



# **Non-Fatal Shooting Crosswalk Study: FINAL REPORT**

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**Non-Fatal Shooting Crosswalk Study:  
Final Report<sup>1</sup>**

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**Michigan Justice Statistics Center  
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**Michigan Justice Statistics Center**

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**About the Authors**

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## **EXECUTIVE SUMMARY**

### ***Background***

Historically, crime in the United States has been measured by the Uniform Crime Reporting (UCR) system administered by the Federal Bureau of Investigation (FBI). In this system, local, county, state, Tribal and federal law enforcement agencies submit summary crime data on incidents and arrests to the UCR system. Crime patterns and trends can then be analyzed and tracked at local, state, and national levels.

The UCR summary crime data focuses primarily on what have been known as the UCR Index Crimes of murder, robbery, assault, rape (violent offenses) and burglary, larceny-theft, and motor vehicle theft (property offenses). Although serving the purpose of providing a view of crime trends, the UCR has been criticized for the limited information provided by these summary data. Specifically, very limited information is provided about the incident itself. In response to this limitation, many law enforcement agencies have moved to an incident-based reporting system that provides much more detail on the incident (e.g., victim characteristics, offender characteristics, victim-offender relationship, injury, weapon type, location, etc.). This evolution has resulted in the National Incident Based Reporting System (NIBRS) that in 2021 became the national standard for crime reporting in the U.S.

One of the limitations of the UCR was that it did not collect information about non-fatal shootings (NFS). This was considered a major weakness for being able to accurately measure, analyze, and study patterns of gun crime. Gunshot victimizations that did not result in a death were impossible to identify through the UCR. Given that NFS tend to be 3-5 times as common as a homicide with a firearm, this was a major limitation of the system. The emergence of the NIBRS system created the potential for measuring NFS because of the ability to gather information about the weapon used and the injury sustained in the incident.

The purpose of this research study was to analyze the ability to estimate the number of NFS occurring using NIBRS data. The research was conducted in Michigan for several reasons. One, Michigan was an early adopter of the incident-based reporting system and since 2006 all Michigan law enforcement agencies have participated in the Michigan Incident Crime Reporting system (MICR), operated by the Michigan State Police (MSP), which feeds into the FBI's NIBRS system. Second, since 2021 the MICR System includes reporting on NFS from Michigan law enforcement agencies. Third, the Detroit Police Department (DPD), through its focus on reducing gun crime, has been tracking NFS for a number of years. Further, DPD has collaborated with the Michigan Statistical Analysis Center (MI-SAC) on a number of violence prevention initiatives whereby MSU has supported crime analysis efforts and conducted evaluations of violence prevention strategies. The collaboration between MSP, DPD, and MI-SAC provided an ideal opportunity to study the ability to estimate NFS using incident-based reporting.

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***Methods***

The project involved conducting a “cross-walk” between potential NFS identified in the MICR system with known NFS incidents identified by DPD. This involved selecting aggravated assaults, involving the use of a firearm, and where the victim sustained an injury. These were compared to NFS as identified by DPD. The time period involved incidents from 2017-2020. We then compared DPD identified NFS with the sample of cases drawn from MICR.

***Findings***

More incidents were identified in the MICR data than in the DPD data. Specifically, a total of 3,052 NFS were identified in the DPD data. In contrast, a total of 4,461 potential NFS were identified in the MICR data. This was anticipated because some of the incidents in the MICR data that involved a firearm and some injury, did not involve a gunshot wound. For example, an assault where a weapon was brandished and perhaps discharged but where no victim was struck by a bullet but may have been injured by a fist, shove, cuts from shattered glass from a gunshot, or some other method.

Just under 90% of the NFS identified by DPD were matched in the MICR data. Of those that were not matched, the vast majority (87%) were classified as a different type of offense, most commonly robbery.

Of the MICR incidents, 58% were matched in the DPD NFS data. Thus, relying on aggravated assault with a firearm as an indicator of NFS will result in a significant over-estimate of NFS.

In contrast, utilizing aggravated assault with a firearm, where a major injury is reported, is a much-improved estimate of NFS. Indeed, utilizing these criteria improved the matching to 92% of NFS identified by DPD.

Finally, while aggravated assault with a firearm with serious injury does provide an improved estimate of NFS, it still misses a non-trivial number of incidents. For example, approximately 10 percent of NFS in the DPD data were classified as a different type of offense in MICR.

The report discusses some of the factors that result in the inability to match all NFS incidents identified by DPD to the incidents in the MICR data (e.g., hierarchy rule, NFS where a victim later died and thus became a homicide, and a shooting injury later determined to be self-inflicted).

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***Conclusions and Recommendations***

Incident based reporting systems (MICR/NIBRS) provide a mechanism for estimating NFS. Specifically, aggravated assaults, involving a firearm and major injury, provides a much-improved estimate of NFS. Yet, it will be an under-estimate and will miss incidents classified as other crime types.

Consequently, the ideal approach to capturing NFS appears to be adding a specific crime classification of NFS as part of the NIBRS system. As noted above, this has been done in the state of Michigan. We recommend that this be considered as a “best practice” and ideally will become part of the national NIBRS system.

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**INTRODUCTION**

The purpose of the FY20 research project is to assess the ability of the National Incident-based Reporting System (NIBRS) to identify nonfatal shooting incidents involving interpersonal violence through a crosswalk comparison of known incidents identified by the Detroit Police Department (DPD) from 2017 through 2020. To do so, we consider crime data submitted by DPD to the Michigan State Police (MSP) as part of the Michigan Incident Crime Reporting (MICR) program, a preliminary step before submission to NIBRS. Our crosswalk study advances research in this area which has only previously compared NIBRS to the Uniform Crime Reporting program's Summary Reporting System (UCR-SRS) (e.g., Parker, 2021) and the UCR-SRS to law enforcement agency (LEA) internal records (e.g., Hipple, 2022). It also has national implications as the need for systematic data on nonfatal shooting injuries is increasingly recognized (e.g., Hipple, 2022; Hipple et al., 2020; Magee et al., 2021; Parker, 2021, 2022). Specifically, our findings demonstrate the value of expanding NIBRS to improve the measurement of nonfatal shooting injuries and the importance of LEAs in driving this change and supporting firearm violence research, including prevention and intervention efforts. In the absence of a dedicated nonfatal shooting indicator in NIBRS and LEA internal records on nonfatal shooting incidents, our findings also support an alternative approach to identifying nonfatal shooting incidents in NIBRS using a combination of offense characteristics of aggravated assaults. Ultimately, our crosswalk study is timely as the expansion of NIBRS reporting to consider nonfatal shooting injuries has been proposed by the Federal Bureau of

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Investigation's (FBI) Criminal Justice Information Services Advisory Police Board (Parker, 2021).

**STUDY SITE**

Detroit, Michigan, has consistently ranked among the most violent cities in the United States (U.S.) (FBI, 2023). In 2020, the city maintained a population of 639,111, a 5.3% reduction from 2017 (U.S. Census Bureau, 2023a). At 77.9%, its population is predominantly Black or African American, with 31.8% of its residents living in poverty and 24.9% below the age of 18 (U.S. Census Bureau, 2023b). While our focus on Detroit limits the generalizability of our findings, it represents an ideal setting for our study for three critical reasons. First, there is a significant volume of nonfatal shooting incidents in Detroit, with 3,052 known incidents occurring over the four-year study period. Second, Detroit has systematic procedures for identifying nonfatal shooting injuries and managing data as investigations proceed. Third, Michigan has long been a NIBRS-compliant reporting state and is therefore able to provide comparable NIBRS data in relation to the locally generated police data on nonfatal shooting incidents.

**DATA AND METHODS**

The analyses presented in this report use data collected from two sources: (1) the Michigan Incident Crime Reporting (MICR) program; and (2) the Detroit Police Department (DPD). Together, these data facilitate comparisons between MICR and DPD in their recording of nonfatal shooting incidents.



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### **The Michigan Incident Crime Reporting System**

MICR is an incident-level reporting system maintained by MSP and developed for the purposes of collecting detailed and accurate crime data for the state of Michigan (Michigan Department of State Police [MDOSP], 2023). The system collects incident-level data on Group A and B offense file classes for submission to NIBRS, with offenses belonging to the Group A offense file class being of a more serious and significant nature than those belonging to the Group B offense file class. Importantly, the MICR program is not beholden to NIBRS reporting requirements governing the collection of Group A and Group B offenses and instead accepts data on all offenses. Furthermore, MSP only submits information to NIBRS on Group A and Group B offense file classes that are “full and complete” (MDOSP, 2023, p. 7). For these reasons, comparisons between MICR and NIBRS estimates may not be equivalent. Per Act 319 of 1968, all Michigan LEAs are required to submit offense, arrest, and other related information to MSP once a month. As of 2006, almost all Michigan-based LEAs participate in the MICR program (MDOSP, 2023).<sup>2</sup>

For the period 2017 through 2020, we obtained two victim-level datasets from MSP on MICR submissions made by DPD. The first includes all aggravated assaults (Offense Category: 13002) with a firearm (Data Elements: Firearm of an unknown type (11), Automatic Firearm (11A), Handgun (12), Automatic Handgun (12A), Rifle (13), Automatic Rifle (13A), Shotgun (14), Automatic Shotgun (14A), Other Firearm (15), or Automatic Other Firearm (15A)) and injury to the victim (Data Elements: Apparent Broken Bones (B), Possible Internal Injury (I),

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<sup>2</sup> Not all Michigan LEAs comply to Act 319 of 1968. Lack of personnel and antiquated computer systems are among the reasons for incompliance.

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Severe Laceration (L), Apparent Minor Injury (M), Other Major Injury (O), Loss of Teeth (T), or Unconsciousness(U)). This dataset allows us to identify the degree of alignment between nonfatal shooting incidents identified by DPD and MICR aggravated assault incidents with a firearm (w/firearm) and victim injury (w/injury). The MICR definition of an aggravated assault is provided below.

An unlawful attack by one person upon another wherein the offender uses a weapon or displays it in a threatening manner, or the victim suffers obvious severe or aggravated bodily injury involving apparent broken bones, loss of teeth, possible internal injury, severe laceration, or loss of consciousness (MDOSP, 2023, p. 19)

During this period, nonfatal shooting incidents were primarily captured in MICR as aggravated assaults (w/firearm and w/injury), mirroring the NIBRS classification scheme (FBI, 2021). For capturing nonfatal shooting incidents involving interpersonal violence, this categorization suffers from two major limitations. First, the involvement of a firearm in an aggravated assault incident does not mean that it was discharged. And second, an injury need not be a penetrating wound caused by the discharge of a firearm despite its known involvement in the incident.

Addressing these limitations, the MICR program was adapted in 2019 to include a nonfatal shooting offense category and by 2021 all Michigan-reporting LEAs were required to adopt the new classification scheme. The inclusion of the nonfatal shooting category, however, has yet to be adopted in NIBRS. The MICR definition of a nonfatal shooting is provided below.

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3004 – Non-Fatal Shooting: An unlawful attack involving the discharge of a firearm, wherein the bullet penetrates the body, but does not result in death. Firearm is defined as a weapon that fires a projectile by force of an explosion. (MSP, 2023, p. 19)

Despite this advancement, the nonfatal shooting and aggravated assault MICR offense categories are similarly affected by the rule of mutually exclusive offenses. For the same victim in a single incident, this rule dictates that these offense categories cannot be connected to those listed below.

- 1) 09001 – Murder/Non-Negligent Manslaughter: The willful (non-negligent) killing of one human being by another. (MSP, 2023, p. 17)
- 2) 09002 – Negligent Manslaughter: The killing of another person through negligence. Includes hunting accidents, gun cleaning, children playing with guns, and arrests associated with driving under the influence, distracted driving (using a cell/smartphone), death resulting from the reckless operation of a motor vehicle, boat, snowmobile, or ORV, and reckless driving traffic fatalities. It does not include deaths of persons due to their own negligence, accidental deaths not resulting from gross negligence, and accidental traffic fatalities. (MSP, 2023, p. 17)
- 3) 09004 – Justifiable Homicide: The killing of a perpetrator of a serious criminal offense by a peace officer in the line of duty, or the killing, during the commission of a serious criminal offense, of the perpetrator, by a private individual. This offense always occurs in conjunction with another criminal offense; the two must be separate incidents. (MSP, 2023, p. 17)

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- 4) 09005 – Death Involving Use of Force by Law Enforcement: The killing of a perpetrator of a serious criminal offense by a peace officer when use of force caused the death of the perpetrator. (MSP, 2023, p. 17)
- 5) 09006 – In-Custody Death (not due to Use of Force): The death of a perpetrator occurring when “anything after handcuffs are in use, or the suspect is physically detained by a law enforcement officer,” not limited to, but including, transport to and from patrol cars, booking, holding cell, jail, and/or other detention facility. (MSP, 2023, p. 17)
- 6) 1001 – Sexual Penetration Penis/Vagina, Criminal Sexual Conduct (CSC) 1st: The carnal knowledge of a person, without the consent of the victim, including instances where the victim is incapable of giving consent because of his/her age or because of his/her temporary or permanent mental or physical incapacity. (MSP, 2023, p. 18)
- 7) 11002 – Sexual Penetration Penis/Vagina, CSC 3rd: The carnal knowledge of a person, without the consent of the victim, including instances where the victim is incapable of giving consent because of his/her age or because of his/her temporary or permanent mental or physical incapacity. (MSP, 2023, p. 18)
- 8) 11003 – Sexual Penetration Oral/Anal, CSC 1st: Oral or anal sexual intercourse with another person, without the consent of the victim, including instances where the victim is incapable of giving consent because of his/her age or because of his/her temporary or permanent mental or physical incapacity. (MSP, 2023, p. 18)
- 9) 11004 – Sexual Penetration Oral/Anal, CSC 3rd: Oral or anal sexual intercourse with another person, without the consent of the victim, including instances where the victim is

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incapable of giving consent because of his/her age or because of his/her temporary or permanent mental or physical incapacity. (MSP, 2023, p. 18)

10) 11005 – Sexual Penetration Object, CSC 1st: To use an object or instrument to unlawfully penetrate, however slightly, the genital or anal opening of the body of another person, without the consent of the victim, including instances where the victim is incapable of giving consent because of his/her age or because of his/her temporary or permanent mental or physical incapacity. (MSP, 2023, p. 18)

11) 11006 – Sexual Penetration Object, CSC 3rd: To use an object or instrument to unlawfully penetrate, however slightly, the genital or anal opening of the body of another person, without the consent of the victim, including instances where the victim is incapable of giving consent because of his/her age or because of his/her temporary or permanent mental or physical incapacity. (MSP, 2023, p. 18)

12) 12000 – Robbery: The taking or attempting to take anything of value under confrontational circumstances from the control, custody, or care of another person by force or threat of force or violence and/or by putting the victim in fear of immediate harm. Do not report assaults separately that occurred during the robbery. If an injury from a robbery results in death, a homicide must also be reported. (MSP, 2023, p. 18)

13) 12001 – Carjacking: To take or attempt to take an occupied vehicle under confrontational circumstances from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear of immediate harm. (MSP, 2023, p. 18)

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- 14) 13001 – Non-Aggravated Assault: An unlawful physical attack by one person upon another where neither the offender displays a weapon, nor the victim suffers obvious severe or aggravated bodily injury involving apparent broken bones, loss of teeth, possible internal injury, severe laceration, or loss of consciousness. (MSP, 2023, p. 19)
- 15) 13003 – Intimidation/Stalking: To unlawfully place another person in reasonable fear of bodily harm through the use of threatening words and/or other conduct but without displaying a weapon or subjecting the victim to actual physical attack. Includes stalking and threats associated with intimidation in person, over the telephone, and in writing. If the threat was made against a specific individual or person, they will be listed as the victim. If the threat was made toward a group of people, the individual receiving and reporting the threat is considered the victim; for example a bomb threat called into a school, the person answering the phone and reporting the threat is the victim). (MSP, 2023, p. 19)

Applying this rule in an example, if an individual is both the victim of an aggravated assault and a robbery in a single incident, then either offense category could be recorded in MICR. Likewise, if an individual is both the victim of a nonfatal shooting and a carjacking in a single incident, then either offense category could be recorded in MICR. As a result, the rule of mutually exclusive offenses may downplay the number of victims affected by and incidents involving aggravated assaults and nonfatal shootings.

Table 1 captures the number of aggravated assault (w/firearm and w/injury) incidents and victims submitted by DPD to MICR for each year of the study period. Over the study period, the number of aggravated assault (w/firearm and w/injury) incidents and victims increased by 38.3%

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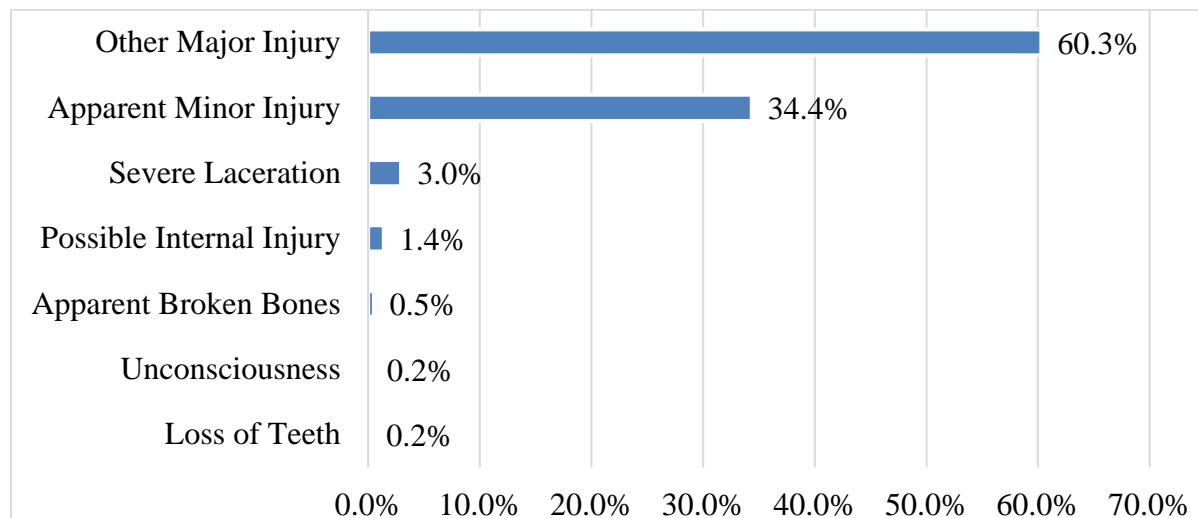
(from 1,076 to 1,488) and 40.4% (from 1,217 to 1,709), respectively. These increases reflect a nation-wide trend in the escalation of firearm violence observed during the early pandemic era (Centers for Disease Control and Prevention [CDC], 2022).

Table 1. MICR: Aggravated Assaults.

<b>Year</b>	<b>Victim-level</b>	<b>Incident-level</b>
2017	1,217	1,076
2018	1,144	1,015
2019	1,189	1,062
2020	1,709	1,488
Total	5,259	4,641

Complementing Table 1, Figure 1 displays the types of injuries sustained to the victim of an aggravated assault with a firearm over the study period. At 60.3% (3,171 of 5,259), “other major injury” is the most common injury type, followed by “apparent minor injury” at 34.4% (1,807 of 5,259). The remaining 5.3% (281 of 5,259) of victim injury types include “severe laceration,” “possible internal injury,” “apparent broken bones,” “unconsciousness,” and “loss of teeth.”

Figure 1. MICR: Victim Injury Types.



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In response to the rule of mutually exclusive offenses, we requested a second victim-level dataset that provides the MICR offense categories over the study period of nonfatal shooting incidents identified by DPD as part of its internal efforts to track firearm violence in Detroit. This dataset allows us to identify the offense categories of nonfatal shooting incidents that were not categorized as a MICR aggravated assault (w/firearm and w/injury).

**Detroit Police Department Nonfatal Tracking System**

Since 2017, DPD has recorded victim-level information on nonfatal shooting injuries, defined as penetrating wounds caused by a projectile from a weapon with a powdered discharge or explosive. This information is used to inform its violence prevention initiatives and is tracked in its internal nonfatal shooting tracking system. This system addresses a significant gap in the coverage of firearm violence by NIBRS, that being its failure to provide reliable and valid estimates of nonfatal shooting incidents. As part of its efforts, DPD collects information on victims that sustain gunshot wounds with criminal and non-criminal intent (e.g., self-inflicted, accidental, or in self-defense). Victim-level information is updated as new information is identified through the course of criminal investigations. For example, a nonfatal shooting injury could turn fatal if the victim dies at a later date. In such a scenario, information on the victim of the now fatal gunshot wound is retained in the nonfatal shooting tracking system but listed as a “back-out.” The incident would then be recorded as a homicide. This indicator also applies to non-criminally sustained injuries, which allows users navigating the tracking system the ability to restrict their review to those incidents that involve criminally sustained nonfatal shooting injuries.



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For the period 2017 through 2020, we obtained a victim-level dataset of nonfatal shooting incidents from DPD’s nonfatal shooting tracking system.<sup>3</sup> Reflecting our focus on nonfatal shooting injuries sustained from criminal intent, incidents involving gunshot wounds that were self-inflicted, accidental, or in self-defense were excluded from examination. Table 2 shows the number of nonfatal shooting incidents and victims recorded by DPD in its internal tracking system for each year of the study period. Over the study period, the number of nonfatal shooting incidents and victims both increased by approximately 39% (from 722 to 1,000; from 834 to 1,156), aligning with the trends observed for MICR aggravated assaults (w/firearm and w/injury) and reflecting the nation-wide trend in firearm violence observed during the early pandemic era.

Table 2. DPD: Nonfatal Shootings.

<b>Year</b>	<b>Victim-level</b>	<b>Incident-level</b>
2017	834	722
2018	747	662
2019	755	668
2020	1,156	1,000
Total	3,492	3,052

**Analysis Plan**

The primary purpose of this report is to assess the ability of NIBRS to identify nonfatal shooting incidents using known incidents provided by DPD. To this end, our analytic plan consists of three parts. First, we provide a basic descriptive comparison of MICR aggravated assaults (w/firearm and w/injury) and DPD nonfatal shootings at the incident- and victim-levels. Second, we use STATA (version 17) to merge two datasets. The first includes all nonfatal shooting incidents identified by DPD from 2017 through 2020. The second includes all

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<sup>3</sup> Our dataset of DPD nonfatal shooting incidents may not reflect current estimates of nonfatal shooting incidents maintained in its system due to updates from criminal investigations and improvements in data management practices.

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aggravated assault (w/firearm and w/injury) incidents submitted by DPD to MSP and recorded in MICR over this period. To facilitate this comparison, we apply one-to-one matching based on incident number, a unique-identifier common to both datasets. This procedure allows us to identify the percentage of matched incidents relative to unmatched incidents for both DPD and MICR datasets. Third, we identify the offense categories of those DPD nonfatal shooting incidents for which no match could be found with a MICR aggravated assault (w/firearm and w/injury) incident using a third MICR dataset of offense categories recorded for unmatched incidents. This review allows us to assess the impact of the rule of mutually exclusive offenses on MICR aggravated assault (w/firearm and w/injury) incidents and discrepancies between reporting systems. Overall, our findings will help inform firearm violence research by providing guidance on how to obtain more reliable and accurate estimates of nonfatal shooting incidents.

**ANALYSES**

Figure 2 displays the yearly number of and differences between MICR aggravated assault (w/firearm and w/injury) and DPD nonfatal shooting incidents. As expected, MICR aggravated assault (w/firearm and w/injury) incidents exceed DPD nonfatal shooting incidents for every year, with a cumulative excess of 1,589 incidents over the study period (2017-2020). Apart from 2020, differences between the two datasets remain relatively stable each year.

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Figure 2. Incident-level: Yearly and Total Differences.

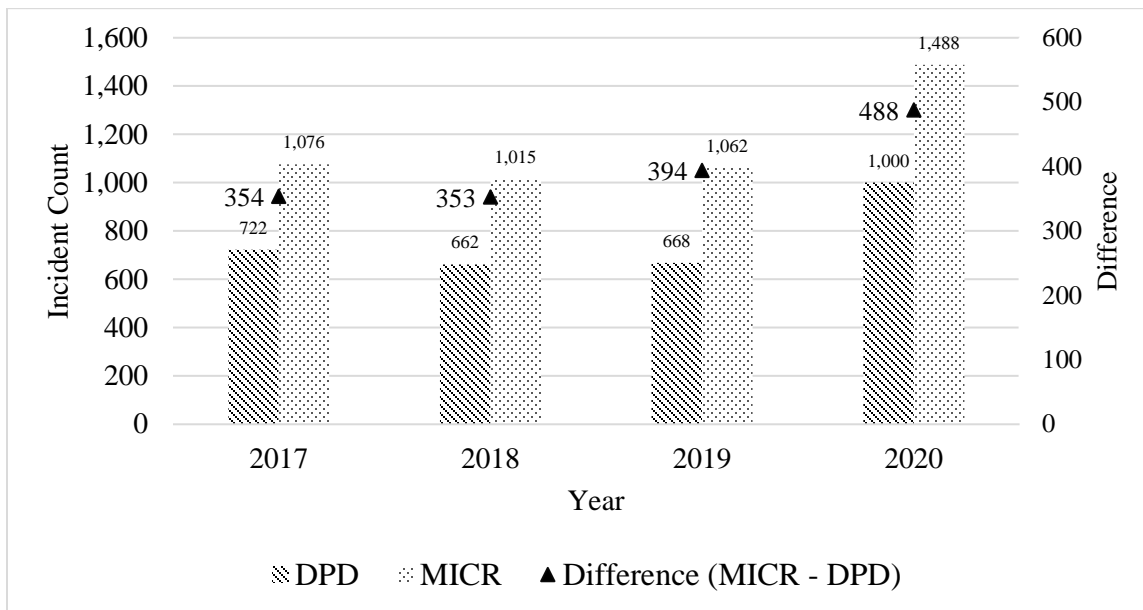


Figure 3 displays the yearly number of and differences between MICR aggravated assault (w/firearm and w/injury) and DPD nonfatal shooting victims. Following the incident-level trend, the number of victims identified in MICR exceeds that identified by DPD for every year, with a cumulative excess of 1,149 victims. Unlike the incident-level trend, victim-level differences steadily increase.

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Figure 3. Victim-level: Yearly and Total Differences.

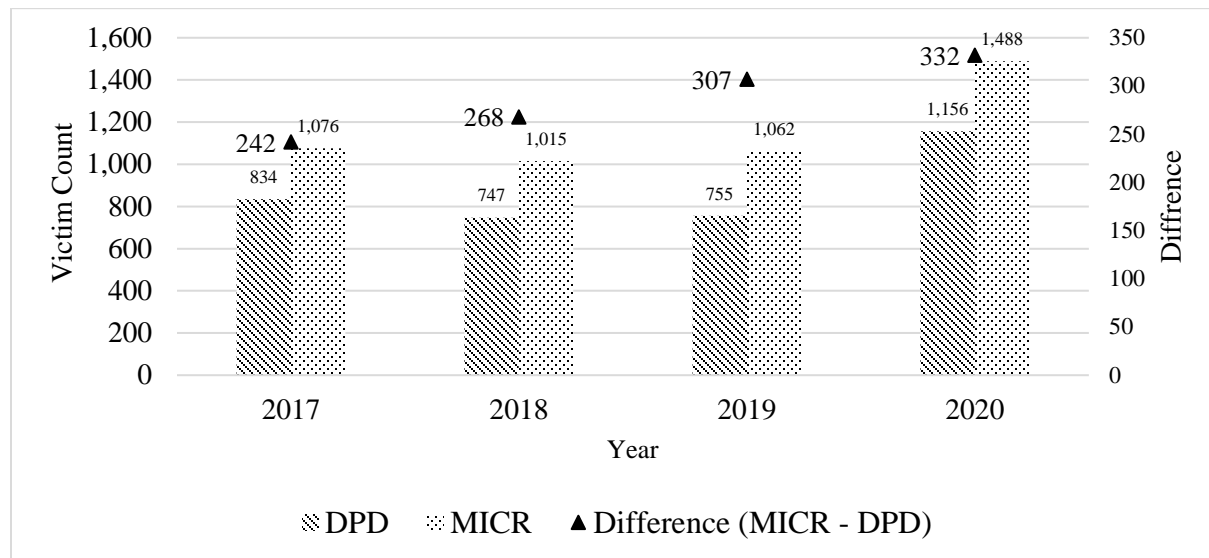


Figure 4 displays the results of merging the DPD and MICR incident-level datasets, as well as a breakdown of matched and unmatched incidents. After performing this merge, 2,690 DPD nonfatal shooting incidents were matched to a MICR aggravated assault (w/firearm and w/injury) incident, leaving 362 DPD nonfatal shooting incidents and 1,951 MICR aggravated assault (w/firearm and w/injury) incidents unmatched. Said differently, 58.0% (2,690 of 4,641) of MICR aggravated assault (w/firearm and w/injury) incidents were matched to a DPD nonfatal shooting incident, leaving 42% (1,951 of 4,641) unmatched. As shown in Table 3, the percentage of matched and unmatched MICR aggravated assault (w/firearm and w/injury) incidents remains consistent each year.

Figure 4. Merge Results.

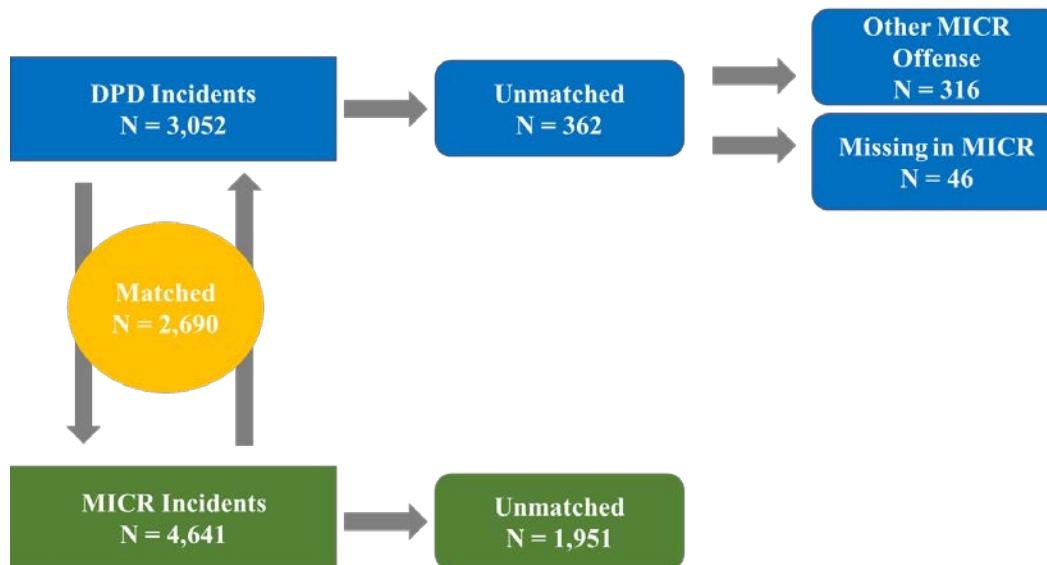


Table 3. Merge Results by Year: MICR Incidents

<b>Year</b>	<b>%MICR Match</b>	<b>%MICR Unmatched</b>	<b>Total</b>
2017	58.5% (629)	41.5% (447)	100% (1,076)
2018	57.3% (582)	42.7% (433)	100% (1,015)
2019	55.6% (591)	44.4% (471)	100% (1,062)
2020	59.7% (888)	40.3% (600)	100% (1,488)
<b>Total</b>	<b>58.0%</b> <b>(2,690)</b>	<b>42.0%</b> <b>(1,951)</b>	<b>100%</b> <b>(4,641)</b>

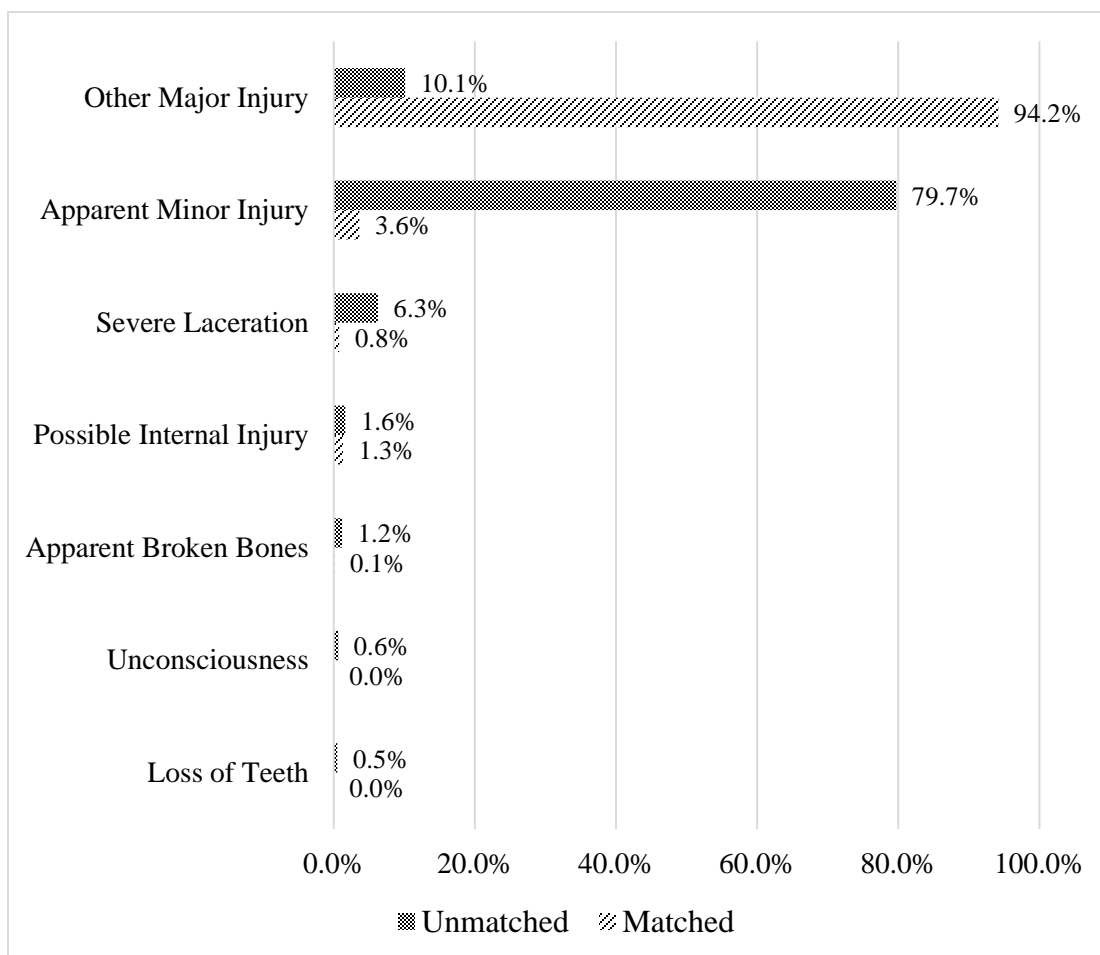
Furthermore, Figure 5 shows the victim injury types reported for matched and unmatched MICR aggravated assault (w/firearm and w/injury) incidents. At 94.2% (2,533 of 2,690) nearly all matched MICR aggravated assault (w/firearm and w/injury) incidents involved an “other major injury” to a victim, with 5.8% (157 of 2,690) involving a less serious injury type. In contrast, only 10% (197 of 1,951) of unmatched MICR aggravated assault (w/firearm and

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w/injury) incidents involved an “other major injury” to a victim. At 79.7% (1,555 of 1,951), “apparent minor injuries” are the most common type of victim injury, followed by other injuries of a lesser nature at 10.2% (199 of 1,951).

Figure 5. MICR: Matched vs. Unmatched Incidents.



In comparison, 88.1% (2,690 of 3,052) of DPD nonfatal shooting incidents were matched to a MICR aggravated assault (w/firearm and w/injury) incident, leaving 11.9% (362 of 3,052) unmatched. As shown in Table 4, the percentage of matched and unmatched DPD incidents also remains consistent each year.

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Table 4. Merge Results by Year: DPD Incidents

<b>Year</b>	<b>%MICR Match</b>	<b>%MICR Unmatched</b>	<b>Total</b>
2017	87.1% (629)	12.9% (93)	100% (722)
2018	87.9% (582)	12.1% (80)	100% (662)
2019	88.5% (591)	11.5% (77)	100% (668)
2020	88.8% (888)	11.2% (112)	100% (1,000)
<b>Total</b>	<b>88.1% (2,690)</b>	<b>11.9% (362)</b>	<b>100% (3,052)</b>

While 88.1% (2,690 of 3,052) of DPD nonfatal shooting incidents were identified in MICR as aggravated assaults (w/firearm and w/injury), 316 of the remaining 362 DPD nonfatal shooting incidents were of a different MICR offense category. These MICR offense categories are displayed in Table 5. The classification of DPD nonfatal shooting incidents in MICR shows the impact of the rule of mutually exclusive offenses, which affects 204 incidents. To this point, the most common MICR offense category following aggravated assault (w/firearm and w/injury) was robbery. Other mutually exclusive offenses include sexual penetration oral/anal CSC 1<sup>st</sup>, justifiable homicide, murder/nonnegligent manslaughter (voluntary), and non-aggravated assault.

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Table 5. Unmatched DPD Incidents in MICR (N = 316).

<b>Offense Category</b>	<b>Count</b>	<b>Percentage</b>	<b>Cumulative Percentage</b>
Robbery*	184	58.23%	58.23%
Aggravated/Felonious Assault	96	30.38%	88.61%
Murder/Nonnegligent Manslaughter (Voluntary)*	9	2.85%	91.46%
Justifiable Homicide*	7	2.22%	93.67%
Damage To Property	5	1.58%	95.25%
Weapons Offense Concealed	5	1.58%	96.84%
Non-aggravated Assault*	2	0.63%	97.47%
Burglary Entry Without Force (Intent)	1	0.32%	97.78%
Burglary Forced Entry	1	0.32%	98.1%
Intimidation/Stalking*	1	0.32%	98.42%
Larceny Other	1	0.32%	98.73%
Miscellaneous Criminal Offense	1	0.32%	99.05%
Obstructing Police	1	0.32%	99.37%
Sexual Penetration Oral/Anal CSC 1 <sup>st</sup> *	1	0.32%	99.68%
Weapons Offense Other	1	0.32%	100%
<b>Total</b>	<b>316</b>	<b>100</b>	

Note. \* Indicates mutually exclusive offense types.

At first consideration, many of the identified MICR offense categories for unmatched DPD nonfatal shooting incidents may seem curious. Beyond the rule of mutually exclusive offenses, there are several reasons why a nonfatal shooting incident would be recognized as an offense other than an aggravated assault with a firearm and injury to the victim. To start, a nonfatal shooting incident may turn fatal but may not be updated in DPD's internal tracking system. Only 5% (16 out of 316) of unmatched incidents shown in Table 5 are affected in this way, reflecting good data practices on the part of DPD. Furthermore, new information learned by detectives during a criminal investigation may not be reflected in MICR. Victims may initially not reveal an injury sustained by a firearm for fear of reprisal or may hide their criminal involvement. DPD's internal nonfatal shooting tracking system is more flexible to updates as



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criminal investigations develop than MICR, further explaining the diversity of offense categories of unmatched DPD nonfatal shooting incidents.

Furthermore, 46 of the remaining 362 DPD nonfatal shooting incidents were missing in MICR, representing 1.5% (46 of 3,052) of all DPD nonfatal shooting incidents. A deeper review captured a mismatch between records maintained in DPD's records management system (RMS) to those in its internal nonfatal shooting tracking system. While recorded as nonfatal shootings in its internal tracking system, these incidents were categorized differently in the RMS. Overall, the offense categories and case dynamics did not require reporting to MSP and included accidental shootings, suicides, and calls for general assistance. These incidents qualify as "back outs" in DPD's internal nonfatal tracking system, despite not being identified as such.

**DISCUSSION & CONCLUSION**

This report assesses the ability of NIBRS to identify nonfatal shooting incidents using known incidents identified from DPD's internal nonfatal shooting tracking system from 2017 through 2020. Supported by MSP, the MICR program complements NIBRS but may result in marginal differences in estimates largely due to reporting criteria. This limitation, however, does not detract from the implications of our findings for NIBRS. While the specifics of this report are restricted to Detroit, broader conclusions and implications regarding NIBRS and its use to measure nonfatal shooting incidents may be generalizable. Four key findings emerge from our analysis that can direct policy and practice in firearm violence research.

**Finding 1:** While prior research highlights the advantage of NIBRS in the measurement of firearm violence over the UCR-SRS (Parker 2021,2022), we found that the aggravated assault (w/firearm and w/injury) MICR offense category is a poor measure of nonfatal shooting

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incidents when compared to known incidents identified by DPD. The MICR aggravated assault (w/firearm and w/injury) offense category overestimated DPD nonfatal shooting incidents by 42% (1,951 of 4,641). Despite the known involvement of a firearm, the type of injury sustained to a victim of an aggravated assault may not be that of a penetrating wound caused by the discharge of a firearm. In fact, the identified excess MICR aggravated assault (w/firearm and w/injury) incidents are more likely to involve victim injuries of some other type, such as cuts sustained from shattered glass caused by the discharge of a firearm or blunt force trauma produced by a firearm used as a bludgeoning instrument. Supporting this claim, there is little evidence to suggest that the MICR aggravated assault (w/firearm and w/injury) offense category captures nonfatal shooting incidents overlooked by DPD's internal nonfatal shooting tracking system. Only a small percentage of unmatched MICR aggravated assault (w/firearm and w/injury) incidents were associated with a major injury, which is most consistent with a gunshot wound. Even so, there is no way to definitively determine whether victim injuries are penetrating wounds caused by the discharge of a firearm. In addition, the MICR aggravated assault (w/firearm and w/injury) offense category failed to identify 11.9% (362 of 3,052) of DPD nonfatal shooting incidents, which were captured as some other offense category or did not meet the reporting criteria for MICR submission.

Together, these findings underscore the value of creating dedicated reporting criteria that capture nonfatal shootings in NIBRS. Responding to this need, the adoption of a MICR nonfatal shooting offense category is a significant advancement, with mandatory reporting for all Michigan-based LEAs as of 2021. Later discussed, the rule of mutually exclusive offenses, however, may prevent the full scope of nonfatal shooting incidents from being realized in MICR.

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In the absence of a nonfatal shooting indicator, our analysis suggests that a more accurate estimate of nonfatal shooting incidents can be obtained from NIBRS by restricting aggravated assaults to those that involve a firearm and major injury to the victim. Applying these criteria, our population of MICR aggravated assault incidents drops from 4,641 to 2,730, a 41.2% reduction. Of these incidents, 92.8% (2,533 of 2,730) are matched to a DPD nonfatal shooting incident, leaving only 7.2% (197 of 2,730) unmatched. In comparison, our original approach resulted in 58.0% (2,690 of 4,641) of MICR aggravated assault (w/firearm and w/injury) incidents matched to a DPD nonfatal shooting incident, leaving 42% (1,951 of 4,641) unmatched. The tradeoff of this alternative approach, however, is that that 82.3% (2,533 of 3,052) of DPD nonfatal shooting incidents are matched, instead of the 88.1% (2,690 of 3,052) previously reported. Nevertheless, its application stands to offer a significant improvement in the estimation of nonfatal shooting incidents over the consideration of all injury types and absent a dedicated nonfatal shooting indicator in NIBRS and LEA records of nonfatal shooting incidents.

**Finding 2:** Nonfatal shootings occur in a variety of contexts beyond those that meet the NIBRS definition of an aggravated assault (w/firearm and w/injury). While the majority of DPD nonfatal shooting incidents were matched to a MICR aggravated assault (w/firearm and w/injury) incident, our analysis of the remaining unmatched DPD nonfatal shooting incidents revealed diversity in offense categories. The rule of mutually exclusive offenses contributed to this diversity, affecting 6.7% (204 of 3,052) of DPD nonfatal shooting incidents.<sup>4</sup> For this reason, its

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<sup>4</sup> Found in Table 5, this calculation (204 of 3,052) considers robbery (N = 184), murder/nonnegligent manslaughter (voluntary) (N = 9), justifiable homicide (N = 7), non-aggravated assault (N = 2), sexual penetration oral/anal CSC 1<sup>st</sup> (N = 1), and intimidation/stalking (N = 1) offense categories.

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impact on offense categorization as it relates to the new MICR nonfatal shooting offense category is worth considering.

Assuming a perfect application of the MICR nonfatal shooting offense category, 6% (186 of 3,052) of DPD nonfatal shooting incidents may have been classified as an offense category other than a nonfatal shooting incident under the rule of mutually exclusive offenses.<sup>5</sup> The addition of a data element that captures a gunshot wound as a victim injury type would help ensure that nonfatal shooting injuries could be successfully recovered from MICR. This simple solution has been proposed for NIBRS by prior research (e.g., Hipple, 2022) and the FBI's Criminal Justice Information Services Advisory Police Board, which also recommends additional data elements that capture the discharge of a firearm and the shooter's intent (Parker, 2021). If adopted, these recommendations would support the systematic collection of a broader array of firearm-involved crimes, while aiding prevention and intervention efforts through the availability of such data.

**Finding 3:** By comparison to previous research, our findings support the superiority of NIBRS in capturing nonfatal shooting incidents over the UCR-SRS. In a similar study, Hipple (2022) found matches for 82.0% (1,569 of 1,913) of nonfatal shooting incidents identified by the Indianapolis Metropolitan Police Department (IMPD) with UCR-SRS aggravated assault incidents involving a firearm (w/firearm). In comparison, we found matches for 88.1% (2,690 of 3,052) of DPD nonfatal shooting incidents with MICR aggravated assault (w/firearm and w/injury) incidents. Furthermore, 79.7% (6,159 of 7,728) of UCR-SRS aggravated assault

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<sup>5</sup> Found in Table 5, this calculation (186 of 3,052) considers robbery (N = 184), sexual penetration oral/anal CSC 1<sup>st</sup> (N = 1), and intimidation/stalking (N = 1) offense categories.

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(w/firearm) incidents were unmatched, in comparison to 42.0% (1,951 of 4,64) of MICR aggravated assaults (w/firearm and w/injury) incidents. As earlier demonstrated, even greater improvements are possible in this area if only major injuries are considered along with the involvement of a firearm. These comparisons affirm the benefit of jointly using data elements that capture firearm and injury type in the identification of nonfatal shooting incidents in NIBRS.

**Finding 4:** Considering these findings and mirroring previous research, efforts by LEAs to track nonfatal shooting incidents are warranted and stand to advance firearm violence research by providing a reliable and valid source of such data (Annest & Mercy,1998; Hipple, 2022; Hipple et al., 2020; Kaufman et al., 2021; Magee et al., 2021; Parker, 2021,2022; Roman & Cook, 2021). Absent a change in NIBRS reporting to accommodate nonfatal shooting injuries, LEAs should be encouraged to allocate resources to support the systematic collection of this form of firearm violence data. Our analysis of DPD nonfatal shooting incidents, however, reveals challenges in maintaining such data systems. Of relevance, a small number of DPD nonfatal shooting incidents turned fatal or did not meet MICR reporting requirements but were not identified as such in DPD’s internal nonfatal shooting tracking system. The resources needed to maintain such data systems are substantial. Local, state, and federal resources should be allocated to support LEAs in efforts to maintain such systems. Importantly, these efforts should be united by a nationally recognized definition of a nonfatal shooting injury. Subject matter experts (e.g., Hipple, 2022; Hipple et al., 2020; Parker, 2021) have proposed a definition of a nonfatal shooting that requires a penetrating wound caused by a projectile from a weapon with a powdered discharge or explosive. This definition is broader than that of a nonfatal shooting in MICR, which is focused on “unlawful attacks” (i.e., interpersonal violence). Nonfatal shooting

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injuries that are sustained by accident, in self-defense, or self-inflicted are not reported in MICR or NIBRS. For the broadest application and usefulness of these data, LEAs should collect information on victim demographics, location, date, time, injury location, as well as the intent of the shooting (e.g., accidental, self-inflicted, self-defense, or criminal). As applied in Detroit, such information would provide better data for firearm research that can then be used to make more informed decisions regarding prevention, intervention, and enforcement initiatives.

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