

Quality Control in the National Homicide Monitoring Program (NHMP)

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Introduction

Homicide is the most extreme form of interpersonal violence. For this reason, the offence of homicide is often used as an indicator of the general level of violence in a given society. It is therefore crucial that statistics relating to homicide are accurately compiled and are a true reflection of the level of lethal violence in Australia. Unlike other offences, such as assault or armed robbery, homicide statistics are not significantly affected by what is referred to as the “dark figure of crime”. Very few homicides in Australia are unreported or undetected.¹ As a result, of all forms of crime, homicide is probably the one best approached through study of official data (Polk 1994)—namely, police offence reports.

While “official” data may represent the most comprehensive method in the collection of statistics on homicide, it is important to keep in mind the context in which offence reports are written and the purpose of the information. “The perspective of the data collecting agency [that is, the police] has a significant effect on the form and content of the data” (Strang 1994, p. 41). Some understanding of the nature and original purpose of any set of records is important not only with reference to the quality, consistency and completeness of the data they provide, but also for the interpretations that can be placed on the results.

It is important to be aware that police documents cannot be considered as neutral documents, and they cannot be usefully employed in social science if they are not considered in the context of the author’s intentions (Scott 1990). In other words, police offence reports have not primarily been designed for the purpose of collecting data to produce statistics. As will be seen, an ongoing commitment between the Australian Institute of Criminology (AIC) and state and territory homicide squads is critical to ensuring high-quality data.

Purpose of this Report

As most homicide statistics are derived from police offence records, the purpose of this report is to outline the quality control processes implemented by the National Homicide Monitoring Program (NHMP). These quality control processes ensure the accuracy and consistency of statistics derived from NHMP data. By citing examples of

¹ Unreported homicides fall into at least four categories: (1) Murders that involve professional criminals whereby the body has been successfully disposed of and therefore hidden from authorities (a prime example is the Snowtown murders in Adelaide, South Australia, where police uncovered several bodies that had been hidden in a disused bank vault for a number of years). (2) Those people reported missing each year and whose whereabouts have never been traced. It is safe to assume that a small number of these people may have been murdered, but their bodies never found (Wallace 1986). There have been instances where individual victims were identified even in circumstances where the body was not discovered. (3) Infant deaths classified as “sudden death, cause unknown” (category 798, *Causes of Death*, Australian Bureau of Statistics). It may be possible that a proportion of these deaths are deliberately inflicted but escape detection. Similarly, a number of children reportedly the victims of accidental falls or other misfortunes may also have been victims of intentional injury (Strang 1996). (4) “Elder abuse” where the death is recorded as accidental (Polk 1994).

identified inconsistencies in the various sources of data, this report highlights the necessity of a rigorous quality control regime in order to ensure consistency in both recording and counting rules. The first part of the report focuses on the data collection processes of the NHMP. The second part examines quality control processes. It discusses selected examples where discrepancies in the sources of data have been identified and how such discrepancies are rectified. It is acknowledged that no data collection system is free from inconsistencies. The purpose of this paper is therefore to outline the quality control mechanisms undertaken in the compilation of NHMP annual statistics and reports on the various subsets of homicide.

Data Collection Processes of the NHMP

Sources of Homicide Statistics

In Australia there are three main sources of national statistics on homicide.² These are:

- *Recorded Crime Australia* data;
- *Causes of Death Australia* data; and
- the National Homicide Monitoring Program.

A comparison of the three sources of national homicide statistics indicates that there is a large degree of variation in terms of the breadth of information collected, as well as the extent of information published and available to the public (see Table 1). While two Australian Bureau of Statistics (ABS) publications (*Recorded Crime* and *Causes of Death*)

Table 1: Comparison of the various sources of national statistics on homicide

Information available	NHMP data	Recorded crime	Causes of death
Held by	Australian Institute of Criminology	Australia Bureau of Statistics	Australia Bureau of Statistics
Data source	Police offence reports and coronial records*	Police offence reports	Coronial records
Time frame	1989–90 to 2001–02	1993–2001	1964–1999
Duration	Ongoing	Ongoing	Ongoing
Calendar versus fiscal year	Fiscal year	Calendar year	Calendar year
Number of variables collected	77	7	12
Number of variables published annually	70–77	7	4
Level of collection	Incident, victim and offender	Victim only	Victim only
Frequency of reporting	Yearly—within six months of end of fiscal year	Yearly—within six months of end of calendar year	Yearly—within 22 months of end of calendar year
Type of reporting	Annual report on homicide only plus other reports	Annual report with homicide as a sub-section	Annual report with homicide as a sub-section
Availability of additional data to key stakeholders	Upon request, usually at no cost	Upon request, user-pays service	Upon request, user-pays service

* As of 1 July 2001, the Monash University Centre for Coronial Information (MUNCCI) developed and managed the National Coroners' Information System (NCIS), which consists of an electronic database of all coronial records in Australia. Access to view the database online was granted on a fee-for-service basis.

Sources: Australian Institute of Criminology, National Homicide Monitoring Program; Australian Bureau of Statistics, *Recorded Crime Australia*; Australian Bureau of Statistics, *Causes of Death Australia* (see page 73 of 1999 edition).

² These are the main sources of data on homicide where the findings are made publicly available. There is, however, another national repository—the Violent Crime Linkage Analysis System (ViCLAS), coordinated by the Australian Bureau of Criminal Intelligence (ABCI), which records details of *some* homicides (mostly unsolved), sexual assaults of a predatory nature, unidentified bodies, and outstanding missing persons. The information captured in ViCLAS is for law-enforcement purposes only and results from its analysis are not publicly available.

annually report on homicide as a sub-category of “recorded crime” or “deaths”, the NHMP annual report published by the AIC focuses specifically on homicide. As such, it provides a more detailed account of the circumstances and characteristics of homicide in Australia.

Definition of Homicide

The definition of homicide is consistent across many countries (see Table 2). In general, the term homicide collectively refers to “murder”, “manslaughter” and “infanticide”. This excludes lawful or justifiable homicide. The definition of homicide used in the NHMP includes the following types of incidents:

- all cases resulting in a person or persons being charged with murder or manslaughter (including the charge of “dangerous act causing death” which applies in the Northern Territory)—this excludes other driving-related fatalities, except where these immediately follow a criminal event such as armed robbery or motor vehicle theft;
- all murder-suicides classed as murder by the police; and
- all other deaths classed by the police as homicide (including infanticide), even though no offender has been apprehended.

The following types of incidents are excluded from the NHMP:

- attempted murder and deaths due to industrial accidents involving criminal negligence (unless a charge of manslaughter is laid); and
- lawful homicide, including incidents involving police in the course of their duties.

Note that the ABS definition includes “conspiracies and attempts to murder, as well as driving causing death”. This is a result of the inclusion of “other related offences” within the homicide category (Table 2).

Table 2: Cross-national definitions of homicide

Country	Definition of homicide
England and Wales	Murder, manslaughter and infanticide
Canada	First-degree murder, second-degree murder, manslaughter or infanticide
United States	Murder and non-negligent manslaughter
Australia (ABS)	Murder, conspiracies and attempts to murder, manslaughter and driving causing death
Australia (NHMP)	Murder, manslaughter and infanticide

Sources: England and Wales—*Crime Statistics England and Wales*; Canada—*Juristat – Canadian Centre for Justice Statistics*; United States—*Crime in the United States*; Australia—Division 01 of the Australian Standard Offence Classification (ABS 1997) and Australian Institute of Criminology, National Homicide Monitoring Program.

Overview of the NHMP

Prior to the establishment of the NHMP at the AIC in 1990, there was no systematic information on, or monitoring of, the most extreme form of violence in Australia. Recognising the need for such data, the National Committee on Violence (1990), in its report *Violence: Directions for Australia*, recommended the establishment of the NHMP:

Recommendation 103: A national homicide monitoring system should be established within the Australian Institute of Criminology.

Twelve years later, the NHMP database is populated with information on over 4,000 homicides, and has been the source of many studies, all of which have increased our understanding and knowledge of homicide. These have included identification of:

- the characteristics of individuals which place them at risk of homicide victimisation and offending;
- the circumstances that contribute to the likelihood of a homicide occurring; and
- the factors associated with increased solvability of homicide.

The NHMP has also served as a foundation for rational public policy formulation and implementation.

Differences between NHMP and other Homicide Statistics

As mentioned, there are two other sources of national statistics on homicide in Australia (*Recorded Crime Australia* and *Causes of Death*—see Table 1). Despite similar data sources, differences exist between the yearly homicide figures derived from the NHMP and from *Recorded Crime* data. There are a number of possible explanations for this discrepancy (Mouzos 2000), including:

- counting principles;
- the use of unit records versus aggregated data; and
- time frames.

The counting principles practised by the NHMP and the ABS differ. Given the hierarchical structure of the files in which NHMP data are stored, statistics derived from this data can be based on different counting bases (incidents, victims or offenders). Usually, the NHMP “counts” both the number of homicide incidents and the number of victims that have *occurred* in a given financial year. By contrast, the ABS “counts” the number of homicides (victim-based) that have been *recorded* in a given calendar year,³ even though the homicide may have occurred in a year other than that for which it was recorded. The NHMP, where possible, will record an incident in the year it occurred.

³ The ABS follows police practice of recording homicides in the year the incident is detected or, in some cases, in the year the incident is deemed a homicide after the police have received legal advice.

The AIC is provided with copies of each offence report (unit record data), including narratives from state and territory police services, whereas the ABS receives data for the Recorded Crime Collection from each state/territory police agency in a standardised frequency-coded format (aggregated data). Police service staff code the offence records using ABS standards and classifications contained in the *National Statistics Manual*. However, as will be shown, offence record data cannot, on occasion, be totally relied upon, especially in complex cases, and such data may in fact contain inconsistencies. This problem is exacerbated when the data source is in aggregate form and does not include narrative information that allows for crosschecking of information.

NHMP figures are calculated for each financial year rather than the calendar year time frame used by the ABS. Financial and calendar year data are not directly comparable. Despite the inconsistencies that may result from these different practices, they do not affect the overall validity of the analysis and interpretation of data from the NHMP (James & Carcach 1997).

Discrepancies in homicide figures also occur between the official publications produced by each Australian police service and those produced by the ABS and the NHMP. For example, Victoria Police have indicated that ABS national crime statistics only include approximately 70 per cent of all crime recorded by Victoria Police, although this may not necessarily apply to the offence of homicide (Victoria Police 1999). Moreover, it has been noted that the figures in some annual reports produced by state and territory police vary from year to year. This is said to be a result of “time delays that sometimes occur with the entry of crime reports” (Northern Territory Police, Fire and Emergency Services 1998).

NHMP Data Sources

In addition to the two main data sources, NHMP data are also supplemented with information from other sources. These “other” sources include:

- details provided by investigating police officers with first-hand knowledge of the homicide;
- other agencies within the police service (statistical services and homicide squads or major crime units); and
- press clippings provided on a daily basis by a media monitoring service that is tailored to meet the specific needs of the NHMP.

Using the various sources, the NHMP extracts information on 77 variables for all incidents of homicide coming to the attention of police services across Australia. The data collection process involves obtaining hard copies of police offence reports. These are either forwarded by police contacts in each Australian jurisdiction directly to the

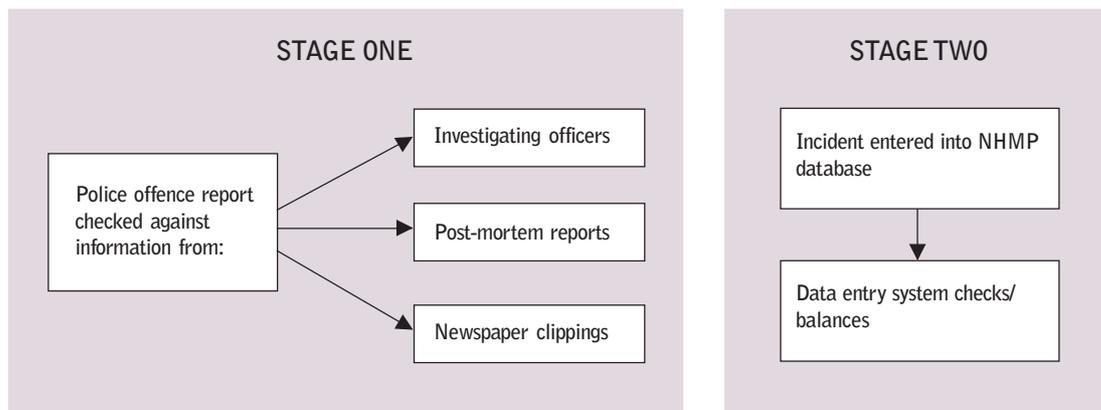
AIC or collected by trained AIC staff during site visits in late August or early September of each year. Once the quality control process has been completed, all relevant information relating to the 77 variables is then extracted from the various sources and entered into the NHMP data management system developed using Statistical Analysis System (SAS) software.

NHMP Quality Control Process

There are two main stages of the NHMP quality control process (see Figure 1):

- data verification; and
- data validation.

Figure 1: NHMP quality control process



Stage One: Data Verification

The first stage of the quality control process is concerned with ensuring that:

- offence reports for all homicide incidents have been received from each respective police service; and
- the information contained in the offence reports has been verified.

This stage mainly involves crosschecking information contained in the police offence reports of murder and manslaughter with information from the “other” sources (that is, investigating officers, post-mortem reports and newspaper clippings), and establishing consistency between the sources as to the details of the incident. In other words, verifying the data.

The main purpose of this process is to ensure that the correct details relating to the homicide incident are recorded in the NHMP. This is achieved by three main crosschecking procedures.

First, crosschecking of information involves determining whether the offence is indeed a “murder” or “manslaughter”. In some instances, when police create an offence report for a murder, there is uncertainty as to whether it is a murder and such a determination may be pending post-mortem results. Once confirmation has been received that it is or is not a murder, this information is entered in the narrative of the offence report and the type of offence is updated to include this new information. However, in some cases it has been found that the type of offence has not been updated. For example, in one offence report of murder, the narrative indicated that an elderly woman had been found in the kitchen of her home lying on the floor deceased. There were signs of a struggle with kitchen drawers opened and chairs overturned. However, post-mortem results indicated that the woman died of natural causes, and was not a victim of murder. If one did not read the narrative or consult the post-mortem report, and only relied on the offence report, this incident would have been counted as a murder.

Second, crosschecking information contained in offence reports as well as data that have been entered involves a process of verification and validation. Simply put, one asks whether the information makes logical sense and is consistent across all data sources. For example, in one murder-suicide the offence report stated that there were two victims, but a careful reading of the narrative and other sources indicated that because the offender had committed suicide, the offender had mistakenly been included as a victim. Therefore, in actual fact there was only one victim in the incident, and one offender who committed suicide prior to arrest. If this crosschecking had not been undertaken, two victims of homicide would have been included in the total victim count when there should only have been one. In addition, the incident would have been entered as “unsolved” because the offender was incorrectly identified as a victim.

The third step involves ensuring that the correct number of victims and offenders is recorded for each incident. For example, if an offence report states that the incident resulted in one victim of murder and another victim of attempted murder, but information contained in the offence narrative indicates that the victim of attempted murder had subsequently died (confirmed by the existence of a coronial record), there would actually be two victims of murder. Due to the offence report not being updated to include the death of the attempted murder victim, the offence report would only record one victim of murder for the incident (and one victim of attempted murder). However, based on the information contained in the narrative, and coronial records, there would be two victims of murder entered for that incident.

Use of Post-Mortem Reports

Post-mortem reports (from the National Coronial Information System) are also used to verify that the cause of death indicated in the offence report is indeed the actual cause of death. This is especially important when there is a discrepancy between cause of death

and type of weapon used in the offence report versus the narrative and post-mortem report. For example, one offence report indicated that a victim had been “shot” and the weapon used was a firearm. However, careful reading of the narrative suggested that the offender had used the firearm to “control” the victim, and not to kill them. This was confirmed by the post-mortem report that stated that the victim had been gagged and died of asphyxia. No firearm projectiles were recovered from the victim, and there was no evidence of entrance or exit wounds from a firearm projectile. Again, if crosschecking had not been undertaken, the cause of death for this victim would have been entered as “gunshot wound” and not “asphyxia”. Most importantly, this incident would have been counted as a firearm-related homicide, when in fact no firearm was used to commit the murder.

Use of Press Clippings

It is acknowledged that, in some instances, information contained in the print media may not be accurately recorded; however, there are several examples where homicides have been identified in the print media but police have not forwarded a copy of the offence report to the NHMP. There are two main scenarios to account for why this may happen. The first scenario is of cases where a homicide incident occurs but the police do not create an offence report for the incident. However, the same homicide incident is reported in the media (and captured in the press clippings). The second scenario involves those cases where a deceased person is located and the incident is entered in the police offence report system as “identified body”. This incident is then investigated as a “murder” but the information relating to the incident is not updated in the offence report. As a result, the “type of incident” remains “located person” and not “homicide”. Failure to update the “type of incident” field will result in such a case being excluded from a search on offences of homicide.

Illustrative of the first scenario discussed above were three very similar cases (in different jurisdictions) where newspapers reported the occurrence of murder-suicides. As previously mentioned, the NHMP receives newspaper clippings on a daily basis and these are filed with each specific offence report. In the three cases mentioned above, the NHMP had received newspaper clippings of the murder-suicides, but did not receive offence reports of the incidents from police. A check of the National Coronial Information System confirmed that the victims were deceased (there were post-mortem reports) and that, in all three cases, the cause of death was attributed to external causes. The newspaper clippings were subsequently faxed to the respective police contacts. It happened that the newspaper clippings were correct—the murder-suicides had occurred—but offence reports were not created for the incidents (an oversight of the investigating officers). This is another example where, if the “other” sources had not been consulted, these three incidents would not have been counted in the total victim tally for that year.

Stage Two: Data Validation

The second stage of the NHMP quality control process involves validating the data and minimising the number of errors associated with data entry.⁴ No matter how much care is taken, there are bound to be *some* errors, either in coding or in data entry. It is the process associated with stage two of the NHMP quality control procedure that aims to minimise the existence of these errors.

Once the NHMP receives all offence reports and the process of verification has been completed, the next step is to enter each offence report using the NHMP data entry system. The NHMP data entry system was created in a SAS frame application that allows for the electronic input of data, doing away with the manual completion of (paper) data collection forms. The NHMP data entry system has validation rules inbuilt in the incident, victim and offender forms so that data entry errors, inconsistencies and omissions are eliminated. For example, in both the victim and offender forms there are validation rules that ensure that age of the victim or offender falls within the range of 0 and 100. If an age greater than 100 is entered, then an error message appears advising that an invalid value for age may have been entered. Similarly, there are validation rules in the incident form that link both the victim and offender forms, and ensure that the correct number of victim and offender forms are completed as indicated in the incident form. For example, if the incident form indicates that there was one victim and two offenders in the incident, then the system prompts for one victim form and two offender forms to be completed for that incident.

The NHMP data entry system also has inbuilt validation rules which “skip” selected questions if a rule applies. For example, in both the victim and offender forms, when the age is entered as “14 or less” then questions relating to marital and employment status are automatically coded under the category of “not applicable”. Also in the victim form, when a firearm is entered as the weapon, the inbuilt validation rules ensure that questions relating to the licence and registration status and type of firearm (make, model and calibre) also have a valid entry. This is also true for the offender form for questions relating to the licence and registration status of the firearm used by the offender.

In addition to the inbuilt NHMP data entry checking system, a number of further checks are undertaken to ensure the accuracy of the coding. This is referred to as data cleaning.⁵ Following data entry, frequency counts are run on the data and three main checks are made:

- *Wild code checking*: involves checking the categories of all variables for impossible codes or outliers. It should be noted that relatively few errors of this type occur due to the inbuilt validation rules in the NHMP data entry system.

4 The second stage of the NHMP quality control process is similar to the quality control procedures undertaken by the ABS for the *Recorded Crime* collections. Once the ABS receives the data in a standardised frequency-coded format, it is loaded on an internal processing system which is then subjected to a similar process of validation as that undertaken in the second stage of the NHMP quality control process.

5 For further information on cleaning data or coding error checks, refer to Newman and Wiegand (2000) and de Vaus (1995).

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- *Logical checks*: involve checking that all responses are logical. There will be a certain set of responses that will seem illogical. For example, it is illogical for the victim's cause of death to be coded as strangulation/suffocation while the type of weapon used is coded as a firearm. Similarly, if the victim's age is entered as 10, then it is illogical for the victim–offender relationship to be coded as intimate partner.
 - *Consistency checks*: involve cross-classifying variables and looking for inconsistencies in the frequency outputs. For example, the total number of victims killed with a firearm should be equal to the total number of victims whose cause of death was gunshot wound. Another example refers to the consistency between incident and offender data. The total number of unsolved incidents should be equal to the total number where there were zero offenders.

Once checking is completed, the data for a given year is added to the NHMP dataset.

Updating of Homicide Records

The NHMP database is subject to ongoing updates, especially with regard to unsolved homicide incidents. Every couple of years the AIC forwards to each police contact a list of all recorded unsolved homicides for their jurisdiction based on data contained in the NHMP. Each police contact is asked to indicate whether any of the listed unsolved homicide incidents have been subsequently solved. Details relating to the newly solved homicide incidents, such as offender characteristics, are then forwarded to the AIC. The specific incident records in SAS are updated from unsolved to solved and an offender record is created to include information on the offender.

Due to the addition of supplementary information to existing records in the NHMP, and changes resulting from quality control checks, statistics derived from the NHMP may differ from year to year. Clearance numbers (the number of solved homicides) are particularly prone to change following the processing of offenders, often months, or even years, after a homicide is recorded.

The ability to go back and update information pertaining to incidents, victims and offenders makes the NHMP a dynamic database whose main purpose is for monitoring trends and patterns of homicide over time, and for the specific analysis of its subsets.⁶ In this sense, the NHMP is unique, and is recognised not only at a national level but also internationally as one of the leading authoritative sources on statistics about homicide and its subsets.

⁶ For a list of NHMP publications see <http://www.aic.gov.au/research/hmonitor/docs.html>.

Conclusion

The main purpose of this brief report has been to outline the quality control mechanisms involved in the processing of annual NHMP data, and the extensive quality assurance measures undertaken to ensure that the statistics produced by the NHMP are an accurate quantification of the incidence, circumstances and characteristics of homicide in Australia.

This report highlights the importance of the unit record data that each police service provides the NHMP, and how inconsistencies in the reporting and recording of homicides can go undetected unless each homicide offence report is cross-referenced with other sources of information. While validation checks can be undertaken with aggregate data, the screening of unit record data such as individual offence reports allows for a more comprehensive quality control process to be undertaken, ensuring a more accurate end-product.

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