



Hazard  
(Edition No. 40)  
September 1999

Victorian Injury Surveillance  
& Applied Research Function  
Monash University  
Accident Research Centre



VicHealth

Ten years of injury surveillance in Victoria has seen, and contributed to, remarkable reductions in fatal injuries and some reductions in serious and moderately severe injuries. Some of these changes are documented in this edition of Hazard. This fortieth edition also represents a landmark in the development of the Victorian Injury Surveillance and Applied Research Function (VISS) as it presents for external review in November 1999. Progress on issues of general interest against some of the VISS objectives are also presented.

## A Decade of Victorian Injury Surveillance

Joan Ozanne-Smith, Karen Ashby, Voula Stathakis\*, Christine Chesterman

### Summary

The Victorian Injury Surveillance and Applied Research Function (VISS) commenced an all age, all injury, emergency department surveillance system at the Monash University Accident Research Centre (MUARC) in 1990 and has since maintained, analysed, reported on, disseminated, applied and supplied injury data for the purpose of injury prevention. Over this period remarkable reductions in fatal injuries and some significant reductions in serious and moderately severe injuries have been observed.

VISS has progressively established substantial holdings of statewide injury data at three levels of severity, deaths, hospital admissions and emergency department presentations. Future data system innovations will focus on the development of a high quality sampling frame of detailed hospital injury data collections, and assistance with the establishment of the National Coronial

Information System. VISS data will also play an important role in the proposed development of an Injury Cost and Consequences Model.

*Hazard* remains a popular and important vehicle for the widespread and timely dissemination of data and injury prevention information on important and emerging injury issues. The diverse range of topics covered by *Hazard* reflects a multi-strategic policy to opportunistically link with new or potential regulation or standards, meet client demands, provide background to research projects, and provide updates of previous topics.

*Hazard* continues to be distributed to a mailing list of almost 1,100 and selected editions are also available on the MUARC website.

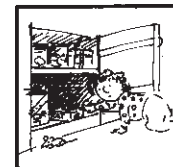
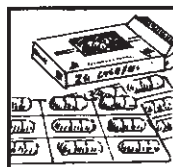
In addition to *Hazard*, the VISS information service is an important form of data dissemination. The number of

requests has risen annually to a high of 510 in 1998. Main topics for which data is regularly requested include: drowning, dog bites, injuries for specific local government areas, elderly falls and farm injury. Regular clients utilising the VISS information service in 1998 were the education, government, research, media and industry/commerce sectors.

Local government has become a frequent client of VISS with the supply of injury data to local government forming part of a broader VISS support function for community based injury prevention. This integrates with MUARC's role as a WHO Safe Communities Affiliate Support Centre.

VISS aims to continue to play a major and increasingly effective role in injury prevention. Further data and research collaboration is anticipated with hospital emergency departments, Health Care Networks and other partners.

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## Introduction

The injury surveillance system at MUARC maintains, analyses, reports on, disseminates and applies injury data to injury prevention. VISS commenced in Victoria in 1988 with a paediatric collection based at the Royal Children's Hospital and became an all age collection upon moving to MUARC in 1990. The data integrates into the feed-back cycle of data, research, implementation and evaluation and, accordingly, is closely linked to many other aspects of injury prevention. As a fundamental resource for injury prevention, it provides tools for both characterising and monitoring injury.

The functions of injury data include:

- descriptive epidemiology of injury:
  - frequency
  - population rates
  - age and gender distribution
  - geographic distribution
  - cause (mechanism) of injury
  - activity when injured (eg. work, sport, transport)
  - nature of injury and body part injured
  - cross tabulations of these variables
- the basis for injury severity measures (quantification of injury severity), particularly in prediction of outcome measures such as death and functional capacity
- the basis for cost of injury studies
- identification of emerging of previously unrecognised hazards
- monitoring of trends and evaluation of interventions
- linkage between data sets to enhance the detail and quality of data
- case identification for research
- the basis for translation to prevention

## Objectives

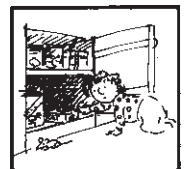
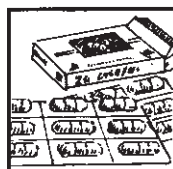
The VISS objectives have been refined over the life of the project, reflecting changes in the available data sources and new opportunities for injury prevention. They are:

- To operate and maintain a surveillance system for injuries to persons of all ages in Victoria with the following specific objectives:
  - to promptly identify the emergence of new hazards, or the existence of previously unrecognised hazards
  - to give special focus to injuries and hazards in the home, in the workplace, in sport and recreational areas, in educational facilities and public places
  - to monitor secular trends in important and other indicator injury rates
  - to assist in the evaluation of injury prevention interventions
- To assist with the establishment and further development of complementary injury data systems, particularly to National Coroner's Information System and the National Sports Injury Surveillance Database
- To maintain and expand a network within the community to facilitate notification and effective use of injury hazard information
- To assist and promote community-based interventions to reduce the incidence and severity of targeted injuries
- To actively promote the translation of injury data and research into prevention by:
  - promoting legislative/regulatory action and standardisation with all relevant domains
  - promoting effective product design changes to improve safety
  - assisting with the developmental stages of new countermeasures

- assisting with the further development and implementation of the Victorian and National injury prevention strategies, eg. National Injury Prevention Advisory Council and state committees, Kidsafe

- To stimulate, promote and provide leverage for in-depth research into the causes, mechanisms, consequences and strategies for prevention of injuries
- To provide accurate and up-to-date information on injuries which will be of value to many users including:
  - health, design, legal, sporting and environmental educators
  - safety experts
  - injury researchers
  - the Coroner
  - policy makers
  - manufacturers, importers, retailers, including those concerned with safety equipment
  - organisations responsible for improving safety in commercial, industrial, domestic, sporting, educational and public areas
  - Standards authorities
  - the media

Changes to both emergency department data systems (electronically collected minimum dataset) and hospital admission policy, increasing demands on effective service and reduced funding have created challenges in meeting all of these objectives in recent years.



## Data sets

As shown in Table 1, VISS has progressively established substantial holdings of statewide injury data at three levels of severity - deaths, hospital admissions and emergency department presentations.

## Data overview

### Deaths

Major causes of fatal injury are suicide, road trauma, falls, fires, machinery, unintentional poisoning, homicide and drowning. Substantial reductions in fatal injury rates have been achieved in Victoria and Australia for both genders (Figure 1). These reductions are largely accounted for by a decrease in road fatalities (Australia's Health, 1998; Li & Routley, 1998).

The death rate for child injuries in Victoria has decreased by more than 50% since 1979 for both transport related deaths and for other causes (Figure 2). Current limitations of timelines and detail in fatal injury data will be overcome by the National Coronial Information System, currently under development, and enhancements to detail in Australian Bureau of Statistics data.

### Hospital Admissions

The annual average frequency and rate of injury by age groups (Figure 3) indicates that, while the highest rates of injury occur among older persons, younger age groups are equally represented in terms of frequency.

Tables 2 and 3 provide overview data of injury causes by frequency and rate per 100,000 population. Falls rank highest in all age groups except 1-4 years, where poisoning predominates.

Detailed tables of injury causes by annual average rate and age group are included as Appendix 1. This table represents Victorian public hospital admissions (incident data) averaged over the six year period, July 1992 to June 1998. Further detailed methods, tables and time trend analyses of hospital admissions data are

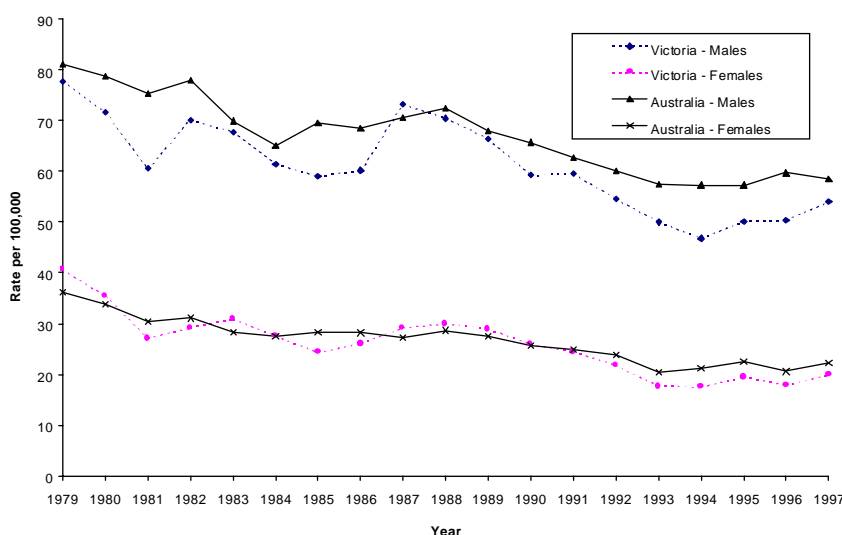
Databases of incident cases held & utilised by VISS

Table 1

Level of severity	Source	No of cases
Death*	Victorian Coronial Facilitation System (VCFS), July 1989 to June 1995	9,238
Hospital admission	Victorian Inpatient Minimum Database. Comprised of: public hospitals, July 1987 to June 1998 private hospitals, July 1992 to June 1998	1,109,685 924,030 185,655
Hospital emergency department presentation	Original Victorian Injury Surveillance System database, Nov 1988 to July 1996, 7 campuses of 5 Victorian public hospitals (detailed data)  Victorian Emergency Minimum Dataset, October 1995 to July 1999, 25 Victorian public hospitals (Level 1 data)	173,330  628,710

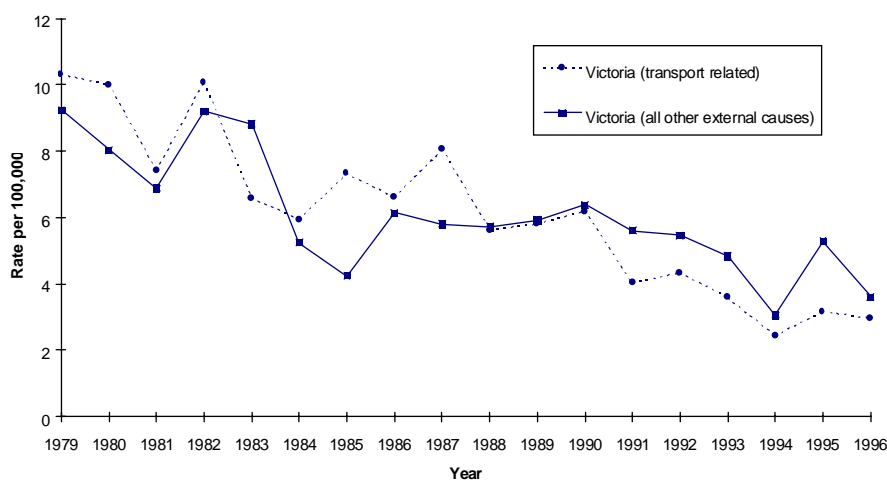
\*Deaths: additional data sources: (1) Australian Bureau of Statistics data, held by the Research Centre for Injury Studies, Flinders University. (2) The National Coronial Information System, currently under development, will supersede the VCFS and incorporate Victorian Coronial data.

All injury death rates by sex (1979-1997): Aust. and Vic. Figure 1

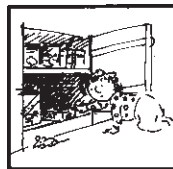
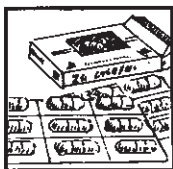


Source: Australian Bureau of Statistics 1979 to 1997

Child injury death rates by transport & non-transport (1979-1996): Victoria Figure 2

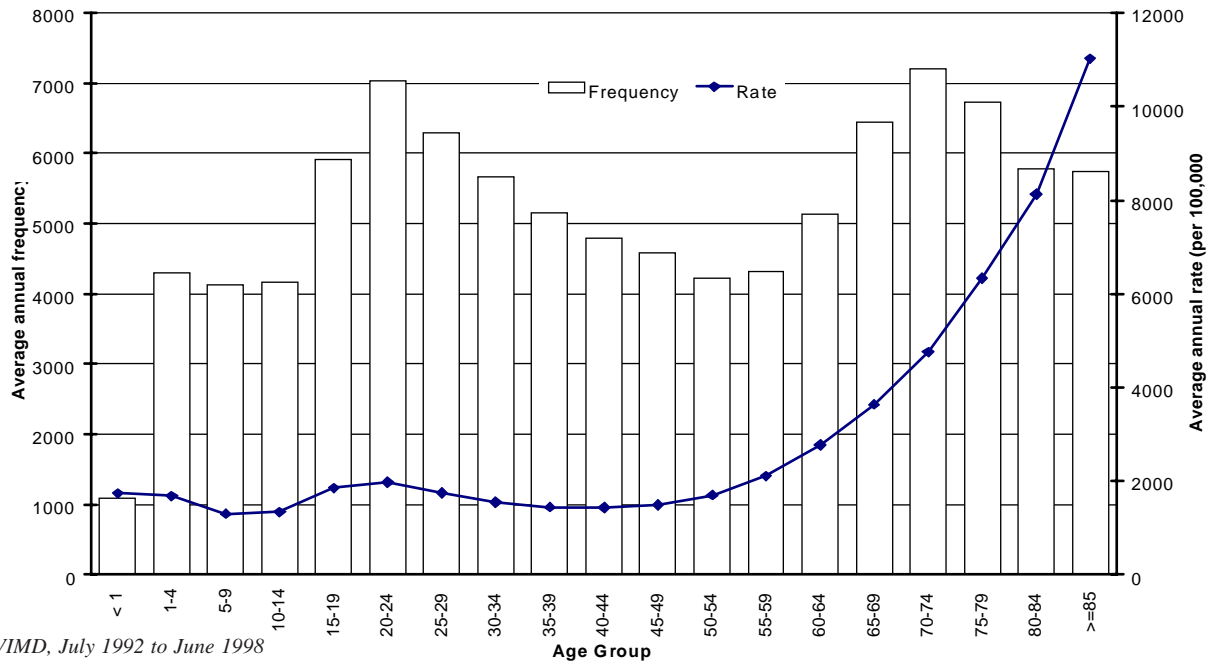


Source: Australian Bureau of Statistics, 1979 to 1996



## All injuries, average annual frequency & rate: Victoria

Figure 3



Source: VIMD, July 1992 to June 1998

## All age hospitalised injuries, average annual frequency & rate (1992-1998): Victoria

Table 2

Injury Cause	Frequency	Rate Per 100,000
Falls	21,830	481
Motor vehicle traffic	6,255	138
Intentional self-inflicted	4,500	99
Hit/struck/crush	4,380	97
Cutting/piercing	3,486	77
Intentional inflicted by other	2,871	63
Poisoning (unintentional)	2,857	63
Other vehicle	2,224	49
Natural environment	1,486	33

Source: VIMD, July 1992 to June 1998

Note: excludes adverse effects

available from VISS in Stathakis 'Hospitalised Injuries Victoria, July 1992-June 1998', MUARC report no. 160, 1999.

A different picture from fatal injuries is seen for trends in hospitalised injuries, where rates are stable if not increasing (Figure 4). Interpretation of hospital admission data is complicated by the effect of the implementation of casemix funding to hospitals in Victoria in 1993, when an artificial increase in injury rates appears to have occurred.

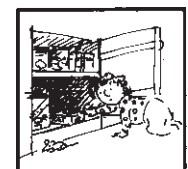
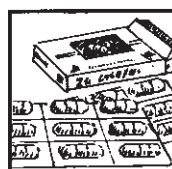
Despite these trends for all injuries, significant decreases in rates are observed for selected injury causes and age groups. The comparative rates and significant reductions in horse riding and pedestrian injuries among 5-14 year olds exemplify this (Figure 5).

## Child hospital admissions, major causes ranked by age (1992-1998): Victoria

Table 3

<1 year	1-4 years	5-9 years	10-14 years
Falls (different level)	Poisoning	Falls (different level)	Falls (same level)
Poisoning	Falls (different level)	Falls (same level)	Falls (different level)
Fires/burns/scalds	Hit/struck/crush	Hit/struck/crush	Hit/struck/crush (especially sport)
Choking/suffocation	Falls (same level)	Bicycle	Bicycle
Hit/struck/crush	Cutting/piercing	Cutting/piercing	Motor vehicle traffic
Intentional - inflicted by others	Fires/burns/scalds	Motor vehicle traffic	Cutting/piercing
Falls (same level)	Foreign body in orifice		Self-inflicted

Source: VIMD, July 1992 to June 1998



**Strengths of hospital admission data (VIMD)**

- Statewide coverage of hospitalisations, including private hospitals from July 1992 such that rate data can be calculated
- Combined with the Victorian Emergency Minimum Dataset (VEMD) these datasets are the best available sources of injury morbidity data in Victoria

**Limitations of hospital admission data (VIMD)**

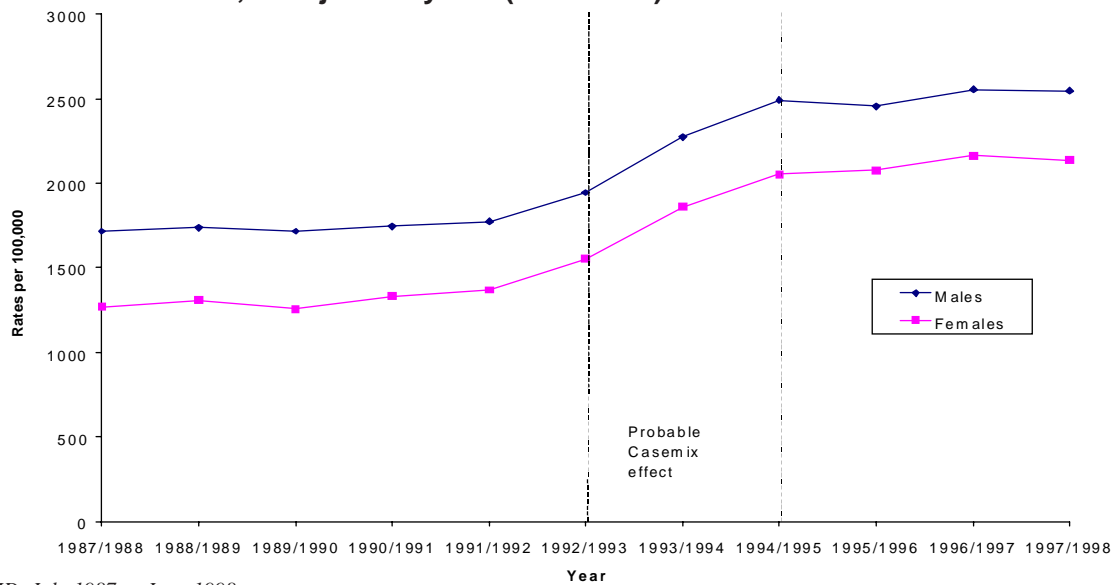
- In this report coding of VIMD data is based on the International Classification of Disease (ICD-9) which limits the resolution of the database for some important Australian injury issues. From July 1998 VIMD data has been coded using ICD-10, which is expected to enhance specificity from some injury data, especially for sports and work related injury.

**Emergency Department Presentations**

VEMD includes a minimum dataset collection of injury data and commenced progressively in 25 Victorian public hospitals from October 1995. In the 3-year period January 1996 to December 1998 there were 499,605 cases of injury recorded on the VEMD. One quarter of injuries were to children aged less than 15 years and males aged 15-29 were over-represented accounting for almost

**Hospital admission rates, all injuries by sex (1987-1998): Victoria**

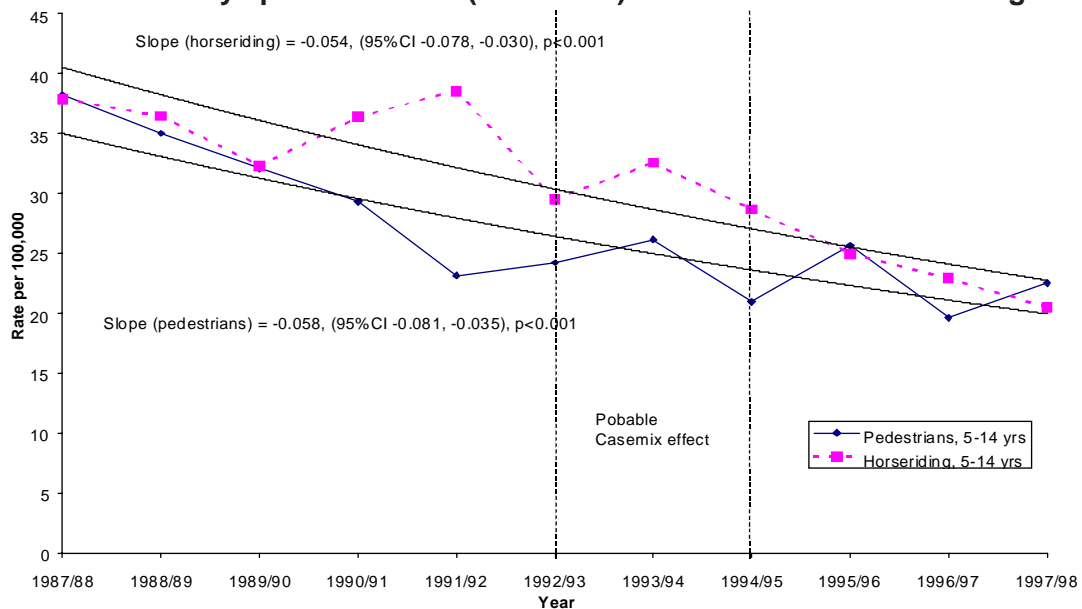
**Figure 4**



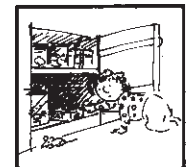
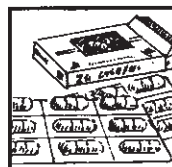
Source: VIMD, July 1987 to June 1998

**Hospital admission rates by specific causes (1987-1998): Victoria**

**Figure 5**



Source: VIMD, July 1987 to June 1998 NB: Trends determined by Poisson regression analyses



**ED presentations by a cross-section of injury causes:  
Victoria**

**Table 4**

Cause of injury	No. of cases	% requiring admission
Pedal cyclist rider/passenger	7437	18.6
Australian Rules Football injury	6964	9.2
Benzodiazepine overdose	3256	50.5
Horse related injury	2905	23.9
Spider bites	1867	6.0
In-line skating	1566	16.1
Heroin overdose	1535	22.2
Grinder injury	1275	6.2
Electrical injury	753	17.0
Lawn mower injury	467	31.1
Tractor injury	187	35.3
Firearm (all intents)	179	65.4

Source: VEMD, January 1996 to December 1998

another quarter (23%). Sixty-two percent of total injuries were to males.

Thirty-six percent of injuries occurred in the home (46% child, 32% adult), and 38% during leisure activities (51% child, 33% adult). The most common causes of injury were falls (27% of total), being struck by, colliding with an object or person (17%) and cutting/piercing injuries (11%). A cross-section of specific causes of injury identifiable in the VEMD is shown in Table 4.

Hospitalisation was required for 14% of child and 19% of adult presentations. Fractures, open wounds and sprains/strains were the most common types of injuries sustained.

**Strengths of emergency department data (VEMD)**

- Provides a broad coverage (ie. up to 80%) of Victorian public hospital emergency department presentations
- Provides a minimum dataset and, in conjunction with the original VISS database, extremely useful information on patterns of injury, through interrogation of free text. This data is of particular value in identifying risk factors and cases for research studies

and consequently for the development of injury prevention strategies.

**Limitations of emergency department data (VEMD)**

- Identification of specific data, especially products and activities, is reliant on the item of interest being recorded in the 100 character injury narrative. Hence the number of recorded cases for some injuries is likely to be an underestimate of the true incidence of emergency department presentations eg. only 45% of sporting injuries (identified by the 'Activity when injured' code) recorded in 1996 and 1997 noted the type of sporting activity being undertaken eg. netball, tennis.

Extensive quality control studies and interventions have been conducted by VISS (Appendix 2).

In addition to the quality control procedures undertaken by VISS, the Department of Human Services has progressively introduced a strict system of data edits. These, together with ongoing liaison with hospital staff and current processes, are expected to enhance data quality.

**Injury Prevention:  
An Overview of the  
Last Three Years**

**Research Developments**

Injury data is utilised in a wide range of applied research studies both by MUARC and by other research organisations, where data is supplied after appropriate ethics and administrative approvals.

An important recent development has been the establishment of a data and research collaboration between MUARC (particularly VISS) and the Southern Health Care Network. Current collaborative projects include a linkage of VEMD and VIMD injury data as a validation and research tool, preliminary work on a level 2, (more detailed) injury data collection, and a case-control study of risk factors, for arm fracture, in falls from playground equipment.

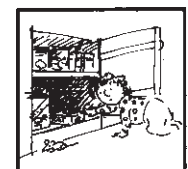
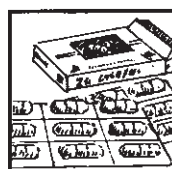
A comprehensive study of suicide by motor vehicle exhaust gassing was completed and published in 1998 (Table 7). A detailed study of injury hospitalisation rates and trends was published in 1999.

Current VISS research included assessment of progress against the Victorian Injury Prevention Strategy (Department of Human Services), child injury data analyses (Kidsafe) and a study to assess the feasibility of collecting valid occupational codes, in emergency departments, for workplace injuries (Victorian WorkCover Authority).

**Translation of data and research to practice**

**Hazard**

In the period 1997 to 1999 the quarterly publication Hazard remains a popular and important means of dissemination for VISS. Hazard is a key vehicle for the widespread and timely broadcast of data and injury prevention information on important and emerging injury issues.



A diverse range of injury issues have been covered in the 12 editions produced in this 3 year period including: unintentional drowning; baseball injuries; recreational injury in the 10-14 year old age group (skateboarding, in-line skating, BMX bike and trail bike riding); safe home design, unintentional farm injury; enforcing legislative and regulatory measures (pool fencing, Domestic Animals Act, bicycle helmets and baby walkers); envenomations; road accident trends; nursery furniture; coronial overview; adult poisoning; and Do-It-Yourself injuries (next edition).

Choice of *Hazard* topic is multi-strategic. Opportunistic timing to link with new or potential regulation or Standards, client demand, background to research projects, and updates of previous topics are all means by which the choice of topic is made.

*Hazard* continues to be distributed to a mailing list of almost 1,100 free subscribers with a composition of 14% international, 21% interstate and 65% Victorian subscribers. There has been a net circulation increase of 20% since 1997. Further evidence of active readership is the average of 165 change of address forms received annually. Additional copies are sent to authorities

and individuals relevant to the topic at hand. The total quarterly print run is 2,500, all of which are eventually distributed.

The *Hazard* index and selected editions are accessible via the MUARC website ([www.general.monash.edu.au/muarc](http://www.general.monash.edu.au/muarc)). While hits to individual editions are unascertainable, there have been approximately 1,700 hits to the *Hazard* index since September 1997, representing approximately 18% of all hits to the MUARC website.

*Hazard* articles are frequently on-printed, increasing the circulation by tens of thousands, eg. *Australasian Journal of Emergency Care*. They are also a frequently used teaching resource and means of professional update.

### Bound volumes

*Hazard* has become a valuable library reference resource. With the intention of best meeting the needs of such clients each 10 volumes of *Hazard* are bound into a single volume for ease of access.

Three bound volumes have been produced by VISS with print runs of 400, 500 and 365 respectively. These have proved popular with 93%, 65% and 36% respectively distributed thus far. With

completion of this edition, production of the fourth bound volume will commence and will be available in the near future. Promotion of the fourth and previous bound volumes will follow.

### Information service

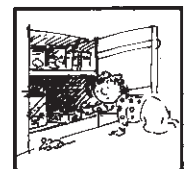
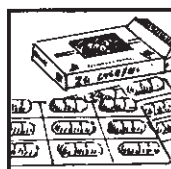
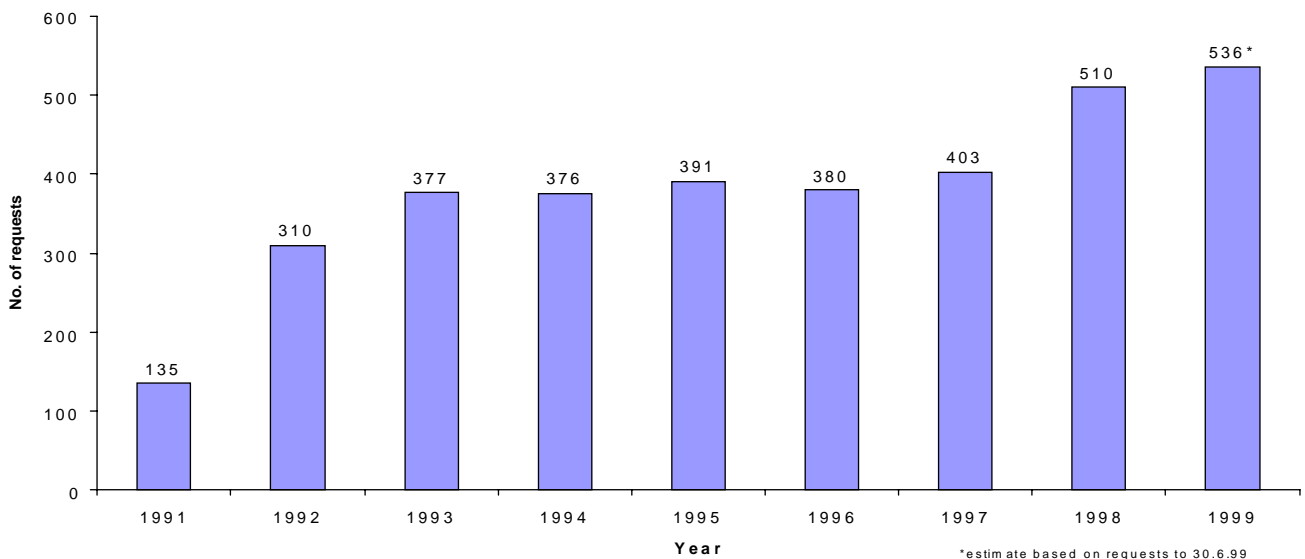
In addition to *Hazard*, the VISS information service is an important form of data dissemination. The number of requests has been increasing annually, from 403 in 1997 to 510 in 1998 with forecasts of at least 536 in 1999 (Figure 6).

VISS uses all available data sources to fulfil information requests, particularly the VCFS, VIMD, VEMD and *Hazard*. In 1998 Coronial data was utilised in 18%, VIMD data in 22% and VEMD data in 50%. *Hazard* was supplied with almost one third of information requests.

Approximately half of the information requests undertaken in the first half of 1999 took less than one hour to complete (Table 5). A small proportion of requests (1-2%) take a disproportionately large amount of time ie. 1-2 days or more.

VISS data information requests over time (1991-1999)

Figure 6



**VISS data information requests by time required for completion (January to June 1999)** **Table 5**

Time period required	% of total requests
< 1 hour	55.1
1 to <2 hrs	26.1
2 to <3 hrs	10.8
3 to <4 hrs	3.4
4 to <5 hrs	1.5
5 to <6 hrs	1.2
6 or more hours	1.6

In 1998 the main topics for which data was requested included: drowning, dog bites, injuries for specific local government areas, elderly falls, farm injury, cyclist injuries and motor vehicle exhaust gassings.

Regular clients utilising the VISS information service in 1998 were the education and government sectors, researchers, the media and industry/commerce.

**Support to community-based injury prevention**

Local government has become a frequent client of VISS accounting for almost 10% of information requests in the period January 1997 to June 1999. Data requests from this sector most often involve the provision of overview data

for a municipal region to assist with municipal health plans.

The supply of injury data to local government is part of a broader VISS support function for community based injury prevention. This integrates with MUARC's role as a WHO Safe Communities Affiliate Support Centre.

**Publications utilising Victorian injury surveillance data**

In the period January 1997 to June 1999 there were a number of articles by MUARC staff that utilised VISS data, including: 14 published and 8 submitted articles to peer reviewed journals; 20 MUARC reports; 17 articles for *Hazard*; and 10 papers for other publications. In addition, VISS data was utilised in 12 international conference, 14 national conference and 9 community presentations by MUARC staff.

**Media strategy**

Injury is of considerable interest to the media and through the media to the community. Identified newspaper articles acknowledging the use of VISS data are shown in Table 6.

Major injury issues reported between 1997 and 1999 have included sport and recreational injuries, farm injury, nursery furniture injuries, dog bites, motor vehicle exhaust gassing suicides, drownings, poisoning and do-it-yourself activity related injuries.

In addition to newspaper articles, VISS has provided 25 radio and television interviews in the period January 1998 to August 1999.

**Update of translation into practice**

Progress on VISS recommendations used to reduce injuries for selected

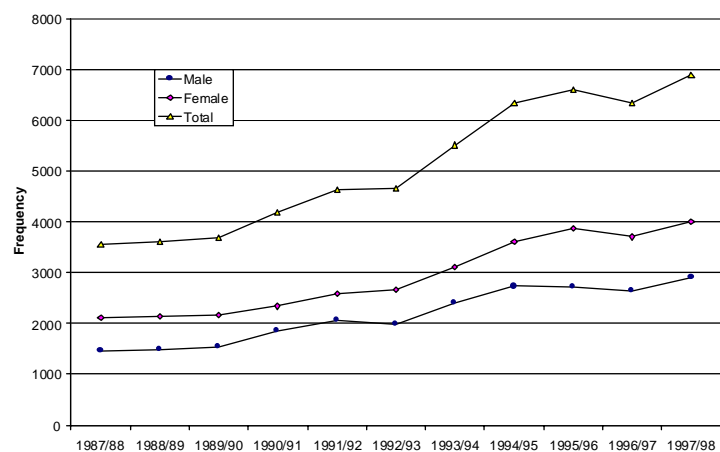
**VISS media coverage (January 1998 to August 1999) Table 6**

Collection period (inclusive)	No. of articles
<b>1998</b>	
□ January to April	48
□ May to August	54
□ September to December	50
<b>1999</b>	
□ January to April	36
□ May to August	33
<b>Total</b>	<b>221</b>

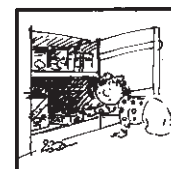
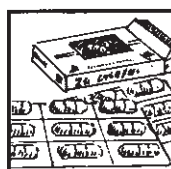
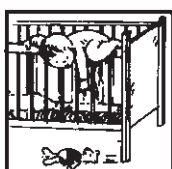
**Hazard 39 Erratum**

Figure 1, "Trends in adult poisoning admissions, Victoria", on page 3 of Hazard 39 (June 1999) had incorrect labelling and scaling on the vertical (frequency) axis. The figure indicates admissions were twice the number of the true figure. Pictured right is the corrected version of this figure.

**Trends in adult poisoning admissions, Victoria**



Source: VIMD July 1987 to June 1988; >=15 years





issues are outlined in Table 7. The review covers not only action taken by VISS alone or in collaboration with other MUARC projects but also significant action taken by other relevant bodies.

Table 7 is not intended to be a comprehensive account of the issues discussed, but rather indicative of the approach taken the forward to translation to practice.

## Future Directions

VISS aims to continue to play a major and increasingly effective role in injury prevention. Further data and research collaboration is anticipated with hospital emergency departments, Health Care Networks and other partners.

Data system innovations will focus on further data linkages to enhance injury information, the development of a high quality sampling frame of detailed hospital injury data collections, and assistance, as a Monash University consortium partner, with the establishment of the National Coronial Information System. VISS data will also play an important role in the proposed development of an Injury Cost and Consequences Model.

Translation of data and research to practice will receive an even greater emphasis by VISS in the future. This will be facilitated by the anticipated availability of new knowledge from proposed applied and fundamental research and by the development of a consolidated media strategy.

## References

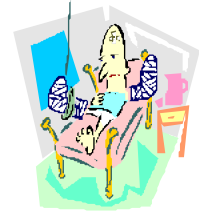
- Australian Institute of Health and Welfare, 1999, Australia's Health 1998, Catalogue No. AUS 10.
- Li, L. and Routley, V. September 1998, Trends in Road Traffic Fatality and Injury in Victoria, *Hazard*, Edition 36, Victorian Injury Surveillance System, p1-13.
- Stathakis, V. 1999, 'Hospitalised Injuries Victoria, July 1992-June 1998', Report No. 160. Monash University Accident Research Centre, Melbourne.

## New publications from MUARC

### Hospitalised Injuries, Victoria July 1992 – June 1998

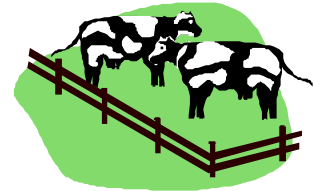
V.Z. Stathakis

Monash University Accident Research Centre  
Report No. 160. \$20 per copy  
(address pg 19) (Phone 9905 4371)



### Farm Injury Regular Surveillance Tools (FIRST) Vol.1, No.2

J. Lough, L. Day



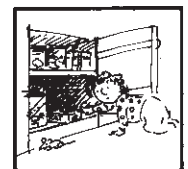
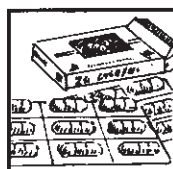
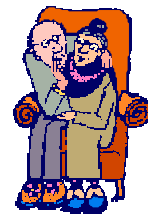
This recent FIRST update outlines farm injury trends for the first half of 1999, and compares them with the previous year. Work-related fatalities, and emergency department presentations are all reported by frequency and major injury cause.

Copies are available at no charge. Contact Jonathan Lough at Monash University Accident Research Centre by phone (03) 9905 1908, fax (03) 9905 1809 or email jonathan.lough@general.monash.edu.au.

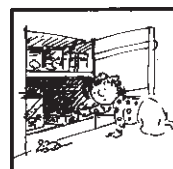
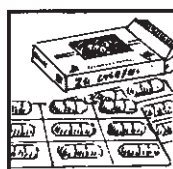
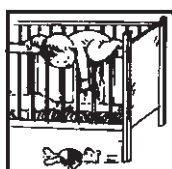
### Consumer Product-Related Injuries in Older Persons

W. Watson, L. Day, J. Ozanne-Smith, J. Lough

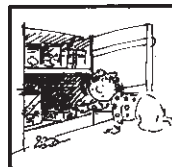
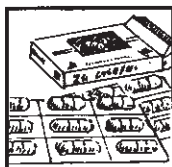
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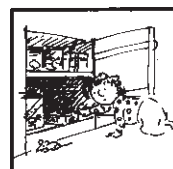
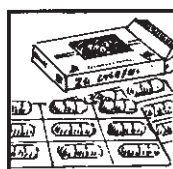
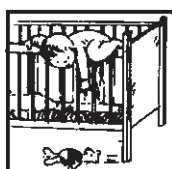
<b>Issue</b>	<b>Dog Bites</b> There were 3,707 ED presentations for dog bite recorded on the VEMD from 1996 to 1998. There is an annual average of 299 all age dog bite hospitalisations (1992/98). Despite a reduction in the dog bite hospitalisation rate for children 1-4 years they remain the most at risk group. A municipal survey in 1998 measured enforcement of the Domestic (Feral and Nuisance) Animals Act. There was wide variability in the incidence per 1000 dogs (seizures, fines/ infringements, bites etc) between municipalities. Common barriers to enforcement included: inability to persuade victims of dog bite to pursue the matter in court; inconsistent enforcement; lack of resources; and owners who unaware of, or are unwilling to comply, with the Act.	<b>Nursery furniture injury</b> VISS reported 15 deaths (1985-1995) and 1,772 ED presentations (1988-1997) associated with nursery furniture. Eighty-four percent of injuries occurred to children aged <2 years. Products associated with injury are prams, cots, high chairs, baby walkers, strollers, change tables and baby exercisers. Almost two-thirds of injuries were to the head and face. Despite a 1995 request from the Federal Minister for Consumer Affairs for voluntary withdrawal from sale, a 1997/98 cross sectional survey of retailers showed that 78% of specialist and 38% of major department stores sampled stocked baby walkers. Most retailers identified new safety features, however the effectiveness of these features has not been evaluated.
<b>Outcomes/impact</b>	* Statistically significant (p=0.019) downward trend for hospitalised dog bites in the 1-4 age group.	* New mandatory Standard on household cots effective as of 30/6/98 * Review of voluntary Standard for prams and strollers * Development of Standards for high chairs and baby walkers in progress
<b>Hazard coverage</b>	Editions: 26, March 1996; 34, March 1998	Editions: 37, December 1998; 34, March 1998
<b>Key recommendations</b> <i>NB: see specific editions of Hazard for more detailed recommendations</i>	* Separation of young children and dogs * Continued awareness raising on living safely with dogs * Strict enforcement of existing regulations * Revision of criteria for declaration of "dangerous dogs"	* Development of a mandatory safety Standard for baby walkers * Development of a restraint Standard common to all nursery furniture * Development of a Standard for change tables
<b>Media follow up</b>	<i>Burkes Backyard, The Age, Herald Sun</i>	<i>The Age, A Current Affair, Channel 7, Herald Sun, ABC radio</i>
<b>Information requests (Jan 1997 to June 1999)</b>	51, including Municipal Association of Victoria, Dept of Natural Resources and Environment, Bureau of Animal Welfare, Australian Rottweiler Council and <i>Burkes Backyard</i> .	32, including Office of Consumer and Business Affairs, Choice Magazine, South Australian Health Commission.
<b>Further action</b>	MUARC collaborative project with the National Centre for Health Promotion, University of Sydney to: analyse Australian data; review international and national literature; review risk and protective factors relating to the dog, injured person and environment; develop a research agenda.	* 1998 ABS household survey indicated that of 234,100 Victorian households with young children: 39,100 had a baby walker, 62.1% of which were not in use; 170,800 had a stroller, 87% with harnesses fitted; 108,700 had high chairs, 55% with harnesses fitted; and 125,100 had cots, 53% of which were second hand. * Keeping Baby Safe. A guide to nursery furniture published by the Ministerial Council on Consumer Affairs
<b>Implementation</b>	Dept of Natural Resources and Environment, Victoria, implemented the Responsible Pet Ownership campaign to raise awareness using a multimedia approach. VISS contributed data and presented at launch, by the deputy Premier, of the 'Dealing with dogs' component	Infant Nursery Product Association of Australia and Kidsafe developed, in 1999, a code of practice which sets out minimum safety and performance criteria for a basic range of nursery products
<b>Future challenges</b>	Acquire new and more widely implement existing knowledge to reduce the hospitalisation rate by: - evaluating existing and new interventions - developing agreed terminology for dog related incidents - standardising methods for measuring, monitoring and reporting dog populations and breeds - undertake a case-control study of risk and protective factors - study barriers to implementation of preventative measures	* In collaboration with industry, optimise the safety of nursery products by the identification and promotion of design improvements with Standards then serving only as minimum requirements * Investigate second-hand marketing of nursery products * Evaluate effectiveness of new Standards against injury data * Undertake a randomised control trial of US Standard compliant babywalkers and regular babywalkers



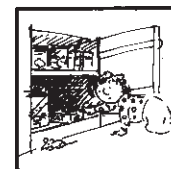
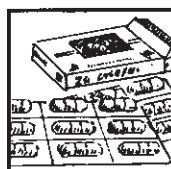
Issue	Do-It-Yourself (DIY) injury prevention	Drowning and near-drowning
	<p>A 1995 VISS report found that injuries from DIY activities represented 9% of all adult emergency department presentations, several thousand hospital admissions and 15 deaths annually in Victoria alone. Males aged 30-34 years are most at risk with grinding, lawn mowing and ladder use the top 3 activities resulting in injury. Finger and hand lacerations and foreign bodies in the eyes are the most frequent injuries. DIY injury is usually caused by non-use of personal protective equipment, use of inappropriate tools for the job, unsafe work practices, and insufficient safety precautions.</p>	<p>VISS reported 350 deaths (1989/94) and 804 hospitalisations (1987/95) associated with unintentional drowning. Children aged &lt;5 accounted for 22% of deaths and 45% of near drownings, commonly in home pools and spas, baths and ponds. Natural bodies of water were more common in older age groups. A municipal survey in 1998 measured the enforcement of retrospective fencing regulations. Council estimates of the percentage of pools meeting regulations were wide ranging. Fines for non-compliance were rarely issued. Commonly cited barriers to enforcement included negative owner attitudes and fencing costs.</p>
<b>Outcome/impact</b>		<p>From July 1997 Victorian law requires that all existing residential swimming pools and spas have safety barriers to prevent unsupervised access</p>
<p><b>Hazard coverage</b></p> <p><b>Key recommendations</b>  <i>NB: see specific editions of Hazard for more detailed recommendations</i></p>	<p>Editions: 14, March 1993; 22, March 1995 (chainsaws and lawn mowers); 28, September 1996 (power saws); 41, December 1999</p> <ul style="list-style-type: none"> <li>*Follow safe work practices and precautions, keep guards in place during operation of power tools, keep work areas dry and clean, follow manufacturers instructions</li> <li>*Use a tool appropriate for the task and keep tools well maintained</li> <li>*Use personal protective equipment appropriate for the task at hand including protective eyewear, gloves, non-slip footwear, hearing and respiratory protection</li> <li>*Never attempt tasks beyond knowledge and skill level</li> </ul>	<p>Editions: 30, March 1997; 34, March 1998</p> <ul style="list-style-type: none"> <li>* Ensure all backyard pools are fenced in accordance with AS1926, preferably isolation fencing</li> <li>* Supervise young children around water (including baths and ponds)</li> <li>* Empty wading pools, buckets when not in use</li> <li>* Ensure there are no objects surrounding pools and spas fences which can be used to gain access</li> </ul>
<b>Media follow up</b>	<i>Herald Sun</i>	<i>The Age, Herald Sun</i>
<b>Information requests (Jan 1997 to June 1999)</b>	17, including Office of Fair Trading, Hume City Council, Complete Safety Australia	43, including VicSwim, Royal Life Saving Society of WA, Division of General Practice, Kidsafe
<b>Further action</b>	1998 ABS household survey of exposure indicated that of 954,200 households with home maintenance equipment, 90% had ladders, 16% welding equipment, 25% angle grinders and 78% other DIY equipment.	1998 ABS household survey indicated that of 6.8% (84,000) of households in Melbourne that had a swimming pool, 72% had self-closing and self-latching gates attached to the fence around the pool, an increase from 1992 when, of the 8.1% of households with a swimming pool, 17.6% had self-closing and self-latching gates.
<b>Implementation</b>	MUARC intervention to prevent DIY injuries through the targeted creation and distribution of 3 brochures specifically designed for home handypersons; workplace managers and retailers selling or hiring DIY equipment. 126,000 brochures distributed via hardware retailers and hirers, Victorian WorkCover Authority, Hire and Rental Association of Australia, Retail Traders Association municipal libraries and others.	1996 Safepool brochure from the Building Control Commission and Kidsafe Victoria.
<b>Future challenges</b>	<p>Reduce the incidence of DIY injuries by means of identifying and collaborating with lead agencies and stakeholders to:</p> <ul style="list-style-type: none"> <li>- fund the evaluation of countermeasures</li> <li>- enhance a culture of safety among designers, manufacturers and consumers</li> <li>- identify effective new solutions</li> <li>- implement optimal design and safe practice</li> </ul>	<ul style="list-style-type: none"> <li>* In collaboration with relevant government and non-government agencies develop a funded research, implementation and evaluation strategy for prevention of drowning and near-drowning.</li> <li>* Immediate challenges include:                             <ul style="list-style-type: none"> <li>- determination of compliance with pool fencing regulations</li> <li>- intervention at point of sale including restriction of media advertising of properties non-compliant with regulations by self-regulation or ban</li> </ul> </li> </ul>

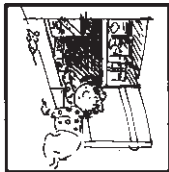
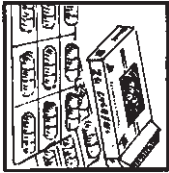
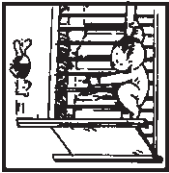


Issue	Farm Injury	Motor Vehicle Exhaust Gassing (MVEG) suicides
	VISS studied unintentional farm injuries in Victoria between 1989 and 1997. Annually there were an average of 7 deaths, 761 hospitalisations and 3,074 ED presentations. Males account for large proportions of all cases. Children appear to be especially vulnerable to fatalities. Agricultural machinery, particularly tractors, were prominent causes of death and serious injury. Other important causes of injury included drowning, motorcycles, falls, motor vehicles and animals.	In 1997 carbon monoxide poisoning from MVEG was the second major method of suicide in Australia, accounting for almost 22% of suicides. MVEG suicides have increased in rates, as a proportion of suicides and in numbers since at least 1968, despite the introduction of catalytic converters in 1986. There were over 600 such deaths in 1997. Middle-aged males predominate for this method of suicide.
<b>Outcome/impact</b>	<ul style="list-style-type: none"> <li>* Sustained decrease in tractor roll over deaths from 1993</li> <li>* Levelling off of non tractor deaths since 1995 after period of rapid increase</li> <li>* Decrease in numbers of hospitalisations 1993-1997</li> </ul>	There has been no reduction in this method of suicide.
<b>Hazard coverage</b>	Editions: 24, September 1995 (Tractors); 33, December 1997 (Farm injury)	Editions: 20, September 1994; 25, December 1995; 38, March 1999; 39, June 1999
<b>Key recommendations</b> <i>NB: see specific editions of Hazard for more detailed recommendations</i>	<ul style="list-style-type: none"> <li>* Regularly check the farm environment and work procedures for injury hazards, assess and manage the risk associated with each hazard</li> <li>* Obtain training in farm safety management and in specific operations and activities</li> <li>* Create barriers between children and/or bystanders and the work environment</li> <li>* Use only tractors fitted with Roll Over Protective Structures (ROPS), preferably full cabs</li> </ul>	<ul style="list-style-type: none"> <li>* Introduction of 3 gas sensors into new vehicles to ensure that life threatening gas levels (CO, CO<sub>2</sub>, O<sub>2</sub>) cannot be reached over the lifetime of the vehicle</li> <li>* Replace existing exhaust pipes on in-service vehicles with new safety designs</li> <li>* Further improvements in engine design and catalytic conversion techniques to complete the conversion process to virtually eliminate CO emissions</li> </ul>
<b>Media follow up</b>	<i>Weekly Times, ABC Regional Radio, The Age, Herald Sun, Country Round Up</i>	<i>ABC News Radio, Herald Sun, The Age, Leader Newspapers</i>
<b>Information requests (Jan 1997 to June 1999)</b> <b>Further action</b>	88, including Victorian Farmers Federation (VFF), Agricultural Health Unit, Victorian WorkCover Authority (VWA) <ul style="list-style-type: none"> <li>* MUARC studies of machinery injury including international collaboration</li> <li>* VWA funding of surveillance bulletin (FIRST)</li> <li>* MUARC evaluation of the ROPS rebate campaign, funded by VWA</li> <li>* MUARC evaluation of "Managing Farm Safety" training program funded by the Rural Industries and Research Development Corporation (RIRDC)</li> <li>* MUARC survey of farmers, collecting data on safety practices funded by (RIRDC)</li> </ul>	18, including Australian Medical Association and the Australian Institute for Suicide and Research Prevention MUARC report No. 139 reviewing the epidemiology and prevention of MVEG suicides (VISS monograph)
<b>Implementation</b>	<ul style="list-style-type: none"> <li>* Statewide ROPS rebate scheme administered by VFF and funded by VWA</li> <li>* Amendment of OH&amp;S regulation in 1998 to require ROPS on all tractors</li> <li>* Victorian Farmsafe Alliance project officer funded by VWA, Dept of Human Services and Dept of Natural Resources and Environment</li> <li>* Availability of "Managing Farm Safety" training program and establishment of State Farm Safety Training Centre at University of Ballarat</li> </ul>	The Mental Health Branch of the Commonwealth Department of Health and Family Services allocated \$55,000 towards research and designing methods of alleviating MVEG suicides. The Australian Medical Association co-ordinates an intersectoral committee on which MUARC is represented
<b>Future challenges</b>	<ul style="list-style-type: none"> <li>* Establishment injury risk management as a central activity of farm management</li> <li>* Identification of factors which increase the rate of change to farm safety practices and the farm environment</li> <li>* Machinery design improvements which meet both safety and productivity needs</li> <li>* Management of risk associated with use of older</li> </ul>	Reduce access to this means of suicide by: <ul style="list-style-type: none"> <li>- incorporating into legislation a gas sensor and tailpipe modification, based on the results of recent research</li> <li>- evaluate the effectiveness of this intervention on suicide and self harm rates</li> </ul>



Issue	Unintentional Poisoning – Young children	Poisoning - Adults
	<p>There is an average of 698 poisoning admissions under 5 years of age in Victoria annually (1987 to 1998). Poisoning is the second major cause of hospital admission in the 0-4 age group, after falls. Children under 5 make up 86% of both child poisoning hospitalisations and ED presentations. Seventy-four percent of hospitalisations and 71% of ED presentations in the 0-4 age group are attributable to medications, particularly respiratory system/muscle relaxants, paracetamol, antihistamines and vaporiser solutions. Pesticides, household cleaners, cosmetics and plants account for the majority of non-medication poisonings.</p>	<p>Poisoning (all intents) is the third major cause of injury hospitalisation (1987 to 1998) and is a common cause of ED presentation (1996 to 1998) for adults. Benzodiazepines, alcohol and anti-depressants were the leading agents involved in all levels of severity. Common agents were carbon monoxide for deaths, paracetamol for admissions and ED presentations and heroin for deaths and ED presentations. Fifty-three percent of deaths, 62% of admissions and 64% of ED presentations were intentional. Admissions and presentations had similar age and sex distributions ie. 20-24 years and 57% female. Deaths were more likely in males with a peak at 25-29 years.</p>
<b>Outcome/impact</b>		<p>* Heroin related deaths and hospitalisations have risen dramatically since 1993/94.</p>
<b>Hazard coverage</b>	<p>Editions: 4, November 1989; 27, June 1996 (drugs and medications in early childhood); 28, September 1996 (childhood domestic chemical and plant poisonings)</p>	<p>Editions: 35, June 1998 (envenomations); 39, June 1999 (adult poisoning overview)</p>
<b>Key recommendations</b> <i>NB: see specific editions of Hazard for more detailed recommendations</i>	<ul style="list-style-type: none"> <li>* Store oils and solutions used in vaporisers separately from oral medications</li> <li>* Label medications in fractions or ml in preference to decimal points or mg to ensure consistency and reduce misreading</li> <li>* Prescribe doses by age not weight, where appropriate, to minimise potential for carer error</li> <li>* Investigate crusting around closure on liquid medications and effects on CRC's</li> <li>* Develop safe benchtop storage</li> <li>* Review thickness of foil on strip packs</li> <li>* Regulate the volume of common poisoning agents supplied</li> </ul>	<ul style="list-style-type: none"> <li>* Package prescription pharmaceuticals in as small a quantity as is practicable</li> <li>* Encourage prescribing of newer, safer antidepressants</li> <li>* Raise awareness of the dangers of mixing pharmaceuticals, heroin and alcohol</li> <li>* Provide additional information regarding toxicity of paracetamol in overdose</li> <li>* Restrict paracetamol sales to pharmacies only</li> <li>* Package toxic household products in smaller volumes</li> <li>* Avoid decanting household chemicals into alternative storage</li> </ul>
<b>Media follow up</b>	<p><i>The Age, Choice magazine, Burkes Backyard</i> (all age poisoning)</p>	
<b>Information requests (Jan 1997 to June 1999)</b>	<p>43 (all age poisoning), including Australian Drug Foundation, Turning Point, Australian Venom Research Unit, Pharmacy Guild of Australia</p>	
<b>Further action</b>	<p>MUARC report investigated childhood medication poisoning and identified specific candidate medications recommended for child resistant packaging</p>	<p>Paracetamol retrospective case series study to be published</p>
<b>Future challenges</b>	<ul style="list-style-type: none"> <li>* In collaboration with responsible government and non-government agencies and industry:                             <ul style="list-style-type: none"> <li>- conduct research to determine failure rates of child resistant packaging; to investigate children's means of access to poisoning agents; and to investigate rural child poisoning rates which are double those of urban children</li> <li>- implement these research findings</li> </ul> </li> <li>* In the short term, educate pharmacists to dispense, and practitioners to preferentially prescribe medications with child resistant packaging.</li> <li>* Upgrade coding systems to routinely record specific agents implicated in poisoning.</li> </ul>	<ul style="list-style-type: none"> <li>* Reduce access to the means of suicide, self harm and unintentional poisoning by:                             <ul style="list-style-type: none"> <li>- identifying alternatives to highly toxic prescription medicines</li> <li>- restricting quantities and strengths of over-the-counter medications</li> <li>- requiring blister packaging on medications frequently associated with adult intentional overdose</li> </ul> </li> <li>* Upgrade coding systems to routinely record specific agents implicated in poisoning.</li> </ul>

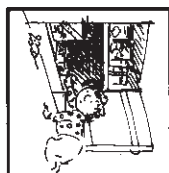
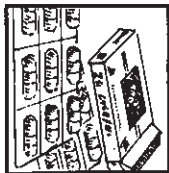
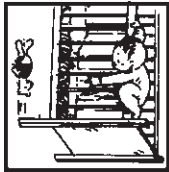




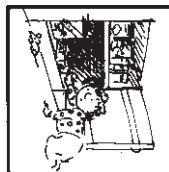
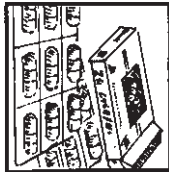
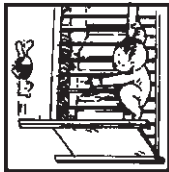
Average Annual Rate Persons - Public Hospital Injury Admissions (1992-1998): Victoria

Appendix 1

Age Group (years)	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	>=85	Total	
<b>Injury Cause</b>																					
<i>Unintentional (Total)</i>	<b>706</b>	<b>1366</b>	<b>1084</b>	<b>1078</b>	<b>1237</b>	<b>1210</b>	<b>976</b>	<b>788</b>	<b>684</b>	<b>640</b>	<b>620</b>	<b>663</b>	<b>749</b>	<b>861</b>	<b>1068</b>	<b>1519</b>	<b>2522</b>	<b>4213</b>	<b>7491</b>	<b>1110</b>	
<b>Transport (total)</b>	<b>23</b>	<b>83</b>	<b>164</b>	<b>294</b>	<b>405</b>	<b>393</b>	<b>268</b>	<b>200</b>	<b>159</b>	<b>146</b>	<b>126</b>	<b>131</b>	<b>126</b>	<b>128</b>	<b>130</b>	<b>147</b>	<b>198</b>	<b>205</b>	<b>194</b>	<b>203</b>	
<b>Motor Vehicle Traffic (Total)</b>	<b>19</b>	<b>42</b>	<b>56</b>	<b>82</b>	<b>266</b>	<b>309</b>	<b>204</b>	<b>148</b>	<b>118</b>	<b>108</b>	<b>95</b>	<b>99</b>	<b>99</b>	<b>102</b>	<b>109</b>	<b>123</b>	<b>171</b>	<b>175</b>	<b>161</b>	<b>138</b>	
Driver	2	1	1	3	85	140	92	72	59	59	49	52	52	48	50	58	78	70	53	57	
Passenger	15	21	21	24	80	59	35	21	16	16	18	21	23	27	26	30	44	41	47	30	
Motorcyclist/passenger	0	1	4	14	52	69	49	32	24	15	11	7	4	3	2	3	2	2	2	22	
Pedal cyclist	0	1	7	15	10	7	5	3	3	3	2	2	2	2	2	1	2	2	2	5	
Pedestrian	1	17	21	23	28	21	15	12	10	11	11	13	13	17	22	25	36	53	45	18	
Other person	1	1	2	3	11	12	9	7	6	5	4	3	5	5	5	6	9	8	12	6	
<b>Motor Vehicle Non-Traffic (Total)</b>	<b>1</b>	<b>10</b>	<b>15</b>	<b>34</b>	<b>42</b>	<b>27</b>	<b>18</b>	<b>15</b>	<b>11</b>	<b>10</b>	<b>9</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>9</b>	<b>11</b>	<b>15</b>	<b>13</b>	<b>16</b>	
Occupant	0	2	3	5	8	7	5	5	3	4	3	3	4	3	3	5	7	9	10	5	
Motorcyclist/passenger	0	2	9	26	30	17	10	8	6	4	3	2	2	1	1	1	0	0	1	9	
Pedestrian	0	3	1	1	1	1	1	1	1	0	1	1	1	0	1	1	2	2	2	1	
Other person	0	2	2	3	4	3	2	2	1	1	2	2	2	2	2	2	2	3	1	2	
<b>Other Vehicle (Total)</b>	<b>3</b>	<b>30</b>	<b>93</b>	<b>178</b>	<b>96</b>	<b>57</b>	<b>45</b>	<b>37</b>	<b>30</b>	<b>29</b>	<b>22</b>	<b>24</b>	<b>19</b>	<b>18</b>	<b>15</b>	<b>14</b>	<b>16</b>	<b>15</b>	<b>20</b>	<b>49</b>	
Railway	1	0	0	1	1	1	1	1	1	0	0	1	1	1	1	1	2	3	2	1	
Bicycle	1	24	66	108	50	19	15	12	10	11	8	9	7	9	8	8	6	5	4	25	
Animal being ridden	0	3	15	38	28	23	18	15	12	11	9	8	5	3	2	1	1	0	2	14	
Water transport	0	1	1	2	4	6	5	3	2	2	2	2	2	1	1	1	1	0	0	2	
Air transport	0	0	0	0	1	3	3	3	2	2	1	1	1	1	0	0	1	1	2	1	
Vehicle NEC	2	2	12	28	12	5	4	4	3	3	3	2	3	3	3	3	5	5	9	6	
<b>Near drowning (Total)</b>	<b>10</b>	<b>13</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	
Pool	3	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Sport/rec activity (No diving equipment)	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Other drowning	7	3	1	0	1	1	1	1	0	0	1	1	0	0	1	1	1	0	0	1	
<b>Unintentional poisoning (Total)</b>	<b>108</b>	<b>269</b>	<b>15</b>	<b>25</b>	<b>83</b>	<b>86</b>	<b>79</b>	<b>64</b>	<b>55</b>	<b>49</b>	<b>37</b>	<b>31</b>	<b>28</b>	<b>24</b>	<b>29</b>	<b>36</b>	<b>44</b>	<b>63</b>	<b>63</b>	<b>63</b>	
<b>Drugs, medicinal substances &amp; biologicals (total)</b>	<b>59</b>	<b>201</b>	<b>9</b>	<b>15</b>	<b>64</b>	<b>71</b>	<b>64</b>	<b>52</b>	<b>45</b>	<b>39</b>	<b>27</b>	<b>24</b>	<b>19</b>	<b>16</b>	<b>22</b>	<b>27</b>	<b>36</b>	<b>55</b>	<b>55</b>	<b>48</b>	
Heroin/Opiates	1	2	0	0	8	13	12	10	5	4	2	2	1	1	1	2	2	2	6	5	
Paracetamol	6	35	1	3	14	9	7	5	4	4	3	2	1	1	1	1	1	1	1	6	
Tranquillisers	2	20	1	2	12	18	20	18	16	14	11	7	5	4	3	4	6	8	9	11	
Other drugs/medications	50	143	7	9	30	31	25	20	20	17	12	13	12	10	17	20	26	44	39	26	
<b>Other solid &amp; liquid substances, gases &amp; vapours (total)</b>	<b>50</b>	<b>68</b>	<b>7</b>	<b>11</b>	<b>19</b>	<b>15</b>	<b>15</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>8</b>	<b>9</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>15</b>	
Other solids/liquids	47	65	6	9	16	12	11	9	8	8	8	6	7	8	7	7	7	7	7	13	
Gas/vapour	3	3	0	2	3	3	4	3	2	3	2	2	2	1	1	1	1	1	1	2	
<b>Falls (Total)</b>	<b>231</b>	<b>413</b>	<b>602</b>	<b>428</b>	<b>258</b>	<b>216</b>	<b>186</b>	<b>167</b>	<b>161</b>	<b>171</b>	<b>192</b>	<b>240</b>	<b>333</b>	<b>450</b>	<b>651</b>	<b>1055</b>	<b>1923</b>	<b>3479</b>	<b>6588</b>	<b>481</b>	
<b>Falls, different level (total)</b>	<b>181</b>	<b>267</b>	<b>402</b>	<b>154</b>	<b>59</b>	<b>61</b>	<b>53</b>	<b>56</b>	<b>58</b>	<b>63</b>	<b>70</b>	<b>87</b>	<b>103</b>	<b>115</b>	<b>140</b>	<b>192</b>	<b>299</b>	<b>501</b>	<b>876</b>	<b>139</b>	
Stairs/steps	13	17	9	7	9	11	12	11	11	12	15	18	24	28	36	56	83	118	155	20	
Ladders/scaffolds	0	4	2	1	2	7	7	12	13	17	21	26	31	33	33	29	31	31	15	14	
Building/structure	1	13	15	11	10	13	10	9	9	8	8	10	9	7	8	6	5	3	4	9	
Playground equipment	1	73	232	57	5	1	1	1	1	1	0	1	0	0	0	1	1	3	6	25	
Chair or bed	72	82	35	11	4	3	4	5	6	6	7	10	16	25	39	70	136	283	600	32	
Different level, other	94	79	109	68	30	25	20	20	18	19	20	23	23	22	24	31	44	63	96	38	



<b>Falls, same level (total)</b>	<b>50</b>	<b>146</b>	<b>200</b>	<b>274</b>	<b>198</b>	<b>155</b>	<b>133</b>	<b>111</b>	<b>103</b>	<b>108</b>	<b>122</b>	<b>153</b>	<b>230</b>	<b>335</b>	<b>511</b>	<b>863</b>	<b>1624</b>	<b>2977</b>	<b>5712</b>	<b>342</b>
Same level, not sport	16	59	77	92	43	39	39	39	39	49	58	78	118	168	262	423	760	1362	2410	145
Falls in sport	1	1	13	65	62	39	29	16	9	4	3	1	2	1	1	2	2	2	3	18
Fracture, unspecified	11	12	25	36	39	29	23	16	13	10	9	10	15	19	23	41	72	113	212	26
Other falls	23	73	84	82	55	48	42	40	42	45	51	64	96	146	225	397	791	1501	3086	153
<b>Fires/ burns/ scalds (Total)</b>	<b>90</b>	<b>88</b>	<b>14</b>	<b>15</b>	<b>20</b>	<b>24</b>	<b>21</b>	<b>19</b>	<b>16</b>	<b>16</b>	<b>14</b>	<b>15</b>	<b>15</b>	<b>14</b>	<b>16</b>	<b>21</b>	<b>27</b>	<b>35</b>	<b>62</b>	<b>23</b>
House fires	2	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	4	1
Clothing ignition	1	2	1	1	1	1	0	1	1	1	0	0	1	1	0	0	2	1	2	1
Hot liquids/vapors/steam	59	67	8	4	6	8	7	7	5	6	5	5	5	6	6	10	12	17	27	11
Caustic/corrosive substances & other hot objects	24	13	2	2	3	5	4	5	4	4	3	3	4	4	4	4	5	9	17	5
Other fires/burns	4	5	3	8	9	9	9	6	5	5	4	5	4	3	5	5	7	6	12	6
<b>Natural/ environmental (Total)</b>	<b>21</b>	<b>76</b>	<b>39</b>	<b>32</b>	<b>27</b>	<b>26</b>	<b>26</b>	<b>23</b>	<b>26</b>	<b>25</b>	<b>28</b>	<b>28</b>	<b>27</b>	<b>31</b>	<b>28</b>	<b>36</b>	<b>45</b>	<b>71</b>	<b>103</b>	<b>33</b>
Excessive heat/cold	2	1	1	1	3	2	1	1	1	1	1	2	3	4	5	10	20	38	70	4
Venomous animals/plants	2	14	13	11	11	9	10	10	11	9	10	9	8	9	5	7	5	5	3	10
Dog bite	2	36	15	7	3	3	4	3	3	4	4	3	4	5	7	5	7	7	7	7
Other bite/injury caused by animal	5	25	10	12	10	11	10	8	10	11	12	14	12	14	12	12	13	18	15	12
Other natural/ environmental	10	1	0	0	0	0	0	0	1	0	0	1	1	1	1	1	1	3	8	1
<b>Choking/ suffocation/ foreign body (Total)</b>	<b>98</b>	<b>97</b>	<b>38</b>	<b>15</b>	<b>10</b>	<b>10</b>	<b>13</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>21</b>	<b>23</b>	<b>27</b>	<b>32</b>	<b>34</b>	<b>36</b>	<b>50</b>	<b>55</b>	<b>59</b>	<b>27</b>
Aspiration of food	38	11	1	1	1	1	1	1	1	2	3	3	6	4	4	5	9	11	14	3
Aspiration of other object	21	13	3	1	1	0	1	1	1	0	1	1	1	1	2	2	3	4	5	2
Mechanical suffocation	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign body in eye	2	12	4	1	1	2	2	1	2	2	2	1	1	1	1	0	1	0	0	2
Foreign body in other orifice	33	61	30	11	7	7	9	12	12	13	16	18	20	27	27	28	36	40	40	19
<b>Hit/ struck/ crush (Total)</b>	<b>58</b>	<b>158</b>	<b>98</b>	<b>141</b>	<b>197</b>	<b>176</b>	<b>137</b>	<b>93</b>	<b>66</b>	<b>55</b>	<b>45</b>	<b>44</b>	<b>43</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>52</b>	<b>74</b>	<b>114</b>	<b>97</b>
Struck by falling object	5	15	6	4	6	10	10	12	10	10	9	10	10	7	7	5	7	6	11	9
Struck/knocked in sport	2	7	23	78	136	108	80	42	23	13	8	5	3	2	3	2	4	6	6	39
Caught/crushed in or between objects	28	80	26	11	11	13	13	13	12	13	11	14	11	10	8	7	7	8	14	17
Other hit/struck/crush	23	56	43	47	44	44	35	26	21	19	17	15	19	17	19	22	34	54	82	32
<b>Machinery (Total)</b>	<b>1</b>	<b>8</b>	<b>4</b>	<b>5</b>	<b>26</b>	<b>36</b>	<b>35</b>	<b>34</b>	<b>34</b>	<b>32</b>	<b>34</b>	<b>37</b>	<b>35</b>	<b>28</b>	<b>21</b>	<b>16</b>	<b>14</b>	<b>9</b>	<b>5</b>	<b>25</b>
Agricultural/farm	0	1	1	1	1	2	2	2	2	2	3	4	3	3	2	2	1	1	2	2
Lifting machines and appliances	0	1	0	0	1	2	3	2	2	3	3	2	2	1	1	0	0	0	0	2
Metalworking machines	0	0	0	0	4	5	5	4	4	3	4	4	3	3	2	1	0	1	0	3
Woodworking and forming machines	0	0	0	1	9	11	11	12	11	12	12	13	14	13	12	11	9	5	3	9
Earth moving machines	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0
Other machinery	1	5	2	3	10	16	15	13	14	13	12	14	11	8	4	2	2	1	1	10
<b>Cutting/ piercing (Total)</b>	<b>20</b>	<b>109</b>	<b>71</b>	<b>64</b>	<b>113</b>	<b>132</b>	<b>107</b>	<b>83</b>	<b>73</b>	<b>62</b>	<b>58</b>	<b>57</b>	<b>57</b>	<b>53</b>	<b>46</b>	<b>44</b>	<b>42</b>	<b>47</b>	<b>49</b>	<b>77</b>
Powered lawn mower	0	1	2	2	3	2	3	3	3	3	3	3	6	5	5	5	3	3	0	3
Other powered hand tools	0	1	0	1	5	8	7	7	8	7	8	9	9	10	9	5	4	4	0	6
Powered household appliances	0	2	1	0	1	1	1	1	1	0	0	1	1	1	1	1	0	0	0	1
Knives/daggers	0	5	4	6	18	22	17	14	10	10	9	7	6	4	3	2	1	1	1	10
Other hand tools/implements	2	10	7	9	8	7	7	7	7	6	5	7	6	7	5	5	3	4	3	7
Other cutting/piercing instruments/objects	17	89	57	45	79	92	72	51	44	35	33	30	29	26	23	26	30	35	45	51

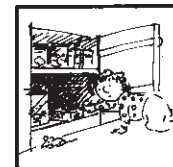
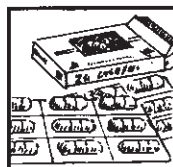


<b>Other unintentional (Total)</b>	<b>46</b>	<b>50</b>	<b>34</b>	<b>56</b>	<b>99</b>	<b>110</b>	<b>102</b>	<b>90</b>	<b>75</b>	<b>66</b>	<b>64</b>	<b>57</b>	<b>59</b>	<b>63</b>	<b>75</b>	<b>92</b>	<b>127</b>	<b>175</b>	<b>252</b>	<b>79</b>
Firearms	0	0	0	2	3	3	2	1	1	1	1	1	0	0	0	0	0	0	0	1
Explosion	0	0	1	3	3	3	3	2	1	1	2	2	1	1	1	0	0	0	1	2
Electric current	0	2	1	2	3	5	4	3	3	3	3	3	2	1	1	1	0	1	2	3
Overexertion/strenuous movements	3	2	3	16	34	43	40	39	35	28	26	21	20	22	22	28	36	45	62	27
Other unintentional	43	45	29	33	55	56	53	45	35	32	32	32	36	39	51	63	90	128	187	46
<b>Intentional (total)</b>	<b>58</b>	<b>14</b>	<b>6</b>	<b>49</b>	<b>316</b>	<b>381</b>	<b>325</b>	<b>269</b>	<b>224</b>	<b>187</b>	<b>145</b>	<b>98</b>	<b>70</b>	<b>54</b>	<b>46</b>	<b>40</b>	<b>41</b>	<b>50</b>	<b>62</b>	<b>162</b>
<b>Self-Inflicted (Total)</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>28</b>	<b>174</b>	<b>199</b>	<b>192</b>	<b>170</b>	<b>153</b>	<b>133</b>	<b>103</b>	<b>67</b>	<b>51</b>	<b>37</b>	<b>34</b>	<b>29</b>	<b>32</b>	<b>36</b>	<b>44</b>	<b>99</b>
Poisoning (Tranquillisers/Psychotropic agents)	0	0	0	7	48	81	93	88	81	73	57	37	26	19	17	14	15	14	17	46
Poisoning (Other solids/liquids)	1	1	0	19	105	86	67	56	52	44	34	21	18	13	12	10	11	12	17	39
Poisoning (MV Exhaust gas)	0	0	0	0	1	3	4	3	2	2	2	1	1	0	0	0	1	0	0	2
Poisoning (Other gases/vapours)	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	1	1	0
Firearms/explosives	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0	0
Cutting/piercing	0	0	0	1	14	18	18	15	12	9	5	4	3	2	4	2	2	7	6	8
Other means	0	0	0	1	5	9	9	6	5	4	3	3	2	2	1	2	3	1	3	4
<b>Inflicted by other (Total)</b>	<b>57</b>	<b>13</b>	<b>5</b>	<b>21</b>	<b>143</b>	<b>182</b>	<b>134</b>	<b>99</b>	<b>71</b>	<b>54</b>	<b>42</b>	<b>31</b>	<b>20</b>	<b>16</b>	<b>11</b>	<b>11</b>	<b>9</b>	<b>14</b>	<b>18</b>	<b>63</b>
Unnamed fight/brawl	2	1	1	14	98	129	92	64	47	34	28	19	12	11	6	7	5	8	10	41
Firearms/explosives	0	0	0	0	1	1	2	1	1	1	1	0	1	0	0	0	0	1	1	1
Cutting/piercing	3	1	0	1	19	20	13	11	8	6	4	3	2	1	1	0	0	0	1	7
Child battering/maltreatment	48	10	3	2	1	1	1	2	1	1	0	0	0	0	0	0	0	0	1	2
Struck by blunt/thrown object	1	0	0	1	11	14	12	10	7	6	4	4	3	2	1	2	1	1	3	6
Other means	2	1	0	3	12	16	14	11	8	7	6	4	3	2	2	2	2	3	3	7
<b>Undetermined/ other intent (Total)</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>9</b>	<b>11</b>	<b>10</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>7</b>	<b>4</b>	<b>5</b>
Undetermined, poisoning (solids/liquids)	1	0	0	1	5	7	6	5	4	4	3	2	2	1	1	1	1	3	2	3
Undetermined, firearm/explosive	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0
Other undetermined/other intent	3	2	0	1	3	3	3	2	2	2	1	1	1	1	1	0	1	3	2	2
<b>ALL INCIDENT TRUE INJURIES</b>	<b>768</b>	<b>1382</b>	<b>1091</b>	<b>1129</b>	<b>1562</b>	<b>1602</b>	<b>1311</b>	<b>1065</b>	<b>915</b>	<b>833</b>	<b>769</b>	<b>764</b>	<b>823</b>	<b>917</b>	<b>1116</b>	<b>1561</b>	<b>2565</b>	<b>4270</b>	<b>7557</b>	<b>1278</b>
<b>Medical injuries (Total)</b>	<b>964</b>	<b>290</b>	<b>191</b>	<b>175</b>	<b>244</b>	<b>311</b>	<b>382</b>	<b>434</b>	<b>483</b>	<b>559</b>	<b>682</b>	<b>903</b>	<b>1245</b>	<b>1820</b>	<b>2485</b>	<b>3152</b>	<b>3731</b>	<b>3807</b>	<b>3418</b>	<b>856</b>
Medical misadventure	52	7	5	4	4	7	12	14	14	12	14	15	21	30	43	48	51	43	36	16
Post-Operative complications	709	204	145	132	186	241	291	331	382	445	545	714	983	1449	1976	2447	2808	2695	2216	657
Adverse drug effects	203	79	41	39	55	63	79	88	86	102	123	175	241	342	467	658	872	1068	1165	183
Late effects	3	14	21	31	49	58	60	54	49	45	40	37	40	33	35	42	40	47	51	42
<b>ALL NON-INCIDENT NON-TRUE INJURIES</b>	<b>967</b>	<b>305</b>	<b>212</b>	<b>206</b>	<b>293</b>	<b>369</b>	<b>442</b>	<b>488</b>	<b>532</b>	<b>605</b>	<b>722</b>	<b>940</b>	<b>1284</b>	<b>1854</b>	<b>2520</b>	<b>3194</b>	<b>3771</b>	<b>3854</b>	<b>3469</b>	<b>897</b>
<b>ALL INJURIES</b>	<b>1735</b>	<b>1686</b>	<b>1303</b>	<b>1336</b>	<b>1855</b>	<b>1971</b>	<b>1753</b>	<b>1552</b>	<b>1446</b>	<b>1438</b>	<b>1490</b>	<b>1704</b>	<b>2107</b>	<b>2771</b>	<b>3636</b>	<b>4755</b>	<b>6336</b>	<b>8124</b>	<b>11026</b>	<b>2175</b>

Source: VIMD July 1992-June 1998 in Stathakis VZ, Hospitalised Injuries Victoria, Report No. 160. Monash University Accident Research Centre, Melbourne. NB: Rates are per/100,000.



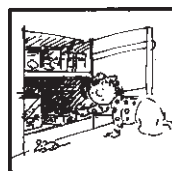
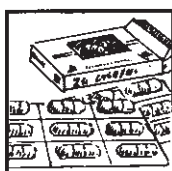
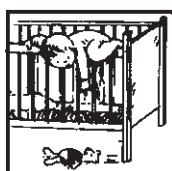
Date	Issue	Action	Outcome
1996 to 1997	Hospital liaison and data management	All 25 hospitals visited to establish relationships and communication re data quality and timeliness	- Regular e-mail, telephone and mail links with EDs and IT departments in all hospitals - Data formatting and timeliness improved
Ongoing since 1995	Data screening	Data is received electronically or on disk and screened for format and completeness	All hospitals now generally submit in correct formats; some variability with staff changes
Ongoing since 1995	Manual data edit for invalid coding	Manual cleaning removes inappropriate delimiters; and, where invalid, data is re-sought from the source	Corrected data is generally obtained
Ongoing since 1995	Automatic edit checks	Data is subjected to automatic edits for sequence of dates, valid age, etc.	Data is either clarified by contact with the hospital or re-supplied by the hospital
Ongoing publication	<i>Hazard</i>	Quarterly published reports some based on VEMD injury data, including data systems reliability and quality	A large number of specific data requests by hospitals aimed at addressing data quality within their ED's
Ongoing	Information requests from VEMD hospitals	Analyses and reports to VEMD hospitals on a wide range of clinical and injury prevention issues	Of total data requests received by year (average 394) an average of 5% are from VEMD hospitals or the Department of Human Services
Ongoing, quarterly, latest Aug 99	General data quality at input and perceived utility	Injury data analyses and data quality reports are supplied on a regular basis to hospitals in comparison to all similar hospitals	Several hospitals have informed of the utility of this information and some have requested additional information
Oct 1997  Nov, Dec 1997 and ongoing	Textual reliability assessment  Validation of supplied data	Examination of the various possible misspelled forms of keywords - Coded data was compared to descriptive data by extracting a random sample of cases and comparing the correctness of coding against that implied by the description of injury - An analysis was undertaken of the proportion of admitted presentations reported within the VEMD compared with that within the VIMD for VEMD hospitals	Results: 94.2% of data keywords use correct spelling; 3.4% of misspellings are retrievable - Unreconcilable discrepancies between coded and descriptive data ranged from 6.5% to 35.8% of cases and varied by institution. Results were reported to hospitals - 75.8% of VIMD cases were from VEMD hospitals. VIMD estimated 44,861 admissions in VEMD hospitals; VEMD estimated only 22,766. Differences in definition of admitted cases and coding incompatibilities explain these discrepancies
Dec 1997 to Mar 1998	Data inconsistencies	Data was examined across all institutions for obvious discrepancies within a coding field	Sources of errors were tracked and staff given more training in the use of the VEMD
Ongoing	Identification of unexpected results from the data	Where unexpected data was noted, instances were tracked back to the source hospitals	Software errors were identified and corrected in hospitals where codes were reversed in lookup tables and translation libraries.
Nov 1997 to Feb 1998	Software assessment	Software was assessed by an observational study at three sites to establish basic quality control and ease of use of the software system	- 22.5% of cases under-reported over 3 sites - Modifications to software were recommended: compulsory injury completion; standardisation of injury case identification with other software systems; simplification of user interface; automation of date and time stamping.
Aug to Oct 1998	Examination of data accuracy, ascertainment, bias and completeness	This study included comparing an independently obtained case profile to that obtained from the hospital data system in four hospitals by collecting parallel data for a random sample of cases over random times	- For equivalent admission criteria, 99% of VEMD admitted cases were contained in the VIMD and 99% of VIMD cases were found in the VEMD - 17.5% of cases appear unreported - While error in the data was moderately high, due to the nature of coding, many numerically incorrect codes were correct in meaning - 17% of cases contain missing data - Textual data was found to be poor; 14.1% of cases contained a valid description - The data is acceptable for injury case counts and overall rates. Individual variables



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\* Special edition



# Editorial Board

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# General Acknowledgements

## Participating Hospitals

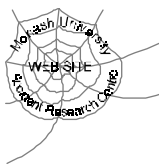
<i>From October 1995</i>	Williamstown Hospital
Austin & Repatriation Medical Centre	Wimmera Base Hospital
Ballarat Base Hospital	
The Bendigo Hospital Campus	<i>From November 1995</i>
Box Hill Hospital	Dandenong Hospital
Echuca Base Hospital	<i>From December 1995</i>
The Geelong Hospital	Royal Victorian Eye & Ear Hospital
Goulburn Valley Base Hospital	Frankston Hospital
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St Vincents Public Hospital	<i>From July 1996</i>
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Warrnambool & District Base Hospital	Monash Medical Centre
Western Hospital	<i>From September 1996</i>
	Angliss Hospital
	<i>From January 1997</i>
	Royal Melbourne Hospital

## Coronial Services

Access to coronial data and links with the development of the Coronial's Services statistical database are valued by VISS.

## National Injury Surveillance Unit

The advice and technical back-up provided by NISU is of fundamental importance to VISS.



Recent issues of *Hazard*, along with other information and publications of the Monash University Accident Research Centre, can be found on our internet home page:

<http://www.general.monash.edu.au/muarc>

# How to Access VISS Data:

VISS collects and tabulates information on injury problems in order to lead to the development of prevention strategies and their implementation. VISS analyses are publicly available for teaching, research and prevention purposes. Requests for information should be directed to the VISS Co-ordinator or the Director by contacting them at the VISS office.

## VISS is located at:

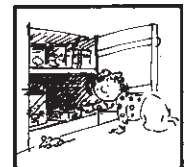
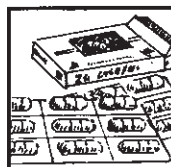
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