INDIANA TRAFFIC SAFETY FACTS 2008

May 2008

A collision produces three levels of data: collision, unit (vehicles), and individual. For this reason, readers should pay particular attention to the wording of statements about the data to avoid misinterpretations.

Designing and implementing effective traffic safety policies requires data-driven analysis of traffic accidents. To help in the policy-making process, the Indiana University Center for Criminal Justice Research is collaborating with the Indiana Criminal Justice Institute to analyze 2007 vehicle crash data from the Automated Reporting Information Exchange System (ARIES), formally the Vehicle Crash Reporting System (VCRS), maintained by the Indiana State Police. Research findings will be summarized in a series of Fact Sheets on various aspects of traffic collisions, including alcohol-related crashes, light and large trucks, dangerous driving, children, motorcycles, occupant protection, and drivers. An additional publication will provide information on county and municipality data and the final publication will be the annual Indiana Crash Fact Book. These publications serve as the analytical foundation of traffic safety program planning and design in Indiana.

Indiana collision data are obtained from Indiana Crash Reports, as completed by police officers. As of January 1, 2008, approximately 95 percent of all collisions are entered electronically through the ARIES. Trends in collisions incidence as reported in these publications could incorporate the effects of changes to data elements on the Crash Report, agency-specific enforcement policy changes, re-engineered roadways, driver safety education programs and other unspecified effects. If you have questions regarding trends or unexpected results, please contact the Indiana Criminal Justice Institute, Traffic Safety Division for more information.

INDIANA CRIMINAL JUSTICE INSTITUTE

CENTER FOR CRIMINAL JUSTICE RESEARCH

SEAL OF THE STATE OF INDIANA 1816

CHILDREN 2007

Ages 0 to 15

In 2007, over 5,000 children[1] were injured or killed in Indiana motor vehicle collisions. Approximately seven percent of these injuries[2] were serious or life threatening, 49 were fatal and 305 were reported as incapacitating (Table 1). While the total number of child injuries declined slightly (2 percent) between 2006 and 2007, the number of child fatalities remained fairly steady during this same period. This fact sheet summarizes data trends, safety legislation, and other research at the national, state, and local levels on traffic collisions involving children between 2003 and 2007. Indiana data were extracted from the Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008.

NATIONAL OVERVIEW

The National Highway Traffic Safety Administration (NHTSA) reports that motor vehicle collisions continue to be the leading cause of death for children between the ages of 2 and 14.[3] In 2006, nearly 1,800 children were killed in traffic crashes, representing four percent of the 42,642 traffic fatalities in the United States. Nationally, an average of five child fatalities and 568 child injuries occurred every day in motor vehicle crashes.

In 2007, over 5,000 children were injured or killed in Indiana motor vehicle collisions.

INDIANA OVERVIEW

In 2007, children were killed or injured in Indiana traffic collisions at a rate of nearly four per 1,000 of the population. Since 2003, total child traffic injuries in Indiana have

[1]For the purposes of this publication, "children" are defined as individuals between the ages of 0 and 15 years of age.

[2]Injuries are defined as those reported as *fatal, incapacitating, non-incapacitating*, and *possible*.

[3]National Center for Statistics and Analysis, National Highway Traffic Safety Administration, *Traffic Safety Facts: Children (2006 data).*

Table 1: Children injured or killed in Indiana traffic collisions by injury status and age group, 2003-2007

	2003		2004		2005		2006		2007		Avg. Annual Share of Injuries
	Count	%	Count	%	Count	%	Count	%	Count	%	
Fatalities	**41**	**100.0**	**58**	**100.0**	**47**	**100.0**	**48**	**100.0**	**49**	**100.0**	
Less than 1 year old	1	2.4	6	10.3	5	10.6	3	6.3	2	4.1	6.8
1 to 3 years old	13	31.7	13	22.4	7	14.9	10	20.8	4	8.2	19.6
4 to 7 years old	7	17.1	6	10.3	11	23.4	12	25.0	6	12.2	17.6
8 to 15 years old	20	48.8	33	56.9	24	51.1	23	47.9	37	75.5	56.0
Incapacitating injuries	**332**	**100.0**	**301**	**100.0**	**299**	**100.0**	**287**	**100.0**	**305**	**100.0**	
Less than 1 year old	11	3.3	8	2.7	8	2.7	15	5.2	13	4.3	3.6
1 to 3 years old	35	10.5	27	9.0	26	8.7	23	8.0	36	11.8	9.6
4 to 7 years old	70	21.1	61	20.3	54	18.1	52	18.1	64	21.0	19.7
8 to 15 years old	216	65.1	205	68.1	211	70.6	197	68.6	192	63.0	67.1
Non-incapacitating injuries	**5,100**	**100.0**	**5,348**	**100.0**	**5,181**	**100.0**	**4,818**	**100.0**	**4,690**	**100.0**	
Less than 1 year old	172	3.4	192	3.6	233	4.5	246	5.1	274	5.8	4.5
1 to 3 years old	617	12.1	614	11.5	583	11.3	526	10.9	560	11.9	11.5
4 to 7 years old	1,067	20.9	1,172	21.9	1,139	22.0	1,029	21.4	1,006	21.4	21.5
8 to 15 years old	3,244	63.6	3,370	63.0	3,226	62.3	3,017	62.6	2,850	60.8	62.5
Total injuries	**5,473**	**100.0**	**5,707**	**100.0**	**5,527**	**100.0**	**5,153**	**100.0**	**5,044**	**100.0**	
Less than 1 year old	184	3.4	206	3.6	246	4.5	264	5.1	289	5.7	4.5
1 to 3 years old	665	12.2	654	11.5	616	11.1	559	10.8	600	11.9	11.5
4 to 7 years old	1,144	20.9	1,239	21.7	1,204	21.8	1,093	21.2	1,076	21.3	21.4
8 to 15 years old	3,480	63.6	3,608	63.2	3,461	62.6	3,237	62.8	3,079	61.0	62.7

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Note: Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating,* and *possible* injuries where age was identified. *Non-incapacitating* injuries include those injuries reported as both *non-incapacitating* and *possible*.

decreased at an average annual rate of 1.9 percent (not shown in table). Table 1 shows that in 2007, 49 of these cases were fatalities, 305 were reported as incapacitating injuries, and nearly 4,700 were reported as non-incapacitating. The incidence of injury to child passengers increases with the age of the child. While 2006 population estimates indicate that the *8 to 15 year old* age group represents approximately 51 percent of the Indiana child population (Table 2), the average annual share of child injuries in this age group between 2003 and 2007 was nearly 63 percent. The *8 to 15 year old* age group accounted for a disproportionately high average annual share of injuries across all injury categories. Between 2003 and 2007, the *less than 1 year old* age group accounted for an average annual share of 4.5 percent of all child traffic injuries, while the *1 to 3 year olds* and the *4 to 7 year olds* accounted for an average annual share of 11.5 percent and 21 percent of total children injured, respectively. These numbers are disproportionately low when comparing to the relative age group share of the Indiana population. The number of child traffic fatalities decreased in all age groups between 2006 and 2007, with the exception of the *8 to 15 year old* age group that increased from 23 fatalities in 2006 to 37 fatalities in 2007.

Table 2: Indiana child population estimates, 2006

	Estimated IN population (2006)	Share of IN child population
Less than 1 year old	86,304	6.2
1 to 3 years old	260,004	18.7
4 to 7 years old	343,131	24.6
8 to 15 years old	703,945	50.5
Total	*1,393,384*	

Source: National Center for Health Statistics, in collaboration with the U.S. Census Bureau, as of August 16, 2006

Note: The most recent population estimates available by age and county are for the year 2006.

Child Traffic Injuries by County

The distribution of child traffic injuries by county further illustrates the increased incidence of injuries as children grow older. Maps 1 to 4 illustrate the distribution of all child traffic accident injuries and fatalities by county and age group for 2007. The mean traffic injury rate per 1,000 county residents in the *less than 1 year old* age group was 3.2 (Map 1). Twenty-five counties in this age group had a traffic injury rate greater than five per 1,000, while 35 counties in this age group had no traffic injuries. Higher injury rates in this age group appear to be clustered in counties located in the south central and west central portions of the state. The lowest mean rate of injury (2.2 per 1,000 of the population) occurred in the *1 to 3 year old* age group. Map 2 shows five Indiana counties in this age group had a traffic injury

rate greater than five per 1,000, and twenty-one counties had a traffic injury rate of less than one per 1,000. In the *4 to 7 year old* age group (Map 3), the mean rate of injury was 3.1, a rate similar to that of the *less than 1 year old* group; however, the rates of injury in the *4 to 7 year old* group were distributed in a more uniform manner across counties than in the *less than 1 year old* group. While the *less than 1 year old* group had many counties representing both the extreme low and high ends of the injury rate spectrum, only ten counties in the *4 to 7 year old* age group had a traffic injury rate greater than five per 1,000. Seven counties in this age group had traffic injury rates less than one per 1,000. Map 4 illustrates the mean traffic injury rate in the *8 to 15 year old* age group was 4.3, a rate significantly higher than that of other child age groups. Twenty-five counties in this age group had traffic injury rates greater than five per 1,000, while only one county had a traffic injury rate less than one per 1,000. Both Scott and Warren counties were among the highest child traffic injury rates across all age groups, and Newton county was among the highest injury rates in all but the *8 to 15 year old* group.

RESTRAINT USAGE AND VEHICLE SEATING POSITION

National Context

Research has shown that child restraint use (including lap/shoulder safety belts and child safety seats) is one of the most effective tools in preventing serious and fatal injuries to children who are vehicle occupants in traffic collisions. NHTSA reports that child safety seats, when used properly, can reduce the risk of fatal injury by 71 percent for children less than one year old and 54 percent for children between the ages of one and four years old.[4] Among children under the age of five, NHTSA estimates that proper child restraint usage saved 425 lives in 2006. Nationally, in 2006, 45 percent of the 1,794 children (0 to 14 years old) who were fatally injured in a traffic crash were unrestrained. This represents an improvement from 2005 when 53 percent of those fatally injured were unrestrained.

Text Box 1: Indiana Child Passenger Restraint Laws and Regulations

Legislative History of Indiana Child Passenger Restraint Regulations

- January 1, 1984: Children in a motor vehicle who were four years or younger required to be restrained; aged two or younger required to be in a child restraint and aged three or four required to be in a child restraint or seat belt.
- July 1, 1998: Children from birth up to age four required to be in some type of child restraint. Children from age four to 12 required to be in child restraints or seat belts.
  (There are two types of restraint laws, primary and secondary. Primary (standard) restraint laws allow a law enforcement officer to stop a vehicle and issue a citation when the officer observes an unrestrained driver or passenger. Secondary enforcement means that a citation for being unrestrained can only be written after the officer stops the vehicle or cites the offender for another infraction. Both the 1984 and 1998 laws used primary enforcement.)
- July 1, 2005: Indiana Child Restraint Law
  - Children are required to ride properly restrained in a child restraint, which can include a belt positioning booster seat, until they reach their 8th birthday. (This does not include shoulder belt positioners.)
  - Children at least 8 years old until their 16th birthday are required to ride properly restrained in a child restraint system or seat belt in all seating positions in all vehicles; primary enforcement.
  - If all lap/shoulder seat belts are being used by other children, then a child over 40 pounds may ride in a lap only seat belt without a child restraint. (Booster seats cannot be safely used with a lap only seat belt.)
    (*Passenger Restraint Systems for Children*, IC 9-19-11; available at http://www.in.gov/legislative/ic/code/title9/ar19/ch11.html)

(Above summary text regarding the 2005 Indiana Child Restraint Law was excerpted from Automotive Safety Program, Riley Hospital for Children website on November 19, 2007, http://www.preventinjury.org/GIRestraintLaws.asp)

Legislative History of Indiana Seat Belt Law

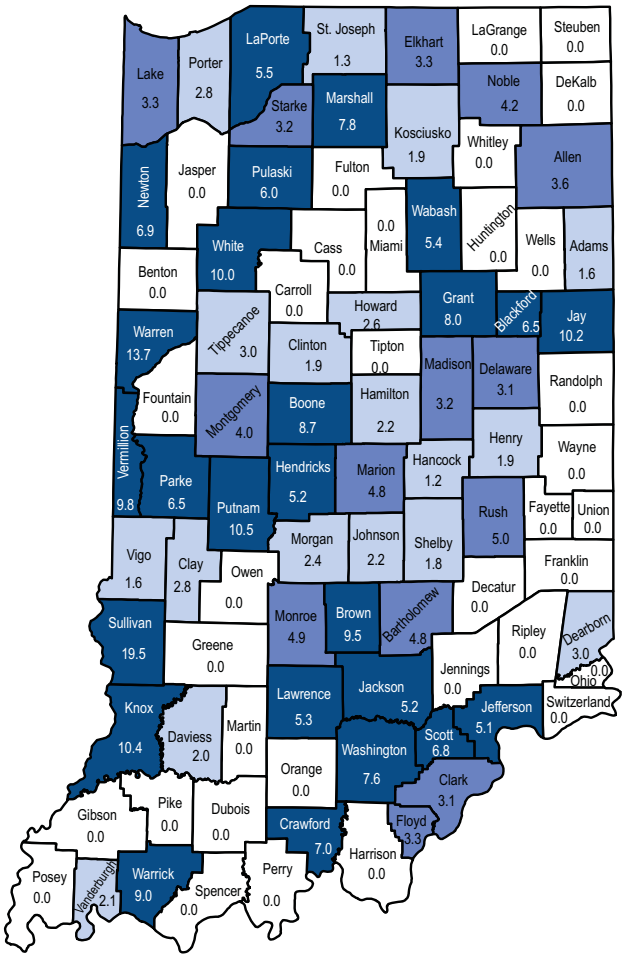
- July 1, 1987: Occupants five years of age or older required to be restrained in a safety belt. This law applied to the front seat only; secondary enforcement with vehicles plated as trucks considered exempt. In 1998, the law was changed to apply primary enforcement, with vehicles plates as trucks exempt.
- July 1, 2007: All occupants of a motor vehicle 16 and older required to be restrained with seat belts; legislation applies to any seating position in vehicle and includes vehicles plated as trucks.
  (*Passenger Restraint Systems*, IC 9-19-10-2; available at http://www.ai.org/legislative/ic/code/title9/ar19/ch10.html)

Source: Adapted from information provided by Automotive Safety Program, Riley Hospital for Children, November 8, 2007

[4]National Center for Statistics and Analysis, National Highway Traffic Safety Administration, *Traffic Safety Facts: Children (2006 data).*

Child injury/fatality rates in Indiana traffic collisions by county (2007)

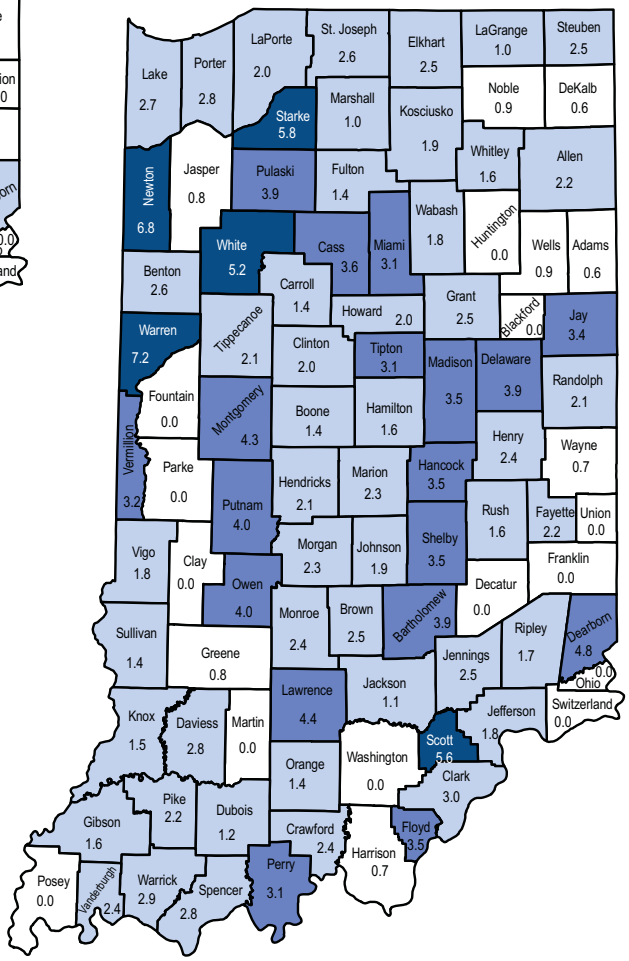
Map 1: Less than 1 year old
Mean = 3.2



Injury/Fatality rate per 1,000 population

- Less than 1
- 1.0 to 2.9
- 3.0 to 4.9
- 5.0 or greater

Map 2: Ages 1 to 3 years old
Mean = 2.2

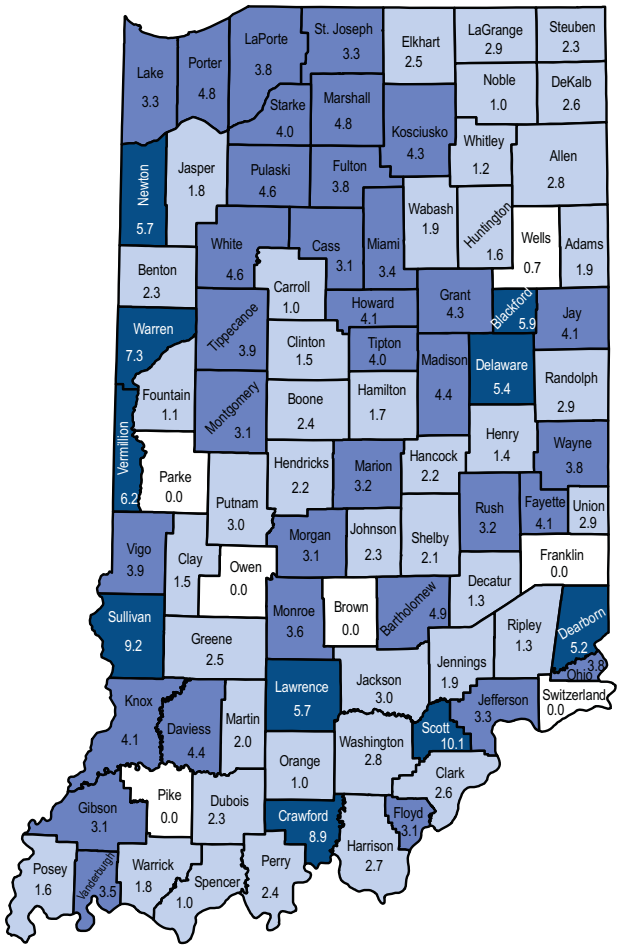


Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008
Rates per 1,000 were calculated using 2006 population estimates of the National Center for Health Statistics, in collaboration with the U.S. Census Bureau, as of August 16, 2006

Notes: Due to the lack of available address-level data on traffic collision victims, it is assumed that children injured in collisions live in the county in which they were injured

Child injury/fatality rates in Indiana traffic collisions by county (2007)

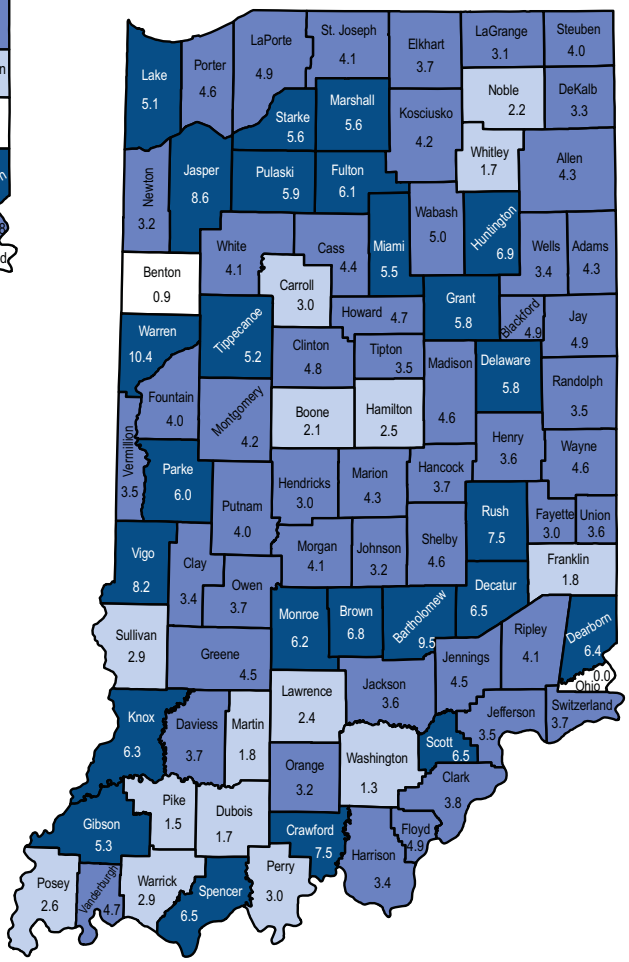
Map 3: Ages 4 to 7 years old
Mean = 3.1



Injury/Fatality rate per 1,000 population

- Less than 1
- 1.0 to 2.9
- 3.0 to 4.9
- 5.0 or greater

Map 4: Ages 8 to 15 years old
Mean = 4.3



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008
Rates per 1,000 were calculated using 2006 population estimates of the National Center for Health Statistics, in collaboration with the U.S. Census Bureau, as of August 16, 2006

Notes: Due to the lack of available address-level data on traffic collision victims, it is assumed that children injured in collisions live in the county in which they were injured

Indiana Child Restraint Use Laws and Best Practices

The current Indiana child passenger restraint law requires all child occupants (ages 15 and younger) to be properly restrained in a child restraint device or seat belt in all seating positions in all vehicles.[5] A detailed description and history of Indiana child passenger restraint laws is provided in Text Box 1. In addition to legislative efforts, child passenger safety experts have developed recommended safety standards and best practices. NHTSA advocates that child occupants graduate through four phases of restraint usage from birth to adulthood (Figure 1). The Automotive Safety Program at Riley Hospital for Children has incorporated these steps into their recommended best practices in child passenger safety.[6] These guidelines include the use of rear facing child safety seats as long as possible, and, at a minimum, until a child is one year old and

Figure 1: NHTSA's Four Steps for Kids

GROWING UP SAFE: It's a four-step process. As children grow, how they sit in your car, truck or SUV should change. Save your child from injury or death by observing all four steps.

Source: http://www.boosterseat.gov/4StepsFlyer.pdf

Note: All children under age 13 should ride in the back seat. Always read the child restraint instructions and the vehicle owner's manual.

[5] *Passenger Restraint Systems,* IC 9-19-10-2; available at http://www.ai.org/legislative/ic/code/title9/ar19/ch10.html.

[6] Sapp, D. and R. Thelin. (2008). *Indiana Child Restraint Survey: 2001-2006,* Center for Urban Policy and the Environment, School of Public and Environmental Affairs, IUPUI and Automotive Safety Program, Riley Hospital for Children, January.

weighs at least 20 pounds. These guidelines also include the use of booster child safety seats for children who have outgrown child safety seats with harnesses. Children then may transition to the use of adult seat belts, and it is recommended that all children under the age of 13 ride in the back seat of the vehicle.

In 2007, child passengers were nearly four times more likely to be killed in Indiana traffic collisions when they were not wearing the proper safety restraint.

Child Restraint Usage in Indiana

In contrast to the injury rate discussion in the previous section, updates to previous analyses reveal that restraint usage among older children continues to be lower than children in other age groups (Table 3). In 2007, less than 80 percent of *8 to 15 year old* children injured in Indiana traffic collisions were properly restrained, while approximately 95 percent of children *less than 1 year old* were properly restrained. Overall child restraint usage in 2007 was nearly 85 percent, a three percentage point increase from 2006.

Table 4 depicts the number and percentage of children injured or killed in Indiana traffic collisions in 2007 by injury status and restraint usage. Among those who were wearing proper restraints, only about 0.5 percent of injuries were fatal, and 3.5 percent of injuries were incapacitating. Ninety-six percent of these injuries were of a less serious nature (reported as *non-incapacitating*). Among those individuals who were not wearing restraints, over two percent of injuries were fatal, and nearly 12 percent of injuries were incapacitating. In 2007, the relative risk of fatal injury to a child was nearly four times higher when the child was unrestrained. Further, the risk of an incapacitating injury was 3.4 times higher when the child was unrestrained.

Indiana Child Passenger Injuries and Vehicle Seating Position

The federal Centers for Disease Control and Prevention report that children less than 16 years old, riding in the back seat, are 40 percent less likely to be seriously injured in motor vehicle collisions.[7] Children seated in the front seat of a vehicle are at increased risk

Table 3: Restraint use among children injured or killed in Indiana traffic collisions by age group, 2003-2007

	2003			2004			2005			2006			2007		
	Total child injuries	Properly restrained injured child occupants	% Properly restrained	Total child injuries	Properly restrained injured child occupants	% Properly restrained	Total child injuries	Properly restrained injured child occupants	% Properly restrained	Total child injuries	Properly restrained injured child occupants	% Properly restrained	Total child injuries	Properly restrained injured child occupants	% Properly restrained
Less than 1 year old	168	159	94.6	190	177	93.2	227	205	90.3	253	229	90.5	269	255	94.8
1 to 3 years old	573	539	94.1	564	515	91.3	551	518	94.0	509	470	92.3	524	489	93.3
4 to 7 years old	892	797	89.3	993	903	90.9	1,005	921	91.6	889	784	88.2	888	790	89.0
8 to 15 years old	2,676	2,104	78.6	2,830	2,183	77.1	2,680	2,103	78.5	2,528	1,924	76.1	2,355	1,878	79.7
Total	*4,309*	*3,599*	*83.5*	*4,577*	*3,778*	*82.5*	*4,463*	*3,747*	*84.0*	*4,179*	*3,407*	*81.5*	*4,036*	*3,412*	*84.5*

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Note: Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating,* and *possible* injuries where age and restraint use were identified. Pedestrians and pedalcyclists are excluded from restraint use analysis.

Table 4: Children injured or killed in Indiana traffic collisions by restraint use and injury status, 2007

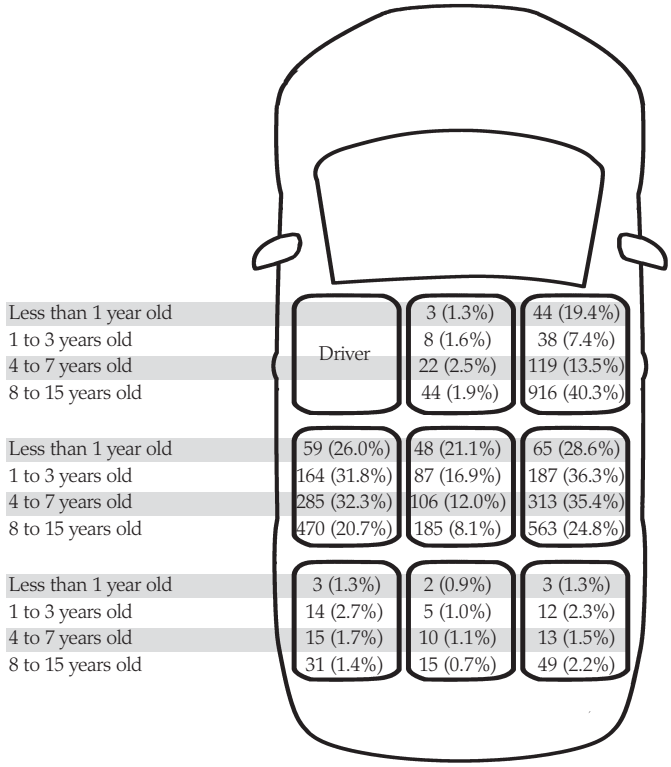
	Restaint Used?				
	Yes		No		Non-restraint
Injury status	Count	% Yes	Count	% No	risk factor
Fatalities	18	0.5	13	2.1	3.9
Incapacitating injuries	120	3.5	74	11.9	3.4
Non-incapacitating injuries	3,274	96.0	537	86.1	0.9
Total	*3,412*		*624*		

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Note: Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating,* and *possible* injuries where restraint use was identified. *Non-incapacitating* injuries include those injuries reported as both *non-incapacitating* and *possible*.
Non-restraint risk factor is determined by dividing the percentage of unrestrained child occupants for each injury type by the percentage of those properly restrained for each injury type.
Pedestrians and pedalcyclists are excluded from restraint use analysis.

[7]Centers for Disease Control and Prevention, Department of Health and Human Services, *Child Passenger Safety Fact Sheet,* extracted from website, November 19, 2007, http://www.cdc.gov/ncipc/factsheets/childpas.htm.

Figure 2: Number and percentage by age group of children injured or killed in Indiana traffic collisions by seating position, 2007



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating,* and *possible* injuries where age and valid seating position were identified. Percentages depicted are the percentage of total child injuries by age group.

of injury in part because of their dangerous proximity to front passenger-side air bags. Over 30 percent of children injured or killed in Indiana traffic collisions were seated in the front seat of the vehicle. Figure 2 shows the percentage of children injured or killed in Indiana traffic collisions by age group and seating position. In 2007, nearly 20 percent of children in the *less than 1 year old* age group were located in the right front passenger seat. Likewise, over 40 percent of children in the *8 to 15 year old age* group were located in the right front passenger seat. While the percentage of children seated in front passenger seats was lower in both the *1 to 3 year old* and the *4 to 7 year old* age groups, these data suggest that a large portion of children injured or killed in Indiana traffic collisions are seated in violation of Indiana child restraint laws and recommended best practices.

YOUNG DRIVERS

National Context

According to a recent study conducted by the State Farm Mutual Automobile Insurance Company, more than half (54 percent) of the 10,000 child passengers killed in traffic collisions between 2000 and 2005 were riding with a teen driver.[8] Nearly two-thirds of those killed were not wearing the proper safety restraints. The study shows that children riding with teen drivers (age 16 to 19) are twice as likely to be fatally injured as when they are riding with an adult driver (age 25 and over).

Table 5: Child injuries and fatalities occurring in Indiana traffic collisions with young drivers, 2003-2007

	2003			2004			2005			2006			2007		
	Injuries occurring in collisions with young drivers	Total child injuries	Young driver collision child injuries as percent of total	Injuries occurring in collisions with young drivers	Total child injuries	Young driver collision child injuries as percent of total	Injuries occurring in collisions with young drivers	Total child injuries	Young driver collision child injuries as percent of total	Injuries occurring in collisions with young drivers	Total child injuries	Young driver collision child injuries as percent of total	Injuries occurring in collisions with young drivers	Total child injuries	Young driver collision child injuries as percent of total
Fatalities	13	41	31.7	15	58	25.9	7	47	14.9	9	48	18.8	8	49	16.3
Incapacitating injuries	52	332	15.7	40	301	13.3	44	299	14.7	54	287	18.8	50	305	16.4
Non-incapacitating injuries	834	5,100	16.4	813	5,348	15.2	761	5,181	14.7	705	4,818	14.6	660	4,690	14.1
Total	*899*	*5,473*	*16.4*	*868*	*5,707*	*15.2*	*812*	*5,527*	*14.7*	*768*	*5,153*	*14.9*	*718*	*5,044*	*14.2*

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Notes: Young drivers include individuals ages 16 to 20 years old.
Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating,* and *possible* injuries.
***Non-incapacitating* injuries include those injuries reported as both *non-incapacitating* and *possible*.**

[8]Winston, Kallan, Senserrick, Elliott. (2008). Risk Factors for Death Among Older Child and Teenaged Motor Vehicle Passengers, *Archives of Pediatric Adolescent Medicine,* Vol 162 (No. 3), March, downloaded from www.archpediatrics.com at Clarian Health, on April 25, 2008.

Table 6: Restraint use among children injured or killed in Indiana traffic collisions involving young drivers, 2007

	All collisions			Young driver collisions		
	Total child injuries	Properly restrained injured child occupants	% Properly restrained	Child injuries occurring in collisions with young drivers	Properly restrained injured child occupants in collisions with young drivers	% Properly restrained
Fatalities	31	18	58.1	8	5	62.5
Incapacitating injuries	194	120	61.9	47	26	55.3
Non-incapacitating injuries	3,811	3,274	85.9	631	520	82.4
Total	*4,036*	*3,412*	*84.5*	*686*	*551*	*80.3*

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Notes: Young drivers include individuals ages 16 to 20 years old.
Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating,* and *possible* injuries where restraint use was identified.
***Non-incapacitating* injuries include those injuries reported as both *non-incapacitating* and *possible*.**
Pedestrians and pedalcyclists are excluded from restraint use analysis.

Table 7: Child injuries and fatalities occurring in Indiana alcohol-related traffic collisions, 2003-2007

	2003			2004			2005			2006			2007		
	Alcohol-related injuries	Total child injuries	Alcohol-related as percent of total	Alcohol-related injuries	Total child injuries	Alcohol-related as percent of total	Alcohol-related injuries	Total child injuries	Alcohol-related as percent of total	Alcohol-related injuries	Total child injuries	Alcohol-related as percent of total	Alcohol-related injuries	Total child injuries	Alcohol-related as percent of total
Fatalities	7	41	17.1	10	58	17.2	9	47	19.1	9	48	18.8	6	49	12.2
Incapacitating injuries	38	332	11.4	31	301	10.3	23	299	7.7	28	287	9.8	20	305	6.6
Non-incapacitating injuries	365	5,100	7.2	332	5,348	6.2	331	5,181	6.4	296	4,818	6.1	270	4,690	5.8
Total	*410*	*5,473*	*7.5*	*373*	*5,707*	*6.5*	*363*	*5,527*	*6.6*	*333*	*5,153*	*6.5*	*296*	*5,044*	*5.9*

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Notes: A collision is identified as alcohol related if any vehicle driver or non-motorist (pedestrian, pedalcyclist) involved in the collision had a measurable blood-alcohol concentration (BAC) result or appears to have been drinking, if alcoholic beverages are listed as contributing or primary factors in the collision, or if an Operating While Intoxicated (OWI) citation was issued to a driver.
Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating,* and *possible* injuries.
***Non-incapacitating* injuries include those injuries reported as both *non-incapacitating* and *possible*.**

Indiana Crashes Involving Young Drivers and Children

Over 16 percent of all 2007 child traffic fatalities occurred in collisions involving young drivers (Table 5). Young drivers are defined as individuals aged 16 to 20 years old. Approximately 14 percent of total child traffic-related injuries occurred in young driver collisions. Between 2003 and 2007, while the percentage of child traffic fatalities occurring in young driver collisions was less predictable, the percentage of total child traffic-related injuries remained fairly static. Restraint usage among child passengers in young driver collisions is notably lower than child restraint usage in the total number of collisions involving children, particularly among injuries reported as incapacitating and non-incapacitating.

Table 6 shows that about 58 percent of all children fatally injured in Indiana traffic collisions in 2007 were properly restrained, while less than 63 percent of child passengers fatally injured in young driver collisions were wearing the proper safety restraint. In contrast, approximately 62 percent of child passengers reported with incapacitating injuries in all traffic collisions involving children were properly restrained, while only 55 percent of child passengers with incapacitating injuries in young driver collisions were properly restrained. When considering total child passenger traffic injuries in 2007, the restraint use rate among child passengers in all collisions was nearly 85 percent, while the rate among child passengers in young driver collisions was approximately 80 percent.

ALCOHOL

National Context

NHTSA reports that, in 2006, 419 children were killed in the United States in motor vehicle collisions involving alcohol.[9] Among those killed, 202 were passengers in vehicles with drivers who had been drinking. Sixty-two of the 419 child fatalities (about 15 percent) were pedestrians or pedalcyclists struck by drunk drivers.

Indiana Crashes Involving Alcohol and Children

In 2007, 296 children were injured in Indiana alcohol-related motor vehicle collisions. Table 7 shows that, among these injuries, six were fatal and 20 were incapacitating. The num-

[9]National Center for Statistics and Analysis, National Highway Traffic Safety Administration, *Traffic Safety Facts: Children (2006 data)*.

Table 8: Child injuries and fatalities occurring in vehicles where the driver was drinking in Indiana alcohol-related traffic collisions, 2003-2007

	2003			2004			2005			2006			2007		
	Child injuries in vehicles where driver was drinking	Total alcohol-related	Children injuries in vehicles where driver was drinking as % of alcohol-related	Child injuries in vehicles where driver was drinking	Total alcohol-related	Children injuries in vehicles where driver was drinking as % of alcohol-related	Child injuries in vehicles where driver was drinking	Total alcohol-related	Children injuries in vehicles where driver was drinking as % of alcohol-related	Child injuries in vehicles where driver was drinking	Total alcohol-related	Children injuries in vehicles where driver was drinking as % of alcohol-related	Child injuries in vehicles where driver was drinking	Total alcohol-related	Children injuries in vehicles where driver was drinking as % of alcohol-related
Fatalities	6	7	85.7	7	10	70.0	7	9	77.8	7	9	77.8	2	6	33.3
Incapacitating injuries	21	38	55.3	18	31	58.1	14	23	60.9	16	28	57.1	8	20	40.0
Non-incapacitating injuries	212	365	58.1	185	332	55.7	196	331	59.2	146	296	49.3	87	270	32.2
Total	*239*	*410*	*58.3*	*210*	*373*	*56.3*	*217*	*363*	*59.8*	*169*	*333*	*50.8*	*97*	*296*	*32.8*

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Notes: A collision is identified as alcohol related if any vehicle driver or non-motorist (pedestrian, pedalcyclist) involved in the collision had a measurable blood-alcohol concentration (BAC) result or appears to have been drinking, if alcoholic beverages are listed as contributing or primary factors in the collision, or if an Operating While Intoxicated (OWI) citation was issued to a driver.
***Child injuries in vehicles where driver was drinking* indicates injuries occurring in alcohol-related collisions where the vehicle with injured child occupant(s) was identified as the source of alcohol-related circumstances.**
Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating*, and *possible* injuries where alcohol circumstances were identified.
***Non-incapacitating* injuries include those injuries reported as both *non-incapacitating* and *possible*.**

ber of child traffic injuries occurring in alcohol-related collisions has steadily declined since 2003. The number of child fatalities occurring in alcohol-related collisions dropped from nine fatalities in 2006 to six in 2007. Over 12 percent of all child traffic fatalities and nearly seven percent of all child incapacitating injuries occurred in alcohol-related collisions in 2007.

One-third (2) of child fatalities and 40 percent (8) of child incapacitating injuries occurring in alcohol-related collisions were passengers in vehicles with drivers who had been drinking (Table 8). In 2007, the percentage of total alcohol-related child traffic injuries where the victims were passengers in vehicles with drivers who had been drinking was 33 percent, representing a sharp decline from 2006 (51 percent). Overall, this decline between 2006 and 2007 is true across all injury categories.

PEDESTRIANS

National Context

NHTSA reports that, in 2005, 331 child pedestrian fatalities occurred in the United States. This number represents seven percent of all U.S. pedestrian fatalities and nearly one-fifth (18 percent) of all child traffic-related fatalities. Between 1996 and 2006, the number of child pedestrian fatalities decreased by 51 percent.[10] Other studies caution, however, that these numbers may be undercounted.[11] The stated reason for the undercounting is that most child pedestrian deaths occurred in private driveways and are, therefore, not typically reported in traffic-crash fatality data.

Child Pedestrians in Indiana

Table 9 shows the number of children injured or killed in traffic incidents by injury status and person type (including vehicle occupants, pedestrians, and pedalcyclists). Child pedestrian fatalities accounted for nearly 14 percent of all Indiana child traffic fatalities in 2007, indicating a sharp decline from 2006 (21 percent). Over 20 percent of all child incapacitating injuries were pedestrians. Child pedestrian injuries represented over eight percent of all child traffic-related injuries in 2007, increasing from 364 in 2006 to 406 in 2007.

PEDALCYCLISTS

National Context

Nationally, in 2006, 98 child pedalcyclist fatalities occurred in traffic collisions.[12] This number represents 13 percent of all U.S. pedalcyclist fatalities and a 22 percent decrease in the number of child pedalcyclist fatalities reported in 2005. According to Safe Kids Worldwide, about 90 percent of all bicycle-related deaths result from collisions with motor vehi-

[10]National Center for Statistics and Analysis, National Highway Traffic Safety Administration, *Traffic Safety Facts: Children (2006 data).*

[11]AAA (March 2007), *Preventing backovers in America's driveways*, www.AAAExchange.com.

[12]National Center for Statistics and Analysis, National Highway Traffic Safety Administration, *Traffic Safety Facts: Children (2006 data).*

Table 9: Children injured or killed in Indiana traffic collisions by injury status and person type, 2003-2007

	2003		2004		2005		2006		2007		Avg. Annual Share of Injuries
	Count	%	Count	%	Count	%	Count	%	Count	%	
Fatalities	**36**	**100.0**	**53**	**100.0**	**45**	**100.0**	**47**	**100.0**	**44**	**100.0**	
Injured occupant	28	77.8	42	79.2	32	71.1	34	72.3	35	79.5	76.0
Pedalcyclist	0	0.0	0	0.0	3	6.7	3	6.4	3	6.8	4.0
Pedestrian	8	22.2	11	20.8	10	22.2	10	21.3	6	13.6	20.0
Incapacitating injuries	**303**	**100.0**	**266**	**100.0**	**278**	**100.0**	**267**	**100.0**	**280**	**100.0**	
Injured occupant	210	69.3	192	72.2	193	69.4	180	67.4	195	69.6	69.6
Pedalcyclist	41	13.5	31	11.7	29	10.4	36	13.5	27	9.6	11.7
Pedestrian	52	17.2	43	16.2	56	20.1	51	19.1	58	20.7	18.7
Non-incapacitating injuries	**4,914**	**100.0**	**5,121**	**100.0**	**4,974**	**100.0**	**4,601**	**100.0**	**4,487**	**100.0**	
Injured occupant	4,160	84.7	4,400	85.9	4,358	87.6	3,989	86.7	3,765	83.9	85.8
Pedalcyclist	400	8.1	389	7.6	315	6.3	309	6.7	380	8.5	7.5
Pedestrian	354	7.2	332	6.5	301	6.1	303	6.6	342	7.6	6.8
Total injuries	**5,253**	**100.0**	**5,440**	**100.0**	**5,297**	**100.0**	**4,915**	**100.0**	**4,811**	**100.0**	
Injured occupant	4,398	83.7	4,634	85.2	4,583	86.5	4,203	85.5	3,995	83.0	84.8
Pedalcyclist	441	8.4	420	7.7	347	6.6	348	7.1	410	8.5	7.7
Pedestrian	414	7.9	386	7.1	367	6.9	364	7.4	406	8.4	7.6

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2008

Note: Child injuries include only individuals obtaining *fatal, incapacitating, non-incapacitating*, and *possible* injuries where person type was identified. *Non-incapacitating* injuries include those injuries reported as both *non-incapacitating* and *possible*.

cles, asserting that the "single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet."[13]

Pedalcyclists in Indiana

Table 9 shows that child pedalcyclist fatalities accounted for nearly seven percent of all Indiana child traffic fatalities in 2007. This number has remained fairly constant since 2005. Less than 10 percent of all incapacitating child injuries were pedalcyclists, representing a decrease from 2006 (approximately 14 percent). Similar to the numbers for pedestrian injuries, the number of total child pedalcyclist injuries increased from 348 in 2006 to 410 in 2007.

CONCLUSION

Research findings suggest that older children (ages 8 to 15) are at greater risk of suffering serious injuries and fatalities than the other child age groups. This higher vulnerability is likely due in part to lower rates of restraint usage among child passengers in this age group. In addition, children are at greater risk of serious or fatal injuries when riding with young drivers.

NHTSA emphasizes continued efforts in developing strong child passenger safety legislation and public awareness campaigns to educate citizens on laws and best practices, the correct use of child restraints, the potential dangers to children associated with failure to use proper restraints, as well as dangers to child passengers associated with young drivers and driving under the influence of alcohol. Such public awareness campaigns, combined with the enactment and enforcement of strong laws, are considered the most effective way to increase occupant restraint usage rates.[14] In Indiana, the Indiana Criminal Justice Institute, the Governor's Council on Impaired and Dangerous Driving, the Automotive Safety Program at Riley Hospital for Children, Safe Kids Indiana, the Indiana State Police, and other partners contribute to public awareness, education, and training programs to improve child safety efforts related to traffic collisions.

[13]Safe Kids Worldwide (March 2007), www.safekids.org, *Facts About Injuries to Children Riding Bicycles.*

[14]National Center for Statistics and Analysis, National Highway Traffic Safety Administration (February 2007), *Traffic Safety Facts: Strengthening Child Passenger Safety Laws.*

INDIANA TRAFFIC SAFETY FACTS 2008

This publication was prepared on behalf of the Indiana Criminal Justice Institute by the Indiana University Center for Criminal Justice Research (CCJR). Please direct any questions concerning data in this document to ICJI at 317-232-1233.

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An electronic copy of this document can be accessed via the CCJR website (www.criminaljustice.iupui.edu), the ICJI traffic safety website (www.in.gov/cji/traffic/), or you may contact the Center for Criminal Justice Research at 317-261-3000.

The Indiana Criminal Justice Institute (ICJI)

Guided by a Board of Trustees representing all components of Indiana's criminal and juvenile justice systems, the Indiana Criminal Justice Institute serves as the state's planning agency for criminal justice, juvenile justice, traffic safety, and victim services. ICJI develops long-range strategies for the effective administration of Indiana's criminal and juvenile justice systems and administers federal and state funds to carry out these strategies.

The Governor's Council on Impaired & Dangerous Driving

The Governor's Council on Impaired & Dangerous Driving, a division of the Indiana Criminal Justice Institute, serves as the public opinion catalyst and the implementing body for statewide action to reduce death and injury on Indiana roadways. The Council provides grant funding, training, coordination and ongoing support to state and local traffic safety advocates.

Indiana University Public Policy Institute

The Indiana University (IU) Public Policy Institute is a collaborative, multidisciplinary research institute within the Indiana University School of Public and Environmental Affairs (SPEA), Indianapolis. The Institute serves as an umbrella organization for research centers affiliated with SPEA, including the Center for Urban Policy and the Environment, the Center for Health Policy, and the Center for Criminal Justice Research. The Institute also supports the Office of International Community Development and the Indiana Advisory Commission on Intergovernmental Relations (IACIR).

The Center for Criminal Justice Research (CCJR)

The Center for Criminal Justice Research, one of three applied research centers currently affiliated with the Indiana University Public Policy Institute, works with public safety agencies and social services organizations to provide impartial applied research on criminal justice and public safety issues. CCJR provides analysis, evaluation, and assistance to criminal justice agencies; and community information and education on public safety questions. CCJR research topics include traffic safety, crime prevention, criminal justice systems, drugs and alcohol, policing, violence and victimization, and youth.

The National Highway Traffic Safety Administration (NHTSA)

NHTSA provides leadership to the motor vehicle and highway safety community through the development of innovative approaches to reducing motor vehicle crashes and injuries. The mission of NHTSA is to save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity.

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