

intimate
partner
homicide
in
michigan
1999

*Michigan Department
of Community Health*



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EXECUTIVE SUMMARY

How many Michigan residents on average die each week in the context of intimate partner violence? An editorial published in *The Detroit News* during December 2000 reported that approximately **every eight days**, a homicide related to intimate partner violence occurs in Michigan. Less than two months later, the newspaper quoted a homicide figure that equates to one partner violence-related fatality about **every three to four days**. So, did the incidence of intimate partner homicide in Michigan suddenly double? Not likely—and the true answer regarding the extent of this form of violence is being sought by individuals at the Michigan Department of Community Health (MDCH).

Intimate partner homicide, the willful killing of a current or former partner by another, actually occurred approximately every five days (on average) in Michigan during 1999, according to researchers with MDCH's Violence Against Women Prevention Program. This revelation, determined by linking information from multiple data sources, is a result of the most comprehensive tracking effort ever conducted for intimate partner homicide in the state. Five data sources—death certificates, newspaper articles, law enforcement reports, prosecuting attorneys' files, and medical examiners' records—were electronically linked in order to identify and tally these types of killings.

During 1999—the first calendar year for which surveillance was completed—75 persons were identified as having been murdered in Michigan by current or former intimate partners. Despite an almost equal split in the state between male and female residents, female intimate partner homicide victims outnumbered males by more than a four-to-one ratio.

An additional 26 people were identified as having died in violent incidents related to intimate partnerships. For example, 14 of the 26 deaths were suicide cases where the perpetrator of an intimate partner homicide took his own life after killing his current or former partner. All 14 suicide decedents were men.

While it was discovered that an intimate partner homicide occurred approximately six times per month (on average) during 1999, this frequency of occurrence is probably conservative. This limitation is due, in part, to the researchers not having access to information from all possible contributors. For example, medical examiner (ME) data was obtained through the Michigan Medical Examiner Database—a voluntary, Internet-based case management system not yet used by all of the state's MEs. Additionally, the victim-offender relationship was not identified in over half of the murders reported by law enforcement agencies to the Michigan Department of State Police in 1999.

This report presents first year findings from the Michigan Intimate Partner Homicide Surveillance System (MIPHSS) on the extent and nature of violent deaths related to intimate partner relationships. Future reports will build on the current database, including cases identified as having occurred during year 2000 and beyond.

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INTRODUCTION

How many Michigan residents on average die each week in the context of intimate partner violence? An editorial published in *The Detroit News* during December 2000 reported that approximately **every eight days**, a homicide related to intimate partner violence occurs in Michigan.¹ Less than two months later, the newspaper quoted a homicide figure that equates to one partner violence-related fatality about **every three to four days**.²

So, did the incidence of intimate partner homicide in Michigan suddenly double? Not likely—and the true answer regarding the extent of this form of violence is being sought by individuals at the Michigan Department of Community Health.

BACKGROUND

Although it has been disputed as to which gender is more likely to be victimized by an intimate partner^{3,4,5}, women in the United States (U.S.) are inarguably more apt to suffer greater physical consequences than men as a result of such violence. For example, females report experiencing physical injury at the hands of an intimate partner almost four times more often than males.⁴ Furthermore, women in the U.S. also experience a disproportionate amount of fatal intimate partner violence (hereafter referred to as *intimate partner homicide*).

According to the Federal Bureau of Investigation's Supplementary Homicide Reports (SHRs), during the year 1999 there were at least 1,644 intimate partner homicides in the United States.* Almost three-fourths (74%) of the victims were female.⁶ In recent years, the female-to-male ratio has increased from approximately two-to-one to almost three-to-one⁶; although there has been a steady decline in the incidence of intimate partner homicide where the victim is male, the decrease among female victims has been less precipitous.^{6,7,8,9} In addition to the differences noted between males and females, dissimilar intimate partner homicide rates reported by victims' race likely point toward other factors that are also involved (e.g., cultural, social, and economic issues).^{8,10,11}

One of the complexities in studying intimate partner homicide (IPH) is the lack of standard definitions and methodologies for identifying cases. The combination of the pervasiveness of this violence and the lack of customary measurement techniques creates a need to systematically and consistently characterize the issue using *surveillance systems*.

The U.S. Centers for Disease Control and Prevention (CDC) defines public health surveillance as: "...the ongoing, systematic collection, analysis, interpretation, and

* This reported number of intimate homicides is likely an undercount, as SHRs do not provide a means for identifying all relevant victim-offender relationships (e.g., where the individuals were former boyfriend or girlfriend).

dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health.”¹² The Violence Against Women Prevention Program (VAWPP) in the Michigan Department of Community Health (MDCH) has a cooperative agreement with the CDC to implement an ongoing surveillance system of violence against intimate partners. This type of system is needed because there is no *single* data source in Michigan that currently can provide useful information on this major health issue.

The Michigan Intimate Partner Violence Surveillance System (MIPVSS) has two components: one that looks at non-fatal cases and another that tracks intimate partner and partnership-related deaths. Data for the non-fatal cases are obtained from (a) an emergency department-based reporting system and (b) a prosecuting attorney-based reporting system. The policies and procedures for this non-fatal data system have been described elsewhere.¹³ The present document pertains to the mortality surveillance structure, hereafter referred to as the Michigan Intimate Partner Homicide Surveillance System (MIPHSS).

PURPOSE

The MIPHSS is designed to be an ongoing source of information on fatal intimate partner and partnership-related violence in Michigan. This system will allow: a) the characterization of victims and perpetrators of this violence; b) identification of high-risk groups and communities; c) monitoring of trends in incidence; and d) programmatic evaluation of the effectiveness of violence prevention policies and interventions.

There are several goals for the system:

- ⊕ The MIPHSS will provide statewide coverage on an ongoing basis.
- ⊕ The data contained within the system will be limited to items found in extant databases—i.e., data sources will neither be asked to collect additional information nor will new data sources be created.
- ⊕ These salient data items, which describe victims, perpetrators, and events, will be accurate.
- ⊕ The system will be highly sensitive—i.e., it will identify a large proportion of the cases of fatal partner violence that occur within Michigan.

POPULATIONS

The primary population of interest for the MIPHSS is all homicide victims in the state of Michigan, regardless of state or country of residence, where the victim was age 13 years or older at the time of death, and the victim and perpetrator were current or former intimate partners. Other deaths associated with intimate partner relationships are also being examined (explained more fully under the section entitled “Case Classification”).

While most cases will involve Michigan residents, some victims will be residents of other states or nations. It was further suggested by the CDC that restrictions not be placed on state of occurrence, because a small number of Michigan residents may be dying out-of-state and should be included in the calculation of rates.

In an attempt to address this issue, each of Michigan's surrounding states—Ohio, Indiana, Illinois, and Wisconsin—was contacted about their IPH tracking activities. Ohio and Wisconsin were the only states collecting information to allow for determining an IPH victim's state of residence. Contacts in both states have been approached to explore the possibility of setting up a data-sharing program. For now, though, Michigan residents dying out-of-state are tallied as best as possible via newspaper articles (explained more fully under the section entitled "Data Sources").

DEFINITIONS

Homicide:

The murder or intentional killing of one human being by another.

Intimate partners:

Current spouses

- ⊕ Including long-time residents of the same household who have an intimate relationship (analogous to common-law spouses)*
- ⊕ Separated spouses that are still legally married

Current non-marital partners (heterosexual or same-sex)

- ⊕ Boyfriends/girlfriends
- ⊕ Individuals with at least one child-in-common
- ⊕ Dating partners (*dating* relationship means "frequent, intimate associations primarily characterized by the expectation of affectionate involvement"¹⁴), including first dates

Former marital partners

- ⊕ Divorced spouses
- ⊕ Former long-time residents of the same household who had an intimate relationship together

Former non-marital partners (heterosexual or same-sex)

- ⊕ Former boyfriends/girlfriends
- ⊕ Former dating partners

Intimate partners may be cohabiting (i.e., living together) but need not be. The relationship also need not involve sexual activities. In addition, if the victim and

* Although this class of intimate partners may seem vague and/or antiquated, some law enforcement officers still use the term 'common-law spouse' when describing an intimate partner relationship.

perpetrator have at least one child-in-common but no current relationship (i.e., they are no longer intimately involved), they are still considered former intimate partners.

Lastly, sexual intercourse between persons too closely related to legally marry (i.e., incest) does not qualify them to be included as intimate partners for the purposes of this surveillance system. Neither does the relationship between a sex worker and customer.

DATA SOURCES

Several data sources are used in the collection of information on fatal intimate partnership cases. These sources include: the Prosecuting Attorneys' Association of Michigan (PAAM) Adult Case Tracking System, the Michigan State Police homicide dataset, the Michigan Medical Examiner Database, death certificates, and newspaper articles.

CRIMINAL JUSTICE DATA

Prosecuting Attorney Data

The Adult Case Tracking System (ACTS) is an electronic case-management database operated by the Prosecuting Attorneys' Association of Michigan (PAAM). The 83 counties in Michigan are each represented by a Prosecuting Attorney (PA). County PAs are regularly approached by PAAM and offered the opportunity to voluntarily participate in the ACTS. Participation provides the counties with an electronic system for managing their case files, while PAAM gains the capability to dial into each office's system and access records.

Currently, 78 out of 83 county PA offices (94%) participate in the ACTS. In order to obtain data for the MIPHSS that contain personal identifiers, written consent was sought from each Prosecuting Attorney that uses the system.

Two rounds of mailings and a series of follow-up phone calls were used to try and garner the necessary signatures. Thus far, 72 PAs have granted access to their county's data for the MIPHSS. **Figure 1** depicts the counties that were participating in the ACTS during 1999 and granted access to their PA data.

The MIPVSS work group (an interdisciplinary collection of professionals that provide expertise for Michigan's IPV surveillance efforts) and an additional group of criminal justice professionals evaluated a list of legal charges that fall under the umbrella of *homicide* in Michigan. The groups' evaluations provided a subset of charges with which to query the ACTS (see **Appendix I**) in order to most efficiently isolate cases possibly involving partner homicide.

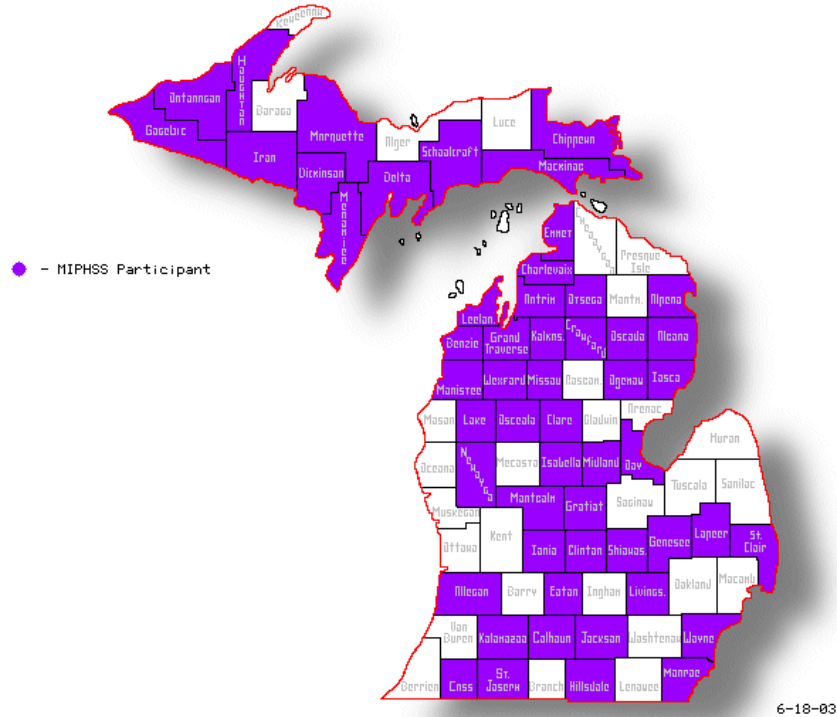


Figure 1. County Prosecuting Attorneys granting access to their Adult Case Tracking System data for calendar year 1999 cases

Law Enforcement Data

The Michigan Department of State Police (MSP) oversees two main systems for the reporting of homicide data. The *Supplementary Homicide Reports* (SHRs) are part of the nationwide Uniform Crime Reporting (UCR) Program.¹⁵ The UCR Program collects crime data based on the voluntary submission of information by law enforcement agencies at the city, county, and state levels.

The *Michigan Incident Crime Reports* (MICR) provide similar data, but with more detailed information than the older UCR Program.¹⁶ Law enforcement agencies not reporting homicide data through either SHR or MICR utilize other means of reporting. The MSP’s Criminal Justice Information Center converts the more modern MICR data into UCR format, in addition to compiling data from agencies that report via other means.

MIPHSS staff receives the combined homicide database from the MSP. Although homicide coverage is intended to be statewide, incomplete case ascertainment can occur if an agency fails to submit data—which does not happen very often with homicide (Amy Alderman, Criminal Justice Information Center, personal communication, 2003). In 1999, 93% of Michigan law enforcement agencies submitted data through either the MICR or UCR system.¹⁶

Homicide offenses stored in UCR format can be classified as one of three types: *murder and nonnegligent manslaughter*, *negligent manslaughter*, and *justifiable homicide*. The MIPHSS only includes murder and nonnegligent manslaughter.

The legal classification of a case may change for several reasons, including charges being dropped, new charges being added, or as the result of a “not guilty” verdict at trial. However, keeping track of the final criminal judgment through years of appeals may not be practical. Therefore, MIPHSS staff uses the determination regarding case type at the time the records are accessed.

MEDICAL DATA

Medical Examiner Data

The Michigan Medical Examiner Database (MMEDB) is a voluntary, Internet-based data collection system that allows ME offices to electronically manage case information via a centralized database. The MMEDB is managed by the Michigan Public Health Institute’s Center for Collaborative Research in Health Outcomes and Policy.

The MMEDB has several objectives: (a) to give ME offices throughout Michigan the ability to automate their records; (b) to establish a minimum standard for ME data collection in Michigan; and (c) to create a dataset that can be utilized by researchers and policymakers.

Michigan law requires MEs to investigate the cause(s) and manner of death in instances of sudden, unexpected, accidental, violent, or suspicious death.¹⁷

As of February 2004, 42 of 83 county MEs participated in the MMEDB (52%). In order to obtain data for the MIPHSS that contain personal identifiers, written consent had to be sought from each office that participates in the database.

Two rounds of mailings and a series of follow-up phone calls were used to try and gain permission. To date, 39 fully participating counties have granted access to their data for the MIPHSS. **Figure 2** depicts the counties that had 1999 data in the MMEDB and granted access to their data for partner homicide surveillance.

For case finding, the MMEDB contains a data item indicating whether the *manner of death* was natural, accidental, suicide, homicide, undetermined, or pending. The 1999 homicide cases were set apart in order to search for possible intimate partner killings, based on information pertaining to others involved with the incident. Useful information was also sometimes present in the case narrative (e.g., “ex-wife was murdered by husband”).

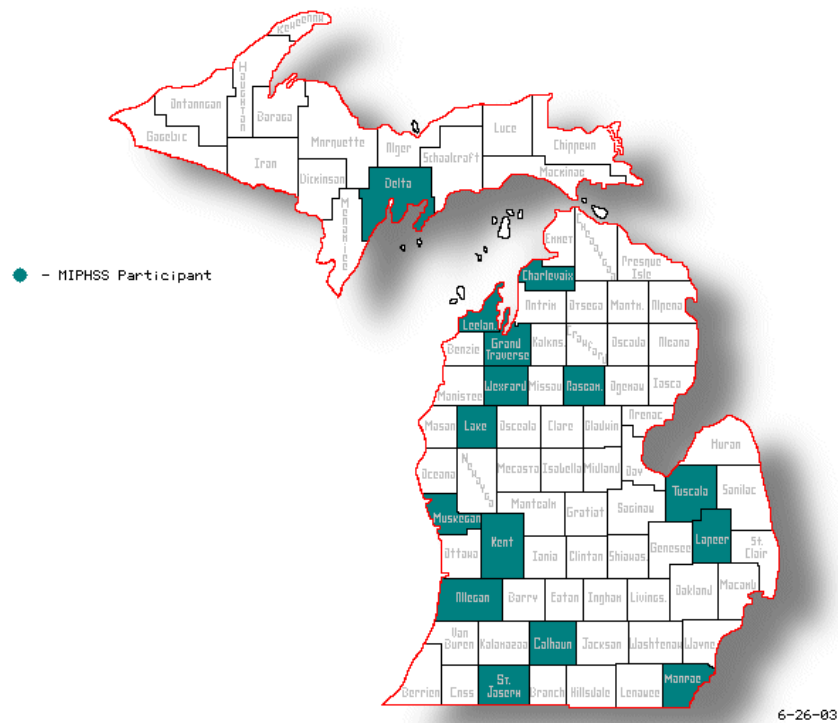


Figure 2. County medical examiners granting access to their Michigan Medical Examiner Database information for calendar year 1999 cases

Death Certificates

Death certificates are part of Michigan’s statewide vital statistics system. The Vital Records and Health Data Development Section within MDCH is the custodian of such records for individuals expiring within state boundaries and also for Michigan residents dying out-of-state.

An authorized representative (e.g., funeral director, attending physician, etc.) records the cause(s) and manner of death on the death certificate. In cases of violent deaths, manner of death is determined and documented by a medical examiner or coroner (depending on state and jurisdiction where death occurred).

The World Health Organization publishes rules and guidelines for coding mortality data, based on information provided by the certifier of death. These guidelines, now in their tenth revision, are published in the International Statistical Classification of Diseases and Related Health Problems (ICD-10).¹⁸ When information regarding only one cause of death is recorded, this is the *underlying cause of death*. If more than one cause is recorded, *related causes of death* are also assigned.

The CDC has compiled a list of ICD-10 codes that the MIPHSS staff use in searching the death certificate database (see **Appendix II**), in order to isolate cases that might involve intimate partner homicide.

MEDIA DATA

Newspapers

Homicide information gleaned from newspapers for the MIPHSS comes from two sources. First, the VAWPP Director continually searches Michigan newspapers' online sites for fatalities possibly involving intimate partner relationships. When cases were being retrieved for calendar year 1999, keyword searches used "murder." Weekly headlines are also examined for cases meeting the project's search criteria. The Director also performs regular keyword searches using "suicide" to locate *IPR deaths* (explained more fully under the section entitled "Case Types").

MIPHSS staff also receive copies of newspaper stories from the Michigan Domestic Violence Prevention and Treatment Board. The Board employs a clipping service to search selected newspapers for domestic violence homicides each year.

It is unclear what proportion of Michigan newspapers had online sites available for searching when 1999 data were collected. As of March 2004, though, at least 76 daily and weekly newspapers in Michigan had online sites available.¹⁹ Furthermore, it is unclear what the circulation area was for newspapers covered by the aforementioned clipping service. Regardless, the combination of both data collection methods is intended to capture a large proportion of the partner homicides and partnership-related deaths that are in fact reported on by newspaper staff in Michigan.

In order to determine whether or not a given case was related to an intimate partner relationship, the VAWPP Epidemiologist examined the narrative of retrieved newspaper pieces. Questionable cases were resolved through discussion with the Director and/or the MIPVSS work group. Next the articles were abstracted by entering salient data items into a Microsoft Access database. All entries were manually verified by comparing information in the database with that reported in the original stories.

Other states that receive IPV surveillance grants from the CDC have also worked with multiple data sources to identify cases of intimate partner homicide. Some states have acquired letters from their legal department stating that intimate partner homicide tracking is considered public health surveillance, thus making police records accessible. On December 2, 2003, the Deputy Director for Public Health and Chief Medical Executive of MDCH designated the MIPHSS as a Medical Research Project. Such designation provides the project with certain protections under the Michigan Public Health Code. These protections will be used to both gain participation of more PAs and MEs, as well as strengthen the evidence within the MIPHSS dataset.

CASE CLASSIFICATION

Records from the five data sources described above are linked in an effort to identify and characterize cases pertaining to intimate partner homicide. Based on the evidence provided, incidents are classified as one of the following types.

Intimate Partner Homicide (IPH)

- ⊕ A criminal justice record indicates that:
 - ⊕ the death has been classified as a murder or intentional killing **and**
 - ⊕ the relationship of the victim to one or more perpetrators was that of current or former intimate partners;...and/or...
- ⊕ The cause of death (underlying or related) on the death certificate is coded Y07.0 (*Other maltreatment syndromes by spouse or partner*); and/or
- ⊕ A medical examiner's report conveys in any way that a person was murdered or intentionally killed by a current or former intimate partner; and/or
- ⊕ A newspaper reports that a person was murdered or intentionally killed by a current or former intimate partner, **and** there is evidence in the newspaper at the very least of legal charges being brought against the perpetrator that are consistent with the focus of this project (see Appendix I), **or** contact can be made with a law enforcement agency that investigated the case to confirm the information retrieved from the newspaper.*

Intimate Partnership Related (IPR) Death

- ⊕ Deaths where the perpetrator of a homicide or attempted homicide, who was a current or former intimate partner of the victim (or intended victim), commits suicide within 3 months after carrying out (or attempting) the intimate partner homicide—hereafter known as *homicide-suicide*.
- ⊕ Deaths related to intimate partnerships where the victim was not one of the intimate partners (e.g., the ex-husband kills his former partner's current boyfriend; the death of a child/children (or unborn child/children) when their mother is also murdered; etc.).
- ⊕ Homicides by proxy are those where one partner hires or causes someone else to kill the other partner.[†] In the event that the non-partner is killed (by others or self) as part of the overall IPR incident, this person will be considered an IPR decedent.

* After working with the five data sources for calendar year 1999, the authors were introduced to the Offender Tracking Information System (OTIS)—an Internet site that provides information about a wide variety of offenders who are, or were, under the supervision of the Michigan Department of Corrections. If an alleged IPH perpetrator was discovered through newspaper reports but none of the other primary data sources, *and* they were featured on the OTIS, the case in question was then considered a confirmed IPH.

[†] For the purposes of this surveillance system, the intimate partner is considered to be the perpetrator in such cases.

Probable IPH

- ⊕ Information from *one or more* data sources indicates that the case might be an intimate partner homicide, but no confirming criminal justice information is found. For example, a death certificate has been coded as T74.9 (*Maltreatment syndrome, unspecified*), and a news story pertaining to the same decedent describes what appears to be an intimate partner homicide, but no confirmation is found through criminal justice sources.

RECORD LINKAGE

The 1999 homicide records subset from Prosecuting Attorney, law enforcement, Medical Examiner, and newspaper databases were deterministically linked with those selected from the death certificate database.* Theoretically, all Michigan residents that die by means of homicide should have a death certificate on file with the Vital Records and Health Data Development Section of MDCH. Therefore, to the extent possible, this source was used to populate the dataset.

Various computer algorithms were used to match records (Table 1). Because overmatching was possible (e.g., multiple death certificates matching with the same police record or vice versa), at least one variable was held out from each step of automated matching and used for manual verification. Programs used for automated record linkage were written in SAS 8.02 (SAS Inc., Cary, NC).

For a detailed description of record linkage procedure, please refer to Appendix III.

Table 1. Identifying victim information used to link IPH cases—Michigan, 1999

<i>Identifier</i>	<i>Death Certificates</i>	<i>News</i>	<i>ME</i>	<i>Police</i>	<i>PA</i>
Name	+	+	+	-	+
Gender	+	+	+	+	-
Age	+	+	+	+	-
Date[†]	+	+	-	+	+
Date of birth	+	-	+	-	-
County[‡]	+	-	+	+	-
Race	+	-	-	+	-

* The description of record linkage procedures primarily pertains to IPH and probable IPH cases (i.e., the linkage of IPR deaths was largely manual).

[†] In medical records, this variable refers to the year, month, and day of death as established by the certifier of death. This variable refers to date of incident occurrence in law enforcement (month and year) and Prosecuting Attorney (year, month, day) data. In newspapers, sometimes the date of incidence, and/or date of death, and/or date of discovery are provided; but when available, date of death was given preference.

[‡] In medical records, this variable refers to the county of death as established by the certifier of death; but this variable refers to county of incidence in law enforcement data.

RESULTS: INTIMATE PARTNER HOMICIDES

During 1999, a total of 104 deaths connected to intimate partner relationships were recorded in the MIPHSS database. Of the 104 fatalities, the MIPHSS recorded 71 intimate partner homicides (IPHs), 7 probable IPHs, and 26 intimate partnership related (IPR) deaths.

Spatiotemporal characteristics

Seventy-eight IPH cases were identified for 1999 that either occurred in Michigan or involved a victim who was a Michigan resident (Table 2).^{*} At least 72 IPH victims were known to be Michigan residents. This figure corresponds to a rate of 8.9 intimate partner homicides per 1,000,000 residents during 1999.[†] Unless noted otherwise, the IPH data analyses that follow pertain only to the 75 deaths that occurred in the state.

Table 2. Distribution of IPH cases by victim's state of residence and the state of homicide occurrence—MIPHSS, 1999

State of residence		<i>State of occurrence</i>				<i>Total</i>
	IPHs	<i>Michigan</i>	<i>Florida</i>	<i>Texas</i>	<i>Unknown</i>	
Michigan		70	1	1		72
Ohio		1			1 [‡]	2
Unknown		4				4
<i>Total</i>		75	1	1	1	78

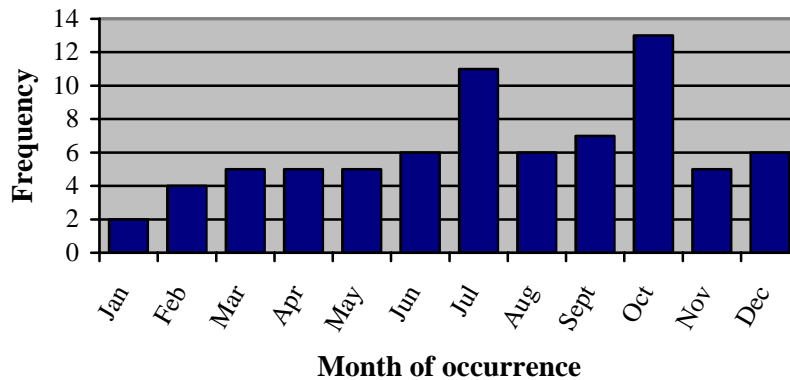
Because the results in this report are based on only one year of data, it is difficult to say with a great degree of certainty whether particular months were above or below expected frequency in terms of IPH incidence. During 1999, though, the peak months for identified IPHs in Michigan were July and October (Figure 3).

^{*} This figure includes both IPHs and probable IPHs.

[†] To calculate rates, the relevant number of deaths was divided by the mid-year population estimate for Michigan residents ≥ 13 years old during 1999; and the result was multiplied by 1,000,000.

[‡] This case involved an Ohio resident whose body was dismembered and parts were located in Michigan.

Figure 3. Distribution of IPH cases by month of occurrence—Michigan, 1999



Again, because this report is based on just one year of data, it is not possible to calculate rates and affirm whether risk for IPH varied across counties in Michigan. Figure 4 provides a map of where Michigan’s identified intimate partner and partnership-related deaths occurred during 1999. As would be expected, the more populous counties—particularly Southeast Michigan—carried the greatest burden of death related to intimate partner violence.

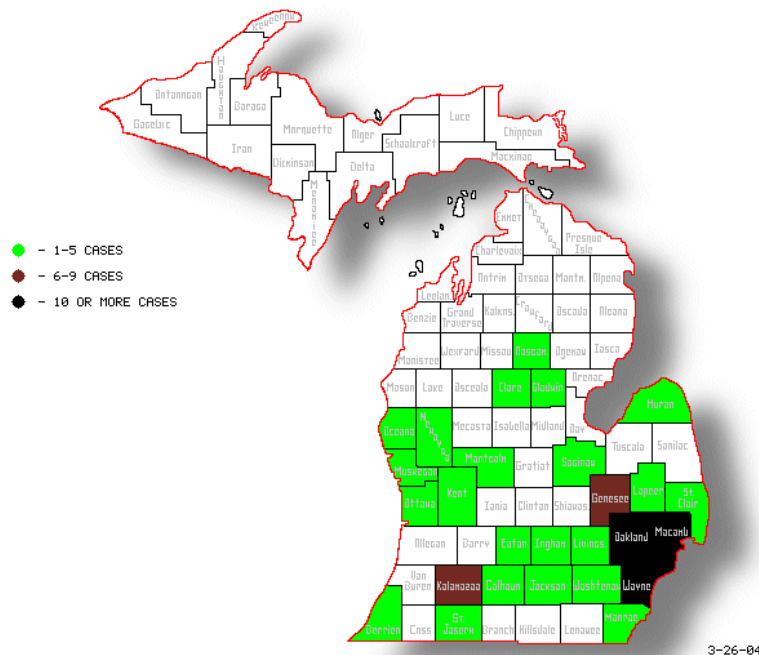


Figure 4. Distribution of identified IPHs and IPR deaths by county of occurrence—Michigan, 1999

Due to the small number of male IPH victims relative to female victims, it was not possible to cross-tabulate place of injury and place of death for men. In terms of the physical place where the injurious event occurred against a female victim, approximately three-fourths took place in the woman's home (Table 3). This is perhaps not surprising given the nature of the event (i.e., intimate partner homicide). Also not surprising is the finding that most of the deaths resulting from said incidents occurred in the home.

Table 3. Cross-tabulation of female IPH victim's places of injury and death—Michigan, 1999

<i>Place of injury (%)</i>	<i>Place of death (%)</i>				<i>Total*</i>
	<i>Home</i>	<i>Hospital</i>	<i>Ambulance</i>	<i>Other; unknown</i>	
<i>Home</i>	33 (57.9)	9 (15.8)	2 (3.5)		44 (77.2)
<i>Residential institution</i>	1 (1.8)				1 (1.8)
<i>Street and highway</i>		2 (3.5)			2 (3.5)
<i>Trade/service area</i>				1 (1.8)	1 (1.8)
<i>Other specified</i>		1 (1.8)		7 (12.3)	8 (14.1)
<i>Unspecified</i>				1 (1.8)	1 (1.8)
Total	34 (59.7)	12 (21.1)	2 (3.5)	9 (15.9)	57 [†] (100)

Victim demographics

Females in their twenties and thirties were victims of IPH more often than other groups of women (Table 4). The relatively small number of victims precludes making a similar declaration for males. It can be stated, though, that the average age of male IPH victims (Mean=44.3 years [95% C.I.=37.8–50.8]) was substantially higher than that of female victims (Mean=36.3 years [95% C.I.=32.8–39.9]). However, perpetrators of either sex were about the same age. On average, male and female offenders were approximately 39 years old. Just over half the identified victims of either gender were less than 40 years old at death.

* Percentage totals may not equal exactly 100.0 due to rounding error.

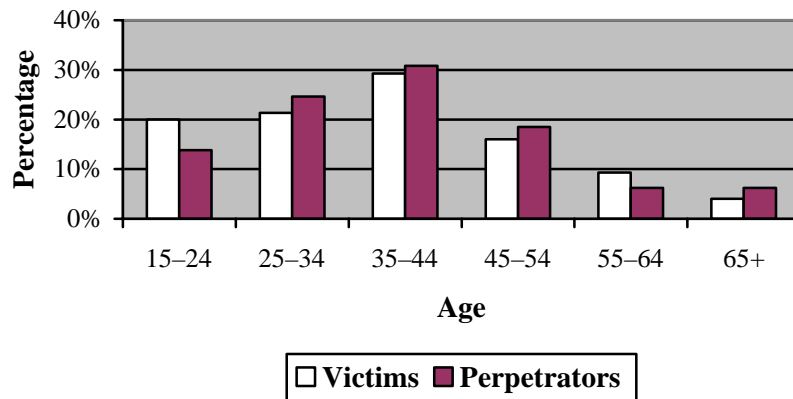
† Place of injury/place of death information was unknown for three of the 60 female IPH victims.

Table 4. Distribution of IPHs by victim's age and sex—Michigan, 1999

<i>Victim's age*</i>	<i>Males</i>		<i>Females</i>		<i>Total*</i>		<i>Cumulative percent</i>
	<i>#</i>	<i>%</i>	<i>#</i>	<i>%</i>	<i>#</i>	<i>%</i>	
<i>15-19</i>			5	8.3	5	6.7	6.7
<i>20-24</i>	1	6.7	9	15.0	10	13.3	20.0
<i>25-29</i>	1	6.7	8	13.3	9	12.0	32.0
<i>30-34</i>			7	11.7	7	9.3	41.3
<i>35-39</i>	3	20.0	10	16.7	13	17.3	58.6
<i>40-44</i>	3	20.0	6	10.0	9	12.0	70.6
<i>45-49</i>	2	13.3	6	10.0	8	10.7	81.3
<i>50-54</i>	2	13.3	2	3.3	4	5.3	86.6
<i>55-59</i>	2	13.3	3	5.0	5	6.7	93.3
<i>60-64</i>			2	3.3	2	2.7	96.0
<i>65-69</i>	1	6.7			1	1.3	97.3
<i>70-74</i>			2	3.3	2	2.7	100.0
<i>Total</i>	15	100.0	60	100.0	75	100.0	

By and large, the age distributions of intimate partner homicide victims and perpetrators were about the same (Figure 5)—victims were an average of 37.9 years of age (+/- 3.1 yrs.) and perpetrators were 39.1 years (+/- 3.1 yrs.). The matched age difference between victim and offender in the same incident ranged from the victim being younger by 18 years to the victim being older by 19 years.

Figure 5. Age distribution of IPH victims and perpetrators—Michigan, 1999



Intimate partner homicide rates varied by victim's sex and race during 1999. Whereas Michigan males had an IPH rate of 3.3 that year, the female rate was 13.9. The IPH rate for black residents was 23.3 while the rate for white residents was 6.8. Most of this differential risk is represented among female victims, where the IPH rate was 36.5 among

* Small cell sizes preclude the calculation of age-specific rates.

black women and 10.6 among white women during 1999. Table 5 provides a cross-tabulation of victims' age, gender, and race.*

Table 5. Distribution of IPHs by victim's age, race, and sex—Michigan, 1999

<i>Victim's age</i>	<i>Victim's race</i>				<i>Total</i> [†]	
	<i>White</i>		<i>Black</i>		<i>Males</i>	<i>Females</i>
	<i>Males (%)</i>	<i>Females (%)</i>	<i>Males (%)</i>	<i>Females (%)</i>	<i>(%)</i>	<i>(%)</i>
<i>15–19</i>		3 (7.9)		2 (9.1)		5 (8.3)
<i>20–24</i>	1 (10.0)	7 (18.4)		2 (9.1)	1 (6.7)	9 (15.0)
<i>25–29</i>		3 (7.9)	1 (20.0)	5 (22.7)	1 (6.7)	8 (13.3)
<i>30–34</i>		5 (13.2)		2 (9.1)		7 (11.7)
<i>35–39</i>	2 (20.0)	6 (15.8)	1 (20.0)	4 (18.2)	3 (20.0)	10 (16.7)
<i>40–44</i>	2 (20.0)	5 (13.2)	1 (20.0)	1 (4.6)	3 (20.0)	6 (10.0)
<i>45–49</i>	1 (10.0)	3 (7.9)	1 (20.0)	3 (13.6)	2 (13.3)	6 (10.0)
<i>50–54</i>	2 (20.0)	1 (2.6)		1 (4.6)	2 (13.3)	2 (3.3)
<i>55–59</i>	1 (10.0)	2 (5.3)	1 (20.0)	1 (4.6)	2 (13.3)	3 (5.0)
<i>60–64</i>		2 (5.3)				2 (3.3)
<i>65–69</i>	1 (10.0)				1 (6.7)	
<i>70–74</i>		1 (2.6)		1 (4.6)		2 (3.3)
<i>Total</i>	10	38	5	22	15 (100.0)	60 (100.0)

Victim-perpetrator relationship

Approximately half (54.1%) of all identified IPH victims of either sex were killed by their current legal spouse (Table 6). About one-third (33.8%) were killed by current boyfriends or girlfriends. The proportion of IPHs committed by same-sex partners was too small to meaningfully comment on. Among white victims, a greater proportion were killed by current spouses than by boyfriends or girlfriends. Conversely, the proportion of black victims killed by boyfriends or girlfriends was similar compared to those killed by current spouses.

* Small cell sizes preclude the calculation of age-specific rates.

† Percentage totals may not equal exactly 100.0 due to rounding error.

Table 6. Distribution of IPHs by victim’s sex, race, and relationship to perpetrator—Michigan, 1999

<i>Victim-perpetrator relationship</i>	<i>Victim’s race</i>		<i>Total*</i>
	<i>White</i>	<i>Black</i>	
Male victims			
<i>Husband</i>	6 (60.0%)	3 (60.0%)	9 (60.0%)
<i>Boyfriend</i>	2 (20.0%)	1 (20.0%)	3 (20.0%)
<i>Common-law</i>		1 (20.0%)	1 (6.7%)
<i>Ex-husband</i>	1 (10.0%)		1 (6.7%)
<i>Ex-same-sex partner</i>	1 (10.0%)		1 (6.7%)
Total	10 (100.0%)	5 (100.0%)	15 (100.0%)
Female victims			
<i>Wife</i>	23 (60.5%)	8 (36.4%)	31 (51.7%)
<i>Girlfriend</i>	13 (34.2%)	9 (40.9%)	22 (36.7%)
<i>Ex-girlfriend</i>	1 (2.6%)	3 (13.6%)	4 (6.7%)
<i>Common-law</i>		1 (4.6%)	1 (1.7%)
<i>Same-sex partner</i>		1 (4.6%)	1 (1.7%)
<i>Unknown type*</i>	1 (2.6%)		1 (1.7%)
Total	38 (100.0%)	22 (100.0%)	60 (100.0%)

Causes of death

By grouping together related, underlying cause of death codes (ICD-10 codes from death certificates), it can be seen that in Michigan during 1999, the majority of identified IPH victims died because of assault by firearms, followed by attack with sharp objects and then assault via hanging, strangulation, and suffocation (Figure 6).

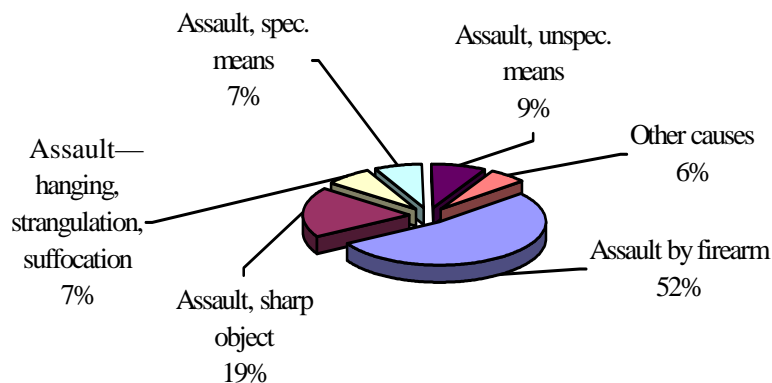


Figure 6. Major groupings of underlying causes of death for IPH victims—Michigan, 1999

* The medical examiner office’s record from which this case was ascertained did not specify the exact type of intimate partner relationship.

Mechanisms of death

Firearms were the major weapon type used in identified IPHs among both sexes in 1999, followed by knives/cutting instruments (Tables 7 and 8).

Table 7. Distribution of weapon types used in male intimate partner homicides, by victim’s relationship to perpetrator—Michigan, 1999

<i>Weapon type</i>	<i>Relationship to perpetrator</i>			<i>Total*</i>
	<i>Spouse*</i>	<i>Boyfriend†</i>	<i>Same sex‡</i>	
Male victims				
<i>Firearm</i>	8 (72.7%)	1 (33.3%)		9 (60.0%)
<i>Knife</i>	2 (18.2%)	2 (66.7%)	1 (100.0%)	5 (33.3%)
<i>Blunt object</i>				
<i>Hands/feet</i>				
<i>Other weapon‡</i>				
<i>Unknown</i>	1 (9.1%)			1 (6.7%)
Total	11 (100.0%)	3 (100.0%)	1 (100.0%)	15

Proportionally, knives were used more often to kill males than females, whereas blunt objects, blows delivered by the hands or feet, and strangulation or asphyxiation were used more often to murder females. Current or former boyfriends and girlfriends were somewhat less likely to be killed by firearms than spouses and ex-spouses.

Table 8. Distribution of weapon types used in female intimate partner homicides, by victim’s relationship to perpetrator—Michigan, 1999

<i>Weapon type</i>	<i>Relationship to perpetrator</i>			<i>Total*</i>
	<i>Spouse*</i>	<i>Girlfriend†</i>	<i>Same sex‡</i>	
Female victims				
<i>Firearm</i>	17 (53.1%)	11 (42.3%)		28 (47.5%)
<i>Knife</i>	2 (6.3%)	7 (26.9%)	1 (100.0%)	10 (16.9%)
<i>Blunt object</i>	4 (12.5%)			4 (6.8%)
<i>Hands/feet</i>	4 (12.5%)	1 (3.8%)		5 (8.5%)
<i>Strangulation/asphyxiation</i>	2 (6.3%)	3 (11.5%)		5 (8.5%)
<i>Other weapon</i>	2 (6.3%)	3 (11.5%)		5 (8.5%)
<i>Unknown</i>	1 (3.1%)	1 (3.8%)		2 (3.4%)
Total	32 (100.0%)	26 (100.0%)	1 (100.0%)	59*

* Includes the following relationship types: current spouses, ex-spouses, and common-law spouses.

† Includes current and former dating partners.

‡ Includes the following weapon types: fire, narcotics and drugs, strangulation, and asphyxiation.

RESULTS: INTIMATE PARTNERSHIP RELATED DEATHS

In addition to intimate partner homicide victims, the MIPHSS identified 26 deaths related to intimate partner relationships (IPR deaths). This total does not include any of the actual homicide victims that were killed by a current or former intimate partner. At least 22 IPR deaths were known to involve Michigan residents (Table 9).

Table 9. Distribution of IPR deaths by victim's state of residence and the state of occurrence—MIPHSS, 1999

State of residence	IPR deaths	State of occurrence			Total
		Michigan	Missouri	Texas	
Michigan	22				22
Nevada			1		1
Washington	1				1
Unknown	1			1	2
<i>Total</i>	24	1	1	1	26

More than three-fourths of IPR decedents were male (Table 10). Men comprised all of the decedents within a subtype of IPR deaths termed *homicide-suicide*. In these 14 identified episodes, a male IPH perpetrator committed suicide after killing his current or former intimate partner. The time span between homicide and suicide ranged from seconds up to three months. For the 11 cases in which the suicide decedent's age was known, these men ranged in age from 20 to 51 years old.

Table 10. Distribution of identified IPR deaths—MIPHSS, 1999

Type of intimate partnership related (IPR) death	Adult decedents		Child/infant decedents		Unborn babies
	M	F	M	F	Unknown
	n (%)	n (%)	n (%)	n (%)	n (%)
	20 (76.9)	3 (11.5)	1 (3.8)		2 (7.7)
	n (%)	n (%)	n (%)	n (%)	n (%)
<i>Homicide-suicide</i>	14 (53.8)				
<i>Lover's triangle</i> [*]	2 (7.7)	2 (7.7)			
<i>Collateral victim</i> [†]	1 (3.8)		1 (3.8)		2 (7.7)
<i>Other arguments</i> [‡]	3 (11.5)	1 (3.8)			

* These cases are not necessarily unrelated to the homicide-suicide incidents.

† Collateral victims had no identifiable conflicts or arguments with their killers leading up to and/or during the time surrounding the fatal incident.

‡ These decedents had been involved in documented arguments with their killers leading up to and/or during the time surrounding the fatal incident. The root of the arguments pertained to an intimate of the perpetrator.

DISCUSSION

Intimate partner homicides (IPHs) comprised a substantial proportion of all homicides in Michigan during 1999. According to information from police reports, there were 675 murder victims* in Michigan that year.¹⁶ Based on findings from the Michigan Intimate Partner Homicide Surveillance System (MIPHSS), intimate partner homicide victims comprised approximately 11% of that total. While the present analysis is based on only one year of data, this figure is remarkably close to published findings that relied on multiple years of data (11–12%).^{6,8,9,20,22}

Among female murder victims, intimate partner homicides accounted for approximately 1 in 3 fatalities. This figure also coincides with what has been reported elsewhere for proportions of murdered adult women killed by an intimate partner.^{6,8,9,21} Aside from just total numbers, though, several characteristics of the identified IPHs in Michigan deserve discussion. Because this is a one-year report and the numbers are consequently small within various strata (e.g., race, sex, and age groups), it is not possible to make statements *directly* comparing risk between groups—to do so would require the age-adjustment of rates. However, most groups identified here with the highest proportions of occurrence were congruent with populations identified in multiple prior studies as being at increased risk for victimization.

Previous analyses have shown that females are more likely to be fatally victimized by an intimate than are males.^{6,8,9,21,50} Data from the MIPHSS for 1999 indicates that identified female IPH victims outnumbered males by a four-to-one ratio (80% vs. 20%). Other researchers—employing a variety of data sources similar to the MIPHSS—have also recently reported that 80–87 percent of intimate partner homicide victims are female.^{23,43} These results differ markedly, however, from other studies that utilized limited data sources. In these studies for example, during 1981 in the United States, both the IPH rate among males and the proportion of IPH victims that were male were barely less than the corresponding figures for females^{6,8}; by 1998 both these numbers for males had declined to less than half that reported for females^{6,8}, but still not to the levels indicated by the MIPHSS. When data on IPH are aggregated from past decades, it can appear as though the proportion of intimate partner homicides perpetrated against women does not exceed two-thirds of all cases.^{6,8,9}

It has also been demonstrated in the literature that black populations have higher IPH rates than whites.^{6,8,9,22,50} Although numbers were too small to calculate age-adjusted rates, among identified IPH victims in Michigan from 1999, blacks were over-represented according to their percent distribution in the state's population. This is similar to what others have discovered for female victims.^{8,20,23} As mentioned in the introduction, dissimilar rates that have been reported by victims' race for domestic and intimate partner homicide potentially point toward other factors that are involved (e.g., cultural variation and socioeconomic issues).^{8,10,11,23} Furthermore, within abusive relationships Campbell et al²⁴ reported no independent association between race/ethnicity

* The definition of murder used by police is the willful killing of one human being by another.

and risk of intimate partner femicide after controlling for other demographic factors (e.g., age, education, job status).

As evidenced by the age distribution of female IPH victims identified from 1999 in Michigan, the risk for victimization spans from adolescence through older adulthood. The greatest frequencies of occurrence belonged to women in their twenties and thirties, however (i.e., reproductive age women). Other analyses have indicated that the peak risk for IPH among females usually occurs in their thirties and declines sharply thereafter.^{8,20} For male victims, the highest risk for IPH is shifted to later in the life cycle—about 10 years after the peak period for females of the same race.^{8,22} Also, male victims tend to be slightly older than their perpetrators, while the opposite usually holds true for female victims.⁹ On average, four out of five male IPH victims identified from 1999 in Michigan were older than their killer.

Any discussion of variations in IPH occurrence by victims' sex and age must be accompanied by a conversation about victim-offender relationship, since these variables tend to be associated with one another—e.g., younger female IPH victims are more likely to be murdered by boyfriends than husbands.^{9,20} A greater proportion of identified IPH victims in Michigan were killed by their legal spouses than dating partners—a finding that is consistent with both the national picture^{6,8,9} and the age distribution of victims identified by the MIPHSS. Among identified IPH victims of each gender, though, the type of relationship involved in female killings was split almost evenly between marital and non-marital partners, whereas marital partners killed two-thirds of men. Again, these results must be 'taken with a grain of salt' given this report is based on one year of data. But it has been suggested that when men kill their female intimate partner, it often represents the most serious outcome of a history of abuse.^{20,23,24,25,26} Similarly, intimate partner homicides where women kill men often reflect self-defense or payback for ongoing abuse.^{23,25,50} The enduring nature of the latter predisposes them to involve older parties more likely to be married. This might partially explain the less than equal split observed between marital and non-marital partnerships among male decedents.

In addition to differences noted above, the weapon type used in fatal episodes of intimate partner violence also differs by victim's sex. In Michigan and the rest of the nation, firearms have been documented as the most frequently used weapon type in IPHs regardless of victim's gender.^{6,8,20,25,27,50} Paulozzi et al contrasted the percentage of IPH victims in the U.S. killed with particular weapon types to the percentage of all homicide victims and their means of death. The authors concluded that male IPH victims were more likely to die by means of cutting instruments than all murdered males; female IPH victims were more likely to die by way of firearms than all female homicide victims.^{8,23}

When the MIPHSS was designed, the authors recognized the importance of capturing information on all deaths related to intimate partner relationships. To do otherwise would severely downplay the magnitude of the problem. Thus, the term *intimate partnership related (IPR) death* was coined (refer to page 10 for a case definition). During 1999 in Michigan, 26 such cases were captured by the MIPHSS. The predominance of men in this

category—representing more than three-fourths of cases—is primarily due to their exclusive contribution to the category termed *homicide-suicide*.

Numerous studies have been published that examined homicide-suicide in general^{28,29,30,31,32,33,34,35,36,37} and suicide following intimate partner homicide specifically.^{38,39,40} Analyses that focused broadly on homicide-suicide have repeatedly discovered that spousal/consortial (i.e., involving intimates) are the most frequent type—accounting for approximately 50–85 percent of incidents.^{28,29,30,31,32,33,34,35,36,37} Within intimate partner homicides, it has been documented that approximately 25–40 percent of perpetrators commit suicide subsequent to the homicide^{38,39,40}; and practically all of these perpetrators are male.⁴⁰ The current analysis indicates that almost one of every five known IPH perpetrators in Michigan took their own lives after killing their current or former partner. All of the identified homicide-suicide perpetrators during 1999 were male.

It is not clear exactly why Michigan’s percentage of IPH followed by suicide (18.7%) is lower than what has been reported elsewhere. One possibility is that the percentage reported here is a one-year anomaly, likely to approximate other studies with more years of data. Another possible explanation deals with case-finding methods. Because the MIPHSS uses multiple data sources to capture IPHs, the total number of identified victims will likely be greater than what is reported by one- or two-source studies (notwithstanding differences in population size). In particular, studies that rely solely on newspapers for information will not only undercount the total number of IPH cases, but they will likely report an inflated percentage of IPH followed by suicide. This is because homicide-suicide is an extraordinary event likely to capture the attention of newsrooms.^{31,38,41}

Limitations of Year 1 Surveillance

Calendar year 1999 was the first year the Violence Against Women Prevention Program (VAWPP) conducted surveillance for intimate partner homicide and partnership related deaths. While VAWPP staff work to improve the ability of the MIPHSS to identify and characterize cases, limitations related to data sources that contribute information are not under the authors’ control. These limitations will be discussed within the context of each contributing source.

First, the Vital Records and Health Data Development Section within MDCH provides death certificate data for the MIPHSS. Access to this information is not problematic for the VAWPP since it too is housed within MDCH. However, death certificates for all cases that should go into the calculation of IPH rates do not always make it to the state. Michigan residents that expire outside the state are supposed to have their death certificate information forwarded to MDCH by other states’ vital records offices. While this did not always occur for calendar year 1999 cases, VAWPP staff was able to acquire most certificates from other states. In addition, there are rare instances where the decedent’s body cannot be located—thus no death certificate.

After obtaining the actual death certificate, the most important feature of this data source for the MIPHSS pertains to the victim's cause of death. While prior studies have demonstrated outstanding agreement between death certificates and external review panels for broad homicide categories, fourth digit ICD-10 codes are rarely used.⁴² Assignment of specific causes of death (e.g., Y07.0) would allow death certificates to serve as an independent source for IPH case ascertainment. However, the certifier of death must provide the requisite information, which falls primarily to medical examiners in Michigan.

The Michigan Medical Examiner Database (MMEDB) provides information to the MIPHSS for medical examiner data. The main limitation of this source for the MIPHSS is that, as a voluntary system, only about half of Michigan's medical examiners are currently using the MMEDB. Because the agency that manages this system is continually recruiting more participants, the utility of the MMEDB for the current surveillance initiative should only improve. Fortunately most participating ME offices (88%) have agreed to share their data with the VAWPP for surveillance. However, most of these offices did not have 1999 data in the system yet. Until more medical examiners are using the MMEDB and sharing their data with the MIPHSS, case ascertainment with this source will be limited. Also, many important variables pertaining to incidents will remain unusable (e.g., toxicology results for victims).

In a similar manner, many important variables related to prosecution of perpetrators involved with intimate partner homicide (and partnership related) cases are currently unusable for the MIPHSS. While the Adult Case Tracking System (ACTS)—which provides Prosecuting Attorney offices' data—is close to statewide coverage (94% of counties), all participating offices are not presently sharing their data with the VAWPP. More problematic for the MIPHSS is the discovery that PA offices used the ACTS much more judiciously for tracking defendants' information than victims' during 1999. Because the MIPHSS is currently a victim-based system, the utility of the ACTS for surveillance hinges on the identification of victims. In the rare instances where successful links can currently be made between the ACTS and other data sources using victims' information, the potential exists for disagreement regarding the disposition of a case. The changing classification of the types of cases that the MIPHSS focuses on is also a problem with law enforcement data.

Law enforcement data were one of the two *primary* sources (newspapers being the other) by which cases were ascertained for the MIPHSS during 1999. The homicide database provided by the Michigan Department of State Police is comprised of two main report types: Supplementary Homicide Reports (SHR) and Michigan Incident Crime Reports (MICR). Although the National Incident Based Reporting System (NIBRS)—of which MICR is a part—is designed to enhance reporting of crime information by law enforcement agencies¹⁵, the NIBRS system does not compensate for the shortcomings of the SHR with respect to intimate partner homicide surveillance.⁴³ Much has been written about the limitations of the SHR system with respect to intimate partner homicide⁴³, including: the underreporting of homicide cases, missing information within reported

cases, exclusion of ex-boyfriends or ex-girlfriends as victim-offender relationship types, and an inability to parse out intimate partner-related deaths.

SHR data have been shown to be fairly accurate in terms of the number of homicides reported.^{8,44,45} Therefore, it is probable that most IPHs and IPR deaths in Michigan are contained in the Michigan State Police dataset. However, missing information *within* this data regarding the victim-offender relationship makes case ascertainment problematic for the MIPHSS. Perhaps the main reason for this information being reported as ‘unknown’ pertains to timeliness—SHR forms are typically submitted shortly after a homicide has been investigated, often before the details of a case become known.⁴⁵ It has been suggested that cases reported with unknown victim-offender relationships are likely to involve people unfamiliar with each other.⁴⁶ On the other hand, Langford et al discovered that 60% of partner victim cases originally coded as non-intimate relationships in the SHR were incorrectly labeled due to misclassification of relationships other than ‘unknown’ (e.g., ‘acquaintances’ and ‘otherwise known’).⁴³ The authors suggested that the lack of exhaustive options for victim-offender relationship types (i.e., ex-boyfriends and ex-girlfriends) might contribute to this misclassification bias. However, the MIPHSS uses multiple data sources for case ascertainment and verification, which likely reduces the number of cases that are missed.

The ability of the MIPHSS to ascertain IPR deaths from the State Police database depends on information regarding the circumstances of the incident. Because the frequency with which circumstances are reported as unknown varies between agencies, this limitation likely reflects departmental practices.^{44,46} During 1999, the authors identified two incidents from law enforcement data involving ‘love triangle’ circumstances. Although the timeliness of SHR reporting potentially facilitated the finding that these incidents represented only half of such identified subtypes, newspaper articles were useful for identifying the others.

Not all cases of homicide, including IPH, are singled out for reporting by journalists. Of the 78 known intimate partner homicides in Michigan or involving Michigan residents during 1999, only two-thirds of the murders were reported in the newspapers at least once. It is certainly possible that the remaining one-third in fact received press elsewhere, and these articles simply were not retrieved by the MIPHSS. Factors are often present in IPH cases that make them more newsworthy than a ‘typical’ homicide, including a female victim and multiple victims.^{47,48} Because methods of locating articles are being refined based on this initial (calendar year 1999) ‘work through’ of the process, it is expected that subsequent years will have even more complete article identification.

CONCLUSION

There is no national surveillance system for intimate partner homicides—or intimate partnership related deaths—in the United States. This fact might change someday with the advent of the National Violent Death Reporting System (NVDRS). Currently, the NVDRS is being implemented in 13 states.⁴⁹ This national reporting system is designed to capture all violent deaths, including those related to intimate partner relationships. For now, though, intimate partner homicide surveillance is the responsibility of individual states.

This report offers first year findings from the Michigan Intimate Partner Homicide Surveillance System—the most comprehensive tracking effort ever conducted for intimate partner homicide in Michigan. Heretofore, statements regarding the annual incidence of IPH in the state were questionable because of (a) non-rigorous methodological descriptions and/or (b) they were based on single data sources and grossly underestimated the magnitude of the problem. In regards to the former, the Violence Against Women Prevention Program offers the present report. In terms of the latter, the authors acknowledge that the results presented herein are also likely an undercount. However, it is the first time a concerted effort has been made to accurately identify, count, and characterize IPH and IPR deaths in the state.

In future years, the MIPHSS will provide data useful for determining trends in statewide IPH incidence. Nationally it has been argued that IPH rates are decreasing steadily, regardless of whether one assesses trends from the mid-1970s or 1980s onward.^{6,8,9, 22,50,51} Just as no causal explanations have been widely accepted regarding the decline in general, no established reasons exist for variable rates among specific gender and race combinations. It has been noted that *regional* sociocultural differences might be a factor⁸—making institutionalization of the MIPHSS as an ongoing information source an important priority for Michigan.

**Appendix I. Description of legal charges searched on from Prosecuting Attorneys'
data—MIPHSS, 1999**

Charge Codes	Description
750/236-B	Homicide, by setting spring gun
750/316-A	Homicide, murder first degree, premeditated
750/316-B	Homicide, felony murder
750/316-C	Open murder, statutory short form
750/317	Murder, second degree
750/321-A	Manslaughter, statutory short form
750/321-C	Involuntary manslaughter
750/321-D	Homicide manslaughter, voluntary
750/321-E	Homicide, manslaughter with motor vehicle
750/327	Homicide, death by explosives/common carrier
750/328	Homicide, explosives in/near building
750/329	Manslaughter, death by weapon aimed with intent but without malice
750/329A	Suicide, assisting
750/90A	Assault, pregnant individual intentionally causing miscarriage/stillbirth
750/90BA	Assault, pregnant individual causing miscarriage/stillbirth
750/91	Homicide, attempted murder
752/1027	Suicide assisting
752/861	Firearm, careless discharge causing injury or death

**Appendix II. Description of ICD-10 codes* searched on from death certificates—
MIPHSS, 1999**

ICD-10 Codes (n)	Description
Y07.0	Maltreatment syndromes by spouse or partner
T74.1	Maltreatment syndromes, physical abuse
T74.8	Other maltreatment syndromes
T74.9	Maltreatment syndrome, unspecified
X85 (n=1)	Assault by drugs, medicaments and biological substances
X86	Assault by corrosive substance
X87	Assault by pesticides
X88	Assault by gases and vapors
X89	Assault by other specified chemicals and noxious substances
X90	Assault by unspecified chemical or noxious substance
X91 (n=5)	Assault by hanging, strangulation and suffocation
X92	Assault by drowning and submersion
X93 (n=1)	Assault by handgun discharge
X94 (n=6)	Assault by rifle, shotgun and larger firearm discharge
X95 (n=30)	Assault by other and unspecified firearm discharge
X96	Assault by explosive material
X97 (n=1)	Assault by smoke, fire and flames
X98	Assault by steam, hot vapors and hot objects
X99 (n=13)	Assault by sharp object
Y00 (n=2)	Assault by blunt object
Y01	Assault by pushing from high place
Y02	Assault by pushing or placing victim before moving object
Y03	Assault by crashing of motor vehicle
Y04	Assault by bodily force
Y05	Sexual assault by bodily force
Y08 (n=1)	Assault by other unspecified means
Y09 (n=6)	Assault by unspecified means
Z63.0	Problems in relationship with spouse or partner
Total = 66[†]	

Several ICD-10 codes assigned to victims in the MIPHSS database were not included in the set of codes above recommended by the Centers for Disease Control and Prevention ($n=4^{\dagger}$), in particular:

- F10.2—*Mental and behavioral disorders due to use of alcohol/dependence syndrome (n=1)*;
- F19.1—*Mental and behavioral disorders due to multiple drug use and use of other psychoactive substances/harmful use (n=1)*;
- R99.0—*Other ill-defined and unspecified causes of mortality (n=1)*; and
- V48.9—*Unspecified car occupant injured in non-collision transport accident (n=1)*.

* Death certificates were searched for both underlying and related cause(s) of death for the listed codes.

† The number of cases referenced does not total 75 because not all cases had death certificates available.

Appendix III. Description of intimate partner homicide and partnership-related record linkage process—MIPHSS, 1999

Records from the newspaper database (n = 50) were deterministically linked with the 717 death certificate records meeting the selection criteria (see table in Appendix II). Death certificates were considered the “gold standard” in terms of correctness of information for variables common to it and the other data sources.* For example, if a newspaper record and death certificate matched perfectly on victim’s last name, first name, gender, and date of death, but differed by one year for victim’s age at death, the age value found in death certificates was considered correct. Correcting the misinformation in a copy of the newspaper database and then merging the records again (Step 2 below) using the previous algorithm resolved such discrepancies.

Table 11 presents the steps involved in this first matching procedure. Vital Records staff searched the 1999 mortality file for decedents identified in newspapers that could not be electronically linked to death certificates. Three such cases possessed ICD-10 codes falling outside of the project’s original sampling frame (Step 2a below). The three outlying certificates were obtained and added to the third merger. Three other decedents did not have a State of Michigan death certificate on file with Vital Records (Step 2b below). Two of the individuals were Michigan residents that expired in other states (Florida and Texas).

Although the third individual—also a Michigan resident—was killed and likely dismembered in Michigan, enough of their remains were found in a neighboring state to necessitate them having a death certificate in that state (Ohio). Two of the three victims’ death certificates were eventually obtained† and added to the third merger.

Table 11. Deterministic linkage of death certificates and newspaper articles—MIPHSS, 1999

Step	Matching Algorithm	No. Linked	% of Newspaper Records Linked
(1.)	Match on victim’s last name, first name, gender, and age‡ <i>(a) 3 discrepancies§ with last name</i> <i>(b) 8 discrepancies with first name</i> <i>(c) 17 discrepancies with age</i>	23	46.0

* However, when information for certain variables was obtained directly from criminal justice sources and differed from death certificates (e.g., county), criminal justice data was considered the gold standard.

† When the death has occurred within the last 25 years, the Texas Bureau of Vital Statistics will only provide copies of death certificates to qualified individuals (e.g., immediate family members).

‡ Manually verified using information pertaining to the date of occurrence.

§ Cases featuring discrepancies among certain variables were not necessarily mutually exclusive, where discrepancies could arise from disagreement on information provided by either data source or one data source containing no information at all for a particular variable.

(2.)	Match on victim’s last name, first name, gender, and age <i>(a) 3 cases fell outside ICD-10 codes</i> <i>(b) 3 cases had no MI death certificate</i>	44	88.0
(3.)	Match on victim’s last name, first name, gender, and age	49	98.0%

Next, records from the Michigan Medical Examiner Database (MMEDB) (n = 8) were deterministically linked with death certificates. Fifty-four records were eligible for inclusion in the Vital Records sub-sample (as opposed to 717), because only 15 county MEs were both participating in the MMEDB during 1999 *and* granted permission to use their data (see Figure 2).

The two discrepancies between death certificates and ME records (Steps 1a, 1b below) were resolved by correcting the information in a copy of the ME database—based on information from the death certificates—and merging the records again using the previous algorithm.

Table 12. Deterministic linkage of death certificates and medical examiner records—MIPHSS, 1999

Step	Matching Algorithm	No. Linked	% of ME Records Linked
(1.)	Match on victim’s last name, first name, gender, and age* <i>(a) 1 discrepancy with last name</i> <i>(b) 1 discrepancy with age</i>	6	75.0
(2.)	Match on victim’s last name, first name, gender, and age	8	100.0%

Death certificates were subsequently linked with cases from the law enforcement database (n = 46). There were now 722 records in the mortality sample due to the addition of five cases revealed in the initial linkage with newspapers (see Table 11).

Table 13 presents the steps involved in this matching procedure. Step 1 initially generated 39 computer matches between the two datasets. However, manual review using the

* Manually verified using date of birth and county of death.

county variables* revealed that eight of these were false positives, resulting in 31 true links.

As the match criteria were relaxed in subsequent steps, the proportion of false positives—relative to the number of computer-generated links—increased. Step 2 originally produced 10 fresh computer matches; but seven of these turned out to be false positives, bringing the cumulative number of true links to 34. In Step 3, 44 out of 47 computer-generated links were false positives, resulting in 37 true links. The nine remaining unlinked police records (i.e., $46 - 37 = 9$) were next searched for manually.

Table 13. Deterministic linkage of death certificates and police records—MIPHSS, 1999

Step	Matching Algorithm	No. Linked	% of Police Records Linked
(1.)	Match on victim’s gender, race, month of death, and age [†]	31	67.4
	<i>(a) 8 false positives</i>		
(2.)	Match on victim’s gender, month of death, and age [‡]	34	73.9
	<i>(a) 7 false positives</i>		
(3.)	Match on victim’s gender, month of death, and county [§]	37	80.4%
	<i>(a) 44 false positives</i>		

First, the Vital Records and Health Data Development Section was provided with salient information for the outstanding cases, in an attempt to manually locate the victims in the 1999 Michigan mortality database. Also, because the law enforcement dataset includes information about which agency submitted the homicide report for a particular case, the State Police’s Criminal Justice Information Center was asked to provide contact information for agencies that submitted data for the unlinked cases.

One round of mailings and a series of follow-up phone calls were used to try and collect information from police departments for these nine victims. Records for two of the nine previously unlinked victims were found in both the MDCH mortality database and law enforcement records. Just a confirmation from the police department was obtained for a

* Although death certificates include the county of death and law enforcement the county of incidence, these variables should usually agree given the outcome under study (i.e., homicide). During 1999 these variables disagreed twice, but matches were evident based on other information.

[†] Manually verified using county of death (via certificates) and county of incident (via police).

[‡] Manually verified using the county variables and victim’s race.

[§] Manually verified using victim’s race and age (+/- 1 year).

third victim, as no death certificate existed for this person yet (the victim’s body was not found until August 2003).*

A death certificate was the only supplemental record retrieved for the fourth unlinked case, as no information could be gleaned from the investigating police department.* For the five remaining unlinked cases, neither a death certificate nor police report was obtained. Reasons for no information from law enforcement agencies included non-response and unwillingness to share information with the authors.

Therefore, the combination of automated (i.e., electronic) and manual matching resulted in four additional true links between police records and death certificates, bringing the total number of matches in this series to 41 (89.1%). The unlinked cases were still included as unique victims (‘probable IPHs’) in the final MIPHSS dataset for 1999.

Lastly, death certificates were coupled with cases from the Prosecuting Attorneys’ Adult Case Tracking System (ACTS). Five hundred and ninety-three (593) death certificates were subset from the mortality sample, because only 54 of 83 county PAs were both participating in the ACTS during 1999 *and* granted access to their data (see Figure 1).

Table 14 presents the steps involved in this matching procedure. The one discrepancy between death certificates and PA records (Step 1a) was resolved by correcting the information in a copy of the PA database, and then merging the records again using the previous algorithm.

Table 14. Deterministic linkage of death certificates and PA records—MIPHSS, 1999

Step	Matching Algorithm	No. Linked	% of PA Records Linked
(1.)	Match on victim’s last name [†] (a) 1 discrepancy with last name	4	80.0
(2.)	Match on victim’s last name	5	100.0%

Not surprisingly, PA offices used the ACTS much more judiciously for tracking defendants’ information than victims’. Thus, out of 54 counties that provided data for the MIPHSS during 1999, a sample of only five cases could be drawn using victims’ information. Therefore, defendants’ information was used next to try and link PA data with death certificates.

* Since the time this report was drafted, information also became available through newspapers.

† Manually verified using victim’s first name, middle name, and date of death (via certificates)/date of incident (via ACTS).

Because death certificates do not contain information about the perpetrator(s) of homicides, the combined death certificate/newspaper dataset (see Table 11) had to be used rather than death certificates alone. This secondary data source (n = 49) was linked with cases from the ACTS (n = 464) using defendants' information.

Table 15 presents the steps in this matching procedure. Step 1 originally produced 26 computer matches; but 10 of these turned out to be false positives, bringing the number of true links to 16. The unduplicated total number of matches (i.e., taking into account Tables 14 and 15) between death certificates and the ACTS was 16 cases.

Table 15. Deterministic linkage of death certificates/newspapers and PA records—MIPHSS, 1999

Step	Matching Algorithm	No. Linked	% of Death Certificate/ Newspaper Recs. Linked
(1.)	Match on perpetrator's last name* (a) 10 false positives	16	32.7%

A bonus data source supplied five additional cases for the 1999 MIPHSS dataset. A researcher with Michigan State University's School of Criminal Justice had conducted a retrospective study of all female murder victims from the period 1999–2001 in Detroit, Michigan. Victims were initially identified through Medical Examiner records. Additional information was then gathered from the City of Detroit Police Department.

The MSU researcher provided case summaries to MIPHSS staff for all murders involving domestic violence. Any incidents not already contained within the MIPHSS dataset were added (provided they met the project's selection criteria); duplicate cases were cross-referenced.

Linkage of IPR deaths

Next, deaths related to intimate partner relationships (i.e., IPR deaths) were subset from the newspaper, medical examiner, law enforcement, and prosecuting attorney databases. The VAWPP Epidemiologist attempted to manually match each case with the corresponding death certificate. Several cases could not be linked with vital records for various reasons (e.g., one homicide-suicide case occurred in Texas[†]).

* Manually verified using perpetrator's first name, middle name, and date of victim's death (via certificates)/date of crime (via ACTS).

† When the death has occurred within the last 25 years, the Texas Bureau of Vital Statistics will only provide copies of death certificates to qualified individuals (e.g., immediate family members).

De-duplication of cases

All records that went through the linkage process (whether electronically or manually) possessed a unique identifier. The state-assigned death certificate number was used to identify records that matched to death certificates. For records that did not have a corresponding death certificate available, the VAWPP Epidemiologist assigned a unique identifier.

To avoid double counting any cases, all datasets created from matching various data sources with death certificates (Tables 11–15) were merged based on the unique identifiers in order to de-duplicate the final set of cases. The VAWPP Epidemiologist then manually examined the evidence of each case and assigned decedents to appropriate case types (see pages 10–11 for a description of case types).

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