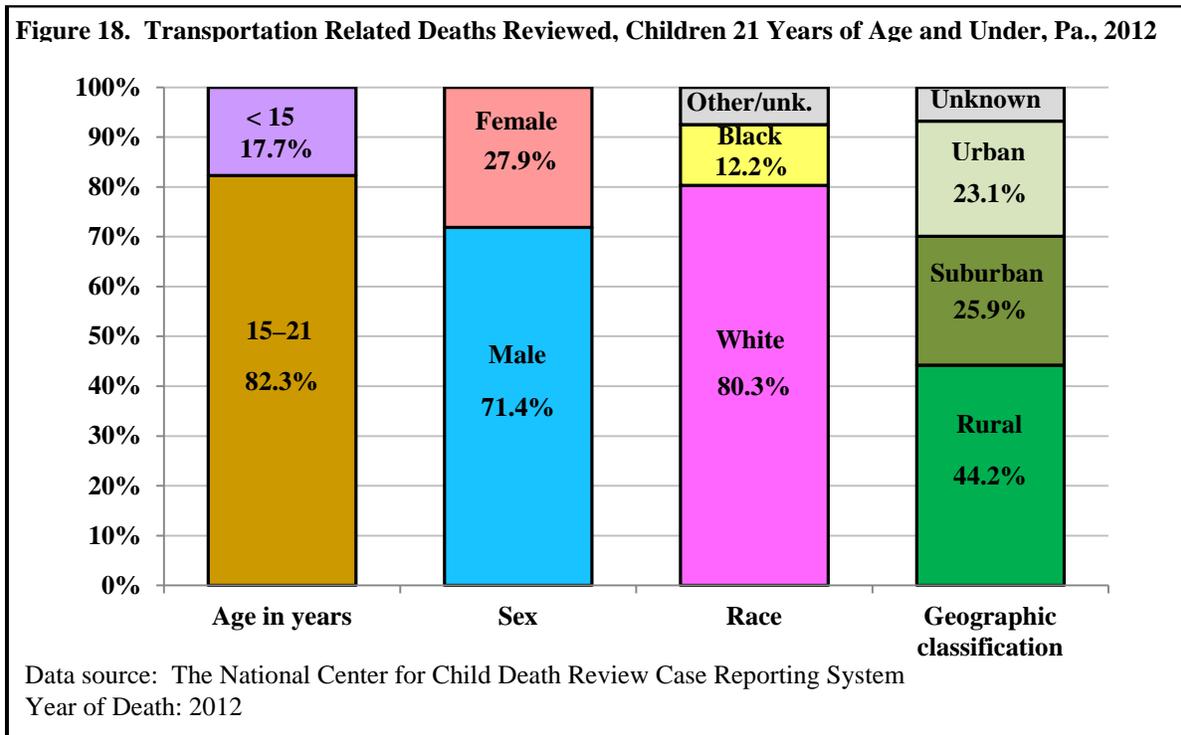
In 2015, Governor Tom Wolf approved the use of naloxone by Pennsylvania's State Police. The Pennsylvania Departments of Health and Drug and Alcohol Programs approved a law enforcement training course on the use of naloxone. All troopers were slated to be fully trained by April 15, 2015. The first to carry the life-saving drug were Troops B, E, and H, covering the Pittsburgh, Erie and Harrisburg areas, which had seen the highest number of drug overdoses. With a combination of grants donated by Aetna, Geisinger Health, Health Partner Plans, and Highmark, every state patrol car in Pennsylvania will be equipped with two naloxone doses.

On June 12, 2015, The Pennsylvania State Police announced troopers from the Troop B, Uniontown Station, successfully administered naloxone to an unresponsive male. It was the first time naloxone was administered by the state police since it was distributed. Troopers administered the drug on scene prior to the arrival of emergency medical personnel, and the subject immediately became conscious. He was transported to Uniontown Hospital by emergency medical personnel.

The Good Samaritan Provision of ACT 139

Through the 'Good Samaritan' provision of Act 139, friends, loved ones, and bystanders are encouraged to call 911 for emergency medical services in the event an overdose is witnessed and to stay with the individual until help arrives. The provision offers certain criminal and civil protections to the caller that they cannot get in trouble for being present, witnessing, and reporting an overdose.

There were 147 transportation-related deaths reviewed in all children 21 years of age and under. Of those, 82.3 percent occurred in children 15 through 21 years of age, and 17.7 percent occurred in children under 15 years of age. Males comprised 71.4 percent, and females comprised 27.9 percent of the cases. White children comprised 80.3 percent of the cases, followed next by black children (12.2 percent). Most transportation-related deaths (44.2 percent) occurred in rural areas of the state (Figure 18).



An examination of transportation-related deaths reviewed by vehicle type revealed that deaths involving motor vehicles comprised 74.1 percent of the total, and only 12.2 percent of the deaths involved a child not in a vehicle (excluding unknown). Cars represented the vehicle type associated with the most deaths (76 cases). In the cases involving cars, the decedent child was the driver in 64.5 percent of the cases and a passenger in 34.2 percent of the cases. Decedent children were pedestrians in 14 cases. [Table 33].

Vehicle type	Position of child (21 years of age and under)				Total
	Driver	Passenger	Not in a vehicle	Unknown	
Car	49	26	0	1	76
Van	0	0	0	0	0
Sport utility vehicle	6	2	0	0	8
Truck	4	2	0	1	7
Semi/tractor trailer	0	0	0	0	0
Recreational vehicle	1	0	0	0	1
School bus or other bus	0	0	0	0	0
Motorcycle	11	0	0	1	12
Tractor or other farm vehicle	0	0	0	0	0
All-terrain vehicle	4	1	0	0	5
Snowmobile	0	0	0	0	0
Train	0	0	0	0	0
Total motor vehicle deaths reviewed	75	31	0	3	109
Bicycle	0	0	2	0	2
Pedestrian	0	0	14	0	14
Other	0	0	2	0	2
Unknown	4	4	5	7	20
Total transportation-related deaths reviewed	79	35	23	10	147

Data source: The National Center for Child Death Review Case Reporting System.
Year of Death: 2012
Notes: "Other" vehicles include subway, trolley, and others.

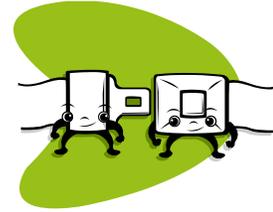
Young Drivers

Young drivers are at increased risk for involvement in motor vehicle accidents. This reflects the extra risk associated with inexperience, characteristics of youthful age, and the interaction between these factors. Characteristics of adolescents include an appetite for strong sensations and excitement, emotionality, poor judgment and decision making, and strong peer influences.^{11 12}

Based on the 2012 review data, there were 77 cases in which a child 15 through 21 years of age was the driver in his/her crash death. In most of those cases, the decedent child was driving a car (49 cases) or a motorcycle (11 cases). Of those, 72.7 percent were cases in which the decedent child was responsible for causing the incident. Alcohol or drug impairment was a factor in almost a quarter of the cases reviewed (24.7 percent).

Protective Measures

An examination of the 2012 death review data revealed that in the 79 cases reviewed in which the child was identified as the driver of a motor vehicle, the following protective measures were present and not used:



- Lap belt 32 (40.5%)
- Shoulder belt 31 (39.2%)

The following protective measures were present but not used in the 35 cases in which the child was identified as a passenger in a motor vehicle:

- Lap belt 15 (42.9%)
- Shoulder belt 13 (37.1%)

Homicides in Children

There were 162 homicides during the three-year period 2010-2012 among children 18 years of age and under. In children 1 through 17 years of age, the overall homicide rate was 1.6 per 100,000 population. That has remained unchanged from 2011. However, significant disparity between races remains.

Homicides by Race

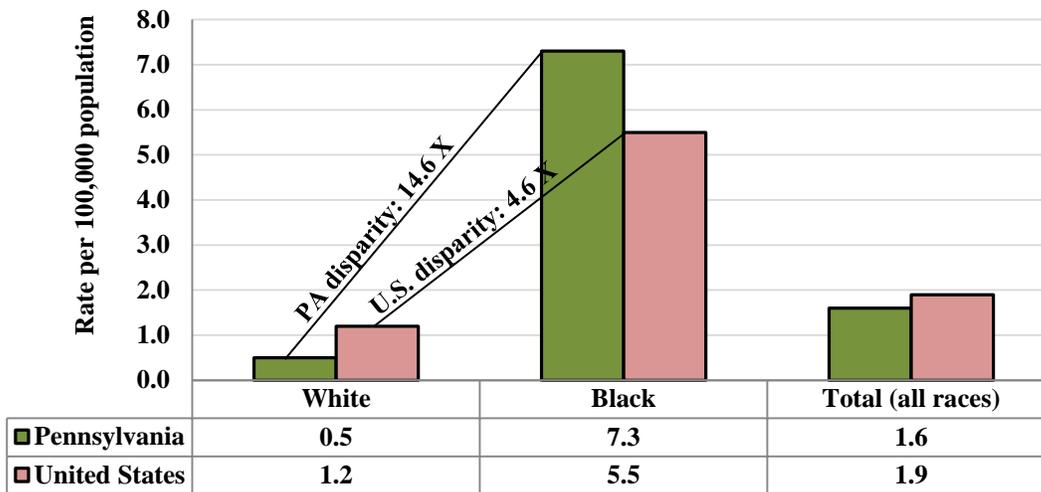
The homicide rate is highest among black children. In black children 1 through 17 years of age, the homicide rate for the period 2010-2012 was 7.3 per 100,000 population. That is 14.6 times higher than the homicide rate in white children (Table 34).

Age in years	Race/Hispanic origin	Homicide by firearm		Homicide by other means		Total	
		Number	Rate*	Number	Rate	Number	Rate
Infants (< 1)	All races	1	ND	36	8.4	37	8.7
	White	0	ND	21	6.5	21	6.5
	Black	1	ND	12	19.1	13	20.7
	Asian/Pacific Islander	0	ND	1	ND	1	ND
	Hispanic	0	ND	8	ND	8	ND
1–17	All races	83	1.1	42	0.5	125	1.6
	White	16	0.3	17	0.3	33	0.5
	Black	58	5.2	23	2.1	81	7.3
	Asian/Pacific Islander	0	ND	2	ND	2	ND
	Hispanic	8	ND	2	ND	10	4.0

Data source: DOH, BIIT
 * per 100,000 population
 Notes: Hispanic origin can be of any race; rates based on less than 10 events are considered statistically unreliable and are not displayed (ND). See technical notes (Appendix D) for the ICD codes used for the cause of death categories shown.

The racial disparity in Pennsylvania’s child (1 through 17 years of age) homicide rate remains greater than the disparity that exists nationally. For the three-year period 2010 through 2012, on the national level, the homicide rate (per 100,000 population) in black children was 4.6 times greater than the homicide rate in white children (black 5.5; white 1.2). In Pennsylvania over that same period, the homicide rate in black children was 14.6 times greater than the homicide rate in white children (black 7.3; white 0.5). Moreover, Pennsylvania’s homicide rate in white children was 2.4 times less than the homicide rate in white children nationally, and its homicide rate in black children was 1.3 times greater than the homicide rate in black children nationally (Figure 19).

Figure 19. Death Rates Due to Homicide in Children 1 through 17 Years of Age, U.S. and Pa., 2012



Data sources: U.S. data: CDC, The National Center for Health Statistics; Pa. data: DOH, BIIT

Homicides in Children 1–17 Years of Age, by Sex

For the period 2010 through 2012, over three-quarters (75.2 percent) of all homicide deaths in children 1 through 17 years of age occurred in males. The homicide rate for males was 2.9 times higher than the homicide rate in females. The homicide rate in males was 2.3 per 100,000 population, and the homicide rate for females was 0.8 per 100,000 population.

When focused exclusively on homicides by firearm, the disparity based on sex widens. The rate of homicides by firearm in males (1.8 per 100,000) is six times greater than the rate of homicides by firearm in females (0.3 per 100,000) [Table 35].

Table 35. Deaths Due to Homicide for Select Age Groups by Sex, Number and Rate, Pa. 2010–2012

Age in years	Sex	Homicides by firearm		Homicides by other means		Total	
		Number	Rate*	Number	Rate	Number	Rate
Infants (< 1)	Male	1	ND	23	10.5	24	11.0
	Female	0	ND	13	6.2	13	6.2
	Total	1	ND	36	8.4	37	8.7
1–17	Male	72	1.8	22	0.5	94	2.3
	Female	11	0.3	20	0.5	31	0.8
	Total	83	1.1	42	0.5	125	1.6

Sources: DOH, BIIT; Population source: The Penn State Data Center at Penn State Harrisburg

* per 100,000 population

Notes: Rates based on less than 10 events are considered statistically unreliable and are not displayed (ND).

Homicides in Children 18–21 Years of Age

Homicide deaths occur most frequently within the group of children ages 18 through 21 years. For the period 2010 through 2012, there were 544 deaths by homicide in all children 21 years of age and under. Of those, 70.2 percent occurred in children 18 through 21 years of age. The overall homicide rate in this age group, 16.4 per 100,000 population, was 10.3 times greater than the homicide rate in children 1 through 17 years of age (1.6 per 100,000 population). Most homicides within this older age group, 92.4 percent, were homicides involving firearms (Table 36).

Table 36. Deaths Due to Homicide in Children 18 through 21 Years of Age, by Sex and Type of Homicide, Pa., 2010–2012

Age in years	Sex	Homicides by firearm		Homicides by other means		Total	
		Number	Rate*	Number	Rate	Number	Rate
18–21	Male	329	28.0	19	1.6	348	29.6
	Female	24	2.1	10	0.9	34	2.9
	Total	353	15.1	29	1.2	382	16.4

Source: DOH, BIIT; Population Source: U.S. Census Bureau, American Community Survey
* per 100,000 population

The disparity in homicide rates by sex remains particularly significant within this age group. Of the total homicides in this age group (382), 91.1 percent occurred in males. Comparing the rates of homicide by firearm revealed a rate in males (28.0) that was 13.3 times greater than the rate in females (2.1). The rate of homicide deaths for males is 10.2 times greater than the rate of homicide deaths for females in this age group (Table 37).

Table 37. Deaths Due to Homicide in Children 18–21 Years of Age, by Sex, Pa., 2010–2012

Sex	Homicides	
	Number	Rate*
Male	348	29.6
Female	34	2.9
Total	382	16.4

Data source: DOH, BIIT
* per 100,000 population

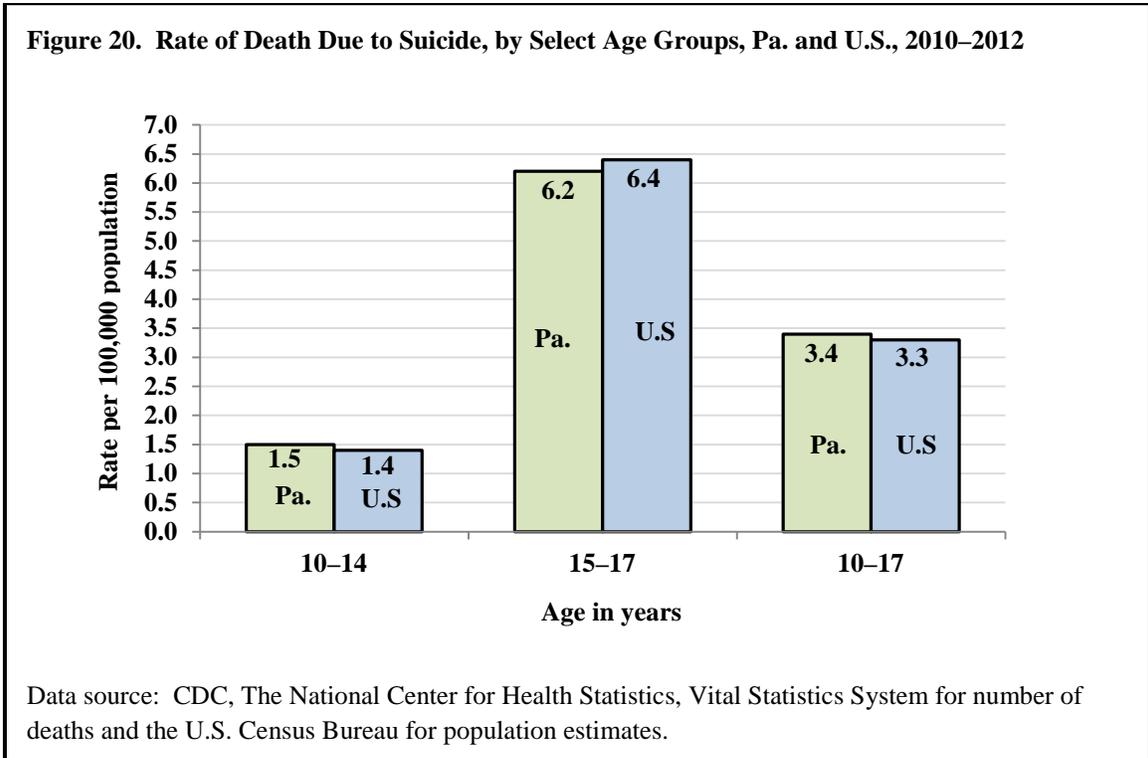
Pennsylvania’s overall rate of homicide deaths for children 1 through 17 years of age, 1.6, is 1.2 times less than the national rate for that age group (1.9 per 100,000 population). The state’s rate of homicide deaths in children 18 through 21 years of age, 16.4, is 1.3 times greater than the national rate for that age group (12.5 per 100,000 population).

Pennsylvania’s child death review teams capture and record the circumstances and factors associated with the deaths they review. In doing so, they are sometimes able to make determinations regarding acts of omission or commission. Acts of omission or commission are defined as any act or failure to act which causes or contributes to the death.

Reviewed cases in which the team reported that an act of omission or commission caused or contributed to the death were examined. Of those 235 deaths reviewed for which the local teams identified an act of omission or commission having occurred (or being probable), the highest single act was assault (not child abuse), where 36.2 percent of the cases were categorized. Most of these (69 cases) involved black children, and 15 involved white children. In all of these 85 cases, the assaults were determined to have caused the death. In over half the cases (49), the child had a history of maltreatment as a victim (Table 38).

Table 38. Acts of Omission/Commission Assault Information (Reviewed Deaths), Children 21 Years of Age and Under, Pa., 2012			
	Assault		
	Caused	Contributed	Total
Deaths reviewed	85	0	85
Child history:			
History of substance abuse	56	0	56
Drug/alcohol impaired at time of incident	23	0	23
History of mental illness	48	0	48
Had transgendered identity	0	0	0
Was gay/lesbian/bisexual/questioning	0	0	0
Criminal history or delinquency	67	0	67
Spent time in juvenile detention	40	0	40
Child Protective Services (CPS) involvement:			
Open CPS case at time of death	20	0	20
Investigation found evidence of prior abuse	1	0	1
Child had history of maltreatment as victim	49	0	49
Child placed outside of home	14	0	14
History of intimate partner violence as victim	5	0	5
History of intimate partner violence as perpetrator	5	0	5
Note: Categories are not mutually exclusive. Data source: The National Center for Child Death Review Case Reporting System Year of Death: 2012			

Suicide (intentional self-harm) remains a significant health problem. For the three-year period 2010 through 2012, the number of suicides ranked third in the causes of death in children 1 through 21 years of age. Over that period, there were 387 suicide deaths, comprising 11.9 percent of the total deaths in that age group (3,248). In children 10 through 17 years of age, the number of suicides (130) ranked second (to accidents) in the causes of death over that three-year period. Closer examination revealed that it was within the group of children 15 through 17 years of age that the highest rate of death due to suicide is found (Figure 20).



The rate of death by suicide in male children 10 through 17 years of age is over two times the rate of death by suicide in females. Pennsylvania’s rate for females (2.1) is 16.7 percent higher than the rate for females nationally (1.8). The rate of death in Pennsylvania’s black children is 24 percent higher than the rate in black children nationally (Table 39).

Table 39. Rate* of Death Due to Suicide, by Sex and Race, Children 10–17 Years of Age, Pa. and U.S., 2010–2012

	Male	Female	Total Both sexes	White	Black	Asian/Pacific Islander	Total all Races	Hispanic
Pennsylvania	4.5	2.1	3.4	3.7	2.6	ND	3.4	9.0
United States	4.7	1.8	3.3	3.6	2.1	1.8	3.3	2.2

Data source: CDC, The National Center for Health Statistics, Vital Statistics System for number of deaths and the U.S. Census Bureau for population estimates.
 * per 100,000 population
 Notes: Rates based on less than 10 events are considered statistically unreliable and are not displayed (ND).
 Hispanic origin can be of any race.

Suicides in Children 18–21 Years of Age

Over the three-year period 2010–2012, most suicide deaths occurred in children 18 through 21 years of age. Over that period, there were 387 deaths due to suicide in children 1 through 21 years of age, and 66.1 percent of them occurred in children 18 through 21 years of age (Table 40).

Age in years	Number of suicide deaths	Percent of total deaths
1–17	131	33.9
18–21	256	66.1
Total (1–21)	387	100.0

Data source: DOH, BIIT

The rate of death due to suicide is highest within this older age group as well. For the period 2010–2012, the rate of death due to suicide was 1.8 times higher in children 18 through 21 years of age than it was in children 15 through 17 years of age, and it was 7.3 times higher than the rate in children 10 through 14 years of age (Table 41).

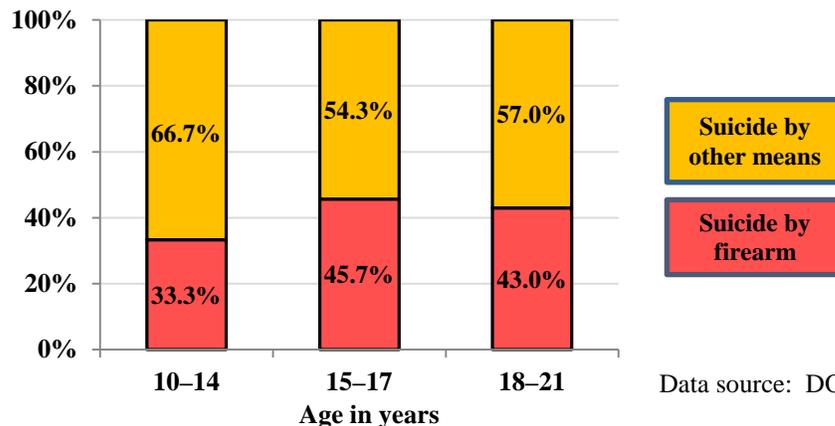
Age in years	Number	Rate
10–14	36	1.5
15–17	94	6.2
18–21	256	11.0

Data source: DOH, BIIT
* per 100,000 population

Firearms and Suicide

An examination of data related to means of suicide by age revealed the use of firearms to commit suicide was most likely to occur in children 15 through 17 years of age (Figure 21).

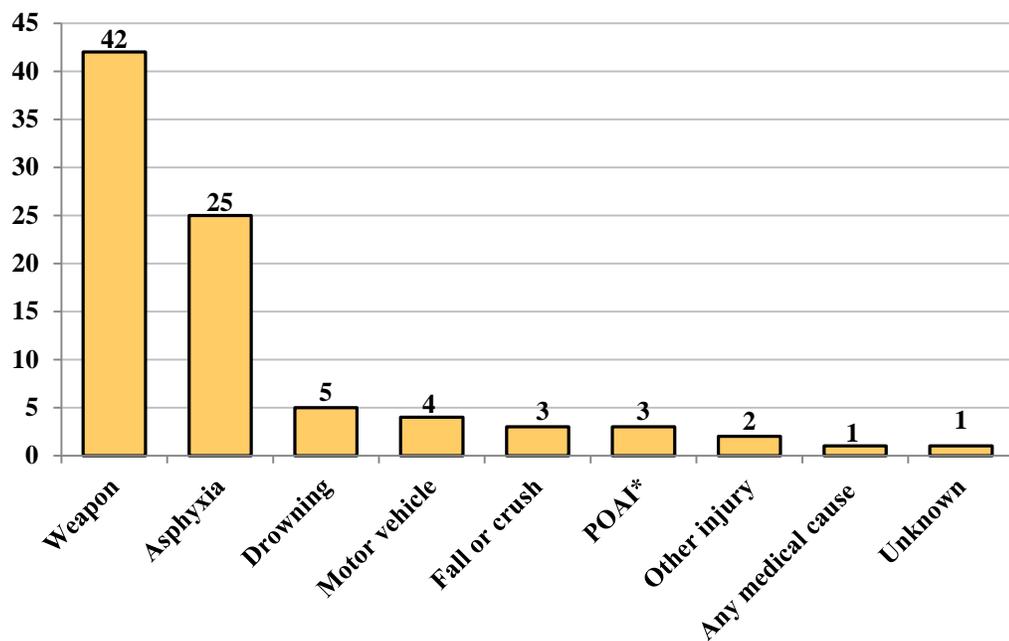
Figure 21. Means of Suicide by Select Age Groups, Pa. 2010–2012



Suicide Deaths Reviewed

Of the 1,355 cases reviewed, 87 were deaths due to suicide. Of those suicides, 25 occurred in children 10 through 17 years of age, and 62 occurred in children 18 through 21 years of age. Across all suicide deaths, the use of a weapon was the leading cause/factor with 42 cases, followed by asphyxia with 25 cases (Figure 22). Generally defined, deaths by asphyxia are those caused by a deprivation of oxygen as a result of strangulation, suffocation, choking, or smothering.

Figure 22. 87 Reviewed Suicide Deaths by Cause, Children 21 Years of Age and Under, Pa., 2012



Data source: The National Center for Child Death Review Case Reporting System

* POAI: Poisoning, overdose, or acute intoxication

Year of Death: 2012

Contributing Factors and Circumstances in Reviewed Suicide Deaths

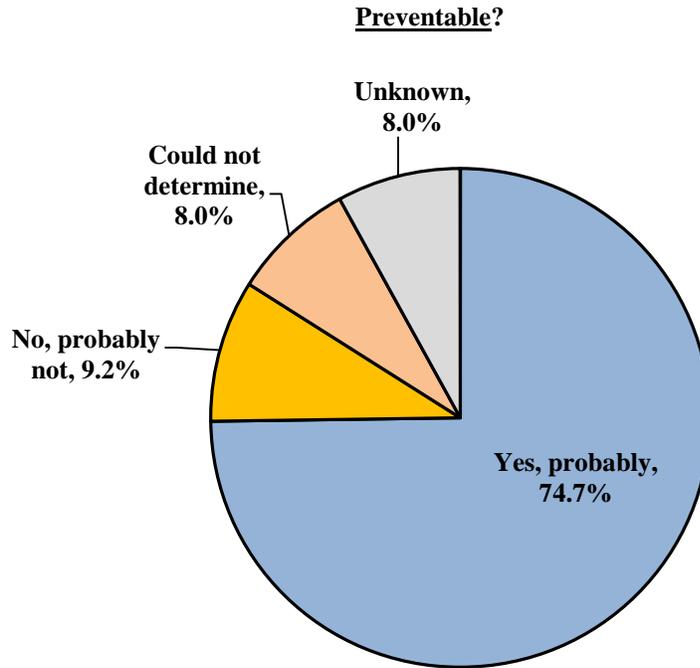
During the child death review process, team members are sometimes able to identify and determine factors that either caused or contributed to the death under review. Within the child death review case reporting system, team members record specific factors and circumstances as either present or likely present in the case at hand.

Of the 87 suicides reviewed, 48 were associated with factors and/or circumstances that either caused or contributed to those deaths. Select factors and circumstances recorded during those reviews are presented below in table 42.

Table 42. Reviewed Suicide Deaths by Selected Factors and Circumstances, Children 21 Years of Age and Under, Pa., Death Year 2012	Suicide		
	Caused	Contributed	Total
Deaths Reviewed	47	1	48
Suicide was completely unexpected	16	1	17
History of mental illness	14	0	14
Child talked about suicide	13	0	13
Argument with boyfriend/girlfriend	12	1	13
History of substance abuse	12	0	12
Family discord	11	0	11
Argument with parents/caregivers	11	0	11
Prior attempts were made	10	0	10
Prior suicide threats were made	10	0	10
Child placed outside of home	10	0	10
Child was on medications for mental illness	9	0	9
Child left a note	8	0	8
Breakup with boyfriend/girlfriend	7	1	8
Child was receiving mental health services at time of death	8	0	8
Child had history of maltreatment as victim	8	0	8
Criminal history or delinquency	7	0	7
Drugs/alcohol	7	0	7
Drug/alcohol impaired at time of incident	6	0	6
Spent time in juvenile detention	4	0	4
Problems with the law	3	0	3
Child had history of self-mutilation	3	0	3
Parents' divorce/separation	3	0	3
Victim of bullying	2	0	2
Child had history of running away	2	0	2
Investigation found evidence of prior abuse	2	0	2
History of intimate partner violence as victim	1	0	1
Data source: The National Center for Child Death Review Case Reporting System			
Notes: Includes all cases where action of omission/commission caused or contributed to the death was reported by team as "yes" or "probable." Child placed outside of home refers to placement in foster care, including licensed and relative/kinship foster homes.			

In the 87 deaths due to suicide reviewed, reviewers made determinations about preventability. Most suicides were preventable (Figure 23).

Figure 23. Reviewed Deaths Due to Suicide by Preventability, Children 21 Years of Age and Under, Pa., 2012



Note: Percentages do not total 100 due to rounding.
Data source: The National Center for Child Death Review Case Reporting System
Year of Death: 2012

Suicide Prevention Initiatives and Strategies

Suicide is a significant problem in the United States. According to the CDC, 41,149 people killed themselves in 2013. That same year, over 494,169 people with intentional, self-inflicted injuries were treated in U.S. emergency departments. In 2013, suicide was the second leading cause of death among persons aged 15–24 year. Suicide affects not only individuals but families and communities as well. Suicides result in an estimated \$44.6 billion in combined medical and work loss costs.¹³

The causes of suicide are complex, consisting of multiple factors. The risk factors associated with suicide are well documented. They include having a history of mental disorders, previous suicide attempts, a family history of suicide, being a victim of child maltreatment, having impulsive and aggressive tendencies, and the presence of barriers to accessing mental health services.



Suicide prevention is primary prevention – stopping suicidal behavior before it occurs. This involves reducing the factors that put people at risk for experiencing violence. It also includes increasing the factors that protect people or buffer them from risk. Due to the wide range of risk factors associated with suicide, prevention strategies must be multi-faceted, addressing individual, relationship, community, and societal levels of influence. Identifying children who are at risk for suicide is a key component of any prevention strategy.

The AAP Task Force on Mental Health recommends screening children for mental health issues at every doctor visit and developing a network of mental health professionals in the community to whom physicians can refer patients if they suspect a child needs further evaluation.

Many of the risk factors associated with suicidal behaviors are also associated with bullying. Strategies to reduce bullying should be included in interventions that aim to reduce suicidal behavior among youths. The PA CDR program and the Pennsylvania Suicide Prevention Initiative (PAYSPI), which is a multi-system collaboration to reduce youth suicide, have collaborated closely for many years. More information on PAYSPI can be found at: <http://payspi.org/>. Through programs such as the Student Assistance Program (SAP), and Services for Teens at Risk (STAR-Center), Pennsylvania has made a commitment to preventing youth suicide. As a result of the passage of Act 71 of 2014 and beginning with the 2015-2016 school year, Pennsylvania's schools will be adopting age-appropriate awareness and prevention policies.

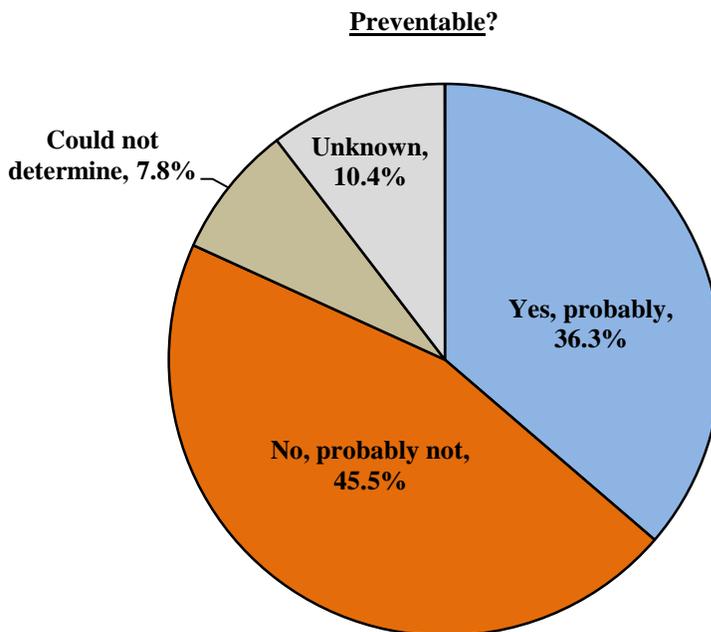
Negative attitudes toward lesbians, gays, bisexuals, and transgendered (LGBT) youth place them at increased risk for experiences with violence, compared to other students.¹⁴ This includes bullying, teasing, harassment, physical assault, and suicide-related behaviors. LGBT youth are at increased risk for suicidal thoughts and behaviors, suicide attempts, and suicide. Attending schools that create safe and supportive learning environments for all students and having caring and accepting parents are important.¹⁵

The child death review process is one in which all of Pennsylvania’s 67 counties are represented by one of the state’s 63 local teams. Team members compile a lot of information over the course of conducting reviews within their jurisdiction, and in some cases, a determination regarding preventability is possible. Local factors, resources and circumstances impact this process. While there is an inherent element of subjectivity involved when determining preventability, the following definition serves as a guidepost:

A child’s death is preventable if the community or an individual could reasonably have done something that would have changed the circumstances that led to the death.

In 2012, there were a total of 2,066 deaths in children 21 years of age and under, and 65.6 percent of those were reviewed (Table 1). Of the reviewed deaths, 36.3 percent were determined to be ones that were probably preventable, and 45.5 percent were probably not preventable (Figure 24).

Figure 24. All Reviewed Deaths by Preventability, Children 21 Years of Age and Under, Pa., 2012



Data source: The National Center for Child Death Review Case Reporting System
Year of Death: 2012

On closer examination of the 492 deaths determined to have been probably preventable, 46.5 percent were ones in which the manner of death was determined to be accident (unintentional injury). Homicides were the next highest category with 27.6 percent, followed by suicides comprising 13.2 percent.

Whenever possible, CDR teams use case reviews as a basis for making recommendations to prevent future childhood deaths. Of the deaths reviewed, 80 reviews led to recommendations for education, 13 led to recommendations for agency action (policies, programs, services, etc.), and nine led to recommendations associated with the law (new or amended law/ordinance, or enforcement). An examination of the annual review dataset revealed that a total of 25 cases were associated with team recommendations in the implementation stage of development, and nine were associated with recommendations in the planning stage (Table 43).

Table 43. PA CDR Team Prevention Recommendations, Pa., Death Year 2012					
Current action stage	Education	Agency	Law	Environment	Other
Recommendation	60	11	7	1	3
Planning	7	1	1	0	0
Implementation	22	2	1	0	0
Data source: The National Center for Child Death Review Case Reporting System					

Recommendations and Actions Taken

Information gathered from the 2012 deaths that were reviewed resulted in specific recommendations developed by the local teams to address the primary causes of preventable child death in Pennsylvania, as well as ways to improve the CDR. Each year, recommendations are considered at the state level, with a number of the recommendations being chosen for further action and implementation.

One of the most important efforts of the Pennsylvania CDR Team over the past several years has been an education program related to infant death scene investigation protocol. Local teams continue to recommend education and the development of child death scene protocols for each county. In 2014, two, two-day trainings were delivered. They addressed SUID death scene investigation and related topics, including the importance of safe sleep. They were aimed at improving and fostering collaboration and communication among those who are involved in all aspects of infant and child death investigations. Over 250 professionals participated.

Local teams continue to struggle with suicides in their communities and the development of effective initiatives to bring down the rate of children taking their own lives. On June 26, 2014, Act 71 of 2014 was signed into law, making Pennsylvania, at that time, one of only five states to require comprehensive suicide prevention policies in schools statewide.

Under the new law, which begins with the 2015-2016 school year, Pennsylvania schools must adopt age-appropriate youth suicide awareness and prevention policies and include four hours of training in youth suicide awareness and prevention every five years in professional development plans for educators serving grades 6-12. Schools may incorporate a youth suicide awareness and prevention curriculum into existing instructional programs. The Department of Education will be required to develop a model youth suicide awareness and prevention policy and a model youth suicide awareness and prevention curriculum for use by schools and to make these and other guidance and resource materials publically available online.

The training and education requirements of Act 71 will ensure that all Pennsylvania educators are equipped with the skills and confidence to recognize when students may be at risk and to refer those students for additional help. It will ensure students are empowered to seek help when they notice signs of mental illness or suicide in themselves or their peers. The required policies and procedures in the act will also ensure that Pennsylvania schools are guided in responding safely when a suicide occurs in the school community and in supporting school staff, students, and families.

Teams continue to recognize that bullying plays a part in many suicide deaths. Recommendations have included providing additional funding for the Pennsylvania Creating an Atmosphere of Respect and Environment for Success (PA CARES) program, which provides materials, resources, and funding for schools to implement the evidence-based Olweus Bullying Prevention Program (OBPP).

Additionally, it is recognized that lesbian, gay, bisexual, transsexual, and questioning (LGBTQ) youth are at an increased risk of suicidal behavior. They are much more likely to be bullied and often feel isolated from their peers. To reduce the rates of suicide in LGBTQ youth, specific programs and interventions need to be developed. One promising program is the Safe Space Project, which provides places where LGBTQ youth can feel safe and receive health services. The department continues to work in conjunction with stakeholders involved with PAYSPI, as collaboration is crucial to implementing effective strategies for suicide prevention.

The incidence of sleep-related deaths continues to be a focus for local teams. Expansion of the Pennsylvania Infant Death Program's sudden infant death syndrome (SIDS), suffocation and strangulation public education campaign, particularly in low-income and minority communities, is an ongoing recommendation. As rates of SIDS and other sleep-related deaths are highest among these populations, public education activities should target those with the greatest risk. Funding for the distribution of cribs to low-income families, through "Cribs for Kids" or similar programs, is an avenue that many communities have adopted in order to address this issue.

Recent legislative initiatives have targeted the prescription drug abuse problem in Pennsylvania. These initiatives served to address the heroin and opioid prescription drug problem, expand collaboration between public and private sectors, protect witnesses (Good Samaritans) seeking medical help at the scene of an overdose, and facilitate the development and implementation of an electronic data monitoring system for controlled substances prescribed and dispensed in Pennsylvania. They also served to remove incentives to over-prescribe costly drugs, as well as placed certain limits on physician dispensing.

The Bureau of Family Health (BFH), the Title V Block Grant administrator for Pennsylvania, is required to complete a comprehensive needs assessment for the MCH population every five years. Through the needs assessment, the BFH examines the health status of the MCH population through quantitative and qualitative measures. Moreover, the needs assessment allows the BFH to evaluate the capacity of the state and of grantees, as well as to administer and maintain programming to this population. The CDR report is a crucial piece of this needs assessment. The data compiled by the report combined with the recommendations made by the CDR teams enables the BFH to better understand the circumstances surrounding the deaths of Pennsylvania's children.

After compiling information through the needs assessment process, the BFH determines priorities for the next five years to be addressed by the Title V Block Grant programming. Several of the current CDR recommendations were instrumental in shaping the following priorities chosen by the BFH:

- MCH populations reside in a safe and healthy living environment.
- Protective factors are established for adolescents and young adults prior to and during critical life stages.

- Safe sleep practices are consistently implemented for all infants.
- Women receiving prenatal care or home visiting are screened for behavioral health concerns and referred for assessment, if warranted.
- Title V staff and grantees identify, collect, and use relevant data to inform decision-making and evaluate population and programmatic needs.

The BFH plans to implement strategies that address each of the Title V priorities and are related to CDR findings and recommendations. When combined with additional data sources, CDR data is used to address needs across the maternal and child health population, including infants and adolescents.

CDR data combined with injury hospitalization rates and comprehensive home assessments performed by the Lead and Healthy Homes Program (LHHP) will be used to target safety interventions to prevent child injuries and deaths in the home. Additionally, the BFH will disseminate messaging about the dangers of prescription drug abuse through home visiting services and social media platforms.

CDR review data revealed that most suicides occurred within the age range of 18 through 21 years (71.3 percent), and close to half (48.3 percent) involved the use of a weapon. The data further revealed that the suicide was completely unexpected in 16 cases, a history of mental illness was a contributing factor in 14 cases, and a history of substance abuse was a contributing factor in 12 cases. Based on the review of available data, the BFH has determined that the LGBTQ population is at a higher risk for suicide. To specifically address suicide, the BFH will train organizations serving youth to become safe spaces for LGBTQ youth and implement suicide prevention training for LGBTQ youth.

While the BFH plans to implement bullying prevention programming for the adolescent population in general using a model such as Olweus, the majority of anti-bullying and suicide prevention programming will be targeting LGBTQ youth and LGBTQ youth program vendors. The BFH recognizes this population as one of the most vulnerable and in need of supportive services. Vendors serving adolescents will receive LGBTQ cultural competency training and will be required to adopt and implement comprehensive anti-bullying policies.

The CDR data will specifically be used to guide the targeting of programming and services related to safe sleep practice. CDR review data revealed that 71.3 percent of sleep-related deaths were ones in which the infant was not in a crib or bassinet, and over half (52.5 percent) were ones in which the infant was sleeping with one or more other people. The BFH will expand current programming and look to implement new evidence-based programming, such as hospital certification, to address unsafe sleep environments and behaviors.

The BFH will use the 5P's Integrated Screening Tool combined with motivational interviewing to screen women participating in prenatal care or home visiting for behavioral health concerns, including intimate partner violence and substance abuse. Though the current priority and initial strategies will focus on women of child-bearing age, the BFH will evaluate programming and identify areas to expand the screening to adolescents or children.



The long term vision of these strategies is to mitigate factors which may be creating unsafe living environments and unhealthy behaviors resulting in the loss of life for women, children, and families.

The BFH plans to maximize the use of the CDR data and recommendations as it moves forward with current programming and future planning within the Title V Block Grant to address the highest priority needs of the MCH population

There were 2,066 deaths of children 21 years of age and under in 2012. Of the total deaths, 1,355 were reviewed. Close to half (47.8 percent) of all deaths were infant deaths. While the infant mortality rate increased since 2011, from 6.5 to 7.0 per 1,000 live births, it has decreased by 6.7 percent since 2007, when it was 7.5. Most of the single-year increase occurred among neonatal deaths where the rate rose from 4.5 to 5.0, while the postneonatal mortality rate remained 2.0. Comparing the infant mortality rates by race in two recent three-year periods, 2007-2009 and 2010-2012, revealed statistically significant decreases for all races examined except Asian/Pacific Islander. Within the Hispanic population there was an increase by 7.4 percent, which was not statistically significant. Despite the decrease in the rate of deaths among black infants, for the period 2010-2012, it was 2.4 times higher than the rate of deaths among white infants and 4.6 times higher than the rate of death among Asian/Pacific Islander infants. Pennsylvania's overall infant mortality rate of 7.0 per 1,000 live births in 2012 did not achieve the Healthy People 2020 target objective of 6.0 per 1,000 live births. However, the state's postneonatal death rate of 2.0 per 1,000 live births did match the Healthy People 2020 target objective for that age category.

As in 2011, the categories of prematurity and low birth weight were leading causes of death among infants in 2012. SIDS was the leading cause of death in the postneonatal period, comprising 20.1 percent of deaths in that age group. SIDS was the fourth leading cause of death among all infants (neonatal and postneonatal combined).

Of the 987 infant deaths in 2012, 671 were reviewed. Based on the review data, the leading manner of death was natural, comprising 84.6 percent of all reviewed infant deaths. Most of these babies were born premature. Of the 32 infant deaths reviewed wherein the manner of death was determined to be accident, 93.8 percent were ones involving asphyxia. There were 80 sleep-related, infant deaths reviewed. In most of those cases (71.3 percent), the infant was not in a crib or bassinette and/or sleeping with one or more other people (52.5 percent).

There were 487 deaths in children 1 through 17 years of age and 592 deaths in children 18 through 21 years of age in 2012. The rate of death in black children continues to exceed the rate of death in white children. The rate of death in black children 1 through 17 years of age (28.0 per 100,000 population) was 1.7 times higher than the rate in white children (16.3 per 100,000 population). An examination of the review data revealed that, in 36.3 percent of all the cases reviewed, a determination was made that the death probably was preventable; in close to half of them (45.5 percent), a determination was made that the death was probably not preventable.

For the three-year period 2010-2012, accidents (unintentional injuries) were the leading cause of death among all children 1 through 21 years of age. They comprised 40.9 percent of all deaths in that age range. Over three-quarters (75.8 percent) of deaths in Pennsylvania's children 18 through 21 years of age occurred in males. The racial disparity in Pennsylvania's rate of death by homicide in children 1 through 17 years of age remains greater than the national disparity. For the three-year period 2010 through 2012, the rate of death by homicide, nationally, among black children was 4.6 times greater than the rate among white children (black 5.5; white 1.2 per 100,000 population).



In Pennsylvania over that same period, the homicide rate in black children was 14.6 times greater than the homicide rate in white children (black 7.3; white 0.5 per 100,000 population).

Of the accidental deaths reviewed, over three-quarters (77.5 percent) involved children aged 15 through 21 years of age. Of the accidental deaths reviewed among children aged 15 through 17 years of age, close to three-quarters (73.7 percent) involved a motor vehicle accident. Of the homicides reviewed, most (99 deaths) were among children 18 through 21 years of age.

In recent years, Pennsylvania has begun to actively target prescription drug abuse. Through a series of legislative initiatives, efforts to track and monitor the state's controlled substances have served to focus attention on the issue. Through expanded collaboration, the state's child-serving, social service, and law enforcement communities have rallied behind these initiatives.

The Child Death Review Program was codified by Act 87 of 2008, the Public Health Child Death Review Act, the purpose of which was to promote the safety and well-being of children and reduce child fatalities. Currently, 63 local teams across the state review deaths in children in all 67 counties. Through death investigations, information and data collected can inform and drive specific strategies and activities designed to improve the health and safety of children. According to the data on the 2012 deaths reviewed, well over one-third (36.3 percent) of the deaths were determined to be preventable.

2015 Local Team Chairs and Co-Chairs

<p>Adams County Child Death Review Team Melody Jansen Pa. Department of Health</p>	<p>Cameron County Child Death Review Team – See Elk and Cameron County Child Death Review Team</p>
<p>Allegheny County Child Death Review Team Robert Cicco MD, FAPP / Jennifer Fiddner West Penn Hospital (Dr. Cicco) and Allegheny County Health Department (Ms. Fiddner)</p>	<p>Carbon County Child Death Review Team Bruce Nalesnik Carbon County Coroner’s Office</p>
<p>Armstrong County Child Death Review Team Denny Demangone / Tammy Burford Armstrong County CYF (Mr. Demangone) and Pa. Department of Health-Armstrong County (Ms. Burford)</p>	<p>Centre County Child Death Review Team Judy Pleskonko / Lannette Johnson Centre County Coroner's Office (Ms. Pleskonko) and Home Nursing Agency (Ms. Johnson)</p>
<p>Beaver County Child Death Review Team Timmie Patrick Beaver County Detective Bureau</p>	<p>Chester County Child Death Review Team Ashley Orr / Teresa Olsen Chester County Health Department (Ms. Orr) and PA AAP/SCAN (Ms. Olsen)</p>
<p>Bedford County Child Death Review Team Bonnie Bisbing / Jesse Gutshall Bedford County Children and Youth Services (Ms. Bisbing) and UPMC Bedford Memorial (Ms. Gutshall)</p>	<p>Clarion County Child Death Review Team Kay Rupert Clarion County Children and Youth Services</p>
<p>Berks County Child Death Review Team Brandy Neider / Mark Reuben Children and Youth Services County of Berks (Ms. Neider) and Reading Pediatrics Inc. (Mr. Reuben)</p>	<p>Clearfield County Child Death Review Team Kelly Pentz / Kristina Fenton / Mary Brown DOH - Clearfield County State Health Center (Ms. Pentz) and UCBH/The Meadows (Ms. Fenton) and Community Connections of Clearfield (Ms. Brown)</p>
<p>Blair County Child Death Review Team Patricia Ross Blair County Coroner’s Office</p>	<p>Clinton County Child Death Review Team Jennifer Sobjak / Autumn Miller Clinton County Child and Youth</p>
<p>Bradford County Child Death Review Team Thomas Carman Bradford County Coroner Officer</p>	<p>Columbia County Child Death Review Team Lori Mastelher Coroner’s Office Columbia County</p>
<p>Bucks County Child Death Review Team Nancy Morgan Bucks County Children and Youth Services</p>	<p>Crawford County Child Death Review Team Jill Staaf, Lieutenant Meadville Fire Department</p>
<p>Butler County Child Death Review Team Leslie Johnson Butler County MH/MR Program</p>	<p>Cumberland County Child Death Review Team Christina Roland / Lorraine Bock Cumberland County Children and Youth Services (Ms. Roland) and Bock Family Health Care (Ms. Bock)</p>
<p>Cambria County Child Death Review Team Dennis Kwiatkowski / Jeffrey Lees / Stacie Holsinger Cambria County Coroner’s Office</p>	<p>Dauphin County Child Death Review Team Lisa A. Potteiger, BS, AAFS / Liz Leen Chief Deputy Coroner Dauphin County (Ms. Potteiger) and Alder Health Services (Ms. Leen)</p>

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<p>Erie County Child Death Review Team Lori Latterbaugh / Tracy McCaslin Erie County Office of MH/ID (Ms. Latterbaugh) and Erie County Office of Children and Youth (Ms. McCaslin)</p>	<p>Lancaster County Child Death Review Team Carroll Rottmund / Barb Harvey Pennsylvania Shaken Baby Syndrome Prevention, Awareness and Education Program (Ms. Rottmund) Lancaster County RN (Ms. Harvey)</p>
<p>Fayette County Child Death Review Team Gina D'auria / John Fritts Fayette County Children and Youth Services</p>	<p>Lawrence County Child Death Review Team Sue Ascione Children's Advocacy Center</p>
<p>Forest and Warren County Child Death Review Team Jan Burek Forest and Warren County Department of Human Services</p>	<p>Lebanon County Child Death Review Team Janet Bradley / Marie Reed First Aid and Safety Panel (Ms. Bradley) and Pennsylvania SBS Prevention and Awareness Program (Ms. Reed)</p>
<p>Franklin and Fulton County Child Death Review Team Paul (Ted) Reed Franklin County Coroner's Office</p>	<p>Lehigh County Child Death Review Team Belle Marks Allentown Health Bureau</p>
<p>Fulton County Child Death Review Team – See Franklin and Fulton County Child Death Review Team</p>	<p>Luzerne County Child Death Review Team Mary Claire Mullen / Carol Crane / Donna Vrhel Victims Resource Center (Ms. Mullen), and Domestic Violence Service Center (Ms. Crane), and Luzerne County Children and Youth Services (Ms. Vrhel)</p>
<p>Greene County Child Death Review Team Jennifer Johnson Greene County Children and Youth Services</p>	<p>Lycoming County Child Death Review Team Charles Kiessler Lycoming County Coroner's Office</p>
<p>Huntingdon County Child Death Review Team Paul Sharum Huntingdon Coroner's Office</p>	<p>McKean County Child Death Review Team Vickie Skvarka / Debra Olson Pennsylvania Department of Health</p>
<p>Indiana County Child Death Review Team Paula McClure Indiana County Children and Youth Services</p>	<p>Mercer County Child Death Review Team Teri Swartzbeck Mercer County Children and Youth Services</p>
<p>Jefferson/Clearfield Counties Child Death Review Team See Clearfield/Jefferson</p>	<p>Mifflin County Child Death Review Team Nicole M Patkalitsky / Mackienz Seiler Mifflin County Children and Youth Services</p>
<p>Juniata County Child Death Review Team Penni Abram Juniata County Children, Youth and Families</p>	<p>Monroe County Child Death Review Team Amy Kirkwood-Albert / Melissa Smith Pocono Medical Center</p>

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<p>Montour County Child Death Review Team Scott Lynn Montour County Coroner's Office</p>	<p>Tioga County Child Death Review Team Patricia Riehl Tioga County Human Services</p>
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<p>Northumberland County Child Death Review Team Melissa DeBaro Geisinger Child Advocacy Center</p>	<p>Venango County Child Death Review Team Diana Erwin Pa. Department of Health</p>
<p>Perry County Child Death Review Team Shelley Dreyer-Aurila Perry County Family Center, Inc.-Safe Kids</p>	<p>Warren County Child Death Review Team – See Forest and Warren County Child Death Review Team</p>
<p>Philadelphia County Child Death Review Team David Bissell / Roy Hoffman Philadelphia Department of Public Health</p>	<p>Washington County Child Death Review Team Jennifer Lytton Washington County Children and Youth Services</p>
<p>Pike County Child Death Review Team Kevin Stroyan / Jill D. Gamboni Pike County Coroner's Office (Mr. Stroyan), and Pike-Safe Kids (Ms. Gamboni)</p>	<p>Wayne County Child Death Review Team Edward Howell Wayne County Coroner's Office</p>
<p>Potter County Child Death Review Team Joy E Glassmire / Colleen Wilber Potter County Human Services</p>	<p>Westmoreland County Child Death Review Team Tracy Cremonese Westmoreland County Juvenile Probation</p>
<p>Schuylkill County Child Death Review Team Kathy Quick / Liz Pysher B.S., TL Schuylkill County Mental Health and Developmental Services (Ms. Quick) and Schuylkill County Crisis Intervention (Ms. Pysher)</p>	<p>Wyoming County Child Death Review Team – See Susquehanna and Wyoming County Child Death Review Team</p>
<p>Snyder County Child Death Review Team Heather Keister County of Snyder District Attorney's Office</p>	<p>York County Child Death Review Team Sheila Becker / David Turkewitz York Hospital</p>
<p>Somerset County Child Death Review Team Doug Walters / Shannon Berkey Somerset County Children and Youth</p>	
<p>Sullivan County Child Death Review Team Wendy Hastings Sullivan County Coroner's Office</p>	

National and State Prevention Partners

- American Psychiatric Nurses Association
- American Foundation for Suicide Prevention
- American Trauma Society, PA Division
- Bureau of Emergency Medical Services
- California University of Pennsylvania
- Clean Air for Healthy Children
- Consumer Product Safety Commission
- Cribs for Kids
- Pa. Department of Health, Bureau of Drug and Alcohol Programs
- Pa. Department of Health, Bureau of Family Health
- Pa. Department of Health, Bureau of Emergency Medical Services
- Pa. Department of Health, Bureau of Health Promotion and Risk Reduction
- Pa. Department of Public Welfare, Office of Mental Health and Substance Abuse Services
- Pa. Department of Public Welfare , Office of Children, Youth and Families, ChildLine
- FICAP – Firearm and Injury Center at Penn
- Gateway Health Plan
- Geisinger Medical Center
- Juvenile Court Judges’ Commission
- Keystone Smiles
- Lancaster County Cooperative Extension
- Milton S. Hershey Medical Center
- National Center for Child Death Review
- Nurse Family Partnership
- Office of Juvenile Justice
- Pa. Coalition Against Rape
- Pa. Academy of Family Physicians
- Pa. Chapter of Children’s Advocacy Centers
- PA Chapter, American Academy of Pediatrics
- Pa. Council of Children, Youth and Family Services
- Pa. Council of Churches
- Pa. Department of Agriculture, Bureau of Plant Industry
- Pa. Office of Rural Health
- Safe Kids Pennsylvania
- Pa. State Grange
- Pa. State Police, Bureau of Criminal Investigation
- Parents Involved Network of PA
- Pa. Department of Education – Postsecondary/Higher Education
- Pa. Emergency Health Services Council
- Penn State Agricultural Safety and Health



National and State Prevention Partners

- Penn State Milton Hershey Medical Center, Shaken Baby Syndrome Prevention and Awareness Program
- Pennsylvania State University, Pesticide Education
- PennDOT Bureau of Highway Safety and Traffic
- PennSERVE
- Pa. Department of Corrections
- Pa. Office of the State Fire Commissioner
- Pennsylvania Network for Student Assistance
- Pennsylvania Operation Lifesaver
- Pennsylvania Psychiatric Society
- Pennsylvania State Police
- Pennsylvania Youth Suicide Prevention Initiative
- Pennsylvanians Against Underage Drinking
- Philadelphia Medical Examiner's Office
- Pinnacle Health/Hospice
- SIDS of Pa.
- Trauma Systems Foundation
- University of Pennsylvania, Department of Biostatistics and Epidemiology
- U.S. Consumer Product Safety Commission

PUBLIC HEALTH CHILD DEATH REVIEW ACT - ENACTMENT
Act of Oct. 8, 2008, P.L. 1073, No. 87 Cl. 35
AN ACT

Providing for child death review.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Short title.

This act shall be known and may be cited as the Public Health Child Death Review Act.

Section 2. Definitions.

The following words and phrases when used in this act shall have the meanings given to them in this section unless the context clearly indicates otherwise:

"Child." An individual 21 years of age and under.

"Child death review data collection system." A data collection system approved by the National MCH Center for Child Death Review or a similar national organization.

"Department." The Department of Health of the Commonwealth.

"Local public health child death review team." A team representing a county or two or more counties comprised of professionals from organizations and local agencies who review cases of child deaths in accordance with protocols established by the State public health child death review team.

"Person in interest." A person authorized to permit the release of the medical records of a deceased child.

"Program." The Public Health Child Death Review Program established in section 3.

"State public health child death review team." A State multidisciplinary team comprised of local professionals and representatives of State agencies who review data submitted by local public health child death review teams, develop protocols for child death reviews and develop child death prevention strategies.

Section 3. Public Health Child Death Review Program.

(a) Establishment.--The department shall establish the Public Health Child Death Review Program which shall facilitate State and local multiagency, multidisciplinary teams to examine the circumstances surrounding deaths in this Commonwealth for the purpose of promoting safety and reducing child fatalities.

(b) Powers and duties.--The department, in cooperation with the State public health child death review team, shall have the following powers and duties in relation to the program:

(1) Assist in the establishment and coordination of local public health child death review teams.

(2) Coordinate the collection of child death data, including the development and distribution of a form to be used by local public health child death review teams to report information and procedures for sharing the data with State and local agencies as appropriate.

(3) Develop protocols to be used in the review of child deaths. These protocols shall not conflict with requirements set forth in 23 Pa.C.S. Ch. 63 (relating to child protective services), including, but not limited to, provisions relating to the review of child fatalities and near fatalities.

(4) Provide training and technical assistance to local public health child death review teams, local agencies and individuals relating to child deaths.

(5) Review reports from local public health child death review teams.

6) Identify best prevention strategies and activities, including an assessment of the following:

- (i) Effectiveness.
- (ii) Ease of implementation.
- (iii) Cost.
- (iv) Sustainability.
- (v) Potential community support.
- (vi) Unintended consequences.

(7) Adopt programs, policies, recommendations and strategies based on collected data to prevent child deaths.

(8) Review statutes and regulations relating to confidentiality and access to information relating to children from agencies responsible for the health and safety of children and propose recommended changes to appropriate Commonwealth agencies and the General Assembly.

(9) Provide public information and education regarding the incidence and causes of child injury and death and the reduction of risks to children to agencies, health care professionals, child care professionals and the public.

(10) Submit an annual report to the Governor and the General Assembly by September of each year relating to the activities of the State child death review team, a summary of reports received from local child death review teams and recommendations relating to the reduction of risk of child injury or death.

Section 4. State public health child death review team.

(a) Composition.--A State public health child death review team shall be established by the department. The team shall consist of:

- (1) The following individuals or their designees:
 - (i) The Secretary of Health, who shall serve as chairman.
 - (ii) The Secretary of Public Welfare.
 - (iii) The Director of the Office of Children, Youth and Families within the Department of Public Welfare.
 - (iv) The Commissioner of the Pennsylvania State Police.
 - (v) The Attorney General.
 - (vi) The Pennsylvania State Fire Commissioner.
 - (vii) The Director of the Bureau of Emergency Medical Services of the Department of Health.
- (2) The following individuals who shall be appointed by the Secretary of Health:
 - (i) A physician who specializes in pediatric medicine.
 - (ii) A physician who specializes in family medicine.
 - (iii) A representative of local law enforcement.
 - (iv) A medical examiner.
 - (v) A district attorney.
 - (vi) A coroner.
- (3) Representatives from local public health child death review teams.
- (4) Any other individual deemed appropriate by the Secretary of Health.

(b) Powers and duties of the State public health child death review team.--The State public health child death review team shall:

- (1) Review data submitted by local public health child death review teams.
- (2) Develop protocols for child death reviews.
- (3) Develop child death prevention strategies.
- (4) Assist the department in implementing the program.

(c) Initial meeting.--The initial meeting of the State public health child death review team shall be held within 90 days of the effective date of this section.

(d) Additional meetings.--The department, in conjunction with the team, shall arrange for additional meetings to fulfill the duties of the team and goals of the program.

Section 5. Local public health child death review teams.

(a) Establishment.--Each county in this Commonwealth shall establish a local public health child death review team. Two or more counties may establish a local public health child death review team to operate on a regional basis to satisfy the requirements of this section.

(b) Local public health child death review team.—Local teams shall be comprised of the following:

- (1) The director of the county children and youth agency or a designee.
- (2) The district attorney or a designee.
- (3) A representative of local law enforcement appointed by the county commissioners.
- (4) A representative of the court of common pleas appointed by the president judge.
- (5) A physician who specializes in pediatric or family medicine appointed by the county commissioners.
- (6) The county coroner or medical examiner.
- (7) A representative of emergency medical services selected jointly by the supervisors of all emergency medical organizations in the county.
- (8) The director of a local public health agency or a designee.
- (9) Any other person deemed appropriate by a majority of the local public health child death review team.

(c) Chairman.--The members of the local public health child death review team shall elect a chairman annually.

Section 6. Powers and duties of local public health child death review teams.

(a) Review.--A local public health child death review team shall review all deaths of children and may review the following information:

- (1) Coroner's reports or postmortem examination records.
- (2) Death certificates and birth certificates.
- (3) Law enforcement records and interviews with law enforcement officials as long as the release of such records will not jeopardize an ongoing criminal investigation or proceeding.
- (4) Medical records from hospitals and other health care providers.
- (5) Information and reports made available by the county children and youth agency in accordance with 23 Pa.C.S. Ch. 63 (relating to child protective services).
- (6) Information made available by firefighters or emergency services personnel.
- (7) Reports and records made available by the court to the extent permitted by law or court rule.
- (8) Reports to animal control.
- (9) EMS records.
- (10) Traffic fatality reports.
- (11) Any other records necessary to conduct the review.

(b) Data collection.--The local public health child death review team shall utilize the child death review data collection system to report its findings in accordance with protocols established by the State public health child death review team. The name and home address of the deceased child shall not be reported to the child death review data collection system.

c) Reports.--A local public health child death review team shall submit annual reports on deaths reviewed to the State public health child death review team. The report shall include the following:

- (1) Identification of factors which cause a risk for injury and death, including modifiable risk factors.
- (2) Recommendations regarding the following:
 - (i) The improvement of health and safety policies in this Commonwealth.
 - (ii) The coordination of services and investigations by child welfare agencies, medical officials, law enforcement and other agencies.
- (3) Any other information required by the department.

(d) Recommendations.--A local public health child death review team shall make recommendations to local agencies relating to the procedures and other actions to reduce injury and death of children.

Section 7. Access to records.

(a) Juvenile records.--When deemed necessary for its review, a State or local public health child death review team may review and inspect all files and records of the court relating to a child pursuant to a proceeding under 42 Pa.C.S. Ch. 63 (relating to juvenile matters) in accordance with 42 Pa.C.S. § 6307 (relating to inspection of court files and records). However, this subsection shall not apply to files and records of the court subject to a child fatality or near fatality review pursuant to 23 Pa.C.S. Ch. 63 (relating to child protective services).

(b) Medical records.--Notwithstanding any other provision of law and consistent with the Health Insurance Portability and Accountability Act of 1996 (Public Law 104-191, 110 Stat. 1936), health care facilities and health care providers shall provide medical records of a child under review without the authorization of a person in interest to the State public health child death review team and to a local public health child death review team for purposes of review under this act.

(c) Other records.--Other records pertaining to the child under review for the purposes of this act shall be open to inspection as permitted by law.

Section 8. Confidentiality.

(a) Maintenance.--State and local public health child death review teams shall maintain the confidentiality of any identifying information obtained relating to the death of a child, including the name of the child, guardians, family members, caretakers or alleged or suspected perpetrators of abuse, neglect or a criminal act.

(b) Agreement.--Each member of the State and local public health child death review team and any person appearing before the team shall sign a confidentiality agreement applicable to all proceedings and reviews conducted by the State or local public health child death review team.

(c) Liability.--An individual or agency that in good faith provides information or records to a State or local public health child death review team shall not be subject to civil or criminal liability as a result of providing the information or record.

(d) Discovery.--The proceedings, deliberations and records of a State or local public health child death review team are privileged and confidential and shall not be subject to discovery, subpoena or introduction into evidence in any civil or criminal action.

(e) Meetings.--Meetings of the State or local public health child death review team at which a specific child death is discussed shall be closed to the public and shall not be subject to the provisions of 65 Pa.C.S. Ch. 7 (relating to open meetings).

(f) Attendance.--Nothing in this act shall prevent a State or local public health child death review team from allowing the attendance of a person, including a parent, with information.



relevant to a review, at a child death review meeting.

(g) Penalty.--A person who violates the provisions of this section commits a misdemeanor of the third degree.

Section 20. Regulations.

The department shall promulgate regulations as necessary to carry out the purposes of this act.

Section 21. Effective date.

This act shall take effect in 90 days.

Technical Notes

Definitions of Terminology and Rates

The following are definitions of terminology and rates that appear in this report:

Terminology:

Infant Death – Death of an infant under 1 year of age

Neonatal Death – An infant death occurring within the first 27 days of life

Postneonatal Death – An infant death occurring at one month (28 days) to 364 days of age

Rates:

Infant Mortality Rate - Deaths among infants under 1 year of age per 1,000 live births.

(Total deaths among infants under 1 year of age/total live births) x 1000

Infant and Cause-Specific Mortality Rate – Deaths among infants under 1 year of age due to a specific cause per 1,000 live births

(Total deaths among infants under 1 year of age due to a specified cause /total live births) x 1000

Neonatal Mortality Rate – Deaths among infants under 28 days of age per 1,000 live births

(Total deaths among infants <28 days of age/total live births) x 1000

Postneonatal Mortality Rate – Deaths among infants aged 1 month (28 days) to 364 days per 1,000 live births.

(Total deaths among infants 28–364 days of age/total live births) x 1000

Cause of Death International Classification of Diseases (ICD) Codes:

The International Classification of Diseases codes for the selected causes of death shown in this report are as follows:

<u>Cause of Death</u>	<u>ICD-10</u>
Accidental Poisoning and Exposure to Noxious Substances	X40-X49
Aircraft Accident	V95-V97
All Terrain and Off-Road Vehicle Rider	V86

Cause of Death**ICD-10**

Assault (Homicide)	U01-U02, X85-Y09, Y87.1
Assault (Homicide) by Firearm	U01.4, X93-X95
Assault (Homicide) by Other Means	U01.0-U01.3, U01.5-U02.9, X85-X92, X96-Y09, Y87.1
Driver of Vehicle (car, truck, van)	V40.5, V41.5, V42.5, V43.5, V44.5, V45.5, V46.5, V47.5, V48.5, V49.5, V50.5, V51.5, V52.5, V53.5, V54.5, V55.5, V56.5, V57.5, V58.5, V59.5
Drowning and Submersion	W65-W74
Falls	W00-W19
Intentional Self-harm (Suicide)	X60-X84, Y87.0, U03
Intentional Self-harm (Suicide) by Firearm	X72-X74
Intentional Self-harm (Suicide) by Other Means	X60-X71, X75-X84, Y87.0, U03
Legal Intervention	Y35, Y89.0
Motorcyclist	V20-V29
Motor Vehicle Accidents	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20- V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0- V87.8, V88.0-V88.8, V89.0, V89.2
Other Non-Transport Accidents	W20-W64, W75-W99, X10-X39, X50-X59, Y86
Other Transport Accidents	V01, V05-V06, V15-V18, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V09.1, V09.3-V09.9, V10-V11, V19.3, V19.8-V19.9, V80.0-V80.2, V87.9, V88.9, V89.1, V89.3, V89.9, V90-V99, Y85
Passenger of Vehicle (car, truck, van)	V40.6, V41.6, V42.6, V43.6, V44.6, V45.6, V46.6, V47.6, V48.6, V49.6, V50.6, V51.6, V52.6, V53.6, V54.6, V55.6, V56.6, V57.6, V58.6, V59.6
Pedal Cyclist	V10-V19
Pedestrian (collision with car, truck, van)	V03
Pedestrian (collision with train)	V05
Smoke, Fire and Flames	X00-X09

Cause of Death

ICD-10

Sudden Infant Death Syndrome (SIDS)

R95

Sudden Unexplained Infant Deaths (SUID)

R95, R99, W75

Undetermined Intent

Y10-Y34, Y87.2, Y89.9

Unspecified Transport Accident

V98-V99

Watercraft Accident

V90-V94

¹ Underlying Cause of Death: The underlying cause of death is either the disease or injury that initiated the train of morbid events leading directly to death or the circumstances of the accident or violence that produced the fatal injury. The underlying cause of death is the one to be adopted as the cause for tabulation or mortality statistics. Source: Handbook of Vital Statistics Systems and Methods, Volume 1: Legal Organizational and Technical Aspects, United Nations Studies in Methods, Glossary, Series F, No. 35, United Nations, New York 1991

² CDC – Reproductive Health: Preterm Birth. Retrieved June 10, 2015 from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm>. Page last updated: December 23, 2014

³ CDC - National Prematurity Awareness Month. Retrieved June 10, 2015 from <http://www.cdc.gov/Features/Prematurebirth/>. Page last updated: November 10, 2014

⁴ March of Dimes. Prematurity: The serious problem of premature birth. Retrieved August 8, 2014 from <http://www.marchofdimes.com/mission/prematurity-campaign.aspx>

⁵ CDC – National Center for Health Statistics (CDC/NCHS), National Vital Statistics System, Compressed Mortality File for 2013. Retrieved June 10, 2015 from <http://www.cdc.gov/sids/data.htm> . Page last updated : May 11, 2015. Content Source: Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion.

⁶ Task Force on Sudden Infant Death Syndrome. (2011). SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment. Pediatrics, Vol. 128 (5), November 1, 2011. pp. e1341-e1367. Available from URL: <http://pediatrics.aappublications.org/cgi/doi/10.1542/peds.2011-2284>

⁷ Substance Abuse and Mental Health Services Administration. Results from the 2010 National Survey on Drug Use and Health: volume 1: summary of national findings. Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies; 2011. Available from URL: <http://oas.samhsa.gov/NSDUH/2k10NSDUH/2K10Results.htm#2.16>

⁸ The Pennsylvania Medical Society. *Pennsylvania Releases Guidelines for Physicians on Use of Prescription Opioids*. July 10, 2014. Located at: www.pamedsoc.org/FunctionalCategories/About/Media/Prescription-Opioids.html

⁹ Substance Abuse and Mental Health Services Administration, *Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings*, NSDUH Series H-48, HHS Publication No. (SMA) 14-4863. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014.

¹⁰ The Pennsylvania Medical Society. *Prescription Drug Database Soon a Reality for PA Physicians*. Accessed on 1/13/2015 online at: www.pamedsoc.org/database

¹¹ Arnett J. Reckless behavior in adolescence: a developmental perspective. Dev Rev 1992. 12339-373.373.

¹² Jessor R, Turbin M S, Costa F M. Predicting developmental change in risky driving: the transition to young adulthood. Applied Developmental Science 1997. 14–16.16.

¹³ Centers for Disease Control and Prevention (CDC). Web-based Injury Statistics Query and Reporting System (WISQARS) [Online]. (2013) National Center for Injury Prevention and Control, CDC (producer). Available from URL www.cdc.gov/injury/wisqars/index.html.

¹⁴ Coker TR, Austin SB, Schuster MA. The health and health care of lesbian, gay, and bisexual adolescents. *Annual Review of Public Health* 2010;31:457–477.

¹⁵ The Centers for Disease Control and Prevention. Content Source: National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health. Retrieved August 18, 2014 from: <http://www.cdc.gov/lgbthealth/youth.htm>



**Karen Murphy, Ph.D, RN
Secretary of Health**

The department's mission is to promote healthy lifestyles, prevent injury and disease, and to assure the safe delivery of quality health care for all commonwealth citizens.