Ohio Child Fatality Review Fourteenth Annual Report

This report includes reviews of child deaths that occurred in 2012 and aggregate reviews for 2008-2012.

MISSION
To reduce the incidence of preventable child deaths in Ohio

SUBMITTED SEPTEMBER 30, 2014, TO
John R. Kasich, Governor, State of Ohio
William G. Batchelder, Speaker, Ohio House of Representatives
Keith Faber, President, Ohio Senate
Tracy Maxwell Heard, Minority Leader, Ohio House of Representatives
Joe Schiavoni, Minority Leader, Ohio Senate
Ohio Child Fatality Review Boards
Ohio Family and Children First Councils

SUBMITTED BY
Ohio Department of Health
Ohio Children's Trust Fund

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DEDICATION

This report is made possible by many committed professionals in every community throughout the State of Ohio. With a desire to protect and improve the lives of young Ohioans, they have committed themselves to gaining a better understanding of how and why children die. Each child's death represents a tragic loss for the family, as well as the community. With deepest sympathy, we respectfully dedicate this report to the memory of these children and to their families.

ACKNOWLEDGEMENTS

This report is made possible by the support and dedication of more than 500 community leaders who serve on Child Fatality Review (CFR) boards throughout the State of Ohio. Acknowledging that the death of a child is a community problem, members of the CFR boards step outside zones of personal comfort to examine all of the circumstances that lead to child deaths. We thank them for having the courage to use their professional expertise to work toward preventing future child deaths.

We also extend our thanks to the Ohio Child Fatality Review Advisory Committee members. Their input and support in directing the development of CFR in Ohio has led to continued program improvements.

We acknowledge the generous contributions of other agencies in facilitating the CFR program including the Ohio Children's Trust Fund; the Ohio Department of Health (ODH), divisions of Family and Community Health Services and Prevention and Health Promotion, and Bureau of Healthy Ohio; state and local vital statistics registrars; and the National Center for the Review and Prevention of Child Death.

The collaborative efforts of all of these individuals and their organizations ensure Ohio children can look forward to a safer, healthier future.

Dear Friends of Ohio Children:

On behalf of the Ohio Child Fatality Review (CFR) boards, we respectfully present the Fourteenth Annual Ohio CFR Report containing summative information from reviews of child deaths that occurred in calendar year 2012. Comprehensive summary data pertaining to child deaths from the five-year period of 2008 to 2012 is also included in this report. Collectively, this data provides a descriptive overview of why children are dying throughout the state, and demonstrates how local CFR boards and state agencies work to identify initiatives to decrease preventable child deaths. We are hopeful that this report will serve as a catalyst, informing the Ohio community of the prevalence of untimely and preventable child deaths throughout the state while raising awareness of this cause.

Established by the Ohio General Assembly in July 2000, the CFR program works to examine the contributing factors of children's deaths in Ohio. By carefully reviewing child deaths, we are able to better prepare to prevent future deaths. The annual report serves as a mechanism to increase awareness of preventable child deaths and provide the community with a better understanding of prevention initiatives by tracking progress annually, to ensure we are continually evaluating the health and well-being of our state's children.

At the local level, the CFR process begins with local boards, consisting of professionals from public health, children's services, recovery services, law enforcement, and health care, reviewing circumstances surrounding every child death in their county. Through their collective expertise and collaborative assessment, possible prevention solutions and initiatives are developed throughout the state.

The prevention of untimely child deaths requires a collective effort. All of us must work together by:

- Educating families, children, neighbors, organizations and communities on preventable child deaths.
- Encouraging community and individual involvement in recognizing and preventing risk factors that contribute to child deaths.
- Assisting and supporting families to achieve healthy parenting practices through education and resources.
- Empowering individuals to intervene in situations where violence and neglect harm children.
- Improving systems of care so all children receive optimal health care before and after birth, and throughout their lives.

As you read this report, we encourage you to consider the facts, analysis and recommendations presented and make a commitment to create a safer and healthier Ohio for our children. Only *together* can we eliminate preventable child deaths.

Sincerely,

Richard Hodges, MPA
Director
Ohio Department of Health

Kristen Rost
Executive Director
Ohio Children's Trust Fund

Ohio Child Fatality Review

EXECUTIVE SUMMARY

The 2014 Child Fatality Review (CFR) Annual Report presents information from the reviews of deaths that occurred in 2012, as well as a summary of the data for deaths that occurred from 2008 to 2012.

Every child's death is a tragic loss for the family and community. Through careful review of these deaths, we are better prepared to prevent future deaths.

The Ohio CFR program was established in 2000 by the Ohio General Assembly in response to the need to better understand why children die. The law mandates CFR boards in each of Ohio's counties (or regions) to review the deaths of all children younger than 18. Ohio's CFR boards are composed of multidisciplinary groups of community leaders. Their careful review process results in a thorough description of the factors related to child deaths.

In 2005, Ohio CFR boards began using a new case report tool and data system developed by the National Center for Child Death Review. The tool and data system underwent revisions in 2007, 2010, 2011 and 2013, based on feedback from users. As a result, the revised tool more clearly captures information about the factors related to each child death and better documents the often complex conversations that happen during the review process.

The comprehensive nature of the case report tool and the functionality of the data system have allowed more complete analysis for all groups of deaths. Each section of this report contains detailed data regarding the circumstances and factors related to child deaths. The sections offer in-depth information about identified groups of deaths by age group and by special circumstances such as suicides, homicides and child abuse deaths, demonstrating the potential of data analysis combined with the review process to identify risk factors and to give direction for prevention activities.

CFR does make a difference. In addition to the Prevention Initiatives on page 11, local and state initiatives impacted by the CFR process, findings and data are highlighted throughout the report in rounded teal-colored text boxes. These collaborations, partnerships and activities are proof that communities are aware that knowledge of the facts about a child death is not sufficient to prevent future deaths. The knowledge must be put into action.

The mission of CFR is to reduce the incidence of preventable child deaths in Ohio. Through the process of local reviews, communities and the state acknowledge that the circumstances involved in most child deaths are too complex and multidimensional for responsibility to rest with a single individual or agency. The CFR process has raised the collective awareness of all participants and has led to a clearer understanding of agency responsibilities and possibilities for collaboration on all efforts addressing child health and safety. It is only through continued collaborative work that we can hope to protect the health and lives of our children.

Key Findings

Ohio's 88 local CFR boards reported 1,490 reviews of 2012 child deaths that were used for analysis for this report. This represents 96 percent of all 1,551 child deaths for 2012 reported in data from Ohio vital statistics. Deaths that were not reviewed include cases still under investigation or involved in prosecution and out-of-state deaths reported too late for thorough reviews.

Black children and boys of all races died at disproportionately higher rates than white children and girls of all races for most causes of death. Thirty-one percent (466) of deaths reviewed were to black children and 57 percent (843) were to boys of all races. Their representation in the general population is 15 percent for black children and 51 percent for boys of all races.

Reviewed cases are categorized by manner and by cause of death. Manner of death is a classification of deaths based on the circumstances surrounding a cause of death and how the cause came about. The five manner of death categories on the Ohio death certificate are natural, accident, homicide, suicide or undetermined/pending/unknown.

- Natural deaths accounted for 71 percent (1,054) of all deaths reviewed.
- Accidents (unintentional injuries) accounted for 13 percent (195) of the deaths.
- Homicides accounted for 5 percent (76) of the deaths.
- Suicides accounted for 4 percent (53) of the deaths.
- Eight percent (112) of deaths reviewed were of an undetermined, pending or unknown manner.

Seventy-one percent (1,057) of the deaths reviewed were due to medical causes.

- Seventy-eight percent (822) of deaths due to medical causes were to infants less than 1 year of age.
- The most frequent medical cause of death was prematurity (470, including one child older than 1 year).

Twenty-three percent (347) of all deaths reviewed resulted from external causes.

- Asphyxia was the leading cause of death from external causes. Seven percent (106) of all deaths reviewed were from asphyxia, including suffocation, strangulation and choking. Sixty-one percent of the deaths (67) were children less than 1 year of age, 60 of which occurred in a sleep environment. All but three of the 38 asphyxia deaths to children 10 to 17 years old (92 percent) were suicides.
- Weapons, including body parts used as weapons, accounted for 5 percent (75) of all deaths reviewed. Fifty-seven percent (43) were youth 10 to 17 years of age and 37 percent (28) were black children. The manner of death was accident for only two of the weapons deaths.
- Vehicular deaths accounted for 5 percent (74) of all deaths reviewed. Of the 42 deaths that occurred in cars, trucks, vans or SUVs, only 38 percent (16) of the children killed were reported to be using appropriate restraints.
- Less than two percent (29) of all deaths reviewed were from drowning and submersion. Seventy-nine percent (23) of the drowning deaths were to children under 5 years of age.
- Poisoning deaths represented 1 percent (16) of all deaths reviewed. Sixty-three percent (10) of poisoning deaths occurred to children 10 to 17 years old.
- Fire, burn and electrocution accounted for 1 percent (15) of all deaths reviewed. Of the 14 structure fires, reviews indicated only one had a working smoke detector.

Deaths to infants younger than 1 year accounted for 68 percent (1,005) of the reviews.

- Infants less than 1 month old accounted for 68 percent (682) of all infant deaths and 46 percent of all deaths reviewed. Forty-one percent (417) of the infant deaths occurred within the first day of

life.

- Prematurity was the most frequent cause of infant deaths, accounting for 47 percent (469).
- Congenital anomalies accounted for 14 percent (144) of all infant deaths.
- For 864 reviews where gestational age was known, 69 percent (594) of the infants were born preterm (before 37 weeks gestation). Fifty-three percent (458) were born before 30 weeks gestation.
- Sleep-related deaths (including sudden infant death syndrome or SIDS) accounted for 15 percent (153) of the 1,005 total reviews for infant deaths in 2012, more than any single cause of death except prematurity. Forty-two percent (64) of sleep-related deaths were to black infants, which is disproportionate to their representation in the Ohio infant population (17 percent). Sixty percent (91) of the sleep-related deaths occurred in locations considered unsafe such as in adult beds and on couches. Fifty-five percent (84) occurred to infants who were sharing a sleeping surface (bedsharing) with someone else at the time of death.
- SIDS accounted for less than 2 percent (13) of the 1,005 total reviews for infant deaths. At least 38 percent (5) of SIDS victims were exposed to smoke in utero or after birth.

Five percent (76) of all deaths reviewed resulted from homicide.

- Homicide deaths to boys (66 percent) and black children (41 percent) were disproportionately higher than their representation in the general population (51 percent for boys and 15 percent for black children).
- Fifty percent (38) of homicide deaths were to children younger than 5 years. Twenty-six percent (20) were to children 15-17 years old.

Four percent (53) of all deaths reviewed resulted from suicide.

- Suicides represent 20 percent of all reviews for children ages 10 to 17.
- Suicide deaths among boys (91 percent) were disproportionately higher than their representation in the general population (51 percent).
- Forty percent (21) of the suicide deaths indicated the child had received prior mental health services.

Local CFR boards reviewed 34 deaths to children resulting from child abuse and neglect in 2012. These represent 2 percent of all 1,490 deaths reviewed.

- Twenty-nine of the 34 reviews indicated that physical abuse caused or contributed to the death, while nine reviews indicated that neglect caused or contributed to the death.
- All but three of the reviews were for children younger than 5 years.

Of the 1,490 deaths reviewed, CFR boards determined 24 percent (350) were probably preventable.

- Ninety percent (175) of accidental deaths were deemed probably preventable.
- Fifty-four percent (81) of deaths to children 15 to 17 years of age were deemed probably preventable.

For the five-year period 2008-2012, 7,877 deaths were reviewed, which represents 97 percent of the 8,136 child deaths reported by Ohio vital statistics.

- The mortality rate for Ohio children has decreased from 64 deaths per 100,000 population in 2008 to 58 in 2012. The mortality rate has decreased 13 percent since Ohio CFR was established in 2000.
- The percentage of deaths from external causes due to asphyxia has increased from 28 percent in 2008 to 32 percent in 2012. Asphyxia is now the leading external cause of death for children.
- The percentage of deaths from external causes due to vehicular crashes decreased from 27 percent in 2008 to 21 percent in 2012.

The reviews for the five-year period were analyzed by age group.

- Fifty-nine percent (302) of the infant deaths due to external causes were due to asphyxia.
- Vehicular crashes were the leading external cause of death for children older than 1 year, accounting for thirty-two percent (428) of the 1,338 reviews for external causes for children older than 1 year.
    - Nineteen percent (65) of the 350 reviews for external causes for children 1 to 4 years old were due to vehicular crashes.
    - Forty percent (58) of the 145 reviews for external causes for children 5 to 9 years old were due to vehicular crashes.
    - Thirty-three percent (80) of the 241 reviews for external causes for children 10 to 14 years old were due to vehicular crashes.
    - Thirty-seven percent (224) of the 602 reviews for external causes for children 15 to 17 years old were due to vehicular crashes.

Local CFR boards continue to make numerous recommendations for prevention and share their recommendations and findings with others in the community. More than half of the 88 counties shared information about local prevention initiatives and activities that have resulted from the CFR process in 2012.

Limitations

Calculation of rates is not appropriate with Ohio's CFR data because not all child deaths are reviewed. Instead of rates, CFR statistics have been reported as a proportion of the total reviews. This makes analysis of trends over time difficult, as an increase in the proportion of one factor will result in a mathematical decrease in the proportion of other factors. Complex analysis is needed to determine if such changes in proportion represent true trends in the factors of child deaths.

For this report, cases with multiple races indicated were assigned to the race that represents the least proportion of the general child population of Ohio. For example, if a case indicated both black and Asian, the case was assigned to Asian, because the proportion of Asian children is less than the proportion of black children in Ohio.

The CFR case report tool and data system record Hispanic ethnicity as a variable separate from race. A child of any race may be of Hispanic ethnicity.

The ICD-10 codes used for classification of vital statistics data in this report were selected to most closely correspond with the causes of death indicated on the CFR Case Report Tool and may not match the codes used for some causes of death in other reports or data systems. The codes used for this report can be found in the appendices.

Since the inception of statewide data collection in 2001, Ohio CFR has used two different data systems, and the latest system has undergone improvements and revisions. Because of the differences in data elements and classifications, data in this annual report may not be comparable to data in previous reports. In-depth evaluation of contributing factors associated with child deaths is limited in some cases by small cell numbers and lack of access to relevant data.

Of the 1,551 deaths of Ohio children in 2012, about 3 percent (38) occurred out-of-state. The first step of the review process, identification of a child death, is difficult when the death occurs out-of-state. Death certificates are recorded in the state where the death occurs and a process is not in place to routinely notify the county of residence for a timely review. This is a particular problem in rural Appalachian counties such as Lawrence County, where 71 percent of the child deaths occurred outside Ohio. By contrast, less than 2 percent deaths to children of the twelve metropolitan counties died out-of-state. The state coordinator continues to work with the Ohio Vital Statistics to improve the timely notification of out-of-state deaths.

PREVENTION INITIATIVES

As stated within the 2000 law that established the Ohio Child Fatality Review (CFR), the mission of CFR is to prevent child deaths. Goals for local CFR boards include making recommendations and developing plans for implementing local service and program changes for prevention of future deaths. CFR boards must share their findings and recommendations and engage partners for action. Recommendations become initiatives only when resources, priorities and authority converge to make change happen. Again this year, more than half of the counties reported more than 100 examples of successful implementation of CFR recommendations. In addition to the sample of prevention initiatives listed here, additional local and state initiatives impacted by the CFR process, findings and data are highlighted throughout the report in rounded teal-colored text boxes.

SIDS and Sleep-related Deaths

The largest number of initiatives reported deal with reducing the risk of sudden infant death syndrome (SIDS) and other sleep-related deaths. A variety of programs target minority families, grandparents, caregivers, health professionals and the whole community with risk reduction messages that include Back to Sleep, and the risks of inappropriate bedding and bedsharing. Many of these initiatives are on-going, being incorporated into existing programs such as prenatal clinics, Help Me Grow (HMG) and Special Supplemental Food Program for Women, Infants and Children (WIC). Efforts to reach the whole community include the use of billboards, displays at fairs and festivals and distribution of educational materials at popular sites for families such as zoos, playgrounds and family restaurants. Agency policies are adapted to institutionalize practices that reinforce safe sleep behaviors.

- Several counties including **Clermont, Mahoning, Preble and Trumbull** reported updating agency policies, activities and materials to align with the ODH Infant Feeding and Infant Safe Sleep Policies.
- In addition to providing safe sleep education in health department clinics, **Clermont** County expanded its education efforts to local child care centers and pregnancy help centers.
- Most counties are distributing safe sleep information widely through established programs that serve families. Many counties are using the media to spread risk reduction information to the entire community. The **Guernsey** County CFR placed newspaper articles and radio spots regarding safe sleep. **Gallia** County also uses local media resources. **Hardin**, **Lorain** and **Mahoning** counties report using agency websites and social media sites. **Clark** County obtained billboard space for infant safe sleep messaging.
- As part of its ongoing safe sleep campaign, **Montgomery** County partnered with birthing hospitals to ensure education is provided to new parents.
- The **Mahoning** County health district received a grant to partner with WIC to provide safe sleep education in the WIC setting. Post-education surveys indicated 99 percent of the mothers receiving the education reported consistently using a safe sleep environment for their baby.
- Several counties including **Cuyahoga, Franklin, Ross, Trumbull** and **Lorain** are working directly with hospital staff to raise awareness about the importance of role modeling safe sleep practices when educating new parents.
- As part of a county-wide safe sleep campaign, **Perry** County law enforcement agencies implemented "Healthy Babies for Life." Officers were trained to recognize infants in unsafe sleep environments and provide information and resources to create a safe environment. The health department provides follow-up education and assistance with obtaining a crib as necessary.
- The **Franklin** County Infant Safe Sleep Task Force received a grant from the Ohio Injury Prevention Partnership/Child Injury Action Group to educate local child care centers on safe sleep protocols and policies.
- To address the racial disparity in infant deaths, **Summit** County targeted African-American families by partnering with 75 barbershops and hair salons and more 90 African-American churches to distribute safe sleep messages.

- Agencies in many counties such as **Allen, Franklin, Hocking, Lucas, Mahoning,** and **Stark** are designated Cribs 4 Kids® providers. In addition to providing cribs to needy families who participate in a 90-minute class on safe sleep practices, referring agency staff are trained to reinforce the safe sleep messages through their contact with the families.
- **Preble** County conducted focused community education on safe sleep, including educating professionals and organizations that work with families regarding implementation of safe sleep strategies.

Child Abuse and Neglect

The CFR process can identify opportunities for improvement in programs and policies to prevent child abuse and neglect. Responsibility for prevention activities is shared among all the member agencies. The Ohio Children's Trust Fund (OCTF) helps fund community-based primary and secondary child abuse prevention programs using evidence-based curricula in many Ohio counties.

- **Allen** County Children's Services' community prevention program, *Choose Your Partner Carefully: Your Child's Life Depends on It*, is in its fourth year. Developed with community and professional input, a parenting curriculum centers around the program's key questions to prevent the abuse of children at the hands of mothers' partners and other caregivers. The curriculum and materials have been shared with other community agencies and classes enjoy consistent attendance.
- Members of the **Franklin** County CFR developed and presented a curriculum for teaching health professionals in area hospitals to recognize and report child abuse.
- **Lucas** County maintains a Crying Baby Hotline at Mercy Hospital. The hotline allows caregivers to speak to a registered nurse whenever they are frustrated or concerned about a baby that won't stop crying. An assessment is done over the phone to screen for possible health issues. Callers are educated about comforting techniques to soothe their baby. Calls to the hotline increased from 53 in 2012 to 83 in 2013.

Suicide

The need for youth suicide prevention is being addressed as a result of the CFR process. In many counties, CFR findings are shared with county suicide prevention coalitions and task forces to focus on awareness of suicide and develop strategies to reduce the factors that increase the risk of suicide, identify youth at risk and increase the availability of mental health services.

- The **Medina** County CFR held a special meeting to review several suicides that had occurred over a few years. The board included additional mental health agency personnel and public services staff from all the county school districts. The group plans to meet again to develop formal recommendations.
- CFR boards in **Allen, Clark, and Fulton** counties worked directly with suicide task forces or coalitions to provide programs to increase awareness, identify youth at risk, and provide support services.
- The Olweuss bullying prevention program continues to be expanded to more schools in **Clermont** County. The availability of mental health services was increased in the schools.
- In **Lucas** County, Mercy College collaborated with the suicide prevention coalition and others to create "Step Up, Stop Suicide," an event to promote suicide awareness and prevention. The project resulted in a traveling exhibit which is used to promote community and national resources for prevention, education and hope for survivors.
- The **Preble** County CFR recognized the efforts of the "Signs of Suicide" program. This evidence-based program has been expanded to all schools for grades six through twelve.

Vehicular Injuries

Vehicular crashes continue to be a leading cause of injury and death to children. Many local CFR boards were involved in efforts to pass Ohio's Distracted Driving law, which took effect in August 2012. Boards

are active in educating families about the new law, as well as Ohio's Booster Seat law and Graduated Driver License law. In addition to continued efforts in most counties to improve teen driver education and infant car seat programs, local CFR boards are addressing specific issues regarding vehicular deaths in their community.

- **Carroll** County is using a newly acquired SAFE Communities grant to promote safe driving among teens.
- "Parents who Host Lose the Most" campaign is used in **Jackson** County to alert adults to their responsibility to prevent teen access to alcohol when parties are held on their property.
- **Pike** County used a traffic safety grant to focus on distracted driving.
- A partnership with local law enforcement and Safe Communities in **Ross** County emphasized the importance of seat belt use and dangers of distracted driving.

Infant Deaths

Although only 13 percent of infant deaths were deemed preventable, CFR boards recognize the detrimental effects of unhealthy lifestyles and poor prenatal care on the lives of infants. In response to needs identified through the reviews of infant deaths, many counties have launched collaborative efforts to reduce infant mortality. Typical partners include HMG, WIC, Child and Family Health Services projects, local physicians, schools and other health and social service providers.

- The community needs assessment process in **Allen** County resulted in the formation of the community health improvement plan. The plan includes several strategies to improve infant health, including formalized breastfeeding policies for businesses, increasing first trimester and preconception care, and implementing a pathways model to decrease poor birth outcomes. An ongoing maternal and infant health task force was established.
- All women who apply for prenatal benefits at **Hardin** County Job and Family Services are provided information about the importance of early prenatal care and if needed, referrals to local providers. Services are promoted on the health department website.
- **Logan** County has maintained postpartum/newborn home visits. In addition to providing a wide range of education, the home visitor discusses smoking cessation with both parents.
- The local maternity hospital in **Scioto** County continues to screen all newborns for exposure to drugs. Some obstetricians are also doing routine prenatal toxicology screenings.
- **Ross** County is partnering with a local hospital to improve education of new mothers on safety issues for newborns.
- **Preble** County received the 2013 Gold Award for Healthy Ohio Breastfeeding Friendly Employer from ODH and is working with local businesses to implement the Business Case for Breastfeeding throughout the county.
- Several programs in **Lucas** County focus on decreasing repeat teen pregnancies and supporting and educating teen mothers through positive modeling.

Substance Abuse

The misuse and abuse of prescription drugs and other substances harms youth and children, who suffer intentional or accidental overdose and prenatal exposure as well as inadequate care and supervision when adults use. Local CFR boards have joined with other community agencies to combat this epidemic and protect children.

- Based on recommendations from the CFR board, the **Lake** County Child and Family Health Services Advisory Council agreed to promote the "Up and Away" medication safety initiative to educate clients on the importance of proper medication storage and disposal.
- **Clinton** County is working closely with the mental health board to find drug treatment services.
- Drug task forces in **Fayette and Huron** Counties are researching evidence-based perinatal drug prevention programs.
- As risky as drug addiction is, drug remediation therapy is also risky for the fetus. The **Wayne** County

CFR recognized the dangers and strongly recommended that physicians or health care providers who serve women receiving drug abuse therapy should actively encourage and refer these women to appropriate prenatal care.

General Health and Safety

Countywide collaborations and partnerships produced many programs to increase the general health and safety of children.

- At the Amish Health and Safety Day event in **Holmes** County, a presentation of safety equipment for ponds and pools increased awareness of drowning risks and prevention.
- The **Franklin** County CFR developed posters highlighting the "Top 10 Tips for Healthier, Safer Children," based on CFR findings. The posters addressed areas of health and safety for children including safe sleep, prenatal care, smoking cessation, fire and water safety and more.
- The immunizations waiting room in **Mercer** County was used for displays regarding drowning prevention, including a list of area resources for swimming lessons. The immunizations nurse provided written materials on home safety at the six-month and 15-month visits.
- The **Shelby** County health department issued a press release regarding pool safety and drowning risks at the start of the summer season.

Systems Improvements

One of the goals set by Ohio law for CFR is to promote cooperation, collaboration and communication among all groups that serve families and children. The CFR process continues to have a positive impact on participating agencies. Many boards report an increase in cooperation and understanding between participating agencies and some have developed written policies to facilitate communication. The review process stimulates discussion about existing services in communities, identifying gaps in services, access to service barriers, the need to maximize use of existing services and opportunities for increased collaboration.

- A partnership between the **Wood** County health department and children's services resulted in a pilot project to provide health services such as immunizations, physicals and wellness checks for children taken into protective services. Development and genetic screenings are key issues for this vulnerable population.
- The **Warren** County CFR is applying new computer technology to its CFR data to geographically track deaths for better understanding.
- The **Medina** County CFR board organized the meeting agenda by dividing the cases by age group. The initial intent was to allow school personnel to attend and share relevant information without staying for the entire meeting. An unanticipated result was a concentration of the discussion about the infant deaths, leading to requests for additional review input by specialists such as neonatologists. As a result, reviews of infant deaths are more thorough and complete.
- The **Henry** County CFR took the opportunity to involve its members in a discussion based on the *Hartford Consensus: A Call to Action for THREAT*. This article addresses the development of policies to improve the survivability of mass casualty shooting events.
- The **Hamilton** County CFR has streamlined its procedures for collecting records for review and improved documentation of recommendations.
- The goal of **Cuyahoga** County's MomsFirst program is to reduce disparities in infant mortality. Through the efforts of the program leadership concerning perinatal depression, the staff at MetroHealth and the Department of Child and Family Services were trained to screen pregnant and postpartum women for perinatal depression. Care pathways were implemented to ensure that women experiencing perinatal depression are referred to mental health providers.
- The **Morrow** County sheriff and coroner are working together to coordinate the completion of a death scene investigation on all child deaths, which has resulted in increased communication regarding the information needed. Local emergency services and hospitals have been requested to notify the

coroner or sheriff about all child deaths.

The CFR process can reveal broad issues in the community that affect the health and safety of children. Boards are using the life course perspective to consider how social determinants impact the lives of the children whose deaths are being reviewed. **Mercer** County's community health assessment identified obesity as a major health issue impacting infant mortality as well as other health indicators. Strategies to reduce obesity are addressed in the community health improvement plan. The **Muskingum** County CFR noted increased discussion about overarching community conditions such as poverty and racism that contribute to child fatalities.

2014 DATA REPORTING

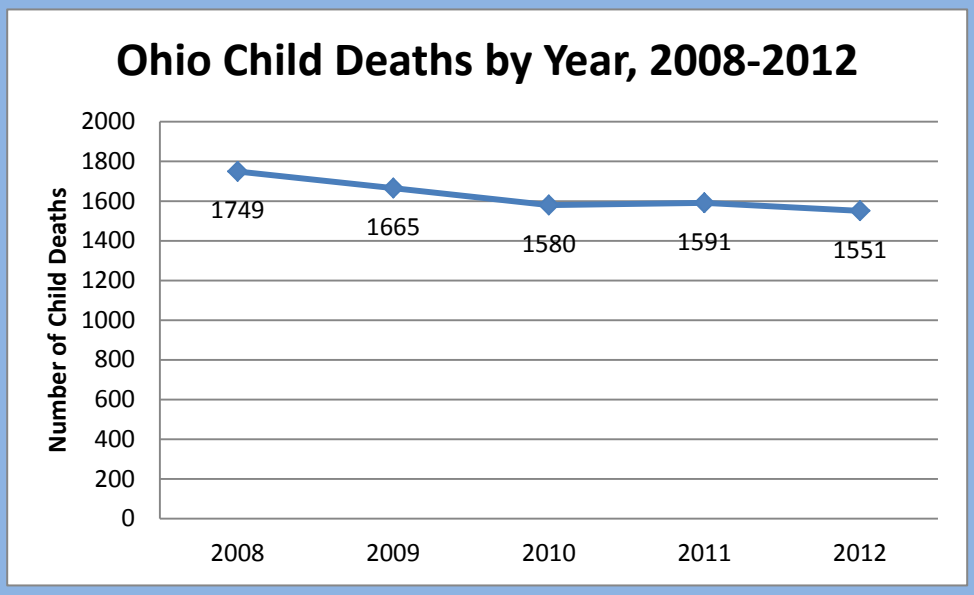
By April 1 of each year, local Child Fatality Review (CFR) boards must submit to ODH the following information with respect to each child death reviewed:

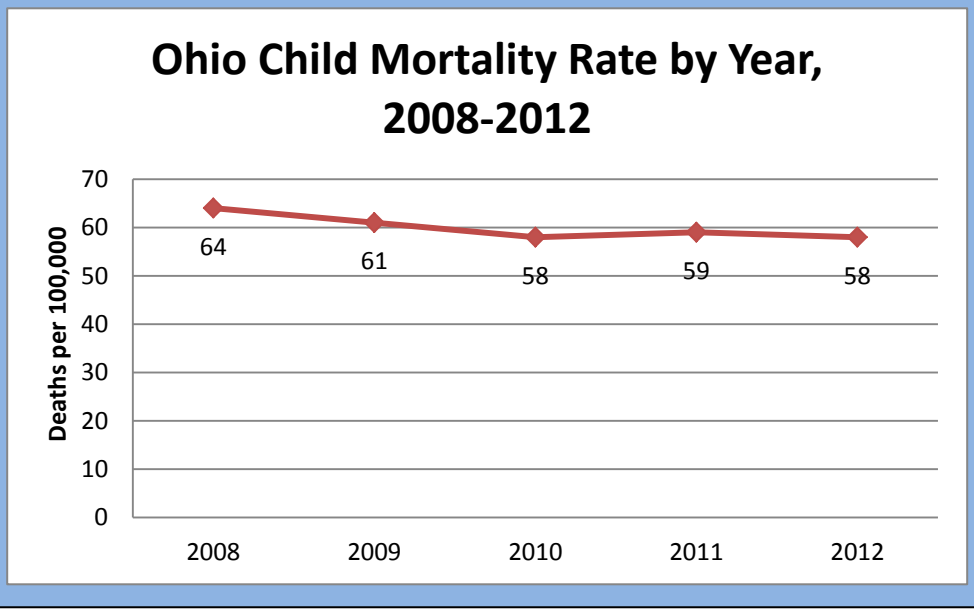
- Cause of death.
- Factors contributing to death.
- Age.
- Gender.
- Race.
- Geographic location of death.
- Year of death.

In addition to the case review information, the local boards submit a report of their activities and recommendations for actions that might prevent future deaths. This report contains no case-identifying information and is a public record.

There were a total of 1,490 completed reviews of 2012 child deaths reported by April 1, 2014. This represents 96 percent of all child deaths (1,551) in Ohio for 2012, based on data from Ohio Vital Statistics. Deaths that were not reviewed include cases still under investigation or involved in prosecution and out-of-state deaths reported too late for thorough reviews. All 88 counties submitted reports, although not all counties reported reviews. More than 200 recommendations for prevention were submitted. More than half of the 88 counties shared information about local prevention initiatives and activities that have resulted from the CFR process.

According to Ohio Vital Statistics, the number of Ohio child deaths has decreased from 1,918 in 2000 when CFR was established by Ohio law, to 1,551 in 2012. The child mortality rate has decreased from 67 deaths per 100,000 children in 2000 to 58 in 2012. The charts below show the trends during the five-year period from 2008-2012.

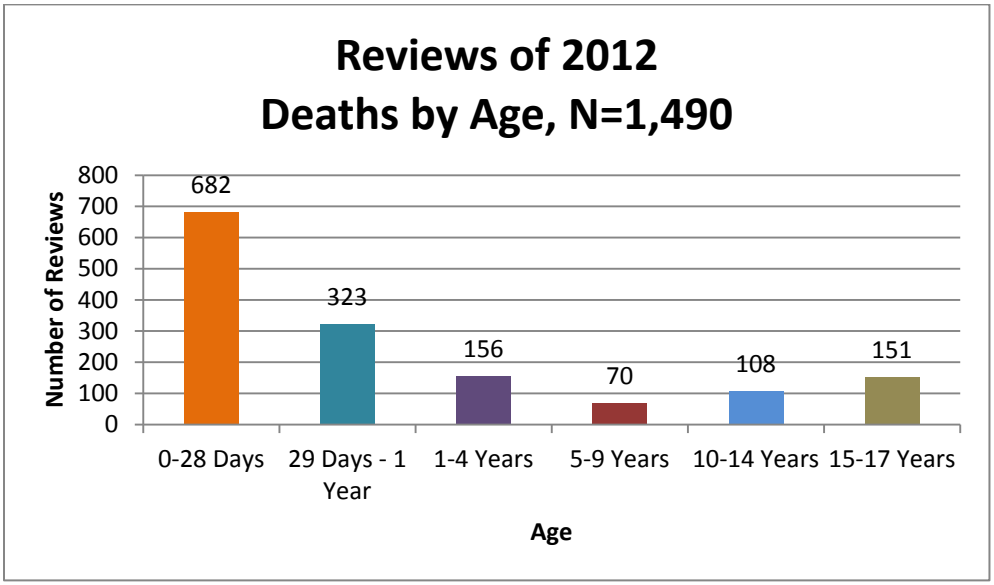


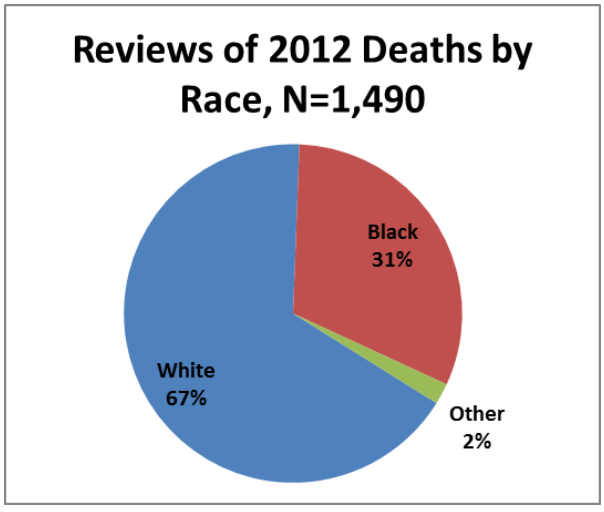


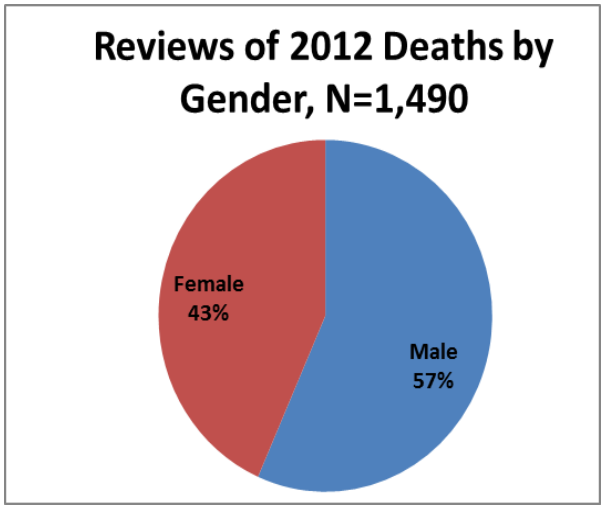
REVIEWS FOR 2012 DEATHS

Reviews by Demographic Characteristics

Local child fatality review (CFR) boards reviewed the deaths of 1,490 children who died in 2012. Sixty-eight percent (1,005) of the reviews were for children less than 1 year of age. There were greater percentages of reviews among boys (57 percent) and among black children (31 percent) relative to their representation in the general Ohio child population (51 percent for boys and 15 percent for black children, per U.S. Census data[1]). Six percent (82) of all reviews were for children of Hispanic ethnicity, which closely compares to their representation in the general Ohio child population (5 percent).







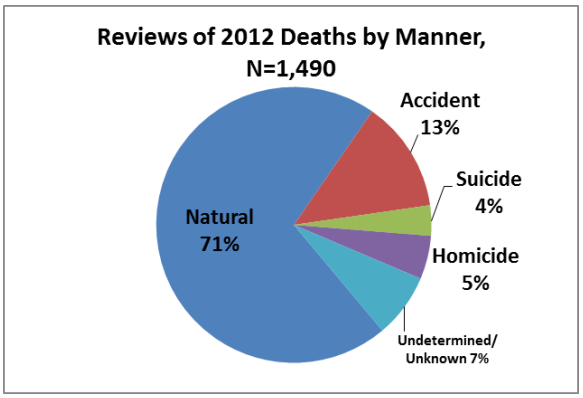
*46 cases with multiple races indicated were assigned to the minority race.

Reviews by Manner of Death

Manner of death is a classification of deaths based on the circumstances surrounding a cause of death and how the cause came about. The five manner-of-death categories on the Ohio death certificate are natural, accident, homicide, suicide and undetermined. For deaths being reviewed, CFR boards report the manner of death as indicated on the death certificate. For deaths that occurred in 2012, the 1,490 reviews were classified as follows:

- Seventy-one percent (1,054) were natural deaths.
- Thirteen percent (195) were accidents.
- Five percent (76) were homicides.
- Four percent (53) were suicides.
- Eight percent (112) were of an undetermined or unknown manner.

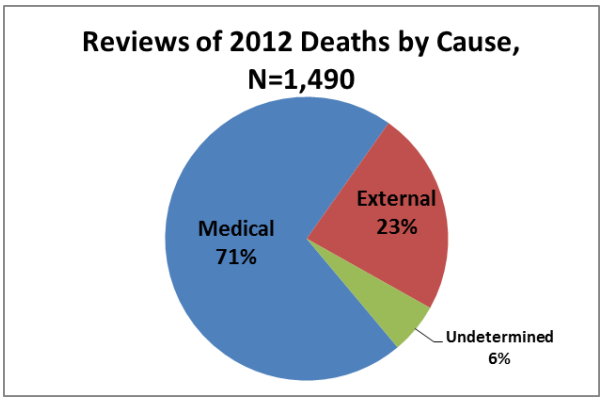
Since 2004, the proportional distribution of reviews across the manners has changed very little. See Appendix VII on page 94 for additional tables including manner of death by demographic information.



Reviews by Cause of Death

The CFR case report tool and data system implemented in 2005 classify causes of death by medical or external causes. Medical causes are further specified by particular disease entities. External causes are further specified by the nature of the injury. CFR boards select the cause of death category that allows the most information about the circumstances of the death to be recorded in the data system, with a focus on prevention. The cause of death category selected may not match the death certificate. In 2012, the 1,490 reviews were classified as follows:

- Seventy-one percent (1,057) were due to medical causes.
- Twenty-three percent (347) were due to external causes.
- In 86 reviews, the cause of death could not be determined as either medical or external.



DEATHS FROM MEDICAL CAUSES

Background

Deaths from medical causes are the result of a natural process such as disease, prematurity or congenital defect. A death due to a medical cause can result from one of many serious health conditions.

Many of these conditions are not believed to be preventable in the same way accidents are preventable. But with some illnesses such as asthma, infectious diseases and screenable genetic disorders, under certain circumstances, fatalities may be prevented. Many might be prevented through better counseling during preconception and pregnancy, earlier or more consistent prenatal care and smoking cessation counseling. While some conditions cannot be prevented, early detection and prompt, appropriate treatment can often prevent deaths.

Vital Statistics

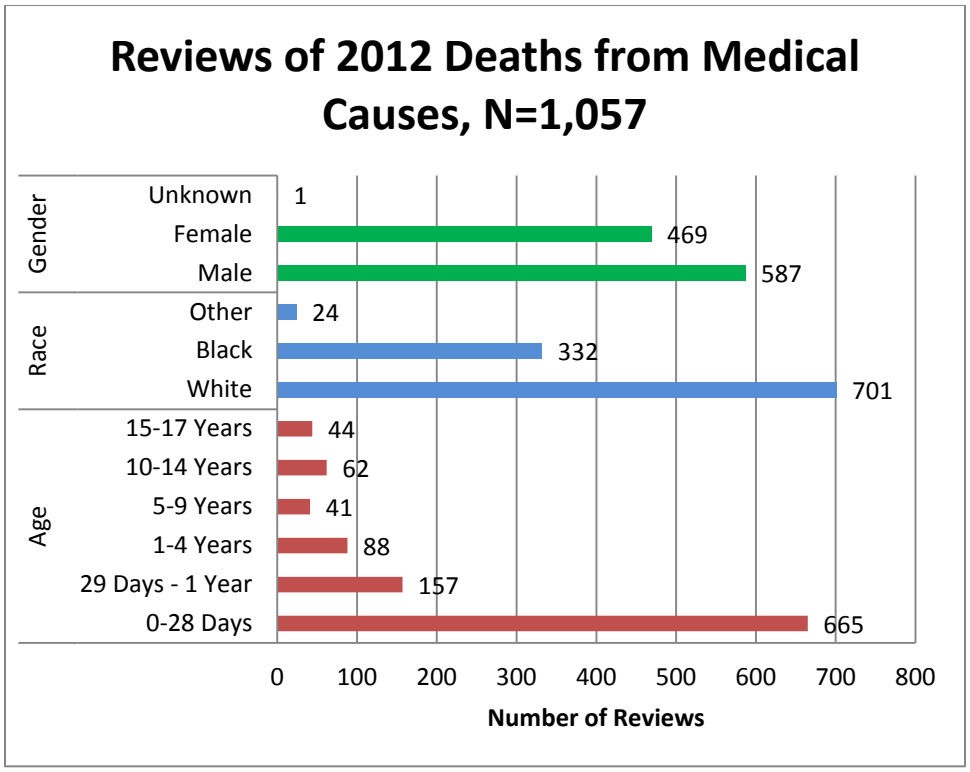
Ohio Vital Statistics reported 1,169 children who died of medical causes in 2012. For further information on the ICD-10 codes used to produce vital statistics data, see Appendix V on page 92.

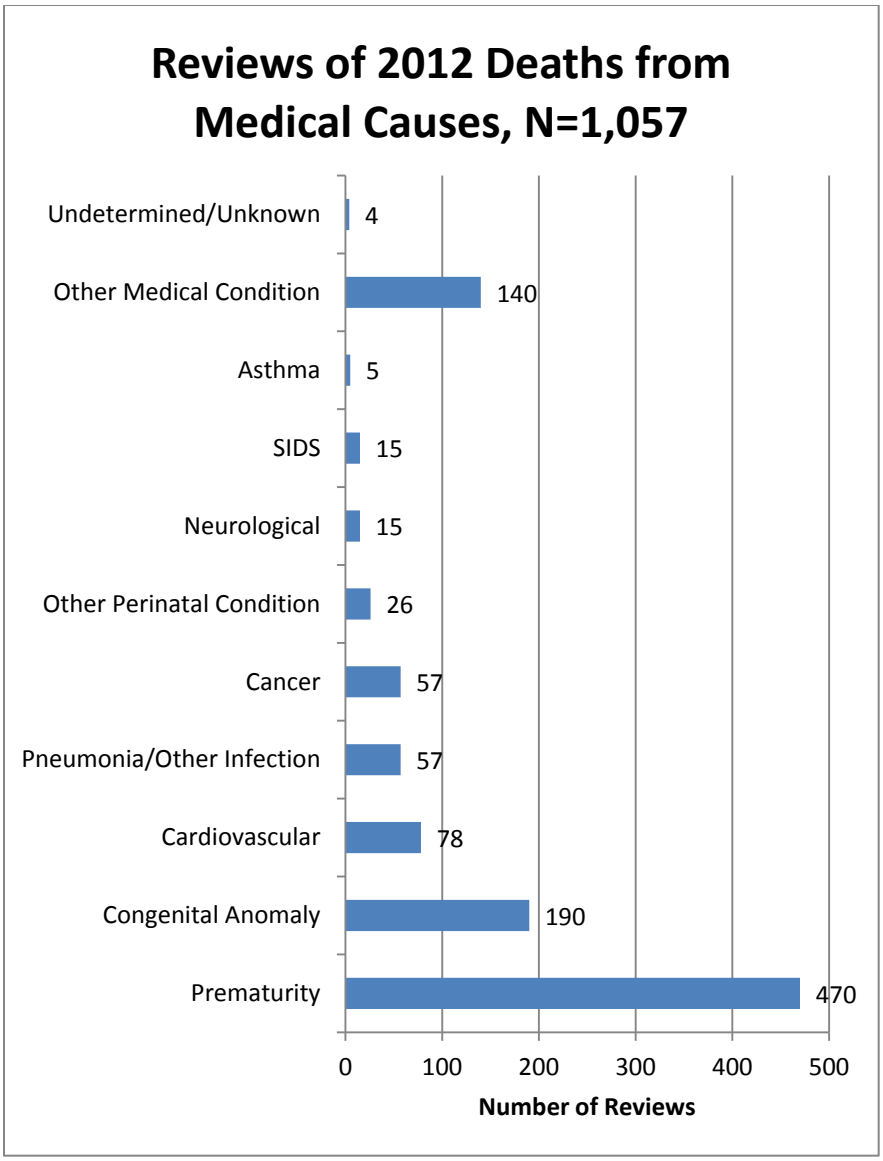
CFR Findings

Seventy-one percent (1,057) of the 1,490 reviews for 2012 deaths were from medical causes.

- Seventy-eight percent (822) of the 1,057 reviews for medical causes were to infants under the age of 1 year.
- Fifty-six percent (587) of the 1,057 reviews for medical causes were to male children.
- Thirty-one percent (332) of the 1,057 reviews for medical causes were to black children, which is disproportionate to their representation in the Ohio child population (15 percent).
- The CFR data system provides a list of 15 medical conditions in addition to an "Other" category for classifying deaths from medical causes more specifically. Prematurity, congenital anomalies and cardiovascular disorders were the three leading medical causes of death.
    - Forty-four percent (470) of the deaths from medical causes were due to prematurity.
    - Eighteen percent (190) were due to congenital anomalies.
    - Seven percent (78) were due to cardiovascular conditions.
    - Sudden infant death syndrome (SIDS) is a medical cause of death. One percent (15) of the deaths from medical causes were due to SIDS.
- The leading medical cause of death for children older than 1 year was cancer. Twenty-one percent (50) of 235 deaths from medical causes to children older than 1 year were due to cancer.

For additional tables including all medical causes of death by demographic information, please see Appendix VII on page 95.


Reviews of 2012 Deaths from Medical Causes, N=1,057
Gender
Unknown
Female
Male
Race
Other
Black
White
Age
15-17 Years
10-14 Years
5-9 Years
1-4 Years
29 Days - 1 Year
0-28 Days
1
469
587
24
332
701
44
62
41
88
157
665
0
100
200
300
400
500
600
700
800
Number of Reviews


Reviews of 2012 Deaths from Medical Causes, N=1,057
Undetermined/Unknown
4
Other Medical Condition
140
Asthma
5
SIDS
15
Neurological
15
Other Perinatal Condition
26
Cancer
57
Pneumonia/Other Infection
57
Cardiovascular
78
Congenital Anomaly
190
Prematurity
470
0
100
200
300
400
500
Number of Reviews

Three Leading Medical Causes of Death, by Age, Race and Gender						
	Prematurity (N=470)		**Congenital Anomalies (N=190)**		**Cardiovascular (N=78)**	
Age	**#**	**%**	**#**	**%**	**#**	**%**
1-28 Days	446	95	102	54	24	31
29 – 364 Days	23	5	42	22	19	24
1-4 Years	-	-	24	13	12	15
5-9 Years	-	-	7	4	4	5
10-14 Years	-	-	9	5	9	12
15-17 Years	1	<1	6	3	10	13
Unknown	-	-	-	-	-	-
Race	**#**	**%**	**#**	**%**	**#**	**%**
White	273	58	137	72	60	77
Black	186	40	50	16	17	22
Other	10	2	3	2	1	1
Unknown	1	<1	-	-	-	-
Gender	**#**	**%**	**#**	**%**	**#**	**%**
Male	260	55	99	52	45	58
Female	209	44	91	48	33	42
Unknown	1	<1	-	-	-	-
Total	**470**		**190**		**78**	
Percents may not total 100 due to rounding.						

For additional tables including all medical causes of death by demographic information, please see Appendix VII on page 95.

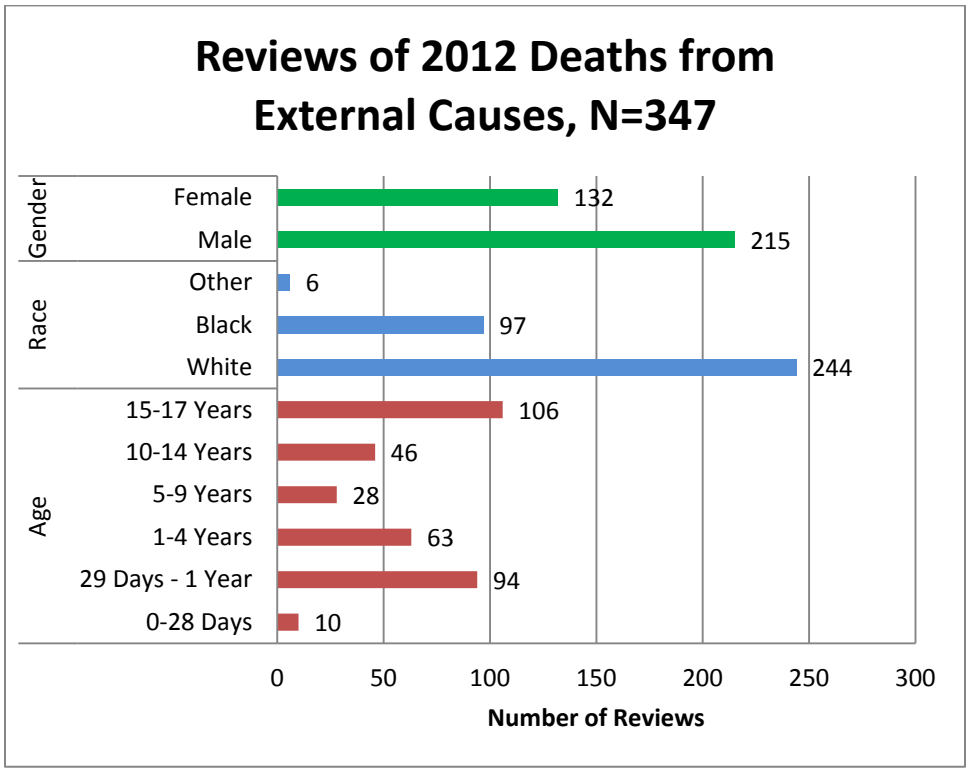
DEATHS FROM EXTERNAL CAUSES

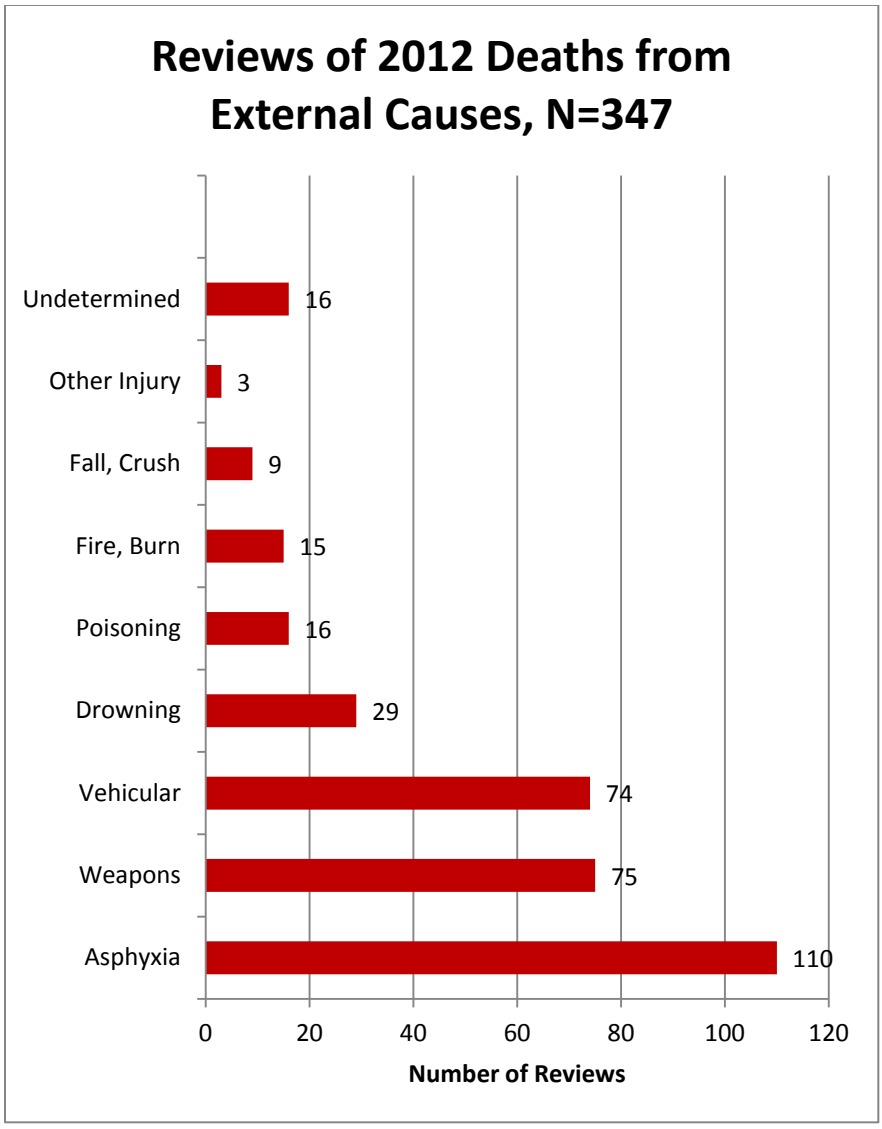
Background
External causes of death are injuries, either unintentional or intentional, resulting from acute exposure to forces that exceed a threshold of the body's tolerance, or from the absence of such essentials as heat or oxygen.[2]

Vital Statistics
Ohio Vital Statistics reported 382 children who died of external causes in 2012. For further information on the ICD-10 codes used to produce vital statistics data, see Appendix V on page 92.

CFR Findings
Twenty-three percent (347) of the 1,490 reviews for 2012 deaths were due to external causes.

- Thirty-one percent (106) of the 347 reviews of deaths from external causes were for children ages 15 to 17 years.
- Twenty-eight percent (97) of the 347 reviews for external causes were for black children, which is disproportionate to their representation in the Ohio child population (15 percent).
- Sixty-two percent (215) of the 347 reviews for external causes were for boys, which is disproportionate to their representation in the population (51 percent).
- Asphyxia, weapons injuries and vehicular injuries were the three leading external causes for the 347 reviews. Asphyxia has been the leading external cause of death for four of the past five years.
    - Thirty-two percent (110) were due to asphyxia.
    - Twenty-two percent (75) were due to weapons injuries, including the use of body parts as weapons.
    - Twenty-one percent (74) were due to vehicular injuries.




Reviews of 2012 Deaths from External Causes, N=347
Undetermined
16
Other Injury
3
Fall, Crush
9
Fire, Burn
15
Poisoning
16
Drowning
29
Vehicular
74
Weapons
75
Asphyxia
110
0
20
40
60
80
100
120
Number of Reviews

Three Leading External Causes of Death, by Age, Race and Gender						
	Asphyxia (N=110)		Weapons, including Body Parts (N=75)		Vehicular Crashes (N=74)	
Age	**#**	**%**	**#**	**%**	**#**	**%**
1-28 Days	7	6	-	-	-	-
29 – 364 Days	60	55	12	15	3	4
1-4 Years	3	3	17	24	14	19
5-9 Years	1	1	3	3	12	16
10-14 Years	16	15	13	17	7	10
15-17 Years	23	21	30	40	38	51
Unknown	-	-	-	-	-	-
Race	**#**	**%**	**#**	**%**	**#**	**%**
White	77	70	46	61	61	82
Black	31	28	28	37	11	15
Other	2	2	1	1	2	3
Unknown	-	-	-	-	-	-
Gender	**#**	**%**	**#**	**%**	**#**	**%**
Male	62	56	52	69	43	58
Female	48	44	23	31	31	42
Unknown	-	-	-	-	-	-
Total	**110**		**75**		**74**	
Percents may not total 100 due to rounding.						

For additional tables including all external causes of death by demographic information, please see Appendix VII on page 95.

Ohio Injury Prevention Partnership

The Ohio Injury Prevention Partnership (OIPP) is a statewide group of professionals representing a broad range of agencies and organizations concerned with building Ohio's capacity to address the prevention of injury, particularly related to the group's identified priority areas. One of the subgroups of OIPP, the Child Injury Action Group (CIAG) works to develop and implement policies to decrease injuries and fatalities within their five priority areas: teen safe driving; child restraint law review and revision; sports related traumatic brain injury; bicycle and wheeled sports helmets; and infant safe sleep. Ohio CFR data and findings have been used to inform the strategic plan for the CIAG.

REVIEWS BY COUNTY TYPE

Background

ODH categorizes Ohio's 88 counties into four county-type designations (rural Appalachian, rural non-Appalachian, suburban and metropolitan) based on similarities in terms of population and geography. The current county type designations originated with the Ohio Family Health Survey in 1998 and are based on the U.S. Code and U.S. Census information. See Appendix VI on page 93 for a map of Ohio counties by county type.

To analyze the CFR data by county type, the computer-assigned case number was used to determine the county of review. In nearly all cases, the county of review is the county of the child's residence.

In 2012, Ohio's child population was distributed as follows:

- 13 percent rural Appalachian;
- 15 percent rural non-Appalachian;
- 19 percent suburban;
- and 54 percent metropolitan.[3]

According to Ohio Vital Statistics, the 2012 child deaths were distributed as follows:

- 12 percent rural Appalachian;
- 13 percent rural non-Appalachian;
- 15 percent suburban;
- and 60 percent metropolitan.[4]

The percentage of all deaths that were reviewed varied by county type:

- 88 percent rural Appalachian;
- 93 percent rural non-Appalachian;
- 97 percent suburban;
- and 98 percent metropolitan.

For an explanation of deaths not reviewed, please see "Limitations" on page 10 and "Overview of Ohio Child Fatality Review Program" on page 82.

It is known that many factors related to child deaths are not evenly distributed across the county types. Complex analysis is needed to determine the significance of the CFR county-type findings.

CFR Findings

The 1,490 reviews of deaths that occurred in 2012 were distributed as follows:

- Eleven percent of reviews (159) were from rural Appalachian counties.
- Thirteen percent of reviews (193) were from rural non-Appalachian counties.
- Fifteen percent of reviews (224) were from suburban counties, which is disproportionately lower than the proportion of children living in suburban counties (19 percent).
- Sixty-one percent of reviews (914) were from metropolitan counties, which is disproportionately higher than the proportion of children living in metropolitan counties (54 percent).

Manner of Death by County Type

- Sixty-two percent (658) of natural deaths reviewed were from metropolitan counties, which is disproportionately higher than the proportion of children living in metropolitan counties (54 percent).
- Nineteen percent (36) of reviews for accidental deaths were from rural Appalachian counties, which is disproportionately higher than the proportion of children living in those counties (13

percent).

- The distribution of reviews for suicide deaths was most similar to the population distribution with 13 percent (7) from rural Appalachian, 11 percent (6) from rural non-Appalachian, 19 percent (10) from suburban, and 57 percent (30) from metropolitan counties.
- Nine percent (7) of the reviews for homicide deaths were from rural non-Appalachian counties, which is disproportionately lower than the proportion of children living in those counties (15 percent). Conversely, the percentage of reviews for homicide deaths was higher in metropolitan (63 percent) than the proportion of children living in those counties (54 percent).

Manner of Death by County Type, N=1,490									
	Rural Appalachian		Rural Non-Appalachian		Suburban		Metro-politan		Total
	#	%	#	%	#	%	#	%	#
Natural	99	62	140	73	157	70	658	72	1054
Accident	36	23	31	16	34	15	94	10	195
Suicide	7	4	6	3	10	4	30	3	53
Homicide	9	6	7	4	12	5	48	5	76
Undetermined/ Unknown	8	5	9	5	12	5	83	9	112
Total	**159**		**193**		**224**		**914**		**1,490**

Percents may not total 100 due to rounding.

Medical Causes of Death by County Type

- Sixty-two percent (655) of the reviews of deaths from medical causes were from metropolitan counties, which is disproportionately higher than the proportion of children living in metropolitan counties (54 percent). Reviews of deaths due to prematurity were particularly over-represented in metropolitan counties. Seventy-two percent (336) of deaths due to prematurity were from metropolitan counties. In contrast, only 8 percent (37) of the deaths due to prematurity were from rural Appalachian counties, which is disproportionately less than the proportion of children living in those counties (13 percent).

Medical Causes of Death by County Type, N=1,057									
	Rural Appalachian		Rural Non-Appalachian		Suburban		Metro-politan		Total
	#	%	#	%	#	%	#	%	#
Prematurity	37	8	47	10	50	11	336	72	470
Congenital Anomaly	12	6	18	10	42	22	118	62	190
Cardiovascular	10	13	15	20	17	22	36	46	78
All Other Medical Causes	42	13	61	20	51	16	165	52	319
Total	**101**	**10**	**141**	**13**	**160**	**15**	**655**	**62**	**1,057**

Percents may not total 100 due to rounding.

External Causes of Death by County Type

- Thirty-three percent (5) of fire and burn deaths reviewed were from rural Appalachian counties, which is disproportionately higher than the proportion of children living in those counties (13 percent).
- Reviews for drowning deaths were disproportionately higher from rural Appalachian and rural non-Appalachian counties. Twenty-one percent (6) came from each of those county types.

External Causes of Death by County Type, N=347									
	Rural Appalachian		Rural Non-Appalachian		Suburban		Metro-politan		Total
	#	%	#	%	#	%	#	%	#
Asphyxia	17	16	14	13	18	16	61	56	110
Weapons	8	11	6	8	14	19	47	63	75
Vehicular	10	14	12	16	15	20	37	50	74
Fire/Burn	5	33	3	20	2	13	5	33	15
Drowning	6	21	6	21	3	10	14	48	29
All Other External Causes	5	11	7	16	5	11	27	61	44
Total	**51**	**15**	**48**	**14**	**47**	**16**	**191**	**55**	**347**

Percents may not total 100 due to rounding.

Reviews of Special Interest

The distribution of the 153 reviews for sleep-related deaths varies from the population distribution by county type. The proportion of sleep-related deaths was higher for metropolitan counties, and lower for the other county types.

- Eleven percent of reviews (16) were from rural Appalachian counties.
- Ten percent of reviews (15) were from rural non-Appalachian counties.
- Ten percent of reviews (15) were from suburban counties.
- Seventy percent of reviews (107) were from metropolitan counties.

The distribution of the 34 reviews for child abuse and neglect deaths also varies from the population distribution by county type. The proportion of child abuse and neglect deaths was higher for rural Appalachian counties and lower for rural non-Appalachian counties.

- Twenty-four percent of reviews (8) were from rural Appalachian counties.
- Nine percent of reviews (3) were from rural non-Appalachian counties.
- Eighteen percent of reviews (6) were from suburban counties.
- Fifty percent of reviews (17) were from metropolitan counties.

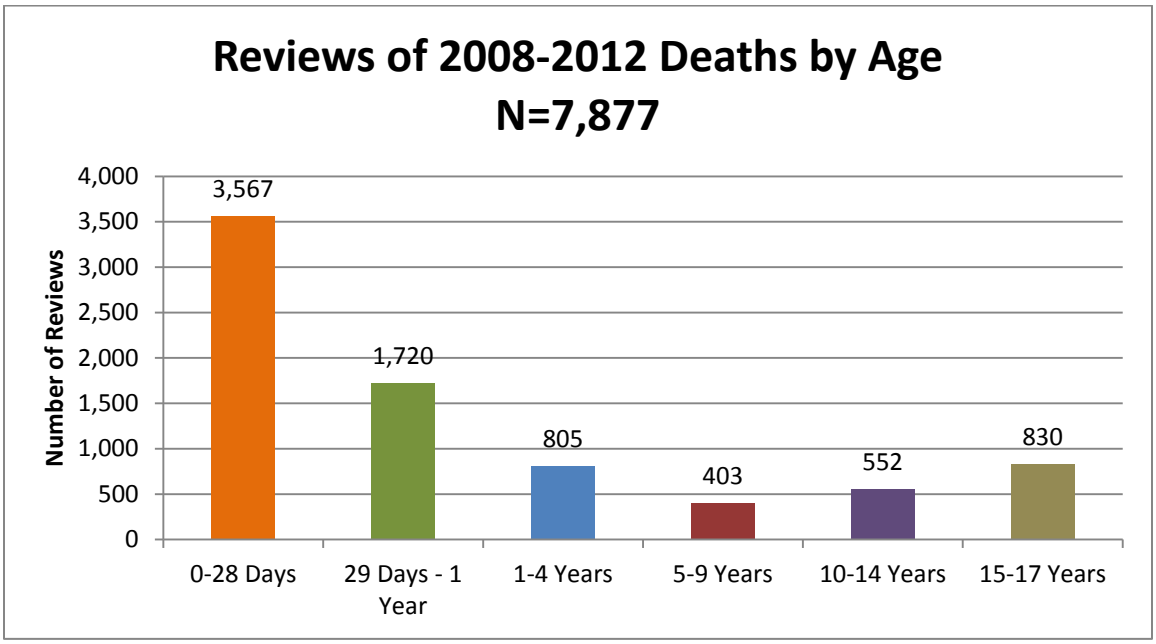
For more data regarding reviews of 2012 deaths, see Appendix VII on page 94.

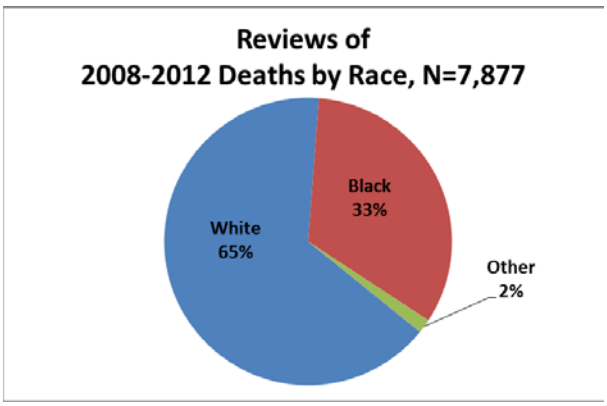
REVIEWS FOR 2008-2012 DEATHS

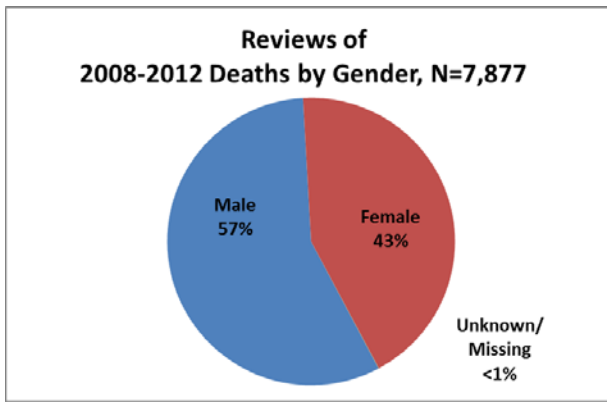
SUMMARY OF REVIEWS

To gain more understanding of the factors related to child death, data have been analyzed for the five-year year-of-death period 2008-2012. For the five-year period, Ohio CFR boards have completed 7,877 reviews, which represent 97 percent of the 8,136 child deaths reported by Ohio Vital Statistics.

- Sixty-seven percent (5,287) of the reviews were for children less than 1 year of age.
- There were greater percentages of reviews among boys (57 percent) and among black children (33 percent) relative to their representation in the general Ohio population (51 percent for boys and 15 percent for black children, per U.S. Census data[5]).
- Five percent (382) of all reviews were for children of Hispanic ethnicity.





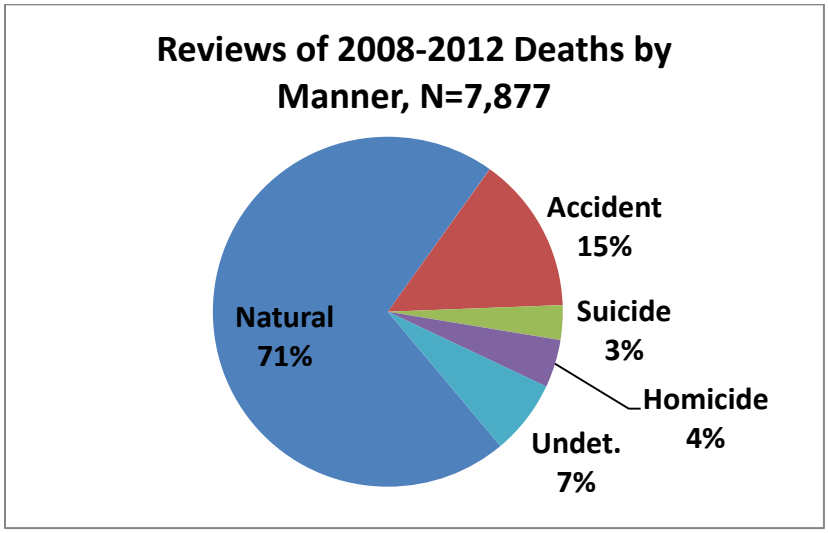


* 182 cases with multiple races were assigned to the minority race.

Reviews by Manner of Death

For the five-year period 2008-2012, the 7,877 reviews were classified as follows:

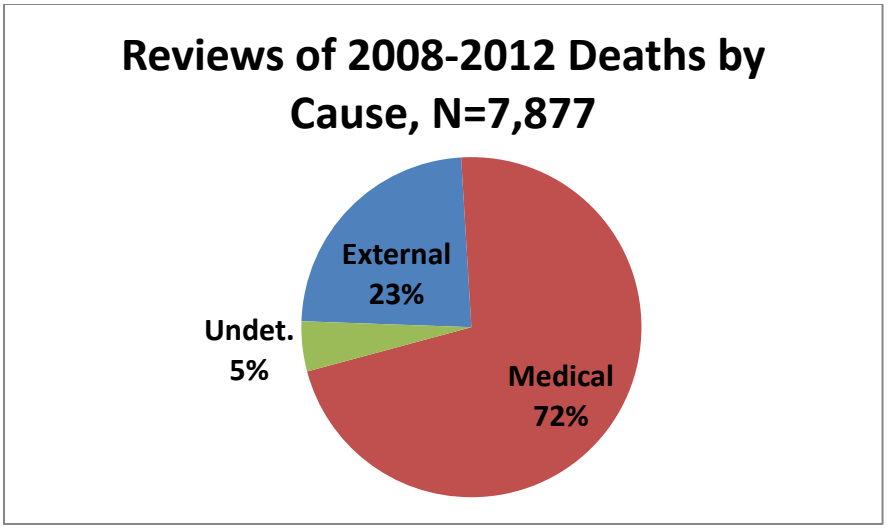
- Seventy-one percent (5,592) were natural deaths.
- Fifteen percent (1,144) were accidents.
- Four percent (348) were homicides.
- Three percent (251) were suicides.
- Seven percent (542) were of an undetermined or unknown manner.

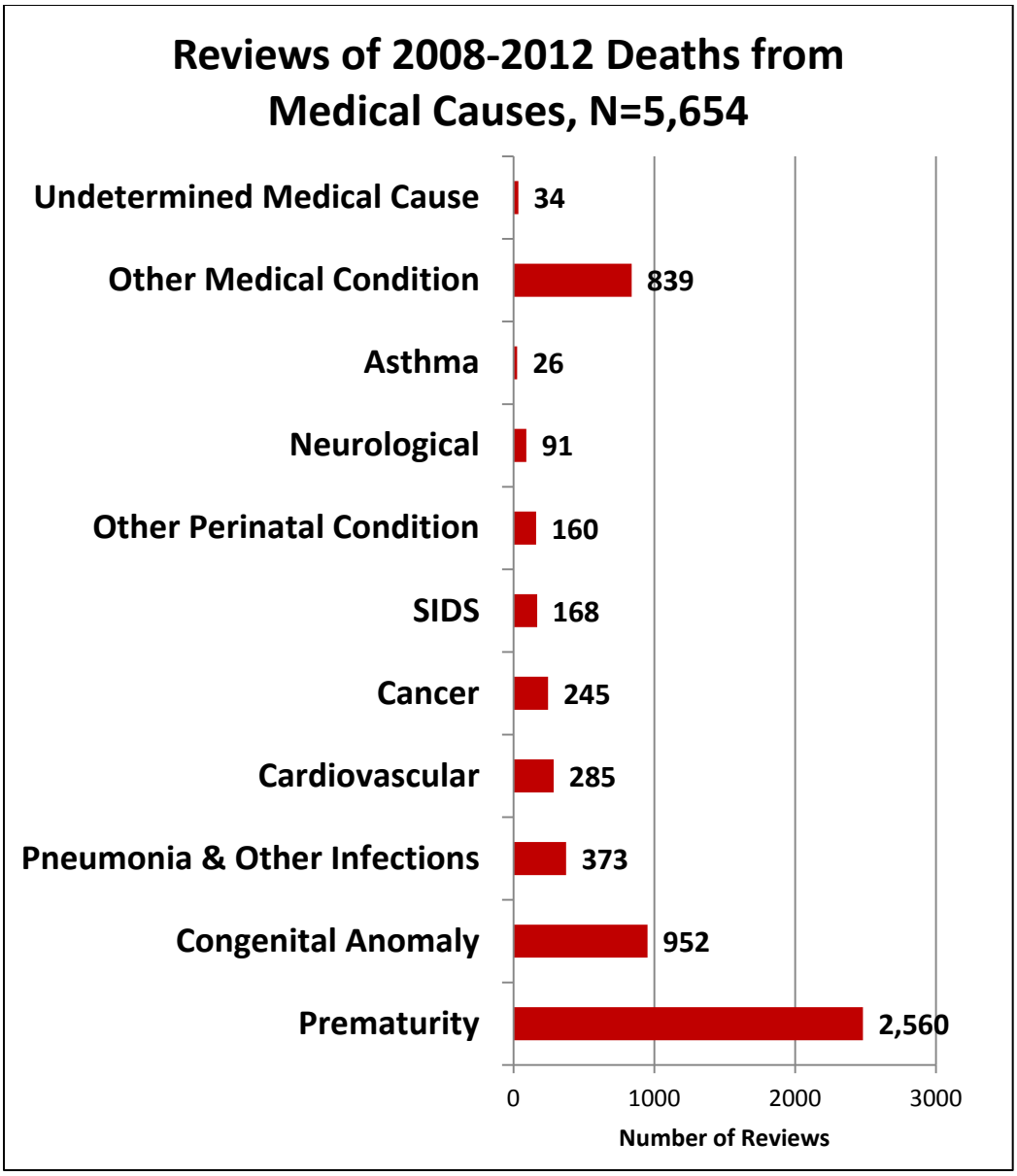


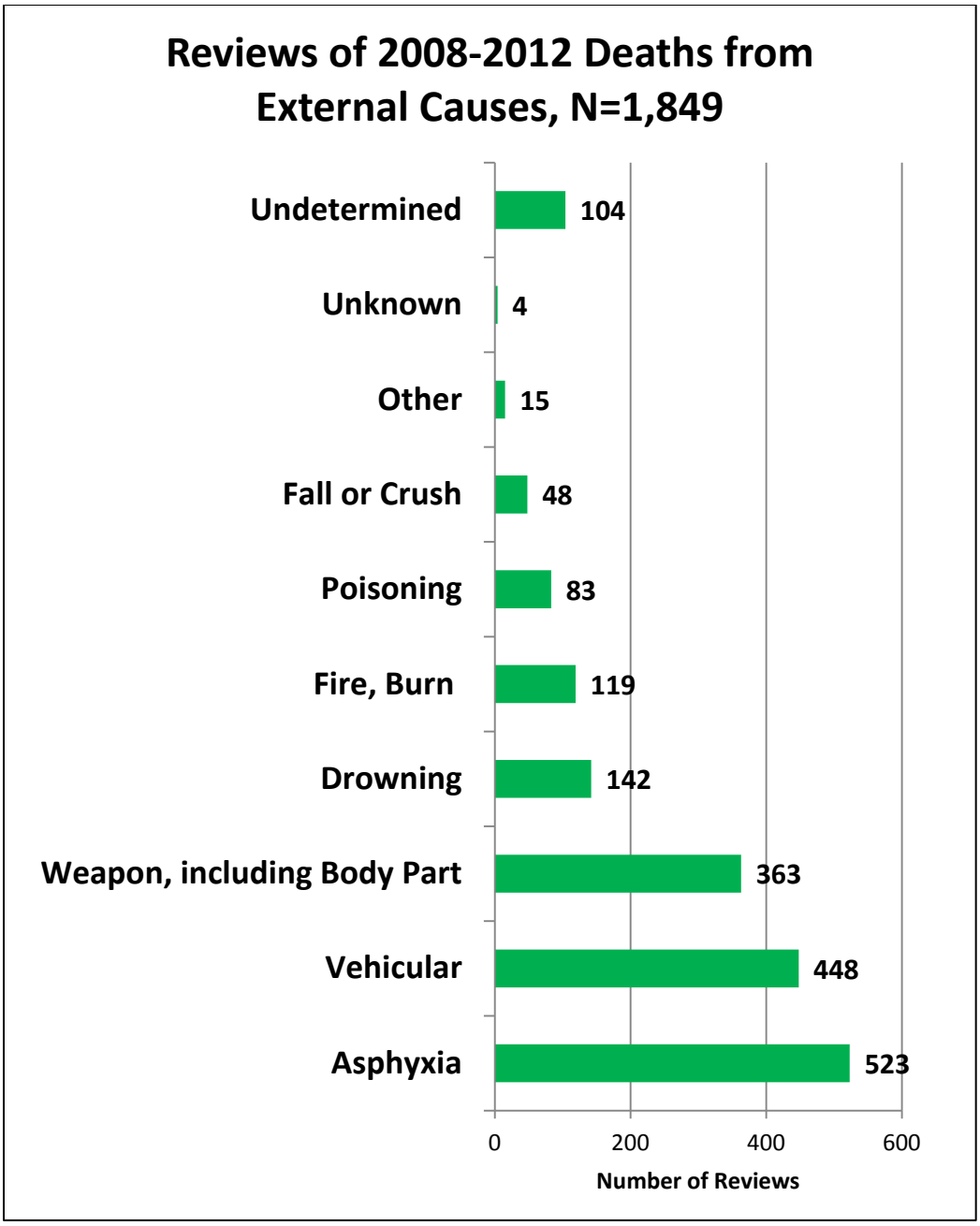
Reviews by Cause of Death

The CFR case report tool and data system implemented in 2005 classify causes of death by medical or external causes. Medical causes are further specified by particular disease entities. External causes are further specified by the nature of the injury. For the five-year period 2008-2012, the 7,877 reviews were classified as follows:

- Seventy-two percent (5,654) were due to medical causes.
- Twenty-four percent (1,849) were due to external causes.
- For five percent (374) of the cases, the cause of death could not be determined as either medical or external.




Reviews of 2008-2012 Deaths from Medical Causes, N=5,654
Undetermined Medical Cause
34
Other Medical Condition
839
Asthma
26
Neurological
91
Other Perinatal Condition
160
SIDS
168
Cancer
245
Cardiovascular
285
Pneumonia & Other Infections
373
Congenital Anomaly
952
Prematurity
2,560
0
1000
2000
3000
Number of Reviews

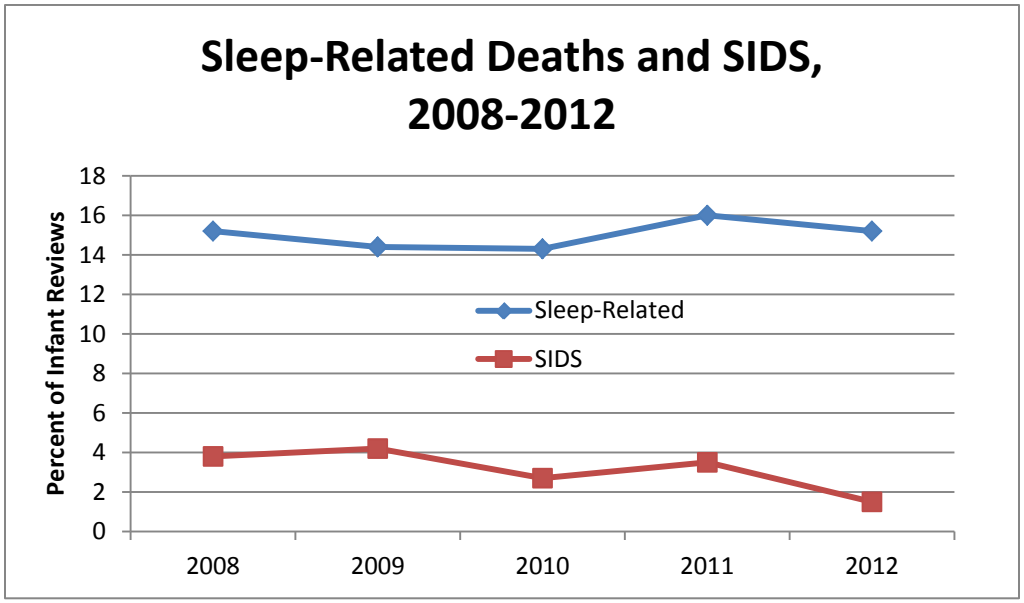


See Appendix VII on page 98 for additional review information regarding demographics for 2008-2012 deaths.

TRENDS OVER FIVE YEARS

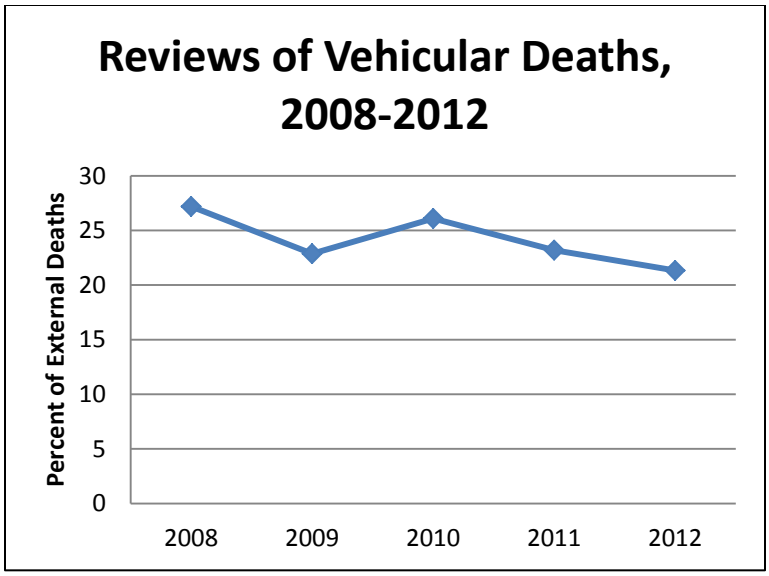
For the five-year period 2008-2012, the proportional distribution of reviews across many factors, such as manner of death, age, race, gender and preventability, has changed very little.

- Seventy-one percent (5,592) of the reviews were natural manner of death. The percentage changed little over the period, from a high of 73 percent in 2010 to a low of 70 percent in 2008 and 2011.
- Sixty-seven percent (5,287) of the reviews were for infants less than 1 year old. The percentage has changed little over the period, from 66 percent in 2008 to 68 percent in 2011.
- Fifty-seven percent (4,480) of the reviews were for boys. The percentage changed little over the period, from a high of 58 percent in 2008 and 2009 to a low of 56 percent in 2010 and 2011.
- Thirty-three percent (2,603) of the reviews were for black children. The percentage has changed little over the period, from a high of 35 percent in 2008 to a low of 31 percent in 2010 and 2012.
- Twenty-three percent (1,804) of the deaths reviewed were deemed probably preventable. The percentage changed little over the period, from a high of 24 percent in 2008 to a low of 22 percent in 2009 and 2010.
- Reviews for sleep-related infant deaths account for 15 percent (794) of all infant reviews. The percentage changed little over the period, from a high of 16 percent in 2011 to a low of 14 percent in 2009 and 2010. The percentage of reviews for SIDS deaths has decreased from 4 percent in 2008 and 2009 to less than 2 percent in 2012.

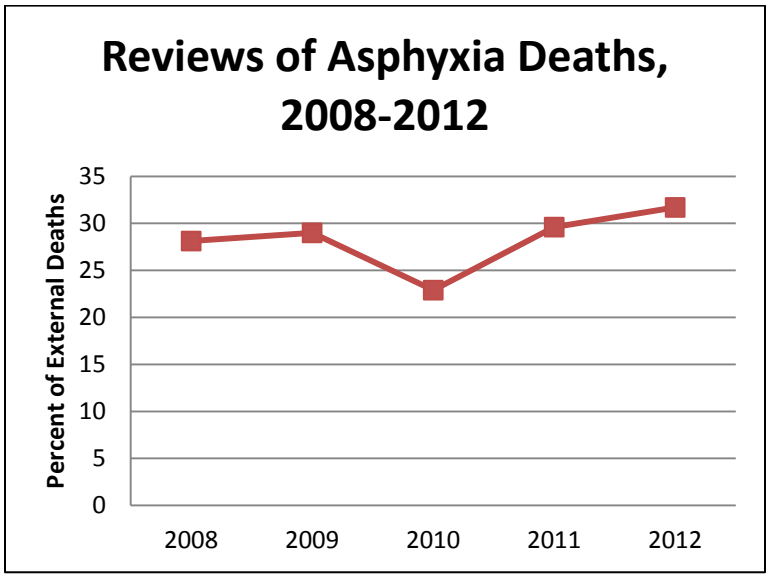


Over the five-year period, changes were noted in the percentage of reviews for some groups of death, particularly vehicular injuries and asphyxia.

- Six percent (448) of all reviews were due to vehicular crashes. This is 24 percent of the 1,849 reviews for deaths from external causes. The percentage of deaths from external causes due to vehicular crashes has decreased from 27 percent in 2008 to 21 percent in 2012. Before 2008, vehicular crashes were the leading external cause of death. In 2012, vehicular crashes ranked third behind asphyxia and weapons deaths. White boys ages 15 to 17 years accounted for 27 percent (123) of all vehicular deaths.



- Seven percent (523) of all reviews were due to asphyxia. The percentage of deaths from external causes due to asphyxia increased from 28 percent in 2008 to 32 percent in 2012, with a decrease to 23 percent in 2010. Each year, the largest numbers of asphyxia deaths are suffocation deaths to infants less than 1 year old. Fifty-four percent (280) of the asphyxia deaths were sleep-related infant deaths.



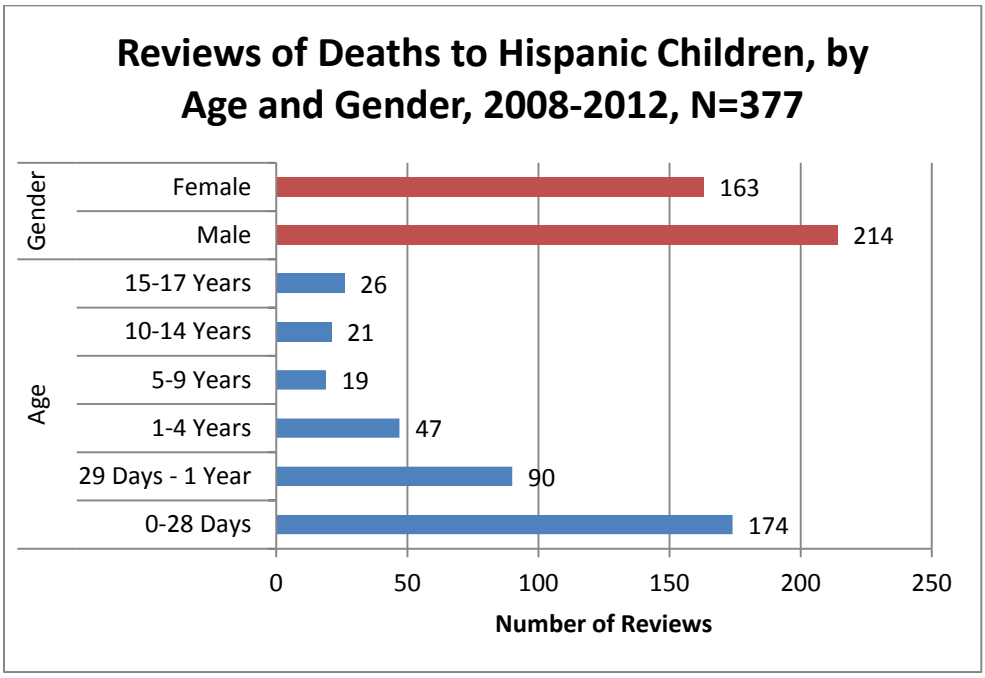
The comprehensive nature of the case report tool and the functionality of the data system have allowed more complete analysis for all groups of deaths. The following sections of this report offer in-depth information about reviews of deaths to Hispanic children, poisoning deaths, deaths by special circumstances, such as suicides, homicides and child abuse deaths, and by age group. Each section contains detailed data regarding the circumstances and factors related to child deaths.

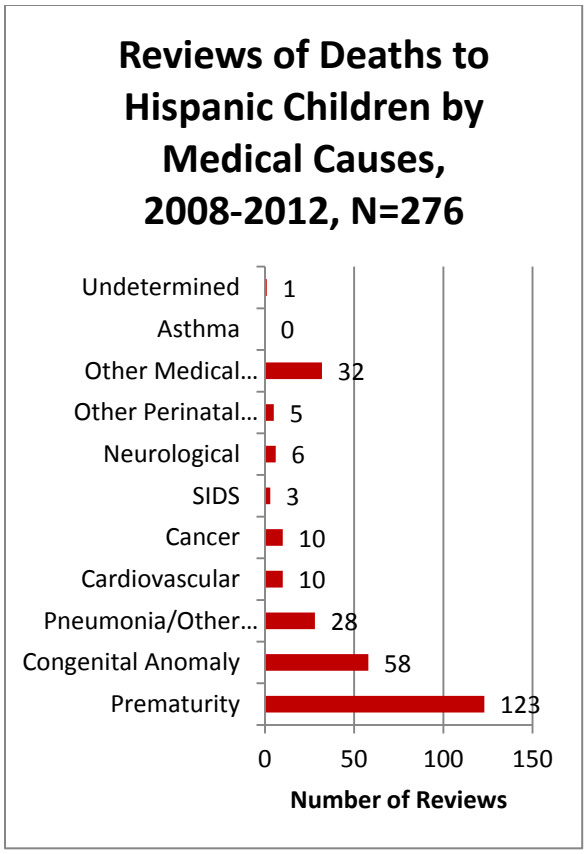
DEATHS TO HISPANIC CHILDREN, ALL AGES

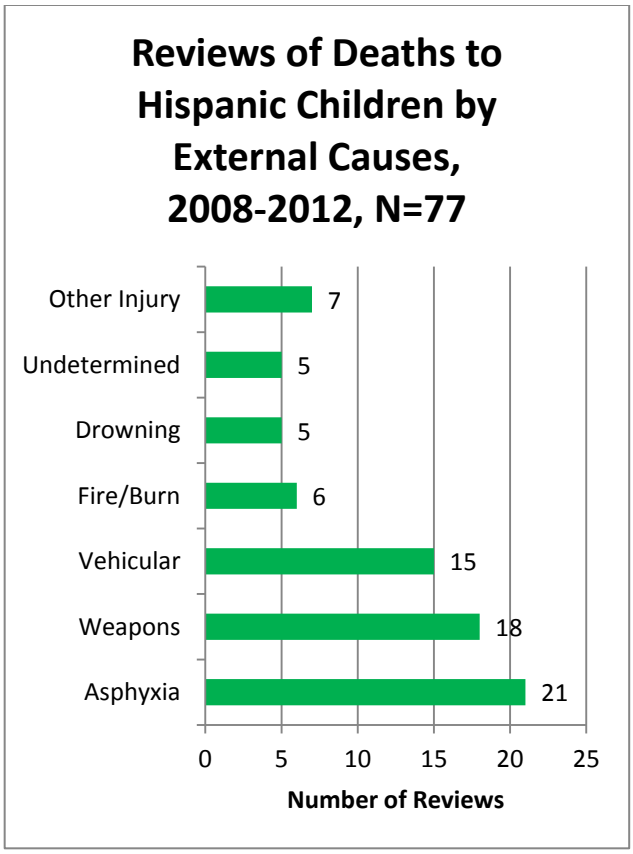
The CFR case report tool and data system record Hispanic ethnicity as a variable separate from race. A child of any race may be of Hispanic ethnicity.

For the five-year period 2008-2012, five percent (377) of the 7,877 total reviews were for children of Hispanic ethnicity. During the five-year period, the population of Hispanic children living in Ohio increased slightly from 4 percent of the total child population in 2008 to 5 percent in 2012.[6]

- Seventy percent (264) of the reviews for Hispanic children were for infants.
- Prematurity and congenital anomalies were the leading medical causes of death, accounting for 43 percent (161) of the reviews for Hispanic children.
- The leading external causes of death were asphyxia (21) and weapons (18), followed by vehicular crashes (15).
- Fourteen percent (36) of the reviews for Hispanic infants were sleep-related deaths.




Reviews of Deaths to Hispanic Children by Medical Causes, 2008-2012, N=276
Undetermined
Asthma
Other Medical…
Other Perinatal…
Neurological
SIDS
Cancer
Cardiovascular
Pneumonia/Other…
Congenital Anomaly
Prematurity
1
0
32
5
6
3
10
10
28
58
123
0
50
100
150
Number of Reviews

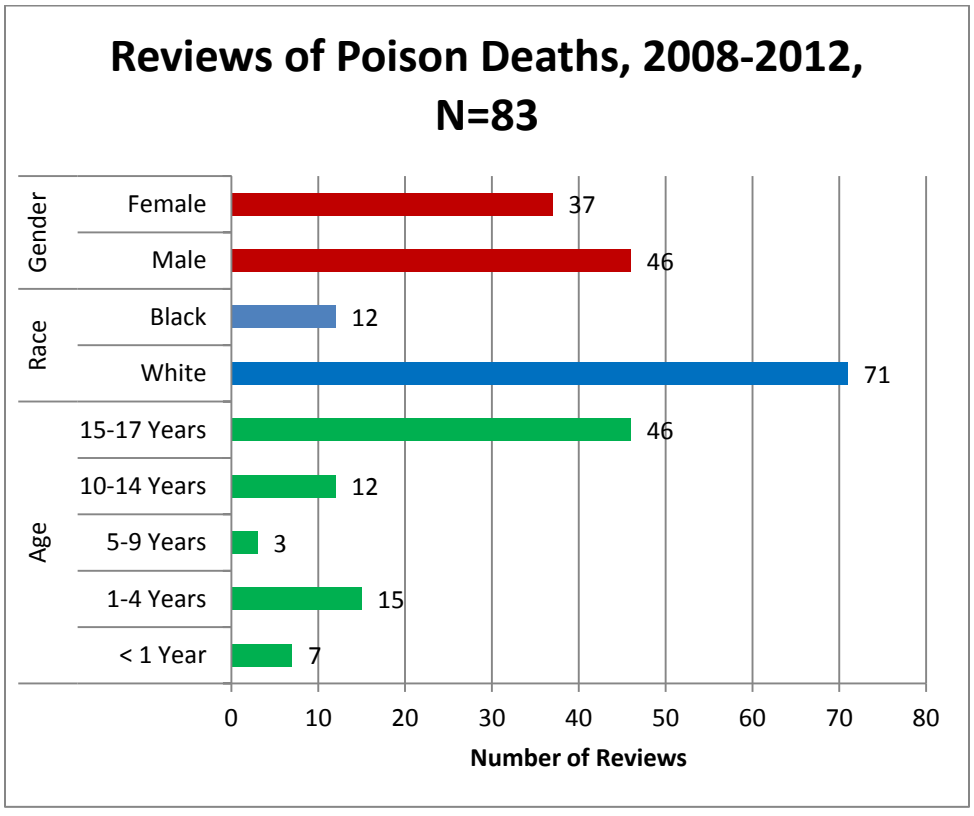

Reviews of Deaths to Hispanic Children by External Causes, 2008-2012, N=77
Other Injury
Undetermined
Drowning
Fire/Burn
Vehicular
Weapons
Asphyxia
7
5
5
6
15
18
21
0
5
10
15
20
25
Number of Reviews

POISONING DEATHS, ALL AGES

Combining data from five years allows more analysis for deaths due to poison, where in-depth analysis is limited by small numbers in a single year.

Local CFR boards reviewed 83 poisoning deaths for 2008-2012. These deaths represent four percent of the 1,849 deaths from external causes for the period. Sixty-eight percent (56) of the deaths were of accidental manner. Eight percent (7) were suicides.

- Seventy percent (58) of the deaths occurred to 10 to 17 year olds.
  - The poison agents for this age group included prescription and over-the-counter medications, opiates, methadone, street drugs, alcohol and carbon monoxide.
- Thirty percent (25) of the poisoning deaths occurred to children younger than 10 years.
  - The poison agents for this age group included prescription and over-the-counter medications, opiates, and methadone. None were poisoned by household cleaners or plants.



Prescription Drug Abuse, Misuse and Overdose in Ohio

From 2000 to 2012, Ohio's death rate due to unintentional drug poisonings increased 366 percent with the increase in deaths driven largely by prescription drug overdoses. Five Ohioans die each day as a result of unintentional drug overdose or one every five hours. Unintentional drug overdose continues to be the leading cause of injury-related death in Ohio, ahead of motor vehicle traffic crashes, suicide and falls. This trend began in 2007 and continued through 2012. The impact of this epidemic on the health and safety of children has been identified by local CFR boards. A multidisciplinary state action team developed recommendations for policy changes to address the problem. House Bill 93 was passed unanimously in the Ohio legislature and signed into law by Governor John R. Kasich in May, 2011. This law provides the state medical and pharmacy boards and law enforcement agencies with additional tools to shut down pill mills (clinics which indiscriminately prescribe large quantities of pain medications without thorough assessment of the patient's condition), and investigate and prosecute those providers that are illegally and unethically prescribing and dispensing medication. Since the implementation of law, more than a dozen pill mills have been shut down in Scioto County alone.

The Ohio Department of Mental Health and Addiction Services, the Ohio Attorney General's Office and ODH are actively engaged in addressing this problem in several ways:

- Funding community coalitions,
- Promoting public awareness campaigns,
- Implementing drug disposal events,
- Promoting education for physicians and other prescribers,
- Implementing opioid prescribing guidelines for emergency departments and clinical practices,
- Funding prevention programs in schools, colleges and work sites,
- Implementing Naloxone (overdose antidote) distribution programs, and
- Revising and expanding criminal justice and treatment programs to respond appropriately to increasing needs related to prescription drug abuse.

Through these collaborative endeavors, Ohio plans to continue its efforts to curb prescription drug abuse, misuse and overdose with the goal of promoting the health and safety of parents, which will ultimately promote the well-being of Ohio's children. Additional information and resources about this topic and details on program activities are available on the ODH Violence and Injury Prevention Program Drug Overdose website at http://www.healthyohioprogram.org/vipp/drug/dpoison.aspx .

HOMICIDE, ALL AGES

Background

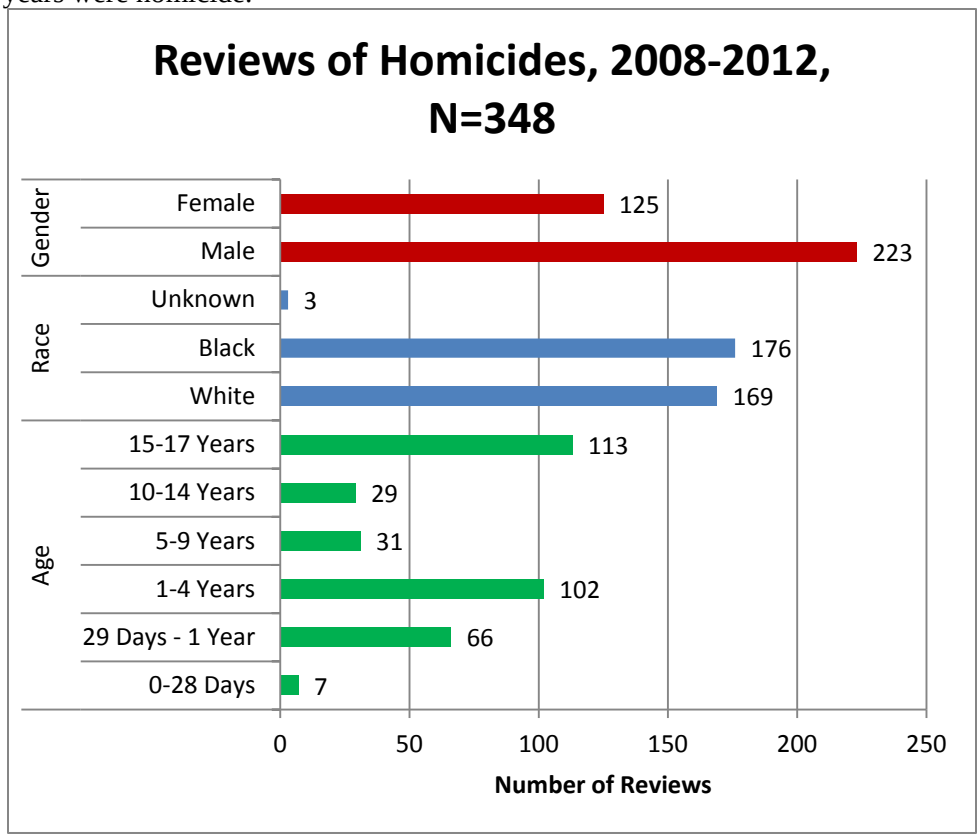
The CFR case report tool and data system capture information about homicide as a manner of death and as an act of commission, regardless of the cause of death. As homicide has unique risk factors and prevention strategies, homicide reviews from all causes of death have been combined for further analysis as a group.

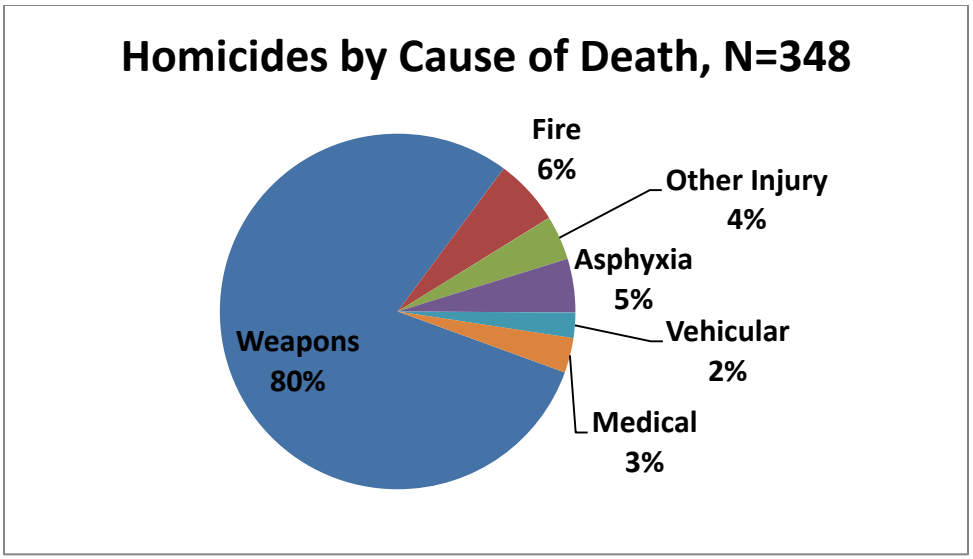
According to the National Center for Injury Prevention and Control, in 2011, homicide was the third-leading cause of death for children ages 1 to 17 years and accounted for 9 percent of the deaths in this age group. Homicide was the leading manner of death for black children ages 10 to 17 years, accounting for 25 percent.[7]

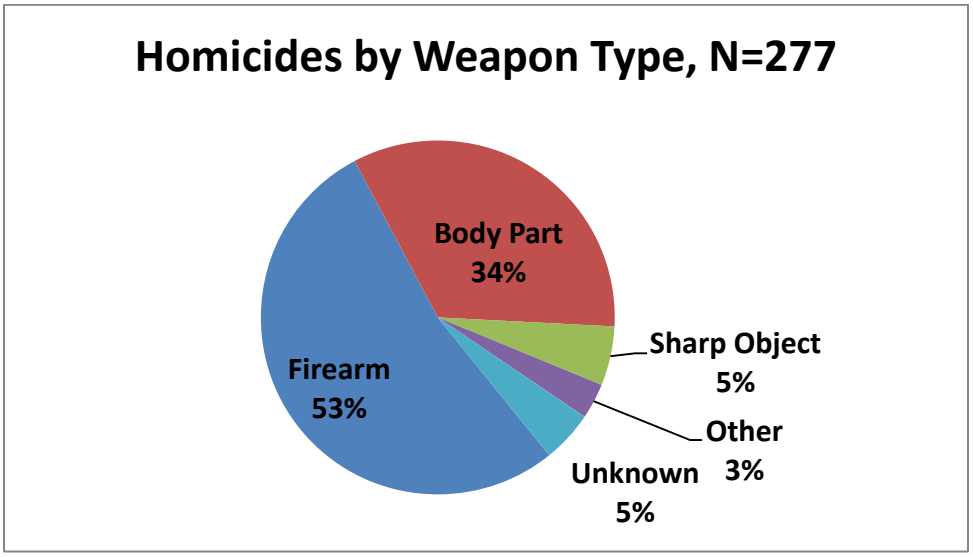
CFR Findings

For the five-year period 2008-2012, local CFR boards reviewed 348 deaths to children resulting from homicide. Homicides represent four percent of the total reviews and fourteen percent of all reviews for children ages 15 to 17 years. The percentage of all reviews due to homicide was 5 percent in 2008, 2009 and 2012, and 4 percent in 2010 and 2011.

- Homicide deaths to boys (64 percent) were disproportionately higher than their representation in the general population (51 percent).
- The proportion of homicide deaths to black children (51 percent) was more than three times their representation in the general population (15 percent).
- Of the 155 deaths from all causes to black boys ages 15 to 17 years, 48 percent (75) were homicides, while only 3 percent (12) of the 389 deaths from all causes to white boys ages 15 to 17 years were homicide.







For a better understanding of the factors related to homicides, the 348 reviews were divided by age: 206 reviews for children 0 to 9 years old, and 142 reviews for children 10 to 17 years old.

- Eighty percent (277) of homicide deaths were caused by a weapon, including body parts.
  - Eighty-one percent (115) of the homicides to children 10 to 17 years old involved firearms as the weapon. Sixteen percent (29) of the homicides to children 0 to 9 years old involved firearms.
  - Forty-four percent (90) of the homicides to children 0 to 9 years old involved the use of body parts as weapons.
- The perpetrator was more often a family member for children less than 10.
  - For children less than 10 years old, the perpetrator was a parent, stepparent, or other relative in 61 percent (126) of reviews. The parents' partner was responsible for 19 percent (39) of the homicides to younger children.
  - For children ages 10 to 17, the most frequently reported perpetrator was an acquaintance, friend or stranger (48 percent). There were 12 children ages 10 to 17 killed by a gang member (8 percent).

- In 52 percent (180) of the homicide reviews, the place of incident was the child's home.
    - For children less than 10 years old, the place of incident was the child's home in 75 percent (154) of reviews.
    - For children ages 10 to 17 years, the most commonly reported places of incident were child's home (18 percent), roadways (18 percent), sidewalks (13 percent), and friend's home (13 percent).
- Thirty-six percent (125) of the homicides reviewed were deemed to be child abuse or neglect. Fifteen percent (52) had an open case with children's protective services at the time of the incident.

Reviews of Homicides by Perpetrator, 2008-2012, N=348		
Person Causing Death	**#**	**%**
Biological Parent	117	34
Stepparent	5	1
Parent's Partner	41	12
Other Relative	27	8
Acquaintance	40	12
Friend/Boyfriend/Girlfriend	29	8
Gang Member	12	4
Stranger	23	7
Unknown	36	10
Other	15	4
Missing	3	
Total	348	100

Percents may not total 100 due to rounding.

Reviews of Homicides by Place of Incident, 2008-2012, N=348		
Place of Incident	**#**	**%**
Home	180	52
Road	26	7
Relative's Home	26	7
Friend's Home	25	7
Sidewalk/Driveway/Parking Lot	41	12
Other	36	10
Unknown	14	4
Missing	0	
Total	348	100

Percents may not total 100 due to rounding.

SUICIDE, ALL AGES

Background

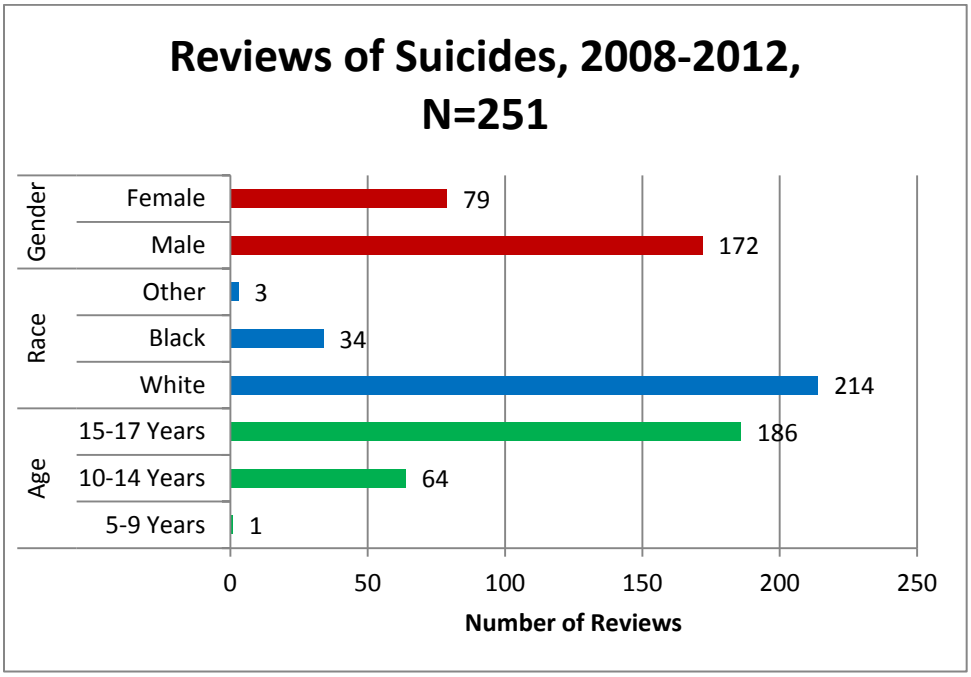
Suicide is death caused by self-directed injurious behavior with intent to die.[8] The CFR case report tool and data system capture information about suicide as a manner of death and as an act of commission, regardless of the cause of death. As suicide has unique risk factors and prevention strategies, suicide deaths from all causes have been combined for further analysis.

According to the National Center for Injury Prevention and Control, suicide accounted for 15 percent of the deaths for young people ages 10 to 17 years nationally in 2011.[9]

CFR Findings

For the five-year period 2008-2012, local CFR boards reviewed 251 deaths to children from suicide. These represent three percent of the total 7,877 reviews and 18 percent of all reviews for children ages 10 to 17. The largest number of suicides occurred in 2008 (58) and the fewest occurred in 2010 (28).

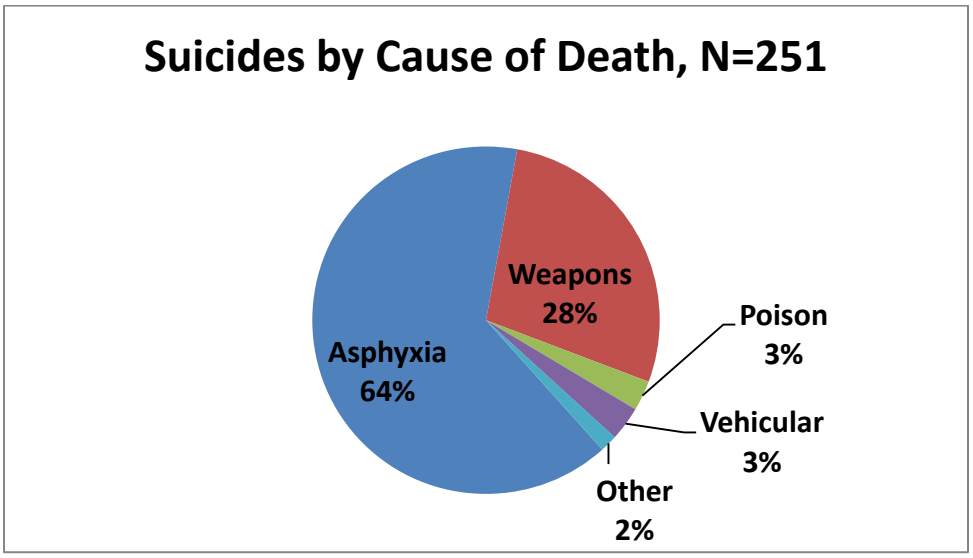
- Suicide deaths were disproportionately higher among boys (69 percent) than their representation in the general population (51 percent).
- Seventy-four percent (186) of the suicide deaths reviewed were to children ages 15 to 17.
- Twenty percent (50) of reviews for suicide deaths were from rural non-Appalachian counties, which is disproportionately higher than the proportion of children living in those counties (15 percent). Forty-nine percent (123) of reviews for suicide deaths were from metropolitan counties, which is disproportionately lower than the proportion of children living in those counties (55 percent).



- Sixty-four percent (162) of the suicide deaths were caused by asphyxiation and 28 percent (70) were caused by a weapon.
- The most frequently indicated factors that might have contributed to the child's despondency included family problems, such as divorce and arguments with parents; arguments and break-ups

with friends; school issues including failure; drug and alcohol use; victimization by bullying; and other personal crises.

- Nineteen percent (47) of reviews for suicide deaths indicated the child had a history of child abuse or neglect. Twelve had an open child protective services case at the time of the incident.
- Twenty percent (51) of the suicide victims were receiving mental health services at the time of the incident. Twenty-two percent (54) had been prescribed medications for mental health conditions.



CHILD ABUSE AND NEGLECT, ALL AGES

Background

Child abuse and neglect is any act or failure to act on the part of a parent or caretaker that results in death, serious physical or emotional harm, sexual abuse or exploitation; or that presents an imminent risk of serious harm. Physical abuse includes punching, beating, shaking, kicking, biting, burning or otherwise harming a child and often is the result of excessive discipline or physical punishment that is inappropriate for the child's age. Head injuries and internal abdominal injuries are the most frequent causes of abuse fatalities. Neglect is the failure of parents or caregivers to provide for the basic needs of their children, including food, clothing, shelter, supervision and medical care. Deaths from neglect are attributed to malnutrition, failure to thrive, infections and accidents resulting from unsafe environments and lack of supervision.

Some deaths from child abuse and neglect are the result of long-term patterns of maltreatment, while many other deaths result from a single incident. According to Prevent Child Abuse America, there are several factors that put parents at greater risk of abusing a child: social isolation, difficulty dealing with anger and stress, financial hardship, alcohol or drug abuse, mental health issues, and apparent disinterest in caring for the health and safety of their child.[10]

Many child abuse and neglect deaths are coded on the official death certificate as other causes of death, particularly unintentional injuries or natural deaths. In a study of 51 deaths identified as child abuse and neglect by local Ohio Child Fatality Review (CFR) boards in 2003 and 2004, 31 different causes of death were recorded on the death certificates. The causes included both medical and external injuries, both intentional and unintentional.[11]

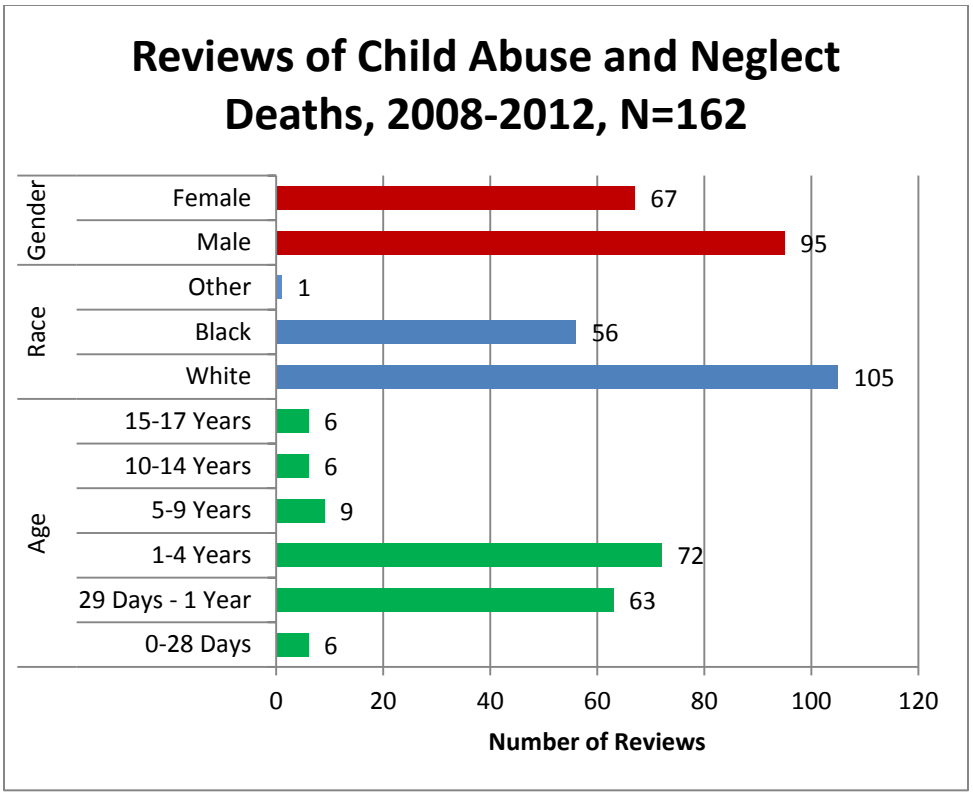
Best estimates are that any single source of child abuse fatality data, such as death certificates, exposes just the tip of the iceberg. The interagency, multidisciplinary approach of the CFR process may be the best way to recognize and assess the number and the circumstances of child maltreatment fatalities. Even the CFR process is likely to under count child abuse fatalities due to delays in reviews caused by lengthy investigation and prosecution procedures.

The CFR case report tool and data system capture information about child abuse and neglect deaths as acts of omission or commission, regardless of the cause of death. The tool collects details about the circumstances and persons responsible for the death.

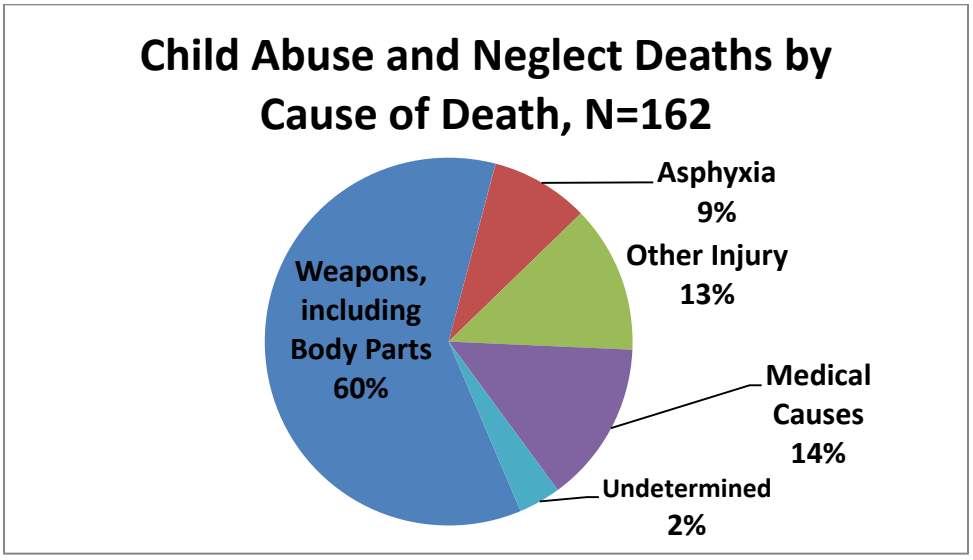
CFR Findings

For the five-year period 2008-2012, local CFR boards reviewed 162 deaths from child abuse and neglect. These represent two percent of all 7,877 deaths reviewed. The percentage of reviews of child abuse and neglect deaths has not changed during the five-year period.

- Eighty percent (130) of the 162 reviews indicated that physical abuse caused or contributed to the death, while 38 percent (61) reviews indicated that neglect caused or contributed to the death. Twenty-nine reviews indicated both abuse and neglect caused or contributed to the death.
- Eighty-seven percent (141) of child abuse and neglect deaths occurred among children younger than 5 years old.
- A greater percentage of child abuse and neglect deaths occurred to black children (35 percent) relative to their representation in the general population (15 percent).



- The 162 deaths identified as child abuse and neglect were the result of several kinds of injuries.
  - Sixty percent (98) were the result of weapons including use of a body part as a weapon.
  - Other causes of death included medical causes, asphyxiation, poison, drowning, and fire/burn injuries.
- The majority of the 162 child abuse and neglect deaths reviewed were violent deaths, with 122 resulting from physical abuse, including 30 indicating the child had been shaken.



- Thirty-seven percent (60) of the 162 child abuse and neglect deaths reviewed indicated the child had a prior history of child abuse and neglect, and 23 percent (37) had an open child protective services

case at the time of the incident. Twenty-eight percent (45) of the 162 reviews indicated the child's primary caregiver had a prior history as a perpetrator of abuse or neglect.

- Sixty percent (97) of the reviews indicated the person causing the death was a biological parent. The parent's partner was indicated as the perpetrator in 21 percent (34) of the reviews.
- For the 149 reviews where the type of residence was known, 93 percent (138) of the children were living in a parental home. Only three were in official placement in foster homes, relative foster homes or licensed group homes.

Reviews of Child Abuse and Neglect Deaths by Person Causing Death, 2008-2012, N=162		
Person	**#**	**%**
Biological Parent	97	60
Stepparent/Foster Parent	5	3
Parent's Partner	34	21
Other Relative	5	3
Friend/Acquaintance	4	2
Other	7	4
Unknown	10	6
Total	**162**	**100**

Percents may not total 100 due to rounding.

For all 7,877 deaths reviewed from all causes for the five-year period 2008-2012, 5 percent (373) indicated a prior history of child abuse or neglect, and 4 percent (291) had an open case with child protective services at the time of the death.

The Cuyahoga Board of Health presented "Child Abuse and Neglect Fatalities in an Urban Setting" at the American Public Health Association national conference. This presentation incorporated five years of local data and recognized that child fatality review teams were a best practice to assess the number, circumstances and risk factors for child maltreatment deaths. The presentation has been repeated at other state conferences, such as the Ohio School Nurse Conference.

Ohio Children's Trust Fund

The Ohio Children's Trust Fund (OCTF) is Ohio's sole public funding source for child abuse and neglect prevention. OCTF was created in Ohio law in 1984 and is governed by a board of 15 members representing a broad public-private partnership. The board consists of representatives from children's services agencies, education, law enforcement and the pediatric community. Eight members are appointed by the governor to represent the residents of Ohio, four members are legislative appointees and three members are agency directors (ODH, ODJFS and the Ohio Department of Mental Health and Addiction Services). The board supervises the policies and programs of the Trust Fund and ODJFS serves as the administrative agent for procurement and budgeting purposes.

OCTF receives revenues from surcharges on birth and death certificates and divorce and dissolution decrees. As provided under Ohio law, OCTF invests this revenue in three areas: county allocations, statewide prevention programs and initiatives, and child advocacy centers (CACs). OCTF also receives federal dollars through the Community Based Child Abuse Prevention (CBCAP) Grant. The purpose of the grant is to fund community-based primary and secondary child abuse prevention programs with statewide significance.

In 2011, OCTF became the Ohio Chapter of Prevent Child Abuse America to align Ohio's statewide prevention efforts under one entity and to further the work of Prevent Child Abuse Ohio.

The OCFT 2009 – 2014 strategic plan incorporates three critical areas: child maltreatment as a public health problem, promoting protective factors, and investing in evidence-informed practices. It is through these three areas that OCTF works to fulfill its mission of preventing child abuse and neglect through investing in strong communities, healthy families, and safe children. In addition, the 2009–2014 strategic plan shifts OCTF from focusing solely on funding prevention programs to prioritizing increased attention to consumer education, social marketing and public policy initiatives.

REVIEWS FOR 2008-2012, BY AGE GROUPS

In response to recommendations from the Ohio CFR Advisory Committee to present the data and findings in ways that are meaningful and useful to program developers and policy makers, this report presents the findings by age groups. It is reasonable to assume that some risk and protective factors may vary by age group. Presenting findings by age group may be beneficial for programs working with specific age groups.

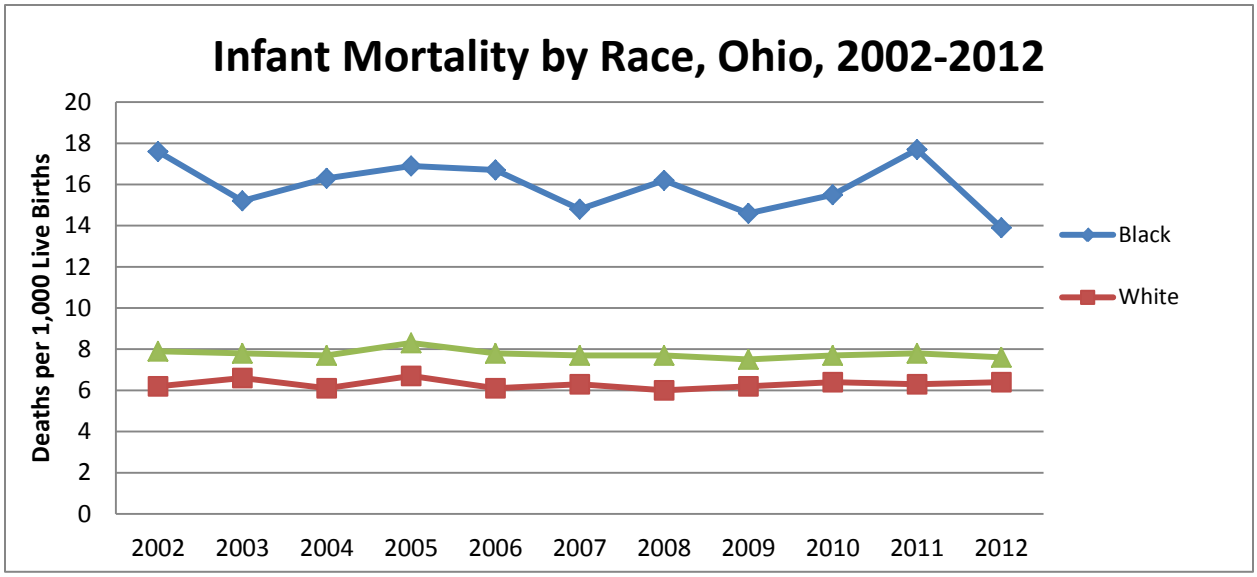
INFANT DEATHS FROM ALL CAUSES

Background

Infant mortality (IM) is an important gauge of the health of a community because infants are uniquely vulnerable to the many factors that impact health, including socioeconomic disparities. The preliminary U.S. IM rate for 2011 was 6.05 infant deaths per 1,000 live births, not significantly different from the final 2010 rate of 6.15.[12] With the exception of 2002 and 2005, the national IM rate has statistically remained the same or decreased significantly each year from 1958 through 2010.

In 2012, Ohio's overall IM rate was 7.6. Of particular concern is the black IM rate of 13.9, which is more than double the white IM rate of 6.4. These rates and proportions have changed little over the past decade.[13]

In response to Ohio's dismal IM rate and the alarming disparity between the rates for black and white infants, ODH has identified decreasing IM as a high priority in its strategic plan. In addition to activities addressing IM directly, action on other high priority issues (expanding the patient-centered medical home model; reducing obesity; and curbing tobacco use) may also have a positive impact on decreasing IM.



Caution should be used in interpreting rates and trends due to small numbers

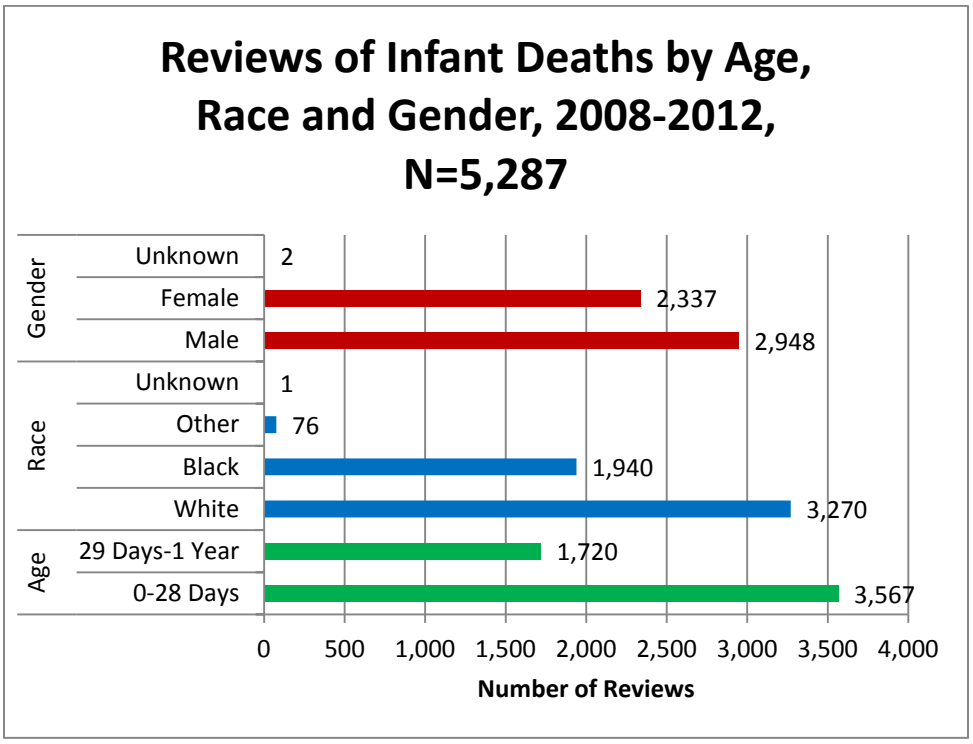
Vital Statistics

Ohio Vital Statistics data report 3,675 neonatal deaths (from birth to 28 days old) and 1,779 post-neonatal deaths (from 29 days to 1 year old) for a total of 5,454 infant deaths for the five-year period 2008-2011.

CFR Findings

Local child fatality review boards reviewed 5,287 infant deaths for 2008-2012. These represent 67 percent of all reviews for all ages.

- Forty-two percent (2,176) of the infant deaths occurred in the first day of life.
- Sixty-eight percent (3,567) were infants from birth to 28 days old.
- Thirty-three percent (1,720) were infants from 29 days to 1 year old.
- Reviews for infant deaths were disproportionately higher among boys (56 percent) and among black infants (37 percent) relative to their representation in the general population (51 percent for boys and 15 percent for black children).
- Five percent (264) of the infant deaths reviewed were to Hispanic infants. Hispanic infants account for 6 percent of Ohio's infant population.
- Thirteen percent (685) of the deaths were deemed probably preventable.



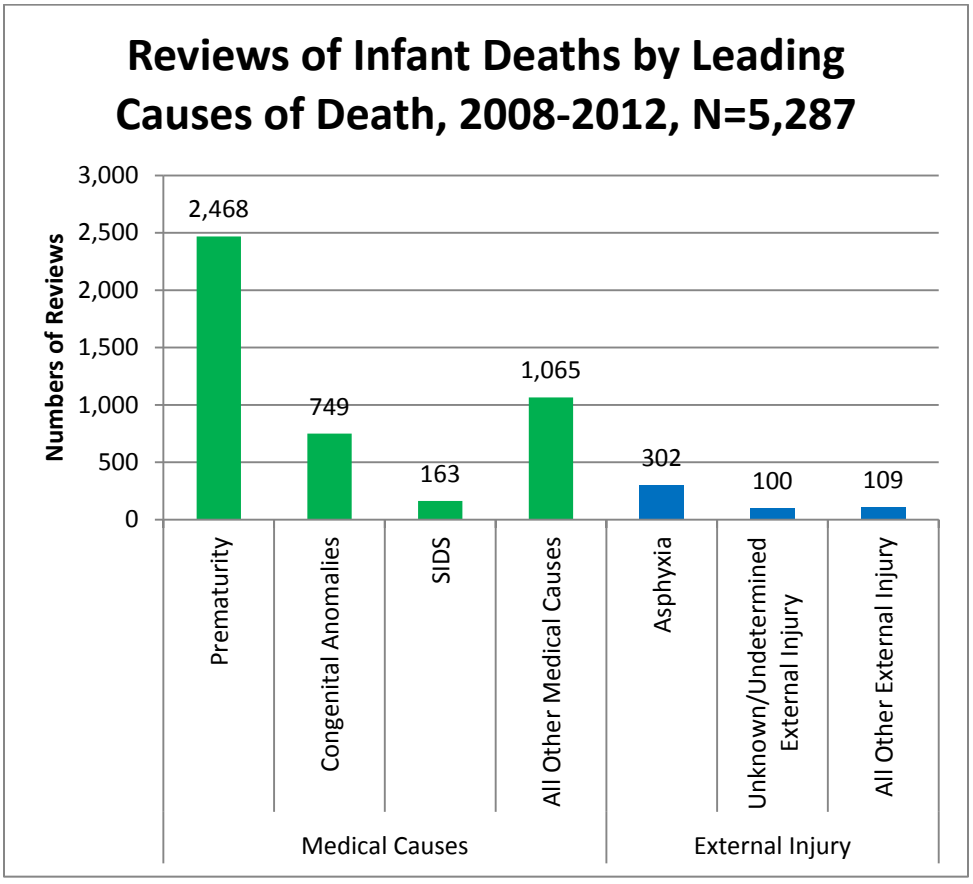
Reviews of infant deaths are grouped by cause of death:

- 4,445 (84 percent) of all infant deaths were due to medical causes.
- 511 (10 percent) were due to external injury causes.
- 331 (6 percent) were unknown if caused by medical or external causes.

Prematurity and congenital anomalies account for 72 percent (3,217) of all infant deaths from medical causes and 61 percent of infant deaths from all causes. Prematurity and congenital anomalies account for 79 percent (2,822) of the deaths to infants 0-28 days old.

Asphyxia is the leading cause of infant death due to external injury (59 percent of the infant deaths due to external injury). The next leading external cause of death is "undetermined" (19 percent of the infant deaths due to external injury).

Sleep-related deaths accounted for 15 percent (794) of all infant deaths and 41 percent (708) of the deaths to infants 29 days to 1 year old.



Other factors related to infant deaths:

- Fourteen percent (728) of the infants were from multiple births, including 61 from triplet or higher order births. For all births in Ohio in 2012, 4 percent were multiple births.
- Forty-two percent (2,148) of the infants were very low birthweight (<1,500 grams) and an additional 11 percent (534) were low birthweight (1,500-2,499 grams). Twenty-four percent (1,156) were of normal birthweight (2,500-3,999 grams) or heavier. Twenty-six percent (1,384) of the infants were of unknown or missing birthweight. For all births in Ohio in 2012, 9 percent were low or very low birthweight.
- Fifty-five percent (2,794) of the infants were born preterm (<37 weeks gestation), 25 percent (1,260) were born full term (37-42 weeks gestation) and 23 percent (1,231) were of unknown or missing gestation. For all births in Ohio in 2012, 12 percent were born less than 37 weeks gestation.
- Twenty percent (1,081) of the infant deaths reviewed were infants born to mothers who smoked during the pregnancy. For all births in Ohio in 2012, 17 percent were born to mothers who smoked during the pregnancy.
- Twenty-eight percent (1,487) of the reviews indicated the mother had a medical complication such as chronic health conditions or complications of pregnancy.

Birth History Factors for Infant Deaths, 2008-2012, N=5,287		
Birthweight	**#**	**%**
Very Low (<1,500 g)	2,148	42
Low (1,500-2,499 g)	534	11
Normal (2,500-3,999 g)	1,156	23
Above Normal (>3,999 g)	65	<2
Unknown	1,206	24
Missing	178	
Gestation	#	%
< 37 Weeks	2,794	55
37-42 Weeks	1,260	25
>42 Weeks	2	<1
Unknown	1,051	21
Missing	180	
Other Circumstances	#	%
Multiple Birth	728	14
Mother Smoked during Pregnancy	1,081	20
Mothers with Medical Condition	1,487	28

Missing data have been excluded from the percentages.
Percentages may not total 100 due to rounding.

Local CFR boards use birth certificates as a primary source of birth information, including gestational age and birthweight. Low quality of data on the birth certificates results in a high percentage of "Unknown" or "Missing" responses for CFR, as in the table above. In an effort to improve birth certificate data, the Ohio Perinatal Quality Collaborative (OPQC) and ODH Vital Statistics have implemented several quality improvement measures. A dashboard has been added to the electronic birth registry system that provides immediate feedback when information has not been entered completely or likely contains errors. "Unknown" has been removed as a response choice for questions where that response is not acceptable. ODH staff are contacting the birth hospitals to follow up on patterns of errors or low quality. These quality improvement measures will likely result in much fewer "Unknown" and "Missing" responses for CFR in the coming years.

Many counties support infant mortality reduction initiatives such as Caring for Two in **Allen** County. The program utilizes community health workers to seek out and engage pregnant women living in target neighborhoods. The community health workers provide encouragement, support and resources to address the clients' needs. Program objectives are to establish early and consistent prenatal care, consistent well baby check-ups and immunizations through the child's second birthday, and improved birth spacing.

Ohio Collaborative to Prevent Infant Mortality

The Ohio Collaborative to Prevent Infant Mortality (OCPIM) is a statewide body made up of government agencies (including ODH), advocacy groups, medical and public health providers, and a wide variety of other organizations and individuals committed to eliminating infant mortality and disparities in Ohio. The collaborative meets quarterly in Columbus to inform, connect, and energize Ohioans to address infant mortality and disparities in their local communities. OCPIM sponsors a large, biennial infant mortality summit in Columbus. Other activities include maintaining an extensive website with resources for professionals and information on the collaborative's activities (http://bit.ly/everbabymatters), a consumer website of resources to help women achieve good health and raise healthy babies (http://strongbabies.wordpress.com), and the issuance of regular communications to a large mailing list on a wide variety of topics related to infant mortality. CFR findings, data and recommendations have informed OCPIM's priorities and activities.

INFANT DEATHS DUE TO PREMATURITY

Background

Prematurity is any birth prior to 37 weeks of gestation. Infants born even a few weeks early are at increased risk for severe health problems, lifelong disability and death. Prematurity is the leading cause of infant death nationally. According to the CDC, nearly a half million infants (one out of every nine births) are born prematurely each year in the United States.[14]

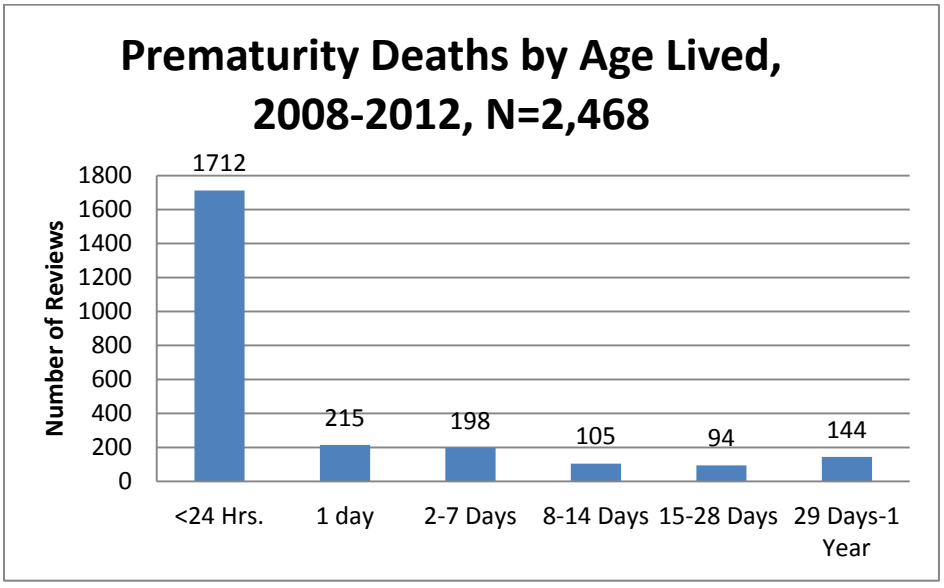
As the leading cause of death for Ohio's children, prematurity is a major contributor to Ohio's high IM rate. In response to the need to better understand the factors related to prematurity, this section has been added to the annual report.

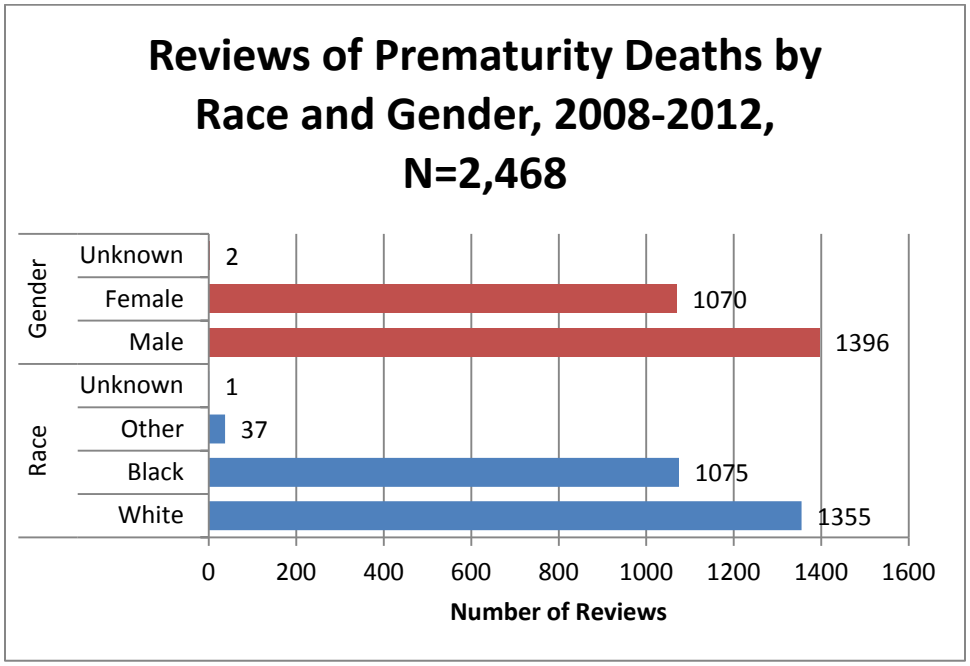
CFR Findings

The CFR case report tool and data system captures information about prematurity as both a condition of birth and a cause of death. Gestational age at birth is noted for reviews of all infant deaths from all causes. Many infants born prematurely survive the immediate complications of their early birth, but die from some other cause. A separate variable is used to record the deaths directly attributed to prematurity. This chapter includes for analysis only those reviews where the death was attributed directly to the prematurity.

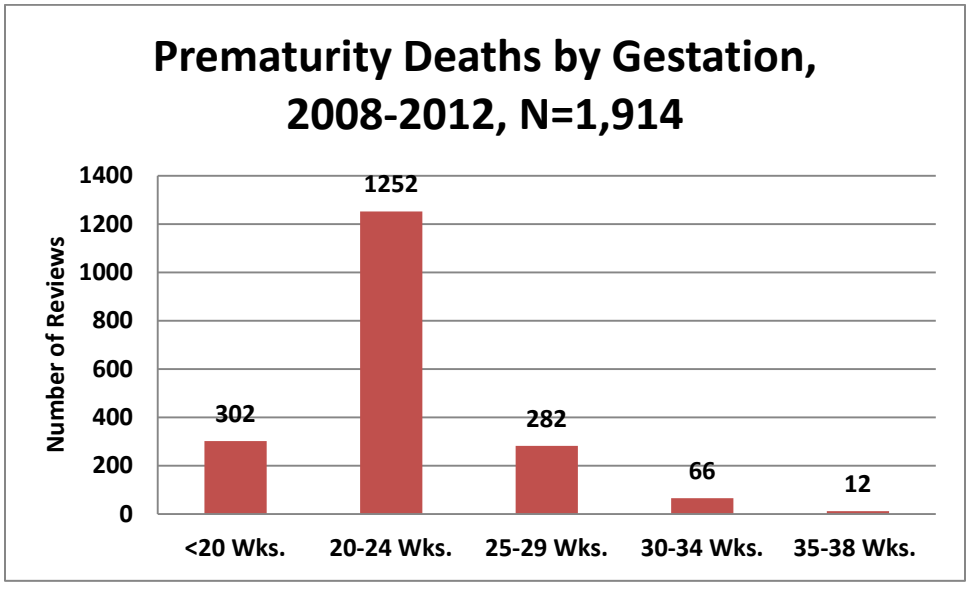
For the five-year period 2008-2012, local CFR boards reviewed 2,468 infant deaths due to prematurity. These represent 31 percent of all 7,885 reviews for all ages, and 47 percent of the 5,287 reviews for infant deaths. Reviews for deaths due to prematurity for 14 children older than one year were not included in this analysis.

- Ninety-four percent (2,322) of the prematurity deaths were neonatal deaths, occurring to infants from birth to 28 days of age. Seventy percent (1,712) of the deaths occurred within the first 24 hours of life.
- The proportion of prematurity deaths to black infants (44 percent, 1,075 reviews) is nearly three times their representation in the general infant population (15 percent).
- Prematurity deaths to boys (57 percent, 1,396 reviews) were disproportionately higher than their representation in the general infant population (51 percent).





Many of the deaths due to prematurity occurred at gestational ages considered pre-viable. Of the reviews where gestational age was known, 13 percent (302) of the deaths occurred before 20 weeks gestation. An additional 52 percent (1,252) occurred between 20 and 24 weeks gestation.

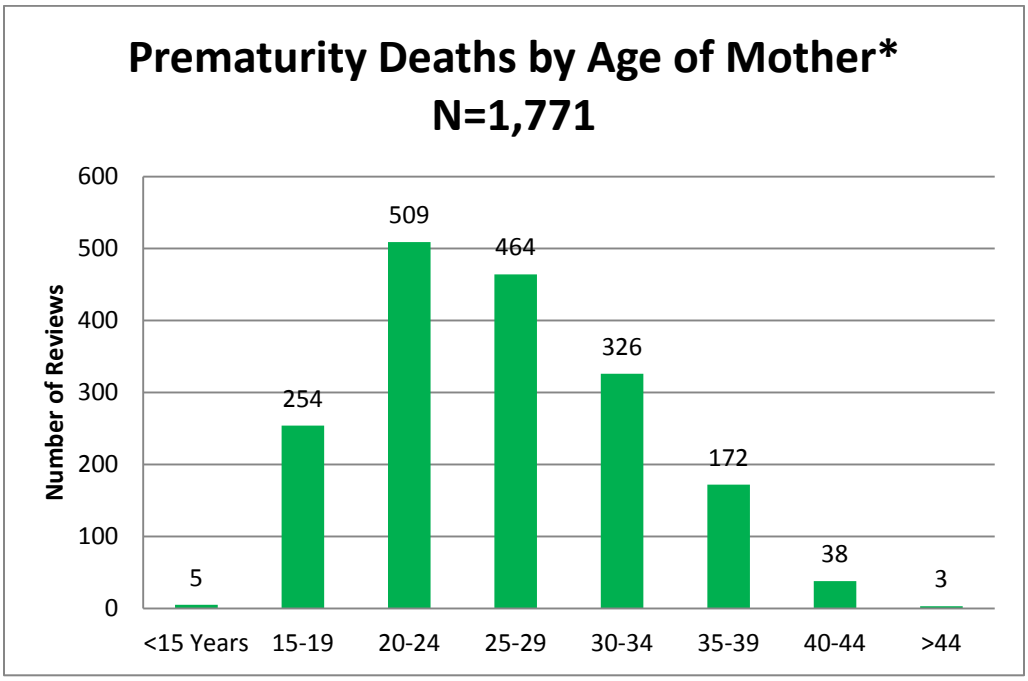


Although only 1 percent (24) of the deaths due to prematurity were deemed preventable, local CFR boards identified many factors that might increase the risk of prematurity.

- In addition to being born too early, most infants who died of prematurity were very small at birth.

Forty-three percent (1,067) weighed less than 500 grams at birth. An additional 24 percent (592) weighed between 500 and 999 grams.

- Twenty-three percent (561) of the reviews of deaths due to prematurity indicated the infants were from multiple births, including 52 from triplet or higher order births. Of the 728 multiple births among infant deaths from all causes, 77 (561) percent of the causes of death were prematurity.
- Eighteen percent (435) of the prematurity deaths reviewed were infants born to mothers who smoked during the pregnancy. For all births in Ohio in 2012, 17 percent were born to mothers who smoked during the pregnancy.
- Thirty-seven percent (922) of the prematurity deaths reviewed indicated the mother experienced health complications during pregnancy. Complications included pregnancy-related conditions such as preterm labor, chorioamnionitis, and premature rupture of membranes (1,318); as well as non-pregnancy-related conditions such as hypertension, diabetes, and other infections (370).
- For the 1,771 reviews for prematurity deaths that indicated the primary caregiver was the female biological parent (mother) and the age was known, 15 percent (259) indicated the mother's age was less than 20 years old. This is greater than the proportion of all Ohio births for this age group (8 percent).



*Where primary caregiver identified as female biological parent.

Birth History Factors for Infant Deaths Due to Prematurity 2008-2012, N=2,468		
Birthweight	**#**	**%**
<500 grams	1,067	45
500-999 grams	592	25
1,000-1,499 grams	86	4
1,500-2,499 grams	44	2
2,500 grams and over	9	<1
Unknown	589	25
Missing	81	
Gestation	#	%
< 20 Weeks	302	13
20-24 Weeks	1,252	52
25-29 Weeks	282	12
30-34 Weeks	66	3
35-38 Weeks	12	<1
Unknown	474	20
Missing	80	
Maternal Age*	#	%
<20 Years	259	15
20-24 Years	509	29
25-29 Years	464	26
30-34 Years	326	18
35-40 Years	172	10
>40 Years	41	2
Other Circumstances	#	%
Multiple Birth	539	23
Mother Smoked during Pregnancy	408	18
Mothers with Medical Condition	922	37

Missing data have been excluded from the percentages.
Percentages may not total 100 due to rounding.
*Where primary caregiver identified as female biological parent.

ODH Infant Feeding and Infant Safe Sleep Policies

ODH is committed to promoting optimal health and safety for all Ohio infants and to decreasing infant mortality. ODH recognizes its leadership role in establishing standards for policies and practices that promote healthy behaviors among its employees, programs, subgrantees and other state agencies for what ODH believes to be in the best interest of Ohio residents. In November 2012, the department adopted and began implementation of two policies regarding infant health: feeding and safe sleep. The purpose of the policies is to establish a consistent message across all department programs and activities regarding breastfeeding and safe sleep. The policies can be found at http://www.odh.ohio.gov/odhprograms/cfhs/cf_hlth/cfhs1.aspx. A training video about the policies is available on the OhioTRAIN at https://oh.train.org/DesktopShell.aspx.

Ohio Institute for Equity in Birth Outcomes

CityMatCH is a national membership organization that supports urban maternal and child health efforts at the local level and whose mission is to strengthen public health leaders and organizations to promote equity and improve the health of urban women, families and communities. ODH and CityMatCH are partnering with nine urban Ohio communities to improve overall birth outcomes and reduce the racial and ethnic disparities in infant mortality through the Ohio Equity Institute (OEI). OEI is a data-driven, high-visibility initiative designed to strengthen the scientific focus and evidence base for realizing equity in birth outcomes. During the three-year OEI initiative, the communities will receive training and support as they select, implement, and evaluate equity-focused local projects.

Local leaders organized OEI teams in urban areas determined by high infant mortality rates, significant racial disparities and local agency jurisdictions and roles. Two teams are county-based, two are city-based, and five are jointly based in both city and county. The following communities have committed to the OEI initiative:

- Butler County
- Summit County
- Cincinnati
- Columbus
- Canton (Stark County)
- Cleveland (Cuyahoga County)
- Dayton (Montgomery County)
- Toledo (Lucas County)
- Youngstown (Mahoning County)

OEI teams will work together with experts in the fields of public health, epidemiology, birth outcomes, health inequities, and evaluation to receive training on race, racism, and inequities in birth outcomes in the U.S.; epidemiology of birth outcomes and racial disparities; evidence-based interventions for vulnerable populations; leadership; and evaluation. Using knowledge of strategies shown to improve birth outcome disparities and data-driven decisions specific to the target populations in each community, teams will engage in two local equity projects aimed at reducing the disparity in birth outcomes. Teams will receive technical assistance throughout the initiative.

At the conclusion of the three-year OEI initiative, the nine teams will come together to share their process and results and add to the equity evidence base. OEI has a unique opportunity to serve as a template for other states to seeking to make measureable reductions in birth outcome inequities.

For more information about OEI, go to
http://www.odh.ohio.gov/odhprograms/cfhs/octpim/Ohio%20Equity%20Institute.aspx

INFANT SLEEP-RELATED DEATHS

Background

Since the beginning of the Ohio CFR program, local boards have been faced with a significant number of deaths of infants while sleeping. Some of these sudden unexpected infant deaths (SUIDs) are diagnosed as sudden infant death syndrome (SIDS), while others are diagnosed as accidental suffocation, positional asphyxia, overlay (the obstruction of breathing caused by the weight of a person or animal lying on the infant) or undetermined. SIDS is a subset of SUID and is a medical cause of death. It is the diagnosis given the sudden death of an infant under 1 year of age that remains unexplained after the performance of a complete postmortem investigation, including an autopsy, an examination of the scene of death and review of the infant's health history.[15] The distinction between SIDS and other SUIDs is challenging. Many of the risk factors for SIDS and asphyxia are similar. Incomplete investigations, ambiguous findings and the presence of known risk factors for other causes of deaths result in many SUIDs being diagnosed as "undetermined cause" rather than SIDS.

The difficulty of obtaining consistent investigations and diagnoses of infant deaths led the CDC to launch an initiative to improve investigations and reporting.[16] An Infant Death Investigation training was hosted by the Franklin County CFR board in June, 2011 and ODH hosted three similar trainings in early 2014. Effective September, 2014, Ohio coroners are required to complete a death scene investigation using the CDC protocol and form. The investigation form is to be shared with the local CFR board reviewing the death.

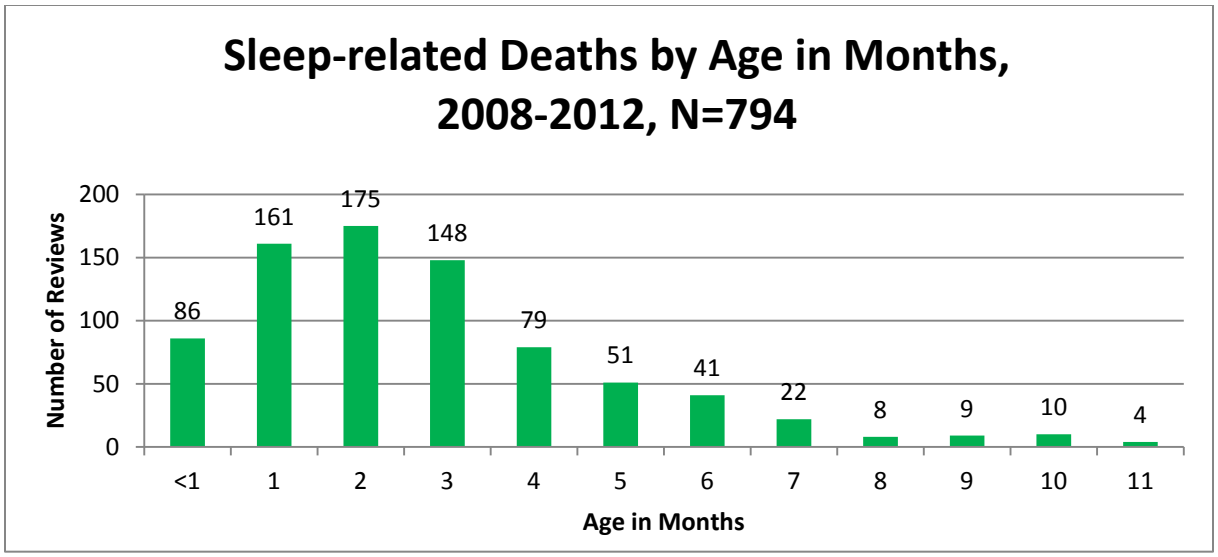
The CFR case report tool and data system captures information about deaths while sleeping as special circumstances, regardless of the cause of death. In order to better understand the contributing factors for these deaths and to develop prevention strategies, these sleep-related deaths including SIDS are analyzed and discussed as a group.

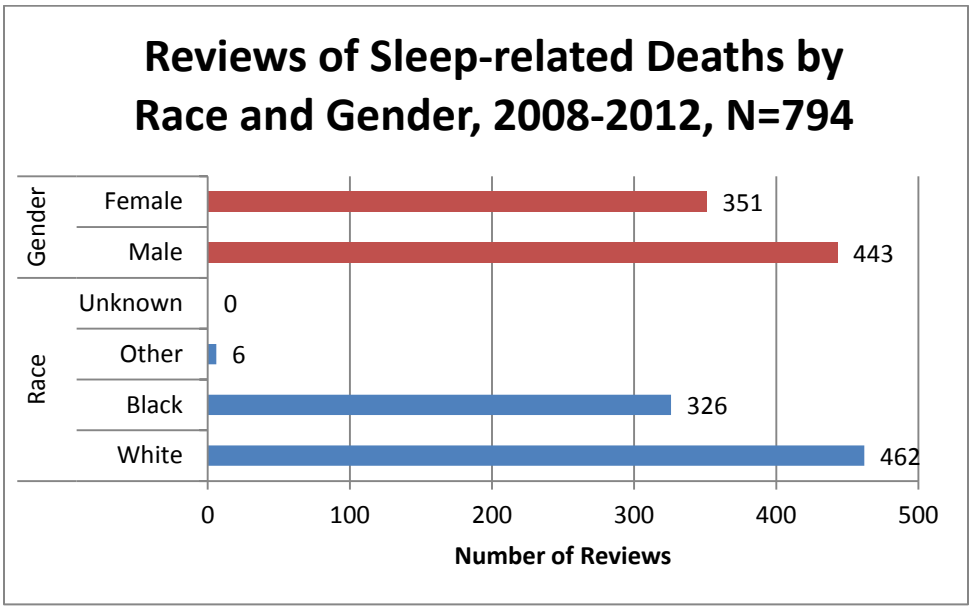
CFR Findings

From the reviews of deaths in the five-year period from 2008 to 2012, 869 cases of infants who died while in a sleep environment were identified. For the analysis of sleep-related deaths, cases of death from specific medical causes except SIDS were excluded, as were deaths from specific unrelated injuries such as fire, resulting in 794 infant sleep-related deaths. These cases include 136 SIDS reviews that included information about the circumstances.

The 794 infant sleep-related deaths account for 15 percent of the 5,287 total reviews for infant deaths from 2008 to 2012, more than any single cause of death except prematurity.

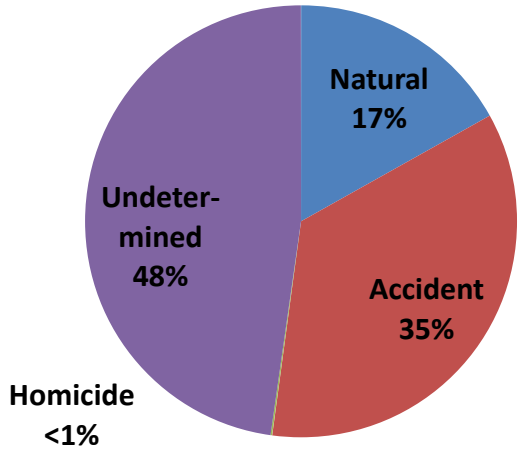
- More than three Ohio infant deaths each week are sleep-related. If the sleep-related deaths were prevented, the Ohio infant mortality rate for 2012 would have been reduced from 7.6 to 6.7 deaths per 1,000 live births.
- Of the 1,720 reviews of infant deaths from 29 days to 1 year of age, 41 percent (708) were sleep related.
- Forty-one percent (326) of deaths in a sleep environment were to black infants. This is disproportionally higher than their representation in the general infant population (15 percent).
- Eighty-eight percent (700) of the deaths occurred before 6 months of age; 53 percent (422) occurred before 3 months of age.



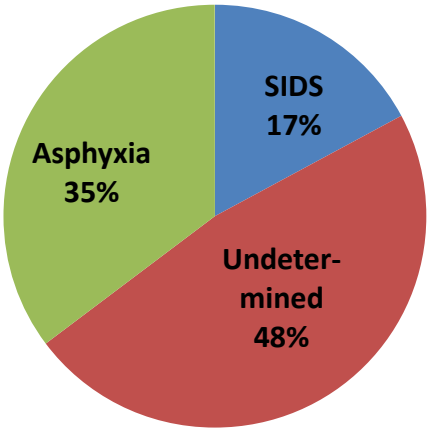


As discussed earlier in this section, determining the cause of death for infants in sleep situations is difficult, even when a complete investigation has occurred. Forty-eight percent (378) of the sleep-related deaths were diagnosed as unknown or undetermined cause, even though autopsies had been completed for 99 percent of the cases.

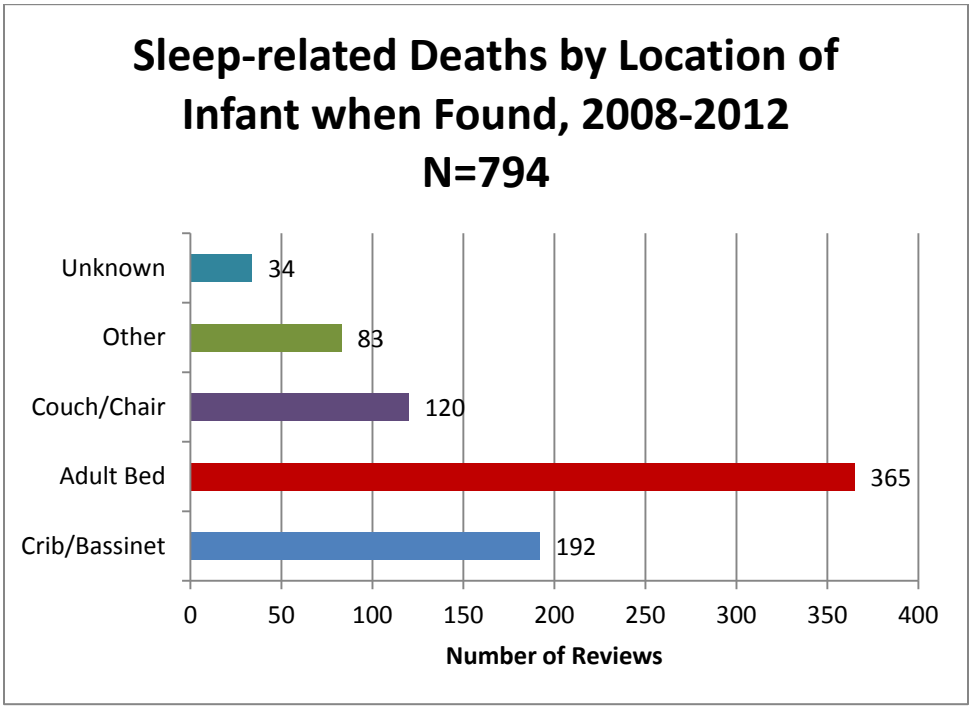
Sleep-related Deaths by Manner of Death, 2008-2012, N=794



Sleep-related Deaths by Cause of Death, 2008-2012, N=794



Twenty-four percent (192) of sleep-related deaths occurred to infants while sleeping in cribs or bassinets. Sixty-one percent (485) of sleep-related deaths occurred in adult beds, on couches or on chairs.



Bedsharing was a commonly reported circumstance for sleep-related deaths. Fifty-five percent (436) of sleep-related deaths occurred to infants who were sharing a sleep surface with another person at the time of death.

- Of 436 cases that indicated bedsharing, 87 percent (381) of the infants were sharing a sleep surface with an adult, including 51 infants who were sharing with an adult and another child.
- An additional 53 infants were sharing with another child only.
- Two infants were sharing a sleep surface with pets.
- Thirty-two reviews indicated an adult fell asleep while feeding the infant. Nine were bottle feeding; 17 were breast feeding. The feeding type was unknown or missing for six reviews.
- Of the 381 reviews indicating the infant was sharing a sleep surface with an adult, 245 (64 percent) indicated the infant's supervisor was impaired at the time of the incident.
    - Sixty-two percent (236) of the bedsharing supervisors were impaired by sleep.
    - Twenty supervisors (5 percent) were impaired by alcohol.
    - Fourteen supervisors (4 percent) were impaired by drugs.

Exposure to smoking was another commonly reported circumstance for sleep-related deaths.

- Forty-three percent (340) of the infants were exposed to smoke either in utero or after birth.
- Of the 381 infants sharing a sleep surface with an adult, 47 percent (178) were also exposed to smoke either in utero or after birth.

In October 2011, the American Academy of Pediatrics (AAP) issued a policy statement restating and expanding its 2005 recommendations for reducing the risk of SIDS and other sleep-related infant deaths (See page 65). The ABCs of safe sleep, "alone, on his/her back, in a safety-approved crib or bassinet," is a popular risk reduction slogan based on the recommendations. Of the 794 sleep-related deaths, only 62

(8 percent) indicated the infant was placed "ABC." Only one review indicated the baby was placed "ABC" with no smoke exposure.

CIAG Infant Safe Sleep Subcommittee

The Child Injury Action Group (CIAG) Infant Safe Sleep Subcommittee of the Ohio Injury Prevention Partnership works to reduce fatalities related to infants in unsafe sleep environments. Many local CFR board members participate on the subcommittee. The subcommittee has been instrumental in the development and implementation of the statewide social marketing campaign, which was launched in early 2014. The subcommittee's focus is to provide consistent, accurate messages from all sources for Ohio's most at-risk populations. The subcommittee is pursuing formal safe sleep policies and parent education policies in birthing hospitals and licensed childcare centers, as well as a recognition program for retailers. CFR findings and data have been instrumental in the work of the subcommittee.

Infant Safe Sleep Recommendations

In October 2011, the American Academy of Pediatrics issued a policy statement expanding its 2005 recommendations for reducing the risk of SIDS and other sleep-related infant deaths. Many local CFR risk reduction activities are based on these recommendations. ODH continues to urge parents and caregivers to follow these recommendations as the most effective way to reduce the risk of infant death.

- Place infants for sleep wholly on the back for every sleep, nap time and night time.
- Use a firm sleep surface. A firm crib mattress is the recommended surface.
- Room-sharing without bedsharing is recommended. The infant's crib should be in the parents' bedroom, close to the parents' bed.
- Keep soft objects and loose bedding out of the crib.
- Pregnant women should receive regular prenatal care.
- Do not smoke during pregnancy. Avoid exposure to secondhand smoke.
- Avoid alcohol and illicit drug use during pregnancy and after birth.
- Breastfeeding is recommended.
- Offer a pacifier at sleep time after breastfeeding has been established.
- Avoid overheating.
- Avoid commercial devices marketed to reduce the risk of SIDS. None have been proven safe or effective.
- Encourage supervised "tummy time" when infant is awake to avoid flat spots on the back of the infant's head and to strengthen the upper torso and neck.
- All infants should be immunized in accordance with AAP and CDC recommendations.

The policy statement includes four recommendations directed toward health policy makers, researchers and professionals to endorse the recommendations; continue research and surveillance; adhere to safe sleep guidelines in media and manufacturing advertising; and expand the Back to Sleep campaign for parents, grandparents and all other caregivers with a major focus on the safe sleep environment.

DEATHS TO CHILDREN 1 TO 4 YEARS OLD

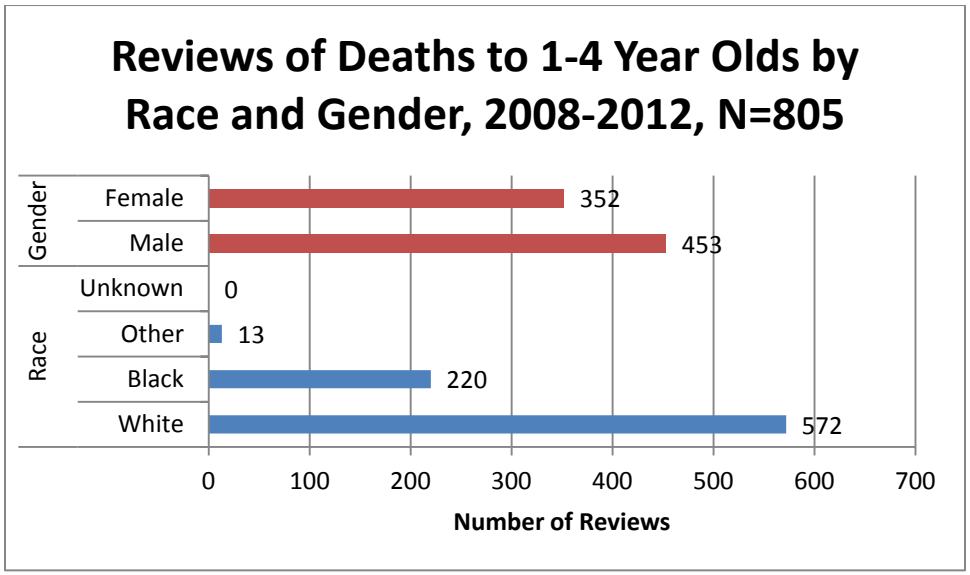
Background

No longer babies, toddlers and preschoolers experience increased mobility and more awareness of their surroundings, but lack the reasoning skills to protect themselves from many dangers.[17] According to the National Center for Health Statistics, the leading causes of death for 1 to 4 year olds are accidents, congenital anomalies and homicides. Nationally, the preliminary 2011 mortality rate for this age group was statistically unchanged from 26 per 100,000 population in 2010.[18]

CFR Findings

For the five-year period 2008-2012, local CFR boards reviewed 805 deaths to children ages 1 to 4 years. These represent 10 percent of all 7,877 deaths reviewed.

- Reviews were disproportionately higher among boys (56 percent) relative to their representation in the general population (51 percent).
- A greater percentage of deaths in this age group occurred among black children (27 percent) relative to their representation in the general population for this age group (16 percent).
- Six percent (47) of the reviews were for Hispanic children.
- Thirty-nine percent (315) of the deaths were deemed probably preventable.



The 805 reviews were classified by manner as follows:

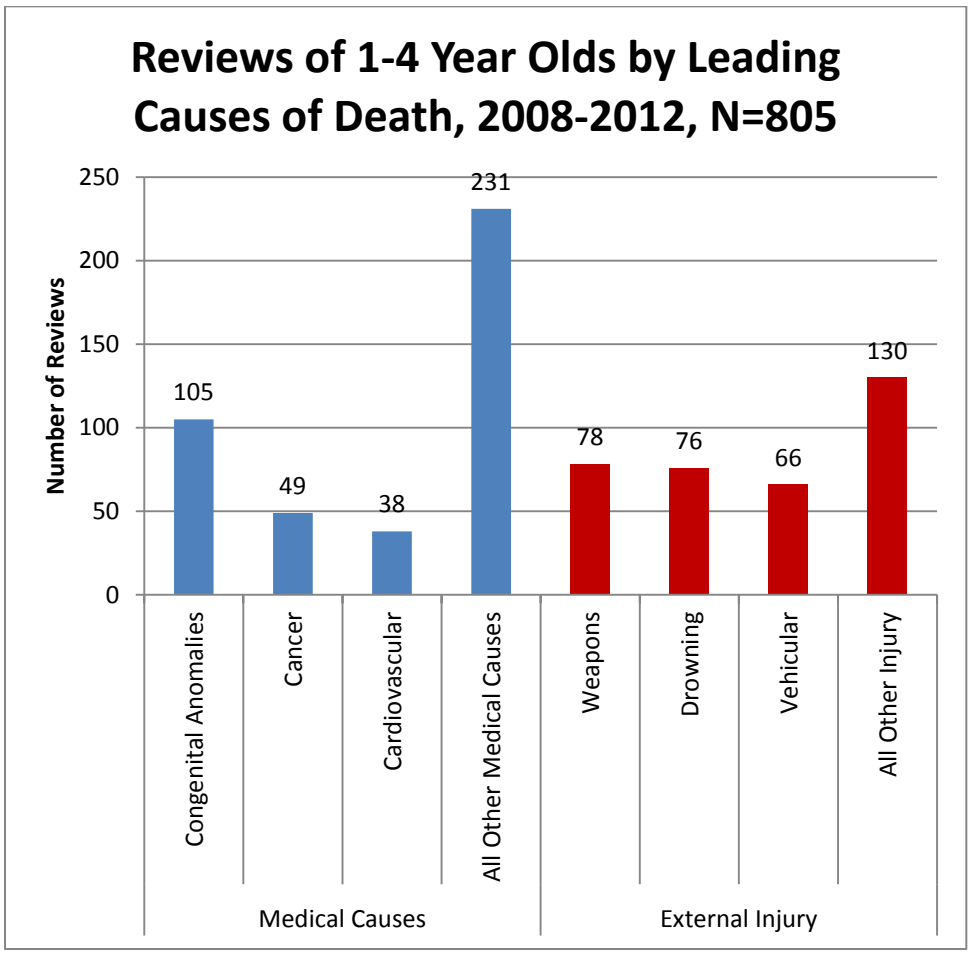
- Fifty-two percent (416) were natural deaths.
- Twenty-nine percent (232) were of accidental manner.
- Thirteen percent (102) were homicides.
- Seven percent (55) were of an undetermined manner.

Fifty-three percent (423) of the 805 reviews for 1 to 4 year olds were from medical causes.

- Congenital anomalies were the leading cause of death in this age group.
- Twenty-eight percent (118) of the deaths from medical causes were due to congenital anomalies.
- Sixteen percent (67) were due to pneumonia and other infections.
- Cancer accounted for 12 percent (49) of the deaths from medical causes.

Forty-three percent (350) of the 805 reviews for 1 to 4 year olds were due to external causes. Weapons injuries, drowning and vehicular crashes were the three leading external causes of death for this age group.

- Twenty-two percent (78) were due to weapons injuries, including the use of body parts as weapons.
- Twenty-two percent (76) of the 350 reviews were due to drowning.
- Nineteen percent (66) were due to vehicular injuries.



Weapons injuries were the leading external cause of death for 1 to 4 year olds, accounting for 78 deaths. Seventy-three of the 78 weapons deaths were homicides. Sixty-four percent (50) were deemed child abuse or neglect.

- Of the 73 homicides, 29 percent (40) indicated the perpetrator was a biological parent. The parent's partner was cited in 33 percent (24) of the reviews.
- The weapon type was indicated as body parts in 56 percent (44) of the weapons deaths to 1 to 4 year olds. Firearms (handguns, shotguns and rifles) were indicated in 27 percent (21) of the reviews.

Drowning accounted for 76 of the deaths to 1 to 4 year olds.

- Fifty-three percent (40) of the drowning deaths occurred in pools, while 24 percent (18) occurred in open water such as ponds, lakes and rivers. Eleven percent (8) occurred in bathtubs.
- Drowning deaths occur very quickly. While 36 percent (27) of the reviews of drowning deaths indicated the child was not supervised at the time of the incident, an equal number of reviews indicated the child was within sight of the supervisor, or had been seen within minutes of the incident.
- Thirty-seven percent (28) of the reviews indicated there was no barrier such as a fence, gate or door to prevent the child's access to the water.

Vehicular injuries accounted for 66 deaths to 1 to 4 year olds.

- Fifty-five percent (36) of the 66 were passengers in vehicles. Only two reviews indicated the child's driver was 21 year old or younger. Fifty-three percent (19) were responsible for the crash. Four of the 36 drivers (11 percent) were impaired at the time of the incident.
- Forty-four percent (29) of the 66 vehicular deaths indicated the child killed was a passenger in a car, truck, van or SUV, where by law, children must use seat belts and safety seats or boosters. Of those 29, 52 percent (15) were properly restrained.
- Forty-two percent (28) of the vehicular deaths were to pedestrians or children on bicycles or tricycles. Six were back-over incidents. Seventeen of the 28 pedestrians or cyclists had supervision at the time of the incident.

Local CFR boards identified 72 deaths from child abuse and neglect among 1 to 4 year olds. These represent 9 percent of all reviews for this age group, more than any other age group.

- Thirty-nine percent (28) of the reviews indicated the person causing the death was a biological parent.
- The parent's partner was cited in 36 percent (26) of the reviews.

Ohio's Booster Seat Law

Ohio's Child Restraint Law requires children to use belt-positioning booster seats when they outgrow their child safety seats (usually at 4 years old and 40 pounds). The belt-positioning booster seats must be used until the child is 8 years old, unless the child is at least 4 feet, 9 inches tall. Booster seats raise the child so the shoulder and lap belt are correctly positioned across the strongest parts of the child's body, rather than riding up over the child's neck and stomach. By requiring the use of booster seats, the law will help prevent serious injuries and deaths to young children.

The current law requires the following:

- Children younger than 4 years old or less than 40 pounds must use a child safety seat.
- Children younger than 8 years old must use a booster seat until they are at least 4 feet, 9 inches tall.
- Children ages 8 to 15 who have outgrown child safety seats and boosters must be restrained by the standard safety belts.

More information about the law and choosing the correct car seat or booster seat can be found at http://www.healthy.ohio.gov/vipp/cps/Child%20Passenger%20Safety%20Law.aspx.

DEATHS TO CHILDREN 5 TO 9 YEARS OLD

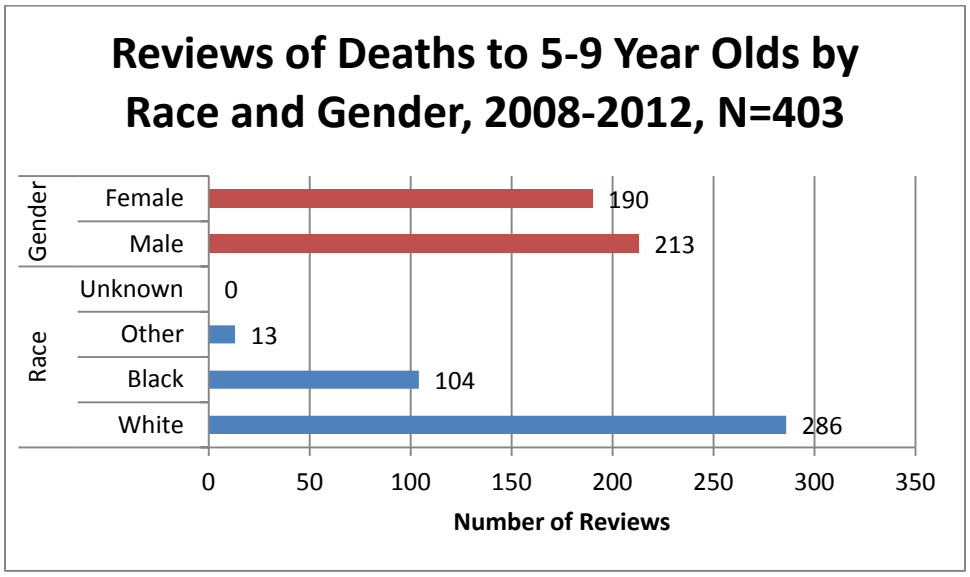
Background

Children ages 5 to 9 years continue to improve motor skills and have more regular contact with people outside their family. They have a growing understanding of consequences and of right and wrong.[19] According to the National Center for Injury Prevention and Control, the leading causes of death for 5 to 9 year olds are accidents, cancers and congenital anomalies.[20]

CFR Findings

For the five-year period 2008-2012, local CFR boards reviewed 403 deaths to children ages 5 to 9 years. These represent 5 percent of all 7,877 deaths reviewed.

- The proportion of reviews for the deaths of boys (53 percent) was slightly greater than their representation in the general population (51 percent).
- A greater percentage of deaths in this age group occurred among black children (26 percent) relative to their representation in the general population (15 percent).
- Five percent (19) of the reviews were for Hispanic children.
- Thirty-one percent (126) of the deaths were deemed probably preventable.



The 403 reviews were classified by manner as follows:

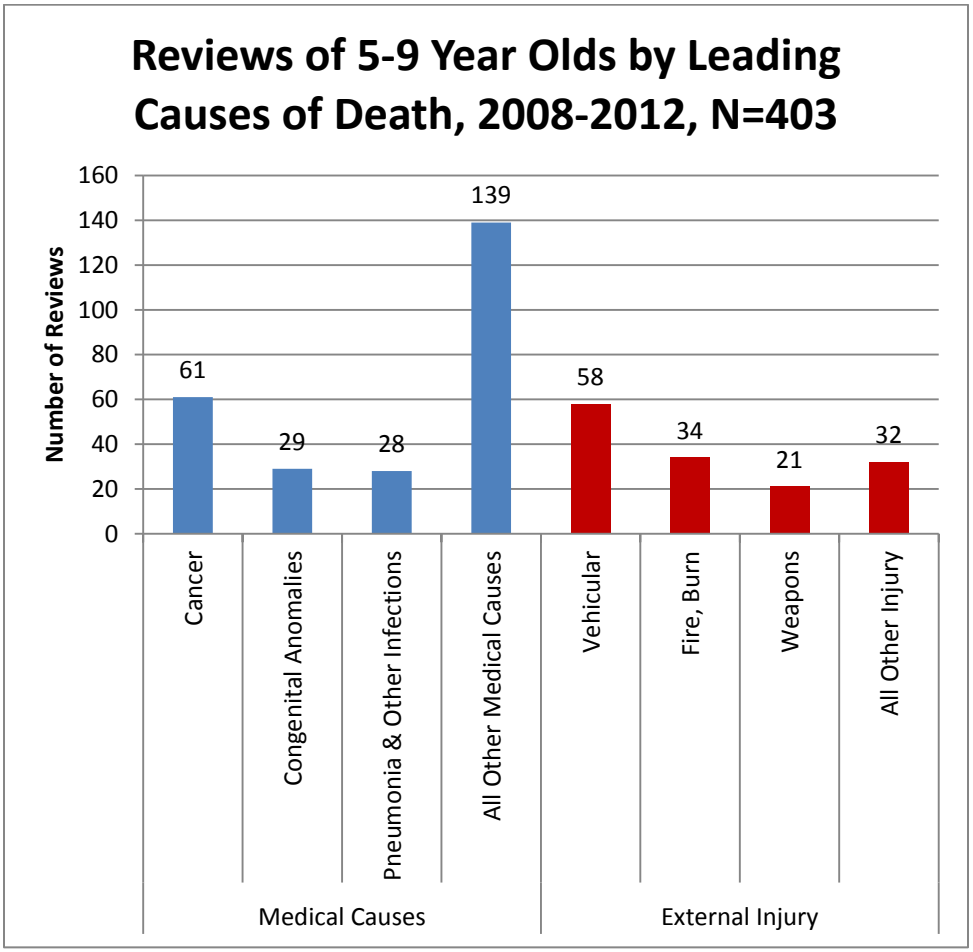
- Sixty-three percent (255) were natural deaths.
- Twenty-seven percent (110) were of accidental manner.
- Eight percent (31) were homicides.
- Less than 1 percent (1) were suicides.
- Two percent (6) were of an undetermined manner.

Sixty-four percent (257) of the 403 reviews for 5 to 9 year olds were from medical causes.

- Cancer was the leading medical cause of death in this age group.
- Twenty-four percent (61) of the deaths from medical causes were due to cancer.
- Twelve percent (32) were due to pneumonia, influenza and other infections.
- Congenital anomalies accounted for 11 percent (29) of the deaths from medical causes.

Thirty-six percent (145) of the 403 reviews for 5 to 9 year olds were due to external causes. Vehicular crashes, fires and weapons injuries were the three leading external causes of death for this age group.

- Forty percent (58) of the 147 reviews were due to vehicular injuries.
- Twenty-three percent (34) were due to fires and burns.
- Fourteen percent (21) were due to weapons injuries, including the use of body parts as weapons.



Vehicular injuries accounted for 58 deaths to 5 to 9 year olds. One vehicular death was homicide; the remainder were accidental manner.

- Fifty percent (31) of the 58 were passengers in vehicles. Only two reviews indicated the child's driver younger than 21 years. One of the 31 drivers was impaired, while five drivers of the other vehicle were impaired at the time of the incident.
- Forty-seven percent (27) indicated the child killed was a passenger in a car, truck, van or SUV, where by law, children must use seat belts and safety seats or boosters. Of those 27, 44 percent (12) were properly restrained.
- Forty-one percent (24) of the vehicular deaths were to pedestrians or children on bicycles or other pedal cycles. Seven of the 24 pedestrians or cyclists had supervision at the time of the incident.

Fire and burn injuries (34) were the second leading cause of external death for 5 to 9 year olds. Fifteen percent (5) of the 36 fire and burn deaths were homicides.

- Thirty-two percent (11) of the reviews indicated a smoke detector was present. Only four were

known to be functioning.

Local CFR boards identified nine deaths from child abuse and neglect among 5 to 9 year olds. These represent 2 percent of all reviews for this age group, and 6 percent of the 164 child abuse and neglect deaths for all ages.

- Fifty-six percent (5) of the reviews indicated the person causing the death was a biological parent.
- Other perpetrators included other relatives and the parents' partner.

Ohio Youth Bicycle Helmet Ordinance Toolkit

The risk of serious head injuries is greatly reduced when children wear helmets. Local bicycle helmet laws that mandate helmet usage among children are highly effective at increasing helmet use and reducing injuries, especially when laws are coupled with education and enforcement. Ohio does not have a state bicycle helmet law. To help facilitate the adoption of local ordinances, the OIPP has developed the Ohio Youth Bicycle Helmet Ordinance Toolkit. Advocates can use the materials in this toolkit to educate and advocate for a local ordinance in their community. The kit contains a variety of tools to help local communities get started with their initiative, including: a bicycle helmet law policy brief; model legislation; a list of Ohio jurisdictions with local helmet ordinances; templates letters to the editor and letters of support; frequently asked questions about bicycle helmet ordinances; and sample legislation from Ohio municipalities. The toolkit can be found at https://sites.google.com/site/ippaag/helmet-toolkit.

DEATHS TO CHILDREN 10 TO 14 YEARS OLD

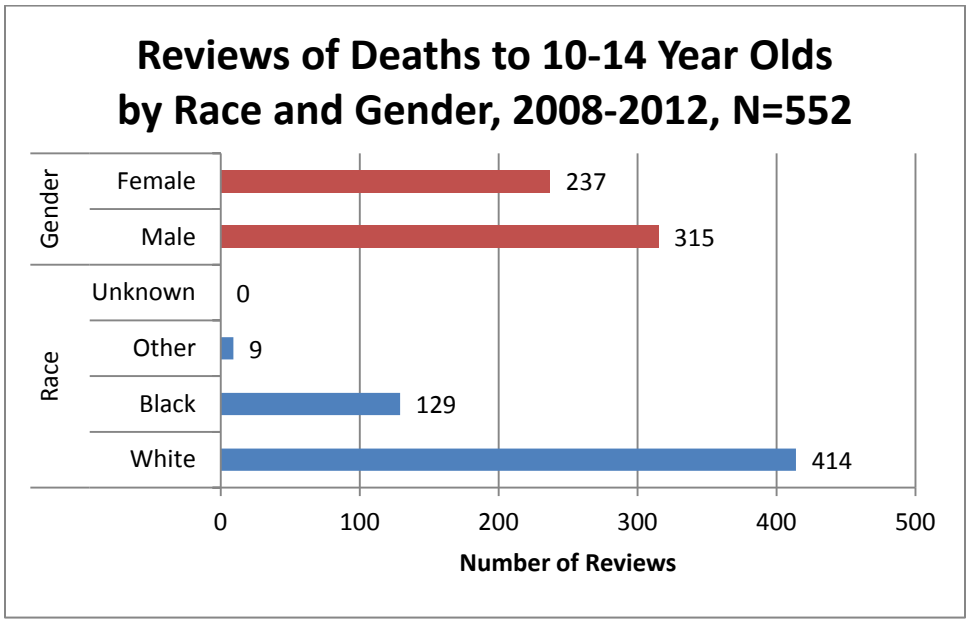
Background

Children in early adolescence experience many physical, cognitive and social-emotional changes. As 10 to 14 year olds experience more independence, they also encounter strong peer pressure.[21] According to the National Center for Injury Prevention and Control, the leading causes of death for 10 to 14 year olds are vehicular crashes, cancers and suicides.[22]

CFR Findings

For the five-year period 2008-2012, local CFR boards reviewed 552 deaths to children ages 10 to 14 years. These represent 7 percent of all 7,877 deaths reviewed.

- Reviews were disproportionately higher among boys (57 percent) relative to their representation in the general population (51 percent).
- A greater percentage of deaths in this age group occurred among black children (23 percent) relative to their representation in the general population in this age group (15 percent).
- Four percent (21) of the reviews were for Hispanic children.
- Thirty-six percent (199) of the deaths were deemed probably preventable.



The 552 reviews were classified by manner as follows:

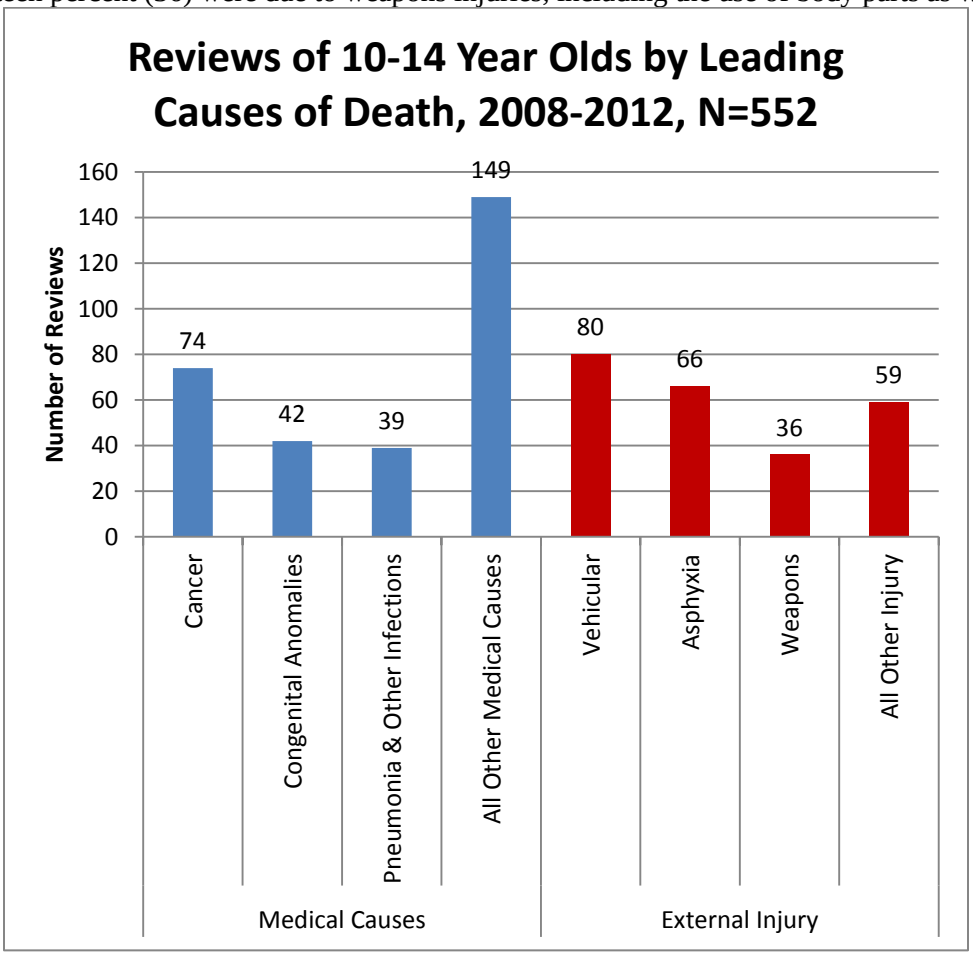
- Fifty-four percent (298) were natural deaths.
- Twenty-six percent (144) were of accidental manner.
- Twelve percent (64) were suicides.
- Five percent (29) were homicides.
- Three percent (17) were of an undetermined or unknown manner.

Fifty-five percent (304) of the 552 reviews for 10 to 14 year olds were from medical causes.

- Cancer was the leading medical cause of death in this age group.
- Twenty-four percent (74) of the deaths from medical causes were due to cancer.
- Congenital anomalies accounted for 14 percent (42) of the deaths from medical causes.
- Thirteen percent (39) were due to pneumonia and other infections.

Forty-four percent (241) of the 552 reviews for 10 to 14 year olds were due to external causes. Vehicular crashes, asphyxia and weapons injuries were the three leading external causes of death for this age group.

- Thirty-three percent (80) of the 241 reviews were due to vehicular injuries.
- Twenty-seven percent (66) were due to asphyxia.
- Fifteen percent (36) were due to weapons injuries, including the use of body parts as weapons.



Vehicular injuries accounted for 80 deaths to 10 to 14 year olds. All but one of the vehicular deaths were of accidental manner.

- Fifty-one percent (41) of the 80 were passengers in vehicles. Twenty-eight percent of the reviews indicated the child's driver was 21 years or younger. Two of the 41 drivers (5 percent) were impaired at the time of the incident. The driver of the other vehicle was impaired in six cases.
- Thirty-nine percent (31) indicated the child killed was a passenger in a car, truck, van or SUV, where by law, children must use seat belts. Of those 31, 29 percent (9) were properly restrained.
- Thirty-three percent (26) of the vehicular deaths were to pedestrians or children on bicycles or other pedal cycles.

Asphyxia (66) was the second leading cause of external death for 10 to 14 year olds.

- Ninety-five percent (63) of the asphyxia deaths were due to strangulation. The remaining three were due to choking or suffocation.
- Seventy-six percent (50) of the 66 asphyxia deaths were suicides.

Local CFR boards reviewed 64 suicide deaths to 10 to 14 year olds. These represent 12 percent of all 552 reviews for this age group, and 26 percent of the 251 suicide deaths for all ages.

- Seventy-eight percent (50) of the suicides were by asphyxia. Nineteen percent (12) were by weapons and two deaths were by poisoning.
- Twenty-five percent (16) were receiving mental health services at the time of the incident.
- The most frequently indicated factors that might have contributed to the child's despondency were family discord, school problems and bullying.

Concussions in Youth Sports: Ohio's Return-to-Play Law

A concussion is an injury to the brain that may be caused by a jolt or blow to the head. Concussions can range from mild to severe. Receiving a second blow to the head before recovering from an initial concussion is particularly dangerous and can result in brain swelling, paralysis and even death. Effective April, 2013, Ohio law prohibits students who have experienced a concussion from returning to sports practices or competitions without written permission from a health care provider. The ODH Violence and Injury Prevention Program provides information and resources for students, parents, coaches, and health care providers at http://www.healthy.ohio.gov/vipp/concussion.aspx#Concussion Info Sheet.

DEATHS TO CHILDREN 15 TO 17 YEARS OLD

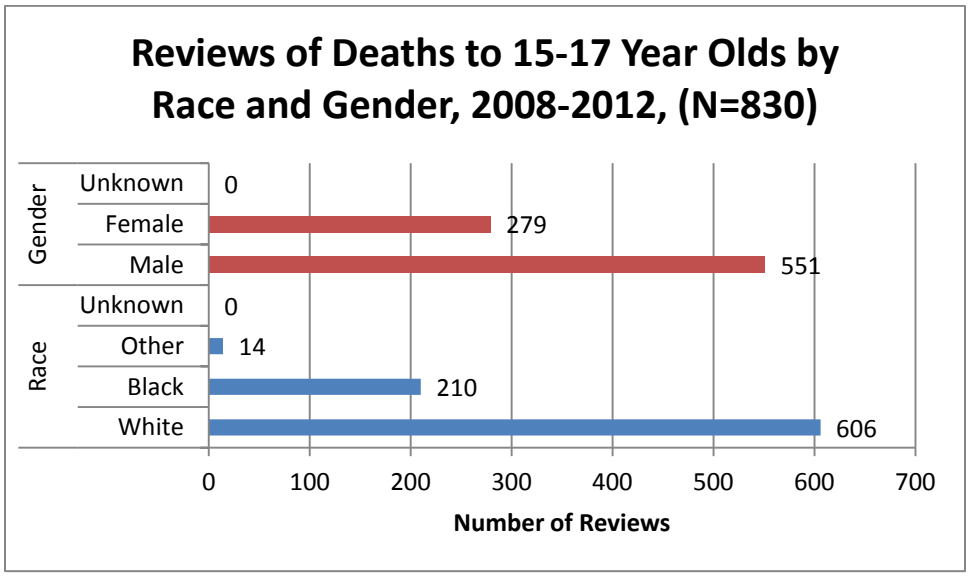
Background

Known for challenging the limits, teenagers enjoy more independence from their family and develop strong relationships with peers.[23] According to the National Center for Injury Prevention and Control, the leading causes of death for 15 to 17 year olds are vehicular crashes, suicides and homicides.[24]

CFR Findings

For the five-year period 2008-2012, local CFR boards reviewed 830 deaths of children ages 15 to 17 years. These represent 11 percent of all 7,877 deaths reviewed.

- Reviews were disproportionately higher among boys (66 percent) relative to their representation in the general population (51 percent).
- A greater percentage of deaths in this age group occurred among black children (25 percent) relative to their representation in the general population (15 percent).
- Three percent (26) of the reviews were for Hispanic children.
- Fifty-eight percent (479) of the deaths were deemed probably preventable.



The 830 reviews were classified by manner as follows:

- Twenty-seven percent (223) were natural deaths.
- Thirty-six percent (297) were of accidental manner.
- Twenty-two percent (186) were suicides.
- Fourteen percent (113) were homicides.
- One percent (11) were of an undetermined or unknown manner.

Of the 155 deaths from all causes to black boys ages 15 to 17 years, 48 percent (75) were homicides, while only 3 percent (12) of the 389 deaths from all causes to white boys ages 15 to 17 years were homicide.

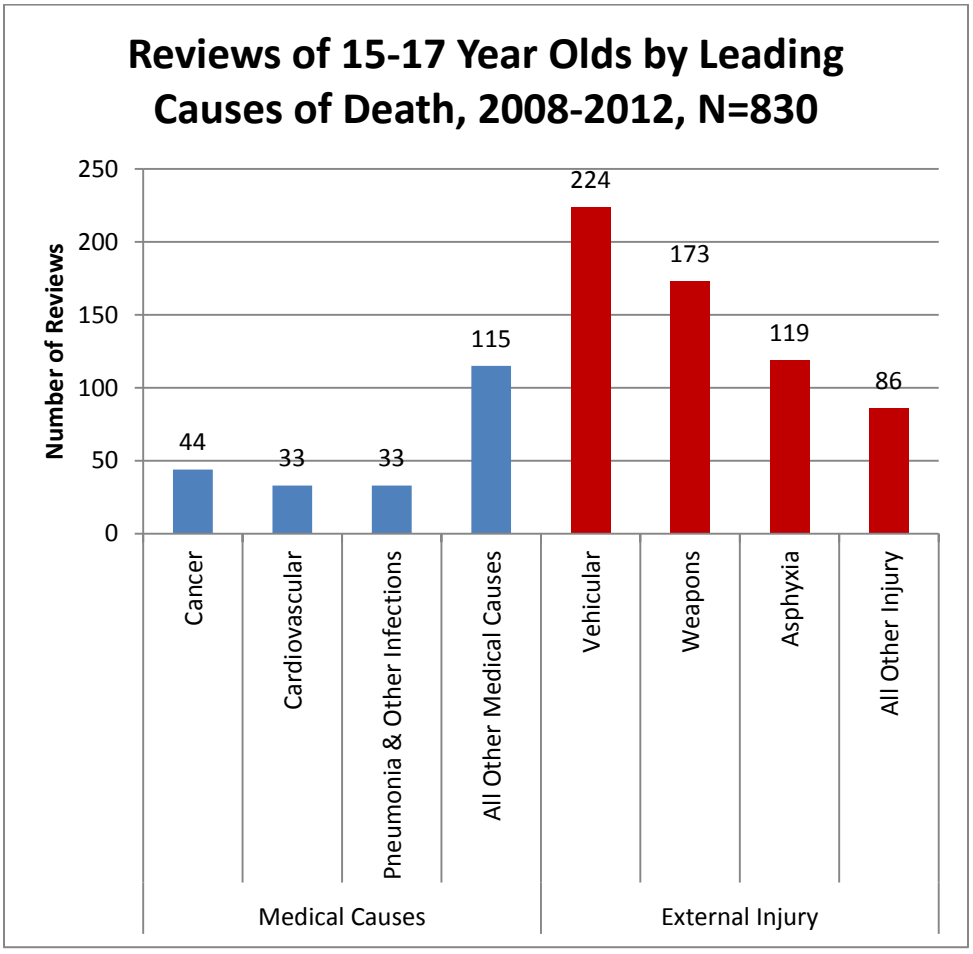
Twenty-seven percent (225) of the 830 reviews for 15 to 17 year olds were from medical causes.

- Cancer was the leading medical cause of death in this age group.
- Twenty percent (44) of the deaths from medical causes were due to cancer.

- Cardiovascular disorders accounted for 15 percent (33) of the deaths from medical causes.
- Congenital anomalies claimed twelve percent (27) of the deaths from medical causes.

Seventy-three percent (602) of the 830 reviews for 15 to 17 year olds were due to external causes. Vehicular crashes, weapons injuries and asphyxia were the three leading external causes of death for this age group.

- Thirty-seven percent (224) of the 602 reviews were due to vehicular injuries.
- Twenty-nine percent (173) were due to weapons injuries, including the use of body parts as weapons.
- Twenty percent (119) were due to asphyxia.



Of the 224 reviews for deaths from vehicular injuries to 15 to 17 year olds, 4 percent (8) were suicides and 2 percent (4) were homicides.

- Vehicular deaths to 15 to 17 year olds is nearly equal to the number of deaths from all medical causes combined (225).
- Eighty-six percent (193) of the vehicular deaths to 15 to 17 year olds were white children, while 12 percent (16) were black children.
- Forty-six percent (103) of the reviews were for children who were driving the vehicle.
    - Eighty-five percent (88) of the 103 child drivers were deemed responsible for the incident. Seventeen were impaired.

    - Speed, recklessness and inexperience were the most frequently cited causes of crashes.
    - Of the 86 children who were driving cars, trucks, vans and SUVs, where by law, children must use seat belts, 36 percent (31) were properly restrained.
- Thirty-six percent (80) of the 224 vehicular deaths occurred to children who were passengers.
    - Seventy-five percent (60) of the drivers of the child's vehicle were deemed responsible for the incident. Fifteen were impaired.
    - Speed, recklessness and inexperience were the most frequently cited causes of crashes.
    - Of the 75 children who were passengers in cars, trucks, vans and SUVs, where by law, children must use seat belts, 19 percent (14) were properly restrained.
    - For children who were passengers, 53 percent (42) of the child's drivers were 16 to 18 years old. Sixty-three percent (50) were 21 years or younger.
- Seventeen percent (38) of the vehicular deaths were to pedestrians or children on bicycles or other pedal cycles.
- Of the 26 vehicular deaths to black 15 to 17 year olds, 31 percent (8) were pedestrians or cyclists, while 15 percent (28) of the 193 white 15 to 17 year olds were pedestrians or cyclists.

Weapons injuries, including the use of body parts as weapons, were the second leading cause of death for 15 to 17 year olds.

- The 173 weapons deaths represent 21 percent of all deaths to 15 to 17 year olds.
- Weapons deaths were disproportionately higher among boys (80 percent) and black children (58 percent) relative to their representation in the general population (51 percent for boys and 15 percent for black children).
- Sixty-two percent (107) of the weapons deaths were homicides and 34 percent (58) were suicides. Only 4 percent (7) were of accidental manner.
- Firearms (handguns, shotguns and rifles) were involved in 94 percent (162) of the deaths. Other weapons included sharp instruments and body parts used as weapons.
- Thirty-six percent (63) of the reviews for weapons deaths indicated the child had a delinquent or criminal history.

Asphyxia was the third leading cause of death for 15 to 17 year olds.

- The 119 asphyxia deaths represent 14 percent of all deaths to 15 to 17 year olds.
- Ninety-five percent (113) of the asphyxia deaths were due to strangulation. The remaining seven were due to suffocation, choking, or other mechanism.
- Ninety-three percent (111) of the 119 asphyxia deaths were suicides.

Local CFR boards reviewed 186 suicide deaths to 15 to 17 year olds. These represent 22 percent of all 830 reviews for this age group, and 74 percent of the 251 suicide deaths for all ages.

- Sixty percent (111) of the suicides were by asphyxia. Thirty-one percent (58) were by weapons. Other causes included vehicular crashes, poisoning, and falls.
- Thirty percent (55) were receiving mental health services at the time of the incident and twenty-three percent (43) were receiving medication for mental illness.
- Nineteen percent (35) of the suicide reviews indicated a history of child maltreatment and eight indicated an open case with children's protective services at the time of the incident.
- The most frequently indicated factors that might have contributed to the child's despondency were family discord including divorce and arguments with parents; arguments or breakups with boyfriend or girlfriend; and school problems.

Ohio's Teen Driving Laws

Graduated licensing allows young drivers to improve their skills and driving habits while restricting driving under circumstances that increase the risk of crashes. The Ohio Graduated Driver License law (GDL) mandates that a young driver receives a minimum of 24 hours of classroom instruction and eight hours of behind-the-wheel instruction in driver training. In addition to this requirement, they must receive at least 50 hours of in-car practice (10 of these at night) with a parent or legal guardian.

The GDL prohibits teen drivers under the age of 18 from using any electronic wireless communication device. Passengers are restricted to one person who is not a family member, unless accompanied by the teen driver's parent, guardian, or legal custodian. Teen drivers are prohibited from driving between midnight and 6 a.m. for those younger than 17, and between 1 a.m. and 5 a.m. for those 17 and 18 years old. Complete information on Ohio's GDL can be found at http://bmv.ohio.gov/graduated_dl_teen_laws.stm#tog.

Violent Deaths to Youths

In the spring of 2014, the state CFR coordinator was asked to be a keynote speaker at the conference of the Ohio Police Juvenile Officers' Association. The conference planners asked for a presentation about violent youth deaths: homicides, suicides and drug overdose deaths. Preparing the presentation provided an opportunity to study the data for these deaths of 10 to 17 year olds as a group.

For the five-year period 2008-2012, local CFR boards reviewed 1,382 deaths to 10 to 17 year olds and 32 percent (444) of those were due to suicide, homicide or drug overdose. For this group of deaths:

- Twenty-five percent (112) had a history of maltreatment. Eight percent (34) had an open case with children's protective services at the time of the incident.
- Twenty-three percent (102) had a delinquent or criminal history.
- Twenty-four percent (105) had a history of substance abuse.
- Twenty-nine percent (130) had previously received mental health services.

Discussion after the data presentation included the role of officers in strategies for keeping at-risk children engaged in supportive services.

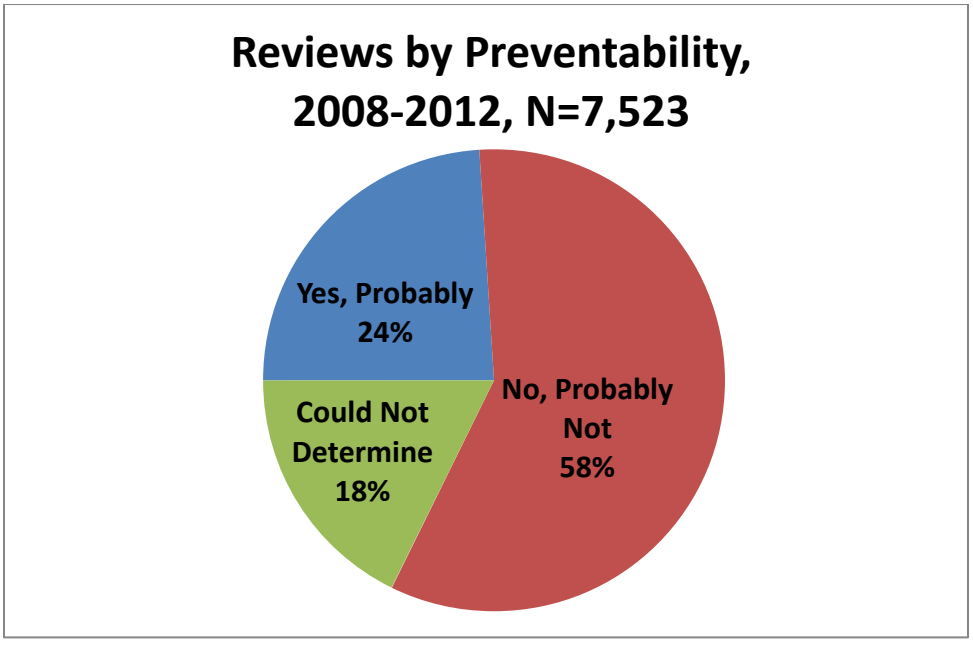
PREVENTABLE DEATHS

The mission of the Ohio CFR program is to reduce the incidence of preventable child deaths in Ohio. A child's death is considered preventable if the community or an individual could reasonably have changed the circumstances that led to the death.[25] The review process helps CFR boards focus on a wide spectrum of factors that may have caused or contributed to the death or made the child more susceptible to harm. After these factors are identified the board must decide which, if any, of the factors could reasonably have been changed. Cases are then deemed "probably preventable" or "probably not preventable."

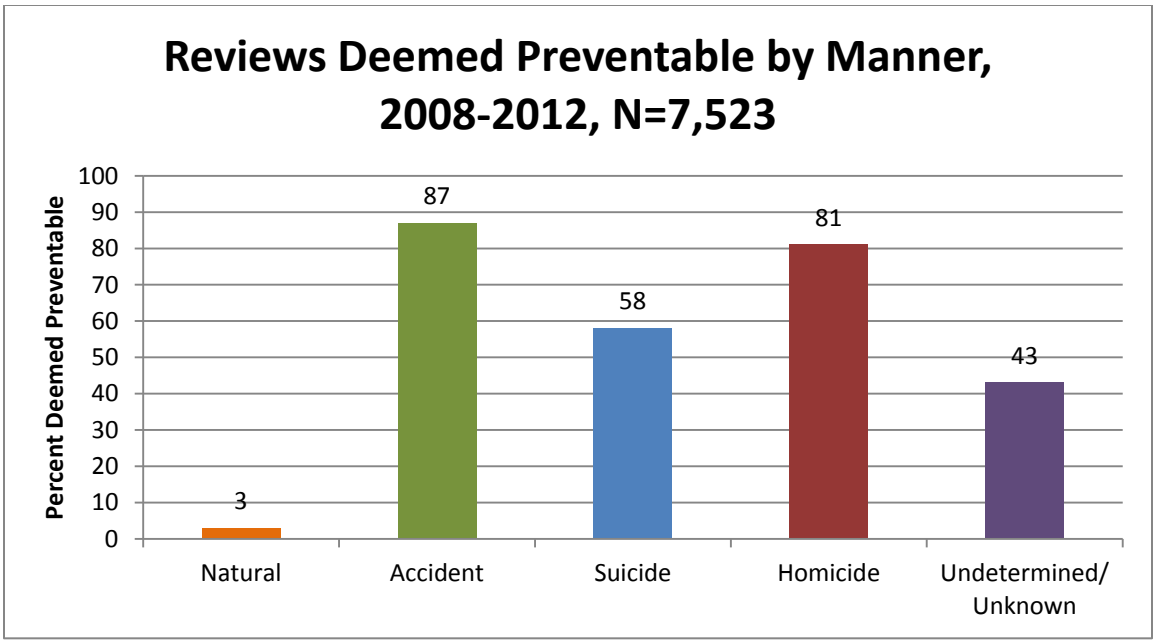
Even if a particular case is deemed "probably not preventable," the CFR process is valuable in identifying gaps in care, systemic service delivery issues or community environmental factors that contribute to less than optimal quality of life for vulnerable individuals. For this reason, many local boards make recommendations and initiate changes even when a particular death is not deemed preventable.

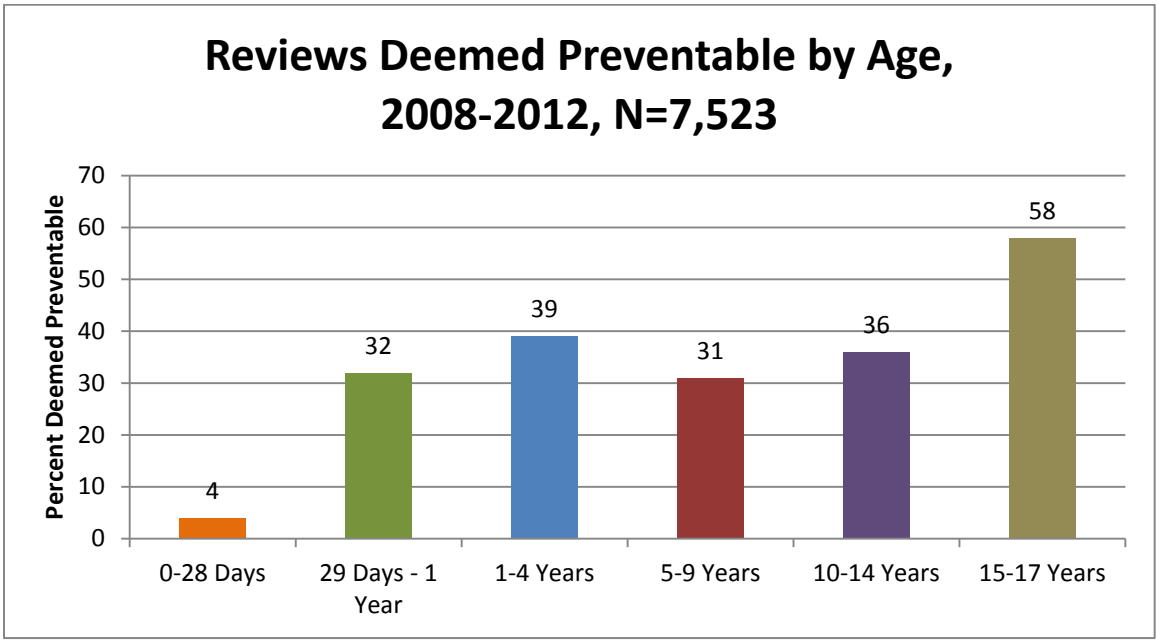
CFR Findings

Of the 7,877 reviews completed for the five-year period 2008-2012, twenty-three percent (1,804) of the reviews indicated the death probably could have been prevented. Preventability differed by manner of death and by age group.



- Eighty-seven percent (993) of the 1,144 deaths of accidental manner were considered probably preventable.
- Fifty-eight percent (479) of the 830 deaths to 15 to 17-year-olds were considered probably preventable.
- Only 4 percent (129) of the 3,567 deaths to infants less than 29 days old were considered probably preventable.





Local CFR boards identify many deaths that likely could have been prevented through changes in laws or policies, such as mandating the use of booster seats in cars; or through the implementation of programs, such as Cribs for Kids. Many other deaths likely could have been prevented through increased adult supervision, increased parental responsibility and the exercise of common sense. Through the sharing of perspectives during the CFR discussions, members have learned that often-repeated health and safety messages need to be presented in new ways to reach new generations of parents, caregivers and children.

CONCLUSION

The mission of CFR is the prevention of child deaths in Ohio. Each child's death is a tragic story. Individually, these deaths are sudden, unexpected and shocking, for both the family and the community. The deaths often seem to happen "out of the blue," but as the facts about the circumstances of all the deaths are compiled and analyzed, certain risks to children become clear, including:

- Prematurity, which accounts for nearly half of all infant deaths.
- Unsafe sleep environments, which place healthy infants at risk of sudden death.
- Riding unrestrained in vehicles, which puts children at greater risk of death in the event of a crash.
- Racial disparity that results in black children dying from homicide at more than three times the expected rate.
- A history of maltreatment, substance abuse and criminal activity, which is common for youth who died of suicide, homicide or drug overdose.

While there is no way to predict most of child deaths, we are able to identify some groups of children who are at increased risk of death. The analysis of the data leads to difficult questions: Which community systems are in position to identify children at risk? Are systems available and accessible to all? Were opportunities for interventions missed? Why were attempted interventions ineffective? How can these tragic deaths be prevented?

This report summarizes the process of local reviews by multi-disciplinary boards of community leaders, which results in data regarding the circumstances related to each death. It is intended to be a vehicle to share the findings with the wider community to engage others in concern about these and other risks. Partners are needed to develop recommendations and implement policies, programs and practices that can have a positive impact in reducing the risks and improving the lives of Ohio's children. We encourage you to use the information in this report and to share it with others who can influence changes to benefit children. We invite you to collaborate with local CFR boards to prevent child deaths in Ohio.

APPENDIX I
OVERVIEW OF OHIO CHILD FATALITY REVIEW PROGRAM

Child deaths are often regarded as indicators of the health of a community. While mortality data provide us with an overall picture of child deaths by number and cause, it is from a careful study of each and every child's death that we can learn how best to respond to a death and how best to prevent future deaths.

Recognizing the need to better understand why children die, in July 2000 then Governor Bob Taft signed the bill mandating child fatality review (CFR) boards in each of Ohio's counties to review the deaths of children under 18 years of age. For the complete law and administrative rules pertaining to CFR, refer to the ODH website at www.odh.ohio.gov/odhprograms/cfhs/cfr/cfrrule.aspx. The mission of these local review boards, as described in the law, is to reduce the incidence of preventable child deaths. To accomplish this, it is expected that local review teams will:

- Promote cooperation, collaboration and communication among all groups that serve families and children.
- Maintain a database of all child deaths to develop an understanding of the causes and incidence of those deaths.
- Recommend and develop plans for implementing local service and program changes and advise ODH of data, trends and patterns found in child deaths.

While membership varies among local boards, the law requires that minimum membership include:

- County coroner or designee.
- Chief of police or sheriff or designee.
- Executive director of a public children service agency or designee.
- Public health official or designee.
- Executive director of a board of alcohol, drug addiction and mental health services or designee.
- Pediatrician or family practice physician.

Additional members are recommended and may include the county prosecutor, fire/emergency medical service representatives, school representatives, representatives from Ohio Family and Children First Councils, other child advocates and other child health and safety specialists. The health commissioner serves as board chairperson in many counties.

CFR boards must meet at least once a year to review the deaths of child residents of that county. The basic review process includes:

- The presentation of relevant information.
- The identification of contributing factors.
- The development of data-driven recommendations.

Local CFR board review meetings are not open meetings and all discussion and work products are confidential.

Each local CFR board provides data to ODH by recording information on a case report tool before entering it into a national Web-based data system. The report tool and data system were developed by the National Center for Prevention and Review of Child Death (NCPRCD) with a cooperative agreement from the federal Maternal and Child Health Bureau. The tool captures information about the factors related to the death and the often-complex conversations that happen during the review process in a format that can be analyzed on the local, state or national level. This report is based on the analysis of data from the NCPRCD data system.

ODH is responsible for providing technical assistance and annual training to the CFR boards. In September 2013, a state CFR conference, *Toward a Brighter Future for Ohio's Children*, was held at the Ohio Union in Columbus. The purpose of the conference was to create opportunity for local CFR boards to share experiences and knowledge to improve Ohio's capacity for an effective child fatality review program. ODH also provided a new board chair/coordinator orientation in 2013. Throughout the year, conference calls and NCPRCD webinars provided additional training opportunities for Ohio's local boards.

ODH staff coordinate the data collection, assure the maintenance of a Web-based data system and analyze the data reported by the local boards. The annual state report is prepared and published jointly with the Ohio Children's Trust Fund. As the value of CFR has been promoted widely, ODH staff receive many requests for data reports on specific topics or for specific geographic regions. In 2013, ODH assisted local CFR boards in a CFR report for a six-county region in northwest Ohio; a brief report on drowning deaths; and reports of infant deaths for Ohio Equity Institute counties.

To assist moving CFR forward in Ohio, an advisory committee was established in 2002. The purpose of the advisory committee is to review Ohio's child mortality data and CFR data to identify trends in child deaths; to provide expertise and consultation in analyzing and understanding the causes, trends and system responses to child deaths in Ohio; to make recommendations in law, policy and practice to prevent child deaths in Ohio; to support CFR and recommend improvements in protocols and procedures; and to review and provide input for the annual report.

This report presents information from the reviews of deaths that occurred in 2012, as well as aggregate data for the five-year period 2008 to 2012. By reporting the information by year of death, it is possible to compare CFR data with data from other sources such as vital statistics. In making such comparisons, it is important to use caution and acknowledge the unique origins and purposes for each source of data. CFR data included in this report are the outcome of thoughtful inquiry and discussion by a multi-disciplinary group of community leaders who consider all the circumstances surrounding the death of each child. They bring to the review table information from a variety of agencies, documents and areas of expertise. Their careful review process results in a thorough description of the factors related to child deaths.

Despite their best efforts, CFR boards are not able to review every child death. Some reviews must be delayed until all legal investigations and prosecutions are completed. Some deaths occur outside the county of residence or outside the state, resulting in long delays in notification to the CFR board. Due to these variables, it is usually impossible to find an exact number-for-number match between CFR data and data from other sources such as vital statistics. The unique role of CFR data is to provide a comprehensive depth of understanding to augment other, more one-dimensional data sources.

APPENDIX II
CHILD FATALITY REVIEW ADVISORY COMMITTEE

Christy Beeghly
Ohio Department of Health
Violence and Injury Prevention

Rachel Belenker
Ohio Department of Health
Office of General Counsel

Lea Blair
Ohio Department of Health
Division of Family and Community Health Services

Jo Bouchard
Ohio Department of Health
Bureau of Child and Family Health Services

Brian Carlson
Ohio Attorney General's Office

Lorrie Considine
Cuyahoga County Board of Health

David Corey
Ohio Coroners Association

Amy Davis
Ohio Department of Health
Bureau of Child and Family Health Services

Angela Cornelius Dawson
Commission on Minority Health

Lori Deacon
Ohio Department of Health
Bureau of Child and Family Health Services

Jolene DeFiore-Hyrmer
Ohio Department of Health
Ohio Violent Death Reporting System

Judy Nagy
Ohio Department of Health
Vital Statistics

Connie Geidenberger
Ohio Department of Health
Center for Public Health Statistics and Informatics

Karen Gray-Medina
Columbus Public Health

Liz Henrich
Ohio Association of County Behavioral Health Authorities

Janice Houchins
Ohio Family and Children First
East Central District

John Hurley
Ohio Department of Mental Health

Jill Jackson
Ohio Department of Education

Arthur James
Ohio Department of Heath
Nationwide Children’s Hospital
The Ohio State University

Barbara Manuel
Ohio Department of Job and Family Services
Office of Families and Children

Ellen McManus
Nationwide Children’s Hospital
Center for Family and Child Advocacy

Tom Miller
Medina County Sheriff's Office

Kathleen Nichols
Attorney General's Office

Angie Norton
Ohio Department of Health
Bureau of Community Health Services and Patient-Centered Primary Care

Tammy Payton
Ohio Family and Children First

Emily Pelphrey
Ohio Attorney General's Office

Barbara Pryor
Ohio Department of Health
Bureau of Healthy Ohio

Leslie Redd
SID Network of Ohio

Kristen Rost
Ohio Department of Job and Family Services
Children's Trust Fund

Angela Sausser Short
Public Children Services Association of Ohio

Duane Scott
Copley Police Department

Cynthia Shellhaas
Ohio Department of Health
Bureau of Child and Family Health Services
The Ohio State University

Joe Stack
Ohio Department of Public Safety

Kelly Taulbee
Hocking County Health Department

Laurie Thuman
Delaware County Health Department

Tracy Tucker
Parent (SIDS)

Barbara Turpin
Ohio Children's Defense Fund

APPENDIX III
OHIO DEPARTMENT OF HEALTH
BUREAU OF CHILD AND FAMILY HEALTH SERVICES
CHILD FATALITY REVIEW PROGRAM STAFF

Jo Bouchard
Chief

Lori Deacon
Assistant Chief

Amy Davis
Health Planning Administrator

Merrily Wholf
CFR Coordinator

APPENDIX IV
2014 LOCAL CHILD FATALITY REVIEW BOARD CHAIRS

Adams
Bruce M. Ashley
Adams County Health Department
937-544-5547
adamcohd@odh.ohio.gov

Allen
Kathy Luhn
Allen County Health Department
419-228-4457
kluhn@allenhealthdept.org

Ashland
Jelayne Dray
Ashland Health Department
419-282-4226
ddaughe2@lycos.com

Ashtabula
Raymond J. Saporito
Ashtabula County Health Department
440-576-6010
ray.saporito@odh.ohio.gov

Athens
James R. Gaskell
Athens City-County Health Department
740-592-4431
jamesgaskell2000@yahoo.com

Auglaize
Oliver Fisher
Auglaize County Health Department
419-738-3410
ofisher@auglaizehealth.org

Belmont
Linda Mehl
Belmont County Health Department
740-695-1202
lmehl@belmontcountyhealth.org

Brown
Christopher T. Haas
Brown County General Health District
937-378-6892
christopher.haas@odh.ohio.gov

Butler
Robert J. Lerer
Butler County Health Department
513-863-1770
boh@butlercountyohio.org

Carroll
Nicholas V. Cascarelli
Carroll County Health Department
330-627-4866
Ncascarelli@carroll-lhd.org

Champaign
Jeffrey A. Webb
Champaign Health District
937-484-1606
jwebb@champaignhd.com

Clark
Charles Patterson
Clark County Combined Health District
937-390-5600
cpatterson@ccchd.com

Clermont
Julianne Nesbit
Clermont County General Health District
513-732-7499
jnesbit@clermontcountyohio.gov

Clinton
Pamela Walker-Bauer
Clinton County Health Department
937-382-3829
pbauer@clincohd.com

Columbiana
Wesley J. Vins
Columbiana County Health Department
330-424-0272
wvins@columbiana-health.org

Coshocton
Rebecca J. Beiter
Cochocton County General Health District
740-295-7307
becky.beiter@odh.ohio.gov

Crawford
W. Scott Kibler
Crawford County General Health District
419-562-5871
cchc@crawford-co.org

Cuyahoga
Kitty Russ
Fairview Hospital
216-476-7345
lconsidine@ccbh.net

Darke
Terrence L. Holman
Darke County Health Department
937-548-4196
terrence.holman@odh.ohio.gov

Defiance
Kimberly J. Moss
Defiance County General Health District
419-784-3818
healthcommish@defiance-county.com

Delaware
Laurie Thuman, LSW
Delaware General Health District
740-203-2034
lthuman@delawarehealth.org

Erie
Peter T. Schade
Erie County General Health District
419-626-5623
pschade@ecghd.org

Fairfield
Larry Hanna
Fairfield Department of Health
740-653-2817
lhanna@co.fairfield.oh.us

Fayette
Robert G. Vanzant
Fayette County Health District
740-335-5910
fayecohd@odh.ohio.gov

Franklin
Karen Gray-Medina
Columbus Public Health
614-645-1667
kareng@columbus.gov

Fulton
Michael Oricko
Fulton County Health Department
419-337-0915
mike.oricko@odh.ohio.gov

Gallia
Melissa Conkle
Gallia County Health Department
740-441-2960
melissa.conkle@odh.ohio.gov

Geauga
Robert Weisdack
Geauga County Health District
440-279-1903
rweisdack@geaugacountyhealth.org

Greene
Melissa Howell
Green County Combined Health District
937-374-5600
mhowell@gcchd.org

Guernsey
Angela Gray
Cambridge-Guernsey County Health Department
740-439-3577
angela.gray@odh.ohio.gov

Hamilton
David Carlson
Hamilton County Public Health
513-946-7924
David.carlson@hamilton-co.org

Hancock
Greg Arnette
Hancock County Health Department
419-424-7869
gaarnette@co.hancock.oh.us

Hardin
Kalyan Das
Kenton-Hardin Health Department
419-673-6230
hardcohd@odh.ohio.gov

Harrison
Teresa Pecar
Harrison County Health Department
740-942-2616
Teresa.Pecar@odh.ohio.gov

Henry
Anne Goon
Henry County Health Department
419-599-5545
agoon@henrycohd.org

Highland
James Vanzant
Highland Health Department
937-393-1941
jimvanzant@yahoo.com

Hocking
Kelly Taulbee
Hocking County Health District
740-385-3030
ktaulbeehchd@gmail.com

Holmes
D. J. McFadden
Holmes County Health District
330-674-5035
dmcfadden@holmeshealth.org

Huron
Tim Hollinger
Huron County General Health District
419-668-1652
thollinger@huroncohealth.com

Jackson
Kevin Aston
Jackson County Health Department
740-286-5094
kaston@jchd.us

Jefferson
Frank J. Petrola
Jefferson County General Health District
740-283-8530
jchd@jchealth.com

Knox
Julie Miller
Knox County Health Department
740-399-8000
jemiller@knoxhealth.com

Lake
Christine Margalis
Lake County General Health District
440-350-879
cmargalis@lcghd.org

Lawrence
Kurt Hofmann
Lawrence County Health Department
740-532-3962
kurt.hofmann@odh.ohio.gov

Licking
Robert P. Raker
Licking County Coroner's Office
740-349-3633
lccoroner@alink.com

Logan
Boyd C. Hoddinott
Logan County Health District
937-592-9040
boyd.hoddinott@odh.ohio.gov

Lorain
Dave Covell
Lorain County General Health District
440-322-6367
dcovell@loraincountyhealth.com

Lucas
David Grossman
Toledo-Lucas County Health Department
419-213-4018
grossmad@co.lucas.oh.us

Madison
Mary Ann Webb
Madison County-London City Health District
740-852-3065
mwebb@co.madison.oh.us

Mahoning
Patricia Sweeney
District Board of Health, Mahoning County
330-270-2855
psweeney@mahoninghealth.org

Marion
Thomas Quade
Marion Public Health
740-387-3604
tquade@marionpublichealth.org

Medina
Krista Wasowski
Medina County Health Department
330-723-9511
kwasowski@medinahealth.org

Meigs
Larry Marshall
Meigs County Health Department
740-992-6626
Larry.marshall@meigs-health.com

Mercer
Philip Masser
Mercer County - Celina City Health Department
419-586-3251
jshaffer@mccchd.org

Miami
Christopher Cook
Miami County Health District
937-440-5418
ccook@miamicountyhealth.net

Monroe
Linda Dick
Monroe County Health Department
740-472-1677
linda.dick@odh.ohio.gov

Montgomery
James W. Gross
Public Health - Dayton and Montgomery County
937-225-4395
jgross@phdmc.org

Morgan
Richard D. Clark
Morgan County Health Department
740-962-4572
morgcohd@odh.ohio.gov

Morrow
Angela Smith
Morrow County Health Department
419-947-1545
angela.smith@odh.ohio.gov

Muskingum
Corrie Marple
Zanesville Muskingum County Health Department
740-454-9741
corriem@zmchd.org

Noble
Shawn E. Ray
Noble County Health Department
740-732-4958
shawn.ray@noblecohd.org

Ottawa
Nancy C. Osborn
Ottawa County Health Department
419-734-6800
nosborn@cros.net

Paulding
Larry Fishbaugh
Paulding County Health Department
419-399-3921
paulcohd@odh.ohio.gov

Perry
Angela DeRolph
Perry County Health Department
740-342-5179
aderolph@perryhealth.com

Pickaway
Elaine Miller
Pickaway County General Health District
740-477-9667
emiller@pchd.org

Pike
Wally Burden
Pike County General Health District
740-947-7721
pcghd@bright.net

Portage
Duwayne Porter
Portage County Health Department
330-296-9919
dporter@portageco.com

Preble
Mark Vosler
Preble County Health District
937-472-0087
pcdh@preblecountyhealth.org

Putnam
Mary Ann Myers
Putnam County General Health District
419-523-5608
maryann.myers@odh.ohio.gov

Richland
Tina Picman
Mansfield/Richland County Health Department
419-774-4510
WICRichlandAshland@odh.ohio.gov

Ross
Timothy Angel
Ross County Health District
740-779-9652
tangel@horizonview.net

Sandusky
David G. Pollick
Sandusky County Health Department
419-334-6379
dpollick@sanduskycohd.org

Scioto
Aaron Adams
Scioto County Health Department
740-354-3241
aaron.adams@odh.ohio.gov

Seneca
Beth Schweitzer
Seneca County Health Department
419-447-3691
beth.schweitzer@odh.ohio.gov

Shelby
Steven Tostrick
Sidney-Shelby County Health Department
937-498-7249
steven.tostrick@shelbycountyhealthdept.org

Stark
Kirkland Norris
Stark County Health Department
330-493-9904
norrisk@starkhealth.org

Summit
R. Daryl Steiner
Children's Hospital Medical Center of Akron
330-543-8124
dsteiner@chmca.org

Trumbull
James Enyeart
Trumbull County Health Department
330-675-2590
health@co.trumbull.oh.us

Tuscarawas
James Hubert
Tuscarawas County Health Department
330-343-5555
veins@tusco.net

Union
Alexandria Jones
Union County Health Department
937-645-2054
alex.jones@uchd.net

VanWert
Paul A. Kalogerou
Van Wert County Health Department
419-238-0808
vwchd@vanwertcountyhealth.org

Vinton
Susan Crapes
Vinton County Health District
740-596-5233
scrapes@vintonohhealth.org

Warren
Duane Stansbury
Warren County Combined Health District
513-695-1566
dstansbury@wcchd.com

Washington
Kathleen L. Meckstroth
Washington County Health Department
740-374-2782
healthadmin@washco-ohhealth.org

Wayne
Gregory L. Halley
Wayne County Combined General Health Department
330-264-9590
GHalley@wayne-Health.org

Williams
James Watkins
Williams County Health Department
419-485-3141
willcohd@odh.ohio.gov

Wood
Amy Jones
Wood County Health Department
419-352-8402
ajones@co.wood.oh.us

Wyandot
Melissa Bianchi
Wyandot County General Health District
419-294-3341
WICWyandot@odh.ohio.gov

APPENDIX V
ICD-10 CODES
USED FOR VITAL STATISTICS DATA
INCLUDED IN CFR REPORT

Cause of Death	ICD-10 Codes
Animal Bite or Attack	W53-W59, X20-27, X29
Asphyxia	W75-W84, X47, X66, X67, X70, X88, X91, Y17, Y20
Child Abuse and Neglect	Y06-Y07
Drowning	W65-W74, X71, X92, Y21
Environmental Exposure	W92, W93, W99, X30, X31, X32
Fall and Crush	W00-W19, W23, X80, Y01, Y02, Y30, Y31
Fire, Burn, Electrocution	X00-X09, X33, X76, X77, X97, X98, Y26, Y27, W85, W86, W87
Medical Causes (Excluding SIDS)	A000-B999, C000-D489, D500-D899, E000-E909, F000-F999, G000-G999, H000-H599, H600-H959, I000-I999, J000-J999, K000-K939, L000-L999, M000-M999, N000-N999, O000-O999, P000-P969, Q000-Q999, R000-R949
Other Causes (Residual)	All other codes not otherwise listed
Poisoning	X40-X49, X60-X65, X68, X69, X85, X87, X89, X90, Y10-Y16, Y18, Y19
Sudden Infant Death Syndrome	R95
Suicide	X60-X84
Vehicular	V01-V99, X81, X82, Y03, Y32
Weapon, Including Body Part	W26, W32-W34, X72-75, X78, X79, X93-96, X99, Y00, Y04, Y05, Y08, Y09, Y22-25, Y28-Y29, Y35.0, Y35.3

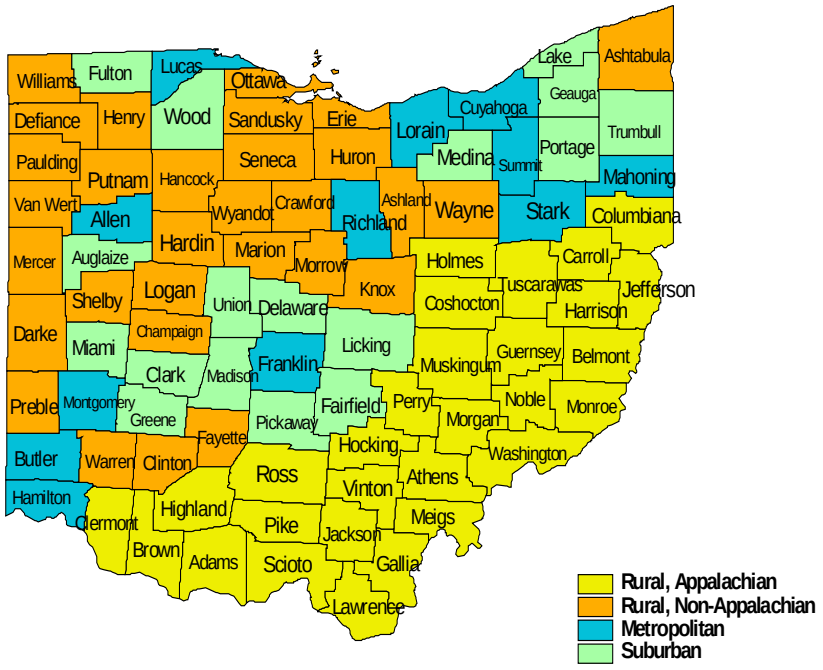
For this report, ICD-10 codes used for classification of Vital Statistics data were selected to most closely correspond with the causes of death indicated on the CFR case report tool. Therefore, the ICD-10 codes used for this report may not match the codes used for other reports or data systems.

APPENDIX VI
OHIO COUNTY TYPE DESIGNATIONS

Ohio's 88 counties have been categorized into four county types: rural Appalachian; rural non-Appalachian; metropolitan; and suburban.

- The 29 rural Appalachian counties were identified from Section 403 of the U. S. Code, and most are geographically situated in the Southeast region of Ohio.
- The 12 metropolitan counties were defined as non-Appalachian counties containing at least one city with 50,000 or more inhabitants as of the 1990 census.
- The 17 suburban counties were non-metropolitan, non-Appalachian counties that met the criteria of an urbanized area as defined by the U.S. Census Bureau for the 1990 census. Thus, suburban counties are essentially urbanized areas without large cities. All suburban counties are also adjacent to at least one metropolitan county.
- The 30 counties that were not Appalachian, metropolitan, or suburban were classified as rural non-Appalachian.

In 2008, Ashtabula, Trumbull and Mahoning were added to the Appalachian counties. To maintain continuity for the five-year period 2008-2012, for the purpose of this report, Ashtabula remains rural non-Appalachian; Trumbull remains suburban; and Mahoning remains metropolitan.



APPENDIX VII
DATA TABLES

Table 1: Reviews of 2012 Deaths by Manner of Death by Age, Race and Gender (N=1,490)						
	Natural	**Accident**	**Homicide**	**Suicide**	**Undetermined/ Unknown**	**Total**
Age	#	#	#	#	#	#
1-28 Days	663	7	2	-	10	682
29-364 Days	161	62	14	-	86	323
1-4 Years	85	40	22	-	9	156
5-9 Years	41	20	7	-	2	70
10-14 Years	60	16	11	19	2	108
15-17 Years	44	50	20	34	3	151
Unknown	-	-	-	-	-	-
Missing	-	-	-	-	-	-
Race*	#	#	#	#	#	#
White	697	145	42	48	62	994
Black	333	47	31	5	50	466
Other	23	3	3	-	-	29
Unknown	1	-	-	-	-	1
Missing	-	-	-	-	-	-
Gender	#	#	#	#	#	#
Male	586	118	50	33	56	843
Female	467	77	26	20	56	646
Unknown	1	-	-	-	-	1
Missing	-	-	-	-	-	-
Total	1,054	195	76	53	112	1,490

*46 cases with multiple races indicated were assigned to the minority race.

Table 2: Reviews of 2012 Deaths by Age Medical Causes of Death by Age (N=1,057)							
	0-28 Days	**29-364 Days**	**1-4 Years**	**5-9 Years**	**10-14 Years**	**15-17 Years**	**Total**
Asthma	0	0	2	2	0	1	5
Cancer	0	7	15	9	14	12	57
Cardiovascular	24	19	12	4	9	10	78
Congenital Anomalies	102	42	24	7	9	6	190
Neurological Disorders	1	3	2	5	3	1	15
Pneumonia	7	17	1	0	4	1	30
Prematurity	446	23	0	0	0	1	470
SIDS	1	12	2	0	0	0	15
Other Infection	7	8	5	3	2	2	27
Other Perinatal Conditions	22	4	0	0	0	0	26
Other Medical Condition	54	20	24	11	21	10	140
Undetermined/Unknown	1	2	1	0	0	0	4
Medical Causes Total	665	157	88	41	62	44	**1,057**
External Causes of Death by Age (N=347)							
	0-28 Days	**29-364 Days**	**1-4 Years**	**5-9 Years**	**10-14 Years**	**15-17 Years**	**Total**
Asphyxia	7	60	3	1	16	23	110
Weapon (Including Body Part)	0	12	17	3	13	30	75
Vehicular	0	3	14	12	7	38	74
Drowning	0	3	20	0	1	5	29
Fire, Burn or Electrocution	0	0	3	8	3	1	15
Poisoning	1	1	2	2	3	7	16
Fall or Crush	0	1	2	2	3	1	9
Exposure	0	0	1	0	0	1	2
Other Injury	1	0	0	0	0	0	1
Undetermined/Unknown	1	14	1	0	0	0	16
External Causes Total	**10**	**94**	**63**	**28**	**46**	**106**	**347**
Unable to Determine if Medical or External Cause by Age (N=86)							
	0-28 Days	**29-364 Days**	**1-4 Years**	**5-9 Years**	**10-14 Years**	**15-17 Years**	**Total**
Unable to Determine	7	72	5	1	-	1	86

Table 3: Reviews of 2012 Deaths by Race
Medical Causes of Death by Race (N=1,057)

	White	Black	Other	Unknown	Missing	Total
Asthma	2	3	-	-	-	5
Cancer	41	16	-	-	-	57
Cardiovascular	60	17	1	-	-	78
Congenital Anomalies	137	50	3	-	-	190
Neurological Disorders	11	3	1	-	-	15
Pneumonia	13	15	2	-	-	30
Prematurity	273	186	10	1	-	470
SIDS	12	2	1	-	-	15
Other Infection	23	4	-	-	-	27
Other Perinatal Conditions	16	10	-	-	-	26
Other Medical Condition	110	25	5	-	-	140
Undetermined	3	1	-	-	-	4
Medical Causes Total	**701**	**332**	**23**	**1**	**0**	**1,057**

32 cases with multiple races indicated were assigned to the minority race.

External Causes of Death by Race (N= 347)

	White	Black	Other	Unknown	Missing	Total
Asphyxia	77	31	2	-	-	110
Weapon (Including Body Part)	46	28	1	-	-	75
Vehicular	61	11	2	-	-	74
Drowning	24	5	-	-	-	29
Fire, Burn or Electrocution	6	8	1	-	-	15
Poisoning	15	1	-	-	-	16
Fall or Crush	8	1	-	-	-	9
Exposure	2	-	-	-	-	2
Other Injury	1	-	-	-	-	1
Undetermined/Unknown	4	12	-	-	-	16
External Causes Total	**244**	**97**	**6**	**-**	**-**	**347**

11 cases with multiple races indicated were assigned to the minority race.

Unable to Determine if Medical or External Cause by Race (N=86)

	White	Black	Other	Unknown	Missing	Total
Unable to Determine	49	37	-	-	-	86

3 cases with multiple races indicated were assigned to the minority race.

Table 4: Reviews of 2012 Deaths
Medical Causes of Death by Gender (N=1,057)

	Male	Female	Unknown	Missing	Total
Asthma	4	1	-	-	5
Cancer	27	30	-	-	57
Cardiovascular	45	33	-	-	78
Congenital Anomalies	99	91	-	-	190
Neurological Disorders	9	6	-	-	15
Pneumonia	18	12	-	-	30
Prematurity	260	209	1	-	470
SIDS	10	5	-	-	15
Other Infection	15	12	-	-	27
Other Perinatal Conditions	15	11	-	-	16
Other Medical Condition	85	55	-	-	140
Undetermined	-	4	-	-	4
Medical Causes Total	**587**	**469**	**1**	**0**	**1,057**

External Causes of Death by Gender (N=347)

	Male	Female	Unknown	Missing	Total
Asphyxia	62	48	-	-	110
Weapon (Including Body Part)	52	23	-	-	75
Vehicular	43	31	-	-	74
Drowning	24	5	-	-	29
Fire, Burn or Electrocution	9	6	-	-	15
Poisoning	9	7	-	-	16
Fall or Crush	6	3	-	-	9
Exposure	-	2	-	-	2
Other Injury	-	1	-	-	1
Undetermined/Unknown	10	6	-	-	16
External Causes Total	**215**	**132**	**0**	**0**	**347**

Unable to Determine if Medical or External Cause by Gender (N=86)

	Male	Female	Unknown	Missing	Total
Unable to Determine	41	45	-	-	86

Table 5: Child Population, Child Deaths and Reviews by County Type, 2012

	Child Population		Child Deaths		Reviews Completed		Percent Deaths Reviewed
County Type	**#**	**%**	**#**	**%**	**#**	**%**	**%**
Rural Appalachian	337,374	13	181	12	159	11	88
Rural Non-Appalachian	393,806	15	208	13	193	13	93
Suburban	493,919	19	231	15	224	25	97
Metropolitan	1,438,575	54	931	60	914	61	98
Total	**2,663,674**	**100**	1,551	**100**	**1,490**	**100**	**96**

Table 6: Reviews of 2008-2012 Deaths by Manner of Death by Age, Race and Gender (N=7,877)						
	Natural	**Accident**	**Homicide**	**Suicide**	**Undetermined / Unknown**	**Total**
Age	**#**	**#**	**#**	**#**	**#**	**#**
0-28 Days	3,450	62	7	-	48	3,567
29-364 Days	950	299	66	-	405	1,720
1-4 Years	416	232	102	-	55	805
5-9 Years	255	110	31	1	6	403
10-14 Years	298	144	29	64	17	552
15-17 Years	223	297	113	186	11	830
Unknown	-	-	-	-	-	0
Missing	-	-	-	-	-	0
Race*	**#**	**#**	**#**	**#**	**#**	**#**
White	3,618	847	169	214	300	5,148
Black	1,874	283	176	34	236	2,603
Other	99	14	3	3	6	125
Unknown	1	-	-	-	-	1
Missing	-	-	-	-	-	-
Gender	**#**	**#**	**#**	**#**	**#**	**#**
Male	3,068	713	223	172	304	4,480
Female	2,522	431	125	29	238	3,395
Unknown	2	-	-	-	-	2
Missing	-	-	-	-	-	-
Total	**5,592**	**1,144**	**348**	**251**	**542**	**7,877**

*182 cases with multiple races indicated were assigned to the minority race.

Table 7: Reviews of 2008-2012 Deaths by Age All Medical Causes of Death by Age (N=5,654)							
	0-28 Days	29-364 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years	Total
Asthma	-	1	5	9	5	6	26
Cancer	3	14	49	61	74	44	245
Cardiovascular	104	58	38	25	27	33	285
Congenital Anomalies	500	249	105	29	42	27	952
Low Birth Weight	7	1	-	-	-	-	8
Malnutrition/Dehydration	-	6	2	1	-	-	9
Neurological Disorders	7	17	16	20	14	17	91
Pneumonia	20	67	30	8	24	13	162
Prematurity	2,322	146	9	3	-	1	2,481
SIDS	14	149	5	-	-	-	168
Other Infection	56	63	37	20	15	10	201
Other Perinatal Conditions	136	21	2	-	-	1	160
Other Medical Condition	291	168	118	81	101	73	832
Undetermined/Unknown	7	18	7	-	1	1	34
Medical Causes Total	**3,467**	**978**	**423**	**257**	**303**	**226**	**5,654**
All External Causes of Death by Age (N=1,849)							
	0-28 Days	29-364 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years	Total
Asphyxia	46	256	28	8	66	119	523
Vehicular	2	18	66	58	80	224	448
Weapon (Including Body Part)	3	52	78	21	36	173	363
Drowning	-	9	76	15	22	20	142
Fire and Burns	1	10	55	34	16	3	119
Poisoning	2	5	15	3	12	46	83
Fall or Crush	-	3	17	5	9	14	48
Exposure	-	2	6	-	-	1	9
Other Injuries	2	-	2	1	-	1	6
Undetermined/Unknown	11	89	7	-	-	1	108
External Causes Total	**67**	**444**	**350**	**145**	**241**	**608**	**1,849**
Unable to Determine if Medical or External Cause by Age (N=374)							
	0-28 Days	29-364 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years	Total
Unable to Determine	**33**	**298**	**32**	**1**	**7**	**3**	**374**

Table 8: Reviews of 2007-2011 Deaths by Race
All Medical Causes of Death by Race (N=5,654)

	White	Black	Other	Unknown	Missing	Total
Asthma	7	10	-	-	-	26
Cancer	185	53	7	-	-	245
Cardiovascular	205	76	4	-	-	285
Congenital Anomalies	679	256	17	-	-	952
Low Birth Weight	7	1	-	-	-	8
Malnutrition/Dehydration	7	2	-	-	-	9
Neurological Disorders	62	26	3	-	-	91
Pneumonia	104	53	5	-	-	162
Prematurity	1,362	1,081	37	1	-	2,481
SIDS	130	35	3	-	-	168
Other Infection	134	63	4	-	-	201
Other Perinatal Conditions	116	43	1	-	-	160
Other Medical Condition	630	185	17	-	-	832
Undetermined/Unknown	26	7	1	-	-	34
Medical Causes Total	**3,654**	**1,900**	**99**	**1**	**-**	**5,654**

131 cases with multiple races indicated were assigned to the minority race.

External Causes of Death by Race (N= 1,849)

	White	Black	Other	Unknown	Missing	Total
Asphyxia	368	149	6	-	-	523
Vehicular	372	68	8	-	-	448
Weapon (Including Body Part)	192	170	1	-	-	363
Drowning	105	35	2	-	-	142
Fire and Burns	82	36	1	-	-	119
Poisoning	71	12	-	-	-	83
Fall or Crush	40	6	2	-	-	48
Exposure	7	2	-	-	-	9
Other Injuries	6	-	-	-	-	6
Undetermined/Unknown	39	69	-	-	-	108
External Causes Total	**1,282**	**547**	**20**	**-**	**-**	**1,849**

35 cases with multiple races indicated were assigned to the minority race.

Unable to Determine if Medical or External Cause by Age (N=374)

	White	Black	Other	Unknown	Missing	Total
Unable to Determine	212	156	6	-	-	374

16 cases with multiple races indicated were assigned to the minority race.

Table 9: Reviews of 2008-2012 Deaths by Gender
All Medical Causes of Death by Gender (N=5,654)

	Male	Female	Unknown	Missing	Total
Asthma	17	9	-	-	26
Cancer	122	123	-	-	245
Cardiovascular	143	142	-	-	285
Congenital Anomalies	498	454	-	-	952
Low Birth Weight	2	6	-	-	8
Malnutrition/Dehydration	5	4	-	-	9
Neurological Disorders	45	46	-	-	91
Pneumonia	97	65	-	-	162
Prematurity	1,402	1,077	2	-	2,481
SIDS	100	68	-	-	168
Other Infection	104	97	-	-	201
Other Perinatal Conditions	87	73	-	-	160
Other Medical Condition	477	355	-	-	832
Undetermined/Unknown	13	21	-	-	34
Medical Causes Total	**3,112**	**2,540**	**2**	**-**	**5,654**

All External Causes of Death by Gender (N= 1,849)

	Male	Female	Unknown	Missing	Total
Asphyxia	309	214	-	-	523
Vehicular	292	156	-	-	448
Weapon (Including Body Part)	259	104	-	-	363
Drowning	97	45	-	-	142
Fire and Burns	61	58	-	-	119
Poisoning	46	37	-	-	83
Fall or Crush	39	9	-	-	48
Exposure	1	8	-	-	9
Other Injuries	2	4	-	-	6
Undetermined/Unknown	60	48	-	-	108
External Causes Total	**1,166**	**683**	**-**	**-**	**1,849**

Unable to Determine if Medical or External Cause by Age (N=374)

	Male	Female	Unknown	Missing	Total
Unable to Determine	202	172	-	-	374

Table 10: Reviews of 2008-2012 Deaths by Year by Age, Race and Gender (N=7,877)						
	2008	**2009**	**2010**	**2011**	**2012**	**Total**
Age	**#**	**#**	**#**	**#**	**#**	**#**
0-28 Days	737	726	720	702	682	3,567
29-364 Days	371	342	332	352	323	1,720
1-4 Years	164	155	181	149	156	805
5-9 Years	89	81	81	82	70	403
10-14 Years	117	130	103	94	108	552
15-17 Years	199	171	141	168	151	830
Unknown	-	-	-	-	-	-
Missing	-	-	-	-	-	-
Race*	**#**	**#**	**#**	**#**	**#**	**#**
White	1,078	1,038	1,036	1,000	994	5,148
Black	581	542	487	527	466	2,603
Other	18	25	33	20	29	125
Unknown	-	-	-	-	1	1
Missing	-	-	-	-	-	-
Gender	**#**	**#**	**#**	**#**	**#**	**#**
Male	967	928	876	866	843	4,480
Female	710	677	682	680	646	3,395
Unknown	-	-	-	1	1	2
Missing	-	-	-	-	-	-
Total	**1,677**	**1,605**	**1,558**	**1,547**	**1,490**	**7,877**
* 182 cases with multiple races indicated were assigned to the minority race.						

Table 11: Reviews of 2008-2012 Deaths by Year by Cause, Circumstances and Preventability (N=7,877)						
	2008	**2009**	**2010**	**2011**	**2012**	**Total**
Medical Causes	#	#	#	#	#	#
Prematurity	513	482	513	503	470	2,481
Congenital Anomaly	174	193	188	207	190	952
Cardiovascular	49	64	44	50	78	285
Cancer	45	48	50	45	57	245
Other Infection	55	47	34	38	27	201
SIDS	43	45	28	37	15	168
Pneumonia	36	33	34	29	30	162
Other Perinatal	47	34	24	29	26	160
Neurological	19	13	21	23	15	91
Asthma	4	3	4	10	5	26
Other Medical	205	184	186	127	139	841
Undetermined/Unknown	9	11	6	4	4	34
External Causes	#	#	#	#	#	#
Asphyxia	119	109	79	106	110	523
Vehicular	115	86	90	83	74	448
Weapon (Including Body Part)	72	80	61	75	75	363
Drowning	27	27	29	30	29	142
Fire and Burns	34	18	30	22	15	119
Poisoning	19	15	16	17	16	83
Fall or Crush	8	14	9	8	9	48
Exposure	1	2	3	1	2	9
Other Injuries	1	1	1	2	1	6
Undetermined/Unknown	27	24	27	14	16	108
	#	#	#	#	#	#
Child Abuse & Neglect	39	35	27	27	34	162
Sleep-related Infant Deaths	168	154	150	168	153	794
	#	#	#	#	#	#
Probably Preventable-All Reviews	395	352	348	360	349	1,804
Year Total	**1,677**	**1,605**	**1,558**	**1,547**	**1,490**	**7,877**

Table 12: Reviews of 2008-2012 Deaths by County Type by Age, Race and Gender (N=7,877)					
	Rural Appalachian	Rural Non-Appalachian	Suburban	Metropolitan	Total
Age	#	#	#	#	#
0-28 Days	332	385	437	2,413	3,567
29 – 364 Days	207	230	211	1,072	1,720
1-4 Years	119	143	125	418	805
5-9 Years	54	78	63	208	403
10-14 Years	85	95	82	290	552
15-17 Years	114	130	144	442	830
Race*	#	#	#	#	#
White	847	965	928	2,408	5,148
Black	58	76	122	2,347	2,603
Other	6	20	12	87	125
Unknown	-	-	-	1	1
Gender	#	#	#	#	#
Male	535	595	613	2,737	4,480
Female	376	466	449	2,104	3,395
Unknown	-	-	-	2	2
Total	**911**	**1,061**	**1,062**	**4,843**	**7,877**
* 182 cases with multiple races indicated were assigned to the minority race.					

Table 13: Reviews of 2008-2012 Deaths by County Type by Cause, Circumstances and Preventability (N=7,877)					
	Rural Appalachian	Rural Non-Appalachian	Suburban	Metropolitan	Total
Medical Causes	#	#	#	#	#
Asthma	1	4	1	20	26
Cancer	33	46	33	133	245
Cardiovascular	33	56	38	158	285
Congenital Anomalies	104	113	152	583	952
Low Birth Weight	5	3	-	-	8
Malnutrition/Dehydration	-	2	-	7	9
Neurological Disorders	11	18	7	55	91
Pneumonia	17	33	50	92	162
Prematurity	201	213	256	1,811	2,481
SIDS	35	48	33	52	168
Other Infection	31	28	33	109	201
Other Perinatal Conditions	11	33	28	91	160
Other Medical Condition	122	141	138	440	841
Undetermined/Unknown	6	3	10	15	34
External Causes	#	#	#	#	#
Asphyxia	73	66	92	292	523
Vehicular	80	90	82	195	448
Weapon (Including Body Part)	35	45	46	237	363
Drowning	25	30	17	70	142
Fire and Burns	35	28	11	45	119
Poisoning	9	11	19	44	83
Fall or Crush	6	18	4	20	48
Exposure	1	1	2	5	9
Other Injuries	1	2	1	2	6
Undetermined/Unknown	3	4	2	99	108
	#	#	#	#	#
Child Abuse & Neglect	27	17	19	99	162
Sleep-related Infant Deaths	84	81	85	544	794
	#	#	#	#	#
Probably Preventable – All Reviews	277	274	252	1,001	1,804
Total	**911**	**1,061**	**1,062**	**4,843**	**7,877**

APPENDIX VIII
REFERENCES*

[1] National Center for Health Statistics and U.S. Census Bureau data. Processed through Ohio Department of Health, Vital Statistics, April 7, 2014. Note: For the Census data used in this report, persons with multiple races indicated were assigned by a complex algorithm including geographic area and proportions of all races in that area and other factors.

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*All Internet sites referenced were last accessed September 11, 2014.