

# Implementing the national priorities for injury surveillance

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Decreasing the global burden of injuries is one of the main challenges for public health in the 21st century.<sup>1</sup> In Australia, injuries account each year for around 370 000 hospital admissions and 7900 deaths, and cost the health system around \$4.1 billion.<sup>2,3</sup> Injury is the leading cause of death in Australia for individuals aged 1 to 44 years.<sup>4</sup> Unintentional injuries rank third highest across all health outcomes for years of life lost, fifth highest in terms of incidence and total mortality, and sixth highest for disability-adjusted life years.<sup>5</sup> Most importantly, all these injuries are potentially preventable.

Information about public health expenditure on injury prevention is difficult to obtain, but available data indicate that this expenditure is disproportionate to the magnitude of the problem. For example, in 2004–05, national expenditure on health promotion activities for injury prevention, nutrition, physical activity and sun protection combined represented only 8.6% of government public health expenditure<sup>6</sup> (and only 0.1% of total government health expenditure<sup>7</sup>). Furthermore, unintentional injury received only 1.9% of total National Health and Medical Research Council (NHMRC) funding during 2002–03.<sup>5</sup> The gap between the size of the public health problem of injury and national efforts to reduce it needs to be addressed.

Successful injury prevention rests on a foundation of quality surveillance data. Australia has a relatively advanced system of injury surveillance compared with many other high-income countries; this includes the recently established National Coroners Information System (NCIS), state-based trauma registries and external-cause data collected nationally for hospital admissions. However, aspects of Australia's injury surveillance could be improved. The current National Injury Prevention and Safety Promotion Plan<sup>8</sup> includes recommendations on injury surveillance, yet most remain to be implemented.

Here, we describe some of the actions needed to implement this plan, as well as other opportunities to enhance injury surveillance in Australia. We also discuss barriers to implementation and how they might be overcome.

## Injury surveillance

Injury surveillance has been defined as “the ongoing, systematic collection, analysis and interpretation of [injury] data essential to the planning, implementation, and evaluation of [intervention strategies], closely integrated with the timely dissemination of these data to those who need to know . . . and the application of these data to prevention and control”.<sup>9</sup> Injury surveillance systems are needed to estimate the community burden of injury; to monitor injury trends over time; to detect clusters of injury events by time, person and place; to prioritise strategies for injury prevention; to evaluate injury-prevention strategies; to set directions for injury-prevention research; and to inform the development of injury prevention policies.<sup>10–13</sup> Optimal injury surveillance systems have the capacity to identify what injuries occurred, where, to whom, when and why.

## ABSTRACT

- Injury is a leading cause of disability and death in Australia and is recognised as a national health priority area.
- The foundation of successful injury prevention is injury surveillance, and national policies and strategies developed over the past 20 years to reduce the burden of injury in Australia have included 22 recommendations on surveillance — only three of which have been completely implemented.
- Priorities for improving injury surveillance include:
  - improving current injury mortality and morbidity data collection systems;
  - filling the gaps in injury surveillance;
  - maintaining vigilance over data quality;
  - increasing the integration and accessibility of injury data;
  - developing technical expertise in surveillance.
- Barriers to implementation of the current National Injury Prevention and Safety Promotion Plan include the lack of an implementation plan, performance management structure, appropriate national governance structure and resources — all of which could be overcome with government commitment.

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## The health sector and national injury policy and surveillance

During the past 20 years, the health sector has played a major role in developing injury policy in Australia,<sup>14</sup> culminating in the National Injury Prevention and Safety Promotion Plan, which covers the decade 2004–2014.<sup>8</sup> Recommendations on injury surveillance have been integral to most of these policies and plans (Box 1). However, of the 22 recommendations relevant to injury surveillance included in Australian health policies since 1986, only three have been completely implemented, and the recommendations in the current plan are yet to be completed.

## Other national policy recommendations for injury surveillance

Strategies to improve the collection of information on injury are also contained in other national policy initiatives. These include the:

- National Sports Safety Framework;<sup>21</sup>
- National Occupational Health and Safety Strategy 2002–2012;<sup>22</sup>
- National Road Safety Strategy 2001–2010;<sup>23</sup> and
- National Water Safety Plan 2004–2007.<sup>24</sup>

All recommend enhancing injury surveillance through improved data coverage, more timely identification of existing and emerging injury risks, the use of consistent definitions, improved data for identifying causality, and timely dissemination of surveillance data.

Other recent national initiatives have also laid a path for improved injury surveillance. These include:

- the adoption of the International classification of diseases, 10th revision, Australian modification (ICD-10-AM),<sup>25</sup> which has

**1 Australian health policy recommendations on injury surveillance, 1986–2005**

Public health policy and injury surveillance recommendations	Status*
<b>1986. <i>Looking forward to better health</i><sup>15</sup></b>	
Establish injury surveillance systems, collect and analyse data on injury, and conduct injury prevention projects	In progress
<b>1988. <i>Health for all Australians</i><sup>16</sup></b>	
Develop a technical support group in each state to provide local input to state surveillance and prevention programs, and to support local government and neighbourhood initiatives	Not conducted
<b>1993. <i>Goals and targets for Australia's health in the year 2000 and beyond</i><sup>17</sup></b>	
Not applicable	
<b>1994. <i>Better health outcomes for Australians</i><sup>18</sup></b>	
Implement a "place of activity" code for routine hospital morbidity data collections and for coronial data recording systems so that work-related and sport-related injury can be identified	Completed
Develop a reliable indicator for identifying consumer product-related injury and death in hospital morbidity and coronial systems, respectively	Not conducted
Improve injury surveillance systems, including mechanism of injury coding, to ensure that they support the identification of injury patterns associated with consumer products	Not conducted
Investigate developing uniform protocols for data collection by police attending the scene of drownings in each state and territory	In progress
Support the introduction of the National Minimum Data Set for Injury Surveillance in mortality and morbidity data collections	In progress
Introduce a national electronic data collection system for coronial data	Completed
Develop and introduce a national trauma care information system	Not conducted
<b>1997. <i>National Health Priority Area: injury prevention and control</i><sup>19</sup></b>	
Advance injury data collection systems by:	
• accelerating the introduction of uniform emergency department surveillance	In progress
• establishing a national coronial information system	Completed
• establishing national sports injury data collection and reporting system	Not conducted
• establishing registers of serious injuries	In progress
• developing standardised indicators that permit comparison of an intervention in different settings	Not conducted
<b>2001. <i>National Injury Prevention Plan: priorities for 2001–2003</i><sup>20</sup></b>	
Ensure statistical systems are adequate to provide necessary data for each of the four priority areas	In progress
Continue to enhance data collection, current injury surveillance systems, such as those managed by the states and territories, emergency departments, and sports injury collection systems	In progress
<b>2005. <i>National Injury Prevention and Safety Promotion Plan: 2004–2014</i><sup>8</sup></b>	
Enable access to quality data and its analysis	To be completed
Focus attention on rural and remote issues in the development of injury data collection systems that will provide detailed data on injury types and severity and the identification of high-risk groups	To be completed
Provide greater access to information and data that will aid the planning of injury prevention and safety promotion for rural and remote communities	To be completed
Improve injury surveillance systems and other sources of quantitative and qualitative data, to provide adequate information for Aboriginal and Torres Strait Islander injury prevention and safety promotion	To be completed
Support the development and maintenance of information on alcohol involvement in serious injuries	To be completed
Gaps to be resolved: quality of, access to, and dissemination of injury data	To be completed

\* In progress = work is ongoing to implement the recommendation. To be completed = recommendations within the current plan where work is ongoing or has not begun. ◆

extended the information collected on injury;

- the creation of a new national mortality database, the NCIS; and
- the development of national classification standards, such as the National Minimum Data Set for Injury Surveillance<sup>26</sup> and the Type of Occurrence Classification System<sup>27</sup> for work-related injuries, which allow comparisons across the whole of Australia.

While these initiatives are welcome, there is still much to be done to improve injury surveillance in Australia.

**Priorities for injury surveillance**

To further develop national capacity for injury surveillance and to promote further innovation in this surveillance, some key initiatives need to be implemented. These group into four themes (Box 2):

- improving the current injury mortality and morbidity data collection systems;
- filling the gaps in injury surveillance by extending surveillance beyond the most serious injury outcomes, ensuring that all geographic areas are covered, and maintaining vigilance over data quality;
- increasing the integration and accessibility of injury data through data warehousing and data linkage; and
- developing technical expertise in surveillance among researchers and data coders.

One of the most immediate areas for action is to enhance the value of existing surveillance systems by improving the data collected. Easily implemented strategies include the addition of unique identifiers for patients or for the injury (eg, date or time that it occurred), better characterisation of the person injured (eg, Aboriginal or Torres Strait Islander status), reduced use of "dump" codes such as "other" and "unspecified", and improved collection of details of the circumstances of the injury through the inclusion of narrative text. National implementation of a police notification of death form would also improve comparability and consistency of information on injury mortality around the country. This form has been adopted in all Australian jurisdictions except New South Wales, Victoria, and Western Australia. The police and attorney-general's departments in these states should be encouraged to allocate resources for its implementation.

Currently, injury surveillance in Australia is limited almost entirely to tracking fatalities and serious acute injuries. While this produces valuable information, it means policy and practice decisions are restricted to these relatively rare events with almost immediate injury outcomes. We need to expand the scope of injury surveillance to encompass data from emergency departments, thereby including less serious and less acute injuries. The argument is similar for ensuring that injury surveillance is truly national, reflecting urban, regional, and even the most remote areas. In fact, a high and continuing priority for injury surveillance is ensuring that the collected data accurately describe the profile of injury, with no gaps in surveillance. Otherwise, prevention initiatives and resources may be misdirected. The validity of national injury data collections should be assessed to determine their accuracy for identifying national priorities. The agencies responsible for these data collections should receive resources for this assessment, and Australian injury research centres should assist in the evaluation process.

Key medium-term initiatives should involve activities to ensure the availability and most effective use of injury surveillance data. For example, the United States has developed the National Violent Death Reporting System to improve the accessibility of information on violent deaths by incorporating data from a variety of injury collections.<sup>29</sup> There is no reason that a similar system of surveillance, in the form of a data warehouse, could not be implemented in Australia for injury-related mortality and morbidity data collections. This would require a national body, such as the Australian Bureau of Statistics, or a consortium to coordinate the data warehouse, and the development of partnerships and cooperative agreements between agencies on data access.

Lastly, ongoing improvements in injury surveillance rely on the work of clinical coders. Currently, there are question marks over the accuracy of coding of particular variables (eg, activity and location of incident). Comprehensive training for clinical coders regarding external causes would help improve the accuracy of injury information. An assessment of data quality in health data collections would help identify areas where further coding training is required. Organisations such as the National Centre for Classification in Health should be resourced to develop a training module for clinical coders, and national and state health departments should be encouraged to support this action. In addition, further investment in the continued development of a trained workforce that can undertake injury surveillance work should be fostered.

### Barriers to implementation

The actions related to injury surveillance in the National Injury Prevention and Safety Promotion Plan are unlikely to be achieved without an implementation plan, a performance management structure, sufficient resources and an appropriate national governance structure for the plan.<sup>14</sup> These do not exist, and their absence is the only substantial barrier to advancing injury surveillance. The usually cited barriers to implementation (lack of financial resources and personnel time, and public concerns over privacy) are relative rather than absolute barriers and could be easily overcome if the government showed its commitment by addressing the above issues.

### Conclusion

Information from routine data collections is widely used by national and state governments in Australia to formulate and

## 2 Key initiatives needed to improve injury surveillance in Australia

### Filling the gaps: core data elements and uniform data collection

- Include unique patient identifiers, the date of injury, time of injury, and exact location of the incident within hospitalisation data collections to assist in identification of repeat injury admissions and data linkage, and geocoding of the incident location, respectively.
- Enhance the quality of recording of Aboriginal and Torres Strait Islander status in both mortality and morbidity data collections, particularly in New South Wales and Victoria.
- Add narrative text to complement coded data in hospitalisation data collections in an attempt to obtain further information regarding the circumstances of the injury incident.
- Ensure the Australian Bureau of Statistics' mortality data collection retains data elements pertinent for injury surveillance, such as activity at time of death, occupation of the deceased, and location of drowning.
- Implement the National Police Notification of Death Form in all Australian jurisdictions to enable standard information to be collected on injury-related deaths included in the National Coroners Information System.
- Further develop the *International statistical classification of diseases and related health problems*, 10th revision, Australian modification (ICD-10-AM), and its parent classification, the ICD-10, to ensure that appropriate coding alternatives to "other specified" are available.

### Injury surveillance performance and gaps in surveillance

- Conduct an assessment of the quality of national injury surveillance data collections and, as a priority, assess data validity.
- Address national population-based injury surveillance gaps, especially in relation to "minor injury", by improving the usefulness of emergency department, ambulance and survey collections for injury surveillance.
- Ensure that injury surveillance collections are able to identify and describe injury patterns in rural and remote communities.
- Continue the technical development of non-fatal and fatal injury indicators in Australia begun by the National Injury Surveillance Unit.<sup>28</sup>

### Data accessibility and system integration

- Improve data accessibility for injury surveillance researchers through the development of a national injury data warehouse.
- Facilitate data linkages between data collections with information on injury risk factors and those with information on injury outcomes.
- Assess the technical and practical feasibility of integrating various injury-related data collections to form comprehensive injury surveillance systems (eg, for work-related, motor vehicle crash-related, or violence-related injury surveillance).

### Workforce development and knowledge dissemination

- Provide more comprehensive training for clinical coders on the classification and coding of external cause information to reduce the number of "unspecified" codes in hospitalisation data.
- Provide technical guidance material for injury surveillance researchers on the analysis and interpretation of injury surveillance data collections.
- Ensure the adoption of a comprehensive and systematic approach towards dissemination of injury surveillance information, involving a variety of media. ♦

evaluate public health policies and to allocate resources to areas deemed a high priority. High-quality injury surveillance data are essential to ensure the appropriateness of these policies. Thus, it is important to ensure that injury policy in Australia supports the development and progress of innovative injury surveillance capabilities. There is a substantial gap between the importance of the problem and the commitment of funds to support the implementation of recommended enhancements to injury surveillance systems in this country.

Australia has had a world first with the development of the NCIS, and some Australian states have been world leaders in surveillance initiatives (eg, WA and data linkage,<sup>30</sup> and NSW and data text mining practices<sup>31</sup>). Implementation of the national priorities for injury surveillance that were identified in the most recent injury policy is paramount. For Australia to remain at the cutting edge of injury surveillance, we need to ensure that innovative surveillance practices are able to continue. What are we waiting for?

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### Competing interests

None identified.

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