Research Note ———————————————————————

❖ COMPARISON OF THE NATIONAL VIOLENT DEATH REPORTING SYSTEM AND SUPPLEMENTARY HOMICIDE REPORT: POTENTIAL BENEFITS OF INTEGRATION

Ryan T. Shields
Florida State University

Brian W. Ward
Center for Health Promotion, Education, & Tobacco Use Prevention
Maryland Department of Health & Mental Hygiene

❖ Abstract

This paper introduces researchers and practitioners to a new data source called the National Violent Death Reporting System (NVDRS), which has the potential to be linked to the Supplementary Homicide Report (SHR). Using data from Maryland, we examine limitations of the SHR cited by past research and how integration of the SHR with the NVDRS can simultaneously enhance both the SHR and NVDRS. Although some limitations remain, it appears that the integration of the SHR with the NVDRS has potential benefits that can more accurately inform both homicide research and local policy.

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A major issue that both homicide researchers and local government officials face is access to valid and generalizable data. While homicide researchers may be interested in large-scale, nationwide generalizations, state and local officials often search for state- and county-level data that can accurately inform local policy. In the past, one of the most widely used sources of data for both of these parties has been the Supplementary Homicide Report (SHR). The SHR is a valuable source of information (Addington, 2006; Langford, Isaac, & Kabat, 1998; Maxfield, 1989; Tennebaum, 1993; Williams & Flewelling, 1987); however, researchers have also noted that it contains specific limitations which its users must consider (Addington, 2006; Flewelling, 2004; Langford et al., 1998; Loftin, 1986; Lynman et al., 2004; Maltz & Targonski, 2002, 2003; Maxfield, 1989; Neapolitan, 2005; Tennebaum, 1993; Williams & Flewelling, 1987). While this discussion of the SHR remains important, we must not let it blind us to the notion of using additional data sources to help ameliorate the SHR's limitations.

In this paper we argue that a new source of data—the National Violent Death Reporting System (NVDRS)—has this potential. The NVDRS collects information on violent deaths in the United States and is able to link the SHR with data that address a number of limitations researchers have found with the SHR. We also argue that the results of this integration are not unidirectional. By linking the SHR to data included in the NVDRS, the NVDRS itself may also be enhanced, creating a stronger dataset than using only one of these sources independently.

Undertaking this examination is important for a number of reasons. First, this paper provides a methodological description of the NVDRS to the public. This information is important to disseminate if the NVDRS is to be recognized as a valid source of data by researchers and practitioners, and if its users are to clearly understand the complexities involved in its creation. It is our hope that this paper will be used in conjunction with the NVDRS data, codebook (Centers for Disease Control and Prevention [CDC], 2004), and official documentation as a supplemental methodological document for SHR-NVDRS integration (something that at the time of writing has not been officially published by the CDC).[1] A second reason for this study's importance is that few researchers have made use of the NVDRS. Furthermore, only two of these studies focused specifically on homicide (Bennett et al., 2006; Bossarte, Simon, & Barker, 2006), both with limited emphasis on data and methods. Finally, because of the focus on homicide at the state and county levels, this research also has the ability to address certain issues faced not only by homicide researchers, but also by local practitioners.

The main question this research paper seeks to answer is: What are the potential benefits of integrating the NVDRS and SHR? To be more specific, by taking

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[1] For a list of NVDRS methodological and related publications, see http://www.cdc.gov/ncipc/profiles/nvdrs/publications.htm.

the SHR and incorporating it with the NVDRS according to the CDC's (2004) primacy structure (detailed later), how can the SHR be enhanced as a data source when placed within the NVDRS? Simultaneously, how can the NVDRS be enhanced through the inclusion of the SHR? In answering these questions not only will the NVDRS be introduced, but its use as a data source for homicide research and policy will also be assessed.

The remainder of this paper is organized as follows. The first section introduces the NVDRS, provides background information, and describes its structure. The second section discusses the history and current structure of the SHR. The third section examines how the NVDRS compares to the SHR, how it might address some of the SHR's limitations, and how both data sources are in a unique position to potentially benefit from integration. Included in this section are comparisons between the SHR, the NVDRS without including the SHR, and the NVDRS including the SHR. Finally, this examination is followed by a summary of the findings and implications for policy.

❁ The NVDRS

Background

Despite the heavy burden that violent death places on public health administrators, law enforcement officials, and emergency medicine practitioners, data collection on violent death has been relatively scant. Prior to 1999, no violent death surveillance system existed in the United States (CDC, 2004). Although other types of surveillance systems[2] have existed for decades (e.g., Fatality Analysis Reporting System), efforts to collect comprehensive violent death data on a national level have only more recently gained support (Kohn, 2004). In 1999, a privately funded system called the National Violent Injury Statistics System (NVISS) began collecting data on homicides and other types of violent death. Thirteen NVISS sites contributed to this first violent death surveillance system. Although the system was short lived, the lessons learned from NVISS illustrated the importance of collecting violent death data, not only for research purposes, but also to assist with the development of effective prevention programs (CDC, 2004).

Accordingly, the U.S. Congress allocated funds to the CDC to initiate the NVDRS in 2002. Six states—MA, MD, NJ, OR, SC, and VA—were the first to

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[2] As defined by the Centers for Disease Control and Prevention (CDC), a surveillance system is a system that facilitates "the ongoing and systematic collection, analysis, and interpretation of health data in the process of describing and monitoring a health event. This information is used for planning, implementing, and evaluating public health interventions and programs" (CDC, 1988, p. 1).

begin collecting violent death data for the NVDRS (CDC, 2004). By 2004, 11 additional states had been funded, for a current total of 17 participating states, with hope of eventually extending the NVDRS to include all 50 (Roache, 2006).[3]

Structure of the NVDRS

The definition of a violent death as used by the NVDRS (and as operationalized by the CDC and the World Health Organization) is "a death resulting from the intentional use of physical force or power against oneself, another person, or against a group or community" (CDC, 2004, p. 2). Accordingly, the NVDRS is designed to include deaths due not only to homicide, but also to suicide and undetermined intent.[4] One main feature of the structure of the NVDRS is that its cases are incident-based. Incident-based systems (e.g., National Incident-Based Reporting System [NIBRS], SHR) make it possible to examine data beyond the aggregate, and link multiple sources, persons, and circumstances—a noted improvement from previous victim-based systems (Akiyama & Nolan, 1999). Therefore, within the NVDRS, each case initiated can include multiple victims. In cases of homicide, single or multiple suspects may be included. By allowing for multiple victims and offenders to be included in one case, the NVDRS also enables individuals to be classified as more than one "person-type" (CDC, 2004). This is particularly valuable when examining homicides in which an offender murders the victim(s), and subsequently commits suicide (see Bossarte, Simon, & Barker, 2006). In these instances the individual would be classified as both a victim (of suicide) and an offender.

Additionally, another structural feature of the NVDRS is that cases that are a result of legal intervention (i.e., police-involved homicides) are operationally separated from other cases classified as homicide. According to Fyfe (2002), this is an important distinction because the lack of an organized effort to collect detailed data on police use of lethal force results in little knowledge about these incidents. Finally, perhaps the most unique and valuable feature of the structure of the NVDRS is that it links multiple data sources together for the same incident. The mandatory data included come from Vital Statistics death certificates (DC), coroner or medical examiner reports (C/ME), police reports (PR), and crime laboratories (LAB). Additional data sources may be available, but vary between states. These may include the SHR (currently used by 10 NVDRS states: CA, CO, GA, MA, MD, NJ, OK, OR, and UT), hospital information (HOSP), child fatality reviews (CFR), and

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[3] These additional eleven states include: AK, CA (partial participation), CO, GA, KY, NM, NC, OK, RI, UT, and WI.

[4] Although not fitting this exact definition given, the CDC also decided to include deaths resulting from unintentional firearm injuries in the NVDRS. Firearm-related injuries are the second leading cause of injury mortality in the United States, and including these types of shootings will allow for the surveillance of all firearm injuries and provide information for state and local prevention strategies (CDC, 2007a).

firearm traces (ATF) (CDC, 2004). Variation in the inclusion of these additional sources depends upon the conditions specified in each participating state's agreement with the CDC. Because these additional sources (i.e., SHR, HOSP, CFR, and ATF) are not mandatory, we believe it is important for current NVDRS states to explore the costs and benefits of their inclusion.

For an example of how the linkage of data sources occurs, we turn to the state of Maryland. In Maryland, incident records are initiated with the collection of data from the DC (CDC, 2005). This particular data source is used because it is a reliable source in identifying the occurrence of deaths in the United States (National Center for Health Statistics [NCHS], 2002; Rokaw, Mercy, & Smith, 1990). However, the DC only contains basic demographic information and no data on the circumstances of the death. Once the data from the DC has been imported into the NVDRS database, victims are then matched with persons found within the C/ME database. After this linkage, the C/ME data files (which also contain data from the PR documents) are abstracted and entered into the database. If PRs are not contained within the C/ME file, they must then be retrieved through a formal request made directly to the local police agency.

Finally, after all three of these sources have been linked, SHR data are retrieved from the Maryland State Police and linked to homicides in the NVDRS database. In order to link SHR and NVDRS records, NVDRS program staff first use Microsoft Access to perform a query identifying all homicides currently in the NVDRS database. For each of these homicides, the query produces the following information: victim demographics (i.e., age, sex, race, and ethnicity), incident location (i.e., county) and date, and police narratives (a brief written "story" of the homicide event). This query is then sorted by police jurisdiction (i.e., police department/sheriff's office) and date. Finally, systematic manual linkages are made by comparing these NVDRS data with those found on each SHR record. Data from those cases that are successfully matched are entered into the NVDRS database. Because of the way in which the SHR is reported in the state of Maryland and the partnerships developed by local and state law enforcement agencies, this has been deemed the most reliable process for SHR-NVDRS linkage (resulting in 79% of NVDRS homicides in Maryland in 2004 being matched with an SHR, a percentage slightly less then other studies that have linked other data to the SHR; see Barber, Hemenway, Hochstadt, Azrael, 2002). This linkage process may differ for each NVDRS state, and it is dependent on specific state-level NVDRS and law enforcement partnerships.[5]

Because of missing data and unknown circumstances in the NVDRS and/or SHR, positive matches are not always made for every homicide incident. As a result,

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[5] To inquire about each state's specific SHR-NVDRS integration procedures (if applicable), data source components, and case definition, see contact information for individual states at: http://www.cdc.gov/ncipc/profiles/nvdrs/state_profiles.htm.

some homicides within the NVDRS are missing SHR data. These unmatched incidents are believed to result from one of three situations: (1) an SHR does not exist for that particular homicide (i.e., is underreported); (2) more than one SHR exists for a single homicide (i.e., is double-counted); or (3) the incident was simply not able to be matched to a corresponding SHR.

Throughout the data collection process, each source is independent of the others and has potential to contradict the others. Most often this is not the case; however, instances of disagreement do arise. To account for this, the CDC developed a hierarchical primacy schema for individual variables (see Table 1). The CDC evaluated the data sources for each variable by consulting the NVISS to determine which source contains the most accurate information (L. Frazier, Jr., personal correspondence, September 12, 2006). When the data from the first

◈ Table 1

Established Primacy of Variables Included in the NVDRS

Variable	Order of Primacy			
	1st	2nd	3rd	4th
Victim's age	C/ME	DC	PR	SHR
Victim's sex	DC	C/ME	PR	SHR
Victim's race	DC	C/ME	PR	SHR
Victim's ethnicity	DC	C/ME	PR	SHR
Victim's state of residence	C/ME	DC	PR	—
Victim's county of residence	C/ME	DC	PR	—
Victim's veteran status	DC	—	—	—
Victim's marital status	DC	C/ME	—	—
Victim's manner of death	C/ME	DC	—	—
Type of location where injured	DC	PR	C/ME	—
State of injury	DC	C/ME	PR	—
County of injury	DC	C/ME	PR	—
Victim's education	DC	C/ME	—	—
Victim's homeless status	C/ME	PR	—	—
Victim in custody when injury occurred	PR	C/ME	—	—
Victim's blood alcohol concentration (BAC)	C/ME	—	—	—
Victim's toxicology testing/results	C/ME	—	—	—
Victim/suspect relationship	PR	C/ME	—	—
SHR victim/suspect relationship	SHR	—	—	—
Circumstances [a]	CFR [b]	C/ME	PR	SHR

Source: CDC, 2004.
Note. CFR = child fatality reviews; C/ME = coroner or medical examiner reports; DC = death certificates; PR = police reports.

[a] The circumstances for each incident are treated cumulatively. Therefore, if a circumstance is present in any one of the CFR, C/ME, PR, or SHR, it is included for an incident.

[b] The CFR is not included in Maryland's NVDRS.

primacy source are missing, sources with secondary primacy are consulted, and so on. The primacy schema is implemented by national and local NVDRS staff, so that users of the NVDRS do not have to execute it themselves. Use of this schema is thought to provide NVDRS users with the most reliable source of data for each individual variable, and only a minimal amount of missing data (CDC, 2004; L. Frazier, Jr., personal correspondence, September 12, 2006). This primacy schema and process of data source integration hint as to how various data sources—the DC, C/ME, PR, and SHR— together have the potential to enhance the final NVDRS database.

❈ The SHR

Background of the SHR

Although the Uniform Crime Reporting Program (UCR) began in the 1920s (Riedel, 1999), it was not until 1961 that the Federal Bureau of Investigation (FBI) extended the program to collect national-level data on murder and non-negligent manslaughter (called the SHR) as part of the UCR (Zahn & McCall, 1999). Initially the SHR collected only victim demographics, weapon information, and related circumstance data. This report was not very useful its first year—only 82% of estimated homicides were reported due to coding difficulties and partial reporting (Riedel, 1999). In 1975, the SHR was redesigned to maximize utility and increase reliability (Riedel, 1999). Improvements included a movement from victim to incident-based units (i.e., multiple victims and offenders could be identified within the same incident), the collection of offender data, and the creation of a separate variable for the victim-offender relationship. At this time the SHR homicide circumstances were also updated, and codes were developed to distinguish homicides that were felonies, non-felonies, or suspected felonies. This SHR format has remained relatively consistent since 1975, with the exception of the reclassification of race codes and the addition of an ethnicity code in 1980 (Fox, 2004; Riedel, 1999). At the present time, it is estimated that the SHR identifies approximately 92% of homicides occurring in the United States (Bazley & Mieczkowski, 2004).

Structure of the SHR

Under the SHR program, the FBI collects detailed data on several types of homicide: murder and non-negligent manslaughter (homicides that were a deliberate killing of an individual by another individual), negligent manslaughter (deaths that occurred as the result of extreme negligence by the offender), and justifiable homicides (someone who is killed by an on-duty police officer or an individual in an act of self-defense) (FBI, 1984). According to Riedel (1999), although all four types of homicide are collected by the SHR, negligent homicides are typically not

reported. Data for the SHR are submitted to the FBI by police departments, or through state-level UCR programs. Participation in the SHR program is voluntary, and its coverage has varied over its history (Fox, 2004).

Currently the SHR collects the following data elements: situation code (i.e., the number of victims and suspects involved in an incident), victim and offender demographics (age, sex, race, and ethnicity), type of weapon, victim/offender relationship (only one coded relationship allowed), homicide circumstances (only one coded circumstance allowed), incident date, and reporting police jurisdiction. As with the NVDRS, the SHR is incident-based and includes all victims and offenders involved in a homicide incident. A detailed description of the background and structure of the SHR has been provided elsewhere, and will not be discussed here at length (see Bazley & Mieczkowski, 2004; Fox, 2004; Riedel, 1990).

◈ Data and Methods

In order to examine the strengths and weakness of the SHR-NVDRS integration, data were obtained from three separate sources: the SHR; the NVDRS without SHR data, or non-integrated (NVDRS$_{NI}$); and the NVDRS including SHR data, or integrated using the procedure mentioned above (NVDRS$_{SHR}$).[6] The NVDRS was compiled both with and without data from the SHR not only to allow for better comparisons, but also to understand the impact of integrating the SHR in the NVDRS data source. The data from each of these were drawn for the state of Maryland in 2004. The analyses were limited to this state/year because at the time of writing, data for this state/year were the only data available that would facilitate the analyses conducted. The SHR data were retrieved from the FBI's *Uniform Crime Report* (2005) as prepared by the Maryland State Police (2005). These data (MSP 2005) included counts at the county level for Maryland's 23 counties and Baltimore city.[7] The NVDRS$_{NI}$ and NVDRS$_{SHR}$ datasets were compiled using the CDC's (2004) primacy schema (Table 1). The total homicide count in each dataset was 521 for the SHR, 505 for the NVDRS$_{NI}$, and 505 for the NVDRS$_{SHR}$.

In order to make comparisons between the data sources, two different measures were used. The first measure examined the percentage differences between homicide counts and was used in all comparisons. The second, used only in com-

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[6] Please note that the linkage of the SHR and NVDRS was not completed by the authors. Homicide incidents in Maryland's NVDRS were matched to SHR records by program staff prior to this study as part of standard NVDRS data collection procedures.

[7] Baltimore City is considered by the Maryland government as a jurisdiction independent of all 23 counties. Baltimore City also contains its own police department. Thus, the FBI's (2005) *Uniform Crime Report* treats Baltimore City as a separate county-equivalent. Therefore, this research handles Baltimore City in similar fashion.

parisons between counties, was drawn from the widely cited research of Wiersema, Loftin, & McDowell (2000) and examined the differences between homicide rates. To calculate these rates, county population, state population, and demographic characteristic estimates were retrieved from the U.S. Census Bureau (2005a, 2005b, 2005c). These two measures were calculated between both the $NVDRS_{NI}$ and the SHR, and the $NVDRS_{SHR}$ and the SHR. Positive values in each measure imply more homicides in the $NVDRS_{NI}$ or $NVDRS_{SHR}$ than in the SHR. We applied these methods not only to examine the differences in homicide counts at the county level, but also to examine differences in demographics and circumstances of reported homicide cases at the state level. Here a positive value implies a larger number of a specific characteristic/circumstance in the $NVDRS_{NI}$ or $NVDRS_{SHR}$ than in the SHR.

✸ Results

Both the SHR and NVDRS bring with them respective advantages and disadvantages. In this section these issues will be discussed and examined in order to address the potential benefits of integration. While the issues and findings discussed here are not exhaustive, they are thought to be the most relevant in the homicide research literature (see Addington, 2006; Flewelling, 2004; Langford et al., 1998; Loftin, 1986; Lynman et al., 2004; Maltz & Targonski, 2002, 2003; Maxfield, 1989; Neapolitan, 2005; Tennebaum, 1993; Williams & Flewelling, 1987) and most relevant to policy and program development (Maxfield, 1989). The specific issues examined include: (1) known circumstances; (2) coding of the victim/ offender relationship; (3) underreporting and double-counting; (4) county-level analyses and reliability; (5) missing data; (6) training and reporting practices; and (7) national-level representation and public availability.

Known Circumstances

An important piece of information provided by the SHR is the known circumstance (Maxfield, 1989; Wiersema et al., 2000). This information is particularly important to law enforcement agencies in that a larger amount of known information increases the likelihood of clearing murder cases (Addington, 2007). Although the known circumstance is an important variable, it can create problems due to its mutually exclusive nature (Loftin, 1986; Maxfield, 1989). Because the structure of the SHR allows the recording of only one coded circumstance, other circumstances involved with a particular homicide incident may go unnoticed by researchers. For example, if an incident occurs in which an individual is involved in a drug transaction and is then robbed and murdered, the SHR would only report one circumstance: either the involvement of drugs or the robbery. Thus, by its very structure the SHR may neglect important known circumstance information. In addition,

there is no systematic method to determine which circumstance takes priority over another. It is a subjective decision of the reporting party, which may potentially affect the reliability and validity of the data (Brownstein, 2000).

The NVDRS also contains circumstance information; however, it is not a mutually exclusive variable. Any circumstance information present in an incident is abstracted from the C/ME, PR, and SHR to create a cumulative and exhaustive circumstance list. Taking the above example, if the C/ME reports drug involvement, the PR reports drug involvement and robbery, and the SHR reports drug involvement, the NVDRS incident would then contain both the drug involvement and robbery circumstances. Information that would have not been included in the SHR is captured in the NVDRS.

There are a few details of the known circumstance comparisons between the $NVDRS_{NI}$, $NVDRS_{SHR}$, and SHR that should be addressed. (Data from Maryland are used in the following examples.) First, direct comparisons cannot be made between all circumstances because some circumstances included in the SHR are not included in the NVDRS, or are not equivalent to those in the NVDRS, and vice versa (see Appendix, Table A1). Second, in instances in which a comparison is able to be made, it appears that often the SHR may be missing circumstance information (in our data, 349 of 521, or 67.0% of homicide incidents reported by the SHR; see Table 2). In comparisons of the $NVDRS_{NI}$ and $NVDRS_{SHR}$ to the SHR, a positive percentage difference occurred in all circumstances known, indicating that more information was present in the $NVDRS_{NI}$ and $NVDRS_{SHR}$ than in the SHR, with the exception of burglary and "other circumstances."[8]

There are also instances in which more circumstance information is known when the SHR is added to the NVDRS database. The positive percentage difference between the SHR and $NVDRS_{NI}$ is even higher when comparing the $NVDRS_{SHR}$ to the SHR for robbery, argument over money/property, other argument, abuse, conflict, and drug involvement. In addition, where burglary was a circumstance, the inclusion of the SHR into the NVDRS caused the percentage difference to change directions from negative to positive. Finally, the number of homicides with unknown/missing circumstance information is 24.6% greater in the SHR than in the $NVDRS_{NI}$ and 32.7% greater than in the $NVDRS_{SHR}$, indicating that more known information results when these two sources are integrated.

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[8] It may not be surprising that there are more "other circumstances" in the SHR than in the NVDRS. The authors believe the reasons for this may be (1) the C/ME and PR reports give circumstance information through a narrative in which more detailed information is able to be collected as opposed to the simple, close-ended variable present in the SHR, and (2) because of the mutually exclusive nature of the circumstance variable in the SHR, reporting parties may be more likely to select the "other circumstance" attribute in incidents in which there is more than one circumstance. In the case of the NVDRS, this is not an issue because of the cumulative nature of the circumstance information.

Coding of the Victim/Offender Relationship

As researchers have noted, another valuable piece of information contained in the SHR is the relationship between the victim and the offender (Langford et al., 1998; Wiersema et al., 2000; Williams & Flewelling, 1987). The NVDRS also contains this information through the inclusion of data from the C/ME and PR, but unfortunately the C/ME and PR (both mandatory sources of data for the NVDRS) may be less likely to contain known victim/offender relationships than the SHR (see Table 3). Therefore, while the SHR still has a substantial number of unknown victim/offender relationships, its inclusion in the NVDRS database clearly enhances the NVDRS.

One limitation of the victim/offender relationship in the SHR should be mentioned here. For incidents involving multiple victims and/or offenders, often only one relationship is reported for all involved parties (Fox, 2004). For example, in an incident in which a victim's brother-in-law and the brother-in-law's friend beat the victim to death, the SHR may indicate the victim/offender relationship as "in-law" between the victim and both offenders, resulting in unreliable data. The NVDRS offers an opportunity for multiple relationships to be recorded for all involved parties, with the primacy structure (see Table 1) enacted independently for each victim/offender relationship. Using the above example, the victim/offender relationships would then become "in-law" and "acquaintance." While these data sources are all measuring the victim/offender relationship, the operationalization of the SHR, PR, and C/ME relationship measures are different. To account for this distinction, the NVDRS includes a separate primacy structure for both the SHR and the PR and C/ME victim/offender relationship, suggesting the importance of the information from this variable for both the SHR and the other two sources (CDC, 2004).

To examine the integration of the SHR with the NVDRS, victim/offender relationship codes from both sources were compared (see Table 3). From an initial examination, this variable appears to be rather inconsistent across sources, bringing the reliability of its measurement into question. This does not suggest that integration has no potential benefits, but instead implies how integration allows both data sources to capture victim/offender relationships that were not included in the other. Thus, these sources have the potential to be used collectively to improve reliability of this variable. For example, the SHR reports 13 homicides in which a child was killed by his or her parent, while the NVDRS$_{NI}$ identified only 3 such relationships. Similarly, the NVDRS$_{NI}$ reported that 9 murders occurred between a girlfriend and boyfriend; however, once the SHR data were added to NVDRS$_{NI}$, 14 of these relationships were identified (the SHR alone reported only 5 boyfriend/girlfriend relationships). Perhaps the most striking difference is the lower percentage (10.3%) of missing relationships when data from the SHR are integrated into the NVDRS$_{NI}$ (from 419 to 376 instances).

Another potential advantage to using both SHR and NVDRS data is that integration provides a larger range of attributes for the victim/offender relationship

◈ Table 2

Homicide Circumstances and Percentage Differences for the $NVDRS_{NI}$, $NVDRS_{SHR}$, and SHR (Maryland, 2004)

Circumstance [a]	$NVDRS_{NI}$	$NVDRS_{SHR}$ [b]	SHR	Percent Difference ($NVDRS_{NI}$ −SHR)	Percent Difference ($NVDRS_{SHR}$ −SHR)
Robbery	42	47	30	40.0 %	56.7 %
Burglary [b]	2	7	4	-50.0	75.0
Motor vehicle theft	4	4	0	-	-
Arson	2	2	0	-	-
Rape, sexual assault	3	3	1	200.0	200.0
Gambling	1	1	0	-	-
Assault, homicide	1	1	-	-	-
Witness intimidation/elimination	0	0	-	-	-
Argument over money/property	14	18	10	40.0	80.0
Jealousy/lovers' triangle	12	12	3	300.0	300.0
Intimate partner violence	32	32	-	-	-
Other argument, abuse, conflict	75	101	66	13.6	53.0
Drug involvement [c]	49	50	7	600.0	614.3
Gang related	1	1	0	-	-
Hate crime	0	0	-	-	-
Brawl [d]	23	23	2	-	-
Terrorist attack	0	0	-	-	-
Victim was a bystander	5	5	-	-	-
Victim was a police officer	1	1	-	-	-
Justifiable self-defense/law enforcement	16	16	-	-	-

Circumstance [a]	$NVDRS_{NI}$	$NVDRS_{SHR}$ [b]	SHR	Percent Difference ($NVDRS_{NI}$−SHR)	Percent Difference ($NVDRS_{SHR}$−SHR)
Victim used a weapon	11	11	-	-	-
Victim was an intervener assisting a crime victim	1	1	-	-	-
Mercy killing	0	0	-	-	-
Larceny	-	-	0	-	-
Prostitution/other commercial vice	-	-	0	-	-
Child killed by babysitter	-	-	1	-	-
Institutional killings	-	-	3	-	-
Sniper attack	-	-	0	-	-
Other circumstance	16	18	45	-64.4	-60.0
Unknown (missing)	263	235	349	-24.6	-32.7

Note. For some of the circumstances, a percentage difference was unable to be calculated due to the "0" count of a circumstance type in the SHR. Some caution should be given to interpreting percentage differences calculated with counts less than 10.

[a] See Appendix, Table A1, for recoding scheme used for circumstance comparisons.

[b] For the circumstance of burglary, the count of "7" for the $NVDRS_{SHR}$ raised a need for further analyses. Therefore, a post hoc examination of Maryland's $NVDRS$ was completed and revealed that for one incident in which burglary was a circumstance, two homicide victims were involved. This was reported by the $NVDRS_{SHR}$ as two separate circumstances of burglary; however, it appears that for the SHR this circumstance was counted as one circumstance of burglary.

[c] Per CDC (2004), drug involvement implies illegal trafficking, committing robbery to obtain money for drugs, arguments over drugs, or suspicion of drug-relatedness.

[d] Based on the coding used by both the NVDRS and SHR for circumstances involving a brawl, the researchers did not feel adequate comparisons could be made between the data sources for this particular circumstance (see Appendix, Table A1).

▧ Table 3

Victim/Offender Relationships and Percentage Differences for the $NVDRS_{NI}$, $NVDRS_{SHR}$, and SHR (Maryland, 2004)

Victim/Offender Relationship [a]	$NVDRS_{NI}$	$NVDRS_{SHR}$ [b]	SHR	Percent Difference ($NVDRS_{NI}$−SHR)	Percent Difference ($NVDRS_{SHR}$−SHR)
Spouse	14	12	11	27.3%	9.1%
Ex-spouse	0	1	1	-100.0	0.0
Boyfriend or girlfriend	9	14	5	80.0	180.0
Ex-boyfriend or ex-girlfriend	2	-	-	-	-
Girlfriend or boyfriend, unspecified whether current or ex	1	-	-	-	-
Parent	3	3	3	0.0	0.0
Child	3	8	13	-76.9	-38.5
Sibling	3	3	0	-	-
Grandchild	0	-	-	-	-
Grandparent	0	-	-	-	-
In-law	1	1	1	0.0	0.0
Stepparent	0	1	1	-100.0	0.0
Stepchild	1	1	1	0.0	0.0
Child of suspect's boyfriend/girlfriend	2	-	-	-	-
Intimate partner of suspect's parent	0	-	-	-	-
Foster child	0	-	-	-	-
Foster parent	0	-	-	-	-
Other family member	4	6	6	-33.3	0.0
Babysittee	0	-	-	-	-

Victim/Offender Relationship [a]	NVDRS$_{NI}$	NVDRS$_{SHR}$ [b]	SHR	Percent Difference (NVDRS$_{NI}$–SHR)	Percent Difference (NVDRS$_{SHR}$–SHR)
Acquaintance	1	58	72	-98.6 %	-19.4 %
Friend	4	3	3	-33.3	0.0
Roommate (not intimate partner)	1	-	-	-	-
Schoolmate	4	-	-	-	-
Current or former work relationship	0	0	0	0.0	0.0
Rival gang member	0	-	-	-	-
Other person, known to victim	33	4	3	1000.0	33.3
Stranger	3	47	50	-94.0	-6.0
Victim was injured by law enforcement officer	14	-	-	-	-
Victim was law enforcement officer injured in the line of duty	3	-	-	-	-
Common-law husband	-	1	5	-	-80.0
Common-law wife	-	0	10	-	-100.0
Neighbor	-	2	1	-	100.0
Homosexual relationship	-	1	2	-	-50.0
Unknown (missing)	415	376	419	-1.0	-10.3

Note. For some of the victim/offender relationships, a percentage difference was unable to be calculated due to the "0" count of a relationship type in the SHR. Counts are not of the number of homicides, but rather of the number of relationships reported; therefore, the total count is expected to be greater than the number of homicides because incidents may have multiple offenders. Some caution should be given to interpreting percent differences calculated with counts less than 10.

[a] See Appendix, Table A2, for recoding scheme used for victim/offender relationship comparisons.

[b] Note the victim/offender relationship used in the above comparisons is not the same variable for the NVDRS$_{NI}$ and the NVDRS$_{SHR}$. The NVDRS$_{NI}$ uses data from the C/ME and PR, while the NVDRS$_{SHR}$ uses data from the SHR after it is screened and added into the NVDRS database.

▩ Table 4

County of Injury, Percentage Differences, and Rate Differences for the $NVDRS_{NI}$, $NVDRS_{SHR}$, and SHR (Maryland, 2004)

County	$NVDRS_{NI}$	$NVDRS_{SHR}$	SHR	Percent Difference ($NVDRS_{NI}$–SHR)	Rate Difference ($NVDRS_{NI}$–SHR) per 100,000 [a]
Allegany	2	2	0	- %	-
Anne Arundel	20	20	16	25.0	0.78
Baltimore	22	22	29	-24.1	-0.89
Baltimore City	273	273	276	-1.1	-0.47
Calvert	0	0	1	-100.0	-
Caroline	0	0	0	0.0	-
Carroll	1	1	0	-	-
Cecil	2	2	2	0.0	-
Charles	4	4	5	-20.0	-
Dorchester	2	2	3	-33.3	-
Frederick	2	2	1	100.0	-
Garrett	1	1	1	0.0	-
Harford	4	4	3	33.3	-
Howard	3	3	1	200.0	-
Kent	0	0	0	0.0	-
Montgomery	18	18	18	0.0	0.0
Prince George's	131	131	146	-10.3	-1.78
Queen Anne's	1	1	1	0.0	-
St. Mary's	6	6	3	100.0	3.16
Somerset	1	1	1	0.0	-
Talbot	0	0	1	-100.0	-
Washington	5	5	5	0.0	0.0
Wicomico	3	3	5	-40.0	-
Worcester	2	2	0	-	-
Unknown [b]	2	2	3	-33.3	-
Maryland	505	505	521	-3.1	-0.28

Note. For some of the counties, a percentage difference was unable to be calculated due to the "0" count of a county in the SHR. Some caution should be given to interpreting percentage differences calculated with counts less than 10. Because the homicide counts for both the $NVDRS_{NI}$ and $NVDRS_{SHR}$ were identical, the percentage and rate differences were identical. Thus, these differences were only calculated between the $NVDRS_{NI}$ and SHR.

[a] Per the Maryland Department of Health & Mental Hygiene Institutional Review Board, rates were not calculated for counts under "5" due to confidentiality reasons.

[b] Possible explanations for this "unknown" category include: (a) it was unclear if the county in which the victim was found was the county in which the victim was killed, (b) the homicide was reported by a statewide agency and the specific county could not be identified, or (c) this information was missing.

(see Appendix, Table A2). For example, the NVDRS is able to identify homicides of ex-girlfriends/ex-boyfriends, children of suspect's boyfriend/girlfriend, foster parents, etc., which are not identified in the SHR. Similarly, relationship attributes that appear in the SHR but not in the NVDRS include neighbors, common-law husbands/wives, and homosexual relationships. The inclusion of these additional relationship types may provide more specific data for better analyses.

Underreporting and Double-Counting

Other issues researchers must consider when using the SHR are the potential underreporting (Flewelling, 2004; Lynman et al., 2004; Tennebaum, 1993; Wiersema et al., 2000; Williams & Flewelling, 1987) and double-counting (Maltz & Targonski, 2002) of homicides. Data can be compromised if multiple jurisdictions record and report the same homicide. Similarly, underreporting (perhaps due to the voluntary nature of SHR reporting practices) also results in data inaccuracies. Since Maryland's NVDRS uses the DC to initiate homicide incidents (arguably the best source for incident identification) and a DC is required for every death that occurs in the United States (NCHS, 2002; Rokaw et al., 1990), it is believed that both of these issues are minimized. If a certain homicide is double-counted by the SHR, data from only one of the duplicate SHRs is linked to an NVDRS homicide. In addition, if a homicide is not reported through an SHR, it will still exist in the NVDRS database, albeit missing SHR data. For example, in Maryland in 2004, the SHR reports that 521 homicides occurred. In contrast, the NVDRS$_{NI}$ only recorded 505 homicides, a percentage difference of -3.1% and a rate difference of -0.28 homicides per 100,000 persons (see Table 4). Based on the above rationale, we feel that these findings indicate the SHR may be double-counting homicides in Maryland. However, further research is needed to verify this claim. It is also possible the NVDRS$_{NI}$ may be underreporting homicides, or even that both underreporting by the NVDRS$_{NI}$ and double-counting by the SHR are simultaneously occurring.

County-Level Analyses and Reliability

A noteworthy limitation of the SHR found by researchers is the inaccuracies it can produce at the county level. Examples of this have been noted by past researchers during examinations of the interchangeability of data sources and the effects of inaccuracies created for jurisdictions with a smaller number of homicides (Baller, Messner, Anselin, & Deane, 2002; Maltz & Targonski, 2002, 2003; Pridemore, 2005; Wiersema et al., 2000). Two aspects of the NVDRS have the potential to be used to address these issues. First, the NVDRS uses the DC to identify homicide incidents. Unlike the SHR, where the smaller number of homicides experienced in smaller counties can be problematic for county-level estimates (Wiersema et al., 2000), the identification scheme used by the NVDRS (identifying cases through death certificates rather than through police investigations) helps maximize the accuracy of these homicide counts by minimizing instances in which a homicide is

either underreported or double-counted in the SHR. Second, the primacy feature of the NVDRS is in place to help systematically identify the most reliable data for each individual variable. Thus, even if the interchangeability of data sources included in the NVDRS is not completely accurate (e.g., the DC and PR give contradicting values for the victim's age), its primacy schema should allow for the most reliable county-level data to be used by researchers and practitioners. Finally, although not yet examined (to the authors' knowledge), the NVDRS also can be used to report city/town-level homicide (however, confidentiality could be an issue).

The homicide counts for each of the 24 jurisdictions in Maryland are identical for the $NVDRS_{NI}$ and $NVDRS_{SHR}$ (see Table 4). However, because incidents are established by the DC, this is expected and only the $NVDRS_{NI}$ will be discussed. There are eight counties for which counts of the $NVDRS_{NI}$ and SHR are equivalent: Caroline, Cecil, Garrett, Kent, Montgomery, Queen Anne's, Somerset, and Washington. As for the remaining counties, there are eight for which the $NVDRS_{NI}$ reports a larger number of homicides than the SHR, as well as eight counties (and an "unknown" county) for which the $NVDRS_{NI}$ reports fewer homicides than the SHR. The percent and rate differences for each county generally show disagreement between the two sources. According to the arguments given above, this suggests that the $NVDRS_{NI}$ county-level data may result in more accurate reporting; however, this needs to be more thoroughly examined by future research.

One particular county of interest is Prince George's county, a jurisdiction that borders Washington, D.C. Here there is a lower percentage (-10.3%) of homicides reported by the $NVDRS_{NI}$ compared to the SHR, and a rate difference of -1.78 homicides per 100,000 persons. The rate difference of this county is the second largest (after St. Mary's). One possible reason may be that incidents of homicides occurring in Washington, D.C. are also being recorded in Prince George's county (i.e., being double-counted). It is beyond the scope of this study to identify the exact causes of the discrepancy that occurs for this county, but other research has suggested that discrepancies between geographic regions and police jurisdiction boundaries exist (Loftin, McDowall, & Xie, 2008). Additionally, the inclusion of cases may not be based on where the victim is pronounced dead, but where a death certificate is issued. In this instance, if a victim is injured in Prince George's county and transported by emergency medical services to Washington, D.C. and pronounced dead, the incident will not appear in Maryland's NVDRS. However, since the Prince George's County Police Department is the investigating agency, the incident could be expected to appear in the SHR as occurring in Prince George's county.

Missing Data

Missing values are an issue that all researchers confront when analyzing data. In an effort to address this issue, researchers have made great strides in the statistical procedures used to minimize the amount of missing information contained in datasets (McKnight, McKnight, Sidani, & Figueredo, 2007; Riedel & Regoeczi, 2004), However, with the creation of data, no matter how advanced the statistical proce-

dures used, error is inevitably introduced (Riedel & Regoeczi, 2004). By design, the NVDRS uses systematic and standardized procedures—the linkage of multiple data sources (a valid manner of accounting for missing data; see Van Court & Trent, 2001) and a hierarchical primacy schema—that decrease the amount of missing data. In turn, this further minimizes error created through statistical imputation.

Table 5 compares the amount of missing data for select variables among all three data sources. For the county of injury, victim's sex, victim's race, victim/offender relationship, and known circumstances, the number of missing values in the NVDRS$_{NI}$ is lower than that of the SHR. When the SHR is integrated into the NVDRS$_{NI}$, there is an even lower percentage of missing values (with the exception of age and county of injury). The missing values for the victim's sex and race disappear, creating a percentage difference of 100.0%. Based on these findings, it is apparent that the integration of the NVDRS and SHR helps minimize missing data.

▣ Table 5

Missing Values and Percentage Differences for Select Variables for the NVDRS$_{NI}$, NVDRS$_{SHR}$, and SHR (Maryland, 2004)

Variable	NVDRS$_{NI}$	NVDRS$_{SHR}$	SHR	Percent Difference (NVDRS$_{NI}$–SHR)	Percent Difference (NVDRS$_{SHR}$–SHR)
County of injury	2	2	3	-33.3%	-33.3%
Victim's race	1	0	2	-50.0	-100.0
Victim's sex	0	0	1	-100.0	-100.0
Victim's age	1	1	4	-75.0	-75.0
Victim/offender relationship	415	376	419	-1.0	-10.3
Circumstances	263	235	349	-24.6	-32.7

Note. Some caution should be given to interpreting percentage differences calculated with counts less than 10.

Training and Reporting Practices

Poor and unstandardized training procedures can raise issues of validity and reliability for data contained in the SHR (Addington, 2006; Brownstein, 2000; Flewelling, 2004; Langford et al., 1998; Loftin, 1986; Lynman et al., 2004; Maltz & Targonski, 2002, 2003; Maxfield, 1989; Neapolitan, 2005; Tennebaum, 1993; Williams & Flewelling, 1987). Currently, SHR participation is voluntary for law enforcement agencies and may not be considered a high priority. As a result, staff may be less likely to be thorough in completing SHR paperwork (Rokaw et al., 1990). This differs for those states currently involved in the NVDRS, when all involved NVDRS personnel undergo a rigorous, standardized training process. This CDC-designed training aims to increase both intra- and inter-state reliability when collecting data.

The training is ongoing throughout the data collection process, and any issues that arise are addressed through monthly conference calls and annual meetings involving all NVDRS staff. Additionally, each state participates in reabstraction procedures to investigate reliability among data abstractors (CDC, 2004). In these procedures a sample of cases from each calendar year is reabstracted by the state's NVDRS project manager. These cases are then entered into an inactive database and compared with the original abstraction. By analyzing the results, each project manager is able to identify coding and reporting issues that need further attention.

The SHR has also received criticism because it is completed in the early stages of an incident (Maxfield, 1989; Neapolitan, 2005). During this time frame a larger amount of information may be recorded as unknown/missing, specifically, the offender's demographic information and the victim/offender relationship. Since the NVDRS uses both PR data and SHR information, the issue of early-stage reporting of homicide incidents still exists. This has been recognized by the CDC, and arrangements (still in planning stages) with local law enforcement agencies are being made that may allow closed case files to later be integrated into the NVDRS. This will allow more detailed data from later-stage reporting to be obtained, further limiting the amount of missing/unknown information.

National-Level Representation and Public Availability

One reason that the SHR is one of the most—if not the most—widely used data source in researching homicide is because it is both nationally representative and available for public use (Addington, 2006; Langford et al., 1998; Lynman et al., 2004; Tennebaum, 1993). Currently NVDRS data are only available for 17 states, limiting its generalizability at the national level, which places a limitation on the generalizability of SHR data when linked to the NVDRS. As previously mentioned, it is believed that in the future the NVDRS will be established nationwide (Roache, 2006). Eight additional states (CT, DE, IL, MI, MN, NY, OH, and TX) and Washington, D.C. have been approved by the CDC for NVDRS participation; (see National Violence Prevention Network, 2008); however, it is unclear when this will become a reality.

Perhaps the largest issue currently faced by the NVDRS is the accessibility of its data for independent research. At the time of writing, there are three ways that researchers can gain access to NVDRS data. First, the CDC has recently created the NVDRS Restricted Access Database (RAD). This database contains data from all 17 NVDRS states, including identifiers at the county level, where these data can be used to their full potential (CDC, 2007b). However, while this valuable database exists, the CDC has placed rigid restrictions on who is eligible for access.[9] The second method researchers can use to gain access to NVDRS data is through individual

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[9] A list of guidelines, questions, and processes for obtaining NVDRS RAD data has been provided by the CDC (see CDC, 2007b). In addition, researchers interested in the NVDRS RAD (or the details of SHR-NVDRS RAD integration) can contact: Centers for

states. Although relatively new, the use of NVDRS state-level data has begun to show promise in research (Hempstead, 2006; Sanford et al., 2006; Weis, Bradberry, Carter, Ferguson, Kozareva, 2006). Because each NVDRS state has its own rules for data requests, researchers and practitioners should contact the state of interest for specific details.[10] Finally, while not currently completed, a web-based inquiry platform for the NVDRS that can be accessed on demand through the NVDRS website is being created by the CDC. This inquiry platform will be similar to the CDC's Web-based Inquiry Statistics Query and Reporting System (WISQARS; see CDC, 2008).

Information and research using the NVDRS are also starting to become more widely available to the public. Descriptive reports have frequently been published by the CDC in *Morbidity & Mortality Weekly*. In addition, the peer-reviewed journal *Injury Prevention* published a special supplemental issue in 2006 that includes studies using NVDRS data (although only minimal emphasis on homicide; see Bennett et al., 2006; Bossarte et al., 2006). Perhaps more relevant to local officials is that states involved in the NVDRS produce publicly accessible annual reports for their respective state that include information and aggregate level data on homicides, suicides, and undetermined deaths. In addition, partnerships between NVDRS and local/state practitioners are also being developed (Campbell et al., 2006; Friday, 2006; Powell et al., 2006).

In sum, unlike the SHR, the NVDRS does not have national-level representation and complete public availability for all 50 U.S. states. However, while a variety of NVDRS data and information is available to national, state, and local officials and researchers, we argue that there is potential for more. We encourage action from both the CDC and researchers/officials. We believe the CDC should consider approaches that minimize privacy concerns of the NVDRS and allow easier access for researchers and officials. Simultaneously, we feel that researchers and officials should inform the CDC of their needs and encourage the CDC to be more flexible in meeting them. Through this mutual action we believe that this current limitation of the NVDRS can be addressed.

✸ Conclusion

Due to its systematic linkage of multiple data sources, the NVDRS appears to be an important source of data for homicide researchers, practitioners, and policy makers. Although the NVDRS does not require that data from the SHR be included,

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Disease Control & Prevention, National Center for Injury Prevention and Control, 4770 Buford Highway, NE, MS F-63, Atlanta, GA 30341-3717; (phone) 800-232-4636; (TTY) 888-232-6348; (fax) 770-488-4760.

[10] Contact information for each of the 17 states involved in the NVDRS can be found at: http://www.cdc.gov/ncipc/profiles/nvdrs/state_profiles.htm.

this present research shows that the SHR-NVDRS integration has the potential to be mutually beneficial. The SHR could benefit from its inclusion into the NVDRS through an increase in the amount of known circumstance information, the gain of a second source of data for victim/offender relationships, a decrease in under-reporting and double-counting, a decrease in the amount of missing/unknown data, and the potential enabling of more accurate county-level analyses. Simultaneously, the NVDRS also has the potential to benefit from this integration through an increase in the types and number of circumstances known, the gain of a second source of data for victim/offender relationships, and an even further decrease in missing data. Based on these findings, it is apparent that benefits of the SHR-NVDRS integration do exist. However, our analyses show that these benefits have only been realized to a small degree, and we are unable to determine whether or not their full potential will ultimately be realized. Thus, future research is needed to ascertain whether or not the potential benefits of the integration of the SHR into the NVDRS are a reality.

While this study focused on the research benefits of NVDRS and SHR integration, it should be noted that possible benefits of integrating these data sources also move beyond research and into practice. More accurate violence data systems that collect information at the local level can help fuel the development of targeted legislative policies (Yearwood & Lubitz, 1999) and prevention strategies (Bennett et al., 2006; Campbell et al., 2006). For example, in North Carolina one data source was established and used to inform legislative policy on domestic violence victims (Yearwood & Lubitz, 1999). The state of Oregon used its NVDRS data to identify populations at risk for suicide by establishing targeted responses to older adults (Campbell et al., 2006). Similarly, Bennett et al. (2006) found that NVDRS can not only identify populations at risk for certain forms of violence (e.g., child homicide), but also examine circumstances and trends that are important in the development of culturally-sensitive interventions. The NVDRS can also identify specific types of injury location, a variable that McGarrell, Giacomazzi, and Thurman (1999) found could be important in the development of crime prevention techniques.

There were a few methodological limitations in our research that should be noted. First, because the NVDRS is in its early stages and not all states integrate the SHR in their NVDRS database, only data from the state of Maryland in 2004 were used in the analyses. Maryland has a large number of homicides compared to many U.S. states, and compared to those included in the NVDRS during 2004 (CDC, 2006), but the results cannot be generalized past the state's borders. Future research should examine the completeness and consistency of the data sources used by the NVDRS, an analysis that is needed to determine the validity of the exploratory findings presented here. Finally, when examining the victim/offender relationships and homicide circumstances, recoding schemes were made to allow for direct comparisons. While we made these schemes transparent by using definitions specified by both the FBI (2005) and CDC (2004) (see Appendix), and these

schemes could potentially act as a template for future researchers, there is a possibility that some accuracy was sacrificed in this process.

The findings of this study provide support for the claim that integrating the SHR with the NVDRS is a potentially beneficial linkage. In addition, this integration can provide more detailed and comprehensive information for local practitioners and policy makers to use when addressing incidents of homicide, crime patterns, and their surrounding circumstances. Implications also exist for the beneficial integration of the SHR and NVDRS with other data sources. For example, since the NVDRS collects address information on the victim and offender's residences and the location of the incident, global positioning system (GPS) data have the potential to be linked to NVDRS data using geographic information systems (GIS) software. As shown by past research (Canter & Harries, 2003), this could allow for crime pattern mapping and visual analyses.

The findings of this research show the NVDRS as a reputable data source that has potential to benefit a variety of individuals. With the integration of the SHR, this potential is even greater. In states with the NVDRS, it would benefit local practitioners to not only become familiar with the system, but also encourage its integration with the SHR. As for law enforcement and public officials, establishing relationships with those involved in the NVDRS may give them a more reliable and accurate data source for the planning and creation of prevention programs and local policies. Finally, for homicide researchers the NVDRS warrants future research and could provide valuable insight into some of the limitations that have been faced by the SHR and other non-integrated data sources. As the NVDRS and other linked data sources become more widespread, it is important to recognize their ability to enhance our research and practice endeavors, and to make sure their potential benefits do not go unrealized.

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❈ Appendix

❈ Table A1

Recoding Scheme of Circumstances for Comparison of the NVDRS$_{NI}$, NVDRS$_{SHR}$, and SHR

NVDRS$_{NI}$ Circumstance	NVDRS$_{SHR}$ Circumstance	SHR Circumstance
Robbery	Robbery	Robbery
Burglary	Burglary	Burglary
Motor vehicle theft	Motor vehicle theft	Motor vehicle theft
Arson	Arson	Arson
Rape, sexual assault	Rape + Other sex offense	Rape + Other sex offense
Gambling	Gambling	Gambling
Witness intimidation/elimination	——	——
Argument over money/property	Argument over money or property	Argument over money or property
Jealousy (lovers' triangle)	Lovers' triangle	Lovers' triangle
Intimate partner violence related	——	——
Other argument, abuse, conflict	Other arguments	Other arguments
Drug involvement	Narcotic drug law	Narcotic drug law
Gang related	Gangland killings + Juvenile gang killings	Gangland killings + Juvenile gang killings
Hate crime	——	——
Brawl (mutual physical fight)	Brawl due to influence of alcohol +/or narcotics	Brawl due to influence of alcohol +/or narcotics
Terrorist attack	——	——
Victim was a bystander	——	——
Victim was a police officer on duty	——	——
Justifiable self-defense/law enforcement	——	——
Victim was intervener assisting crime victim	——	——
Mercy killing	——	——
——	Larceny	Larceny
——	Prostitution or commercial vice	Prostitution or commercial vice
——	Child killed by babysitter	Child killed by babysitter
——	Institutional killings	Institutional killings
——	Sniper attack	Sniper attack
Other homicide circumstance	Other – not specified	Other – not specified
No circumstances known	Not enough information to determine	Not enough information to determine

Source (NVDRS$_{NI}$ and NVDRS$_{SHR}$): CDC, 2004.
Source (SHR): FBI, 2005.

⬛ Table A2

Recoding Scheme of Victim/Offender Relationship for Comparison of the
NVDRS$_{NI}$, NVDRS$_{SHR}$, and SHR

NVDRS$_{NI}$ Relationship	NVDRS$_{SHR}$ Relationship	SHR Relationship
Spouse	Husband + Wife	Husband + Wife
Ex-spouse	Ex-husband + Ex-wife	Ex-husband + Ex-wife
Boyfriend or girlfriend	Boyfriend + Girlfriend	Boyfriend + Girlfriend
Ex-boyfriend or ex-girlfriend	——	——
Girlfriend or boyfriend, unspecified whether current or ex	——	——
Parent	Mother + Father	Mother + Father
Child	Son + Daughter	Son + Daughter
Sibling	Brother + Sister	Brother + Sister
Grandchild	——	——
Grandparent	——	——
In-law	In-law	In-law
Stepparent	Stepfather + Stepmother	Stepfather + Stepmother
Stepchild	Stepson + Stepdaughter	Stepson + Stepdaughter
Child of suspect's boyfriend/girlfriend	——	——
Intimate partner of suspect's parent	——	——
Foster child	——	——
Foster parent	——	——
Other family member	Other family	Other family
Babysittee	-----	——
Acquaintance	Acquaintance	Acquaintance
Friend	Friend	Friend
Roommate	——	——
Schoolmate	——	——
Current or former work relationship	Employee + Employer	Employee + Employer
Rival gang member	——	
Stranger	Stranger (not known to victim)	Stranger (not known to victim)
Victim was injured by law enforcement officer	——	——
Victim was law enforcement officer injured in the line of duty	——	——
——	Common-law husband	Common-law husband
——	Common-law wife	Common-law wife
——	Neighbor	Neighbor
——	Homosexual relationship	Homosexual relationship
Other person, known to victim	Other – known to victim	Other – known to victim
Relationship unknown	Relationship not determinable	Relationship not determinable

Source (NVDRS$_{NI}$ and NVDRS$_{SHR}$): CDC, 2004.
Source (SHR): FBI, 2005.

Ryan T. Shields, M.S., is the former Program Manager of the Maryland Violent Death Reporting System at the Maryland Department of Health & Mental Hygiene. Currently Mr. Shields is a doctoral student in the College of Criminology and Criminal Justice at Florida State University.

Brian W. Ward, M.A., is a Research Analyst on the Maryland Violent Death Reporting System at the Maryland Department of Health & Mental Hygiene. Mr. Ward is also an advanced doctoral student in the Department of Sociology at the University of Maryland, College Park.