



INDIANA

Special Emphasis Report: Middle & High School Teen Injury, 2011-2013

Injury is a Leading Cause of Death in Teens

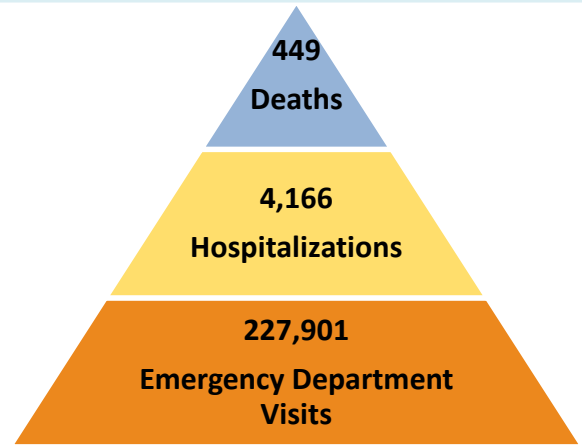
Injuries are a major public health problem across the United States and in Indiana. Injuries are not random chance events, but follow a predictable sequence of events, and can be prevented using specific strategies. From 2011-2013, 449 Indiana children ages 12-18 years died due to injury. There were 62 deaths among 12-14 year olds and 387 deaths among 15-18 years. One hundred eighteen of the injury deaths were suicides, of which nearly 43% of those deaths were due to discharge of firearms. Sixty-eight of the injury deaths were due to assault.

In addition to these injury deaths, there were 4,166 injury-related hospitalizations, of which 1,080 were among 12-14 year olds and 3,086 were among ages 15-18 years. There were also 227,901 emergency department (ED) visits. These numbers do not include teens who received treatment in physician offices or at home.

2011-2013 Indiana Injury Facts

- 449 teens ages 12-18 died due to injury
- There were 4,166 teen injury-related hospitalizations
- 227,901 teen emergency department visits were made due to injury
- More male teens were injured, treated in emergency departments, hospitalized and died than female children
 - 3 in 4 injury deaths among boys
 - 3 in 4 suicide deaths among boys

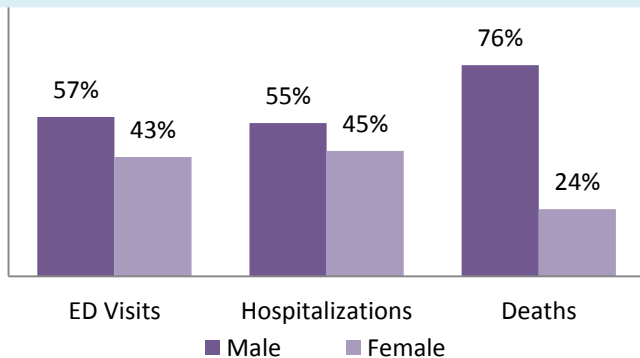
Figure 1: Annual Injuries* among Children Ages 12-18 Years, Indiana, 2011-2013



For every teen that died, 9 teens were hospitalized and nearly 508 were treated in emergency departments.

Every day there were more than 208 injury-related ED visits and hospitalizations among teens.

Figure 2: Percent of Injury Deaths, Hospitalizations and Emergency Department Visits among Teens Ages 12-18 Years, by Sex, Indiana, 2011-2013



Child Injury by Gender

Males accounted for a greater number of injuries and had higher rates of injury-related medical treatment in Indiana among teens ages 12-18 years compared to females. More male teens age 12-18 years were treated in emergency departments, hospitalized, and died due to injury compared to females of the same age.

*Hospitalizations and emergency department visit data are based on ICD-9 primary diagnostic code of injuries and poisoning.

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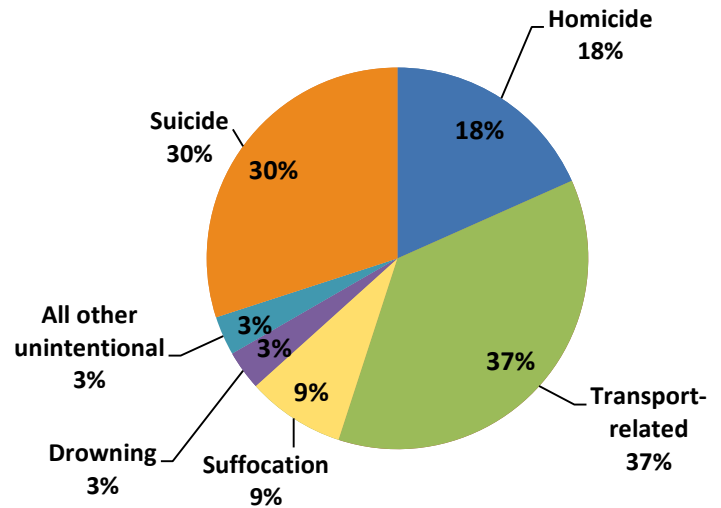
Special Emphasis Report: Middle & High School Teen Injury, 2011-2013

Injury Deaths in Middle School Teens 12-14 Years

Age 12-14 Injury Facts

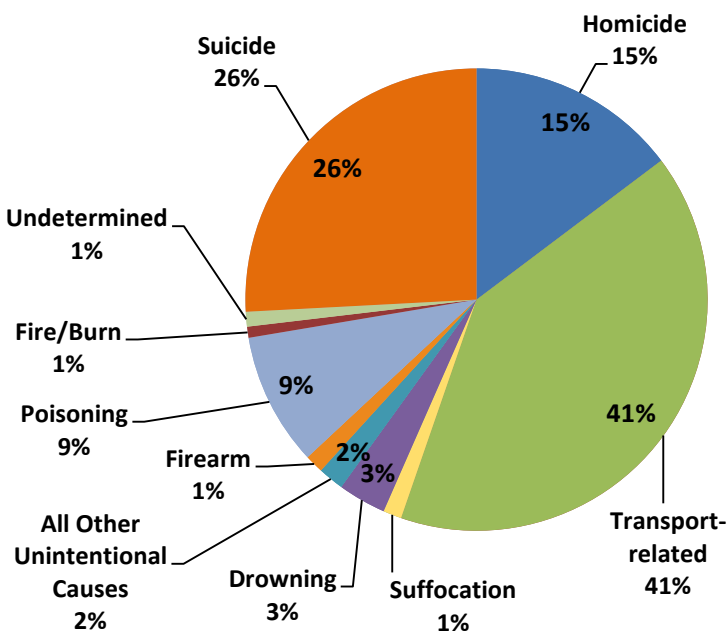
- 62 deaths among middle school kids
- 33 unintentional deaths, 18 suicide, and 11 homicides
- One in three injury deaths among middle school kids were due to motor vehicle collisions.
 - 28 percent of motor vehicle decedents were occupants.
- Nearly one in three injury deaths were due to suicide (29%).
 - 72% of suicide deaths were among boys.

Figure 3: Injury Deaths among Teens Ages 12- 14 Years, Indiana, 2011-2013 (N=62)



Injury Deaths in High School Teens 15-18 Years

Figure 4: Injury Deaths in Teens Ages 15 – 18 Years, Indiana, 2011-2013 (N=387)



Age 15-18 Injury Facts

- 387 deaths among older teens
- 226 unintentional deaths, 100 suicide, and 57 homicides
- Motor vehicle traffic-related injuries were the leading cause of injury death.
 - 33 percent of motor vehicle decedents were occupants.
- One in four older teen injury deaths were suicides.
 - Of the 100 suicides, 45 involved firearms and 45 involved suffocation.



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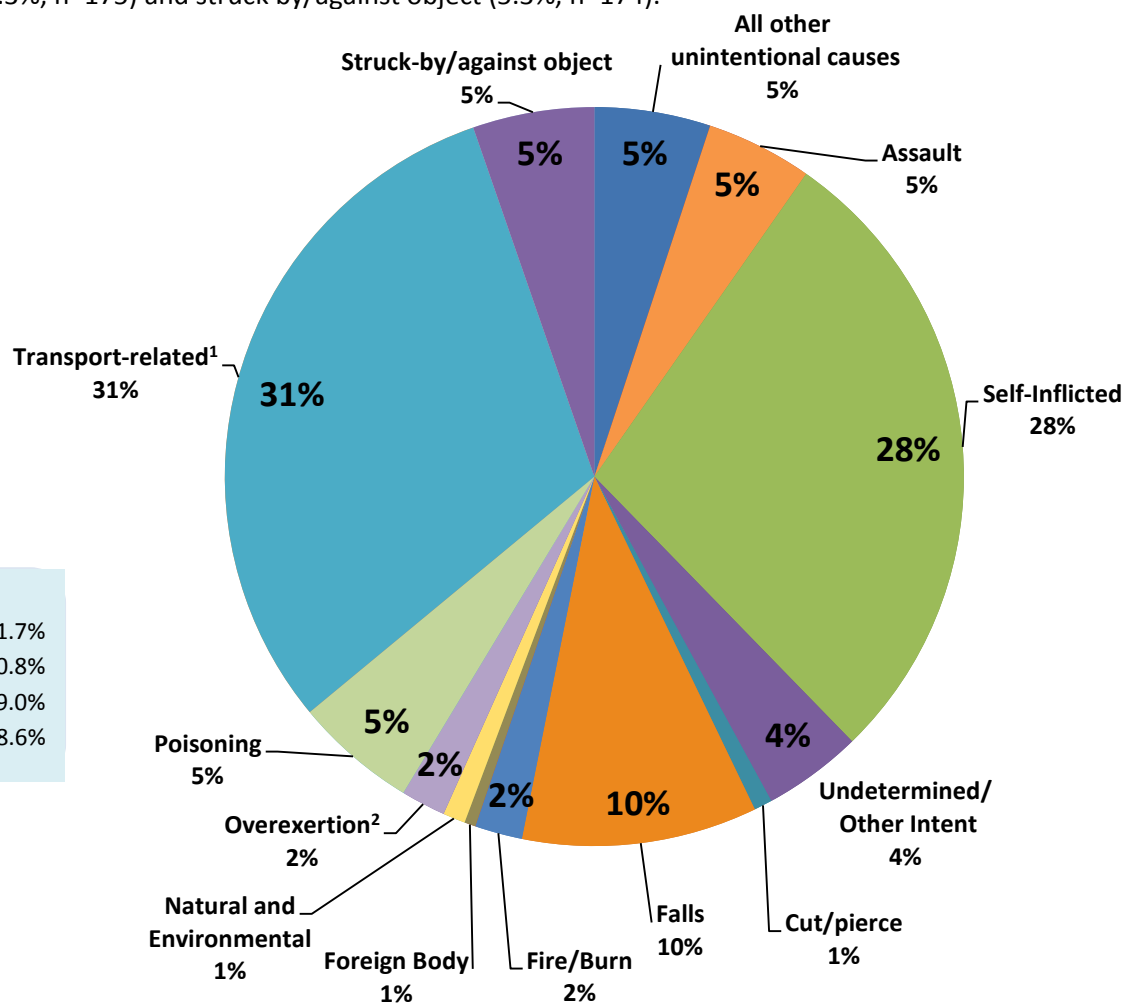
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Injury-Related Hospitalizations

Figure 5: Injury-Related Hospitalizations among Teens Ages 12 – 18 Years, Indiana, 2011-2013 (N=3,272)**

- From 2011-2013, there were 3,272 injury-related hospitalizations of Indiana teens ages 12-18 years, with 871 hospitalizations among 12-14 year olds and 2,401 among 15-18 year olds. The peak number of injury-related hospitalizations was in 2012 with 1,167, followed by 1,165 hospitalizations in 2011 and 940 hospitalizations in 2013.
- Most injury-related hospitalizations were unintentional in nature (63.8%, n=20,622), followed by self-inflicted injuries (28.0%, n=916). However, 30% of injury-related hospitalizations among 15-18 year olds were self-inflicted and 5.7% were due to assault.
- Transport-related injuries were the leading cause of injury-related hospitalizations among both 12-14 year olds (29.6%, n=258) and 15-18 year olds (31.1%, n=746). The next leading causes of unintentional injury-related hospitalizations were falls (10.3%, n=337), poisoning (5.3%, n=175) and struck by/against object (5.3%, n=174).

Transport-related injuries, self-inflicted injuries and falls led to 2,257 hospitalizations among teenagers



Transport-related Circumstances:

- Motor Vehicle (MV) - Occupant: 51.7%
- Bicycle/tricycle (MV & non-MV): 10.8%
- Pedestrian (MV & non-MV): 9.0%
- Other transport: 28.6%

**Injury-related Hospitalization cases selected based on ICD-9 primary diagnosis codes with external cause of injury codes.

1. Transport-related includes motor vehicle occupant, bicycle/tricycle (MV & non-MV), pedestrian (MV & non-MV), and other transport.

2. Overexertion: Injury from working the body or parts of the body too hard, resulting in damage to muscle, tendon, ligament, cartilage, joint, or peripheral nerve. This category represents the common causes of strains, sprains, and twisted ankles resulting from overexertion due to lifting, pushing, or pulling. ICD-9 external cause of injury codes: E927.0-.4,.8-.9.



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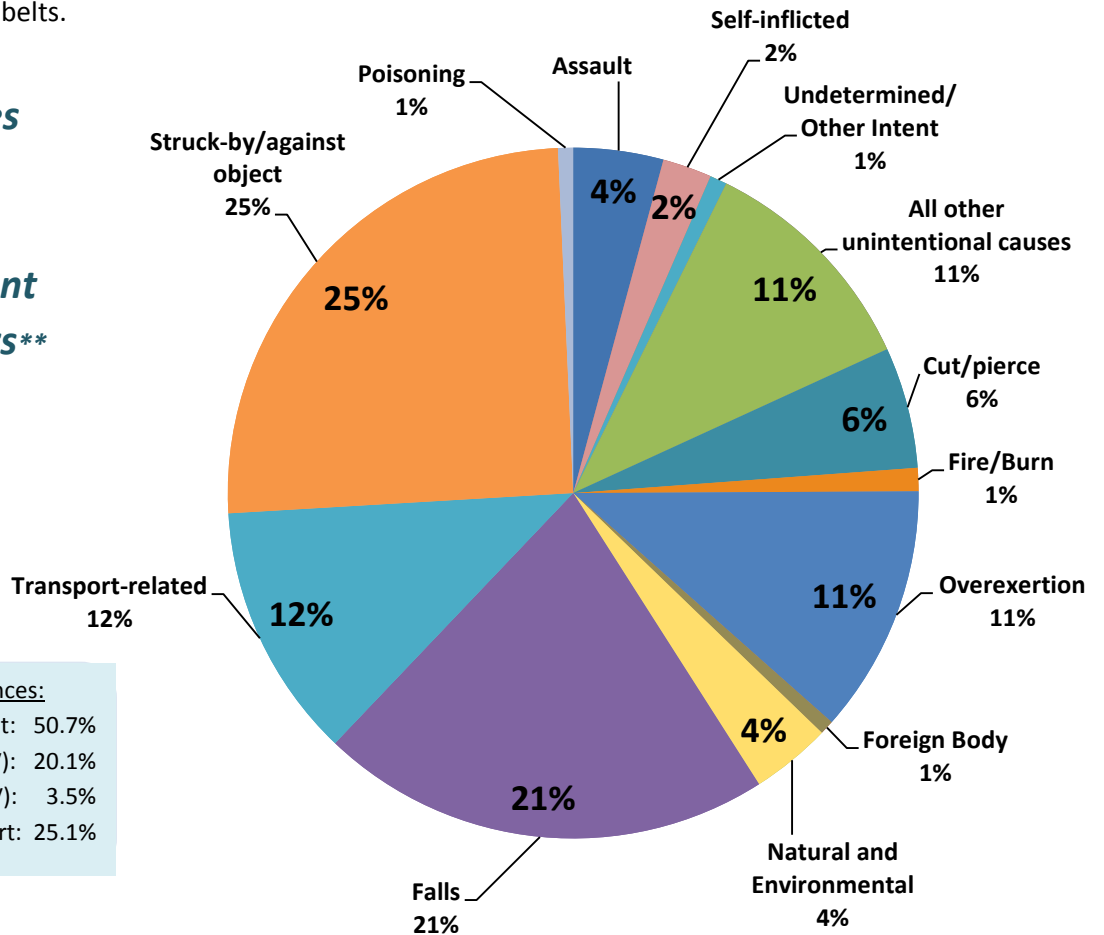
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Injury-Related Emergency Department Visits

Figure 5: Injury-Related Emergency Department Visits among Teens Ages 12 – 18 Years, Indiana, 2011-2013 (N= 170,294)**

- From 2011- 2013, there were 170,294 injury-related emergency department (ED) visits of Indiana teens ages 12-18 years, with 69,875 visits among 12-14 year olds and 100,419 among older teens ages 15-18 years. The peak number of injury-related ED visits was in 2012 with 58,778, followed by 58,013 ED visits in 2011, and 53,503 in 2013.
- More than nine in 10 injury-related ED visits were unintentional in nature (92.7%, n =157,845), followed by 7,168 visits due to assault (4.2%), and 3,925 visits due to self-inflicted injury (2.3%).
- The leading causes of unintentional injury-related ED visits in teens were striking against or being struck by an object or person (25.2%, n = 42,968), falls, (21.2%, n =36,019) and overexertion (11.6%, n = 19,792).
- Of the 20,362 transport-related injuries treated in the ED, 69.7% (n=14,186) were among older teens. There were 10,320 ED visits for motor vehicle (MV)-occupants, of which 82.8% (n=8,542) were among older teens. Teen drivers are at risk for collisions and subsequent injury due to driver inexperience, distractions such as other teen riders, reckless and impaired driving, and not using seat belts.

Unintentional injuries result in more than 157,845 Emergency Department visits among teenagers**



Transport-related Circumstances:
 Motor Vehicle (MV) - Occupant: 50.7%
 Bicycle/tricycle (MV & non-MV): 20.1%
 Pedestrian (MV & non-MV): 3.5%
 Other transport: 25.1%

**Injury-related emergency department cases selected based on ICD-9 primary diagnosis codes with external cause of injury codes.
 1. Transport-related includes motor vehicle occupant, bicycle/tricycle (MV & non-MV), pedestrian (MV & non-MV), and other transport.
 2. Overexertion: Injury from working the body or parts of the body too hard, resulting in damage to muscle, tendon, ligament, cartilage, joint, or peripheral nerve. This category represents the common causes of strains, sprains, and twisted ankles resulting from overexertion due to lifting, pushing, or pulling. ICD-9 external cause of injury codes: E927.0-.4,.8-.9.



INDIANA

Special Emphasis Report: Middle & High School Teen Injury, 2011-2013

Table 1: Injury-Related Hospitalizations and Emergency Department (ED) Visits among Teens Ages 12 – 18 Years, by Age Group, Indiana, 2011-2013**

	Middle School Teens Ages 12-14 Years		High School Teens Ages 15-18 Years	
	Hospitalizations	ED Visits	Hospitalizations	ED Visits
Unintentional Injuries	631	66,584	1,431	91,261
Cut/pierce	8	4,514	18	5,140
Drowning/submersion	U	12	5	15
Falls	149	17,971	188	18,048
Fire/Burn	28	597	40	1,257
Foreign Body	U	505	12	628
Natural and Environmental	16	2,724	16	3,660
<i>Excessive heat</i>		U 90	5	241
<i>Dog bites</i>		8 927	5	1,032
<i>Other bites/stings/animal injury</i>		9 1,663	6	2,331
<i>All other natural/environmental</i>		U 41	U	50
Overexertion	12	8,011	52	11,781
Poisoning	31	299	144	900
Struck-by/against object	63	19,096	111	23,872
Suffocation	U	U	U	U
Transport-related	258	6,176	746	14,186
<i>Motor vehicle (MV)-occupant</i>		71 1,778	448	8,542
<i>Bicycle/tricycle (MV & non-MV)</i>		56 2,432	52	1,657
<i>Pedestrian (MV & non-MV)</i>		38 256	52	449
<i>Other transport</i>		93 1,655	194	3,455
All other unintentional causes	58	6,675	98	11,772
Assault	16	1,908	136	5,260
Self-inflicted	199	1,048	717	2,877
Undetermined/Other Intent	25	335	117	1,021
Total Injury-Related Cases	871	69,875	2,401	100,419

Counts fewer than 5 are suppressed (U)

**Injury-related hospitalization cases selected based on ICD-9 primary diagnosis codes with external cause of injury codes. Injury-related emergency department cases selected based on ICD-9 primary diagnosis codes with external cause of injury codes.

Details of cause categories are in Appendix A and B of Gabella BA, Proescholdbell SK, Hume B, et. al. State Special Emphasis Report: Instructions for Preparing Infant and Early Childhood Injury Data. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2012.



INDIANA

Special Emphasis Report: Middle & High School Teen Injury, 2011-2013

Indiana Teen Injury Prevention Activities

Because injury is the leading cause of death for Hoosiers ages 1 to 44 years, the Division of Trauma and Injury Prevention at the Indiana State Department of Health (ISDH) works to prevent injuries and create a healthier and safer Indiana.

Actions: The **Indiana Statewide Trauma System Injury Prevention Plan** is currently being drafted, and will include opportunities for collaborative injury prevention efforts in traffic safety, poisoning, and traumatic brain injury.

Surveillance: The Division of Trauma and Injury Prevention conducts statewide injury surveillance through death certificates, hospitalizations, and ED visits. The Indiana Trauma Registry captures statewide trauma data for all seriously injured for the purposes of identifying the trauma population, statewide process improvement activities, and research.

Partnerships: The **Indiana Injury Prevention Advisory Council**, made up of members working in injury and violence prevention, works to reduce the number and severity of preventable injuries in Indiana through leadership and advocacy.

Communications: The Division of Trauma and Injury Prevention is active on the State Department of Health's social media pages, utilizing the hashtag #SafetyIN to deliver up-to-date safety and injury prevention information.



Indiana Violent Death Reporting System



Indiana is one of 32 states to receive funding for the Centers for Disease Control (CDC) Collecting Violent Death Data Using the National Violent Death Reporting System. The purpose of the funding is to improve the planning, implementation, and evaluation of violence prevention programs. The INVDRS will monitor and assess the magnitude, trends, and characteristics of violent deaths through collecting comprehensive data from various existing data sources. The grant will be administered by the State Department of Health's Division of Trauma and Injury Prevention. The Indiana Violent Death Reporting System (INVDRS) will capture 100% of violent death incidents among children and teens in Indiana beginning January 1, 2015.

The INVDRS will:

- Collect comprehensive, objective, and accurate population-based information on victims, suspects, weapons, and circumstances related to homicides, suicides, unintentional firearm injuries, legal intervention deaths, deaths of undetermined intent, and terrorism deaths.
- Combine data from multiple sources, including death certificates, coroner records, law enforcement reports, and other additional data to increase scientific understanding of violent injury to be translated into prevention strategies for state, local, and national efforts.
- Contribute de-identified data to the National Violent Death Reporting System funded by the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

Potential impact on Indiana Youth: Indiana students **were more likely than** students across the U.S. to attempt suicide, according to the 2011 Youth Behavior Risk Survey. In 2011, **11%** of Indiana high school students reported attempting suicide one or more times during the previous 12 months.¹ By examining the circumstances around suicide deaths and other forms of violence, Indiana can work towards preventing early death among youths.

1. Indiana State Department of Health (2012). Youth Risk Behavior Surveillance, 2011.



INDIANA

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Indiana Child Fatality Review Program

Mission

The Indiana Child Fatality Review (CFR) Program attempts to better understand how and why children die, take action to prevent other deaths, and improve the health and safety of our children.

Operating Principles

- The death of a child is a community responsibility and should motivate community members into action to prevent future injury and death.
- Review requires multidisciplinary participation and should lead to an understanding of the risk factors involved in the death.
- Reviews should focus on prevention and lead to effective recommendations and action steps to keep children safe and protected.

Objectives

- Ensure the accurate identification and uniform, consistent reporting of cause and manner of death of every child
- Improve agency responses in the investigation of child deaths
- Identify significant risk factors and trends in child deaths
- Identify and advocate for needed changes in legislation, policy, and practice to prevent child deaths
- Increase public awareness of the issues that affect the health and safety of our children

Overview of the Program

CFR is a collaborative process that can help us better understand why children and teens die within the community, and help us identify how we can prevent future deaths. On July 1, 2013, a new Indiana law (IC 16-49) went into effect, requiring CFR teams in each county, with coordination and support for these teams to be provided by the Indiana State Department of Health (ISDH). IC 16-49 also required that a coordinator position be created under the ISDH to help support and coordinate the local teams and Statewide Child Fatality Review Committee, whose members are appointed by the Governor.

CFR teams are multidisciplinary, professional teams which conduct a comprehensive, in-depth review of a child's death and the circumstances and risk factors involved, and then seek to understand how and why the child died to prevent future injury and death. Each local CFR team is required to have representation from the coroner/deputy coroner, pathologist, pediatrician or family practice physician, and local representatives from law enforcement, health department, Department of Child Services (DCS), emergency medical services, a school district within the region, fire responders, the prosecuting attorney's office, and the mental-health community. The teams are required to review all deaths of children under the age of 18 that are sudden, unexpected or unexplained, all deaths that are assessed by DCS, and all deaths that are determined to be the result of homicide, suicide, accident, or are undetermined. The local teams provide data collected from their reviews to the Statewide Child Fatality Review Committee, which then classifies the details of these deaths, identifies trends, and informs efforts to implement effective statewide prevention strategies.

Overlap of Child Fatality Review and Indiana Violent Death Reporting System

The INVDRS will capture 100% of violent death incidents among children in Indiana beginning January 1, 2015 by utilizing and enhancing the work done through CFR.

CFR	CFR & INVDRS	INVDRS
<ul style="list-style-type: none"> • Focuses on local community and statewide action • Represents at least 79 of Indiana's 92 counties • Contributes data to National CDR Case Reporting System on a team by team basis 	<ul style="list-style-type: none"> • Use discrete reporting system to compile data for analysis • Examine extensive background and circumstance information on victims, suspects, relationships, weapons, and life events related to the incident • Shared stakeholders, data providers and data users • Works to prevent future deaths by examining associated risk factors and warning signs 	<ul style="list-style-type: none"> • Focuses on state-based data collection and dissemination • Captures death certificate data from 100% of Indiana counties • Contributes data to National Violent Death Reporting System in conjunction with 31 other states



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Teen Driver Safety

As kids and teens age, they become more vulnerable to motor vehicle injuries. The CDC estimates 3,000 teens lose their lives each year due to motor vehicle collisions, or **eight teens die each day**². While teens drive less than most others, they are involved in a disproportionately higher number of crashes. The fatal crash rate per mile driven for 16 to 19 year olds is four to six times the risk of older drivers (age 30-59 years), and the fatal crash risk is highest at age 16.³

Parents are the Key to safe teen drivers is an initiative by the CDC to reduce teen motor vehicle injury and death through teen parents by having conversations about safety, practicing safe driving together, and leading by example. The **Parent-Teen Driving Agreement** to put in writing the expectations and limits for your teen driver.

CDC's Eight Danger Zones for Teen Driver:

- 1) Driver inexperience
- 2) Driving with teen riders
- 3) Nighttime driving
- 4) Not using seat belts
- 5) Distracted driving
- 6) Drowsy driving
- 7) Reckless driving
- 8) Impaired driving

Concussion

A concussion is a type of traumatic brain injury that is caused by bump, blow, or jolt to the head. The sudden movement in the brain causes stretching, which damages the cells and creates chemical changes in the brain, which leaves the brain susceptible to further injury until recovery is complete. Athletes who ever had a concussion are at greater risk for another. In rare cases, repeat concussions can result in brain swelling, permanent brain damage, or even death.

Kids and teens are more likely to get a concussion and take longer to recover than adults. Parents and coaches should teach kids and teens that **all concussions are serious**, they should be reported, and it takes time to recover. Coaches who suspect a player has sustained a concussion **should take him/her out of play and seek the advice of a health care professional.** To learn more, visit **CDC's Heads Up: Concussion:** <http://www.cdc.gov/concussion/headsup/>

Symptoms reported by athlete:

- Headache
- Pressure in head
- Nausea or vomiting
- Balance problems or dizziness
- Blurred or double vision
- Sensitivity to light or noise
- Concentration or memory problems
- Confusion
- Feeling sluggish, hazy, foggy or groggy
- Just not "feeling right" or "feeling down"

Signs observed by parents and coaches:

- Appears dazed or stunned
- Is confused about the assignment or position
- Forgets an instruction
- Unsure of game, score or opponent
- Moves clumsily
- Answers questions slowly
- Loses consciousness, even if briefly
- Shows mood, behavior, or personality changes

Suicide Prevention

Suicide is the third leading cause of death for youth between the ages of 10 and 24 years, and results in approximately 4,600 youth lives lost per year in the United States¹. Boys are more likely to die from suicide compared to girls, although girls are more likely to report attempting suicide than boys.

There are several risk factors and warning signs for suicide. However, having risk factors for suicide does not always mean suicide will occur. The **presence of resiliency factors** can lessen the potential risk factors that lead to suicidal ideation and behaviors, including peer and family support, community connectedness, access to effective medical and mental health resources, and adaptive coping skills.

If you or someone you know is having thoughts of suicide call the **National Suicide Prevention Lifeline:**
1-800-273-TALK (1-800-273-8255)

Risk factors for suicide may include, but are not limited to:

- History of previous suicide attempts
- Family history of suicide
- History of depression or other mental illness
- Alcohol or drug abuse
- Stressful life event or loss
- Easy access to lethal methods
- Exposure to the suicidal behavior of others

Warning Signs are more immediate signs of suicide risk, and may include:

- Talks of killing self
- Collecting means or planning death
- Changes in mood, including anxiety, irritability, loss of interest, depression, or feelings of hopelessness

2. CDC, NCIPC. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2014). Available from: www.cdc.gov/injury/wisqars

3. Insurance Institute for Highway Safety. Fatality facts-teenagers. 2010. Available from: <http://www.iihs.org/iihs/topics/t/teenagers/fatalityfacts/teenagers>



INDIANA

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Resources

Indiana State Department of Health

2 North Meridian Street
Indianapolis, Indiana 46204

Indiana Child Fatality Review Program

Phone: (317)233-1240
Email: GMartin1@isdh.IN.gov
Website: <http://www.in.gov/isdh/26349.htm>

Maternal and Child Health Division

Phone: (317)233-7940
Email: bfranklin@isdh.IN.gov
Website: <http://www.in.gov/isdh/19571.htm>

Trauma and Injury Prevention Division

Phone: (317)233-7716
Email: Indianatrauma@isdh.IN.gov
Website: <http://www.in.gov/isdh/19537.htm>

Indiana Department of Child Services

402 W. Washington Street
Indianapolis, IN 46204
Email: Communciations@dcs.IN.gov
Website: <http://www.in.gov/dcs/2869.htm>



Indiana Family Helpline

Phone: 1-855-HELP-1ST
(1-855-435-7178)
Website:
<http://www.in.gov/isdh/21047.htm>

Indiana Bureau of Motor Vehicles Guide for Parents & Teens

[http://www.in.gov/bmv/files/Driver
Guide for Parents and Teens.pdf](http://www.in.gov/bmv/files/DriverGuideforParentsandTeens.pdf)

Indiana Child Abuse/ Neglect Hotline:

Phone: 1-800-800-5556

Indiana Criminal Justice Institute:

Rule the Road
<http://www.in.gov/cji/2382.htm>
Phone: 317-232-1233

Indiana Poison Center

Poison Helpline: 1-800-222-1222
<http://indianapoison.org/>

Indiana Attorney General Prescription Drug Abuse Task Force

<http://www.in.gov/bitterpill/>

American Academy of Pediatrics

www.aap.org

Data Notes: All data in this report are based on the CDC injury definition, whereby injury cases are based on ICD-10 underlying cause codes (deaths), ICD-9-CM primary diagnosis codes (hospitalizations), or either an ICD-9-CM primary diagnosis code or an external cause of injury code (E-codes) (ED visits). Not every injury case may be coded with an E-code, and because the analysis of the mechanism of injury is dependent upon the E-code, the aggregate numbers may be different. Deaths and transfers may be included in hospitalization and ED visit data. All data in this report are based on calendar years. *All injuries are considered unintentional unless otherwise specified.*

Data Sources: Indiana State Department of Health, Epidemiology Resource Team Data Analysis Team. Document prepared by ISDH Division of Trauma and Injury Prevention, Division of Maternal and Child Health, and Child Fatality Review Program.

This report and other Indiana injury data reports are available on the ISDH website. Requests for data may also be submitted to the ISDH Trauma and Injury Prevention Division.

Automotive Safety Program

<http://www.preventinjury.org/>

Children's Safety Network

www.childrenssafetynetwork.org

PACER's National Bullying Prevention Center for Teens:

www.PACERTeensAgainstBullying.org

National Suicide Prevention Lifeline:

1-800-273-TALK (8255)

Teen Suicide Hotline:

1-800-SUICIDE (784-2433)

National Domestic Violence Hotline:

1-800-799-SAFE

Safe Child Program

www.cdc.gov/safekid

Safe Kids Indiana/ Safe Kids Worldwide

<http://www.safekids.org/>

INDIANA STATE DEPARTMENT OF HEALTH

<http://www.indianatrauma.org>

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