An Exploration of Gun Violence and Prevention: Toward the Development of an Inclusive Database

Working Paper 1 of 3: Background on Gun Violence

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This paper is the first of a series of three working papers. The project came out of a need to better understand the circumstances surrounding gun violence in the community. Through the work of the Monroe Crime Analysis Center in collaboration with the Rochester Police Department, there was an identified need for better identification, tracking, data collection, and analysis of shooting incidents in Rochester. For this reason, we began with getting an overall understanding of gun violence, such as incidence, and then looking specifically at victims and perpetrators of gun violence, in an attempt to best identify who is most likely to pull the trigger. Through a more thorough assessment of gun violence, we are able to then come up with multiple data points that would be important to collect in order to both prevent future shootings and to solve these crimes. Thus, this first paper seeks to give a background on gun violence, including how these events transpire, with a move towards identifying key variables to collect in a systemized shooting database. The following paper will give a more comprehensive list of what kinds of variables are important to collect and how to best use this database. As you will see in this paper, most shooting incidents occur as a result of ongoing disputes, so finding a systematic way to identify these disputes and then to proactively intervene should play an important role throughout the construction of this shooting database.
Background on Gun Violence

Gun Violence in General

The history of firearm violence in America is complex. One factor alone is not enough to draw a conclusion about early America’s gun culture, but historical accounts point towards the impression that guns have been a part of American life since before the 1700’s (Lindgren, 2002). Guns in colonial America are found to have been fairly available and affordable, yet slightly less accurate and effective than most firearms today. Homicide trends are also found by historians to have been similar, if not higher, in colonial times than they are today. Though there is evidence to support the notion that guns in America have shifted from “simpler guns manufactured one at a time to more sophisticated mass-produced guns” (Lindgren, 2002, p. 4), there is still controversy over whether more guns do in fact result in more homicide.

Recent interest in firearm possession and violence sparks controversy over the Second Amendment to the U.S. Constitution: “A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed” (U.S. Const. amend. II). This controversy of the people’s right to bear arms remains at large across the nation. An example of concern fueling the debate on gun law is expressed by the New Yorkers Against Gun Violence (NYAGV). The group suggests that the solution to gun-related violence is providing stricter gun laws, claiming that weak laws and lax enforcement have allowed guns to get into the ‘wrong hands.’ The NYAGV goes on to present that “Americans are murdered with guns at the rate of 32 people a day- [who are] gone because of guns in the wrong hands…. And if guns are in the wrong hands, the gun violence will continue” (http://nyagv.org, The gun violence problem, 2012).
Although there is the argument that strict regulation may help reduce the number of deaths and injuries relating to firearms, it is important to understand the full scope of the issue. Before reaching a conclusion of how best to solve the problem, it is necessary to discern the actual “alarming regularity” of these incidents and identify the so-called “wrong hands.” With a solid foundation, it is then possible to examine the circumstances pertaining to violence involving gun use. Using the collective findings to form a more thorough understanding of these crimes provides the ability to identify the source of the problem, and to develop an informed solution.

**Statistics on Firearm Violence**

*Data Collection Methods*

The data gathered for this analysis of gun-related violent crime include both fatal and nonfatal events. Fatal shooting incidents include the crimes of murder and manslaughter, with homicide a direct result of the shooting. Nonfatal incidents account for an assault in which the injury is caused by the discharge of a firearm (Federal Bureau of Investigation). Data on fatal incidents for this study are collected from the Uniform Crime Reports (UCR) published by the FBI and the Department of Health and Human Services (HHS). Information on nonfatal incidents are retrieved primarily from the National Crime Victimization Survey (NCVS) by the U.S. Department of Justice’s Bureau of Justice Statistics, as well as the Department of Health and Human Services. These data refer only to incidents of interpersonal violence; suicide and self-injury are not included in these reports. Each record accounts for individual victims, regardless of the number involved in a single incident.

In recognizing that the UCR and NCVS are both nationally applied reports, data from these sources may not always prove to be consistent. The UCR contains only crimes reported to law enforcement agencies, which are then reported to the FBI by the agencies
themselves. To ensure credibility, the process requires proper documentation and reliable reporting by each agency. In order to account for events not known and reported to the police, the NCVS includes self-reported incidents of victimization. The concern of credibility of these data rests on the reliability of victim testimony. While the UCR and NCVS are both crime and law enforcement-based, it will also be necessary to refer to the Centers for Disease Control and Prevention (CDC) of the Department of Health and Human Services, which tracks injuries and deaths through hospital and medical records.

In New York State, firearm crime statistics are reported in the *Crime, Arrest, and Firearm Activity Report*. This source, prepared monthly by the Division of Criminal Justice Services (DCJS), reports annual and monthly violent and property index crime incidents for 17 participating counties outside of New York City (DCJS, 2010).

**National Statistics**

When discussing firearm violence, incidence of homicide is important to consider. According to the FBI Uniform Crime Reports, firearms generally account for just under 70% of all homicides. In 2010, shown in Figure 1, firearms accounted for about 68% of

![2010 U.S. Murder Victims by Weapon](image)

*Figure 1: U.S. homicide victims broken down by weapon used. Data from FBI's Uniform Crime Report, 2010.*
homicides within that year. The second largest category of weapons used was knives and other cutting instruments at 13%. Personal weapons such as hands, fists, and teeth made up the smallest percentage of weapons involved in homicides.

In 2010, there were 14,748 homicides (murder and nonnegligent manslaughter) in the United States, which equates to a national homicide rate of 4.8 per 100,000 (FBI Uniform Crime Reports, 2012). From 2000-2007 the number of homicides nationally remained steady at around 16,500 per year, but from 2008-2010 (the most recent year these data are available), the rates have steadily declined, decreasing from a rate of 5.7 per 100,000 to 4.8 per 100,000 (FBI Uniform Crime Reports, 2012). While current trends are on a decline, homicide remains a national problem.

Examining national statistics, the trend of fatal victimizations involving firearms follows a slight downward slope in recent years, as shown in Figure 2. However, the pattern of nonfatal injuries involving firearms appears to be increasing over time.

Figure 2: Comparison of fatal vs. nonfatal shooting victims from 2000-2010. Data from the Department of Health and Human Services, Centers for Disease Control and Prevention (CDC).

*Data for 2010 fatal shootings not available
In 2010, there were 59,344 nonfatal firearm injuries reported nationally (Department of Health and Human Services, 2012). This increased more than 11,000 from 2009, where the Department of Health and Human Services reported 48,158 incidents of non-fatal firearm injury. This seemingly reverse relationship between fatal and nonfatal victimization trends may be due to advances in the medical field, as hospitals are able to produce more viable outcomes for gunshot wound patients.

New York State Statistics

In New York State, firearms accounted for an average of 63.6% of all murders between 2002 and 2011, according to the Crime, Arrest, and Firearm Activity Report, the number of nonfatal shooting injuries reported by the 17 IMPACT counties in 2011 was 799, down from 819 in 2010 and totaled 64 fewer victims than in 2006 with 836 nonfatal injuries (Figure 3). Overall, the incidence of non-fatal victims of firearm injury has remained steady over the last five years, with the exception of 2006 with the highest

![New York State IMPACT Cities Shooting Victimization 2006-2011](image)

Figure 3: Fatal and Nonfatal shooting victims in New York State IMPACT counties, retrieved from DCJS.
number of non-fatal injuries. Between 2006 and 2010, the number of fatal shooting injuries remained around 140 to 150 deaths each year, before dropping to 84 firearm deaths in 2011. Though these recent data demonstrate a decreasing trend in shooting victimization, the number of shooting victims statewide in 2012 had already reached 172 by March, with 15 of those injuries being fatal. At the same time the previous year there had been only 120 victims resulting in 12 fatalities (DCJS, 2012).

Between the years 2006 through 2010, shooting injuries in New York State had fatal outcomes an average of 15.4 percent of the time, while in 2011 this dropped to 9.5% of shooting injuries being fatal (DCJS, 2012). In terms of firearm-related deaths, New York remains in the lower 20th percentile compared to firearm homicide rates of other states (Firearm & Injury Center at Penn, 2009, p.5).

Local Statistics

Focusing further on Rochester, New York, the Division of Criminal Justice Services reports an average of 43 homicides in Rochester annually since 2002. Compared to the state rate of about 64 percent of homicides by firearms, 74% of Rochester homicides from 2002 to 2010 were due to shootings. This number reached just over 82% in 2009, and decreased to 45% of homicides involving firearms in 2011. The total number of annual shooting injuries in Rochester reached a recent peak in 2006, with 276 victims that year. From 2006 to 2010, an average of 16.4% of shootings resulted in fatalities: 1 percent higher than the statewide average.

Researchers studying crime in Rochester estimate an average of 185 shooting victims each year between 2004 and 2011 (Duda & Klofas, 2012). In recent years, however, the trend of both fatal and nonfatal shooting victimization in Rochester generally appears to be decreasing. In 2006, there was a peak at 242 nonfatal and 34 fatal
shooting injuries, while 2011 presented a recent low of 129 nonfatal and 14 fatal victims, shown in Figure 4 (DCJS, 2012). Similar to statewide patterns, the most current data on shootings in Rochester have not followed the decreasing trend. By June 1 2012, there were already 70 reported shooting victims, compared with a total of 40 victims by the same date the year before (Monroe Crime Analysis Center). Despite the number of shooting injuries nearly doubling from the previous year, both of these time frames each yielded 6 fatalities as a result of these incidents.

In general, the annual number of shooting victims in Rochester has gone down, along with the number of homicides involving guns and the proportion of shootings that become fatal. The existing downward trend in shooting victimization may in part be due to improved crime analysis practices and proactive policing strategies. In recognizing this, however, gun crime in Rochester still remains a large problem in the community and a top priority for law enforcement.

Figure 4: Fatal and nonfatal shooting victims in Rochester from 2006 to 2011. Data from DCJS, 2012.
Circumstances Surrounding Gun Use

While the incidence of gun violence provides a necessary background piece, it is key to understand the circumstances surrounding gun use. To provide for effective proactive policing tactics, a better understanding of the factors involved is important to combat these crimes. This can be achieved by examining the events leading up to the shooting, the persons involved, and the circumstances surrounding the incident. Being aware of these details can help crime analysts and law enforcement agencies work further to prevent shootings.

Guns and Crime

Crimes involving firearms are widespread in severity, from murder to criminal possession. Murder and nonnegligent manslaughter are defined by the Federal Bureau of Investigation as “the willful (nonnegligent) killing of one human being by another.” As mentioned, firearms account for around 68 percent of all murders nationally. On another level, guns are present in about 42 percent of robberies and 22 percent of aggravated assaults nationwide (National Institute of Justice, 2010). Although these crimes are reported as involving a firearm, there is not always a shooting injury as a result. However, a small number of shootings are the result of a “robery gone bad.” In 2008, the Bureau of Justice Statistics (BJS) reports 25 percent of injuries from completed robberies to be due to a firearm (BJS, 2011, table 66). This percentage is up from the 1990’s, when around 16 percent of all robberies involving firearms resulted in an injury (Perkins, 2003, table 8). For crimes of rape and sexual assault, the use of firearms has been almost negligible on a national level, amounting to 1 percent or lower in the most recent years available (BJS, 2007, 2008). Other crimes involving firearms include reckless endangerment, prohibited use of a weapon, and criminal possession of a weapon, but do not produce any shooting-related injury.
Figure 5 below compares firearm crime in Rochester, New York State, and the nation. As can be seen below, Rochester far surpasses the other two jurisdictions in crimes involving the use of a firearm. On average, 47% of robberies in Rochester involve firearms (including 55% in 2005 and 2006), which is the highest rate of armed robberies in the state. Compared to the low proportion of rapes reported to involve firearms nationally, rapes in Rochester are reported to involve firearms up to 6 or even 7 percent of the time. In the early 2000’s, aggravated assaults involved firearms in almost half of the cases in Rochester, while in recent years this proportion has dropped to under a quarter. This decreasing trend of firearm use in Rochester crime has been displayed in firearm-related robberies as well.

Figure 6 below shows a comparison of three similarly-sized IMPACT cities for these crimes in 2011. Regarding homicide, Rochester’s firearm percentage has historically been on par with that of Buffalo until an uncharacteristic low in 2011. Even
accounting for inconsistencies in Albany due to so few incidents, Rochester rates greatly surpass the average of firearm murders and gun use in other crimes for this city. Prior to 2011, the average percentage of firearm-related crime in Rochester had been higher than both of these cities, most notably in robberies and aggravated assaults. While 2011 exhibited a recent drop in gun use, 2012 has already seen an increase in firearm-related violent crime (DCJS, 2012). To better understand the nature of these crimes, it is important to look closely at the individuals involved along with certain situational factors in order to work to prevent further shootings.

**Situational Factors: Participants of Shootings**

Researchers have traditionally analyzed both victims and offenders of shooting incidents by specific demographics: gender, race and ethnicity, and age. In much of the literature on gun violence, young people are frequently discussed in relation to firearm use and victimization. Upon examining these characteristics further, “gangs,” or similar delinquent groups, are often mentioned as major catalysts for such youth violence. These
delinquent youths have been said to make up a large part of the problem of firearm-related violence. In 2010 in Rochester, “63 different gangs were represented in violent crimes and 25.8% of shooting victims were gang involved. An additional 85 gang members were arrested for criminal possession of a weapon in 2010” (personal communication, MCAC Analyst, June 5, 2012). While studying gang-related violence, Bullock and Tilley (2008) observed that “gang members carried firearms for different reasons that were partly protective, partly symbolic and partly instrumental for the commission of violent crime” (p. 39). Spano, Pridemore, and Bolland (2011) studied youth offenders of firearm-related violence and found that exposure to and previous participating in violent crime increased the likelihood of youth gun carrying. Watkins, Huebner, and Decker (2008) summarize characteristics of violent firearm offending, concluding “juveniles were more likely to carry and fire a gun….. gun behaviors among juveniles are largely driven by gang membership, while ready access to guns, fear of the street, and the risks of arrest influence adult behaviors” (p. 674).

Bullock and Tilly (2008) describe the victims and the suspected perpetrators of gun violence as having similar attributes: “mainly young, black or mixed race males, who had extensive criminal records” (p. 40). Wells and Chermak (2011) further discovered that prior drug or illegal firearms offenses in particular increased the chances of experiencing gun victimization. Other research has shown that typically four out of five victims of both fatal and nonfatal gunshot wounds are male (Zawitz & Strom, 2000, p. 1). Martin et al. (2012) goes further explaining, “adolescent and adult black men as well as individuals from lower socioeconomic standing are disproportionately affected by firearm injuries and experience worse outcomes” (p. 1197). According to Wellford, Pepper, & Petrie (2004), young males are an even larger percentage of firearm-related homicide offenders than homicide victims. These demographics may be further studied to examine
why certain groups appear to be more at-risk than others. Understanding this helps to identify groups that are more at-risk for firearm violence than others.

Situational Factors: Weapons Involved

In investigating both juvenile and adult shooting cases, the majority of crime guns are often discovered to be illegally obtained. The most common means by which perpetrators obtain these guns are illegal markets, theft, or a friend or family member (Wellford et al., 2004). In a study done by Limber and Pagliocca (1998), juveniles reported obtaining nearly 40 percent of handguns from friends, and another 37 percent “on the street.” According to this study, handguns were much less likely to be obtained from a relative (13.2%) or a pawn shop (7%) (pp. 23-24).

In terms of gun type, handguns are the weapon of choice by the majority of offenders. Handguns account for about 82 to 88 percent of all firearm-related crime nationally, while the remainder involves shotguns at 14% and rifles at 4% (BJS, 2011, table 66; Zawitz & Strom, 2000, p. 4). The Senior Crime Research Specialist of Monroe Crime Analysis Center (MCAC) attests that crime in Rochester is similar to these findings (personal communication, 2012). Around 85 percent of shootings and armed robberies in Rochester involve handguns, and the majority is not acquired through legal means. There is also found to be a strong relationship between gang involvement and gun use. Gangs often have “community guns,” which may be one or two guns kept for shared use between members of the gang. When a weapon is needed, someone is told to run and get the gun to be used for the group. This makes the weapons harder to track, as guns are passed from person to person or stored in one central location, and is even more dangerous when a number of individuals have access to the firearm.

The most problematic gun crimes are not often committed with legal and registered firearms. Gun violence most commonly involves illegally bought or stolen
guns, used generally by the highest offending group of males between the ages of 14 to 25. These crimes are typically concentrated in other areas of high crime, and usually involve participants involved in other criminal activity.

Causes of Gun Violence

Not only is it important to know who is involved in firearm violence, it is also necessary to understand the causes of such incidents. In a 2000 analysis, firearm homicides were found to occur as results from arguments (28% of homicides), during the commission of another crime (19% of homicides), and result from “juvenile gang killing” (7% of homicides). (Zawitz & Strom, 2000, p. 4). Local criminologist John Klofas, PhD, conducted a study in 2002 of Rochester homicides (Figure 7), researching the causes leading to these incidents. Since gun violence is found to have similar attributes to homicides, these findings are likely to be similar to other firearm-related crimes. This chart shows that over half of the homicides in Rochester from 2000 to 2001 were dispute-related, which remains true in 2012. Both shootings and homicides are most often found to involve people who know each other, rather than a random act involving a stranger. Dispute-related circumstances included “personal arguments” at 34 percent, domestic
disputes at 24 percent, and drug-related disputes making up 39 percent of incidents (Klofas, 2002). The Milwaukee Homicide Review Commission (2010) reports that “nearly 60% of homicides are precipitated by another crime, usually robbery or drugs.” Further, Cooper and Smith in 2011 found “gun involvement in homicides resulting from arguments [to have] remained relatively stable from 2000 to 2008, [during which guns accounted for] about 60% of homicides resulting from arguments” (p. 26).

Thus, experts suggest that the majority of shootings typically involve people who are acquaintances—“not necessarily friends, but not necessarily strangers” (personal communication, Senior Crime Research Specialist, MCAC, 2012). These incidents may be results of ongoing disputes involving drugs, gangs, or romantic jealousy. He goes on to describe some of these disputes as stemming from a simple conflict, such as one person feeling disrespected by another, or an argument over the way someone was driving (personal communication, 2012). These conflicts escalate especially when rival gangs are involved and members of each side become caught up in retaliation, which can eventually result in a homicide.

Along these lines, shooting can almost be seen as alternating “punches” between two sides of a fight. At times, firing at someone might not even be an attempt to kill as is commonly perceived, but may instead be a warning sign not to “mess with” someone. In this way, shooting may be the new punching as some are using these guns not looking to kill, but as a method of intimidation and a way of “getting back at” somebody. However, one mistaken (or bad) aim can result in an untimely death. Typically, these shootings are not random acts of violence, but rather often result from two or more people involved in an ongoing dispute, and are usually known to law enforcement. Knowing this, and acknowledging that most of these crimes involve people who know each other, a logical step would be to create a way of tracking and sharing dispute-related information within
the Department for the purpose of providing officers information to obtain a higher clearance rate for these crimes, and prevent potential shootings from occurring.

**Outcome**

Unfortunately, clearance rates in shootings tend to be low, as this is the case in many cities across the country. This is in part due to uncooperative victims as well as general community cautiousness in sharing information with the police. Initial information can be minimal and usually comes from witnesses or persons with knowledge. When investigators are not provided with sufficient information for solving a crime, it may be necessary to turn to an alternate source rather than relying on the testimony of onlookers. However, without the input of witnesses and neighborhood residents, it is often unlikely that the case will be solved.

Because most initial smaller-scale altercations become known to police but little is done about more minor instances, it may be necessary to re-examine the circumstances of these conflicts. We know that the majority of shootings and similar violent crimes are results of ongoing disputes, and because these incidents are often not simply random occurrences, *it may be possible to examine the string of events leading up to a serious incident to either predict or identify the participants of a shooting*. Officers may have a general knowledge about violent crime in their area, or even a general idea of what factors in to these crimes, but it is also important to be aware of the larger picture of these crimes and the disputes involved. This can be acquired by developing a method for recording and tracking ongoing disputes as well as other relevant information for such crimes.
Next Steps

The background research conducted in this section establishes a foundation for further research into existing databases and other gun violence prevention strategies. Upon identifying the essential elements necessary for a successful shooting database, the work will turn to assess the current system of tracking gun violence in Rochester. Using findings from the literature, the goal is to propose the development of an inclusive shooting database for the Rochester Police Department. The database will be housed at the Monroe Crime Analysis Center and will consist of over 170 variables tracking information about the incident, location, and the persons involved. The following working paper will cover the topics of databases and prevention, and the third and final paper will propose the implementation of a new database and describe the benefits to law enforcement.

As is expected when dealing with a high priority issue such as gun violence, numerous additional questions have surfaced during the research. Some persisting questions for future research include:

- What makes gun crime higher in Rochester than crime in other cities?
- How does gang affiliation correlate to firearm victimization in Rochester?
- What percentage of shootings in Rochester are results of ongoing disputes?
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U.S. Constitution, Amendment II.


