

Hazard
(Edition No. 34)
March 1998

**Victorian Injury
Surveillance System
Monash University
Accident Research Centre**



VicHealth

This edition of Hazard investigates enforcement and/or compliance for three legislative and regulatory injury prevention measures and a voluntary measure. The associated injury issues are dog bites, domestic pool drownings, bicycle head injuries and babywalker injuries. In addition the role of the Australian Competition and Consumer Commission (ACCC) is explained.

Enforcing legislative & regulatory injury prevention strategies

Karen Ashby, Virginia Routley & Voula Stathakis¹

Summary

Despite a reduction in the dog bite injury rate for children 1-4 years they are still the most at risk group. In enforcement of the Domestic Animals Act a VISS municipal survey found there was wide variability in the incidence/1000 dogs (seizures, fines/infringements, bites etc) between municipalities. Commonly cited barriers to enforcement are identified.

Home pools are a major cause of drowning and near drowning for the 0-4 age group. Pool fencing is the most effective preventive measure. In a VISS municipal survey estimates of the percentage of pools, which met retrospective fencing regulations, were wide ranging. Inspection was most often at installation or as a result of a complaint. Fines for non-compliance were rarely issued.

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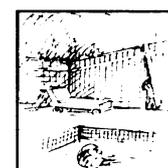
Despite a Ministerial request for voluntary withdrawal from sale for babywalkers in 1995 and evidence of co-operation at the time, a VISS retailer survey found babywalkers are reappearing in stores. A mandatory Standard, which addresses hazardous features or total banning, should be introduced.

Mandatory helmet laws, introduced in July 1990, were associated with an initial reduction in bicyclist head injuries. However bicycle head injury hospitalisation rates have increased since 1992/93, which may be an artefact of casemix funding. Assuming the 75% wearing rates of 1991, it is estimated that penalties have been issued to only 10% of offenders. Further research needs to be undertaken to update helmet wearing and exposure rates to clarify the rise in hospitalisations since 1992/93.

Introduction

Major effective strategies for injury prevention fall into four major groups legislation/regulation, environmental/design change, education/behaviour change and community/organisation based programs. In order to achieve a particular objective, a number of these may be employed concurrently or sequentially (Ozanne-Smith, 1995).

Legislation/regulation in various forms has proven to be an effective injury prevention and control measure. Well documented Australian successes include Australian Design Rules for motor vehicle safety (eg. seat belts), child resistant packaging for poisons, restrictions on the availability of barbiturates in the 1970's (suicide reduction) and roll over protective structures on new tractors. The level of compliance, influenced by the



level, real or perceived, of enforcement will contribute to the effectiveness of these regulations.

As the result of new data systems, research and advocacy, a substantial number of new safety regulations have been implemented in recent years in Australia and at the state or territory level. The aim of this edition of Hazard is to identify and measure the level of enforcement of a cross section of Victorian State regulatory measures and one voluntary control initiative. This is not an attempt to evaluate the effectiveness of the measure in reducing injury but to examine the processes and barriers associated with enforcing the regulation.

The four diverse measures selected each reflects important injury issues involving frequent and severe injuries and are as follows:

- Domestic (Feral and Nuisance) Animals Act (1994)
- Pool fencing regulations (Building Act 1994)
- Bicycle helmet law (1990)
- Voluntary withdrawal from sale of babywalkers

The role of the regulatory authority for mandatory safety Standards, the Australian Competition and Consumer Commission (ACCC) is also explained (p13).

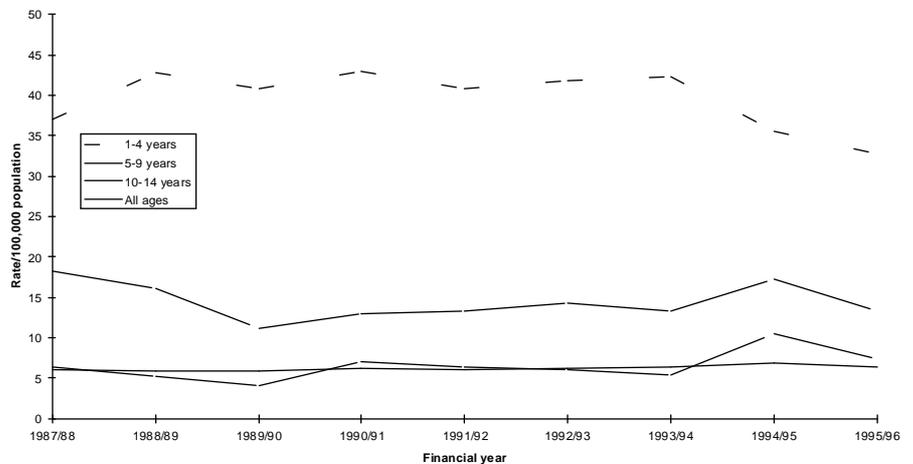
Method

Agencies responsible for enforcement of these regulations were identified for each of the four measures. Key informant interviews, surveys and reviews of relevant public records sought information on the availability of enforcement data, the quality of such data, and the barriers to both enforcement and data collection. A literature search and review of available relevant injury databases was also undertaken.

2 VEMD database – emergency department presentations commencing from October 1995: Austin and Repatriation Medical Centre, Ballarat Base Hospital, The Bendigo Hospital Campus, Box Hill Hospital, Echuca Base Hospital, The Geelong Hospital, Goulburn Valley Base Hospital, Maroondah Hospital, Mildura Base Hospital, Preston and Northcote Community Hospital, Royal Children’s Hospital, St Vincent’s Public Hospital, Wangaratta Base Hospital, Warrnambool and District Base Hospital, Western Hospital, The Williamstown Hospital and Wimmera Base Hospital. November 1995: Dandenong Hospital. December 1995: Royal Victorian Eye and Ear Hospital and Mornington Peninsula Hospital. January 1996: Latrobe Regional Hospital. July 1996: The Alfred Hospital and Monash Medical Centre. September 1996: The Angliss Hospital. November 1997: The Royal Melbourne Hospital.

Dog bite injury rates by age group Public Hospital Admissions, Victoria

Figure 1



Source: Victorian Inpatient Minimum Dataset (VIMD), July 1987 to June 1996

Dog bite injury: age by body region

Table 1

Body region	1-4 years % (n=142)	5-9 years % (n=129)	10-14 years % (n=108)	15+ years % (n=729)
Face/head	72	43	32	8
Trunk	3	6	2	2
Upper limb	17	27	31	59
Lower limb	5	20	32	23
Unknown\ ns	3	4	3	8
Total	100	100	100	100

Source: Victorian Emergency Minimum Dataset, January 1996 to December 1997

Injury Data

Updates of data from injury databases, indicating the importance and nature of the injury issue, precede the legislation outline and enforcement/compliance results. Detailed data is provided only when it constitutes an update from a previous edition of Hazard. The injury

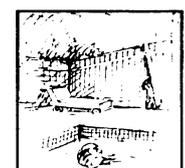
data presented is from three sources: The Victorian Coroner’s Facilitation System (unnatural deaths), the Victorian Inpatient Minimum Dataset (VIMD – state-wide hospital admissions) and the Victorian Emergency Minimum Dataset (VEMD – emergency department presentations to 25 participating Victorian public hospital emergency departments²).

Dog Bites

Nature of problem

Hospital admissions (VIMD)

In Hazard 26 VISS reported an annual average admission rate for dog bites to children aged 1-4 years of 42/100,000



and an annual average frequency of 103 for dog bite admissions in this age group. A two year update indicates that, despite a welcome reduction in dog bite injuries in the 1-4 age group, there was no reduction in the all age dog bite admission rate (figure 1). Young children, 1-4 years, are still the most at risk group, with an annual average admission rate of 34/100,000 and annual average frequency of 83 hospital admissions for the July 1994 to June 1996 period.

The dog bite admission trends differ from injury admission trends overall. The latter demonstrated a substantial increase in the year 1993/94 (possibly an artefact related to casemix introduction) which has persisted at above pre-casemix levels, for the age groups in figure 1.

Emergency Department Presentations (VEMD)

There were 1,112 cases of dog bites recorded on the VEMD in the 2 year period, January 1996 to December 1997.

Thirty-four percent of dog bites were to children under 15 years with the 1-4 age group being the largest (13% of total cases).

Fifteen percent of bitten children (aged 0-14 years) and 6% of bitten adults required hospitalisation. Injuries were most serious in the 1-4 age group with 20% of injured children in this age group requiring hospitalisation.

Injuries most commonly occurred in the home (62% of total), particularly in the 1-4 age group, where the home was the location for 78% of dog bites. A further 11% of all age dog bites occurred in the street and 5% were in public places such as parks. Twelve percent of cases were unspecified as to the location of injury.

The body region bitten varied with the age of the injured person (table 1), coinciding with the body part most accessible to the dog. Young children (1-4 years) were most often bitten on the face (61% of total) and head (11%). Of bites to the head and face in this age group, 26% were sufficiently serious to

require hospitalisation. Upper limbs were the most common body region bitten in adults (59% adult cases), particularly the hand and fingers.

Domestic Animals Act 1994

On April 9, 1996 the Domestic (Feral and Nuisance) Animals Act 1994 replaced the Dog Act 1970, with the intention of reducing the number of attacks by dogs at large and increasing animal registration. The legislation contained in the new Act is to be enforced by municipal councils who make decisions about issues such as registration fees, the public areas of the municipality where animals will be allowed, at what times and under what form of control or restraint. It contains procedures which councils can utilise to prosecute owners, seize dogs and deal with offending dogs in the event of an attack. The relevant parts of the Act are summarised below.

Municipal survey

Aim

To identify and measure the level of enforcement of the Domestic Animals Act (1994) relevant to dogs, and to examine the processes and barriers associated with enforcing these regulations.

Method

A questionnaire was developed, piloted, modified and distributed to the Local Laws Co-ordinators at each of the 78 Victorian municipalities (47 rural, 31 metropolitan). Reminder faxes were sent on the specified closing date. A telephone survey of 18% (n=8) of non-respondents followed. The survey was carried out over a one month period from mid January 1998.

Dangerous Dogs – Part 3, Division 3

Box 1

Under the Act dogs may be declared dangerous if it has caused serious injury (fracture or a laceration of a nature that would require two or more sutures), has been trained to attack people or animals for the purpose of guarding either persons or property, or is kept as a guard dog for the purposes of guarding non-residential property.

A dog cannot be declared dangerous if the dog has been teased, abused or assaulted, if the victim was trespassing or another animal was on the property on which the dog was kept, or if a person known to the dog was being attacked in view of the dog.

Penalty and liability for attack by a dog – Part 3, Division 2

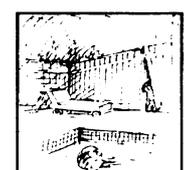
If a dog rushes at, attacks, bites, worries (ie. shakes something between teeth) or chases any person or animal, the owner is guilty of an offence and liable upon conviction, in the Magistrates Court, to a fine of up to \$500, court costs, any damages caused by the dog and, dependent on the severity of the attack, declarations as a Dangerous Dog or destruction of the dog.

Seizures – Part 7, Division 2

Authorised officers may seize a dog if the owner has been found guilty of not having applied to register the dog and has not, within one month of that finding applied to register the dog; if the dog has been set to attack; if the dog has been found at large in a restricted area; if the dog has been declared dangerous and the owner has not complied with the provisions relating to dangerous dogs; or the dog has been found guilty of an offence under Division 3 Part 3 (see above).

Infringement notices – Part 7, Division 3

An authorised officer has the power to serve an infringement notice if an offence has been committed in relation to non-registration, lack of identification if an animal is outside the owners premises, removal of an identification marker, a stray animal, animal at large, an animal found in an area nominated as restricted by the council or if an animal is creating a nuisance, including injuring or endangering the health of a person.



Rate of registered dogs per 100 dwellings

Table 2

	Rural Rate	Metropolitan Rate
Range	16.4 to 70.3	7.2 to 54.6
Median	52.6	30.8
Mean	49.2	30.1

Source: Victorian Injury Surveillance System and Australian Bureau of Statistics

Frequency of dog related incidents recorded in 34 Victorian municipalities, April 1996 to December 1997

Table 3

Incident*	N
Dog seizures	8296
Fines/infringements	6467
Bites, rushes, worries	1024
Dangerous dogs destroyed	219
Attacks resulting in prosecution	158
Dogs declared dangerous**	133

* note that there will be some overlap between these categories (See box 1 for clarification)

**68% guard dogs

The questionnaire covered the type and level of data collected, in what form this data was collected (computerised or manual) and what barriers were encountered in relation to both enforcement of the Domestic Animals Act (1994), and collection of enforcement related data (copies of the questionnaire are available upon request from VISS).

Results

Respondents

After an initial return rate of 27% (21 surveys), reminder faxes secured a further 13 surveys for a total response rate of 44% and a sample of 34. Seventy-one percent of returned surveys were from rural municipalities, compared with 60% in the municipal population.

The rate of registered dogs per 100 dwellings (based on the survey results and 1996 census estimates of dwellings by Local Government Area) indicated a higher mean rate of dogs per 100 dwellings for rural municipalities (49.2/100 dwellings, 95% CI=43.4, 55.0) than for metropolitan municipalities (30.1/100

dwellings, 95% CI=20.7 to 39.5) (table 2). The difference was highly significant ($t=2.1$, $p<0.01$).

Computerised data on registrations was recorded by 76% of respondents, a further 12% of records were manual.

The number of incidents (bites, seizures, attacks, declarations, destructions and fines) from regulation (April 9, 1996) to December 31 1997 requiring action by the 34 responding municipalities is shown in table 3. Dog seizures and fines were the most frequent incidents. For the municipalities where data were available, the mean number of bites, rushes and worries and dogs destroyed per 1000 dogs were significantly greater in rural than metropolitan areas (10.5/1000, 95% CI= 3.6,17.4, 1.9/1000, 95% CI= 0.8,3; $t=-2.6$, $p<0.05$; 2.8/1000, 95% CI=0.3,5.3, 0.05/1000, 95% CI=-0.02,0.12, $t=-2.25$, $p<0.05$ respectively). It has been estimated that almost three-quarters of on-the-spot fines are issued in relation to dogs found unsupervised off their owners' property or not securely

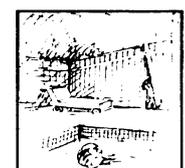
confined to the owner's premises (Victoria Law Foundation, 1997).

Sixty-eight percent of dogs declared dangerous (but not destroyed) were guard dogs of non-residential properties, which, under Division 3 (section 34) of the Act, can be declared dangerous, not on the basis of an incident, but as a consequence of their propensity to attack. The remainder had generally attacked another animal. Dogs that have attacked humans are usually destroyed soon after the event and hence account for the 219 dangerous dogs destroyed.

According to one municipal officer "The level of enforcement of the Domestic Animals Act varies from council to council depending on the attitude of the individual council – enforcement agency versus ratepayer friendly". Differing attitudes towards dog owners may be reflected in the high variability of the results between municipalities eg. in an extreme case between 0 seizures per 1,000 registrations and 172 per 1,000 registrations. Rural and urban differences, with the exception of the significantly greater number of bites, rushes, worries and dogs destroyed per 1,000 dogs in rural areas, do not account for this variability.

Eighty-six percent of respondents indicated that they recorded information on dog breed (80% computerised, 6% manual). Municipalities identified the three most commonly registered breeds as kelpies (15 municipalities), cross breeds (11), border collies (7), fox terriers (7), heelers (7), German shepherds (6), terriers ns (6) and jack russell terriers (5). The predominance of breeds which are traditionally working dogs is potentially explained by the high proportion of respondents from rural municipalities (71%) in the sample.

Barriers to enforcement of the Act most often cited were: persuading victims of attacks to agree to pursue the matter in court ($n=6$ responses); parts of the Act being open to interpretation, leading to inconsistent enforcement across councils (6); lack of staff (6); and owners who are unwilling to comply with or are unaware of their requirements under the Act (5).



Common barriers to data collection included the lack of adequate computer systems (n = 7 responses), resources (5) and time (3). Lack of accurate knowledge or recall of the events surrounding an attack (3) and lack of communication between amalgamated councils and/or police (3) are also barriers to good data collection.

Additional comments related to fines being either too low or high (n = 4), and the criteria for declaring a dog dangerous being too narrow, ie, a serious bite needs to occur before councils can act (3).

Non-respondents

There was an over-representation of metropolitan municipalities in the non-response group (48% of non-respondents were metropolitan compared with 40% in the municipal population).

A phone survey of 18% of non-respondents (n=8), selected to give geographic spread, indicated that lack of time was the most common reason for not returning the survey. Validation data collected from non-respondent municipalities indicated that, while the rate of dogs per dwelling was similar to respondents, there were more bites, rushes and worries, dogs declared dangerous and attacks resulting in prosecution than in the respondent group. There may therefore be some response bias in the direction of underestimation of dog related incidents in the survey results.

Discussion

The variability of results between municipalities may reflect the varying staff and other resources dedicated to enforcement of the Act. It appears that some municipalities are more able or willing to resource this area than others.

Despite existing awareness raising efforts, public apathy and lack of knowledge in this area continue to be a barrier to enforcement of the Act. Municipalities and other stakeholders need to continue efforts in this area. Early results from an ongoing 18 months study of dog attacks (involving 1 or more dogs)

by the Bureau of Animal Welfare, in conjunction with 7 metropolitan municipalities, indicate that, of 54 recorded attacks involving 64 dogs, 32% (20 dogs) were not registered with Council, (Lier, 1997). Therefore, the number of registrations with the municipality is likely to be an underestimation of the actual number of dogs.

Attention is often drawn in the media to the requirements for declaring a dog dangerous. Currently a dog must inflict a serious injury, i.e. an injury in the nature of a wound requiring multiple sutures, before it can be declared dangerous. Multiple media reports (e.g. Herald Sun, 18.3.98; Sunday Herald Sun, 10.3.96) have drawn attention to dogs involved in repeated attacks which have not resulted in fractures or required multiple sutures. In such instances it must be questioned whether a second criterion for declaration, eg. multiple attacks or worries (which have not resulted in fracture or required sutures) should be grounds for declaration of a dangerous dog.

Implementation of the Domestic Animals Act (1994) and the issue of dog bites have been accompanied by ongoing publicity in all forms of the media. Approximately 1,300 copies of Hazard edition 26, which included an article on dog bites, have been circulated. In addition, the Child Safety Centre at the Royal Children's Hospital in Melbourne launched the 'Dogs n Kids' resource kit to assist Maternal and Child Health nurses in promoting responsible dog ownership and dog bite prevention. Brochures to accompany this kit were produced in English and 5 non-English languages - Arabic, Vietnamese, Turkish, Mandarin and Italian. So far 449,000 English and 25,000 non-English brochures have been distributed nation-ally (Minuzzo personal communication, 1998).

Conclusion

There has been a downward trend in hospitalised dog bites to children aged 1-4 and constancy for all age groups, despite an increase in injury hospital admissions from all causes, which has been

associated with the Domestic Animals Act, supported by publicity and enforcement. However, further evidence of a continued downward trend and comparative data from other states, without similar legislation, will be required to substantiate effectiveness.

Further resources & contacts:

Dogs, cats, neighbours & you: A consumer guide to the law about owning a dog or cat, 1997 Victoria Law Foundation. Contact: Information Centre, Department of Natural Resources and Environment, Ground Floor, 8 Nicholson Street, East Melbourne, ph: 03 9637 8080
 'Dogs n Kids' brochures and photocopies of the resource kit are available from the Child Safety Centre, Royal Children's Hospital, Flemington Road, Parkville, 3052, ph: 03 9345 5085
 Municipal Local Laws Co-ordinators

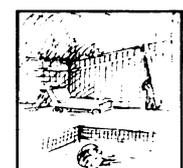
Domestic pool drownings

Nature of problem

In Victoria, home pools/spas accounted for 51% of the deaths, 31% of hospital admissions and 30% of presentations (excluding admissions) in the 0-4 age group for drowning and near drowning in available data (Hazard 30, 1997). The published literature cites pool fencing conforming to relevant Standards as the most effective means by which drowning of toddlers and young children can be prevented (Hazard 30, 1997).

Pool Fencing Regulations (Building Act 1994)

From July 1st 1997, regulation 5.13 of the Victorian Building Act (1994) and the Building (Amendment) Regulations 1995 impose requirements on all existing residential pools and spas to retrospectively provide safety barriers to prevent unsupervised child access. A barrier refers to a fence, wall, gate or screen as well as locks, latches or other devices to doors, gates or windows (SafePool Brochure, 1996).



While figures are not exact, it has been estimated that there are some 200,000 pools which must comply with these retrospective requirements (BCC, 1996). While there is a strong focus on owner onus to ensure pool compliance, the regulation establishes local government as having an enforcement role and as a source of technical advice. Council is empowered to issue on-the-spot fines of \$200 to non-conforming pool owners and owners could face fines of up to \$500 if taken to court.

Survey of municipal building surveyors and sample of real estate agents

Aim

To determine the type and level of data collected on pool fencing, the form in which this data is collected (computerised or manual), the barriers encountered in relation to enforcement of pool fencing regulations and relevant data collection.

To determine the role of real estate agents in facilitating pool fencing requirements.

Method

A questionnaire was developed, piloted, modified and distributed to the municipal Building Surveyor at each of the 78 Victorian municipalities (47 rural, 31 metropolitan). Reminder faxes were then sent on the specified closing date. Twenty percent of non-respondents (n=8) were then sampled. The survey was carried out over a one month period from mid January 1998.

The questionnaire covered the type and level of data collected, in what form this data was collected (computerised or manual) and what barriers were encountered in relation to both enforcement of the pool fencing regulations and collection of enforcement related data (copies of the questionnaire are available upon request from VISS).

The Real Estate Institute of Victoria was telephoned and the role of real estate agents discussed.

Real estate agents representing a 10% sample of 226 properties with pools, advertised for sale in "The Age" on Saturday March 14, 1998, were anonymously telephoned to establish the status of pool fencing on these properties.

Results

Survey of municipal building surveyors

After an initial return rate of 32% (25 surveys), reminder faxes secured a further 13 surveys for a total response rate of 49%. Fifty-three percent of returned surveys were from metropolitan municipalities, compared with 40% in the municipal population.

Data

Only 37% of the 38 respondents were able to provide an estimate of the number of pools in their municipality, ranging from 100 to 6500.

The rate of domestic pools per 100 dwellings (based on the survey results and 1996 census estimates of dwellings by Local Government Area) indicated a higher mean rate of pools per 100 dwellings for metropolitan Municipalities (6.2/100 dwellings, 95% CI=3.9,9.4) than for rural Municipalities (2.9/100 dwellings, 95% CI=0.3,5.5), although the difference was not significant (t=2.2, p>0.05).

Computerised data, based on building permits issued, was kept by 29% of respondents; 11% kept such records manually.

Twenty-six percent of respondents estimated the number of pools in their municipality, which met the regulations as of 1st July 1997. Responses were wide ranging, 5 to 90%, with a mean of 58.7%, (95% CI=38.6,78.8).

Inspection

Eighty-nine percent of respondents inspect pools at the time of installation; 55% inspect as the result of a complaint; 42% inspect routinely; and 37% upon request.

Thirty-five councils responded to the question "how many pools have been inspected since 1/7/97?" These councils had inspected a total of 3,631 pools during this period, ranging from 3 to 674 inspections. The mean for pools inspected was 121 (95% CI=64.2,177.8).

Councils reported receiving an average of 2.2 complaints, in relation to pool fencing, per week (range = 0 to 12).

Enforcement

Only 8 of the 38 responding councils indicated that they had issued a fine in the period since 1/7/97, with 6 councils issuing 3 or less fines.

Responding councils reported giving owners between 1 and 60 days to make pools compliant dependent on the nature of the breach of the regulation. In extreme cases some councils give owners until the end of the day to empty the pool and/or provide temporary fixed protection.

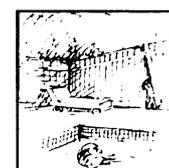
Barriers

Cost (n = 9) and identification of pools (8) were two of the main barriers to enforcement. Difficulties in identification were apparent, as only 37% of respondents were able to provide an estimate of the number of pools in their municipality.

Identification is complicated as pools costing less than \$5,000, usually above ground pools, do not require a permit for construction, even though they are still required to meet the regulations. Five responding councils had used aerial mapping as a key tool in identifying pools. However, this option was ruled out by many respondents as too costly for their municipality ranging from \$20,000 to \$200,000 depending on the level of detail required (Delacey, personal communication, 1998).

Other barriers to enforcement identified by respondents included lack of owner knowledge or confusion over requirements (n = 7), pool owner attitude (5) and cost of fencing (5).

Identified barriers to data collection included difficulties associated with



identifying pools (n = 14), cumbersome manual archives (8), cost (7) and insufficient staffing (6).

Non-respondents

There was an over-representation of rural municipalities in the non-response group (87% of non-respondents were from rural municipalities compared with 60% in the population).

A phone survey of 20% of non-respondents, selected to give geographic spread, indicated that lack of time and having few pools in their municipality, were the most common reasons for not completing the survey. Information was less often known on both the number of pools in the municipality and the proportion which met the regulations. Also for non-respondents, pools were less likely to be routinely inspected. However, as with respondents, most inspections occurred at installation and as the result of a complaint.

Survey of sample of real estate agents

Real estate agents were telephoned for the 10% sample (22 properties) of the 226 properties identified as having pools from a newspaper real estate scan on March 14, 1998. Twelve (55%) were stated as meeting the regulations, with another 2 expected to meet the regulations by the time of sale. The owners of 3 further properties were willing to make the pool compliant if it facilitated the sale of the property. The remaining 5 (23%) pools did not comply with the regulations.

Only 14 of the 226 advertised properties with pools indicated that the pool was fenced either through a photo or in the text of the advertisement.

Role of real estate agents

A spokesperson for the Real Estate Institute of Victoria indicated that, in the event of a pool clearly not conforming with regulations, it is the agent's responsibility to inform the vendor. If the vendor shows no interest in meeting regulations, the agent has the responsibility to inform the purchaser. If

neither has an intention of meeting regulations the real estate agent has no further responsibility. They are purely agents.

Discussion

A Cochrane Collaboration evaluation of the effectiveness of pool fencing to prevent drowning in children came out strongly in support of pool fencing, especially isolation fencing. The researchers concluded that the chance of drowning in an unfenced pool is 3.7 times that of drowning in a fenced pool. Further, the chance of drowning in a 3 sided fenced pool is 5.8 times that of drowning in a pool with isolation fencing. (Thompson, Rivara, 19/9/97)

The Safepool-Kidsafe Campaign was launched in October 1996 in the hope that parents and pool owners would meet the requirements under the Act for the summer 1996/97. Two hundred thousand Safepool brochures have been distributed and due to demand a further 200,000 were printed. The Safepool brochure has also been translated into Vietnamese, Chinese, Arabic and Turkish as the request of the Minister for Planning.

The wide confidence intervals in the MUARC survey reflect both the variability in the number of pools and in the level of enforcement among municipalities. The estimated average municipal compliance with pool fencing regulations of under 60%, and possibly less for non-respondent municipalities, suggests that additional enforcement measures are required.

At the time of advertising, of the sample of properties for sale with pools, only 55% had pool fences or barriers meeting the regulations, while up to a further 22% may have complied by the time of sale. Applying the 5% turnover of housing stock each year to houses with pools, enforcement of the regulation at the time of sale could potentially decrease the number of non-complying pools by 25% (including re-sales) within five years (based on data from Valuer General, 1998).

Conclusion

Given the proven effectiveness of pool fencing, the apparent wide variability in the enforcement of pool legislation between municipalities and the potential impact on non-complying pools if regulation fencing was enforced at sale, a ban on the advertising of residences with non-complying pools should therefore be imposed and enforced.

Further resources and contacts:

Full compliance kit available from the Building Inspector at your local council

Safepool Brochure available from Kidsafe Victoria, 333 Whitehorse Rd, Balwyn, 3103, ph 9836 4070

Babywalker Injuries

Nature of problem

Babywalkers are an injury hazard. In Victoria each year there is a risk that 1 in every 192 babywalkers will cause a significant injury resulting in a hospital emergency department presentation to a child aged less than one year of age (Hazard 25, 1995).

Access to steps and stairs and other changes in level of surface and access to hazards such as hot appliances and poisonous substances are the most common hazards for infants in babywalkers (Watson et al, 1997). More than two-thirds of babywalker related cases were the result of falls, 57% of these were falls down stairs or off a verandah, and 19% when the child gained access to hot appliances or poisonous substances (Watson et al, 1997). Watson et al (1997) state that it is the advanced degree of mobility, speed, height, and freedom of movement, at an age when a baby is not developmentally ready, that contributes to the high frequency and often seriousness of injuries associated with babywalkers.

Background

In 1995 the Federal Minister for Consumer Affairs wrote to 350 retailers



of baby walkers asking them to voluntarily withdraw babywalkers from sale as injury data had consistently linked them with serious injury, particularly falls and burns. This action was also influenced by the decision of the Myer group of department stores to withdraw babywalkers from sale following adverse media reports (Cassell, 1995).

Method

A 1995 cross-sectional study of 13 major retailers of nursery furniture revealed that 55% had removed baby walkers from sale, as had some specialist nursery furniture retailers, following the letter from the Federal Minister. Reasons given for this withdrawal included "because they were unsafe or dangerous" (Cassell, 1995).

A follow-up survey was undertaken in 1997/98 using the 1996 Telecom Yellow Pages to identify nursery furniture retailers. Phone interviews were conducted with 18 of the retailers identified and 8 of the major department stores stocking nursery products.

Aim

To determine the availability of babywalkers for sale in major Melbourne department stores and a sample of specialist nursery furniture retailers.

Results

Results of the survey indicated that 78% of the specialist retailers in the sample and 38% of the major department stores sampled stocked babywalkers at the time of the survey. Five brands of babywalker were common to two or more of the specialist stores.

Safety features, identified by the retailers, on these 5 models included safety stoppers, wheels which can be raised into the frame of the unit to restrict movement and wide bases. The effectiveness of these features has not been evaluated.

Discussion

Clearly the Federal Minister's intervention, together with effects of the market place are insufficient alone to

prevent sales of and exposure to babywalkers capable of falling from one level to another or tipovers at changes of surface.

Of relevance to Australia is the voluntary US Standard ASTM:5977-96, which outlines stability tests for tipping resistance and details forward, sideways and rear-ward facing step tests (Watson et al, 1997).

Conclusion

Clearly the use of voluntary measures has failed to reduce the babywalker injury problem. Further action is needed. One possibility is the development and possible mandation of an Australian/New Zealand babywalker standard, based on the US voluntary Standard that addresses tipovers and falls down stairs. Some other researchers favour banning babywalkers as inherently dangerous.

Bicycle injuries

The compulsory wearing of bicycle helmets was introduced on July 1, 1990 in Victoria. The continued impact of this law is examined in this article.

Nature of problem

Deaths (N = 152)

Australian Bureau of Statistics figures for Victorian bicycle deaths on public roads totalled 152 cases for the period July 1987 to June 1996. Death rates per 100,000 of the Victorian population are indicated below and range from 0.6 per 100,000 to 0.2 per 100,000 (Figure 1). The death rate appears to drop substantially during the first and second post helmet legislation years. There were no reported bicycle deaths on non-public roads.

Injuries overall (N = 10,641)

There were 10,641 cases of bicycle hospitalised injuries recorded on the VIMD (Victorian Inpatient Minimum Dataset) over the period July 1987 to June 1996. The bicycle injury hospital admission/hospitalisation rate for 1995/96 was 27.5 per 100,000 and the bicycle death rate was 0.2 per 100,000 (figure 1).

It can be seen that hospital admission injury rates began to decrease before the mandatory wearing of bicycle helmets and remained lower than pre-helmet rates.

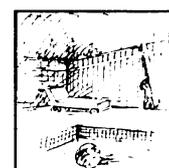
Half of these injuries occurred in the under 15 age group, and a further 20% in the 15-19 age group. The majority of cases were male (78%). Injuries were mainly fractures, accounting for 40% of all injuries, open wounds (20%), intracranial injuries/concussion (17%), and superficial injuries/bruises/haematomas (13%). Most injuries tended to occur during the summer months, peaking in January.

Unfortunately a large proportion of cases had unspecified or missing location codes (76%). Causes of injury to cyclists were divided into three categories, motor vehicle traffic (21%), non-motor vehicle traffic (78%) and motor vehicle non-traffic (1%).

Bicyclist head related injuries (n = 3050)

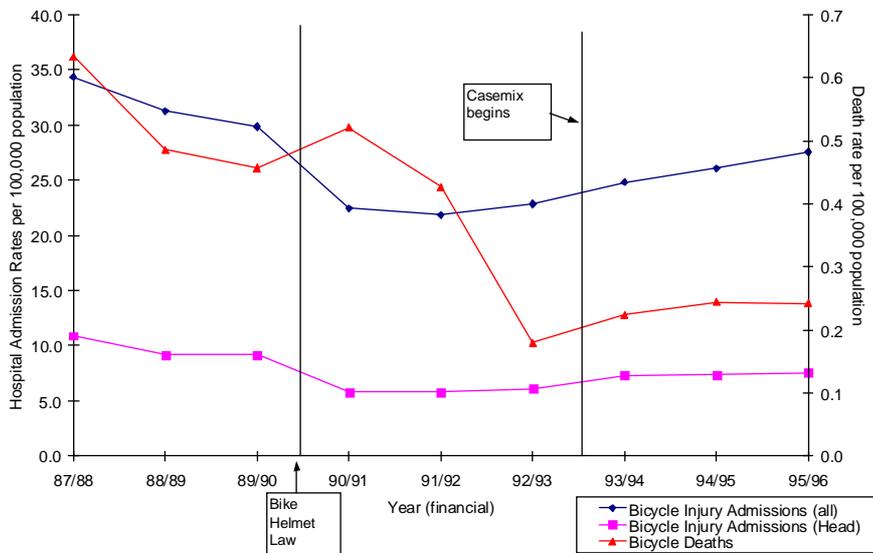
Head injuries for the purpose of this analysis included skull fractures (base, vault and other), intracranial injuries (concussion, cerebral laceration and contusion, haemorrhages), external head injuries (open wounds, bruises/haematomas and superficial injuries) and late effects. Figure 2 shows percentages relating the proportion of head injuries to all bicycle injuries. Although the proportion of head injuries dropped to 25.8% for the 1991/92 period and remains below pre-helmet law proportions, it slightly increased upon the introduction of casemix funding, although not to pre-helmet regulation figures.

Over the nine year period bicyclist head related bicycle injuries accounted for almost a third of all bicycle injury admissions (29%). Again, half of these injuries occurred within the under 15 age group, 80% being male. The estimated head injury rate requiring hospital admission for July 1995 to June 1996 was 7.6 per 100,000 of the Victorian population. Head injuries comprised skull fractures/late effects of skull fractures (13%), concussion (32%), cerebral



Victorian Public Hospital Admissions for Bicycle Injuries & Pedal Cycle Deaths on Public Roads

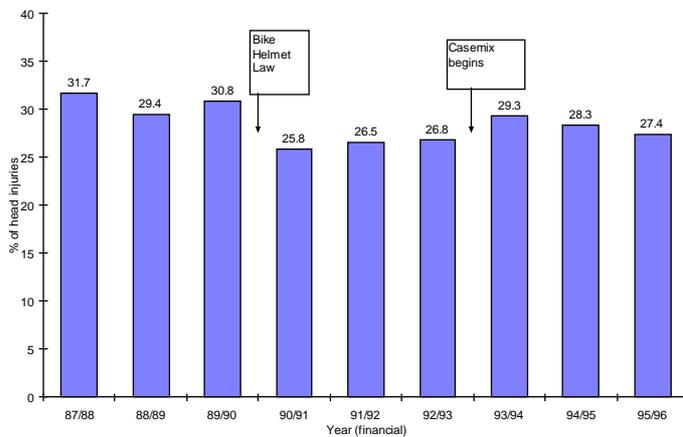
Figure 1



Source: VIMD, ABS (1987-96)

Percentage of Head Injuries as a Proportion of all Bicycle Injuries

Figure 2



Source: VIMD (1987-96)

lacerations and contusions (1%), subarachnoid, subdural and extradural hemorrhage (5%) and intracranial injury of other and unspecified nature including late effects (50%).

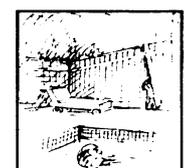
Figures 1 and 3 compare all bicycle injuries (incl. head injuries) with head injuries alone and it can be seen that there is a decreasing trend for both, although not statistically significant. Upon the introduction of the compulsory wearing of bicycle helmets as of July 1,

1990, head injuries dropped by almost 40% compared to the 1988/89 period (figure 3). However, it should also be noted that, prior to the enforcement of this law, average bicycle helmet wearing rates had already increased to 36% in March 1990 compared to 6% in March 1983 as reported by Cameron et al. (1994). This may have made the reduction in bicycle injuries not quite as dramatic as it could have been.

A slight increase in head and non-head injury hospital admission rates occurs from the 1993/94 to the 1995/96 period and there are several possible reasons postulated for this increase. Influencing factors may be the introduction of casemix funding in July 1993 resulting in changed criteria for hospital admission, short stay patients being converted into admissions; hospital staff being more careful with the coding of cases; greater exposure, ie. increasing numbers of people riding bicycles (Cameron et al., 1994 reported a 36% drop in bicycle use among children but a 44% increase in adult use for 1990/91); relaxation of enforcement of the helmet wearing law (17% less penalty notices in 1997 than in 1991 based on figures from Victoria Police) and helmet wearing rates.

Several studies have been conducted to evaluate the effectiveness of the bicycle helmet law (BHL) since its introduction in July 1990. One of these was an evaluation by Cameron et al. (1994) which discussed bicycle helmet wearing rates prior to the introduction of the bicycle helmet legislation and for the first and second post-law years. It also reported that the number of bicyclists killed or admitted to hospital after sustaining a head injury decreased by 48% and 70% in the first and second post-law years respectively. Other bicycle injuries also decreased over the same period.

A report by Newstead et al. (1994) examined bicyclist head injuries for the period 1983/84-1992/93 using two data sources, namely bicyclist injury claims from the Transport Accident Commission and the VIMD-Victorian Hospital Admissions. Findings were consistent with previous studies for the first and second post-law years, however, the third post-law year (92/93) showed an increase in the head injury rate. This increase in the third post-law year was examined together with the fourth year in a report by Carr et al. (1995). VIMD data was analysed and the increase in bicyclist hospital admissions three and four years after the legislation was considered most likely due to changes in admission policy



in the Victorian hospital system (casemix). A correction factor was then used to remove the casemix effect for bicyclist head injury admissions and a 39.5% reduction was seen for the first four years of bicycle helmet legislation.

Although the injury rates depicted in Figures 1-3 have not been adjusted for casemix, it can be seen that prior to casemix, trends are consistent with the above findings and reports. Upon the introduction of casemix there is a slight increase in head injury rates. However, this rate remains constant and is below pre-helmet legislation figures. Following helmet legislation, the injury rate for all bicycle injuries increases after the introduction of casemix for the remainder of the data collection period. This could be partly explained by the greater likelihood of hospitals recording all diagnoses (including minor ones) in the lead up to and following this implementation of casemix funding.

Non-Cyclist related bicycle injuries (N = 973)

There were 916 cases of non-cyclist bicycle injuries requiring hospital admission over the same period. Of those injured, 55% were pedestrians, 4% were riding horses and the remaining 41% were unspecified. Approximately 52% of these cases were under 15 years and just over two thirds were male.

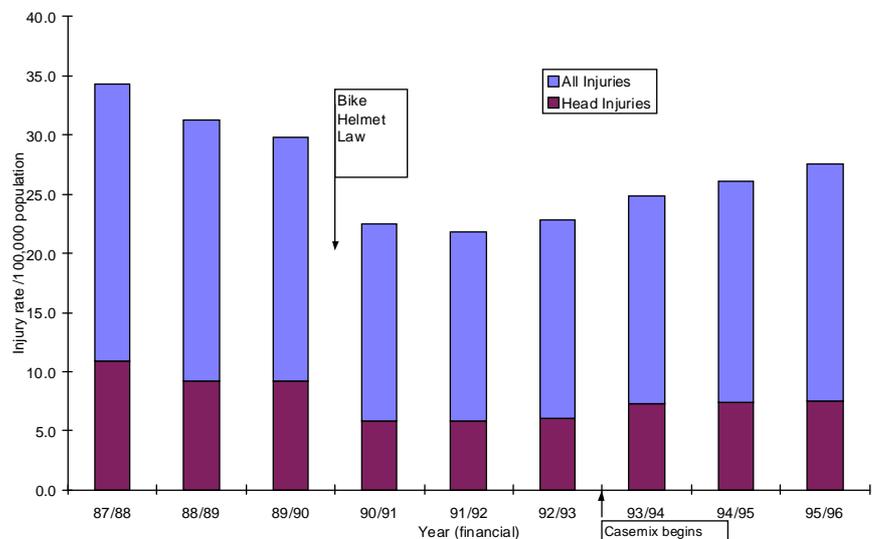
There were 1295 separate injuries sustained (up to 4 per case). The most common injuries were fractures (40% of injuries), open wounds (24%), intracranial injuries/not skull fractures (15%) and superficial injuries/ bruises/ haematomas (11%).

Emergency Department Presentations (VEMD)

The VEMD recorded 9266 cases of cyclist injuries over a 2 year period, (January 1996 to December 1997). Peak affected age groups for cyclist injuries were 10-14 year olds (23%) followed by 15-19 year olds (15.5%) and by 5-9 year olds (14.2%). Male to female ratio was 4:1. Injuries were reported as occurring

Victorian Public Hospital Admissions for Bicycle Injuries

Figure 3



Source: VIMD, ABS (1987-96)

on a road/street/highway mainly (53.4%), at home (16.9%), places for recreation (8.1%) and at athletic and sport areas (2.3%). Injuries were commonly fractures (24.7%), open wounds (16.7%), superficial injuries (14%), sprain/strains (12.7%), multiple injuries (4.2%) and intracranial (3.9%). Eighty percent of cases were discharged to home and 14.8% were admitted.

Bicycle Helmet Legislation (1990)

In Victoria, the Bicycle Helmet Law was introduced on July 1, 1990.

The law stipulates that all persons cycling (and their passengers) on the road, a shared or segregated footpath, a separate bicycle path, or in a public place are required to wear a securely fitted and approved bicycle helmet. The maximum penalty for non-compliance, if taken to court, is \$100. However, usually a Bicycle Offence Penalty Notice of \$20 is issued.

Bicycle Helmet Wearing Rates

This law followed several years of promotion, involving education, mass media publicity, support by professional associations and community groups, consultation with bicycle groups, and

financial incentives (Carr et al, 1995). The first year of mandatory bicycle helmet laws in Victoria saw the average helmet wearing rate for bicyclists in Victoria increase from 31% in 1990 to 75% of cyclists in 1991 (Finch et al, 1993).

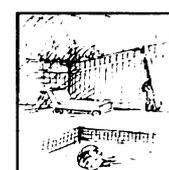
A series of surveys conducted by MUARC of bicycle usage in metropolitan Melbourne over the period 1987 to 1992 found that helmet wearing rates for children aged 5-11 years rose from 65% (pre-law, 1990) to 78% in 1991 and to 77% in 1992 (Finch et al, 1993). Helmet wearing rates for adults increased from 36% in 1990 to 74% in 1991 and 84% in 1992. Teenage (12-17 years of age) wearing rates were reported to be 21% in 1990 and increased to 45% in 1991 and 59% in 1992.

Enforcement

It is timely to examine the first seven years of enforcement of the Bicycle Helmet Law to June 1997.

Aim

To identify the level of enforcement of the bicycle helmet legislation and to examine the barriers associated with enforcing these regulations.



Method

Victoria Police were identified as the key enforcement agency for bicycle traffic related infringements, including helmet offences. Data on bicycle related traffic infringements for the period 1991-1997 was obtained from the Traffic Camera Office, Fixed Penalties Payment Section. Information on numbers of cyclists and helmet wearing rates was also sought from relevant authorities.

Results

There were 150,105 helmet penalty notices issued in the 7 year period, 1991-1997. Approximately 1% of all helmet notices are issued to bicycle passengers not wearing helmets. Fifty-two percent of helmet penalty notices issued were to persons aged under 18 years followed by 18-24 year olds at 32% (table 4). A similar age distribution pattern was observed for other bicycle offences. Observation of these age groups over a seven year period (1991-1997) continues to depict cyclists under 18 years of age as the peak age group for helmet offences (figure 4) and other bicycle offences. No helmet wearing rates are available after 1992.

The trend for helmet related offences over-time differs from that for other bicycle offences (figure 5).

Discussion

Increases or decreases in the number of penalty notices issued could be the result of more/less people riding their bicycles, more/less people wearing their helmets, or more/less enforcement of the bicycle helmet legislation by police. These questions could be answered by obtaining a true picture of exposure and helmet wearing rates by performing a further observational study as was carried out by the Monash University Accident Research Centre (Finch, 1993).

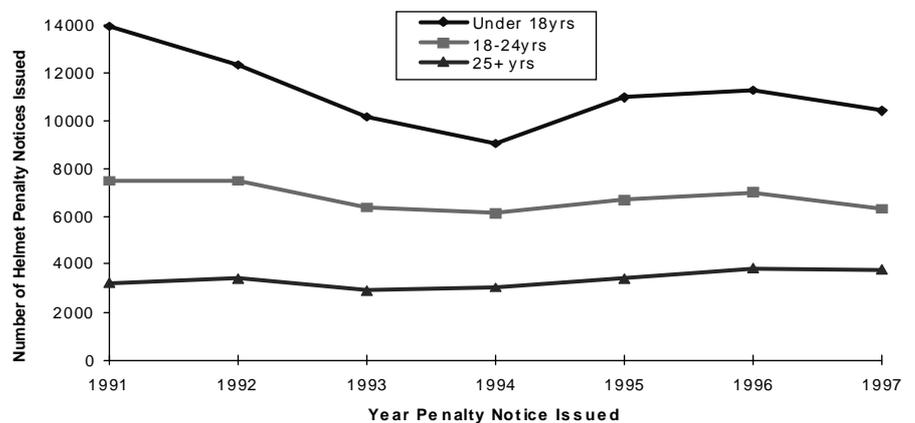
A crude estimate of penalty rates for breaches of the bicycle helmet law is available for 1991. The estimated helmet wearing rate for all Victorian cyclists for 1991 was 75.2% (Newstead et al, 1994). If 50% of Victorian bicycles were in use in 1991 (estimated total bicycles in 1994 was 2,000,000: Victorian State Bicycle Committee) penalties would have been issued to only 10% of offenders (Table 5).

Percentage of Helmet and other Bicycle Offences by age group for 1991 to 1997 **Table 4**

Age Group (yrs)	Helmet Offences		Other Bicycle Offences		Total Bicycle Offences	
	N	%	N	%	N	%
Under 18 years	78123	52.1	12442	48.1	90565	51.5
18-24 yrs	47569	31.7	8626	33.3	56195	31.9
25-29 yrs	11520	7.7	2237	8.6	13757	7.8
30-39 yrs	8539	5.7	1636	6.3	10175	5.8
40-49 yrs	2288	1.5	465	1.8	2753	1.5
50+ yrs	1267	0.8	276	1.1	1543	0.9
Unknown	799	0.5	201	0.8	1000	0.6
Total	150105	100	25883	100	175988	100

Source: Fixed Penalties Payment Office (FPPO), Traffic Camera Office, Victoria Police.

Helmet Offences by age group for 1991 to 1997 Penalty Notices (n = 150,105) **Figure 4**



Source: Fixed Penalties Payment Office (FPPO), Traffic Camera Office, Victoria Police.

Calculation for proportion of non-helmet wearers issued with a penalty notice **Table 5**

- Estimated Non-helmet wearing rate for 1991 = 100 - 75.2% = 24.8%
- Number of bicycles in use for 1991 (conservative estimate) = 50% of 1994 estimate (2,000,000) = 1,000,000
- Number of penalty notices issued for helmet offences (1991) = 24,752
- Estimated Number of Non-helmet wearers for 1991 = 24.8% of 1,000,000 = 248,000
- Estimated Proportion of Non-helmet wearers (1991) issued with a penalty notice = 24752/248000 = 10%

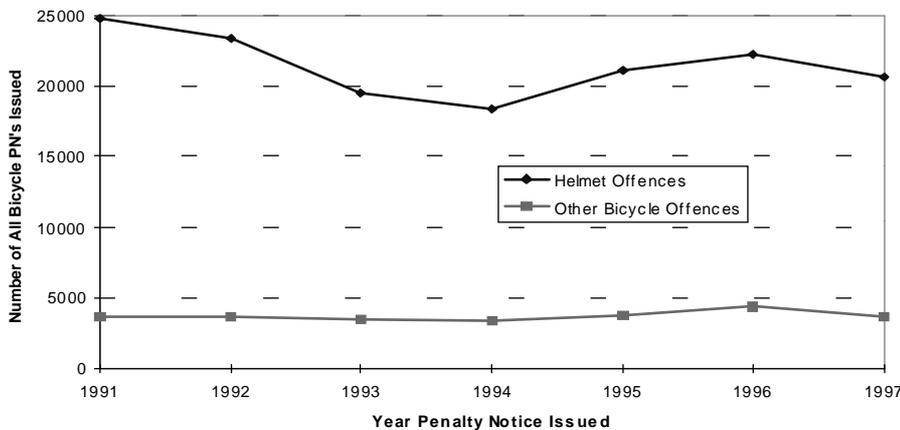
The numbers of warnings without penalty is unknown.

According to advice from spokespersons for the Fixed Penalties Payment Office, the main barrier to enforcement of this law is the practice, by offenders, of



All Bicycle Offences for 1991 to 1997 Penalty Notices (n = 175,988)

Figure 5



Source: Fixed Penalties Payment Office (FPPO), Traffic Camera Office, Victoria Police

supplying police with false personal and contact information, making difficult the task of pursuing fine evaders.

Conclusion

Given the apparent low rate of penalties and barriers to enforcement, this law may not be an adequate deterrent to those 25% of bicyclists who do not wear a helmet. Most of these are in the 13-18 year age group. Further studies are required of the non-wearing group as well as of overall bicyclist exposure and helmet wearing rates to confirm these findings. These studies would be particularly important since Victoria is seen as a world leader in bicycle helmet research and is best placed internationally to continue a series of evaluation studies.

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Recommendations

- Research is required to determine why the bicyclist non-head hospital admission injury rate is rising; whether exposure (reliable bicycle use rates) is also increasing; exposure and helmet wearing rate data collected prior to and after the mandation of helmet wearing (Drummond, Ozanne-Smith, 1991 & Finch, Heiman, Neiger, 1993) could provide baseline data
- Investigation is required of the effects of other factors that may have contributed to the changes in bicycle injury rates over the post-legislation period (ie. road safety improvements, drink driving initiatives, speed cameras, increased numbers of segregated bike paths on roads and footpaths and lowering of driver training age to 16 years)
- Further investigation should be undertaken of non-head bicycle injuries
- Examination of the potential to further reduce head injury rates by increased enforcement of helmet laws or other means is also recommended



Australian Competition & Consumer Commission

Gail O'Bryen, Assistant Director, Australian Competition and Consumer Commission

The Australian Competition and Consumer Commission (ACCC) is responsible for the enforcement of mandatory product safety standards. It conducts surveys of retail outlets throughout Australia. In addition to detecting non-complying products, surveys enable the ACCC to assess the overall level of marketplace compliance and to make contact with suppliers. The ACCC also checks goods sold by direct marketing and investigates allegations by consumers and suppliers about non-complying goods.

In some cases, for example labelling and dimensional requirements, simple visual inspection is sufficient to assess compliance. In others, the way in which the standard is specified means that technical assessment is necessary. In these cases, if the ACCC suspects non-compliance, it may seek proof of compliance from the supplier or arrange for the goods to be tested. Examples of products requiring such technical testing include helmets for impact resistance and exercise cycles for finger entrapment.

The Commission's response to apparent breaches of the safety provisions depends on a number of factors, including:

- the seriousness of the safety hazard;
- the quantity of the product supplied;
- how blatant the conduct is; and
- the level of co-operation it receives from the supplier.

Breaches of mandatory standards and bans may be dealt with by administrative action, injunctions, court-enforceable undertakings or prosecutions.

A major priority is to stop the sale of unsafe goods. Once the ACCC is satisfied on the available information that particular goods are unsafe and place

consumers at risk, it notifies suppliers who are then expected to:

- immediately stop selling the goods; and
- co-operate in ensuring removal of the goods from any outlets to which they have been supplied.

The ACCC may also ask suppliers to consider a safety recall to protect consumers who have already bought the goods.

Exercise cycles

This standard is intended to prevent cycles from having any finger entrapment points for small children.

Survey results

Surveys conducted around capital cities and regional centres in the first half of 1996 and the first half of 1997 have found the level of compliance with this standard to be very good. A small proportion of smaller suppliers have been found supplying cycles with finger entrapment hazards. These are usually old models, often supplied by hire or second-hand dealers. These suppliers have all withdrawn their goods from sale.

Actions

One retailer in Adelaide was taken to court and prosecuted in 1996 for selling cycles with entrapment hazards. Such cases are useful deterrents against other suppliers breaching the standard.

Bicycle helmets

The bicycle helmet standard contains a number of performance requirements to

ensure protection of the wearer in the event of an accident.

Survey results

This is regarded as a national market and the only survey was conducted in Sydney in the second half of 1996. A check of outlets revealed many of the same helmet brands, all of which carried the SAA licence mark. This is regarded as sufficient evidence of compliance and no further testing has been commissioned. No enforcement action has been necessary with this standard.

Editorial comment

The ACCC plays an important role in the enforcement of mandatory product safety standards. Unfortunately most safety standards in Australasia are voluntary and are therefore outside the jurisdiction of the ACCC. Action is therefore required to increase compliance with important voluntary standards or to mandate them.

Acknowledgments

This issue of Hazard would not have been possible without the valuable contribution of many people. VISS would particularly like to thank: Gail O'Bryen, ACCC; John McCrory and Melanie Lier, Bureau of Animal Welfare; Fiona Mackie, Vin O'Brien and Greg Spicer, City of Knox; Carol Williamson and the Fixed Penalties Payment Office (FPPO), Traffic Camera Office, Victoria Police; Ian Scott, Kidsafe National; Dr Arlie McQueen, Kidsafe Victoria; Michael DeLacy, VIC Image; John Shaw, Building Control Commission.

Special thanks to Christine Chesterman for her valuable contribution.

Community Safety Week 1998

Community Safety Week will take place between Sunday 6 September and Saturday 12 September 1998. Community Safety Week is designed for local communities throughout Victoria to link together and take effective yet simple steps towards making their community safer.

For further inquiries and information on how your community or organisation can get involved contact:

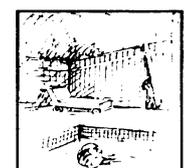
Donna McCormick from the Victorian Community Council Against Violence on 03 9655 5220 regarding violence and crime prevention promotion
OR Gayle Smith from Work Cover on 03 9628 8543 regarding injury prevention promotion.



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* Special edition



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Ballarat Base Hospital	Royal Children's Hospital
The Bendigo Hospital Campus	Royal Melbourne Hospital
Box Hill Hospital	Royal Victorian Eye and Ear Hospital
Dandenong Hospital	St Vincent's Hospital
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Frankston Hospital	Warrnambool and District Base Hospital
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Coronial Services

Access to coronial data and links with the development of the Coronial Service's 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.



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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.

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The Cost of Injury to Victoria

W. Watson & J. Ozanne-Smith

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(address above) (Ph. 9905 4371)



Project Funded by Victorian Health Promotion Foundation

VISS is a project of the Monash University Accident Research Centre.



*Hazard was produced by the Victorian Injury Surveillance System
with the layout assistance of Glenda Cairns, Monash University Accident Research Centre.
Illustrations by Jocelyn Bell, Education Resource Centre, Royal Children's Hospital.*

ISSN-1320-0593

Printed by Sands and McDougall Printing Pty. Ltd., Brunswick

