



# Ohio Child Fatality Review Eleventh Annual Report

*This report includes reviews of child deaths that occurred in 2009  
and aggregate reviews for 2005-2009.*



Photo by Aileen Jane





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from the  
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# Ohio Child Fatality Review Eleventh Annual Report

**This report includes reviews of child deaths that occurred in 2009 and aggregate reviews for 2005-2009.**

## *Mission*

To reduce the incidence of preventable child deaths in Ohio

## *Submitted September 30, 2011, to*

**John R. Kasich**, Governor, State of Ohio

**William G. Batchelder**, Speaker, Ohio House of Representatives

**Thomas E. Niehaus**, President, Ohio Senate

**Armond Budish**, Minority Leader, Ohio House of Representatives

**Capri S. Cafaro**, 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 reflects the work of many dedicated professionals in every community throughout the State of Ohio who have committed themselves to gaining a better understanding of how and why children die. Their work is driven by a desire to protect and improve the lives of young Ohioans. Each child's death represents a tragic loss for the family, as well as the community. We dedicate this report to the memory of these children and to their families.

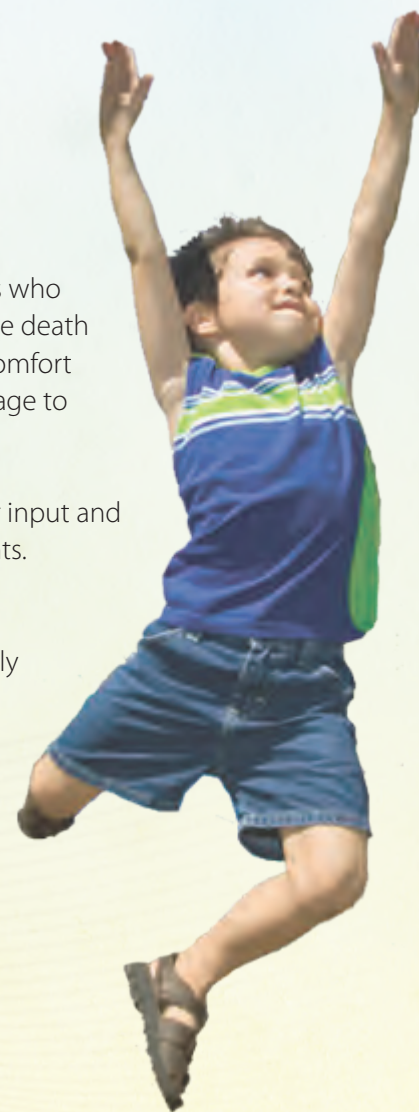
## Acknowledgements

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 Office of Healthy Ohio; state and local vital statistics registrars; and the National Center for Child Death Review.

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:*

*We respectfully present the Eleventh Annual Ohio Child Fatality Review (CFR) Report containing information from reviews of child deaths that occurred in calendar year 2009, as well as a summary of the data for deaths that occurred during the five-year period from 2005 to 2009. In facts and figures, this report tells the story of why Ohio children are dying and outlines the work of the CFR program and local and state efforts to prevent these deaths. We hope this report will lead to a reduction in the incidence of the untimely and preventable deaths of Ohio children.*

*Established by the Ohio General Assembly in July 2000, the CFR program works to examine the factors contributing to Ohio children's deaths. It is only through careful review of child deaths that we are better prepared to prevent future deaths. This report was created to raise awareness of preventable child deaths and understanding of prevention initiatives to ensure the health and well-being of our state's children.*

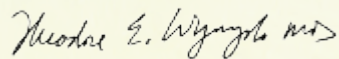
*In 2009, 1,665 Ohio children died and 95 percent of these deaths were reviewed by local CFR boards. The CFR process begins at the local level where local boards consisting of professionals from public health, children's services, recovery services, law enforcement and health care review the circumstances surrounding every child death in their county. Through their collective expertise and collaborative assessment, solutions are identified and local prevention initiatives created.*

*All of us must work together to prevent future child deaths by:*

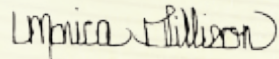
- Educating families, children, neighbors, organizations and communities on preventable child deaths.*
- Encouraging community and individual involvement in recognizing and preventing risk factors that contribute to child deaths.*
- Assisting and supporting families to achieve healthy parenting practices 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.*

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

*Sincerely,*



Theodore E. Wymyslo, MD  
Director of Health  
Ohio Department of Health



Monica Gillison  
Executive Director  
Ohio Children's Trust Fund

## Executive Summary



## Ohio Child Fatality Review Executive Summary

The 2011 Child Fatality Review (CFR) Annual Report presents information from the reviews of deaths that occurred in 2009, as well as a summary of the data for deaths that occurred from 2005 to 2009.

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 slight revisions in early 2007 and in early 2010, 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. This report highlights many of the local initiatives that have resulted from the CFR process. 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

A total of 1,615 reviews of 2009 child deaths were reported by Ohio's 88 local CFR boards. Of these, 1,590 reviews were complete for manner and cause of death and were used for analysis. This represents 95 percent of all 1,665 child deaths for 2009 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 died at disproportionately higher rates than white children and girls for most causes of death. Thirty-four percent (540) of deaths reviewed were to black children and 58 percent (919) were to boys. Their representation in the general population is 16 percent for black children and 51 percent for boys.

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.

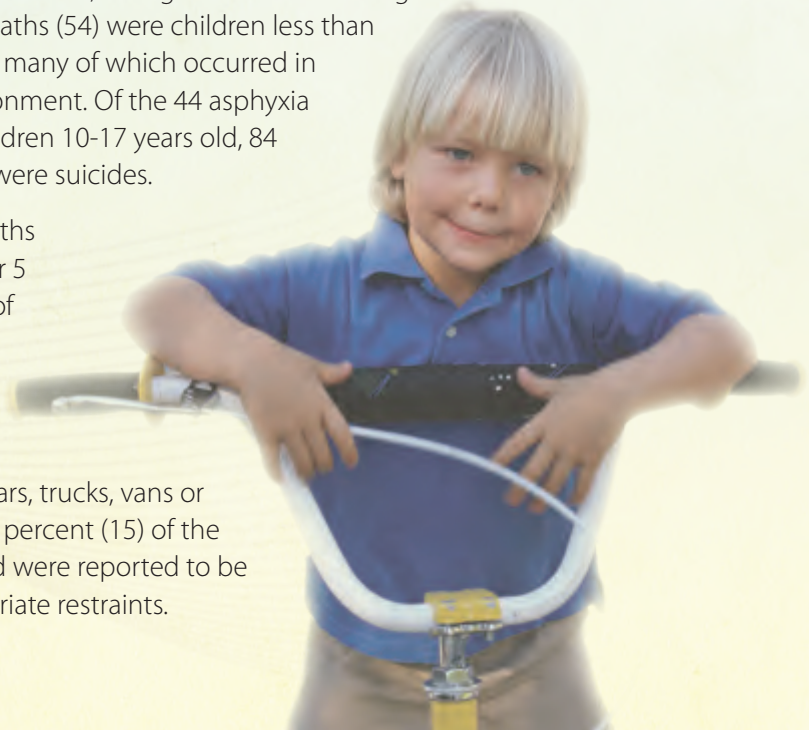
- Natural deaths accounted for 71 percent (1,133) of all deaths reviewed.
- Accidents (unintentional injuries) accounted for 14 percent (224) of the deaths.
- Homicide accounted for 5 percent (70) of the deaths.
- Suicides accounted for 3 percent (54) of the deaths.
- Seven percent (109) of deaths reviewed were of an undetermined, pending or unknown manner.

Seventy-two percent (1,152) of the deaths reviewed were due to medical causes.

- Seventy-eight percent (902) of deaths due to medical causes were to infants less than 1 year of age.
- The most frequent medical cause of death was prematurity (469).

Twenty-three percent (370) of all deaths reviewed resulted from external causes.

- For the second year since CFR began collecting data, more children died of asphyxia than vehicular crashes. Seven percent (107) of all deaths reviewed were from asphyxia, including suffocation, strangulation and choking. Half of the deaths (54) were children less than 1 year of age, many of which occurred in a sleep environment. Of the 44 asphyxia deaths to children 10-17 years old, 84 percent (37) were suicides.
- Vehicular deaths accounted for 5 percent (86) of all deaths reviewed. Of the 45 deaths that occurred in cars, trucks, vans or SUVs, only 33 percent (15) of the children killed were reported to be using appropriate restraints.





- Weapons, including body parts used as weapons, accounted for 5 percent (76) of all deaths reviewed. Fifty percent (38) were youth 10 to 17 years of age and 49 percent (37) were black children. The manner of death was accident for only 7 percent (five) of the weapons deaths.
- Fire, burn and electrocution accounted for less than 2 percent (18) of all deaths reviewed. Fifty-six percent (10) of victims were less than 5 years old.
- Less than two percent (27) of all deaths reviewed were from drowning and submersion. Sixty-three percent (17) of the drowning deaths were to children under 5 years of age.
- Poisoning deaths represented less than 1 percent (14) of all deaths reviewed. Seventy-nine percent (11) of poisoning deaths occurred to children older than 10 years.

Deaths to infants younger than 1 year accounted for 67 percent (1,060) of the reviews.

- Infants less than 1 month old accounted for 68 percent (723) of all infant deaths and 46 percent of all deaths reviewed.
- Prematurity was the most frequent cause of infant deaths, accounting for 44 percent (469).
- For 750 reviews where gestational age was known, 67 percent (502) of the infants were born preterm (before 37 weeks gestation).
- Sleep-related deaths (including sudden infant death syndrome or SIDS) accounted for 14 percent (153) of the 1,060 total reviews for infant deaths in 2009, more than any single cause of death except prematurity. Forty-one percent

(63) of sleep-related deaths were to black infants, which is disproportionate to their representation in the Ohio child population (16 percent). Fifty-eight percent (88) of the sleep-related deaths occurred in locations considered unsafe such as in adult beds and on couches. Fifty-one percent (78) occurred to infants who were sharing a sleeping surface (bedsharing) with someone else at the time of death.

- SIDS accounted for 4 percent (45) of the 1,060 total reviews for infant deaths. At least forty percent (18) of SIDS victims were exposed to smoke in utero.

Four percent (70) of all deaths reviewed resulted from homicide.

- Homicide deaths to boys (66 percent) and black children (51 percent) were disproportionately higher than their representation in the general population (51 percent for boys and 16 percent for black children).
- Thirty-three percent (23) of homicide deaths were to children ages 1 to 4 years.

Three percent (54) of all deaths reviewed resulted from suicide.

- Suicides represent 18 percent of all reviews for children ages 10 to 17.
- Suicide deaths among boys (83 percent) were disproportionately higher than their representation in the general population (51 percent).



- Twenty-four percent (13) of the suicide deaths reviewed were from rural non-Appalachian counties, which is disproportionately higher than the proportion of children living in those counties (15 percent).

Local CFR boards reviewed 34 deaths to children resulting from child abuse and neglect in 2009. These represent 2 percent of all 1,590 deaths reviewed.

- Thirty of the 34 reviews indicated that physical abuse caused or contributed to the death, while four reviews indicated that neglect caused or contributed to the death.
- All but two of the reviews were for children younger than 10 years.

Of the 1,590 deaths reviewed, CFR boards determined 22 percent (345) were probably preventable.

- Eighty-four percent (188) of accidental deaths were deemed probably preventable.
- Fifty-nine percent (100) of deaths to children 15 to 17 years of age were deemed probably preventable.

For the five-year year-of-death period 2005-2009, 8,448 deaths were reviewed, which represents 95 percent of the 8,866 child deaths reported by Ohio vital statistics.

- The mortality rate for Ohio children has decreased from 69 deaths per 100,000 population in 2005 to 61 in 2009.
- The percentage of deaths from external causes due to vehicular crashes decreased from 29 percent in 2005 to 23 percent in 2009.

- The percentage of deaths from external causes due to asphyxia has increased from 21 percent in 2005 to 29 percent in 2009.

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

- Fifty-seven percent (320) of the infant deaths due to external causes were due to asphyxia.
- Drowning was the leading external cause of death for children 1 to 4 years old. Twenty percent (67) of the 388 reviews were due to drowning.
- Vehicular crashes were the leading external cause of death for children older than 5 years old.
  - ♦ Thirty-eight percent (72) of the 190 reviews for external causes for children 5 to 9 years old were due to vehicular crashes.
  - ♦ Thirty-six percent (104) of the 289 reviews for external causes for children 10 to 14 years old were due to vehicular crashes.
  - ♦ Forty-four percent (323) of the 737 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 2009.



## 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 1,655 deaths of Ohio children in 2009, 3 percent (56) 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, where 10 percent (21) of the 204 deaths occurred outside Ohio. By contrast, less than 2 percent (19) of the 1,006 deaths to children of 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

Within the 2000 law that established the Ohio Child Fatality Review (CFR), goals for local CFR boards include making recommendations and developing plans for implementing local service and program changes for prevention of future deaths. Recommendations become initiatives only when resources, priorities and authority converge to make change happen. Again this year, more than half of the counties reported examples of successful implementation of CFR recommendations. This means that CFR boards have shared their findings and recommendations and engaged partners for change.

### SIDS and Sleep-related Deaths

The largest number of initiatives dealt 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.

- In **Belmont** County, infant safe sleep education has been provided to pregnant and parenting participants of health department programs such as Special Supplemental Food Program for Women, Infants and Children (WIC) and the childhood lead poisoning prevention program.
- The **Clermont** County CFR is continuing its Back to Sleep campaign while emphasizing the greatly increased risk of death for infants not sleeping in their own cribs.
- A countywide safe sleep campaign was repeated in **Cuyahoga** County with a televised press conference focusing on the safe sleep message that “Babies should sleep alone, on their backs, in a ‘bare naked’ crib.” Safe sleep information cards were printed and distributed at community health fairs, libraries, zoo events and at educational events for infant care specialists, nanny students, home visiting and school nurses, pediatric nurses and relative caregivers.
- In addition to providing hospital care providers with education on their role in modeling safe sleep in the hospitals in **Cuyahoga** County, safe sleep education was discussed during eleven maternity licensure visits.
- In **Erie** County, the CFR board member agencies shared the responsibility to educate the public about the dangers of unsafe sleep, including bedsharing. In addition to using media and radio advertisements, a crib display at local fairs showed proper sleep practices for infants.
- Prenatal clients in **Erie** County were surveyed regarding their knowledge and plans for safe sleep practices. Specific education was provided about avoiding bedsharing, bumper pads, soft toys and blankets in the crib.
- The **Franklin** County Infant Safe Sleep and SIDS Risk Reduction Task Force developed three billboards focusing on the “ABC’s of Safe Sleep.” The group presented its curriculum for health care professional and child care provider safe sleep training at the National Cribs 4 Kids® conference. Members of the task force encouraged parents to follow safe sleep recommendations during segments on a local daytime television show.



- The **Franklin** County CFR board produced a Sleep-related Infant Death Health Indicator Brief which summarizes the findings from reviews of 80 sleep-related infant deaths in the county from 2006 to 2008.
- The member agencies of the **Franklin** County CFR board collaborated to plan a statewide infant death investigation training during 2011 using the Centers for Disease Control and Prevention (CDC) Sudden Unexpected Infant Death Investigation protocols and forms.
- Findings from the **Fulton** County CFR helped secure an ODH Child and Family Health Services grant to fund a safe sleep campaign, including billboards and movie theater advertisements.
- In **Hamilton** County, an innovative partnership continues with the homicide unit of the Cincinnati Police Department working with community social agencies and the media to educate parents and caregivers on the hazards of bedsharing and other unsafe sleep arrangements. Officers have been trained in reducing risks through safe sleep arrangements and distribute Safe Sleep brochures in high risk neighborhoods. Families in need are referred to agencies for free or low cost cribs.
- Safe sleeping practices were highlighted during the kick-off of Child Abuse/Child Neglect Awareness Month in **Jackson** County. Local media releases detailed the safe sleep message with emphasis on the dangers of bedsharing.
- Information on reducing the risk of SIDS and providing a safe sleep environment was presented to care coordinators from various agencies in **Lucas** County. Information is also shared with parents of newborns and families in need are referred to Cribs 4 Kids®. Since 2004, more than 2,700 cribs have been provided to families in the county.
- The Family and Children First Council of **Mahoning** County continues to distribute portable cribs to needy families through the Help Me Grow (HMG) and Healthy Babies, Healthy Moms (infant mortality reduction initiative) programs. The project is funded through the sale of cookbooks containing Council and CFR board members' favorite recipes.
- The **Preble** County Health Department is the lead agency for the CFR-recommended safe sleep initiatives. The "Safe Sleeping Practices" brochure was revised with new recommendations from the American Academy of Pediatrics and the SID Network of Ohio. The brochure is distributed to families by local partners including health providers, WIC, HMG, prenatal clinics, well child and immunization clinics, the educational service center preschool and Job and Family Services. Safe sleep information is now available on the health department Web site and Facebook page. Additional outreach activities were planned for the "Week of the Young Child."
- Two community seminars based on CFR findings were held in **Sandusky** County. A support group for surviving families was formed.
- The **Stark** County Safe Sleep Task Force became licensed as a Cribs 4 Kids® provider. Since becoming a provider, the task force has distributed almost 200 cribs to needy



families who participate in a 90-minute class on safe sleep practices. The task force continues to develop and distribute educational materials and teach classes on infant sleep safety to various groups, including local high schools and prenatal support groups.

- The **Summit** County CFR board contacted community agencies that collect and distribute donated cribs with information regarding crib safety and an invitation to participate in the safe sleep training developed by the health department in collaboration with CFR and the SID Network of Ohio.
- **Trumbull** County continued its safe sleep campaign with billboards throughout the county. A safe sleep display at the local mall featured a raffle for two cribs.
- A special review meeting for infant sleep-related deaths was held in **Tuscarawas** County. Findings regarding trends,

contributing factors and high-risk populations were shared with local pediatricians, hospitals and parenting education programs.

- The **Wyandot** County CFR provided updated materials to local hospitals, WIC, HMG and the health department. A billboard raised public awareness of SIDS risk reduction.

### 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.

- In **Coshocton** County, parenting classes are being provided to those incarcerated in the county jail. Other activities include promotion of a crisis hotline, nurturing parents' classes, life skills and Graduation, Reality, and Dual-Role Skills (GRADS) classes. Education for fathers is promoted through the Fatherhood Initiative.
- The **Cuyahoga** County children's protective service agency is meeting monthly with MetroHealth to improve collaboration between the agencies and to update policy information.
- **Cuyahoga** and **Summit** Counties have initiated policy changes to improve feedback from children's protective services to referring agencies, including HMG and other mandated reporters.
- The **Franklin** County CFR board developed a curriculum for teaching health professionals to recognize and report possible child abuse. In 2009, more than 70 hospital professionals were trained.
- **Ross** County is distributing "Choose Your Partner Carefully" materials in the public health clinics.





- The **Summit** County CFR board sent letters to the executive director of the Ohio Association of Child Caring Agencies and to the Superintendent of Public Instruction, Ohio Department of Education, encouraging the adoption of Gov. Strickland's proposed ban on prone restraint.

### Suicide

The need for youth suicide prevention is also being addressed as a result of the CFR process. In many counties, such as **Lucas**, 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.

- A coalition to prevent suicide was formed between schools and the mental health board in **Allen** County to facilitate referrals. A suicide prevention walk and support group increased community awareness of the issue.
- Based on CFR findings, emergency departments of local hospitals in **Allen** County are developing protective policies to address the need for constant monitoring of high risk patients.
- Teen suicide was identified as a priority issue by the **Clermont** County CFR. The Family and Children First Council has set a goal to expand the Olweus Bullying Prevention Program to all county school districts by 2012.

### Vehicular Injuries

Vehicular crashes continue to be a leading cause of injury and death to children. Many local CFR boards are active in educating families about Ohio's Booster Seat law and revisions to the 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.

- The Healthy People 2020 Alcohol Subcommittee of **Allen** County conducts two activities to reduce the alcohol threat to children. The "Parents Who Host Lose the Most" campaign and underage alcohol sales compliance checks were both conducted in the spring to coincide with prom and graduation party season.
- Seat belt safety programs and car seat classes continue in **Columbiana, Richland, and Ross** counties.
- Through collaboration between schools, law enforcement agencies, insurance companies and health departments, many counties, such as **Athens** and **Columbiana**, held programs at high schools that stressed avoidance of alcohol and driving distractions, such as cell phones, texting, loud music and other passengers.
- **Ross** County held a county-wide "Click It or Ticket" campaign.
- Community volunteers in **Tuscarawas** County provided education to teen drivers on the particular skills needed for safe driving on narrow, winding rural roads.
- With assistance from the Ohio State University Extension, the **Fulton** County Safety Task Force began the CarTeens program. This court-mandated program promotes safe teen driving by providing hands-on, one-on-one education.
- Safe transport of children is a priority issue for **Cuyahoga** County. The Rainbow Injury Prevention Center is the only special-needs child restraint program in northeast Ohio. Forty-eight special child restraints were loaned to families in 2009.

- The **Fayette** County CFR recognized the need for collaboration in addressing transportation of county children to Nationwide Children's Hospital and medical specialists in the Columbus area. Knowledge of resources from the member agencies such as the local health department, the county job and family services, HMG, the school systems and the local board of developmental disabilities now eases the process.

### Infant Deaths

In response to needs identified through the reviews of infant deaths, collaborative groups have been organized and continue in many counties, such as **Allen** and **Hamilton**, to promote early prenatal care and healthy lifestyles for pregnant women and to educate women to be as healthy as possible before becoming pregnant. Typical partners include HMG, WIC, Child and Family Health Services projects, local physicians, schools and other health and social service providers.

- As a result of the CFR process in **Clark** County, which revealed many deaths due to congenital anomalies and prematurity, an obstetrician has been added to the CFR board.
- The goal of **Cuyahoga** County's MomsFirst program is to improve birth outcomes and ensure a healthy start for babies by providing support to high-risk pregnant women and teens. The program capacity was increased to serve an additional 279 families prenatally. The program expanded implementation of the Baby Basics health literacy curriculum to additional providers. Baby Basics provides interactive, culturally sensitive prenatal education for pregnant women. MomsFirst celebrated National Infant Mortality Awareness Month by hosting nine community engagement and education events across the county.
- The Office of Maternal and Infant Health and Infant Mortality Reduction continues as a city/county office in **Hamilton** County. The goal is to reduce infant mortality to below the national average by 2014. A fetal and infant mortality review (FIMR) is a subcommittee of the CFR.
- In **Lucas** County, a low birth weight prevention initiative provides intensive case management to pregnant women at the highest risk for giving birth to a low birth weight baby. The Tobacco Prevention Coalition received grant funding for activities to reduce tobacco use by pregnant women.
- With assistance from **Mahoning** County CFR board, the United Way of Youngstown and the Mahoning Valley Health and Wellness Vision Council/Infant Mortality Task Force is taking the initiative to reduce the health disparities that result in higher infant mortality and prematurity rates in the minority populations. A conference is planned for practitioners to provide them with "take home" information for their clients. The task force regularly reviews county data on infant mortality, prematurity and low birth weight to identify high risk zip codes.
- A local college student assisted the **Muskingum** County CFR with the creation of a baby safety booklet based on CFR findings. The booklet is distributed to new parents throughout the county.
- The **Pike** County CFR shared its findings regarding infant deaths with area physicians.
- Rural township emergency medical personnel in **Ross** County are receiving training on assisting with births that occur before the mother can be transported to the hospital.



### General Health and Safety

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

- An annual health fair is held for fourth graders in **Allen** County. Booths offer health and safety tips, including a presentation on Internet safety specifically for this age group.
- MomsFirst in **Cuyahoga** County became a Text4Baby partner, promoting the free mobile information service that provides timely health information to pregnant women and new mothers throughout their baby's first year.
- The **Champaign** County CFR board provided community education related to smoke detectors, safe use of space heaters and information on free smoke detectors.
- The **Fairfield** County CFR used articles in local newspapers to provide information on rural and farm safety during the summer months.
- The **Franklin County** CFR board developed a booklet entitled, "Top 10 Tips for Healthier, Safer Children," based on review findings. The booklet was distributed widely throughout the county, with a special target population of parents with children preparing for kindergarten. The board also published "A Data Snapshot," summarizing review findings to guide others in program and policy development.
- Agencies in **Pickaway** County are being surveyed for existing services to be included in a referral resource directory.
- In addition to collaborating with Parent Power to hold a baby health fair at the local YWCA, the **Trumbull** County CFR had a danger sign posted near a popular but unsafe swimming area.

- A pilot project in **Wood** County has been developed to provide health services such as immunizations, developmental screenings, genetic consultations, physicals and wellness visits for children in the care of protective services. The cost is being covered by a county healthy levy.
- Two counties, **Jefferson** and **Wood**, are developing bereavement support services for the families who have experienced an infant or child death.

### 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.



- Members of the **Huron** County CFR board met with a legislator, the director of children's services and a local pediatrician regarding the sharing of information between local agencies, including foster agencies.
- The **Harrison** County CFR board is seeking to expand its membership.
- A representative of the **Licking** County CFR board presented at a firefighters' regional seminar on the topics of child deaths, investigations and Ohio law regarding the transport of an obviously dead child.
- The **Lorain** County CFR board is facilitating discussion among neighboring county children's services agencies about policies and procedures following child deaths.
- The **Perry** County CFR board has begun efforts to obtain more emergency room and emergency medical services (EMS) reports for the reviews. Law enforcement has agreed to attend EMS runs to improve investigation and information collection.
- The **Portage** County CFR board has decided to meet twice a year to decrease the time between the death and the review.
- A member of the **Richland** County CFR board has joined the Ohio Injury Prevention Partnership to improve collaborations and education regarding injury prevention.
- The **Van Wert** County CFR board is working locally to improve education, awareness and collaboration between key players to improve communication

about children who are in hospice care. The board would like to develop a policy for the coroner to be notified of children in hospice care.

- Participation in the **Vinton** County CFR process has produced noticeable improvements in agency interactions and the exchange of ideas among member agencies.





## 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 citizens of Ohio, four members are legislative appointees and three members are agency directors (ODH, ODJFS and the Ohio Department of Alcohol and Drug Addiction Services). The Board supervises the policies and programs of the Trust Fund and the 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 October 2010, OCTF became the provisional Ohio Chapter of Prevent Child Abuse America. The OCTF and Prevent Child Abuse America share a common mission and the OCTF Board was excited for the opportunity to align Ohio's statewide prevention efforts under one entity and to further the work of Prevent Child Abuse Ohio.

In transforming OCTF into Ohio's leader and authority on child maltreatment prevention, the 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 2009 Deaths



## 2011 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:

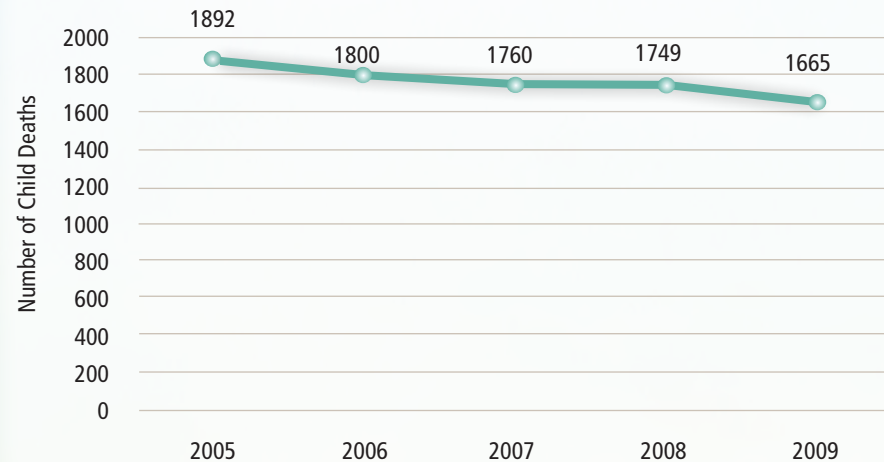
- Cause of death
- Factors contributing to death
- Age
- Gender
- Race
- Geographic location of death
- Year of death

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 is contains no case-identifying information and is a public record.

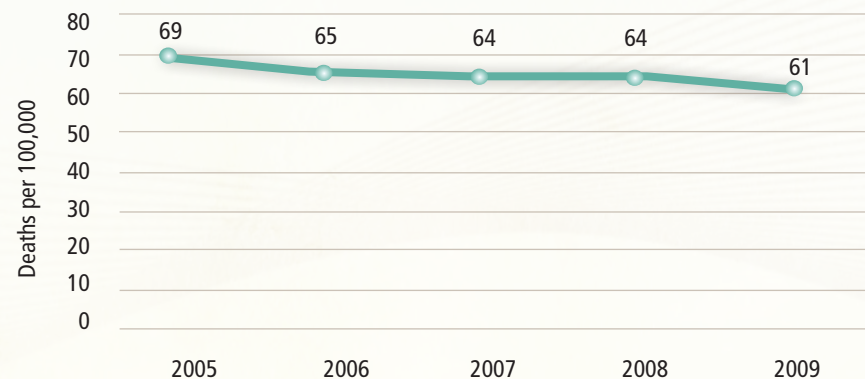
There were a total of 1,615 reviews of 2009 child deaths reported by April 1, 2011. Of these, 1,590 were complete for manner and cause of death and used for analysis. This represents 95 percent of all child deaths (1,665) in Ohio for 2009, based on data from Ohio vital statistics. All 88 counties submitted 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.

The number of Ohio child deaths has decreased from 1,892 in 2005, when 1,763 reviews (93 percent) were completed, to 1,665 in 2009. The child mortality rate has decreased from 69 deaths per 100,000 children in 2005 to 61 in 2009.

Ohio Child Deaths by Year, 2005-2009



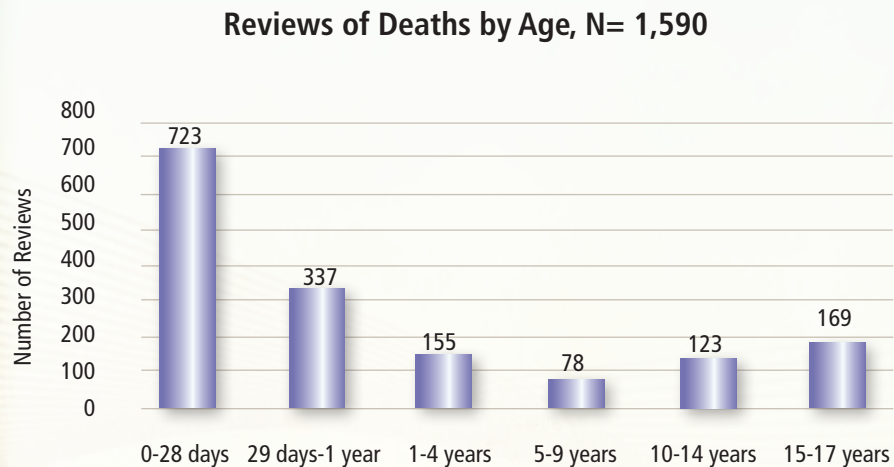
Ohio Child Mortality Rate by Year, 2005-2009



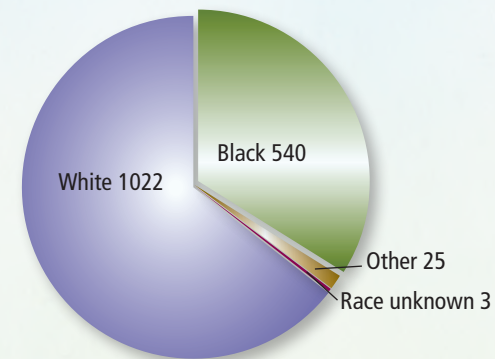
## Reviews For 2009 Deaths

### Reviews by Demographic Characteristics

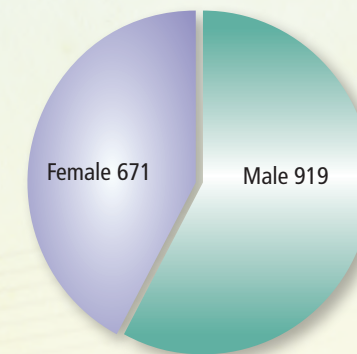
Local child fatality review (CFR) boards reviewed the deaths of 1,590 children who died in 2009. Sixty-seven percent (1,060) of the reviews were for children less than 1 year of age. There were greater percentages of reviews among boys (58 percent) and among black children (34 percent) relative to their representation in the general Ohio child population (51 percent for boys and 16 percent for black children, per U.S. Census data<sup>1</sup>). Five percent (81) of all reviews were for children of Hispanic ethnicity, which closely compares to their representation in the general Ohio child population (5 percent).



**Reviews of 2009 Deaths  
by Race, N= 1,590**



**Reviews of Deaths by Gender,  
N= 1,590**



*\*34 cases with multiple races indicated were assigned to the minority race.*



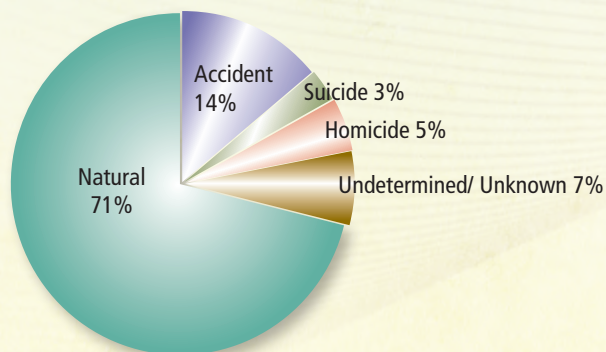
## Reviews by Manner of Death

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 2009, the 1,590 reviews were classified as follows:

- Seventy-one percent (1,133) were natural deaths.
- Fourteen percent (224) were accidents.
- Five percent (70) were homicides.
- Three percent (54) were suicides.
- Seven percent (109) were of an undetermined or unknown manner.

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

**Reviews of 2009 Deaths by Manner**  
**N= 1,590**

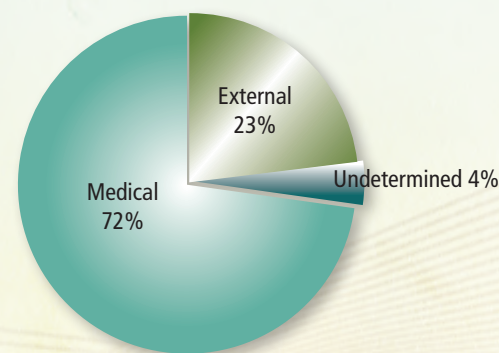


## Reviews by Cause of Death

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. In 2009, the 1,590 reviews were classified as follows:

- Seventy-two percent (1,152) were due to medical causes.
- Twenty-three percent (370) were due to external causes.
- In 68 reviews, the cause of death could not be determined as either medical or external.

**Reviews of 2009 Deaths by Cause**  
**N= 1,590**



## 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 1,217 children who died of medical causes in 2009. For further information on the ICD-10 codes used to produce vital statistics data, see Appendix V.

### CFR Findings

Seventy-two percent (1,152) of the 1,590 reviews for 2009 deaths were from medical causes.

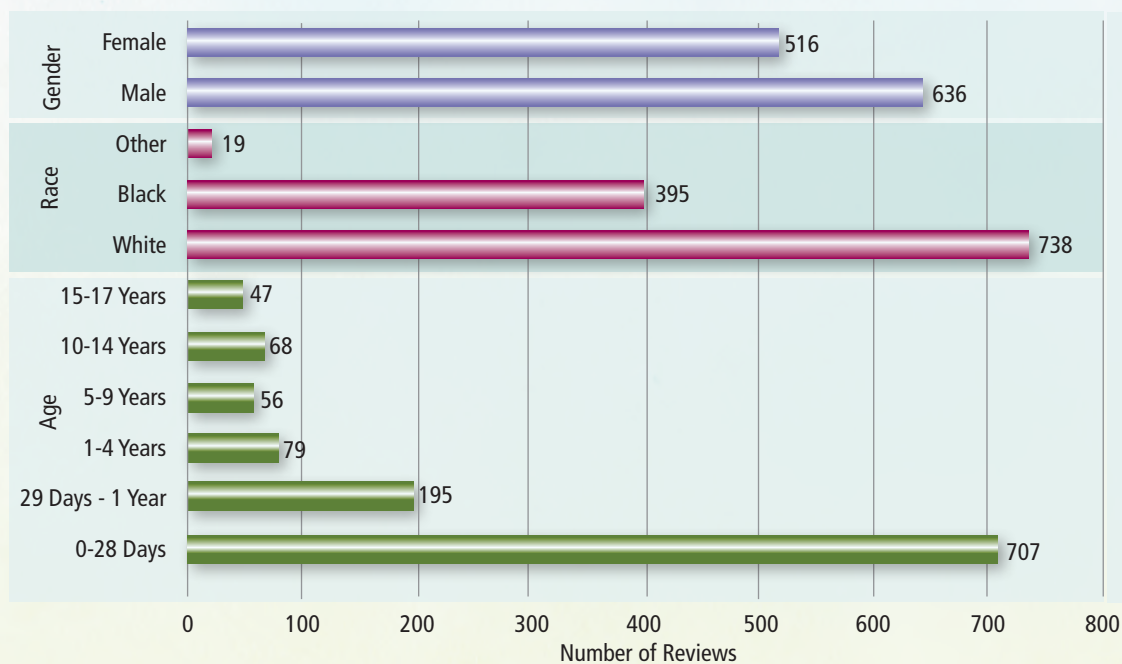
- Seventy-eight percent (902) of the 1,152 reviews for medical causes were to infants under the age of one year.
- Fifty-five percent (636) of the 1,152 reviews for medical causes were to male children.

- Thirty-four percent (395) of the 1,152 reviews for medical causes were to black children, which is disproportionate to their representation in the Ohio child population (16 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 pneumonia/other infections were the three leading medical causes of death.
  - ◆ Forty-one percent (469) of the deaths from medical causes were due to prematurity.
  - ◆ Fifteen percent (172) were due to congenital anomalies.
  - ◆ Seven percent (77) were due to pneumonia and other infectious conditions.
  - ◆ Sudden infant death syndrome (SIDS) is a medical cause of death. Four percent (45) of the deaths from medical causes were due to SIDS.
- The leading medical cause of death for children older than the one year was cancer. Sixteen percent (39) of deaths from medical causes to children older than one year were due to cancer.

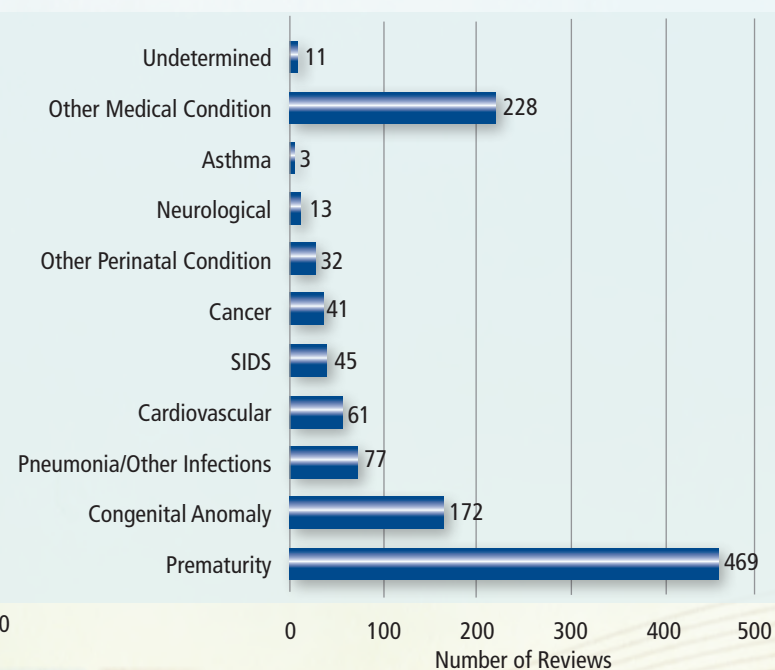
For additional tables including all medical causes of death by demographic information, please see Appendix VII.



Reviews of 2009 Deaths from Medical Causes, N=1,152



Reviews of 2009 Deaths from Medical Causes, N=1,152



### Three Leading Medical Causes of Death, by Age, Race and Gender

	Prematurity (N=469)		Congenital Anomalies (N=172)		Pneumonia/ Other Infections (N=77)	
Age	#	%	#	%	#	%
1-28 Days	450	96	96	56	15	19
29 – 364 Days	18	4	42	24	19	15
1-4 Years	-	-	17	10	14	18
5-9 Years	1	<1	4	2	13	17
10-14 Years	-	-	6	3	10	13
15-17 Years	-	-	7	4	6	8
Unknown	-	-	-	-	-	-
Missing	-	-	-	-	-	-
Race	#	%	#	%	#	%
White	261	56	118	69	53	69
Black	202	43	51	30	22	29
Other	6	<2	3	<2	2	3
Unknown	-	-	-	-	-	-
Missing	-	-	-	-	-	-
Gender	#	%	#	%	#	%
Male	280	60	88	51	39	51
Female	189	40	84	49	38	49
Unknown	-	-	-	-	-	-
Missing	-	-	-	-	-	-
Total	469		172		77	

Percents may not total 100 due to rounding.

## Deaths From External Causes

### Background

External causes of death are injuries, either unintentional or intentional damage to the body 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.<sup>2</sup>

### Vital Statistics

Ohio vital statistics reported 448 children who died of external causes in 2009. For further information on the ICD-10 codes used to produce Vital Statistics data, see Appendix V.

### CFR Findings

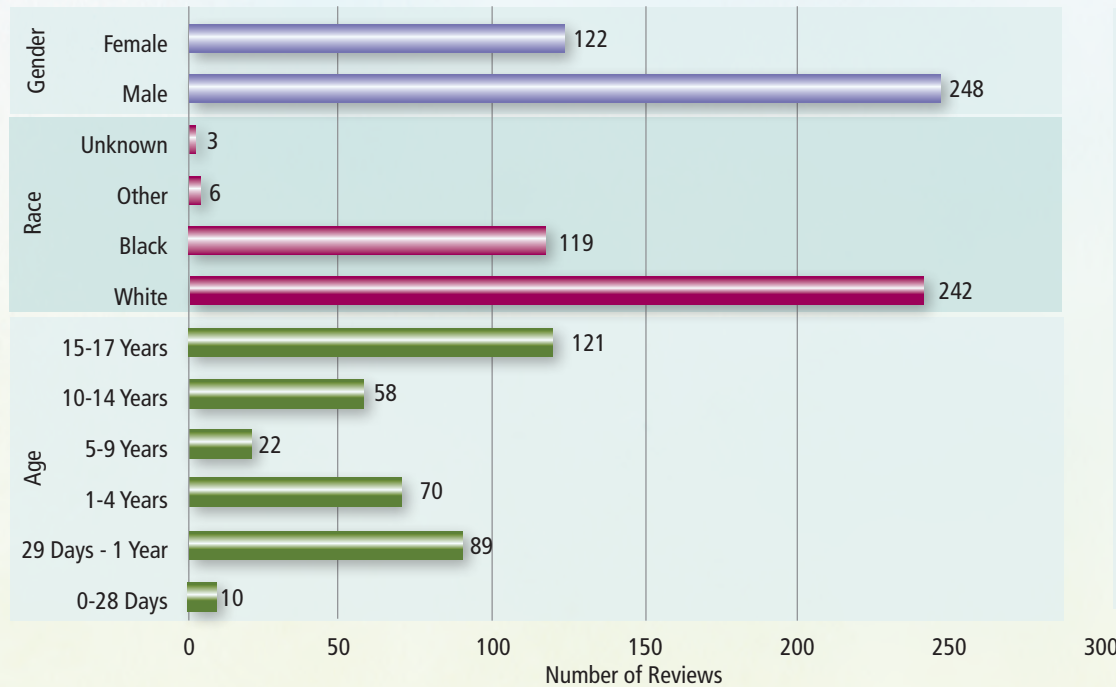
Twenty-three percent (370) of the 1,590 reviews for 2009 deaths were due to external causes.

- Thirty-three percent (121) of the 370 reviews of deaths from external causes were for children ages 15 to 17 years.
- Thirty-two percent (119) of the 370 reviews for external causes were for black children, which is disproportionate to their representation in the Ohio child population (16 percent).
- Sixty-seven percent (248) of the 370 reviews for external causes were for boys, which is disproportionate to their representation in the population (51 percent).
- Asphyxia, vehicular injuries and weapons injuries were the three leading external causes for the 370 reviews. 2009 is the second year since CFR began keeping data that deaths from asphyxia have surpassed deaths from vehicular injuries.
  - ♦ Twenty-nine percent (107) were due to asphyxia.
  - ♦ Twenty-three percent (86) were due to vehicular injuries.
  - ♦ Twenty-one percent (76) were due to weapons injuries, including the use of body parts as weapons.

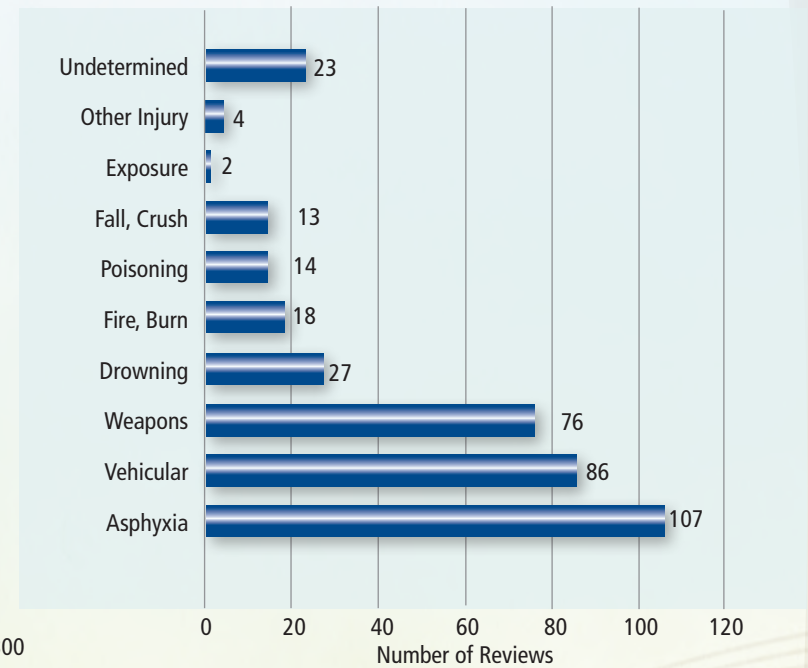
For additional tables including all external causes of death by demographic information, please see Appendix VII.



Reviews of 2009 Deaths from External Causes, N=370



Reviews of 2009 Deaths from External Causes, N=370



## 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 1988 and are based on the U.S. Code and U.S. Census information. See Appendix VI 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 2009, Ohio's child population was distributed as follows:

- 12 percent rural Appalachian
- 15 percent rural non-Appalachian
- 18 percent suburban
- 55 percent metropolitan<sup>3</sup>

According to Ohio vital statistics, the 2009 child deaths were distributed as follows:

- 12 percent rural Appalachian
- 15 percent rural non-Appalachian
- 13 percent suburban
- 60 percent metropolitan<sup>4</sup>

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

- 88 percent rural Appalachian
- 92 percent rural non-Appalachian
- 96 percent suburban
- 98 percent metropolitan

For an explanation of deaths not reviewed, please see "Limitations" on page 5 and "Overview of Ohio Child Fatality Review Program" on page 68.

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 1,590 reviews of deaths that occurred in 2009 were distributed as follows:

- Eleven percent of reviews (179) were from rural Appalachian counties.
- Fourteen percent of reviews (226) were from rural non-Appalachian counties.
- Thirteen percent of reviews (200) were from suburban counties, which is disproportionately lower than the proportion of children living in suburban counties (18 percent).



- Sixty-two percent of reviews (985) were from metropolitan counties, which is disproportionately higher than the proportion of children living in metropolitan counties (55 percent).

#### Manner of Death by County Type

- Sixty-three percent (715) of natural deaths reviewed were from metropolitan counties, which is disproportionately higher than the proportion of children living in metropolitan counties (55 percent).
- The percentage of reviews for accidental deaths was slightly higher in rural Appalachian (14 percent), and non-rural Appalachian (18 percent) counties than the proportion of children living in those counties (12 percent and 15 percent).
- Twenty-four percent (13) of suicide deaths reviewed were from rural non-Appalachian counties, which is disproportionately higher than the proportion of children living in those counties (15 percent).
- Seventy-three percent (51) of homicide deaths reviewed were from metropolitan counties, which is disproportionately higher than the proportion of children living in metropolitan counties (55 percent).

#### Manner of Death by County Type, N=1,590

	Rural Appalachian		Rural Non-Appalachian		Suburban		Metropolitan		Total
	#	%	#	%	#	%	#	%	#
<b>Natural</b>	125	11	156	14	137	12	715	63	<b>1,133</b>
<b>Accident</b>	32	14	41	18	40	18	111	50	<b>224</b>
<b>Suicide</b>	4	7	13	24	6	11	31	57	<b>54</b>
<b>Homicide</b>	5	7	6	9	8	11	51	73	<b>70</b>
<b>Undetermined/Unknown</b>	13	12	10	9	9	8	77	71	<b>109</b>
<b>Total</b>	<b>179</b>	<b>11</b>	<b>226</b>	<b>14</b>	<b>200</b>	<b>13</b>	<b>985</b>	<b>62</b>	<b>1,590</b>

*Percents may not total 100 due to rounding.*



### Medical Causes of Death by County Type

- Sixty-three percent (727) 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 (55 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 10 percent (46) of the deaths due to prematurity were from suburban counties, which is disproportionately less than the proportion of children living in suburban counties (18 percent).

### External Causes of Death by County Type

- Twenty-one percent (18) of vehicular deaths were from rural non-Appalachian counties, which is disproportionately higher than the proportion of children living in rural non-Appalachian counties (15 percent).
- Thirty-nine percent (7) of fire and burn deaths reviewed were from rural non-Appalachian counties, which is disproportionately higher than the proportion of children living in those counties (15 percent).

**Medical Causes of Death by County Type, N-1,15**

	Rural Appalachian		Rural Non-Appalachian		Suburban		Metropolitan		Total
	#	%	#	%	#	%	#	%	#
<b>Prematurity</b>	47	10	40	9	46	10	336	72	<b>469</b>
<b>Congenital Anomaly</b>	19	11	28	16	23	13	102	59	<b>172</b>
<b>Pneumonia/ Other Infection</b>	7	9	15	20	15	20	40	52	<b>77</b>
<b>All Other Medical Causes</b>	54	12	74	17	57	13	249	57	<b>434</b>
<b>Total</b>	<b>127</b>	<b>11</b>	<b>157</b>	<b>14</b>	<b>141</b>	<b>12</b>	<b>727</b>	<b>63</b>	<b>1,152</b>

Percents may not total 100 due to rounding.





## External Causes of Death by County Type, N=370

	Rural Appalachian		Rural Non-Appalachian		Suburban		Metropolitan		Total
	#	%	#	%	#	%	#	%	#
<b>Asphyxia</b>	15	14	15	14	18	17	59	55	<b>107</b>
<b>Vehicular</b>	13	15	18	21	19	22	36	42	<b>86</b>
<b>Fire/Burn</b>	1	6	7	39	1	6	9	50	<b>18</b>
<b>All Other External Causes</b>	13	8	23	14	15	9	108	68	<b>159</b>
<b>Total</b>	<b>42</b>	<b>11</b>	<b>63</b>	<b>17</b>	<b>53</b>	<b>14</b>	<b>212</b>	<b>57</b>	<b>370</b>

*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.

- Twelve percent of reviews (18) were from rural Appalachian counties.
- Thirteen percent of reviews (20) were from rural non-Appalachian counties.
- Twelve percent of reviews (19) were from suburban counties.
- Sixty-three percent of reviews (96) 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. Seventy-seven percent (26) of the reviews were from metropolitan counties.

For more data regarding reviews of 2009 deaths, see Appendix VII.



## Reviews for 2005-2009 Deaths

Photo by Aileen Jane



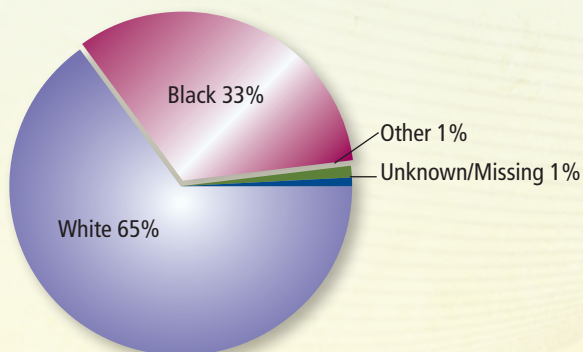
## Reviews for 2005-2009 Deaths

### 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 2005-2009. For the five-year period, Ohio CFR boards have completed 8,448 reviews, which represent 95 percent of the 8,866 child deaths reported by Ohio vital statistics.

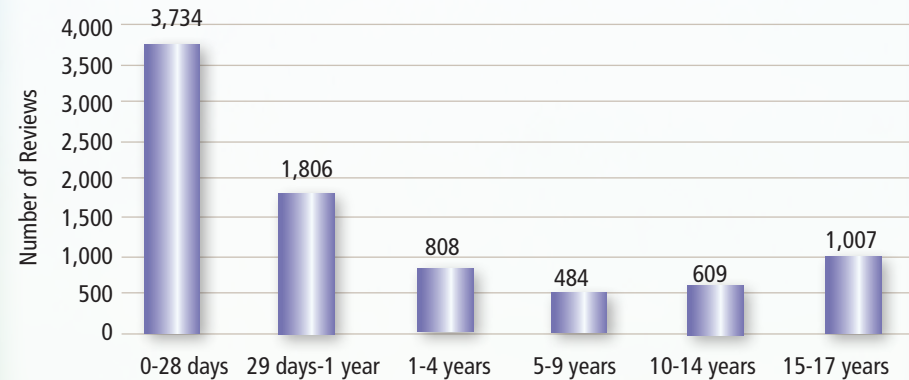
- Sixty-six percent (5,540) of the reviews were for children less than 1 year of age.
- There were greater percentages of reviews among boys (59 percent) and among black children (33 percent) relative to their representation in the general Ohio population (51 percent for boys and 16 percent for black children, per U.S. Census data <sup>5</sup>).
- Four percent (357) of all reviews were for children of Hispanic ethnicity.

### Reviews of 2005-2009 Deaths by Race, N= 8,448

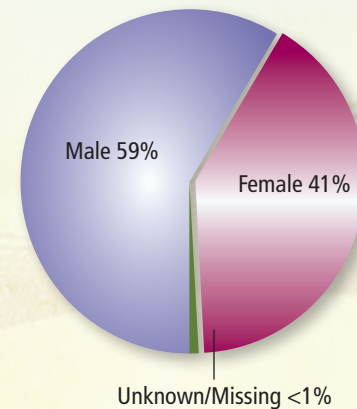


\* 167 cases with multiple races were assigned to the minority race.

### Reviews of 2005-2009 Deaths by Age, N= 8,448



### Reviews of 2005-2009 Deaths by Gender, N= 8,448

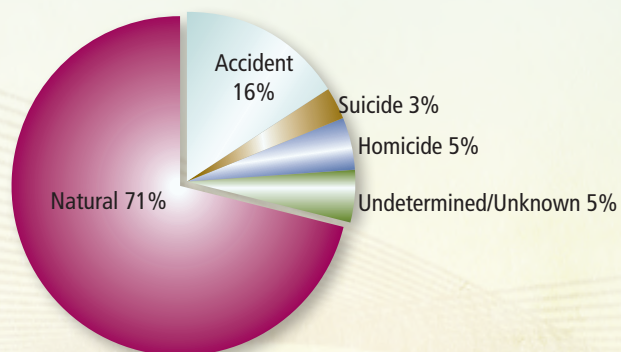


### Reviews by Manner of Death

For the five-year period 2005-2009, the 8,448 reviews were classified as follows:

- Seventy-one percent (6,023) were natural deaths.
- Sixteen percent (1,367) were accidents.
- Five percent (388) were homicides.
- Three percent (238) were suicides.
- Five percent (432) were of an undetermined or unknown manner.

**Reviews of 2005-2009 Deaths by Manner, N= 8,448**

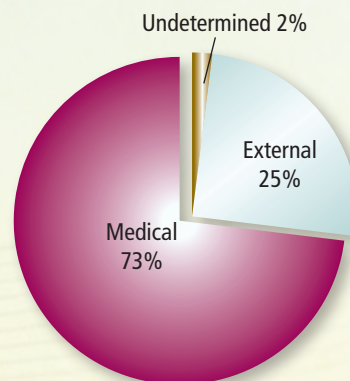


### Reviews by Cause of Death

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 2005-2009, the 8,448 reviews were classified as follows:

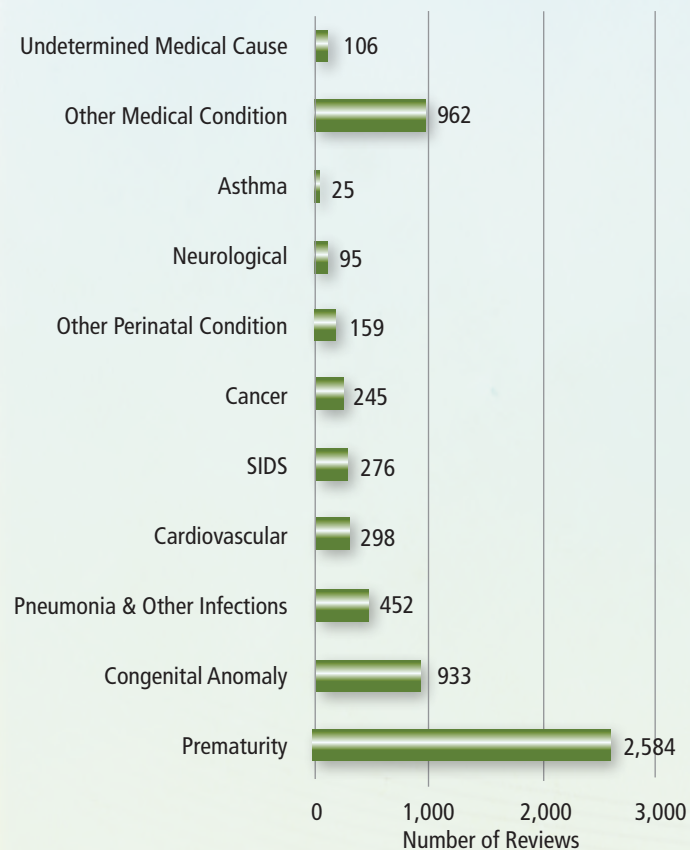
- Seventy-three percent (6,135) were due to medical causes.
- Twenty-five percent (2,119) were due to external causes.
- For two percent (194) of the cases, the cause of death could not be determined as either medical or external.

**Reviews of 2005-2009 Deaths by Cause, N= 8,448**

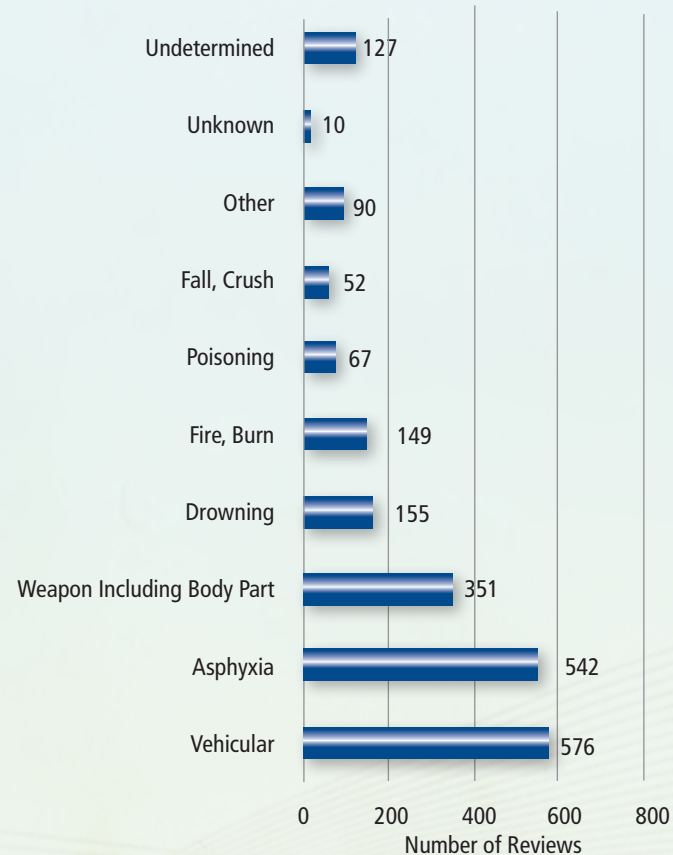




**Reviews of 2005-2009 Deaths from Medical Causes,  
N= 6,135**



**Reviews of 2005-2009 Deaths from External Causes,  
N= 2,119**



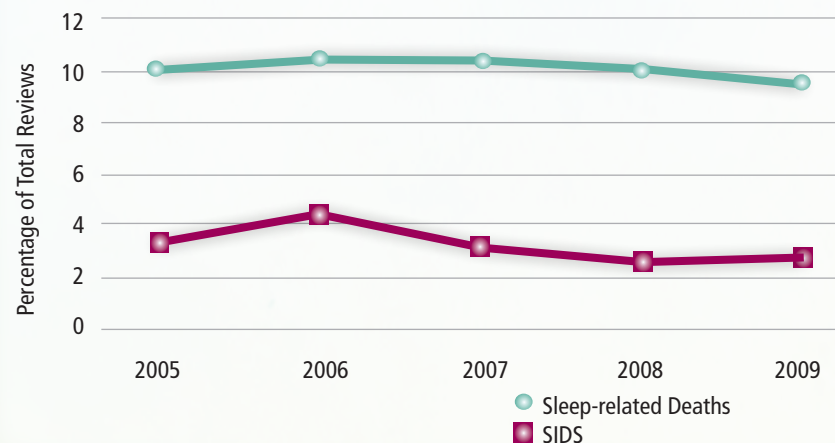
*See Appendix VII for additional review information regarding demographics for 2005-2009 deaths.*

## Trends Over Five Years

For the five-year period 2005-2009, 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 (6,023) of the reviews were natural manner of death. The percentage was 71 percent each year, except 2007 when the percentage was 73.
- Sixty-six percent (5,540) of the reviews were for infants less than 1 year old. The percentage has increased slightly each year, from 65 percent in 2005 to 67 percent in 2009. The increase is likely due to improved processes to identify and review these deaths.
- Fifty-nine percent (4,953) of the reviews were for boys. The percentage changed little over the period, from a high of 60 percent in 2005 to a low of 58 percent in 2009.
- Thirty-three percent (2,794) of the reviews were for black children. The percentage has changed little over the period, from 32 percent in 2005 to 35 percent in 2008 and 34 percent in 2009.
- Twenty-three percent of the deaths reviewed were deemed probably preventable. The percentage changed little over the period, from a high of 24 percent in 2005 and 2006 to a low of 22 percent in 2007 and 2009.
- Three percent (276) of all reviews were due to sudden infant death syndrome (SIDS). After decreasing from seven percent in 2004, the percentage of deaths due to SIDS has changed little over the five-year period. The percentage was three for all years except 2006 when the percentage was four. Reviews

**Sleep-Related Deaths and SIDS, 2005-2009**



for sleep-related infant deaths account for 10 percent (857) of all reviews, and the percentage has remained unchanged for the five-year period.

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

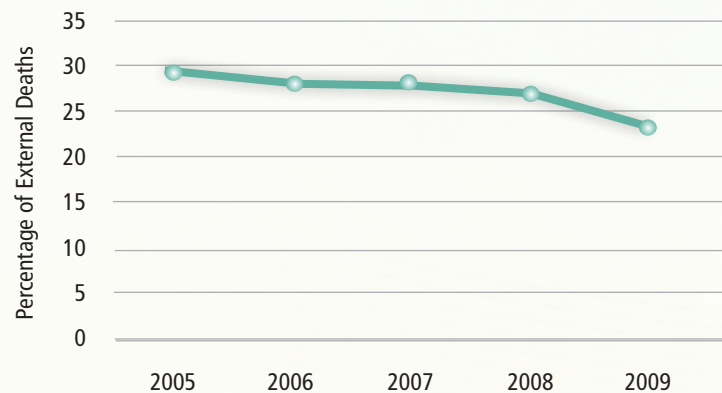
- Seven percent (576) of all reviews were due to vehicular crashes. This is 27 percent of the 2,119 reviews for deaths from external causes. The percentage of deaths from external causes due to vehicular crashes has decreased from 29 percent in 2005 to 23 percent in 2009. White boys ages 15 – 17 years accounted for 31 percent (177) of all vehicular deaths.



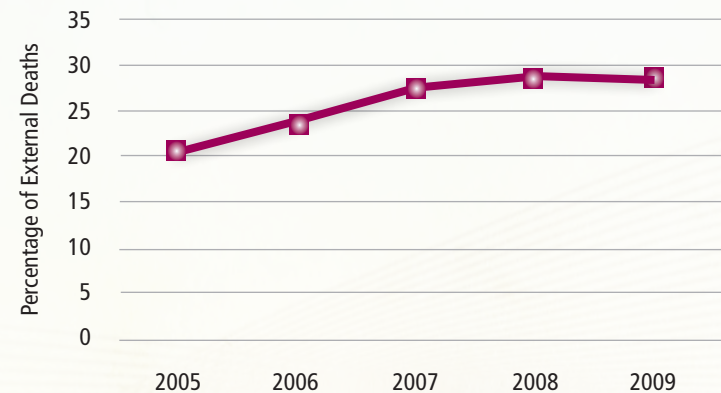
- Six percent (542) of all reviews were due to asphyxia. This is 26 percent of the 2,119 reviews for deaths from external causes. The percentage of deaths from external causes due to asphyxia has increased from 21 percent in 2005 to 29 percent in 2009. Each year, the largest numbers of asphyxia deaths are suffocation deaths to infants less than 1 year old. Fifty-four percent (292) 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.

**Reviews of Vehicular Deaths, 2005-2009**



**Reviews of Asphyxia Deaths, 2005-2009**



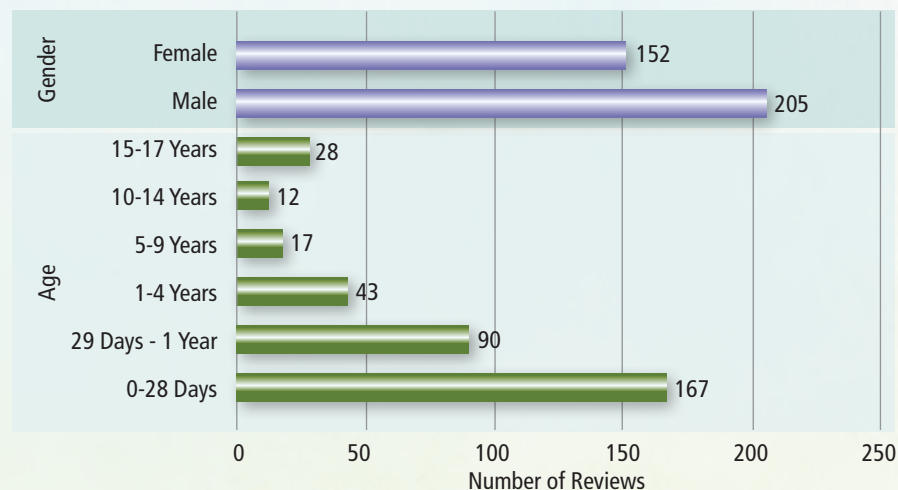
## Deaths to Hispanic Children, All Ages

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 2005-2009, 357 of the 8,448 total reviews were for children of Hispanic ethnicity. During the five-year period, the population of Hispanic children living in Ohio increased from 3 percent of the total child population in 2005 to 5 percent in 2009<sup>6</sup>. The increase is reflected in the percentage of all reviews for Hispanic children which increased from 3 percent in 2005 to 5 percent in 2009.

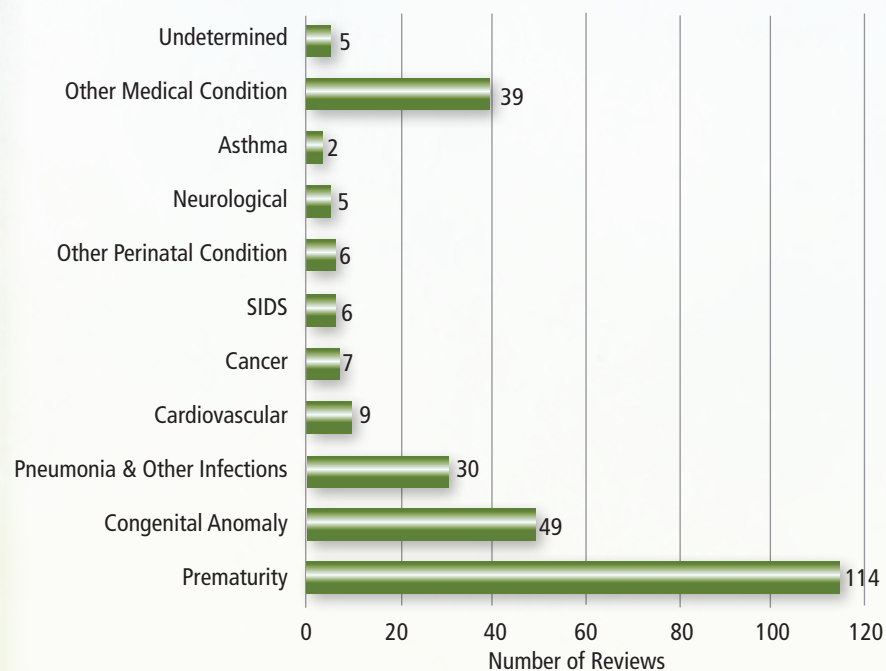
- Seventy-two percent (257) of the reviews for Hispanic children were for infants.
- Prematurity and congenital anomalies were the leading medical causes of death, accounting for 46 percent (163) of the reviews for Hispanic children.
- The leading external cause of death was weapons (20), followed by vehicular deaths and asphyxia (15 each).
- Of the 20 weapons deaths, 50 percent (10) of the children were younger than 5 years and 50 percent (10) were 10 years or older.
  - ◆ All but one of the 10 reviews for children younger than 5 years indicated the weapon used was a body part.
  - ◆ All but one of the 10 reviews for children 10 years and older indicated the weapon used was a firearm.
- Thirteen percent (33) of the reviews were for infant sleep-related deaths.

**Reviews of Deaths to Hispanic Children by Age and Gender  
2005-2009, N=357**

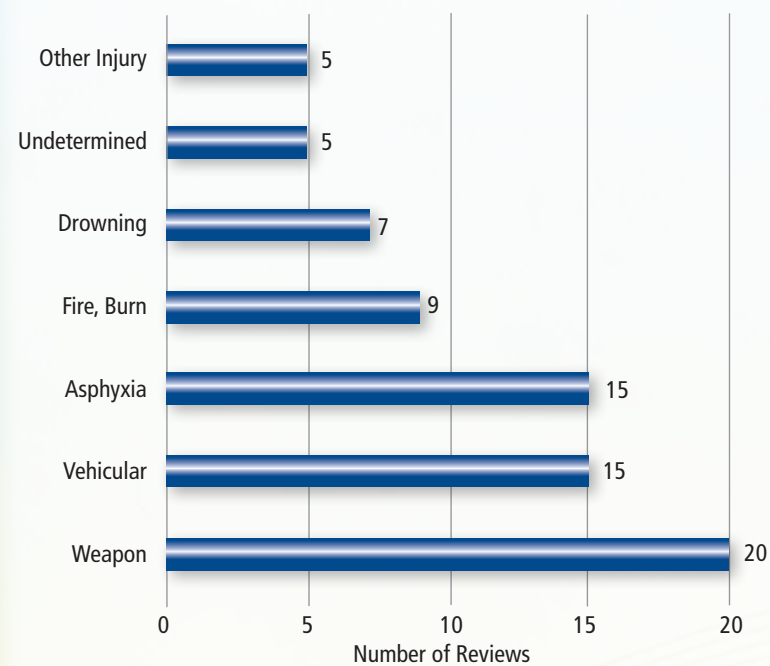




**Reviews of Deaths to Hispanic Children by Medical Causes  
2005-2009, N=272**



**Reviews of Deaths to Hispanic Children by External Causes  
2005-2009, N=76**

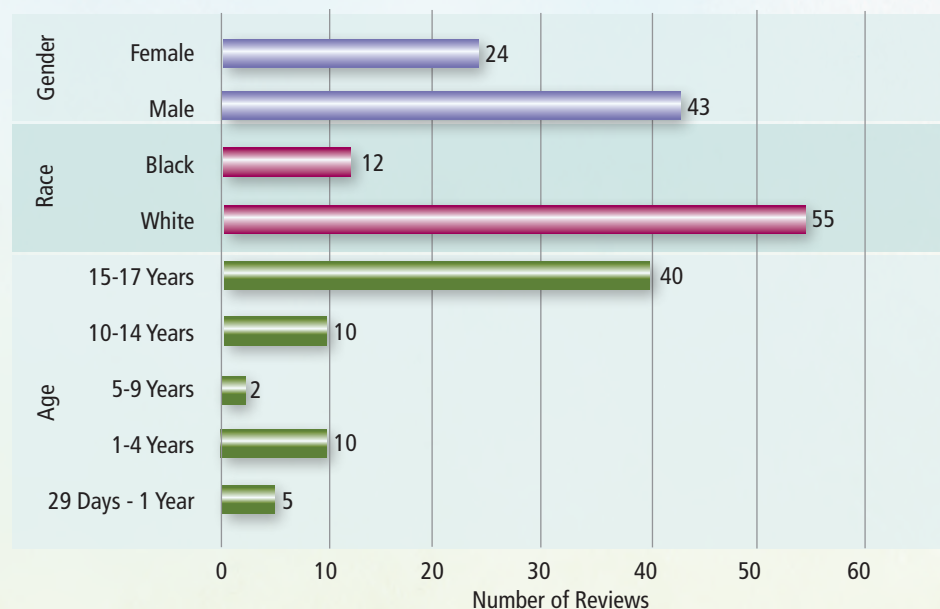


## Poisoning Deaths, All Ages

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 67 poisoning deaths for 2005-2009. These deaths represent three percent of the 2,119 deaths from external causes for the period. Seventy-three percent (49) of the deaths were of accidental manner. Nine percent (6) were suicides.
  - Sixty percent (40) of the deaths occurred to 15 to 17 year olds.
- The poison agents for this age group included prescription and over-the-counter medications, methadone, street drugs, alcohol and carbon monoxide.
  - Twenty-five percent (17) of the poisoning deaths occurred to children younger than 10 years.
- The poison agents for this age group included methadone, other prescription and over-the-counter medications and street drugs. None were poisoned by household cleaners or plants.

Reviews of Poison Deaths, 2005-2009, N=67





## Ohio Prescription Drug Law

Among Ohioans of all ages, prescription drug abuse has become an epidemic. According to the ODH Office of Vital Statistics, since 2007, unintentional drug poisoning has been the leading cause of injury death for adults in Ohio, surpassing motor vehicle crashes and suicide<sup>7</sup>. In an effort to curb prescription drug abuse and diversion in Ohio, House Bill 93 was passed unanimously in the Ohio legislature and signed into law by Governor John Kasich in May, 2011. This bill provides the state medical and pharmacy boards and law enforcement agencies with additional tools to shut down pill mills, and investigate and prosecute those providers that are illegally and unethically prescribing and dispensing medication. The bill is not intended to restrict access or impose a barrier for patients who suffer from chronic or intractable pain and need pain medication. The Ohio Department of Alcohol and Drug Addiction Services, the Ohio Attorney General's Office and ODH are actively engaged in addressing this problem through funding community coalitions, promoting public awareness campaigns, implementing drug disposal events, funding prevention programs in schools, colleges and work sites, and revising and expanding criminal justice and treatment programs to respond appropriately to increasing needs related to prescription drug abuse. Although the law focuses on the problem among Ohio adults, the outcomes will benefit the health and safety of children who must depend on adults.

Additional information and resources about this topic and details on program activities are available on the ODH Violence and Injury Prevention Program Drug Poisoning Web site at:

<http://www.healthyohioprogram.org/vipp/pdaag/pdaag.aspx>



Photo by Aileen Jane



## 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. Because homicide has unique risk factors and prevention strategies, homicide reviews from all causes of death have been combined for further analysis as a group.

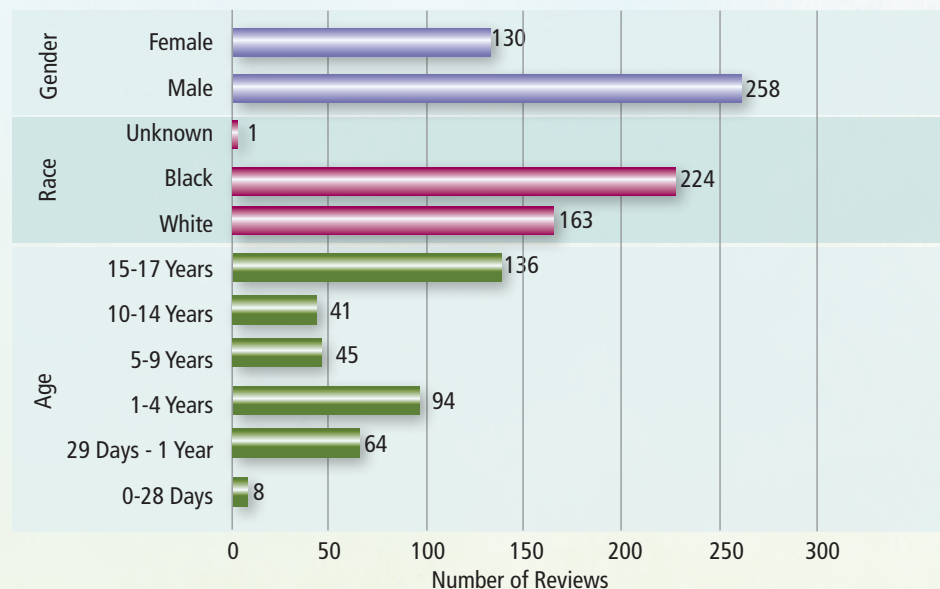
According to the National Center for Injury Prevention and Control, in 2007 homicide was the second-leading cause of death for young people ages 10 to 17 years and accounted for 12 percent of the deaths in this age group. Homicide was the leading manner of death for black children ages 10 to 17 years, accounting for 31 percent.<sup>8</sup>

### CFR Findings

For the five-year period 2005-2009, local CFR boards reviewed 388 deaths to children resulting from homicide. Homicides represent five percent of the total reviews and eleven percent of all reviews for children ages 10 to 17 years. The percentage of all reviews due to homicide was 4 percent in 2005, 2008 and 2009, and 5 percent in 2006 and 2007.

- Homicide deaths to boys (67 percent) were disproportionately higher than their representation in the general population (51 percent).

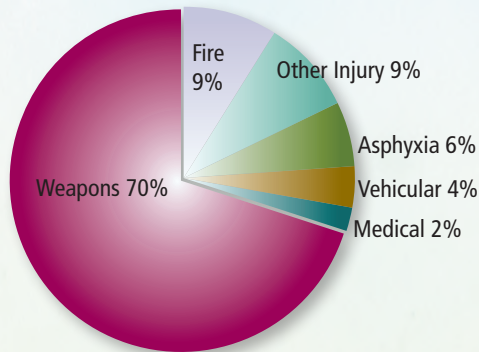
Reviews of Homicides, 2005-2009, N=388



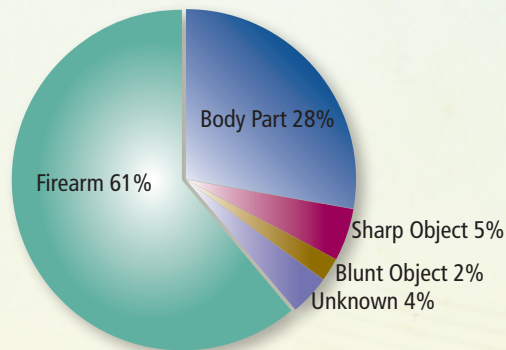
- The proportion of homicide deaths to black children (58 percent) was more than 3.5 times their representation in the general population (16 percent).
- Of the 182 deaths from all causes to black boys ages 15 to 17 years, 51 percent (93) were homicides, while only 4 percent (19) of the 499 deaths from all causes to white boys ages 15 to 17 years were homicide.



### Homicides by Cause of Death, N= 388



### Homicides by Weapon Type, N= 271



For a better understanding of the factors related to homicides, the 388 reviews were divided by age: 211 reviews for children 0 to 9 years old, and 177 reviews for children 10 to 17 years old.

- Seventy percent (271) of homicide deaths were caused by a weapon, including body parts.
  - ◆ Seventy-seven percent (137) of the homicides to children 10 to 17 years old involved firearms as the weapon. Thirteen percent (31) of the homicides to children 0 to 9 years old involved firearms.
  - ◆ Twenty-nine percent (62) 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, parent's partner or other relative in 76 percent of reviews.
  - ◆ For children ages 10 to 17, the most frequently reported perpetrator was an acquaintance or friend (34 percent). There were 13 children ages 10 to 17 killed by a gang member (7 percent).
- In 46 percent (179) 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 71 percent of reviews.
  - ◆ For children ages 10 to 17 years, the commonly reported places of incident were child's home (17 percent), friend's home (16 percent), roadway (16 percent), and other place (16 percent).

## Reviews of Homicides by Perpetrator N=388

Person Causing Death	#	%
Biological Parent	104	28
Stepparent	4	1
Adoptive/Foster Parent	3	<1
Parent's Partner	48	13
Other Relative	28	7
Acquaintance	50	13
Friend/Boyfriend/Girlfriend	27	7
Gang Member	13	3
Stranger	34	9
Unknown	53	14
Other	13	3
Missing	11	
<b>Total</b>	<b>388</b>	<b>100</b>

Percents may not total 100 due to rounding.

## Reviews of Homicides by Place of Incident, N=388

Place of Incident	#	%
Home	179	46
Road	34	9
Friend's Home	39	10
Relative's Home	31	8
Sidewalk/Driveway/Parking Lot	44	11
Other	45	12
Unknown	16	4
Missing	0	
<b>Total</b>	<b>388</b>	<b>100</b>

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.<sup>9</sup> 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. Because 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 nine percent of the deaths for young people ages 10 to 17 years nationally in 2007.<sup>10</sup>

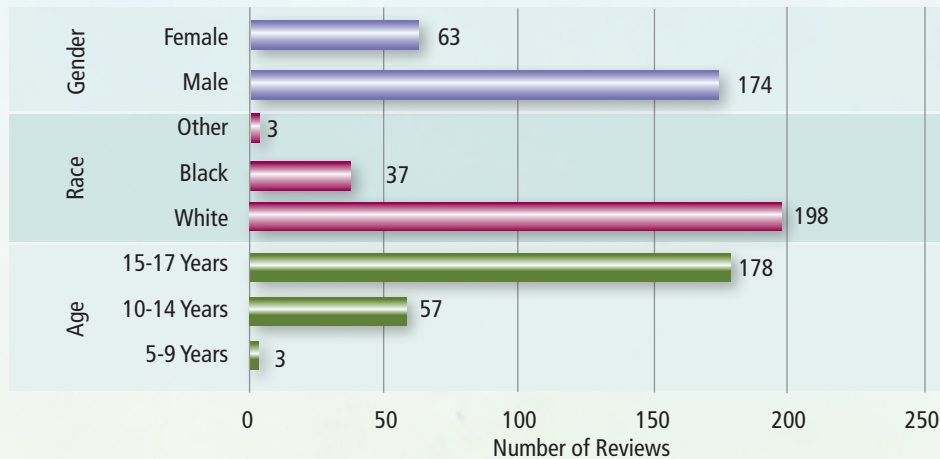
### CFR Findings

For the five-year period 2005-2009, local CFR boards reviewed 238 deaths to children from suicide. These represent three percent of the total 8,448 reviews and 15 percent of all reviews for children ages 10-17. The largest number of suicides occurred in 2008 (58) and the fewest occurred in 2007 (37).

- Suicide deaths were disproportionately higher among boys (73 percent) than their representation in the general population (51 percent).
- Seventy-five percent (178) of the suicide deaths reviewed were to children ages 15 to 17.
- Sixty-two percent (147) of the suicide deaths were caused by asphyxiation and 29 percent (70) were caused by a weapon.
- The most frequently indicated factors that might have contributed to the child's despondency included family



### Reviews of Suicides, 2005-2009, N=238

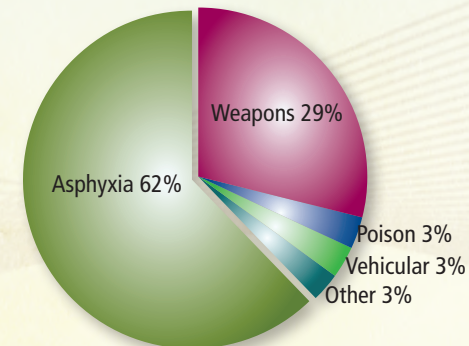


problems, such as divorce and arguments with parents; arguments and break-ups with friends; school issues including failure; drug and alcohol use; victimization by bullying; and other personal crises.

- Twenty-one percent (49) of reviews for suicide deaths indicated the child had a history of child abuse or neglect. Sixteen had an open child protective services case at the time of the incident.
- Twenty-three percent (54) of the suicide victims were receiving mental health services at the time of the incident. Fifteen percent (36) had been prescribed medications for mental health conditions.



### Suicides by Cause of Death, N=238



Percentages do not total to 100 due to rounding.

## 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, mental health issues, apparent disinterest in caring for the health and safety of their child and alcohol or drug abuse.<sup>11</sup>

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.<sup>12</sup>

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

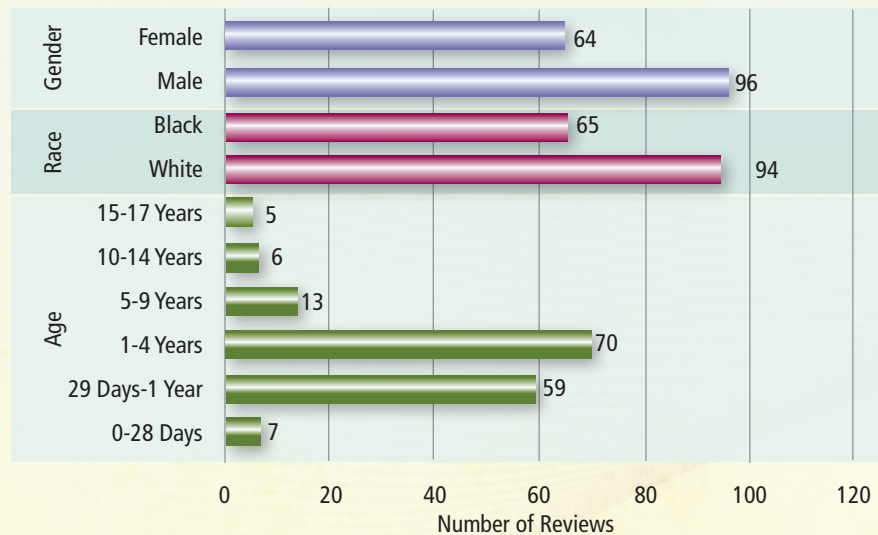
For the five-year period 2005-2009, local CFR boards reviewed 160 deaths from child abuse and neglect. These represent two percent of all 8,448 deaths reviewed. The percentage of reviews of child abuse and neglect deaths has not changed during the five-year period.

- Seventy-four percent (118) of the 160 reviews indicated that physical abuse caused or contributed to the death, while 36 percent (57) reviews indicated that neglect caused or contributed to the death. Five reviews indicated both abuse and neglect caused or contributed to the death.



- Eighty-five percent (136) 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 (41 percent) relative to their representation in the general population (16 percent).
- The 160 deaths identified as child abuse and neglect were the result of several kinds of injuries.
  - ◆ Forty-six percent (74) were the result of weapons including use of a body part as a weapon.
  - ◆ Other causes of death included asphyxiation, poison, drowning, fire/burn and medical causes.

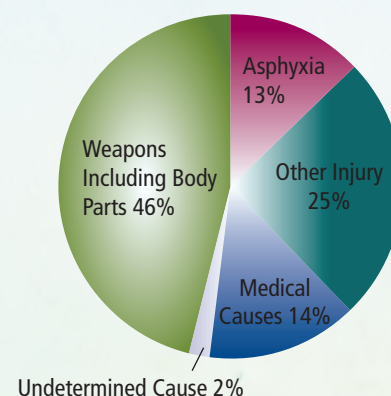
### Reviews of Child Abuse and Neglect Deaths by Cause of Deaths, 2005-2009, N=160



- The majority of the 160 child abuse and neglect deaths reviewed were violent deaths, with 113 resulting from physical abuse, including 36 indicating the child had been shaken.
- Thirty-six percent (58) of the 160 child abuse and neglect deaths reviewed indicated the child had a prior history of child abuse and neglect, and 20 percent (32) had an open child protective services case at the time of the incident.
- Sixty-two percent (99) of the reviews indicated the person causing the death was a biological parent. The parent's partner was cited in 20 percent (32) of the reviews.
- For the 155 reviews where the type of residence was known, 84 percent (130) of the children were living in a parental home. Only seven were in official placement in foster homes, relative foster homes or licensed group homes.

For all 8,448 deaths reviewed from all causes for the five-year period 2005-2009, 5 percent (423) indicated a prior history of child abuse or neglect, and 4 percent (315) had an open case with child protective services at the time of the death.

### Child Abuse and Neglect Deaths by Cause of Death, N=160



### Reviews of Child Abuse and Neglect Deaths by Person Causing Death, N=160

Person	#	%
Biological Parent	99	62
Stepparent/Foster Parent	4	3
Parent's Partner	32	20
Other Relative	6	4
Friend/Acquaintance	8	5
Unknown/Missing	11	7
<b>Total</b>	<b>160</b>	<b>100</b>

*Percents may not total 100 due to rounding.*



## Reviews for 2005-2009, 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 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 U.S. infant mortality rate for 2009 was 6.4 infant

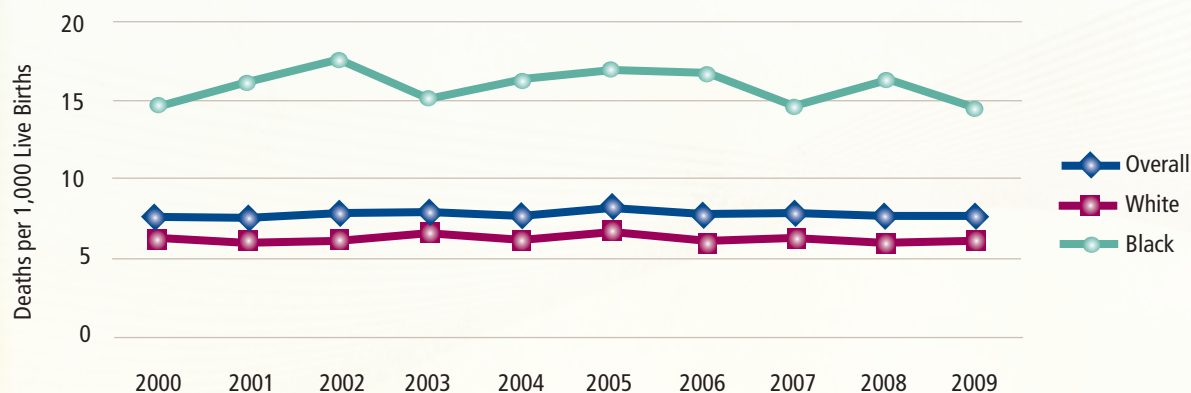
deaths per 1,000 live births, and has changed little over the past decade. This rate is approximately 50 percent higher than the Healthy People 2010 target of 4.5.<sup>13</sup>

In 2009, Ohio's overall infant mortality rate was 7.5. Of particular concern is the black infant mortality rate of 14.6, which is more than double the white infant mortality rate of 6.2. These rates and proportions have changed little over the past decade.<sup>14</sup>

#### Vital Statistics

Ohio vital statistics data report 3,897 neonatal deaths (from birth to 28 days old) and 1,911 post-neonatal deaths (from 29 days to 1 year old) for a total of 5,808 infant deaths for the five-year period 2005-2009.

Infant Mortality by Race, 2005-2009



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

### CFR Findings

Local child fatality review boards reviewed 5,540 infant deaths for 2005-2009. These represent 66 percent of all reviews for all ages.

- Sixty-seven percent (3,734) were infants from birth to 28 days old.
- Thirty-three percent (1,806) were infants from 29 days to 1 year old.
- Reviews for infant deaths were disproportionately higher among boys (57 percent) and among black children (37 percent) relative to their representation in the general population (51 percent for boys and 16 percent for black children).

Reviews of infant deaths are grouped by cause of death:

- 4,806 (87 percent) of all infant deaths were due to medical causes.
- 565 (10 percent) were due to external injury causes.
- 169 (3 percent) were unknown if caused by medical or external causes.

Prematurity and congenital anomalies account for 69 percent (3,320) of all infant deaths from medical causes and 60 percent of infant deaths from all causes. Prematurity and congenital anomalies account for 78 percent (2,908) of the deaths to infants 0-28 days old.

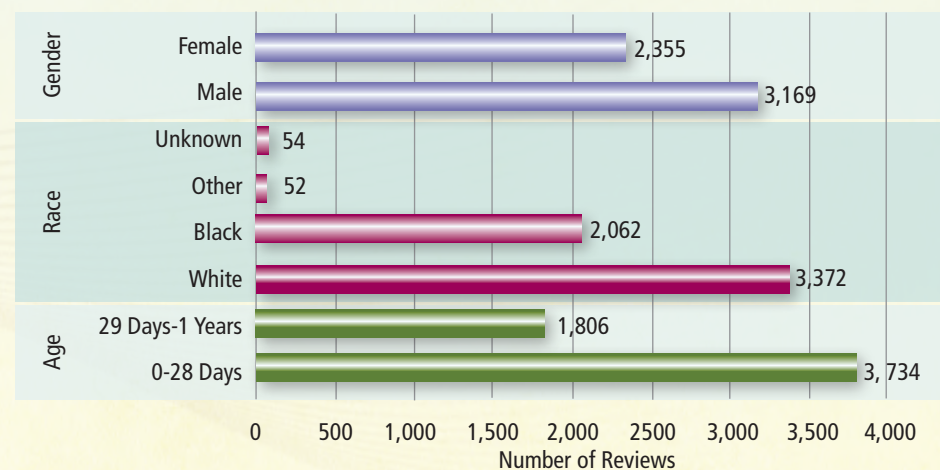
Asphyxia is the leading cause of infant death due to external injury (55 percent of the infant deaths due to external injury). The next leading external cause of death is “undetermined” (22 percent of the infant deaths due to external injury).

Sleep-related deaths accounted for 16 percent (857) of all infant deaths and 42 percent (759) of the deaths to infants 29 days to 1 year old.

Other factors related to infant deaths:

- Thirteen percent (723) of the infants were from multiple births, including 78 from triplet or higher order births.
- Forty-two percent (2,153) of the infants were very low birthweight (<1,500 grams) and an additional 10 percent (516) were low birthweight (1,500-2,499 grams). Twenty-one percent (1,134) were of normal birthweight (2,500-3,999 grams) or heavier. Twenty-seven percent (1,737) of the infants were of unknown or missing birthweight. For all births in Ohio in 2009, nine percent were low or very low birthweight.

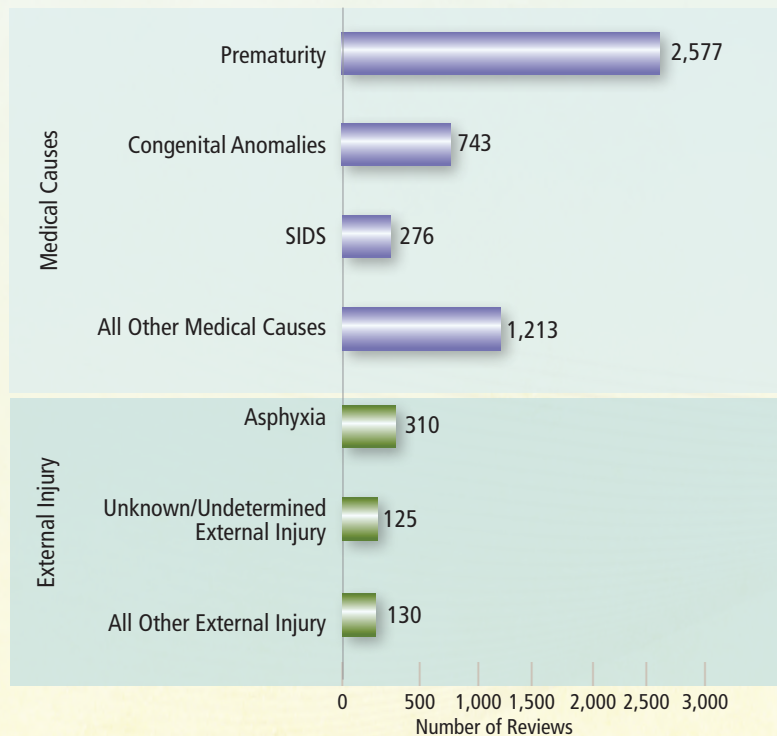
**Reviews of Infant Deaths by Age, Race and Gender  
2005-2009, N=5,540**





- Fifty-four percent (2,839) of the infants were born preterm (<37 weeks gestation), 23 percent (1,211) were born full term (37-42 weeks gestation) and 23 percent (1,488) were of unknown or missing gestation. For all births in Ohio in 2009, 12 percent were born less than 37 weeks gestation.
- Twenty-one percent (1,133) of the infant deaths reviewed were infants born to mothers who smoked during the pregnancy. For all births in Ohio in 2009, 19 percent were born to mothers who smoked during the pregnancy.

### Reviews of Infant Deaths by Leading Causes of Death, 2005-2009, N=5,540



### Birth History Factors for Infant Deaths 2005-2009, N=5,540

	#	%
Multiple Birth	723	13
Very Low Birthweight (<1,500 g)	2,153	42
Low Birthweight (1,500-2,499 g)	516	10
Normal Birthweight (2,500-3,999 g)	1,072	21
Above Normal Birthweight (>3,999 g)	62	1
Unknown	1,371	27
Missing	366	
< 37 Weeks Gestation	2,839	54
37-42 Weeks Gestation	1,211	23
Unknown	1,200	23
Missing	288	
Mother Smoked during Pregnancy	1133	21

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

## Ohio Collaborative to Prevent Infant Mortality

In November 2009, the Ohio Infant Mortality Task Force published its report, Preventing Infant Mortality in Ohio, which contained the following recommendations to eliminate infant mortality and disparities among population groups in Ohio:

1. Provide comprehensive reproductive health services and service coordination for all women and children before, during, and after pregnancy.
2. Eliminate health disparities and promote health equity to reduce infant mortality.
3. Prioritize and align program investments based on documented outcome and cost effectiveness.
4. Implement health promotion and education to reduce preterm birth.
5. Improve data collection and analysis to inform program and policy decisions.
6. Expand quality improvement initiatives to make measurable improvements in maternal and child health outcomes.
7. Address the effects of racism and the impact of racism on infant mortality.
8. Increase public awareness of the effect of preconception health on birth outcomes.
9. Develop, recruit, and train a diverse network of culturally competent health professionals statewide.
10. Establish a consortium to implement and monitor the recommendations of the Ohio Infant Mortality Task Force.

The Ohio Collaborative to Prevent Infant Mortality was formed in 2010 as a permanent organization dedicated to implementation of the task force's recommendations. Membership consists 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. The collaborative operates through five workgroups: Coordinated Healthcare, Disparities/Racism, Data/Metrics/Quality Improvement, Education/Outreach, and Public Policy, and is guided by an executive/steering committee.

For more information on the collaborative, visit the Web site at

<http://www.odh.ohio.gov/odhPrograms/cfhs/OCTPIM/infantmortality.aspx>.



## Sudden Infant Death Syndrome

### Background

Sudden infant death syndrome (SIDS) 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.<sup>15</sup> According to the National Institute of Child Health and Human Development, SIDS is the leading cause of death in infants between 1 month and 1 year of age.<sup>16</sup> There is a large racial disparity, with the SIDS rate for black infants more than twice the rate for white infants. While the national SIDS death rate has decreased, the post-neonatal mortality rate for all causes has not decreased and the rate of deaths due to "undetermined causes" has increased, suggesting that some deaths previously classified as SIDS are now being classified as other causes.<sup>17</sup>

In an October 2005 policy statement, the American Academy of Pediatrics (AAP) recognized nationwide inconsistencies in the diagnosis of sudden, unexpected infant deaths. Deaths with similar circumstances have been diagnosed as SIDS, accidental suffocation, positional asphyxia or undetermined.<sup>18</sup> Because SIDS is a diagnosis of exclusion, all other probable causes of death must be ruled out through autopsy, death scene investigation and health history. Incomplete investigations, ambiguous findings and the presence of known risk factors for other causes of deaths result in many sudden infant deaths 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.<sup>19</sup> Many Ohio counties

have adopted the CDC's Sudden Unexpected Infant Death Investigation tool and procedures.

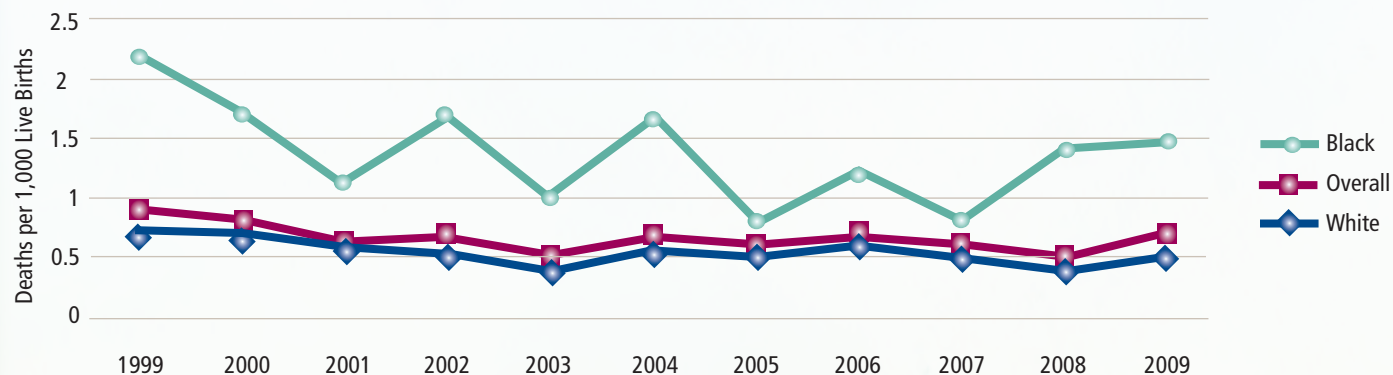
Although the cause and mechanism of SIDS eludes researchers, several factors appear to put an infant at higher risk for SIDS. Infants who sleep on their stomachs are more likely to die of SIDS than those who sleep on their backs, as are infants whose mothers smoked during pregnancy and infants who are exposed to passive smoking after birth. Soft sleep surfaces, excessive loose bedding and bedsharing increase the risk of sleep-related deaths.<sup>20</sup>

### Vital Statistics

Ohio vital statistics reported 448 SIDS deaths for 2005-2009. According to Ohio vital statistics, the Ohio SIDS rate has decreased in the past decade, from 0.9 deaths per 1,000 live births in 1999 to 0.7 in 2009. For further information on the ICD-10 codes used to produce Vital Statistics data, please see Appendix V



Ohio SIDS Rate by Race, 1999-2009



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

### CFR Findings

Local CFR boards reviewed 277 deaths to children from SIDS in 2005-2009. These deaths represent 3 percent of all 8,448 reviews conducted and 5 percent of all infant deaths reviewed. The number of reviews for SIDS deaths has varied over the five-year period 2005-2009, from 59 in 2005, to 74 in 2006, to 55 in 2007, to 43 in 2008, and 45 in 2009. Local boards report they are less likely to consider a death SIDS if all the criteria of the definition are not met. Boards are more likely to classify the cause of death as undetermined if the presence of multiple risk factors prevents other causes from being eliminated.

- There were greater percentages of SIDS deaths among boys (57 percent) and among black infants (22 percent) relative to their representation in the general population (51 percent for boys and 16 percent for black infants).
- Seventy-four percent (206) of the SIDS deaths reviewed occurred between 1 and 4 months of age.

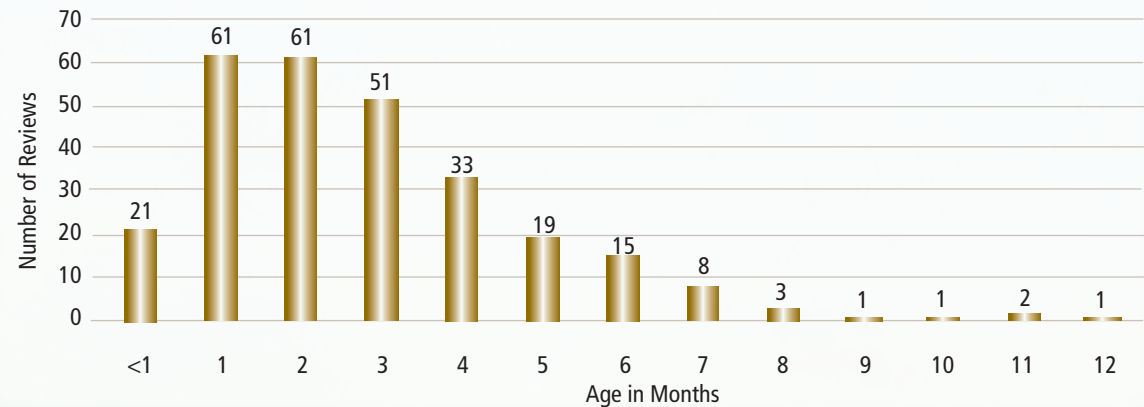




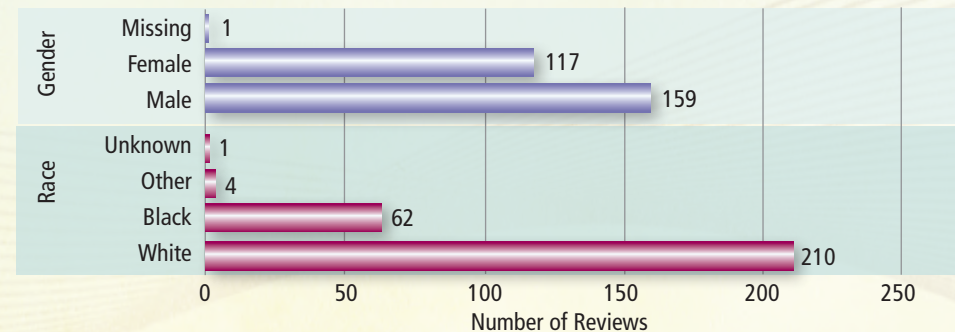
The CFR data reporting tool enables the collection of many variables surrounding the death, including the location of the infant when found, bedsharing and some birth history, which can lead to better understanding of the circumstances of SIDS deaths. Many of these items are referred to as risk factors, because their presence seems to increase the risk of an infant dying of SIDS, but they are not the cause of SIDS. It is important to analyze these items so policies and interventions can be developed to reduce the risk of future deaths.

- Forty-four percent (105) of SIDS deaths occurred in cribs or bassinets, while 32 percent (76) of SIDS deaths occurred in locations considered especially unsafe: in adult beds and on couches and chairs. The location of the infant was unknown for 13 percent (32) of reviews and missing in 36 reviews (not included in percentages).
- Forty percent (111) of infants who died of SIDS were known to be sharing a sleep surface with another at the time of death, including 11 who were sharing with both an adult and another child.
- Sixteen percent (43) of the infants who died of SIDS were born with low (less than 2,500 grams) or very low (less than 1,500 grams) birthweight. Twenty-five of those low or very low birthweight infants were born before 37 weeks gestation.
- Forty-five percent (125) of children who died of SIDS were exposed to cigarette smoke in utero or after birth. For all live births in Ohio in 2009, 19 percent were born to mothers who smoked during the pregnancy.

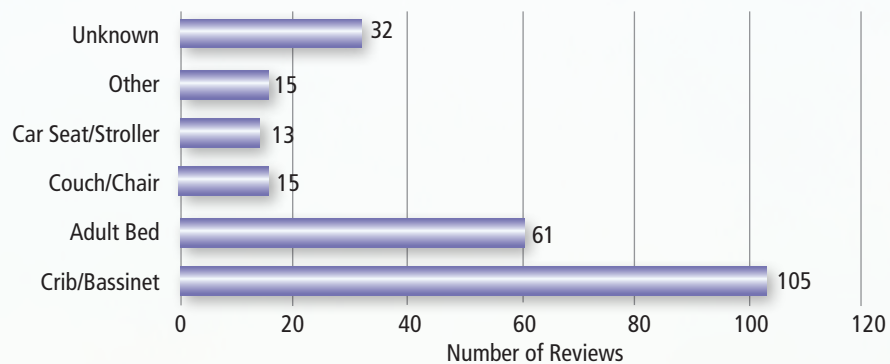
**SIDS Deaths by Age in Months, 2005-2009, N=277**



**SIDS Deaths by Age, Race and Gender, 2005-2009, N=277**



**SIDS Deaths by Location of Infant When Found,  
2005-2009, N=241**



**Birth History Factors for SIDS Deaths,  
2005-2009, N=277**

	#	%
Multiple Birth	20	7
Very Low Birthweight (<1,500 g)	11	4
Low Birthweight (1,500-2,499 g)	32	12
Normal Birthweight (2,500-3,999 g)	161	60
Above Normal Birthweight (>3,999 g)	9	3
Unknown	52	20
Missing*	12	
< 37 Weeks Gestation	38	14
37-42 Weeks Gestation	172	65
Unknown	54	20
Missing*	13	
Mother Smoked during Pregnancy	103	37
Exposed to Second-hand Smoke	104	38
Exposed in Utero or After Birth	125	45
Autopsy Completed	268	97

\*Missing data have been excluded from the percentages.



## Deaths in Sleep Environments

### Background

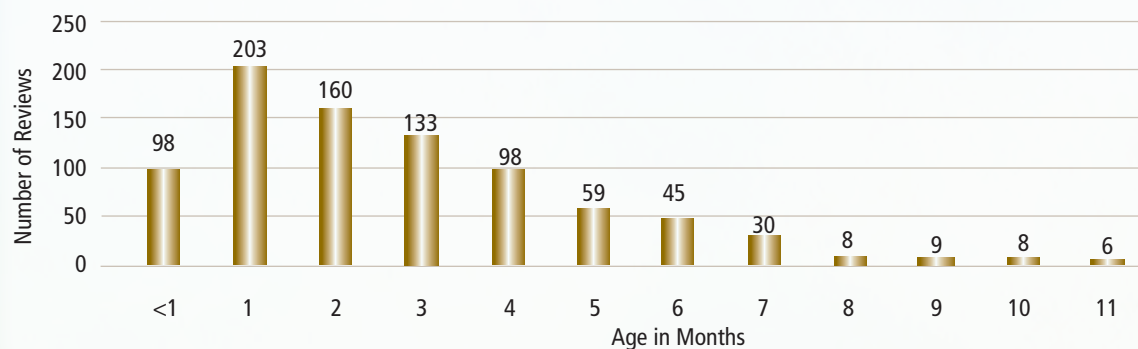
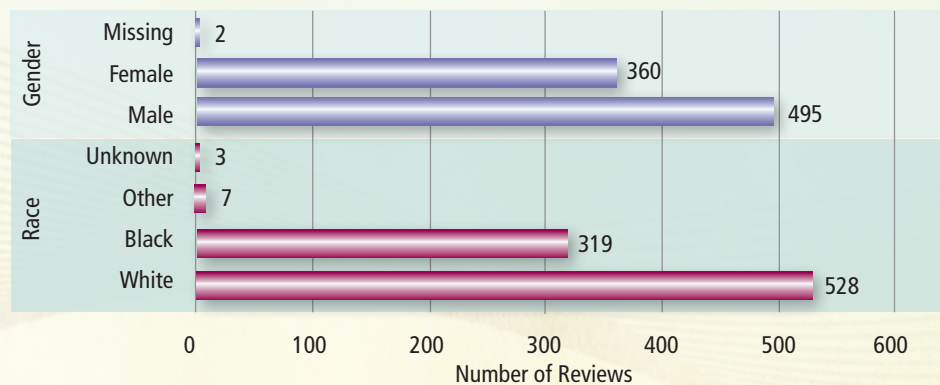
Since the beginning of the Ohio CFR program, local boards have been faced with a significant number of deaths of infants while sleeping. Some of these deaths are diagnosed as SIDS, while others are diagnosed as accidental suffocation, positional asphyxia, overlay (the obstruction of breathing caused by the weight of a person or animal lying on the infant) or undetermined. The reviews of these deaths are included in the discussions of these causes of 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 are analyzed and discussed as a group.

### CFR Findings

From the reviews of deaths in the five-year period from 2005 to 2009, 984 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 857 infant sleep-related deaths. These cases include 240 SIDS reviews that included information about the circumstances.

The 857 infant sleep-related deaths account for 15 percent of the 5,540 total reviews for infant deaths from 2005 to 2009, more than any single cause of death except prematurity. For the five-year period 2005 to 2009, the percentage of infant deaths that were sleep-related has not changed over the five-year period.

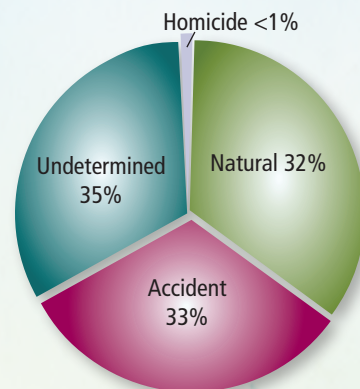
- More than three Ohio infant deaths each week are sleep-related. If the non-SIDS sleep-related deaths were prevented, the Ohio infant mortality rate for 2009 would have been reduced from 7.5 to 6.7 deaths per 1,000 live births.
- Of the 1,806 reviews of infant deaths from 29 days to 1 year of age, 42 percent (759) were sleep related.
- Thirty-seven percent (319) of deaths in a sleep environment were to black infants. This is disproportionately higher than their representation in the general population (16 percent).
- Eighty-eight percent (751) of the deaths occurred before 6 months of age.

**Sleep-Related Deaths by Age in Months, 2005-2009, N=857****Reviews of Sleep-Related Deaths by Race and Gender, 2005-2009, N=857**

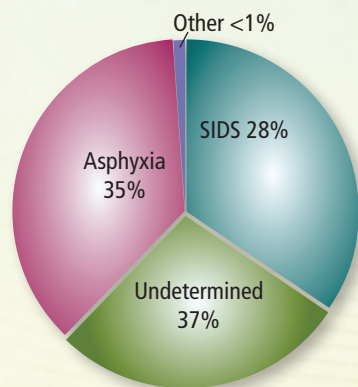
As discussed in the section on SIDS deaths, determining the cause of death for infants in sleep situations is difficult, even when a complete investigation has occurred. Thirty-seven percent (313) of the sleep-related deaths were diagnosed as unknown or undetermined cause, even though autopsies had been completed for 98 percent of the cases.



**Sleep-Related Deaths by Manner of Death  
2005-2009, N=857**

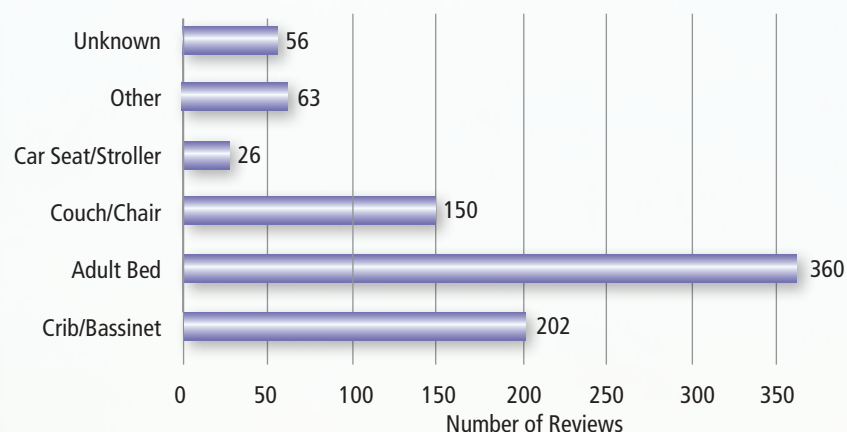


**Sleep-Related Deaths by Cause of Death  
2005-2009, N=857**



Only 24 percent (202) of sleep-related deaths occurred in cribs or bassinets. Sixty percent (510) of sleep-related deaths occurred in adult beds, on couches or on chairs.

**Sleep-Related Deaths by Location of Infant When Found,  
2005-2009, N=857**



Bedsharing was a commonly reported circumstance for sleep-related deaths. Sixty-six percent (564) of sleep-related deaths occurred to infants who were sharing a sleep surface with another person at the time of death.

- Of those cases that indicated bedsharing, 422 of the infants were sharing a sleep surface with an adult, including 73 infants who were sharing with an adult and another child.
- An additional 31 infants were sharing with another child only.

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

- Forty-two percent (361) of the infants were exposed to smoke either in utero or after birth.
- Of the 422 infants sharing a sleep surface with an adult, 47 percent (197) were also exposed to smoke either in utero or after birth.

## Infant Safe Sleep Recommendations

In October 2005, the American Academy of Pediatrics issued a policy statement outlining recommendations for reducing the risk of SIDS and other sleep-related infant deaths. 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.
- Keep soft objects and loose bedding out of the crib.
- Do not smoke during pregnancy. Avoid exposure to secondhand smoke.
- Maintain a separate but proximate sleeping environment. The infant's crib should be in the parents' bedroom, close to the parents' bed.
- Offer a pacifier at sleep time.
- Avoid overheating.
- Avoid commercial devices marketed to reduce the risk of SIDS. None have been proven safe or effective.
- Encourage "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.
- Continue the Back to Sleep campaign for parents, grandparents and all other caregivers.

The National Center for CDR data system was modified in early 2010 to begin collection of data regarding pacifier use, sleeping in same room as caregiver and use of a fan to circulate air.



## Deaths to Children 1 to 4 Years Old

### Background

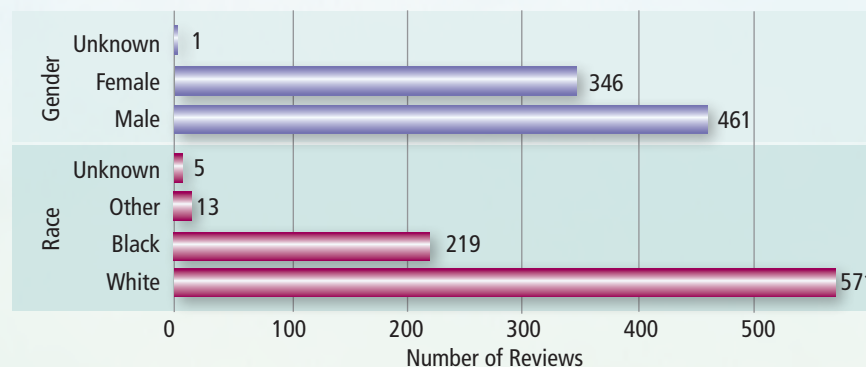
No longer babies, toddlers and preschoolers experience increased mobility and more awareness of their surroundings, but lack the reasoning skills to protect themselves from many dangers.<sup>21</sup> According to the National Center for Health Statistics, the leading causes of death for 1 to 4 year olds are accidents, congenital anomalies and homicides. Nationally, the mortality rate for this age group decreased from 28 per 100,000 population in 2008 to 26 in 2009.<sup>22</sup>

### CFR Findings

For the five-year period 2005-2009, local CFR boards reviewed 808 deaths to children ages 1 to 4 years. These represent 10 percent of all 8,448 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 (27 percent) relative to their representation in the general population (16 percent).
- Five percent (43) of the reviews were for Hispanic children.

**Reviews of Deaths to 1-4 Year Olds  
by Race and Gender, 2005-2009, N=808**



The 808 reviews were classified by manner as follows:

- Fifty-five percent (443) were natural deaths.
- Thirty percent (238) were of accidental manner.
- Twelve percent (94) were homicides.
- Four percent (33) were of an undetermined manner.

Fifty-six percent (452) of the 808 reviews for 1 to 4 year olds were from medical causes.

- Congenital anomalies were the leading cause of death in this age group.
- Twenty percent (92) of the deaths from medical causes were due to congenital anomalies.
- Nineteen percent (84) were due to pneumonia and other infections.
- Cancer accounted for 11 percent (50) of the deaths from medical causes.

Forty-two percent (338) of the 808 reviews for 1 to 4 year olds were due to external causes. Drowning, vehicular crashes and weapons injuries were the three leading external causes of death for this age group.

- Twenty percent (67) of the 338 reviews were due to drowning.
- Eighteen percent (61) were due to vehicular injuries.
- Seventeen percent (56) were due to weapons injuries, including the use of body parts as weapons.

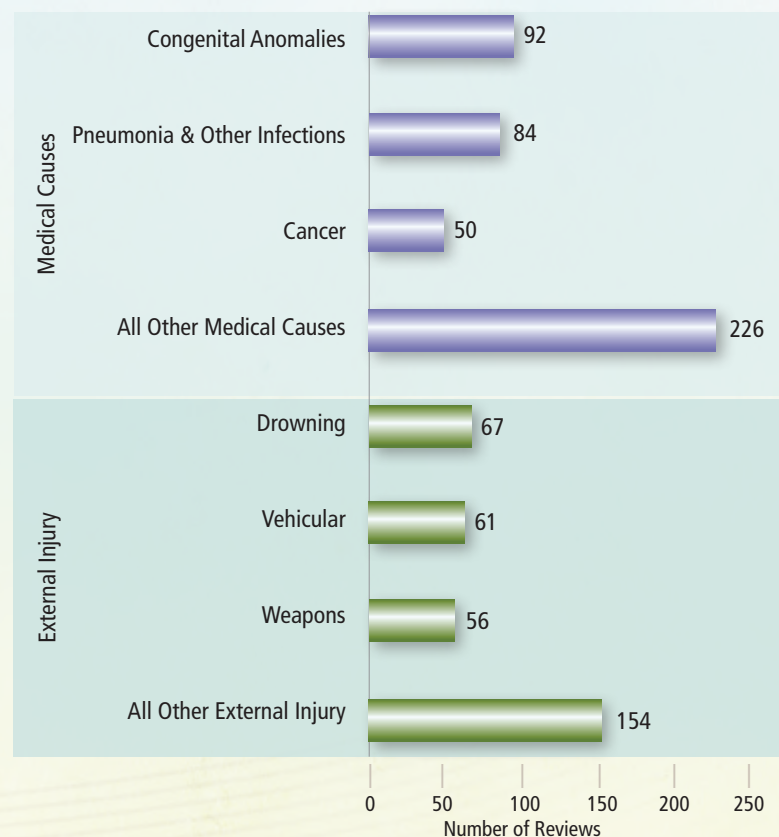
Drowning was the leading cause of external death for 1 to 4 year olds. Sixty-five of the 67 drowning deaths were of accidental manner.

- Fifty-eight percent (38) of the 65 accidental drowning occurred in pools of all types.
- Twenty-two percent (14) occurred in open water, such as ponds, rivers and lakes.
- Forty-eight percent (31) of the 65 accidental drowning reviews indicated the child was being supervised at the time of the incident. Of those 31, 24 indicated the child was last seen by the supervisor within minutes of the incident.

Vehicular injuries accounted for 61 deaths to 1 to 4 year olds. Sixty of the 61 vehicular deaths were accidental manner.

- Fifty-four percent (33) 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 33, 36 percent (12) were properly restrained.

### Reviews of 1-4 Year Old by Leading Causes of Death 2005-2009, N=808





- The average age of the child's driver was 31 years.
- Forty-one percent (25) of the vehicular deaths were to pedestrians or children on bicycles or tricycles. Eight were back-over incidents. Twelve of the 25 pedestrians or cyclers had supervision at the time of the incident.

Local CFR boards indentified 70 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 (27) of the reviews indicated the person causing the death was a biological parent.
- The parent's partner was cited in 36 percent (25) of the reviews.

## Ohio's Booster Seat Law

Effective Oct. 7, 2009, Ohio's Child Restraint Law was revised to require Ohio's 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.

The revised 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.

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 revised law will help prevent serious injuries and deaths to young children.

More information about the law and choosing the correct car seat or booster seat can be found at:

<http://www.odh.ohio.gov/odhPrograms/hpr/cpsafe/childbooster.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.<sup>23</sup> 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.<sup>24</sup>

### CFR Findings

For the five-year period 2005-2009, local CFR boards reviewed 484 deaths to children ages 5 to 9 years. These represent 6 percent of all 8,448 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 (26 percent) relative to their representation in the general population (16 percent).
- Four percent (13) of the reviews were for Hispanic children.

The 484 reviews were classified by manner as follows:

- Sixty percent (288) were natural deaths.
- Thirty percent (143) were of accidental manner.
- Nine percent (45) were homicides.
- Less than 1 percent (3) were suicides.
- One percent (5) were of an undetermined manner.

Sixty percent (293) of the 484 reviews for 5 to 9 year olds were from medical causes.

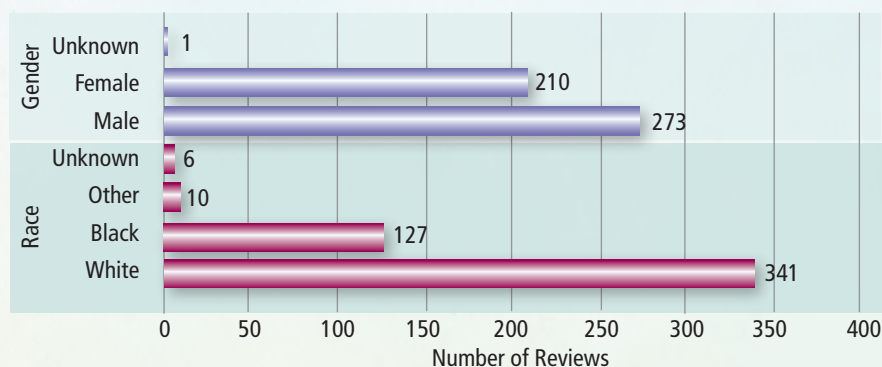
- Cancer was the leading medical cause of death in this age group.
- Twenty-three percent (66) of the deaths from medical causes were due to cancer.
- Eighteen percent (53) were due to pneumonia and other infections.
- Congenital anomalies accounted for 14 percent (41) of the deaths from medical causes.

Thirty-nine percent (190) of the 484 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.

- Thirty-eight percent (72) of the 190 reviews were due to vehicular injuries.
- Twenty-six percent (49) were due to fires and burns.
- Twelve percent (23) were due to weapons injuries, including the use of body parts as weapons.



### Reviews of Deaths to 5-9 Year Olds by Race and Gender 2005-2009, N=48



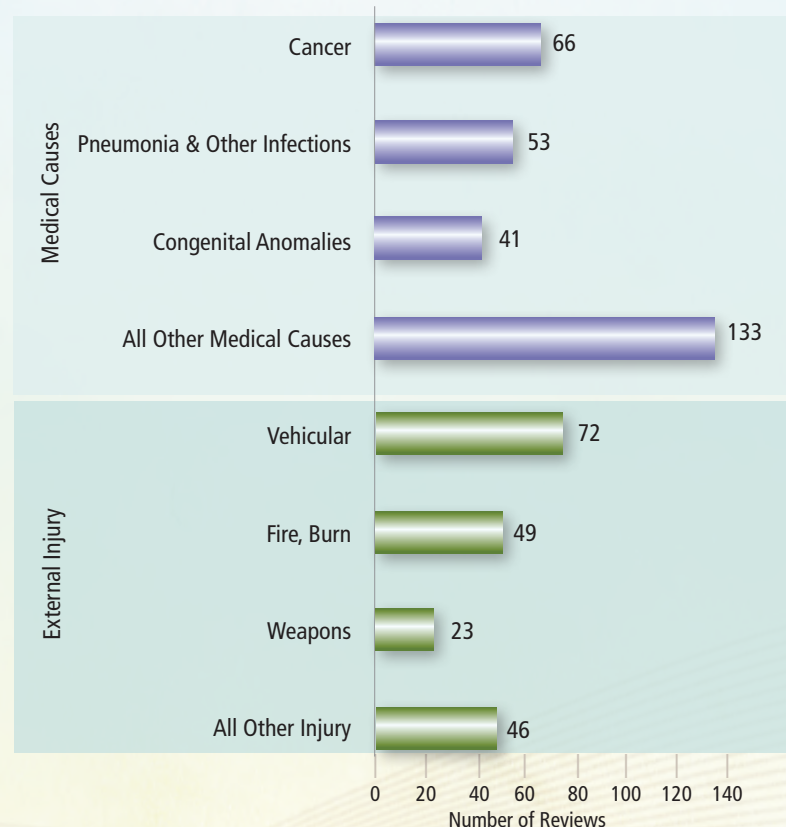
Vehicular injuries accounted for 72 deaths to 5 to 9 year olds. Seventy of the 72 vehicular deaths were accidental manner.

- Forty-six percent (33) 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 33, 42 percent (14) were properly restrained.
- The average age of the child's driver was 32 years.
- Thirty-seven percent (26) of the vehicular deaths were to pedestrians or children on bicycles or other pedal cycles. Nine of the 26 pedestrians or cyclers had supervision at the time of the incident.

Fire and burn injuries (49) were the second leading cause of external death for 5 to 9 year olds. Twenty-seven percent (13) of the 49 fire and burn deaths were homicides.

- Thirty-five percent (17) of the reviews indicated a smoke detector was present.

### Reviews of 5-9 Year Old by Leading Causes of Death 2005-2009, N=484



Local CFR boards identified 13 deaths from child abuse and neglect among 5 to 9 year olds. These represent 3 percent of all reviews for this age group, and 8 percent of the 160 child abuse and neglect deaths for all ages.

- Fifty-four percent (7) of the reviews indicated the person causing the death was a biological parent.
- Other perpetrators included other relatives, parents' partner and acquaintances.

## 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.<sup>25</sup> According to the National Center for Injury Prevention and Control, the leading causes of death for 10 to 14 year olds are accidents, cancers and homicides.<sup>26</sup>

### CFR Findings

For the five-year period 2005-2009, local CFR boards reviewed 609 deaths to children ages 10 to 14 years. These represent 7 percent of all 8,448 deaths reviewed.

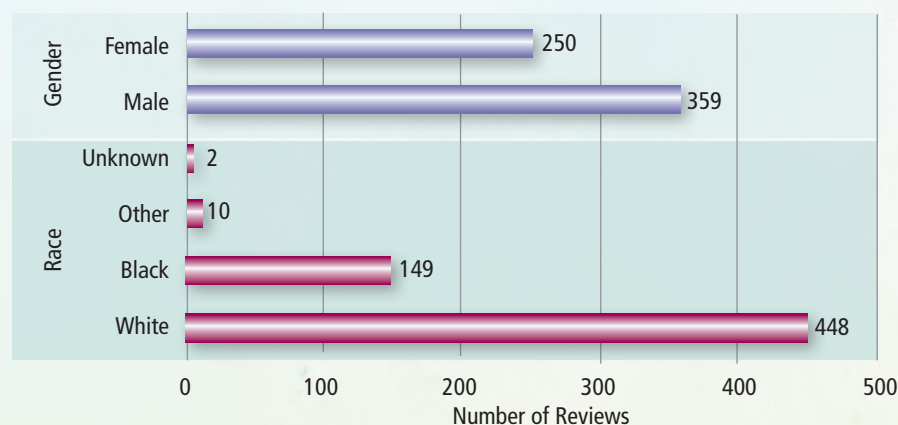
- Reviews were disproportionately higher among boys (59 percent) relative to their representation in the general population (51 percent).
- A greater percentage of deaths in this age group occurred among black children (25 percent) relative to their representation in the general population (16 percent).
- Two percent (12) of the reviews were for Hispanic children.

The 609 reviews were classified by manner as follows:

- Fifty-one percent (310) were natural deaths.
- Thirty-one percent (188) were of accidental manner.
- Nine percent (57) were suicides.
- Seven percent (41) were homicides.
- Two percent (13) were of an undetermined or unknown manner.

Fifty-two percent (316) of the 609 reviews for 10 to 14 year olds were from medical causes.

**Reviews of Deaths to 10-14 Year Olds by Race and Gender  
2005-2009, N=609**



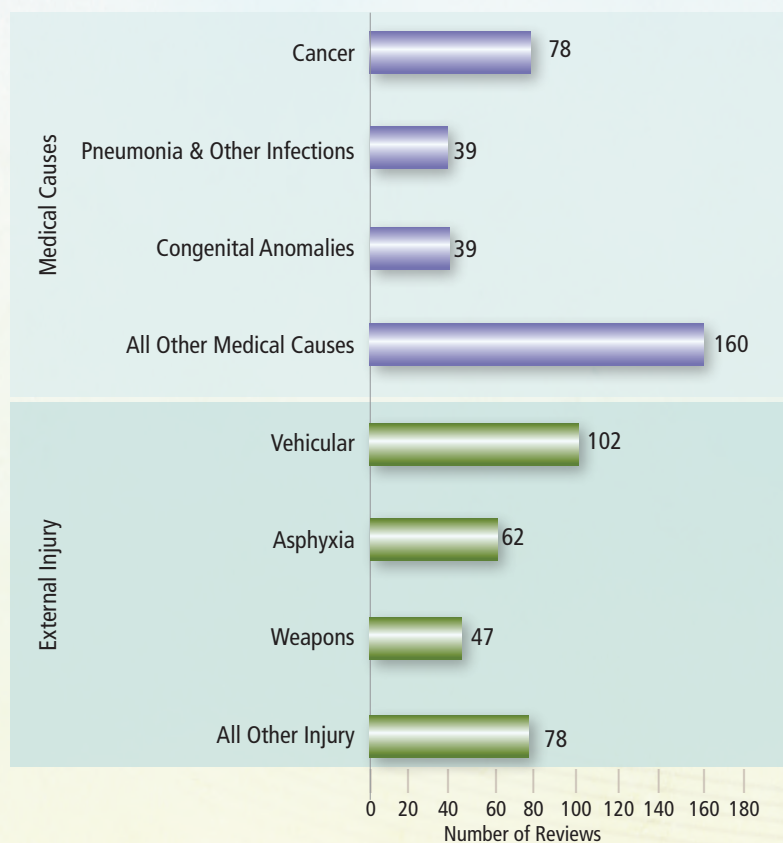
- Cancer was the leading medical cause of death in this age group.
- Twenty-five percent (78) of the deaths from medical causes were due to cancer.
- Twelve percent (39) were due to pneumonia and other infections.
- Congenital anomalies accounted for 12 percent (39) of the deaths from medical causes.

Forty-seven percent (289) of the 609 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-five percent (102) of the 289 reviews were due to vehicular injuries.
- Twenty-one percent (64) were due to asphyxia.



## Reviews of 10-14 Year Old by Leading Causes of Death 2005-2009, N=609



- Sixteen percent (47) were due to weapons injuries, including the use of body parts as weapons.

Vehicular injuries accounted for 102 deaths to 10 to 14 year olds. One hundred of the 102 vehicular deaths were accidental manner.

- Thirty-eight percent (39) indicated the child killed was a passenger in a car, truck, van or SUV, where by law, children must use seat belts. Of those 39, 21 percent (8) were properly restrained.
- The average age of the child's driver was 24 years.
- Thirty-three percent (34) of the vehicular deaths were to pedestrians or children on bicycles or other pedal cycles.
- Of the 16 vehicular deaths to black 10 to 14 year olds, 44 percent (7) were pedestrians or bikers, while 29 percent (25) of the 85 white 10 to 14 year olds were pedestrians or bikers.

Asphyxia (62) was the second leading cause of external death for 10 to 14 year olds.

- Ninety-seven percent (60) of the asphyxia deaths were due to strangulation. The remaining four were due to choking, suffocation or other mechanism.
- Sixty-six percent (41) of the 62 asphyxia deaths were suicides.

Local CFR boards reviewed 57 suicide deaths to 10 to 14 year olds. These represent 9 percent of all 609 reviews for this age group, and 24 percent of the 238 suicide deaths for all ages.

- Seventy-two percent (41) of the suicides were by asphyxia. Twenty-three percent (13) were by weapons.
- Twenty-eight 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 arguments with parents and friends, and school problems.

## Deaths of 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.<sup>27</sup> According to the National Center for Injury Prevention and Control, the leading causes of death for 15 to 17 year olds are accidents, homicides and suicides.<sup>28</sup>

### CFR Findings

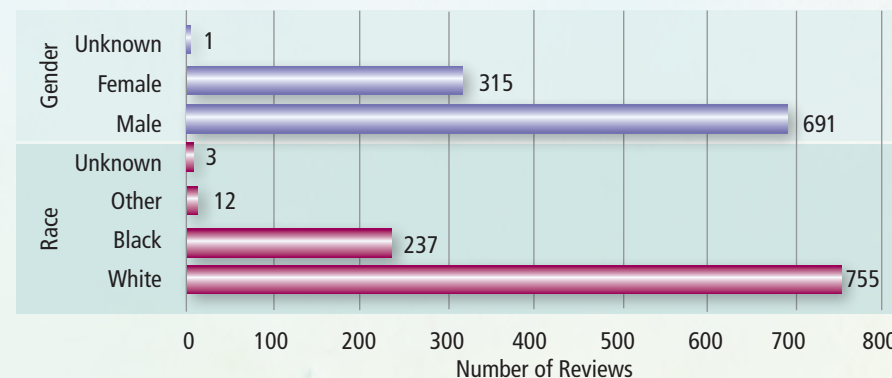
For the five-year period 2005-2009, local CFR boards reviewed 1,007 deaths of children ages 15 to 17 years. These represent 12 percent of all 8,448 deaths reviewed.

- Reviews were disproportionately higher among boys (69 percent) relative to their representation in the general population (51 percent).
- A greater percentage of deaths in this age group occurred among black children (24 percent) relative to their representation in the general population (16 percent).
- Three percent (28) of the reviews were for Hispanic children.

The 1,007 reviews were classified by manner as follows:

- Twenty-six percent (262) were natural deaths.
- Forty-two percent (422) were of accidental manner.
- Eighteen percent (178) were suicides.
- Fourteen percent (136) were homicides.
- Less than 1 percent (9) were of an undetermined or unknown manner.

### Reviews of Deaths to 15-17 Year Olds by Race and Gender 2005-2009, N=(N=1,007)



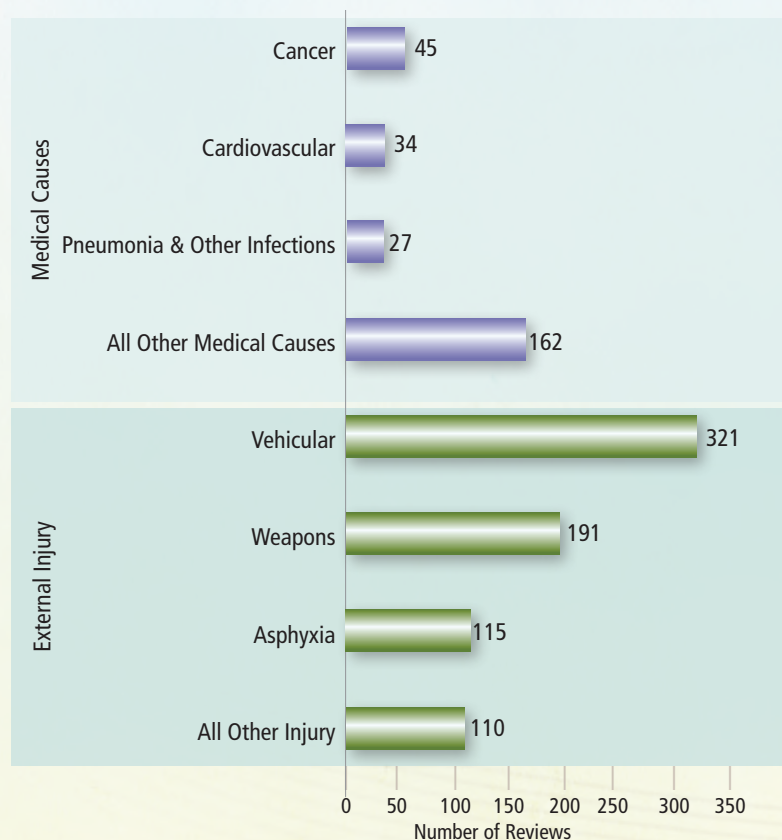
Of the 182 deaths from all causes to black boys ages 15 to 17 years, 51 percent (93) were homicides, while only 4 percent (19) of the 499 deaths from all causes to white boys ages 15 to 17 years were homicide.

Twenty-seven percent (268) of the 1,007 reviews for 15 to 17 year olds were from medical causes.

- Cancer was the leading medical cause of death in this age group.
- Seventeen percent (45) of the deaths from medical causes were due to cancer.
- Cardiovascular disorders accounted for 13 percent (34) of the deaths from medical causes.
- Ten percent (27) were due to pneumonia and other infections.



## Reviews of 15-17 Year Old by Leading Causes of Death 2005-2009, N=1,007



Forty-seven percent (737) of the 1,007 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.

- Forty-four percent (321) of the 737 reviews were due to vehicular injuries.
- Twenty-six percent (191) were due to weapons injuries, including the use of body parts as weapons.
- Sixteen percent (115) were due to asphyxia.

Of the 321 reviews for deaths from vehicular injuries to 15 to 17 year olds, 305 were of accidental manner.

- Vehicular deaths to 15 to -17 year olds outnumbered deaths from all medical causes combined.
- Eighty-eight percent (285) of the vehicular deaths to 15 to 17 year olds were white children, while 10 percent (33) were black children.
- Forty-five percent (145) of the reviews were for children who were driving the vehicle.
  - ♦ Eighty-seven percent (126) of the 145 child drivers were deemed responsible for the incident. Fifteen were impaired.
  - ♦ Speed, recklessness and inexperience were the most frequently cited causes of crashes.
  - ♦ Of the 121 children who were driving cars, trucks, vans and SUVs, where by law, children must use seat belts, 32 percent (39) were properly restrained.

- Thirty-eight percent (123) of the 321 vehicular deaths occurred to children who were passengers.
  - ♦ Seventy-five percent (92) of the drivers of the child's vehicle were deemed responsible for the incident. Twenty-six were impaired.
  - ♦ Speed, recklessness and inexperience were the most frequently cited causes of crashes.
  - ♦ Of the 119 children who were passengers in cars, trucks, vans and SUVs, where by law, children must use seat belts, 26 percent (31) were properly restrained.
  - ♦ For children who were passengers, the average age of the child's driver was 21 years.
- Twelve percent (39) of the vehicular deaths were to pedestrians or children on bicycles or other pedal cycles.
- Of the 33 vehicular deaths to black 15 to 17 year olds, 33 percent (11) were pedestrians or cyclers, while 10 percent (28) of the 285 white 15 to 17 year olds were pedestrians or cyclers.

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

- The 191 weapons deaths represent 19 percent of all deaths to 15 to 17 year olds.
- Weapons deaths were disproportionately higher among boys (88 percent) and black children (61 percent) relative to their representation in the general population (51 percent for boys and 16 percent for black children).
- Sixty-four percent (122) of the weapons deaths were

homicides and 30 percent (57) were suicides. Only 6 percent (12) were of accidental manner.

- Firearms (handguns, shotguns and rifles) were involved in 93 percent (178) of the deaths. Other weapons included sharp or blunt instruments, body parts and other weapons.

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

- The 115 asphyxia deaths represent 11 percent of all deaths to 15 to 17 year olds.
- Ninety-four percent (108) of the asphyxia deaths were due to strangulation. The remaining seven were due to suffocation or other mechanism.
- Ninety percent (103) of the 115 asphyxia deaths were suicides.

Local CFR boards reviewed 178 suicide deaths to 15 to 17 year olds. These represent 18 percent of all 1,007 reviews for this age group, and 75 percent of the 238 suicide deaths for all ages.

- Fifty-nine percent (105) of the suicides were by asphyxia. Thirty-two percent (57) were by weapons. Other causes included vehicular crashes, poisoning, falls and other causes.
- Twenty-one percent (38) were receiving mental health services at the time of the incident.
- Nineteen percent (34) of the suicide reviews indicated a history of child maltreatment and 10 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.



## Preventable Deaths

The mission of the Ohio Child 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.<sup>29</sup> 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."

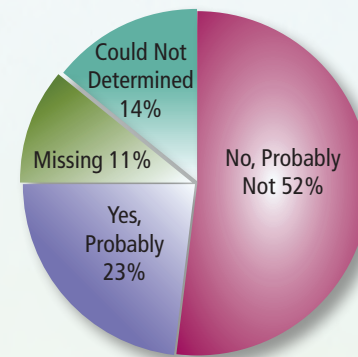
Even if a particular case is deemed "probably not preventable," the CFR process is valuable in identifying gaps in care, systemic service delivery issues or community environmental factors which contribute to less than optimal quality of life for all. For this reason, many local boards make recommendations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

### CFR Findings

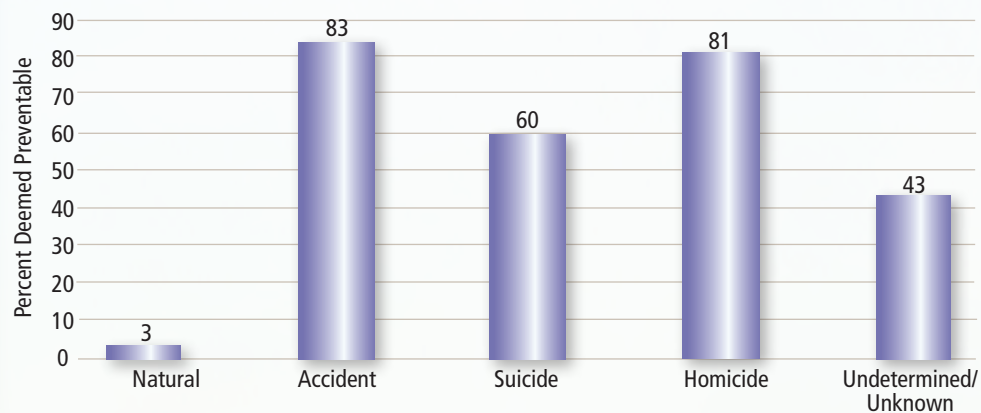
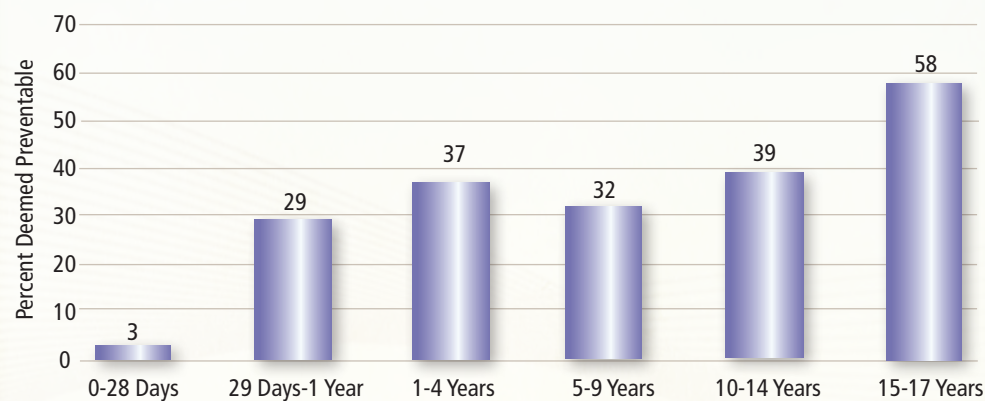
Local boards indicated 23 percent (1,928) of the 8,448 deaths reviewed from 2005 to 2009 probably could have been prevented. Preventability differed by manner of death and by age group.

- Eighty-three percent (1,130) of the 1,367 deaths of accidental manner were considered probably preventable.
- Fifty-eight percent (583) of the 1,007 deaths to 15 to 17-year-olds were considered probably preventable.
- Only 3 percent (125) of the 3,734 deaths to infants less than 29 days old were considered probably preventable.

**Reviews by Preventability**  
**2005-2009, N=7,508**



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 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.

**Reviews Deemed Preventable by Manner, 2005-2009, N= 7,508****Reviews Deemed Preventable by Age, 2005-2009, N= 7,508**

For the five-year period 2005-2009, local CFR boards deemed 23 percent of the 8,448 deaths reviewed were probably preventable. The percentage changed little over the period, from a high of 23 percent in 2005, 2006 and 2008 to a low of 22 percent in 2007 and 2009.





## Conclusion

The mission of CFR is the prevention of child deaths in Ohio. 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. Each child's death is a tragic story. 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.

This report 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





## 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 Gov. 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 Web site at <http://www.odh.ohio.gov/rules/final/f3701-67.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 Child Death Review (NCCDR) with a grant 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 NCCDR data system.

ODH is responsible for providing technical assistance and annual training to the CFR boards. In 2010, ODH provided a new board chair/coordinator orientation. In partnership with the ODH Violence and Injury Prevention Program, the Child Injury Action Group of the Ohio Injury Prevention Partnership, and the Brain Injury Association, a seminar on prevention of childhood brain injury was held on July 30, 2010. Several local CFR members presented local prevention projects at the seminar. Throughout the year, NCCDR webinars provided additional training opportunities for Ohio's local boards. ODH staff also 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.

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 2009, as well as aggregate data for the five-year period 2005 to 2009. 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. Because of 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.



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**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

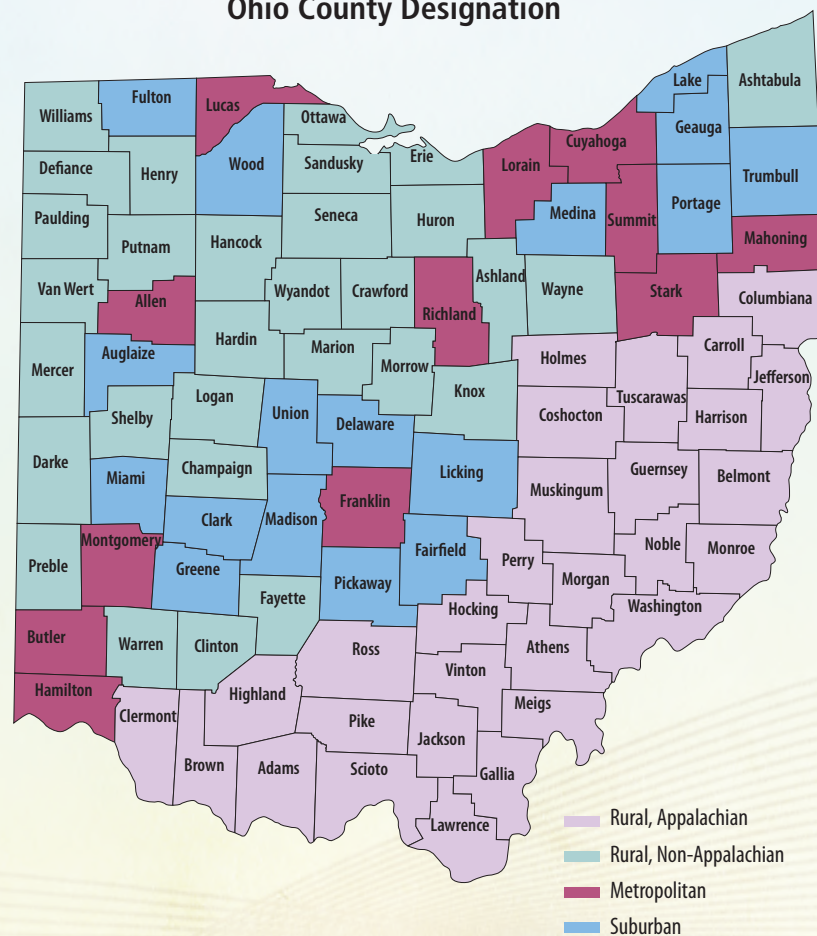
### 2009 Ohio County Type Designations

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 2005-2009, for the purpose of this report, Ashtabula remains rural non-Appalachian; Trumbull remains suburban; and Mahoning remains metropolitan.

Ohio County Designation



## APPENDIX VII

### Data Tables

**Table 1:**  
Reviews of 2009 Deaths by Manner of Death by Age, Race and Gender (N=1,590)

	Natural	Accident	Homicide	Suicide	Undetermined/ Unknown	Total
<b>Age</b>						
1-28 Days	701	12	1	-	9	723
29-364 Days	184	62	10	-	81	337
1-4 Years	78	43	23	-	11	155
5-9 Years	55	13	9	1	4	82
10-14 Years	68	36	7	13	4	128
15-17 Years	47	58	20	40	-	165
Unknown	-	-	-	-	-	0
Missing	-	-	-	-	-	0
<b>Race*</b>						
White	732	152	33	45	60	1,022
Black	382	65	36	8	49	540
Other	19	5	-	1	-	25
Unknown	-	2	1	-	-	3
Missing	-	-	-	-	-	0
<b>Gender</b>						
Male	619	154	46	38	62	919
Female	514	70	24	16	47	671
Unknown	-	-	-	-	-	-
Missing	-	-	-	-	-	-
<b>Total</b>	<b>1133</b>	<b>224</b>	<b>70</b>	<b>54</b>	<b>109</b>	<b>1,590</b>

\*34 cases with multiple races indicated were assigned to the minority race.





**Table 2: Reviews of 2009 Deaths: All Medical Causes of Death by Age (N=1,152)**

	0-28 Days	29-364 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years	Total
Asthma	-	-	-	1	1	1	3
Cancer	-	2	5	11	15	8	41
Cardiovascular	29	11	4	5	4	8	61
Congenital Anomalies	96	42	17	4	6	7	172
Low Birth Weight	4	-	-	-	-	-	4
Neurological Disorders	1	3	1	3	1	4	13
Pneumonia	4	10	5	1	8	4	32
Prematurity	450	18	-	1	-	-	469
SIDS	3	42	-	-	-	-	45
Other Infection	11	9	10	14	5	3	52
Other Perinatal Conditions	25	5	1	-	1	-	32
Other Medical Condition	81	48	33	16	27	12	217
Undetermined/Unknown	3	5	3	-	-	-	11
<b>Medical Causes Total</b>	<b>707</b>	<b>195</b>	<b>79</b>	<b>56</b>	<b>68</b>	<b>47</b>	<b>1,152</b>
<b>Reviews of 2009 Deaths: All External Causes of Death by Age (N=370)</b>							
	0-28 Days	29-364 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years	Total
Asphyxia	7	47	7	2	17	27	107
Vehicular	-	4	11	6	19	46	86
Weapon (Including Body Part)	-	9	20	9	6	32	76
Fire, Burn or Electrocution	-	4	6	4	3	1	18
Drowning	1	2	14	1	6	3	27
Poisoning	-	1	2	-	4	7	14
Fall or Crush	-	1	4	-	3	5	13
Exposure	-	-	2	-	-	-	2
Other Injury	-	-	4	-	-	-	4
Undetermined/Unknown	2	21	-	-	-	-	23
<b>External Causes Total</b>	<b>10</b>	<b>89</b>	<b>70</b>	<b>22</b>	<b>58</b>	<b>121</b>	<b>370</b>

For 68 reviews, the cause of death could not be determined as either medical or external.



**Table 3: Reviews of 2009 Deaths: All Medical Causes of Death by Race (N=1,152)**

	White	Black	Other	Unknown	Missing	Total
Asthma	2	1	-	-	-	3
Cancer	32	7	2	-	-	41
Cardiovascular	43	18	-	-	-	61
Congenital Anomalies	118	51	3	-	-	172
Low Birth Weight	4	-	-	-	-	4
Neurological Disorders	6	6	1	-	-	13
Pneumonia	23	8	1	-	-	32
Prematurity	261	202	6	-	-	469
SIDS	33	11	1	-	-	45
Other Infection	36	15	1	-	-	52
Other Perinatal Conditions	25	7	-	-	-	32
Other Medical Condition	148	66	3	-	-	217
Undetermined	7	3	1	-	-	11
<b>Medical Causes Total</b>	<b>738</b>	<b>395</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>1,152</b>

*\*21 cases with multiple races indicated were assigned to the minority race.*

**Reviews of 2009 Deaths: External Causes of Death by Race (N= 370)**

	White	Black	Other	Unknown	Missing	Total
Asphyxia	76	28	2	1	-	107
Vehicular	70	15	1	-	-	86
Weapon (Including Body Part)	38	37	-	1	-	76
Fire, Burn or Electrocution	8	10	-	-	-	18
Drowning	16	9	1	1	-	27
Poisoning	12	2	-	-	-	14
Fall or Crush	11	-	2	-	-	13
Exposure	2	-	-	-	-	2
Other Injury	3	1	-	-	-	4
Undetermined/Unknown	6	17	-	-	-	23
<b>External Causes Total</b>	<b>242</b>	<b>119</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>370</b>

*\*14 cases with multiple races indicated were assigned to the minority race.*

*For 68 reviews, the cause of death could not be determined as either medical or external.*





**Table 4: Reviews of 2009 Deaths: All Medical Causes of Death by Gender (N=1,152)**

	Male	Female	Unknown	Missing	Total
Asthma	1	2	-	-	3
Cancer	18	23	-	-	41
Cardiovascular	27	34	-	-	61
Congenital Anomalies	88	84	-	-	172
Low Birth Weight	1	3	-	-	4
Neurological Disorders	6	7	-	-	13
Pneumonia	20	12	-	-	32
Prematurity	280	189	-	-	469
SIDS	28	17	-	-	45
Other Infection	23	29	-	-	52
Other Perinatal Conditions	22	10	-	-	32
Other Medical Condition	115	102	-	-	217
Undetermined	7	4	-	-	11
<b>Medical Causes Total</b>	<b>636</b>	<b>516</b>	<b>0</b>	<b>0</b>	<b>1,152</b>
<b>Reviews of 2009 Deaths: All External Causes of Death by Gender (N= 370)</b>					
	Male	Female	Unknown	Missing	Total
Asphyxia	66	41	-	-	107
Vehicular	57	29	-	-	86
Weapon (Including Body Part)	57	19	-	-	76
Fire, Burn or Electrocution	10	8	-	-	18
Drowning	20	7	-	-	27
Poisoning	9	5	-	-	14
Fall or Crush	11	2	-	-	13
Exposure	1	1	-	-	2
Animal Bite	-	-	-	-	0
Other Injury	4	-	-	-	4
Undetermined/Unknown	13	10	-	-	23
<b>External Causes Total</b>	<b>248</b>	<b>122</b>	<b>0</b>	<b>0</b>	<b>370</b>

For 68 reviews, the cause of death could not be determined as either medical or external.

**Table 5: Child Population, Child Deaths and Reviews by County Type, 2009**

	Child Population		Child Deaths		Reviews Completed		Reviews Percent Deaths
County Type	#	%	#	%	#	%	%
Rural Appalachian	337,690	12	204	12	179	11	88
Rural Non-Appalachian	399,136	15	246	15	226	14	92
Suburban	498,786	18	209	13	200	13	96
Metropolitan	1,478,729	54	1,006	60	985	62	98
<b>Total</b>	<b>2,714,341</b>	<b>100</b>	<b>1,665</b>	<b>100</b>	<b>1,590</b>	<b>100</b>	<b>95</b>



Table 6: Reviews of 2005-2009 Deaths by Manner of Death by Age, Race and Gender (N=8,448)

	Natural	Accident	Homicide	Suicide	Undetermined/ Unknown	Total
<b>Age</b>						
0-28 Days	3,602	77	8	-	47	3,734
29-364 Days	1,118	299	64	-	325	1,806
1-4 Years	443	238	94	-	33	808
5-9 Years	288	143	45	3	5	484
10-14 Years	310	188	41	57	13	609
15-17 Years	262	422	136	178	9	1,007
Unknown	-	-	-	-	-	0
Missing	-	-	-	-	-	0
<b>Race*</b>						
White	3,857	1,018	163	198	251	5,487
Black	2,032	324	224	37	177	2,794
Other	77	14	-	3	3	97
Unknown	34	6	1	-	1	42
Missing	23	5	-	-	-	28
<b>Gender</b>						
Male	3,391	879	258	174	251	4,953
Female	2,616	487	130	63	180	3,476
Unknown	5	-	-	1	-	6
Missing	11	1	-	-	1	13
<b>Total</b>	<b>6,023</b>	<b>1,367</b>	<b>388</b>	<b>238</b>	<b>432</b>	<b>8,448</b>

\*167 cases with multiple races indicated were assigned to the minority race.





**Table 7: Reviews of 2005-2009 Deaths: All Medical Causes of Death by Age (N=6,135)**

	0-28 Days	29-364 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years	Total
Asthma	-	-	5	8	7	5	25
Cancer	1	5	50	66	78	45	245
Cardiovascular	114	59	41	23	27	34	298
Congenital Anomalies	501	242	92	41	39	18	933
Low Birth Weight	10	2	-	-	-	-	12
Neurological Disorders	4	21	19	20	7	24	95
Pneumonia	22	75	40	22	23	16	198
Prematurity	2,405	170	7	2	-	-	2,584
SIDS	21	255	1	-	-	-	277
Other Infection	83	69	44	31	16	11	254
Other Perinatal Conditions	133	16	4	1	4	1	159
Other Medical Condition	315	192	141	77	112	112	949
Undetermined/Unknown	19	71	8	2	4	2	106
<b>Medical Causes Total</b>	<b>3,628</b>	<b>1,177</b>	<b>452</b>	<b>293</b>	<b>317</b>	<b>268</b>	<b>6,135</b>
<b>Reviews of 2005-2009 Deaths: All External Causes of Death by Age (N=2,119)</b>							
	0-28 Days	29-364 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years	Total
Vehicular	5	15	61	72	102	321	576
Asphyxia	47	263	42	13	62	115	542
Weapon (Including Body Part)	3	31	56	23	47	191	351
Drowning	1	13	67	17	27	30	155
Fire and Burns	2	10	54	49	22	12	149
Poisoning	-	5	10	2	10	40	67
Fall or Crush	1	3	19	7	8	14	52
Exposure	1	4	3	-	-	-	8
Other Injuries	10	26	19	5	10	12	82
Undetermined/Unknown	17	108	7	2	1	2	137
<b>External Causes Total</b>	<b>87</b>	<b>478</b>	<b>338</b>	<b>190</b>	<b>289</b>	<b>737</b>	<b>2,119</b>

*For 194 reviews, the cause of death could not be determined as either medical or external.*



**Table 8: Reviews of 2005-2009 Deaths: All Medical Causes of Death by Race (N=6,135)**

	White	Black	Other	Unknown	Missing	Total
Asthma	12	13	-	-	-	25
Cancer	197	39	8	1	-	245
Cardiovascular	215		5	-	1	298
Congenital Anomalies	674	235	11	9	4	933
Low Birth Weight	11	1	-	-	-	12
Neurological Disorders	63	28	3	-	1	95
Pneumonia	134	59	3	1	1	198
Prematurity	1,352	1,182	24	16	10	2,584
SIDS	210	62	4	1	-	277
Other Infection	162	86	4	1	1	254
Other Perinatal Conditions	111	45	2	1	-	159
Other Medical Condition	726	203	10	5	5	949
Undetermined	62	41	2	1	-	106
<b>Medical Causes Total</b>	<b>3,929</b>	<b>2,071</b>	<b>76</b>	<b>36</b>	<b>23</b>	<b>6,135</b>
<i>*125 cases with multiple races indicated were assigned to the minority race.</i>						
<b>Reviews of 2005-2009 Deaths: External Causes of Death by Race (N= 2,119)</b>						
	White	Black	Other	Unknown	Missing	Total
Vehicular	488	78	7	2	1	576
Asphyxia	376	158	4	1	3	542
Weapon (Including Body Part)	161	189	-	1	-	351
Drowning	106	44	3	2	-	155
Fire and Burns	85	62	1	-	1	149
Poisoning	55	12	-	-	-	67
Fall or Crush	44	6	2	-	-	52
Exposure	7	1	-	-	-	8
Other Injuries	63	19	-	-	-	82
Undetermined/Unknown	55	80	2	-	-	137
<b>External Causes Total</b>	<b>242</b>	<b>119</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>370</b>

*\*33 cases with multiple races indicated were assigned to the minority race.*

*For 194 reviews, the cause of death could not be determined as either medical or external.*

**Table 9: Reviews of 2005-2009 Deaths:  
All Medical Causes of Death by Gender (N=6,135)**

	Male	Female	Unknown	Missing	Total
Asthma	12	12	-	1	25
Cancer	130	115	-	-	245
Cardiovascular	165	133	-	-	298
Congenital Anomalies	514	415	2	2	933
Low Birth Weight	4	8	-	-	12
Neurological Disorders	46	49	-	-	95
Pneumonia	118	79	-	1	198
Prematurity	1,490	1,088	2	4	2,584
SIDS	159	117	-	1	277
Other Infection	143	111	-	-	254
Other Perinatal Conditions	94	64	1	-	159
Other Medical Condition	528	418	-	3	949
Undetermined/Unknown	63	43	-	-	106
<b>Medical Causes Total</b>	<b>3,466</b>	<b>2,652</b>	<b>5</b>	<b>12</b>	<b>6,135</b>
<b>Reviews of 2005-2009 Deaths: All External Causes of Death by Gender (N= 2,119)</b>					
	Male	Female	Unknown	Missing	Total
Vehicular	363	213	-	-	576
Asphyxia	340	201	-	1	542
Weapon (Including Body Part)	279	72	-	-	351
Drowning	107	48	-	-	155
Fire and Burns	75	73	1	-	149
Poisoning	43	24	-	-	67
Fall or Crush	40	12	-	-	52
Exposure	4	4	-	-	8
Other Injuries	48	34	-	-	82
Undetermined/Unknown	76	61	-	-	137
<b>External Causes Total</b>	<b>1,375</b>	<b>742</b>	<b>1</b>	<b>1</b>	<b>2,119</b>

*For 194 reviews, the cause of death could not be determined as either medical or external.*



**Table 10: Reviews of 2005-2009 Deaths  
by Year by Age, Race and Gender (N=8,448)**

	2005	2006	2007	2008	2009	Total
<b>Age</b>						
0-28 Days	769	739	766	737	723	3,734
29-364 Days	369	366	364	370	337	1,806
1-4 Years	155	155	184	159	155	808
5-9 Years	115	116	87	88	78	484
10-14 Years	135	132	97	117	128	609
15-17 Years	220	200	219	199	169	1,007
Unknown						0
Missing						0
<b>Race*</b>						
White	1,165	1,093	1,137	1,070	1,022	5,487
Black	562	571	542	579	540	2,794
Other	18	13	23	18	25	97
Unknown	10	19	7	3	3	42
Missing	8	12	8			28
<b>Gender</b>						
Male	1,055	1,005	1,009	965	919	4,953
Female	704	698	698	705	671	28
Unknown	2	1	3			0
Missing	2	4	7			4,953
<b>Total</b>	<b>1,763</b>	<b>1,708</b>	<b>1,717</b>	<b>1,670</b>	<b>1,590</b>	<b>8,448</b>

\* 167 cases with multiple races indicated were assigned to the minority race.

**Table 11: Reviews of 2005-2009 Deaths by Year by Cause,  
Circumstances and Preventability (N=8,448)**

	2005	2006	2007	2008	2009	Total
<b>Medical Causes</b>						
Prematurity	543	514	547	511	469	2,584
Congenital Anomaly	200	203	184	174	172	933
Cardiovascular	62	51	75	49	61	298
SIDS	59	75	54	44	45	277
Other Infections	57	54	44	54	45	254
Cancer	49	57	53	45	41	245
Pneumonia	42	45	43	36	32	198
Other Perinatal	20	23	37	47	32	159
Neurological	23	20	20	19	13	95
Asthma	2	5	11	4	3	25
Malnutrition	2	1	3	2	1	9
Other Medical	192	162	167	205	227	953
Undetermined/Unknown	36	26	25	8	11	106
<b>External Causes</b>						
Vehicular	138	127	113	112	86	576
Asphyxia	98	107	111	119	107	542
Weapon (Including Body Part)	71	70	71	63	76	351
Drowning	46	25	30	27	27	155
Fire and Burns	36	38	26	31	18	149
Poisoning	10	16	10	17	14	67
Fall or Crush	11	12	9	7	13	52
Exposure	2	1	2	1	2	8
Other Injuries	20	29	15	14	5	83
Undetermined/Unknown	40	30	17	27	23	137
Child Abuse & Neglect	26	31	36	33	34	160
Sleep-related Infant Deaths	178	180	178	168	153	857
Probably Preventable	418	402	373	390	345	1928
<b>Year Total</b>	<b>1,763</b>	<b>1,708</b>	<b>1,717</b>	<b>1,670</b>	<b>1,590</b>	<b>8,448</b>

**Table 12: Reviews of 2005-2009 Deaths  
by County Type by Age, Race and Gender (N=8,448)**

	Rural Appalachian	Rural Non- Appalachian	Suburban	Metropolitan	Total
<b>Age</b>					
0-28 Days	351	376	462	2,545	3,734
29 – 364 Days	215	226	232	1,133	1,806
1-4 Years	106	132	122	448	808
5-9 Years	59	77	73	275	484
10-14 Years	86	105	90	328	609
15-17 Years	134	183	181	509	1,007
<b>Race*</b>					
White	890	992	1,024	2,581	5,487
Black	52	79	117	2,546	2,794
Other	6	15	11	65	97
Unknown	1	9	4	28	42
Missing	2	4	4	18	28
<b>Gender</b>					
Male	588	610	683	3,072	4,953
Female	360	486	472	2,158	3,476
Unknown	-	1	2	3	6
Missing	3	2	3	5	13
<b>Total</b>	<b>951</b>	<b>1,099</b>	<b>1,160</b>	<b>5,238</b>	<b>8,448</b>

\* 167 cases with multiple races indicated were assigned to the minority race.

**Table 13: Reviews of 2005-2009 Deaths  
by County Type by Cause, Circumstances and Preventability (N=8,448)**

	Rural Appalachian	Rural Non- Appalachian	Suburban	Metropolitan	Total
<b>Medical Causes</b>					
Prematurity	188	195	298	1,903	2,584
Congenital Anomaly	128	103	131	571	933
Cardiovascular	33	35	39	191	298
SIDS	57	70	49	101	277
Other Infections	27	34	40	153	254
Cancer	36	35	33	141	245
Pneumonia	16	44	25	113	198
Other Perinatal	9	31	28	91	159
Neurological	10	12	10	63	95
Asthma	1	3	4	17	25
Malnutrition	-	3	1	5	9
Other Medical	141	161	146	505	953
Undetermined/Unknown	12	12	15	67	106
<b>External Causes</b>					
Vehicular	94	139	116	227	576
Asphyxia	64	67	90	322	542
Weapon (Including Body Part)	34	33	33	251	351
Drowning	23	35	20	77	155
Fire and Burns	14	32	15	88	149
Poisoning	10	8	11	38	67
Fall or Crush	7	15	6	24	52
Exposure	1	-	-	7	8
Other Injuries	20	16	20	27	83
Undetermined/Unknown	5	4	3	125	137
Child Abuse & Neglect	22	21	15	102	160
Sleep-related Infant Deaths	108	112	103	534	857
Probably Preventable	270	337	274	1,047	1,928
<b>Total</b>	<b>951</b>	<b>1,099</b>	<b>1,160</b>	<b>5,238</b>	<b>8,448</b>



## APPENDIX VIII

### References\*

<sup>1</sup> National Center for Health Statistics and U.S. Census Bureau data. Processed through Ohio Department of Health, Vital Statistics, June 1, 2011. 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.

<sup>2</sup> Program Manual for Child Death Review. Ed. Covington T, Foster V, Rich S. The National Center for Child Death Review, 2005.

<sup>3</sup> U.S. Census Bureau. Population Estimates. Annual Estimates of the Resident Population by Selected Age Groups and Sex for Counties: April 1, 2000 to July 1, 2009. Available at <http://www.census.gov/popest/counties/asrh/CC-EST2009-agesex.html>.

<sup>4</sup> National Center for Health Statistics and U.S. Census Bureau data. Processed through Ohio Department of Health, Vital Statistics, June 1, 2011.

<sup>5</sup> National Center for Health Statistics and U.S. Census Bureau data. Processed through Ohio Department of Health, Vital Statistics, June 1, 2011.

<sup>6</sup> National Center for Health Statistics and U.S. Census Bureau data. Processed through Ohio Department of Health, Vital Statistics, June 1, 2011.

<sup>7</sup> Ohio Department of Health. Information Warehouse. <http://dwhouse.odh.ohio.gov/datawarehousev2.htm>.

<sup>8</sup> National Center for Injury Prevention and Control. WISQARS Injury Mortality Reports, 1999 – 2007 page. Available at: <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>.

<sup>9</sup> Centers for Disease Control and Prevention. Self-directed Violence Surveillance: Uniform Definitions and Recommended Data Elements, 2011. Available at: <http://www.cdc.gov/violenceprevention/pdf/Self-Directed-Violence-a.pdf>.

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<sup>13</sup> National Center for Health Statistics. *Deaths: Preliminary Data for 2009*. Available at [http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59\\_04.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_04.pdf).

<sup>14</sup> National Center for Health Statistics and U.S. Census Bureau data. Processed through Ohio Department of Health, Vital Statistics, June 1, 2011.

<sup>15</sup> Willinger M, James LS, Catz C. Defining the sudden infant death syndrome (SIDS): Deliberations of an expert panel, convened by the National Institute of Child Health and Human Development. *Pediatric Pathology*. 1991; 11:677-684.

<sup>16</sup> National Institute of Child Health and Human Development. Sudden Infant Death Syndrome (SIDS). Available at: [http://www.nichd.nih.gov/health/topics/Sudden\\_Infant\\_Death\\_Syndrome.cfm](http://www.nichd.nih.gov/health/topics/Sudden_Infant_Death_Syndrome.cfm).

<sup>17</sup> Task Force on SIDS. Changing concept of SIDS: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing the risk. *American Journal of Pediatrics*. November 2005;1245-1255.

<sup>18</sup> Task Force on SIDS. Changing concept of SIDS: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing the risk. *American Journal of Pediatrics*. November 2005;1245-1255.

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<sup>23</sup> National Center on Birth Defects and Developmental Disabilities. *Child Development*. Available at: <http://cdc.gov/ncbddd/child/default.htm>

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<sup>25</sup> National Center on Birth Defects and Developmental Disabilities. *Child Development*. Available at: <http://cdc.gov/ncbddd/child/default.htm>

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*\*All Internet sites referenced were last accessed July 30, 2011*







