



External Causes of Death in Indiana: Firearm Deaths

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¹Quinet and Newby. (December 2007). *External causes of death in Indiana*; Quinet and Newby. (February 2008). *External causes of death in Indiana: Race, age, and gender risks*; Quinet, Newby, and Laskey. (April 2008). *External causes of death in Indiana: Youth accidents, suicides, and homicides*; all reports prepared for the Indiana Criminal Justice Institute through the Center for Urban Policy and the Environment.

²Due to changes in the ways in which some deaths may be coded, readers should interpret the 1990-2004 external death data series as two series, one from 1990-1998 and the other from 1999 to present. As you will see, in many cases, trends remained the same when the codes were modified. But, in the event that change occurs from 1998-1999 it could be attributed to changes in the coding of deaths as opposed to any real change. Although this paper graphs the time series as one series, most interpretation analyzes change occurring within the 1990-1998 time period and notes the trends occurring from 1999-2004. Indiana trends as well as some age, gender, and race trends often appear to be more unstable than U.S. trends: this is due to a smaller number of events. Rates based on 20 or fewer deaths are unstable rates and should be interpreted with caution. Rather than focus on the highs and lows of Indiana counts/rates, the reader should look at overall trends to see if they are similar to national patterns.

³Previous reports used the term accidents and this report uses the term unintentional instead. This change reflects the input and insights of Dr. Joe O'Neil, Associate Professor of Clinical Pediatrics, Indiana University School of Medicine and Jodi Hackworth, MPH, Indiana Partnership to Prevent Violent Injury and Death, Riley Hospital for Children, Indiana University School of Medicine, reflecting a movement away from the use of the term accident as it may imply an event that was not preventable when in fact, many, if not most of the deaths discussed in this series of reports were unintentional, but preventable. A special thank you to Jodi Hackworth, MPH and Dr. O'Neil for their helpful comments on a draft of this report and for their work with the Indiana Partnership to Prevent Violent Injury and Death (IPPVID).

The Center for Urban Policy and the Environment

The Center for Urban Policy and the Environment is devoted to supporting economic success for Indiana and a high quality of life for all Hoosiers. An applied research organization, the Center was created by the Indiana University School of Public and Environmental Affairs in 1992. The Center works in partnership with community leaders, business and civic organizations, nonprofits, and government. The Center's work is focused on urban and community development, health policy, and criminal justice research essential to developing strategies to strengthen Indiana's economy and quality of life.

Note: This technical report is the fourth in a series of four reports on external causes of death in Indiana.¹ The first report presented basic demographic descriptions for those Hoosiers who died from external causes of death—unintentional deaths, suicides and homicides—from 1981-2004. The Indiana trends were also compared to U.S. trends. The second report looked at detailed race, age, and gender interaction effects among those dying from the five major unintentional death categories (motor vehicle, overdoses and other unintentional poisonings, falls, drowning, and fire and burn-related deaths), suicide, and homicide to identify precisely, those at the highest risk for external causes of death in Indiana, as compared to U.S. trends. The third report focused on the external causes of death for those under age 18, analyzing the most likely unintentional death categories for youths as well as the circumstances of suicide and homicide for Indiana youth. This final report focuses on unintentional firearm deaths, firearm suicides, and homicides in Indiana from 1990-2005.^{2,3}



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FIREARM DEATHS

Recent national headlines focused on the high firearm suicide rates in Indiana's own Vanderburgh County.⁴ In the first few weeks of 2007, suicides in the Evansville area were three times the number expected. Although the pace of suicides slowed during the rest of the year, by the end of 2007, the number of suicides reached 40, exceeding the previous high of 32 in 2005.⁵ Of these suicides, the method in 26 of the 40, or 65 percent, was a firearm. Also receiving national attention were the brutal firearm homicides of two Indianapolis women and their two small children.⁶ In addition to these recent southern and central Indiana firearm suicides and homicides, there was a tragic firearm injury in northern Indiana in February 2008 when teenagers were out of school due to weather. An 18-year-old boy was unintentionally shot by another teen who was playing with a firearm.⁷

From 1990-2005, *11,809 Hoosiers died from firearm-related suicides, homicides, unintentional shootings, and undetermined means.* Of those deaths, 6,904 were firearm suicides, 4,297 were firearm homicides, and 432 Indiana residents died in unintentional shootings.⁸ Clearly the most significant toll of firearm deaths is from suicide (59 percent), to a lesser extent homicide (37

percent), and the least likely firearm death in Indiana is an unintentional firearm death (4 percent). These unintentional shootings are often the most tragic because children are involved.

Newspapers, magazines, television, and radio are filled with stories of firearm homicides, suicides, and unintentional deaths. But how common are these firearm deaths? Are they increasing or decreasing? Which age, race, and gender groups are most vulnerable? How do firearm deaths in Indiana rank compared to the other major external causes of death such as unintentional motor vehicle deaths? This report begins to address these questions using data primarily from the Centers for Disease Control, National Center of Injury Prevention and Control Web-based Injury Statistics Query and Reporting System (WISQARS).

Table 1 presents counts of Indiana firearm deaths for each of the major categories from 1990-2005. The sections below discuss the trends for each of these categories.

Indiana unintentional firearm deaths, 1990-2005

In Indiana in 2005, 13 people died from unintentional firearm-related injuries, the

⁴Halladay, Jessie. (March 15, 2007). Suicides leave Indiana county mourning and mystified. *USA Today*.

⁵*Indianapolis Star*. (January 1, 2008). Vanderburgh Co. hits suicide record in '07.

⁶WTHR.com. Preliminary charges filed in Hovey Street murders. Retrieved April 4, 2008, from <http://www.wthr.com/global/story.asp?s=7747046>

⁷*Indianapolis Star*. (February 7, 2008). Firearm accident kills Ossian teen. Online edition.

⁸From 1990-2005, 176 firearm deaths were of undetermined means—in these cases, it was not determined whether the death was unintentional, homicide, or suicide. These undetermined deaths are not discussed in any detail in the present report but as is shown in Table 1, have declined over time.

Table 1: Firearm deaths in Indiana, 1990-2005

Year	Firearm undetermined intent deaths	Percent of all firearm deaths (%)	Firearm unintentional deaths	Percent of all firearm deaths (%)	Firearm homicide deaths	Percent of all firearm deaths (%)	Firearm suicide deaths	Percent of all firearm deaths (%)	Total
1990	15	2.1	29	4.0	213	29.5	466	64.5	723
1991	15	2.1	35	4.9	249	34.6	421	58.5	720
1992	16	2.1	34	4.4	274	35.8	442	57.7	766
1993	21	2.6	52	6.4	272	33.5	468	57.6	813
1994	10	1.2	29	3.6	321	39.8	447	55.4	807
1995	12	1.5	42	5.1	323	39.1	449	54.4	826
1996	14	1.8	23	2.9	285	35.7	477	59.7	799
1997	12	1.5	27	3.3	318	39.4	450	55.8	807
1998	11	1.5	27	3.6	293	38.7	427	56.3	758
1999	10	1.5	23	3.4	271	40.3	368	54.8	672
2000	10	1.5	23	3.5	218	32.9	411	62.1	662
2001	4	0.6	21	2.9	290	39.9	411	56.6	726
2002	3	0.4	24	3.3	242	33.8	448	62.5	717
2003	6	0.9	16	2.3	247	36.0	418	60.8	687
2004	8	1.3	14	2.2	224	35.5	385	61.0	631
2005	9	1.3	13	1.9	257	37.0	416	59.9	695
Total	176	1.5	432	3.7	4,297	36.4	6,904	58.5	11,809

Note: Table does not show legal intervention firearm deaths



lowest number since the series began in 1990. The largest number of unintentional firearm-related fatalities occurred in 1993 when 52 Hoosiers died. Although there have been year to year variations, the obvious trend from 1990-2005 in Figure 1 is that unintentional firearm-related fatality rates in Indiana are declining, and since 1993 have declined in number by 75 percent. This same trend is found at the national level when the number of unintentional firearm deaths peaked in 1993 at 1,521 (age-adjusted rate of 0.57 per 100,000) and declined to 649 by 2004 (age-adjusted rate of 0.22 per 100,000). However, unintentional firearm deaths ticked upwards by 2005 with 789 unintentional U.S. firearm deaths (age-adjusted rate of 0.27) but this number was still far below the levels seen in the 1990s.⁹

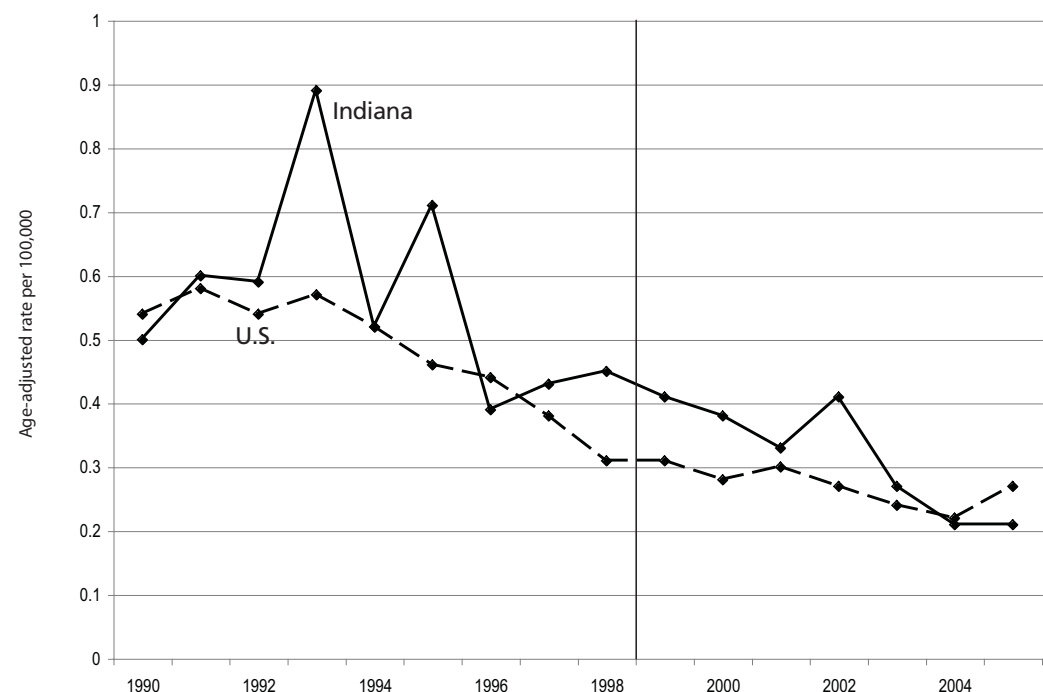
A close inspection of causes of death data from the Centers for Disease Control (CDC) shows that by far, the age group most likely to die in Indiana due to unintentional firearm injuries has been 15-24 year old males (followed by 25-34 year

old males, however, the 25-34 age group is usually a very distant second). In many years, there were only one or two total (all ages) female unintentional firearm deaths in Indiana but as many as 20 unintentional firearm deaths just for 15-24 year old males (1995) (not shown).

Of the 13 unintentional firearm-related deaths in 2005, only one was a female (in the age group 55-64) and the remaining 12 were male deaths. Over the entire time series 1990-2005, females accounted for 45 unintentional firearm-related deaths, 10 percent of the total, and males 387, 90 percent of the total. Similar trends are found at the national level where females account for 12 percent of total unintentional firearm-related deaths from 1990-2005.

Although blacks constitute 9 percent of the Indiana population, they accounted for 18 percent (two times the expected proportion) of all unintentional firearm-related deaths in Indiana from 1990-2005 (not shown).¹⁰ In some years, this

Figure 1. Unintentional firearm death rates (age-adjusted) per 100,000, Indiana and United States, 1990-2005



⁹Age-adjusted death rates are weighted averages of the age-specific death rates, where the weights represent a fixed population by age. They are used to compare relative mortality risk among groups and over time (CDC Wonder, <http://wonder.cdc.gov/wonder/help/cmfi.html#Compressed%20Mortality%20File:%20Age%20Adjustment>).

¹⁰Demographic and population statistics for Indiana and the United States are from the 2000 Census and are available at www.quickfacts.census.gov retrieved February 14, 2008.



proportion has been much higher. In 1995, a time when firearm homicides for blacks in Indiana were very high, unintentional firearm deaths also peaked and blacks accounted for 29 percent of all unintentional firearm incidents (12 of 42). Comparatively, blacks account for approximately 13 percent of the U.S. population and 21 percent of all U.S. unintentional firearm-related deaths 1990-2005, peaking in 1993 when blacks accounted for 24 percent of all U.S. unintentional firearm-related deaths.

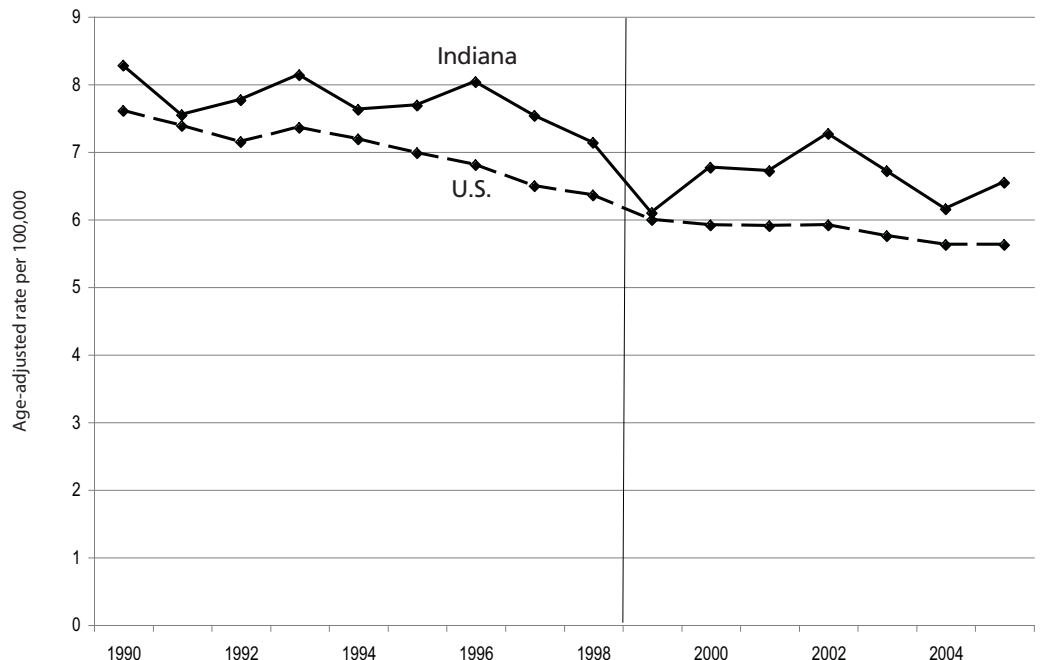
We know that unintentional firearm-related deaths are the least likely type of firearm deaths across the United States and in Indiana. So what is the toll of violence-related firearm deaths in Indiana—suicides, homicides, and firearm deaths of undetermined intent? For 2005, there were 682 violence-related firearm deaths in Indiana. The following discussion explores these types of firearm deaths in more detail.¹¹

Indiana suicide firearm deaths, 1990-2005

From 1990-2005, 6,904 Indiana citizens took their own lives with a firearm (see Table 1). As noted in a previous report, firearms as a suicide method accounted for 55-65 percent of all suicides from 1981-2004 and suicide rates in Indiana are often above the national suicide rate.¹² Overall, firearm suicides account for nearly 60 percent of all Indiana firearm deaths. Nevertheless, Indiana firearm-related suicide numbers and rates have generally declined from 1990-2005, albeit still above United States firearm suicide rates (Figure 2). In 2005 Indiana's suicide rate with a firearm was 6.5 compared to 5.6 nationally.

Indiana females account for approximately 20 percent of all suicides¹³ and 12 percent of all firearm suicides, nearly identical to national trends (not shown). The *number* of firearm suicides for Indiana females peaked at 64 in 2001 (age-

Figure 2. Firearm suicide death rates (age-adjusted) per 100,000, Indiana and United States, 1990-2005



¹¹Very few of these deaths are of undetermined intent and so this category will not be analyzed in any detail.

¹²Quinet and Newby. (December 2007). *External causes of death in Indiana*. Indianapolis: Center for Urban Policy and the Environment. Page 33, Figure 32.

¹³Quinet and Newby. (December 2007). *External causes of death in Indiana*. Indianapolis: Center for Urban Policy and the Environment. Page 31.



adjusted rate of 2.1) and declined to 35 by 2005 (age-adjusted rate of 1.1). For Indiana males the number of firearm suicides peaked in 1993 at 424 (age-adjusted rate of 16.1), declined to a low of 332 in 1999 (age-adjusted rate of 11.9) and 381 in 2005 (age-adjusted rate of 12.7).

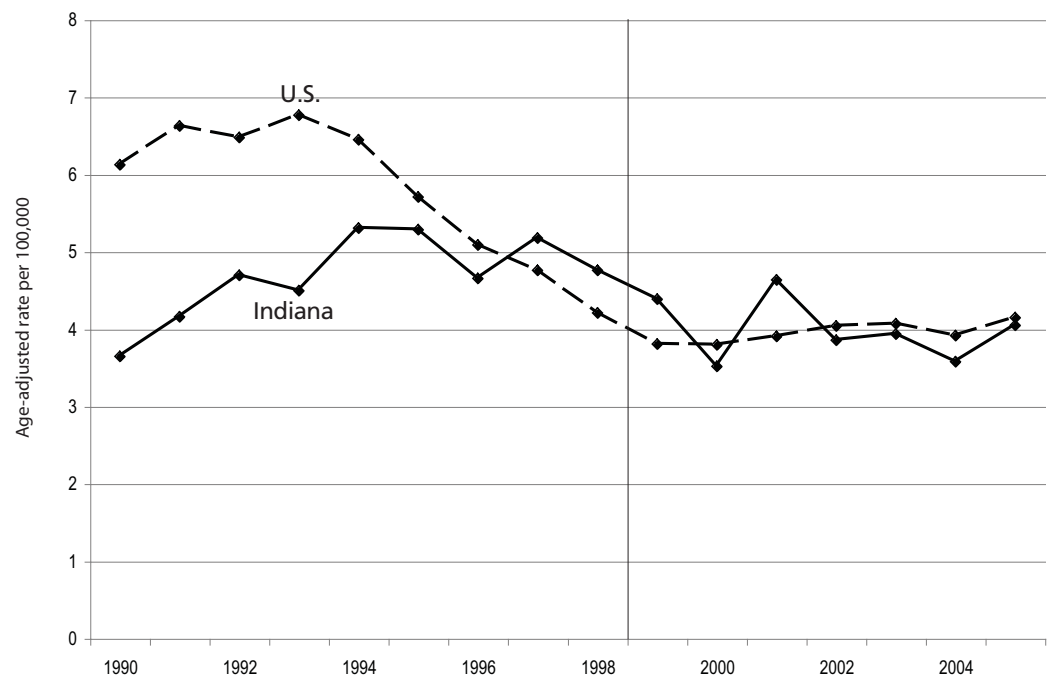
Although blacks are over-represented as unintentional firearm-related deaths, they are under-represented as firearm suicide victims. Blacks account for approximately 9 percent of the Indiana population and 6 percent of firearm suicides (and 6 percent of all suicides) in Indiana (7 percent at the national level).¹⁴ From 1990-2005 there were 395 black firearm suicides and 6,481 white firearm suicides in Indiana (not shown). The number of black firearm suicides peaked in 1996 at 35 (age-adjusted rate of 7.2), was lowest in 1995 at 18 (age-adjusted rate of 3.5), and was 20 in 2005 (age-adjusted rate of 3.4). The number of firearm suicides by whites in Indiana peaked in 1993 at 447 (age-adjusted rate of 8.5), was lowest at 345

in 1999 (age-adjusted rate of 6.3), and was 396 in 2005 (age-adjusted rate of 6.9).

Indiana firearm homicide deaths

From 1990-2005 there were 4,297 firearm homicides in Indiana, reflecting 37 percent of all Indiana firearm deaths. As with firearm-related unintentional and suicide death rates, firearm-related homicide death rates in both Indiana and at the national level peaked during the early 1990s, declined through 2000, and have been relatively stable since. Figure 3 shows that after 1990, there was a convergence of Indiana and United States firearm homicide rates. Rates for firearm homicides in the United States were much higher than Indiana in the early years of the series, Indiana rates surpassed U.S. rates in the late 1990s and by 2005, the two rates have converged. Indiana did not experience the dramatic declines in firearm homicide rates that were seen at the national level.

Figure 3. Firearm homicide death rates (age-adjusted) per 100,000, Indiana and United States, 1990-2005



¹⁴Quinet and Newby. (December 2007). *External causes of death in Indiana*; Quinet and Newby. Indianapolis: Center for Urban Policy and the Environment. Page 33.



The *number* of female firearm homicides in Indiana peaked in 1995 at 80, whereas male firearm homicides peaked in 1997 at 269 (not shown). In 2005, there were 47 female firearm homicides and 210 male firearm homicides in Indiana. In Indiana from 1990-2005 females accounted for 25 percent of all firearm homicides but females in the United States accounted for only 16 percent of all firearm homicides from 1990-2005.

Indiana blacks, only 9 percent of the

total Indiana population, accounted for 60 percent of the total firearm homicides from 1990-2005 (not shown). As was illustrated in a previous report focusing on race and homicide, the black age group particularly hard hit by high homicide rates and high firearm homicide rates are those ages 15-24, followed by those ages 25-34.¹⁵ Nationally blacks accounted for 54 percent of all firearm homicides while comprising 13 percent of the U.S. population.

¹⁵Quinet and Newby. (February, 2008). *External causes of death in Indiana: Race, age, and gender risks.*



FIREARM INJURIES

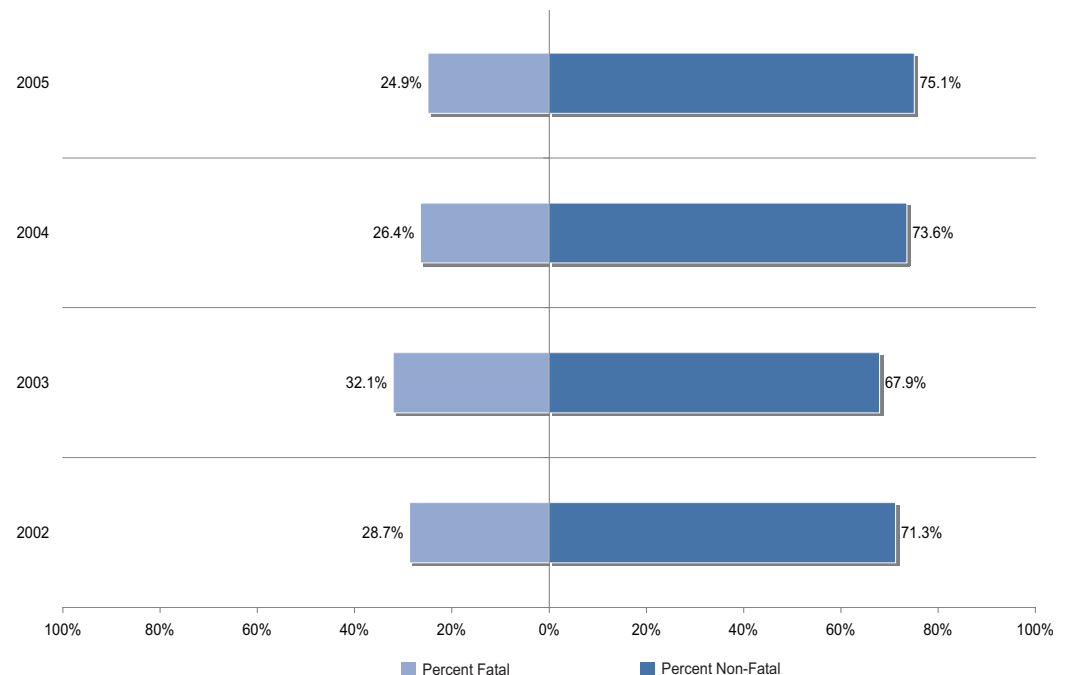
We have assessed the death toll from firearms but there are also many more non-fatal firearm injuries each year in the United States. In the United States in 2005, there were 69,825 non-fatal unintentional and violence-related (suicide attempts and aggravated assaults) firearm injuries. In addition, there were another 30,473 fatal firearm suicides, homicides, and unintentional firearm fatalities. The combination of these two figures finds in excess of 100,000 incidents of firearm violence involving injury or death each year in the United States, 30 percent of which were fatal. An analysis of the number of unintentional firearm incidents (fatal and non-fatal) in the United States in 2005 (16,177) finds that approximately 5 percent (789) of those unintentional firearm incidents were fatal. The same comparison of intentional/violence-related incidents finds that of the total (84,121) approximately 35 percent (29,684) were fatal.

Although no entity is collecting non-fatal firearm injuries for all of Indiana, one

group has collected this information for Marion County since 2002. *Just the Facts: Firearm Injuries in Indiana* is a publication of the Indiana Partnership to Prevent Violent Injury and Death (IPPVID) and documents the characteristics of firearm injuries and death, focusing on the characteristics of victims and their environment as well as specifics regarding the method of injury.¹⁶

Figure 4 shows the proportion of firearm incidents in Marion County, Indiana, from 2002-2005 that were fatal. Although a short time period should not be over-interpreted, the trend over the last couple of years has been towards a lower proportion of fatalities from firearm wounds. According to the latest IPPVID report, in 2005, there were a total of 590 (unintentional and violence-related) firearm injuries in Marion County Indiana and 147 (25 percent as compared to the national figure of 30 percent) of those incidents were fatal. Males in Marion County were much more likely to have firearm injuries than were females (ten

Figure 4. Firearm-related injuries and fatalities, Marion County, Indiana, 2002-2005



¹⁶Just the facts: Firearm Injuries in Indiana, Characteristics of firearm injury for year 2005 in Marion County, Fourth Annual Report of the Indiana Firearm Injury and Death Surveillance System. Indiana Partnership to Prevent Violent Injury and Death. Compiled by Jodi Hackworth. July 2006. www.ippvid.org.



times as likely) and blacks were seven times more likely to suffer firearm injuries than were Marion County whites. More specifically, the most likely group to suffer firearm injuries was black males ages 20-24.

Other findings from the 2005 Marion County firearm injury study include: 97 percent of shooters were male, 84 percent of shooters were black, shootings were concentrated in several central city ZIP codes, robbery/burglary and arguments were the most common shooting circumstances for aggravated assault and homicides, and the most likely location was a street or road. Depression/mental illness and relationship problems were the most common attempted and completed

suicides circumstances and these incidents were most likely to occur at the victim's home. Most unintentional shootings occur at the victim's home and were self-inflicted.

The IPPVID project has been collecting data on all firearm injuries and deaths in Marion County since 2002. This sort of initiative could serve as a model for collecting similar data across the entire state. Combining this sort of data with CDC data and police data would give us the most comprehensive picture on the number and nature of firearm incidents in Indiana.



THE COSTS OF FIREARMS

A recent *Seattle Times* report noted the significant cost of firearm violence in the United States.¹⁷ The report cites research appearing in the journal, *Spinal Cord* that estimates that the cost for those who have severe firearm injuries but survive can range from \$800,000-1.6 million. Other research suggests the costs of firearm violence in the United States may be \$100 billion each year.¹⁸

In context, firearm deaths by all causes in Indiana claim fewer lives than

do unintentional motor vehicle deaths but in some Indiana counties, the number of firearm deaths exceeds the number of unintentional motor vehicle deaths. Table 2 shows during 2005, in five Indiana counties—Marion, Lake, Allen, Vanderburgh, and Grant—firearm deaths exceeded motor vehicle deaths and in two other counties—Johnson and Monroe—the death total was identical.¹⁹

Table 2: Indiana counties with a greater than or equal number of firearm deaths compared to motor vehicle traffic deaths, 2005

County	Firearm deaths*	MV traffic deaths
Marion	146	108
Lake	87	69
Allen	35	27
Vanderburgh	27	20
Johnson	14	14
Grant	6**	6
Monroe	6	6

Source: Center for Disease Control, WONDER (<http://wonder.cdc.gov/mortSQL.html>)

* Firearm deaths equals the sum of unintentional firearm deaths, firearm homicides, firearm suicides, and firearm deaths of undetermined intent.

**Firearm homicide deaths were suppressed for Grant County. As such the actual number of firearm deaths is greater than 6.

It is possible that additional counties may have a greater or equal number of firearm deaths compared to motorvehicle traffic deaths. However, because five or fewer deaths are suppressed to protect decedents confidentiality, comparisons of death counts can not be made in some cases.

¹⁷Joann Loviglio, Firearm violence's toll: 100 billion. *The Seattle Times*. February 28, 2008.

¹⁸Loviglio , 2008

¹⁹It is possible that additional counties may have equal or greater numbers of firearm-related deaths as compared to motor vehicle traffic deaths. However, death counts are suppressed in counties with less than 100,000 residents and fewer than five deaths for any given death in the WONDERS data system to protect decedent's confidentiality. In those counties, reliable comparisons of causes of death cannot be made.



CONCLUSION

Firearm-related suicides, homicides, and unintentional fatalities are frequently found among stories reported in the news and the issue of firearms and firearm ownership is a very volatile subject often containing hyperbole from all sides of the argument. Stepping away from media generated and other source accounts of firearm-related suicides, homicides, and unintentional fatalities, the current report attempted to provide an objective overview of firearm deaths of these types in Indiana relying on data reported to the Center for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control (NCIPC) from 1990-2005. Analysis of these data revealed that firearm-related suicide, homicide, and unintentional death rates have generally declined since 1990, were at or near their historical low in 2005 for all three death types, and were below the corresponding 2005 national rate—with the exception of firearm-related suicides. Perhaps unsurprisingly, findings revealed that males are most likely to die from firearm-related suicides, homicides, and

unintentional fatalities and males 15-24 years old are particularly at risk for firearm-related homicides with black males 15-24 most at risk.

Creating policies to address firearm-related suicides, homicides, and unintentional fatalities should rely on the best available data and should focus on achieving a proper balance between public safety and individual firearm ownership rights and responsibilities. The goal of preventing firearm deaths should be included as part of a larger public health approach focused on preventing other types of external deaths—motor vehicle, overdoses, falls, drowning, and fire deaths as well as non-firearm homicides and suicides. Based on the analysis of firearm deaths in Indiana from 1990-2005, resources and policies for mitigating firearm-related suicides, homicides, and unintentional deaths should target males generally, and 15-24 year old males specifically, for firearm-related homicides.