HAZARD

VISAR

VICTORIAN INJURY SURVEILLANCE & APPLIED RESEARCH

Hazard
(Edition No. 48)
September 2001
Victorian Injury Surveillance
& Applied Research System (VISAR)
(Formerly VISS)

Monash University
Accident Research Centre

VicHealth

This edition of Hazard presents evidence of several cost effective injury prevention strategies. The focus is on falls because of their pervasiveness, the sheer size of the problem, and the potential to reduce demand for acute hospital services.

Best Buys in Fall Injury Prevention

Summary

More than 4,400 Victorian children are admitted to hospital for fall related injuries annually. Of these, 1,967 are known to have fallen from playground equipment. These 1,967 children consume 5,620 bed days. Another 3,934 children are treated in Emergency Departments for falls from playground equipment. In total, the direct cost borne by government is estimated at more than 4.7 million dollars. The cost in bed days and Emergency services is also considerable.

A remedy is simple and readily available. Replacement of current playground equipment with better designed equipment would cost nothing if done when the equipment is scheduled to be replaced. This would result in more than $500,000 saved in the first year, growing annually until few injurious falls resulted from playground equipment, saving 4.7 million dollars per annum. Similar results would be obtained if wristguards were more widely used in sport and recreation. More than 5,900 arm fractures in children would be prevented by these devices. These fractures cost 5.2 million dollars annually.

Falls among the elderly also represent a significant and rapidly growing problem. Commonly, older persons who fall fracture a hip. From 1998 to 1999 11,845 older persons were admitted to hospital in Victoria for falls, 3,465 for fractured hips. Older persons' falls account for 124,611 bed days in a single year. Fractured hips required 49,060 of these, and cost the government 36 million dollars annually. Unfortunately, many of these individuals will never return home, and a substantial number of them will die needlessly as a result of their hip fractures.

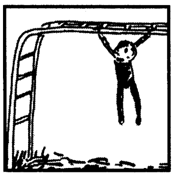
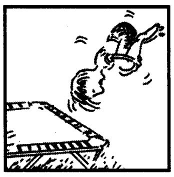
Yet, many of these tragic events could be prevented with hip protectors distributed for as little as $117 a set (with special underwear included). It would cost $680,000 to prevent 100 hip fractures or $1,039,200 to treat them (acute medical treatment costs alone). This represents a saving of $359,200 in the first year and $1,039,200 in each subsequent year, and 1,640 bed days per year.

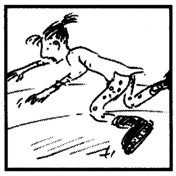
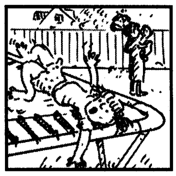
If all hip fractures were prevented, hospital waiting lists could be reduced by nearly 50,000 bed days per annum, allowing more than 7,990 new elective procedures per year, and saving $12.4 million dollars per annum.

If all these falls were prevented the savings to government amount to more than $19 million dollars, and would save more than 55,000 bed days, enabling more than 8,900 new elective procedures per annum and drastically shortening hospital waiting lists. Society would save much more, since the costs and savings considered here are only those for acute medical services. These injuries require many other costly services, and impact upon families and society in many other ways.

Recommended Interventions

- Wristguards to prevent arm fractures in sport and recreation;
- Lowering the height of playground equipment to reduce playground fall injuries;
- Promotion of stringent trampoline standards to reduce fall injury;
- Hip protectors for at risk older persons;
- Follow-up medical and occupational therapy for older people who have presented at hospital Emergency Departments with fall injuries; and
- Balance and strength exercise program for older people (70+).


Introduction

Mark Stokes & Joan Ozanne-Smith

In 1998 1,598 Victorians died from injuries, a further 65,501 were hospitalised, and almost 175,000 were treated by Emergency Departments (EDs). The number treated for injuries by other health providers is estimated at more than 192,000. Unfortunately, the numbers appear to be increasing. Since 1998, the number of injury presentations to EDs has increased by an average of 8% annually, whereas the Victorian population has increased by an average of only 1.1% annually. Given this increase despite the efforts to reduce injury, a reasonable person might be tempted to ask what value is there in investigating injury prevention? There are grounds for optimism as there have been considerable successes in injury prevention. Since 1979 deaths from injuries among children aged between 0 and 14 years have reduced dramatically (Figure 1). Interventions such as pool fencing; bicyclist helmets; the implementation of Australian Standards specifying the safe design of baby cots; child car restraints; the implementation of seat belt laws, and other legislative road safety measures; as well as awareness raising activities such as those undertaken by Kidsafe, VISAR & VicHealth have all contributed to reducing child injury deaths by more than fifty percent. Notable reductions in adult injury deaths have occurred on the roads, and related to many other specific products such as guns and tractors.

The burden of injury is borne both by the individual and by society. The annual cost is considerable. In 1998 injury cost Victorians more than $2.5 billion based on 1994 cost data (Figure 2). These estimates are from a study undertaken by Watson and Ozanne-Smith (1997). Costs include not only the direct costs to the health care system, but also the indirect costs to society.

Successful interventions have included design, legislation and attitudinal change, often in combination. Child resistant

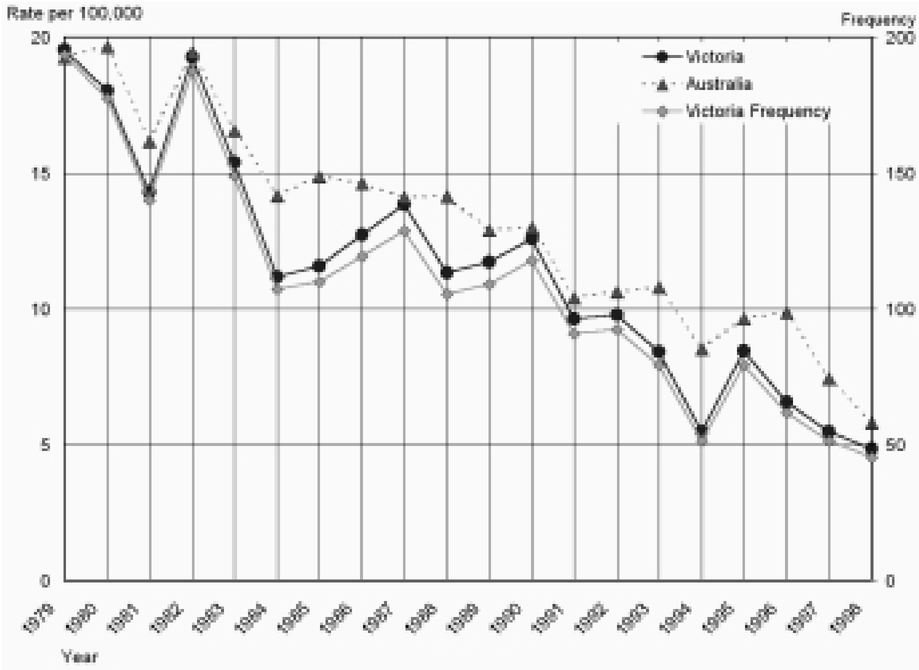


Figure 1: Rates of injury deaths in Victoria and Australia for children (0 to 14 years) from 1979 to 1998

Source: Australian Bureau of Statistics Death Unit Record file (NISU, Flinders University 1979-1998)

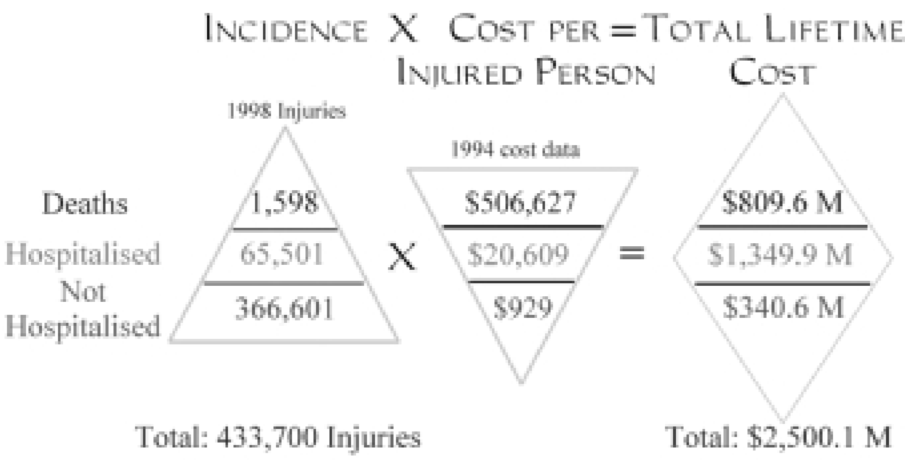
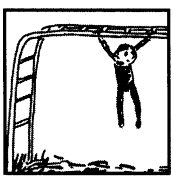
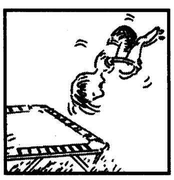
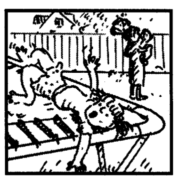


Figure 2: Annual cost of injury to Victoria

Source: Australian Bureau of Statistics Death Unit Record file 1998, Victorian Admitted Episodes Dataset 1998, Victorian Emergency Minimum Dataset 1998, Watson & Ozanne-Smith 1997.


packaging of poisons (Walter, Corbett cited in Ozanne-Smith, 1992), design of babywalkers to prevent falls down steps and stairs (Jacobson *et al*., 1999), roll-over protection on tractors (Day & Rechnitzer, 1999), seat belts and child seats (Miller *et al*., 1993) and many other examples exist for successful combined design and regulatory processes.

Attitudes and behaviors have changed with regard to drink driving (Cameron *et al.,* 1993), water safety (Ozanne-Smith & Wigglesworth, in preparation), sun protection (Hill *et al.,* 1993) and gun ownership (ABS catalogue, 1999). Legislation and enforcement have been associated with only some of these changes.

Some successful interventions as measured by cost-benefit analyses include falls prevention in the high-risk elderly (Miller & Levy, 2000), bicycle helmets introduction (Thompson *et al.,* 1993), motorcycle helmets laws (Max *et al.,* 1998) and violence prevention programs (Greenwood *et al.,* 1996).

This edition of HAZARD provides a cross section of compelling examples of recommendations for best buys to reduce the incidence of serious fall injuries in Victoria and consequent demands on the hospital system. Many more examples exist for other injuries such as road safety measures, home design changes, child poisoning prevention and occupational injury prevention. Each example presented is based on Victorian public hospital data and represents a high severity and/or frequency injury problem for which evidence-based prevention measures are available, and where there is preliminary evidence to suggest that the benefits of intervention exceed the health care costs in the short to medium term. Systematic analyses of Victorian Admitted Episode Dataset (VAED) the Victorian Emergency Minimum Dataset (VEMD), and Victorian population data (ABS) identified the injury problems presented here. Cost data were extracted from a range of sources and effective interventions were determined from critical reviews of published literature. The benefit/cost estimates are based on clearly stated assumptions. If indirect costs were included, the benefit/cost ratios would be substantially greater.

Database descriptions

• *Australian Bureau of Statistics (ABS) - Death Unit Record File (DURF)*

The Australian Bureau of Statisitics (ABS) death unit record file (DURF) consists of information supplied by State Registrars of Births, Deaths and Marriages. Each death registered in Australia is classified by the ABS according to the World Health Organisation (WHO) International Classification of Diseases (ICD) coding system. MUARC has access to data for the period 1990-1998.

• *Victorian Admitted Episodes Dataset (VAED)*

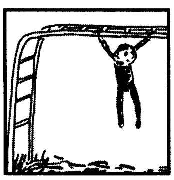
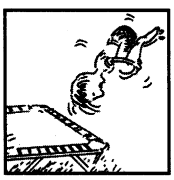
The VAED contains information on admissions to Victorian hospitals over a 13 year period – July 1987 to June 2000. For most of the period covered, the data was collected by Health Computing Services Victoria under the direction of Human Services Victoria. Detailed information on hospital admissions, from admission to discharge, is collected. The information on the nature of injury is based on the diagnosis by physicians. MUARC has access to all records involving injury and poisoning.

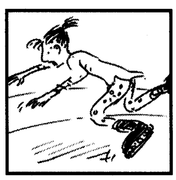
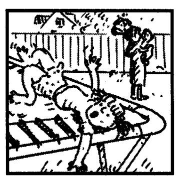
• *Victorian Emergency Minimum Dataset (VEMD)*

The electronic VEMD database records details of injuries treated at the emergency departments of 28 major public hospitals, 26 of which cover a general adult community (see page 15). The total number of cases on the database to June 2001 was approximately 1,047,038. For most hospitals the period January 1996 to March 2001 is covered. The injury variables collected include injury cause, location, activity, nature of main injury, body region, human intent and a narrative describing the injury event. VEMD hospitals represent approximately 80% of statewide emergency department presentations. The data provided to MUARC does not include all ED presentations, only injury specific cases. Hence it is not possible to analyse any VEMD data which may have been re-categorised to a non-injury grouping. A MUARC study found that the VEMD captured 82% of VEMD injury presentations.

• *Victorian Injury Surveillance System (VISS)*

The original VISS database collected detailed injury data from the emergency departments of 7 campuses of 5 Victorian public hospitals between 1988 and 1996. Data is based on information provided by the injured person (or proxy) and the attending doctor. Collection periods were as follows: Royal Children's Hospital 1988 to 1983; Western Hospital and the former Preston and Northcote Community Hospital 1989 to 1993; Royal Melbourne Hospital March 1992 to February 1994; and Latrobe Regional Hospital July 1991 to June 1996.


Prevention of hospital-treated child fall injuries

Joan Ozanne-Smith

Background

Falls are the leading cause of non-fatal child injury, representing 41% of hospitalisations and 42% of ED presentations for child injury in Victoria (Ashby and Corbo, 2000). Hospitalisation rates for child falls have increased over the 12 years since June 1987. Child fall admissions peak in the 5 to 9 age group, where most are falls from playground equipment. The annual average frequency and rate for child fall hospitalisations are 4,444 and 469/100,000 respectively, utilising 5,620 bed days. Should current trends continue for the next ten years, by 2010 6,100 children will be hospitalised for falls requiring 7,400 bed days.

The most common child injury diagnosis requiring treatment or admission is fracture. More detailed information on fall injuries is available from hospital ED presentations. Twelve percent of ED fall presentations are from a height of 1 metre or above, one quarter of which require hospitalisation. Low falls (ie. less than one metre) account for 88% of falls of which 14% require hospitalisation. The most common location for child fall injuries is the home, although the proportion associated with sports and recreational activities increases with age.

The most common injuries sustained as a result of falls presenting to hospital EDs analysed by age group are: intracranial injury for children aged <1 year of age (17.3%); open wounds to the face for children 1 to 4 years (19%); and forearm or wrist fracture for children 5 to 9 and 10 to 14 years (14% and 12% respectively). The factors contributing to fall injury vary across age groups reflecting the changing range of environments experienced by children as they grow older as well as developmental, sociological and behavioural factors.

Bikes, monkey bars, in-line skates and roller skates rank within the top five factors contributing to child falls at both the moderate and severe levels of injury, accounting for approximately one in five child injury admissions and presentations. Household furniture items, including nursery furniture figure strongly in falls among children aged less than 5 years.

Child falls are targeted by the Commonwealth Department of Health and Aged Care as an area of high priority for prevention and one requiring immediate attention (Commonwealth Department of Health and Aged Care, 2001). We identify three interventions to prevent child fall injuries on the basis of frequency and severity, demand on the hospital system, preventability by currently available means and crude estimates of benefits over costs. These are:

- wristguards to prevent arm fractures in sport and recreation;
- lowering the height of playground equipment to reduce playground fall injuries; and
- promotion of more stringent trampoline standards to reduce trampoline-related fall injury.

Table 1 outlines the epidemiology and medical costs of child fall injuries and potential benefits of intervention.

1. Prevention of arm fracture

In the year July 1998-June 1999, 1967 children aged 5-14 years were admitted to hospital in Victoria due to arm fractures associated with falls. However admitted cases accounted for only one third of all arm fractures treated in hospitals. Among 5 to 14 year olds, wrist and forearm fractures alone account for at least 46% of hospital treated injury that occurs in areas of recreation. Fifty percent of these fractures are associated with small-wheeled toys (in-line skates, skate-boards and scooters), whereas 33% to 42% occur in various sports, and 18% involve bicycles.

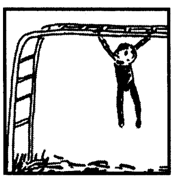
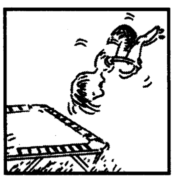
Proposed intervention

Wrist guards have been shown to be highly effective, preventing approximately 90% of wrist or forearm fractures arising from in-line skating (Schieber *et al.*, 1996) and 50% of those arising from snowboarding (Idzikowski *et al.*, 2000). While the effectiveness in preventing other fractures is unknown, the biomechanics of the protection afforded by wrist guards would suggest a high level of protection for all arm fractures, except to the digits (Lewis *et al.*, 1997). Since the mechanism of injury, falls on the outstretched hand, is common in other recreational activities, it is reasonable to assume that this preventive measure is applicable to other similar activities such as bike and scooter riding and skateboarding. Schieber *et al.* (1996) calculated that the odds ratio for wrist injury in in-line skaters who wear wrist guards compared to non-wearers was 10.4:1 (95% CI 2.9 –36.9). A recent observational study conducted in Victoria showed that only 26% of Victorian in-line skaters wear wrist guards (Sherker & Cassell, 2001).

An implementation strategy for wrist guard use, would need to include media advertising, promotion by sports role models, and working with sports equipment and wrist guard importers and retailers to promote sales.

Cost estimate

It has been estimated that the ED costs for a presentation of a forearm fracture in 2000 dollars is $634 for a 5-14 year old (based on Watson & Ozanne-Smith, 1997 and Harris *et al.*, 1998). The average cost is estimated at $1,389 for all admitted arm fractures based on cost estimates from total Weighted Inlier Equivalent Separations (WIES) values for those cases with available data from the Victorian Admitted Episodes Dataset (VAED; Table 1).

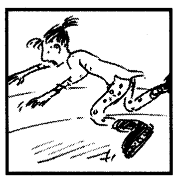
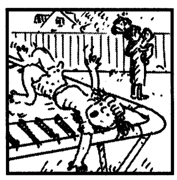
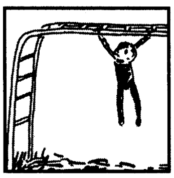
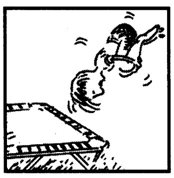



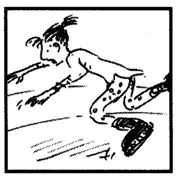
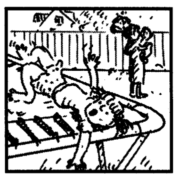

Table 1: Frequency, cost of injury and intervention and potential preventable injury and cost savings for selected child fall injuries, Victoria

	Wristguards (arm fracture)	Playground equipment	Trampoline	Total
Admitted (June98/July99)	1967	1100	189	3256
Presentations[1] (June98/July99)	3934	3960	374	8268
Cost admitted (per case)[2]	$1,389	$930	$930	
Cost non-admitted[3]	$634	$930	$930	
Total hospital costs	$5,226,319	$4,705,800	$523,590	$10,455,709
Efficiency of intervention	90%	45%	30%	
Current use of intervention	5%	10%	0%	
Estimated future use of intervention (first year)	20%	25%	17%	
Gain in terms of current use	400%	245%	15%	
Preventable admissions (first year)	266	73	10	349
Preventable presentations (first year)	531	264	19	814
Cost saving from admissions (first year)	$369,474	$67,890	$9,300	$446,664
Cost saving from presentations (first year)	$336,654	$245,520	$17,670	$599,844
Total cost savings[4]	$706,128	$313,410	$26,970	$1,046,508
Implementation cost	$150,000	$50,000	$20,000	$220,000
Benefit less costs (first year)	$556,128	$263,410	$6,970	$826,508
Benefit/Cost	4.7	6.3	1.4	4.8

1. Wristguards - 3934 derived from figures indicating that 33.7% of children aged 5-14 presenting to Victorian EDs with arm fractures are admitted (VEMD July 98 to June 99). Playgrounds - 3960 derived from figures indicating that 21.6% of all 0-14 year olds presenting to EDs with injuries related to playground equipment are admitted (VISS – RCH, WH, PANCH 1989 to 1993, LRH July 1991 to June 1996).
   Trampolines – 189 admitted and 374 presentations based on figures from Hazard 42.
2. Wristguards – admitted costs based on Watson & Ozanne-Smith 1997 and calculations based on variables in 98/99 VAED data.
   Play-ground admitted costs based on 1994 data. Trampoline admitted costs based on 1994 data.
3. All non-admitted costs are based on 1994 data
4. Benefits in the first year should be exceeded in subsequent years due to cumulative effects of the interventions.

The major aim of this intervention is the widespread uptake of wristguards in selected sports and recreational activities (in-line skating, skateboarding, scooter and bike riding and snowboarding). An estimate of benefit-cost shows that if uptake was increased to 25% at 90% efficacy, health sector costs would be reduced in the first year by an estimated 266 hospitalised cases and 531 ED treated cases (Table 1), assuming that uptake occurred in half the relevant sports and recreational activities. An implementation expenditure of $150,000 would yield cost savings in the first full year of implementation of at least $556,128 to health and considerably higher savings to the community. The implementation expenditure amount of $150,000 per year will be sufficient to initiate activity in community organisations such as Kidsafe and in local government to promote the use of wristguards and to provide support from the Department of Human Services, as well as securing community service advertising. It is also likely to leverage funding from industry stakeholders. The savings in health care costs would escalate over time as further uptake occurs.


Time frame for yield

Because injury prevention interventions have the potential to provide immediate yield, measurable injury reductions would be expected within one year of full-scale implementation, and escalating changes in future years.

2. Prevention of playground falls injury

Injury associated with playground equipment is a relatively common occurrence in childhood and is the third most common reason (after asthma and chronic tonsillitis/adenoid disease) for hospital admission in children aged 5 to 9 years (Ozanne-Smith *et al.*, 1991). The majority of injuries from playground equipment are caused by falls (83% of admissions and more than 75% of ED presentations).

Head injury hospitalisations from playground falls have fallen significantly since 1987/88, probably due to increased safety measures. Over the same period, however, the rate of hospitalisations has increased because of a significant increase in upper limb fractures (Stathakis, 1999). Each year in Victoria around 1,100 children are admitted to hospitals with injuries caused by falls from playground equipment, three-quarters with upper limb fractures. Victorian injury surveillance data indicate that a further approximately 3,960 children present, but are not admitted to, Victorian public hospital EDs with injuries associated with falls from playground equipment.

Two major factors influence the severity of injury in the event of a fall – the height from which the child falls, and the surface which he or she impacts.

Proposed intervention

The current playground equipment Standard allows for a maximum fall height of 2.5 metres. Evidence from one New Zealand case-control study indicates, however, that the risk of injury increases markedly with fall heights over 1.5 metres (Chalmers *et al.*, 1996). The authors found that children who fell from over 2.25 metres had 13 times the risk of injury compared to those who fell from heights of 0.75 metres and below. Similarly there was a four-fold reduction in the risk of injury in children who fall from a height of 1.5 metres or below compared to their counterparts who fell from heights greater than 1.5 metres.

It is estimated from current MUARC research that 90% of Victorian playgrounds have at least one piece of equipment that is higher than 1.5 metres. Playground equipment in schools and community playgrounds is replaced about every 10 to 15 years. It is recommended that all new and replacement equipment should be installed with a fall height of less than 1.5 metres. There are ample examples of playground equipment design of equal challenge to children's physical and cognitive development, which do not exceed fall heights that are unacceptable in other environments including the workplace.

Implementation of this intervention should include intensive education programs for industry and relevant authorities, the establishment of sources of advice on equipment and playground design, as well as accessible compilation of listings of compliant equipment.

An investigation into risk factors for arm fractures due to falls from playground equipment is underway at the Monash University Accident Research Centre (MUARC). Further specific recommendations for prevention are expected to follow from this work.

Cost estimates

The direct medical treatment costs of child falls in 1993-1994 were estimated at $919 per injured child aged 0 to 4 years and $930 per injured child 5 to 14 (Watson & Ozanne-Smith, 1997). These costs include the minor injuries treated in General Practice. Table 1 shows the cost of both an admitted case and a presentation as $930. The latter figure was selected as the majority of child falls from playground equipment are in the 5-14 year age group. The same $930 cost was used for both admissions and presentations in the absence of individual figures for each case. This cost figure is conservative since it includes the most minor of medically treated injuries that present to general practices and it is based on 1994 costs.

An estimate of benefit-cost shows that if uptake were increased to 25% at 45% efficacy, health sector costs would be reduced each year due to a decrease in an estimated 73 hospitalised cases and 264 ED treated cases (Table 1). The intervention itself should be cost neutral, since compliant equipment already exists and implementation would be at replacement. An amount of $50,000 is allowed for an information program. An information program, such as proposed here, would be capitialised upon by activity in community organisations such as Kidsafe and local government. Therefore, it is believed $50,000 would be an adequate expenditure to achieve this outcome.

Timeframe for yield

This intervention would require an establishment period of 6 to 12 months. Full implementation, due to the attrition of old equipment, would take 10 to 15 years. With a high level of targeted promotion, about 25% of non-compliant equipment could be replaced in 3 years. Chalmers *et al*. (1996) estimated that an intervention of this nature would reduce current playground fall injuries by 45% per year which would generate significant impact on public health. The effects of this intervention are cumulative so the benefits of injury reductions would increase concomitantly until all equipment is compliant.

3. Trampoline related injury prevention

Rationale

An average of 189 trampoline related hospital admissions are reported for Victoria (Murphy, 2000) and 374 ED presentations annually. On average, 82% of injured children require 2 bed days, while 17% require 2 to 7 bed days for treatment. An Australian Standard for trampoline safety is currently under development.

Options to curb impact on hospital demand

A low cost advocacy program targeted to manufacturers, retailers, facility operators, and the community could achieve injury reductions from trampoline injury.

Cost estimate

The average medical cost for child falls in 1993-1994 was estimated at $919 per injured child aged 0 to 4 years and $930 per injured children 5 to 14 (Watson & Ozanne-Smith, 1997). Table 1 shows the cost of both an admitted case and a presentation as $930. Again, the higher figure was selected as the majority of child falls from trampolines are in the 5-14 year age group.

Approximately 30% of trampoline injuries are caused by falls onto the trampoline frame, which will be protected under the proposed standard. It is also estimated a further 10% of injuries will be prevented by other measures of the proposed standard. The trampoline industry indicates that approximately 17% of the trampoline market is replaced or discarded annually, and that this matches the annual proportion of sales. Therefore, the maximum market penetration annually is 17% for new, compliant trampolines.

If the efficiency of the intervention were 30% and the estimated future use of the intervention was 17% per annum then 19 hospital presentations could be avoided and 10 hospital admissions would be prevented in the first year (Table 1). If $20,000 is used on an advocacy and evaluation program, and savings per annum are $26,970 in health care costs, the first year will result in $6,970 in savings. Thereafter, benefits would be cumulative as more trampolines become compliant and the need for expenditure on advocacy diminishes. It is likely that only $20,000 in additional resources, in excess of resources necessary to address promulgation of a new safety standard, would be required to facilitate uptake and compliance of the new proposed standard.

Timeframe for yield

Decreased demand on hospital services (admissions and ED) would be expected within two years and the benefits will be cumulative as uptake of the Standard increases.

Prevention of hospital treated fall injuries in older people

Erin Cassell [1]

Rationale

In Victoria, falls account for more than two-thirds of injury-related hospital admissions and ED presentations in people aged 65 years and older. One-half of hospital admissions for injury and two-thirds of ED presentations are due to fractures. The most frequently occurring fracture site is the neck of femur (hip).

Australia's population is ageing, and the proportion of persons aged 65 years and over is projected to increase from its current level of 12% to 23% in 2051. Fractures, particularly hip fractures, become increasingly common with advancing age. It is projected that the number of fractures in the older age group will increase by at least 10% every 5 years to 2051 and by almost 20% every five years among people aged 85 years and over.

Table 2: Frequency and proportion of fall-related hospital admissions by age group (1998 to 1999)

Age group (years)	Frequency of admissions	% of admissions for persons 65+	Average annual Rate per 100,000
65-69	1,124	9.5%	643
70-74	1,665	14.1%	1,044
75-79	2,341	19.8%	1,834
80-84	2,694	22.8%	4,991*
85+	4,021	33.9%	
Total	**11,845**	**100.0%**	

* rate is for all persons aged 80+ years

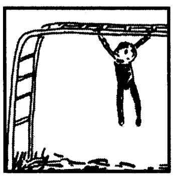
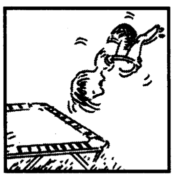
Source: Victorian Admitted Episodes Dataset July 1995 to June 1999

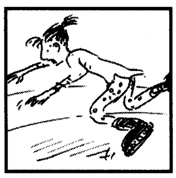
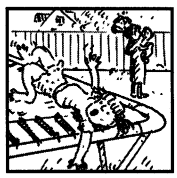
Victorian hospital admissions data on falls

Data for latest 4-year period (July 1, 1995- June 30, 1999): Victorian Admitted Episodes Database

- In the latest 4-year period, falls account for 76.8% of injury-related hospital admissions in older people (aged 65 years and older). There were 11,845 fall-related admissions in older people in 1998 to 1999 (72% female; Table 2).
- Fractures are the most common primary injury, accounting for 66.0% of all fall injury admissions in older people. Hip fractures alone account for 29.5% of all fall-related admissions (*n*=13,663 over four years, average 3,465 admissions per year).
- The frequency of falls-related admissions increases as age increases (see Table 2)
- Most fall injuries occurred at home (46%) or in public buildings, residential institutions, or trade service areas (26.3%)

1. Erin Cassell is a Senior Research Fellow at Monash University Accident Research Centre


- In 1998-99 fall related hospital admissions of older people accounted for 124,611 bed days, including 49,060 bed days for fractured hip cases.
- The average length of stay in hospital for older people with a fractured hip is 16.4 days (Harris *et al*., 1998). The annual direct cost of hospital admissions for hip fractures among older people in Victoria is at least $36 million, with 3,465 admissions per annum costing $10,392 per admission for hip fracture (Harris *et al*., 1998).

Three interventions where there is evidence of benefit over cost are presented here:

- hip protectors;
- follow-up of medical and occupational therapy for older people who have presented at hospital EDs with fall injuries; and
- balance and strength exercise program for older people (70+).

Figure 3: Hip Protector

Source: Hornsby Hip Protection Study, NSW

1. Hip protector program for older people at high risk of falls

Hip protectors consist of plastic shields or foam pads that are kept in place by pockets in specially designed underwear. Research shows that 30 to 50% of older people in residential care fall in a 12 month period (Hill *et al*., 2000). A high proportion of these falls are injurious. It is estimated that, annually, one in every 25 older people in residential aged care settings sustains a hip fracture (NZ data, Butler *et al*., 1996). Australian data show that one-third of hip fracture patients were living in a nursing home at the time of the fracture (Cumming & Klineberg, 1994).

Quality of evidence

There is consistent evidence from randomised control trials that hip protectors reduce the risk of hip fractures in older people in residential care settings (Lauritzen *et al*., 1993; Ekman *et al*., 1997; Harada *et al*., 1998; Heikinheimo 1996; Chan *et al*., 2000; Kannus *et al*., 2000; Table 4). In 1993 Lauritzen *et al.* reported impressive results from a trial of hip protectors in 665 Danish nursing home residents aged over 69 years. At 11 months follow-up the rate of hip fracture was 53% lower in the hip protector group compared to controls, and no subject wearing a hip protector experienced a hip fracture. The hip fracture reductions reported from several smaller randomised control trials conducted in Sweden (Ekman *et al*., 1997), Japan (Harada *et al*., 1998), Finland (Heikinheimo *et al*., 1996) and Australia (Chan *et al*., 2000) provide limited confirmation of the original findings. However, the most potent affirmation of the protective effects of hip protectors is provided by a recent large-scale randomised control trial conducted in Finland that involved a mixed population of ambulatory but frail independently living older people (with home care support) and residents in geriatric care settings (Kannus *et al*., 2000). The trial involved 1,801 subjects aged 70 years or older who had one or more risk factors for falls. Kannus (2000) and colleagues report that the use of the hip protector reduced the risk of hip fracture by 60%. According to the authors' calculation of the number needed to treat, only 41 persons need to be offered a hip protector to prevent one hip fracture during the course of a year.

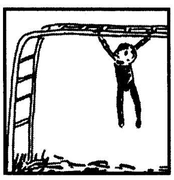
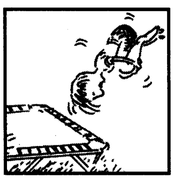
Uptake and compliance problems are reported from all these studies, so a well-planned (focus-tested) education program on the benefits of hip protectors, targeted to care staff, older people and their families is an essential strategy in the pre-intervention period.

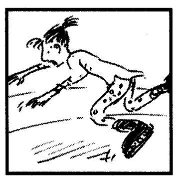
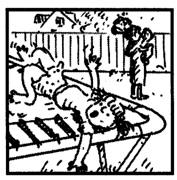
Time frame for yield

The expected time frame would be 3 years including a 12 months establishment period which should include a pre-intervention awareness raising and education program. The intervention has the potential to show a benefit in the first 12 months of full implementation.

Table 3: Benefit:Cost estimate for Victoria for hip protector program. Model is based on an estimated 100 hip fractures prevented in 4000 participants

	Costs $	Benefits $
4000 sets of hip protectors and undergarments at $ 117 per set (fully subsidised)	468,000	
Implementation and evaluation costs at $53 per participant	212,000	
Total cost	680,000	
Hospital cost savings based on 100 hip fractures prevented at $10,392 per fracture		1,039,200
Net benefit in 1st full year of intervention		359,200
Net benefit in later years of intervention		1,039,200


Cost estimate

The annual direct cost of hospital admissions for hip fractures among older people in Victoria is at least $36 million (3,465 admissions at $10,392 per admission). The cost of hip protector garments including hip protectors for one individual is about $117 (3 pairs of underpants at $28 per pair and one set of hip protectors at $33).

Hospital costs savings based on 100 hip fractures prevented in 4000 participants is estimated at more than $1,000,000, less the cost of hip protectors and the pre-intervention program of $680,000 in the first full year of the intervention (Year 2 of proposed program). At least 1,640 bed days would be saved for every 100 fractured hips prevented. This equates to 256 elective admissions based on an average non-same day length of stay of 6.4 days for each public hospital separation (AIHW Australian Hospital Statistics 1998-1999).

Potentially, the benefits over costs would be much greater if the use of hip protectors could be successfully promoted to high-risk fallers living independently in the community. Hip fractures result in the reduction of function and the need for residential care in approximately 50% and 25% of cases respectively (Cumming *et al.*, 1996; Keene *et al.*, 1993). The shortage of nursing home beds has led to substantial additional demand on acute hospital beds for patients who are unable to be discharged home after a fall-related hip fracture. Non-compliance is a major barrier to the uptake of hip protectors by community dwelling older people (Kannus *et al.*, 2000; Cameron *et al.*, 2001) and this aspect needs to be addressed.

There is likelihood of much greater savings in subsequent years when uptake increases. These calculations also assume that the full cost of hip protectors and undergarments will be met by the program. If participants contribute to these costs then the benefits in dollar terms would be even higher.

Hip protectors are a substantiated countermeasure to hip fractures for older people (aged 70 years and over) living in residential care settings. There is also preliminary evidence that they are effective for older people at high risk of falls who are living in their own homes with support from aged care services. The intervention could be delivered through nursing homes, hostels and Special Residential Services for older people in residential care and through Primary Health Care Partnerships and extended care or rehabilitation settings for community dwelling older people. The hip protector intervention should be preceded by a well-planned education program for care staff and older people and their families to increase uptake and compliance.

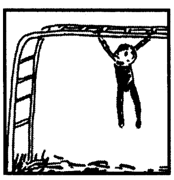
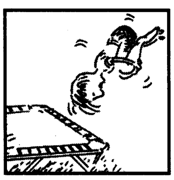
2. A program of follow-up for medical and occupational therapy for older people who have presented at hospital Emergency Departments (EDs) with fall injuries.

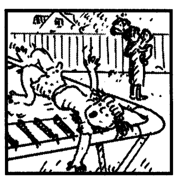
Patients who attend EDs are an accessible group of high-risk individuals who are receptive to intervention. Each year in Victoria at least 10,000 older people present to hospital EDs for fall-related injuries. Approximately 50% are admitted.

Quality of evidence

A recent British randomised control trial by Close *et al*. (1999) of persons attending an ED for a fall, reported a significant and substantial reduction in the numbers of subsequent falls and recurrent falls in older people who underwent a structured bi-disciplinary assessment. In this study, the authors recruited 397 eligible patients aged 65 years and older, living in the community who presented to an ED with a fall. Patients were assigned to either an intervention group (n=184) that received a detailed medical and occupational therapy assessment with referral to relevant services if indicated, or the control group (n=213) who received normal care. The medical examination, undertaken in a day hospital, was a comprehensive general examination that also focussed on a more detailed assessment of postural hypotension, visual acuity, balance, cognition, affect and prescribing practice. Identified risk factors were modified if possible either directly or through referral. The intervention group received one home visit (after the medical assessment) by an occupational therapist who assessed the patient's function (using the Barthel index) and the home environment. Advice and education was given about safety in the home, trip and slip hazards were removed with the patient's consent and minor equipment and aids were supplied directly or through referral. The primary attributable cause was frequently related to an environmental hazard but many patients had multiple risk factors. At twelve months follow-up, the risk of falls was significantly reduced in the intervention group (OR=0.39, 95% CI 0.23-0.66), as was the risk of recurrent falls (OR=0.33, 95%CI 0.16-68). In addition, the odds of admission to hospital were lower in the intervention group (OR=0.61, 95% CI 0.35-1.05) whereas the decline in Barthel score with time was significantly greater in the control group.

The multi-factorial approach is consistent with the prospective identification of risk factors used effectively to reduce falls in several trials in community settings, particularly when targeted to people at high absolute risk of falls (Feder *et al.*, 2000). Also, home visits by an occupational therapist (OT) have been trialed and found effective in reducing falls in a randomised control trial conducted in NSW (Cumming *et al.*, 1999). In the NSW study, patients were recruited from selected hospital wards and followed up for twelve months after the home visit by an OT who assessed the home for environmental hazards and facilitated necessary home modifications. The intervention was effective only in subjects who reported having had one or more falls during the year before recruitment into the study. In this group the risk of having at least one fall during follow-up was reduced by 46% (RR=0.64, 95% CI 0.50-0.83).


Benefit cost estimate

With the current state of knowledge it is not possible to estimate the costs and benefits of this intervention. A cost-benefit analysis of the effective intervention in ED departments in Britain by Close *et al*. is underway but the findings are not yet available. However, over 5,000 people aged 65 years and older present to Victorian hospital EDs each year for fall-related injuries are admitted. They are a high-risk group for re-injury and are receptive to intervention. If $1,000 were saved per fall admitted, and $200 per fall presentation, at least $6,000,000 would be saved annually. Both costs are likely to be substantially higher, therefore cost reductions are likely to be substantially greater.

Figure 4: Participants in a pilot study of Tai Chi at NARI

Source: National Ageing Research Institute (NARI)

3. Balance and strength exercise programs for older people (aged 70+ years)

Recent reviews on the effectiveness of falls prevention programs in older people conclude that exercise incorporating balance training is effective in reducing falls risk (Feder *et al*., 2000; Hill *et al*., 2000). To date, modified *Tai Chi* training is the only stand-alone group exercise program to show a significant reduction in falls in trials involving *unselected* community-dwelling older people (Feder *et al*., 2000; Hill *et al*., 2000). However, promising results are reported from an unpublished large scale randomised control trial (the *Whitehorse No Falls* trial) of a balance and strength exercise program devised and delivered by a physiotherapist (Lesley Day, personal communication). Other types of stand-alone exercise programs have been shown to significantly reduce falls in randomised control trials conducted in *selected* community-dwelling older people (people aged 80+ years and people aged from 68 years with at least mild deficits in strength and balance).

The proposed exercise interventions would be delivered through existing and new providers of modified exercise programs for older people both in the health sector and the fitness industry. The intervention would demand extensive training of exercise leaders in the forms of exercise that have been shown to prevent falls in randomised control trials and a promotion campaign to recruit older people (aged over 70 years) to the programs.

Quality of evidence

Tai Chi in unselected populations

The Atlanta FICSIT (Frailty and Injuries: Cooperative Studies of Intervention Techniques) trial of Tai Chi found that, after a 15-week group exercise program with individual instruction, the number of falls in the participants randomly assigned to the intervention was reduced by 47.5% compared with controls (Wolf *et al*., 1996). The Tai Chi study was conducted in a group of community-dwelling older people aged 70 years and over. The 108 forms of Tai Chi Tuan were reduced to 10 composite forms that emphasised the movement components often restricted or absent with ageing and were easy to learn by older individuals within a reasonable time frame (Wolf *et al*., 1997). Tai Chi classes involved 15 participants and were held twice weekly for one hour to enable participants to receive individual attention so that they mastered the 10 'forms' taught in the class.

Stand-alone exercise programs in selected populations

Four other trials of stand-alone exercise programs targeted to *selected* community -dwelling older people have reported positive results. The series of three randomised control trials undertaken in New Zealand by Campbell, Robertson and colleagues targeted home-bound high risk women aged 80 years and older (aged 75 years and older in one trial) who were invited by their GPs to participate (Campbell *et al*., 1997 &1999; Robertson *et al*., 2001; Robertson *et al*., 2001). The three separate trials involved the prescription of individually tailored, self-supervised, home-based, strength and balance retraining exercises and a walking program to the intervention group introduced and monitored initially over 4 home visits by either a physiotherapist (randomised control trial 1), a trained district nurse (randomised control trial 2) or a trained nurse based in general practice (randomised control trial 3). In all three trials falls were reduced in the

Table 4: Summary of Randomised Control Trials on the effectiveness of hip protectors as a preventive measure for hip fracture in older people

Study	Country	N	Age (years)	Design	Population	Intervention	Results
Lauritzen *et al*. (1993)	Denmark	665	69 +	RCT	Residents in nursing home	Hip protector: Safehip, Denmark	Rate of hip fracture at 11-month follow-up was 53% lower in the intervention group compared to controls. 8/247 in experimental group; 31/418 in control OR 0.47 (CI 0.24, 0.92)
Heikinheimo *et al*. (1996)	Finland	72		RCT	Residents in nursing home	Hip protector designed by first author	At 12 months follow-up the number of hip fractures reduced in intervention group compared to controls. 1/36 in experimental group; 5/36 in controls . OR 0.24 (CI 0.05-1.25) NS.
Ekman *et al*. (1997)	Sweden	744	84	RCT	Residents of four nursing homes (1 intervention & 3 control)	Hip protector JOFA AB, Malung, Sweden	At 11 months follow-up the number of hip fractures reduced in intervention group compared to controls 4/302 in experimental group; 17/442 in control group OR 0.40 (CI 0.17, 0.97)
Harada *et al*. (1998)	Japan	59 female		RCT	Residents in nursing home	Hip protector: Safehip, Denmark	At 19 months follow-up the number of hip fractures reduced in intervention group compared to controls. 0/35 in intervention group, 4/24 in control group. OR 0.07 (CI 0.01, 0.50)
Chan *et al*. (2000)	NSW	71		RCT	Residents in 9 nursing homes	Hip protector: Unstated	At 9 months follow-up the number of hip fractures reduced in intervention group compared to controls 3/40 in intervention group; 6/31 in control group. OR 0.35 (CI 0.97,1.41) NS
Kannus *et al*. (2000)		1,801	70+	RCT	Residents at high risk for falls in geriatric care facilities or living independently with support	Hip protector: KPH, Finland	The risk of hip fracture reduced by 60% in hip protector group (13 hip fractures/653 in experimental group, 16/1148 in control group). Relative hazard in hip protector group 0.4 (CI 0.2, 0.8; *P*=008)

RCT: Randomised Control Trial; NS: Not significant; Where cell is empty, no details were reported.

exercise group compared to controls (who received social visits and usual care) by 47%, 46% and 30% respectively. Injurious falls were reduced in the trials delivered by the physiotherapist and the trained district nurse.

The other randomised control trial in a *selected* population that showed a significant reduction in the risk of falls involved older adults aged 68 to 85 years with at least mild deficits in strength and balance randomly chosen from enrollees in a health maintenance organisation (Buchner *et al*., 1997). The intervention was supervised one-hour sessions, three times a week for 24 to 26 weeks followed by self-supervised exercise. Subjects were randomly assigned to one of three different exercise groups: strength training using weight machines; endurance training using bicycles; and combined strength and endurance training. The individual exercise interventions showed no effect but when the results of all three groups were combined the risk of falls was reduced by 47% in the intervention group compared to the control group (who maintained usual activities).

Benefit cost estimate

Further evidence on the effectiveness of exercise programs on the reduction of injurious falls and particularly hip fractures and estimates of the costs of these interventions are required before the effects on hospital demands can be determined. This intervention is promising and should be monitored. Some evidence of cost effectiveness is available from the New Zealand studies of home exercise programs to prevent falls. The exercise program delivered by a visiting nurse was found to be cost effective for those aged 80 years and older, resulting in cost savings per injurious fall event prevented of $NZ1563, when program costs and hospital costs averted were both factored into the calculation of the cost effectiveness ratio. The program delivered by a nurse based in general practice was not found to be cost effective, but the authors state that this may be due to the sample sizes used which were based on falls and not on injury rates.

References

Ashby, K. & Corbo, M. (2000) Child fall injuries: an overview. Hazard Edition 44. Victorian Injury Surveillance and Applied Research System. Monash University Accident Research Centre.

Australian Bureau of Statistics (1999) Safety in the home. Report No 4387.2

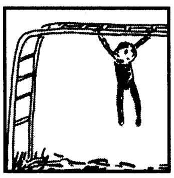
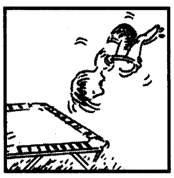
Buchner, D. M., Cress, E. M., de Lateur, B. J., Esselman, P. C., Margherita, A. J., Price, R., & Wagner, E. H. (1997). The effect of strength and endurance training on gait, balance, fall risk, and health services use in community-living older adults. Journals of Gerontology. Vol 52A(4), M218-M224.

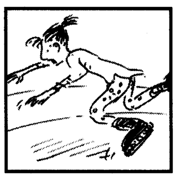
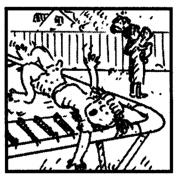
Butler, M., Norton, R., Lee-Joe, T., Cheng, A., & Campbell AJ. (1996). The risks of hip fracture in older people from private homes and institutions. Age Ageing; 25:381-385.

Cameron, I. (2001). Hip protectors among community dwelling older people: the challenges of implementation. Injury Prevention Conference, 2001, Deakin University Warrnambool, Victoria.

Cameron, M., Haworth, N., Oxley, J., Newstead, S., & Le, T. (1993) Evaluation of Transport Accident Commission road safety television advertising. Monash University Accident Research Centre Report. No 52.

Campbell, A J., Robertson, C.M., Gardner, M.M., Norton, R. N., & Buchner, D. M. (1999) Psychotropic medication withdrawal and a home-based exercise program to prevent falls: A randomized, controlled trial. Journal of the American Geriatrics Society. Vol 47(7), 850-853.


Campbell A. J., Robertson M. C., Gardner M. M., Norton R. N., Tilyard M. W., & Buchner D. M. (1997) Randomised controlled trial of a general practice programme of home based exercise to prevent falls in elderly women. Britsih Medical Journal. 315(7115):1065-9.

Chalmers, D. J., Marshall, S. W., Langley, J. D., Evans, M. J., Brunton, C. R., Kelly, A. M., & Pickering, A. F. (1996). Height and surfacing as risk factors for injury in falls from playground equipment: a case-control study, *Injury Prevention*; 2: 98-104.

Chan, D. K., Hillier, G., Coore, M., *et al*. (2000) Effectiveness and acceptability of a newly designed hip protector: a pilot study. Archives of Gerontology and Geriatrics,30:25-34

Close, J., Ellis, M., Hooper, R., *et al*. (1999) Prevention of falls in the elderly trial (PROFET): A randomised controlled trial. Lancet.;353:93-97.

Cumming, R.G., Klineberg, R.J. (1994) Fall frequency and characteristics and the risk of hip fractures. Journal of the American Geriatrics Society.42(7):774-8.

Cumming, R.G., Klineberg, R., & Katelaris, A. (1996) Cohort study of the risk of institutionalisation after hip fracture. Australian and New Zealand Journal of Public Health. 20(6); 579-582.

Cumming, R.G., Thomas, M., Szonyi, G., *et al*. (1999) Home visits by an Occupational Therapist for Assessment and Modification of Environmental Hazards: A Randomized Trial of Falls Prevention. JAGS, 47:1397-1402

Day, L., & Rechnitzer, G. (1999) Evaluation of the Tractor Rollover Protective Structure rebate scheme 1997/98. Monash University Accident Research Centre Report No. 155.

Ekman, A., Mallmin, H., Michaelsson, K., & Ljunghall, S. (1997) External hip protectors to prevent osteoporotic hip fractures. Lancet;350:563-4.

Feder, G., Cryer, C., Sonovan, S., *et al*. (2000) Guidelines for the prevention of falls in people over 65. BMJ,:321:1007-11.

Greenwood, P.W., Model, K.E., Rydell, C.P & Chiesa, J. (1996). Diverting children from a life of crime: Measuring costs and benefits. Santa Monica, California: RAND.

Harada, A., & Okulzumi, H. (1998) Hip fracture prevention trial using hip protector in Japanese elderly Osteoporosis International. Vol.8 Suppl 3,pp.121.

Harris, A.H., Cumming, R., Watts, J., *et al*. (1998) The burden of illness and the cost of osteoporosis in Australia. Centre for Health Program Evaluation Technical Report 8, Melbourne.

Heikinheimo, R. J., Jantti, P. L., Aho, H. J., & Maki-Jokela, P. L. (1996) To fall but not to break - safety pants. 3rd International Conference on Injury Prevention and Control.

Hill, D., White, V. & Borland, R. (1993). "Changes in sun-related attitudes and behaviours, and reduced sunburn prevalence in a population at high risk of melanoma." European Journal of Cancer Prevention 2: 447-456.

Hill, K., Smith, R., Murray, K., *et al*. (2000) Analysis of research on preventing falls and falls injury in older people: community, residential aged care & acute care settings. Report to Commonwealth Dept of Health &Aged Care, Injury Prevention section by the National Ageing Research Institute.

Idzikowski, J.R., Janes, P.C. & Abbott, P.J. (2000). Upper extremity snowboarding injuries. Ten-year results from the Colorado snowboard injury survey. *AM J Sports Med*; 28: 825-32.

Jacobsen, B., Kumagai, M. & Sweet, D. (1999). Safer babywalkers in the United States. Proceedings of the 7th International Conference on Product Safety Research. Eurpoean Consumer Safety Association and US Consumer Product Safety Commission. Washington DC.

Kannus, P., Parkkari, J., Niemi, S., Pasanen, M., Palvanen, M., Järvinen, M., & Vuori, I. (2000) Prevention of hip fracture in elderly people with use of a hip protector. New England Journal of Medicine;343:1506-13

Keene, G., Parker, M., & Prior, G. (1993). Mortality and morbidity after hip fractures. British Medical Journal; 307: 1248-50.

Lauritzen, J.B., Petersen, M.M. & Lund, B. (1993) Effect of external hip protectors on hip fractures. Lancet, 2;341(8836):11-3

Lewis, L. M., West, O.C., Standeven, J., & Jarvis, H.E. (1997). Do wrist guards protect against fractures?, Annals of Emergency Medicine*;* 29(6): 766-769.

Max, W., Stark, B. & Root, S. (1998) Putting a lid on injury costs: The impact of the 1992 Californian motorcycle helmet law. J Trauma Inj Infcet Crit care; 45: 550-556.

Miller, T.R., Demes, J. & Bovbjerg, R. (1993). Child seats: how large are the benefits and who should pay? In child Occupant protection. Malvern, Pa: Society for Automotive Engineers; 56:240-292.

Miller, T.R., & Levy, D.T. (2000). Cost-outcome analysis in injury prevention and control: eighty-four recent estimates for the United States. Medical Care: 38; 562-582.

Murphy, C. (2000). Trampoline injuries. Hazard;42:1-12 Victorian Injury Surveillance and Applied Research System. Monash University Accident Research Centre.

National Injury Prevention Plan, Priorities for 2001-2003.(2001) Commonwealth Department of Health and Aged Care.

Ozanne-Smith, J. (1992) Current patterns in childhood poisoning do we know enough? Kidsafe National Conference Proceedings.

Ozanne-Smith, J. & Wigglesworth, E. In preparation.

Ozanne-Smith, J., Vulcan, P., Heffernan-Colman, C., & Watson, W. (1991). Child accident and injury prevention research in other than road accidents. Part 1. Overview of child injuries in Victoria. Monash University Accident Research Centre Report No. 14.

Robertson, M.C., Devlin, N., Gardner, M., & Campbell, A.J. (2001). Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. 1: Randomised controlled trial. British Medical Journal; 322:1-6.

Robertson, M.C., Gardner, M., Devlin, N., McGee, R., & Campbell, A.J. (2001). Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. 2: Controlled trial in multiple centres. British Medical Journal;322:6-10.

Schieber, R., Branche-Dorsey, C.M., Ryan, G.W., Rutherford, G.W., Stevens, J.A., & O'Neil, J. (1996) Risk factors for injuries from in-line skating and the effectiveness of safety gear. New England Journal of Medicine. 335:1630-1635

Sherker, S., & Cassell, C. (2000). Personal protective equipment use by in-line skating in Victoria. *ANJPH*; 25: 33-38.

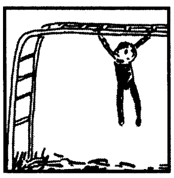
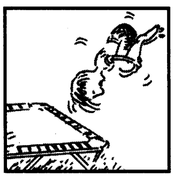
Stathakis, V. (1999). Hospitalised Injuries Victoria, July 1992 – June 1998. Monash University Accident Research Centre. Report No. 160.

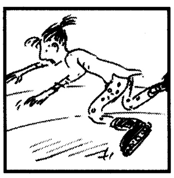
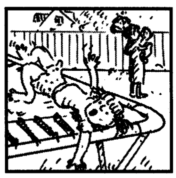
Thompson, R.S., Thompson, D.C. & Rivara, F.P. (1993). Cost-effectiveness analysis of bicycle helmet subsidies in a defined population. Pediatrics. 91:902-907.

Watson, W.L. & Ozanne-Smith, J. (1997) The cost of injury to Victoria. Monash University Accident Research Centre Report No. 124

Wolf, S.L., Barnhart, H.X., Ellison, G.L., *et al*.(1997) The effect of Tai Chi Quan, computerised balance training on postural stability in older subjects. Atlanta FICSIT Group. Frailty and Injuries: Cooperative Studies on Intervention Techniques. Phys Ther; 77(4):371-81.

Wolf, S.I., Barnhart, H.X., Kutner, N.G., McNeely, E., Coogler, C., & Xu, T. (1996). Reducing frailty and falls in older persons: an investigation of tai chi and computerised balance training. J AM Geriatr Soc. 44:489-497.


VISAR 'The One Millionth Case' Launch

Dr Ian Johnston, Director Monash University Accident Research Centre

Thursday the 26th of July, 2001 marked the occasion of the Victorian Injury Surveillance and Applied Research System's (VISAR) 'Millionth Case Launch'. Guests gathered at the Albert Park Sailing Club to hear Minister Bob Cameron announce details into the research of the one-millionth case of injury reported to the Victorian Emergency Minimum Dataset (VEMD). The VEMD is an ongoing surveillance collection of injuries to Victorians and is monitored by VISAR and supported by a number of hospitals that provide the detailed injury data to the program to track trends. VISAR is based at Monash University Accident Research Centre (MUARC) and funded by VicHealth.

Tobi O'Brien, the 'millionth case' and Minister Bob Cameron demonstrate falls assessment testing equipment

Minister Cameron said "injuries represented the main killer of people under 40 years of age, with 37 per cent of all deaths in this age group the result of injuries". He added "The Bracks Government has undertaken a range of activities in road safety and workplace areas to reduce injury. However, the home is an area where families and the building industry must play a major role". Minister Cameron said that a home could be likened to a building site where daily site safety checks are part of the ongoing schedule of safety. "I would urge people to take the occupational health and safety training they undertake at work into their homes." Minister Cameron said that in the home, there needs to be constant surveillance of the physical conditions such as the elimination of hazards including slippery paths and steps, poorly lit areas at night and poor storage of poisons and medications.

Also present at the launch was Dr Rob Moodie, CEO of VicHealth. "From a health promotion point of view, injury prevention is certainly a key priority," said Dr Moodie. "A strong research base and ongoing monitoring in the area of injury prevention and surveillance are priorities for developing effective health promotion programs". Between 1993 and 2003 VicHealth has provided funding to VISAR of more than $3 million to ensure the collection of data and research with a long-term view to injury prevention and harm reduction within Victoria. Dr Moodie added "The success of VISAR's work in identifying injury types and causes demonstrates the importance of data and research in developing a systematic and integrated approach to injury prevention and harm reduction". Dr Rob Moodie finished by stating "we remain committed to reducing injuries among Victorians by supporting organisations such as the Monash University Accident Research Centre."

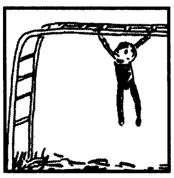
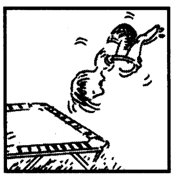
Dr Rob Moodie, CEO VicHealth

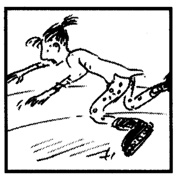
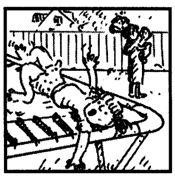
The 'millionth case' Tobi O'Brien fell whilst playing in a school playground breaking his forearm. Tobi was present at the launch to assist Minister Cameron in demonstrating falls assessment testing equipment that is being utilised in the assessment of playground falls.

The launch ended with Minister Cameron undertaking a "safe" bike ride around Albert Park Lake with appropriately equipped young riders.

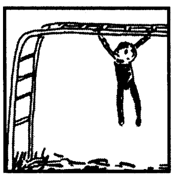
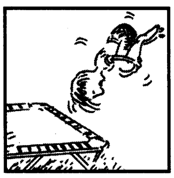
Full press release details can be obtained at http://www.medialaunch.com.au/132/

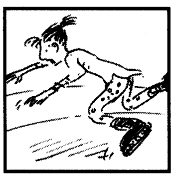
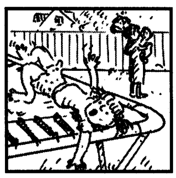
Minister Bob Cameron riding bikes with children around Albert Park Lake


- INDEX -


General Acknowledgements

Participating Hospitals

From October 1995
Austin & 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
The Northern Hospital
Royal Children's Hospital
St Vincents Public Hospital
Wangaratta Base Hospital
Warrnambool & District Base Hospital
Western Hospital - Footscray
Western Hospital - Sunshine
Williamstown Hospital
Wimmera Base Hospital

From November 1995
Dandenong Hospital

From December 1995
Royal Victorian Eye & Ear Hospital
Frankston Hospital

From January 1996
Latrobe Regional Hospital

From July 1996
Alfred Hospital
Monash Medical Centre

From September 1996
Angliss Hospital

From January 1997
Royal Melbourne Hospital

From January 1999
Werribee Mercy Hospital

From December 2000
Rosebud Hospital

Coronial Services

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

National Injury Surveillance Unit

The advice & technical back-up provided by NISU is of fundamental importance to VISAR.

How to Access VISAR Data:

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

Contact VISAR at:

MUARC - Accident Research Centre
PO Box 70A
Monash University
Victoria, 3800

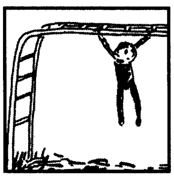
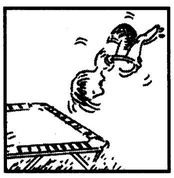
Phone:

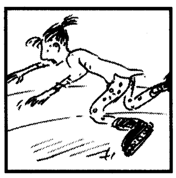
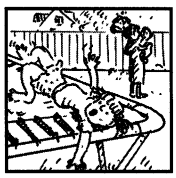
Enquiries	(03) 9905 1805
Co-ordinator	(03) 9905 1805
Director	(03) 9905 1815
Fax	(03) 9905 1809

Email:
visar.enquire@general.monash.edu.au

All 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/visar


Project Funded by
Victorian Health Promotion Foundation

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

Hazard was produced by the Victorian Injury Surveillance and Applied Research System (VISAR) with the layout assistance of Glenda Cairns, Monash University Accident Research Centre. Illustrations by Jocelyn Bell.*

ISSN-1320-0593

Printed by Work & Turner Pty Ltd, Tullamarine