Hazard
(Edition No. 14)
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Victorian Injury
Surveillance System

Monash University
Accident Research Centre

This edition of Hazard examines injuries in the home providing an over-view for all age groups. It also focuses on issues which have received little attention in the past yet appear to have good potential for prevention. Data from this article are from the Victorian Injury Surveillance System, supplemented by Victorian statewide coronial data. Current systems for collection of hospital admission data do not adequately identify the home as the location of injury.

Home Injuries

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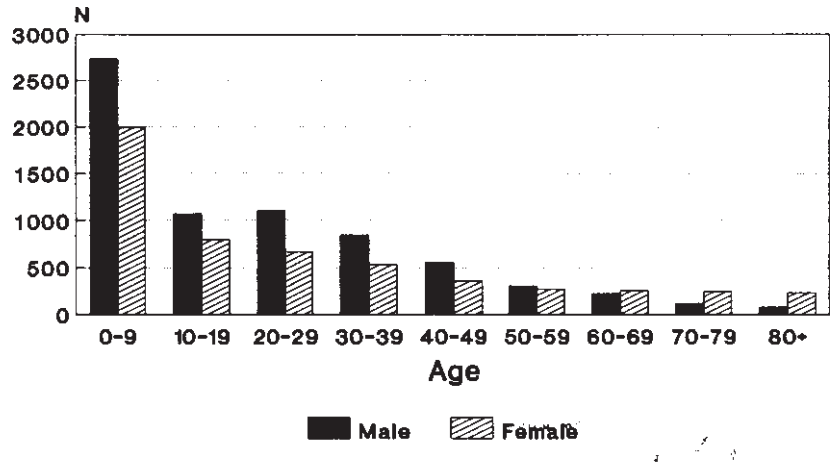
Introduction

'Home, sweet, home' but not always! The home is the most common location for injury morbidity and is second to the road as a location for injury mortality. In the all age data collections at the Latrobe Regional and Western Hospitals home injuries accounted for one third of all injuries. They were most frequent to those aged under 10 years followed by the 20-29 year age group. The age distribution is shown in Fig. 1.

Data collection at the Victorian State Coroner's office is the major source of detailed information on injury death at home. Of those who died an unnatural death between 1989 and 1990, two major locations were apparent, deaths from transport injuries (46%) and deaths from injuries sustained in the home (40%). See Fig. 2.

Age & Sex Distribution - Home Injuries **Fig. 1**



VISS: WH 1991-92, LRH 1992
All Ages
N = 12,408

Children

There were 28,089 cases of home injury to children aged under 15 years who presented to the Emergency Departments of the Royal Children's Hospital, Preston and Northcote Community Hospital and the Western Hospital over the period 1989-92. They represented almost half of all injuries in this age group. Boys were 58% of injury cases, this being consistent with most types of injury. Eighteen per cent of all children's presentations were admitted to hospital. The incidence of admission was relatively high for under 3 year olds (22%) and for poisoning (36%), dog bites (30%) and near drownings (30%).

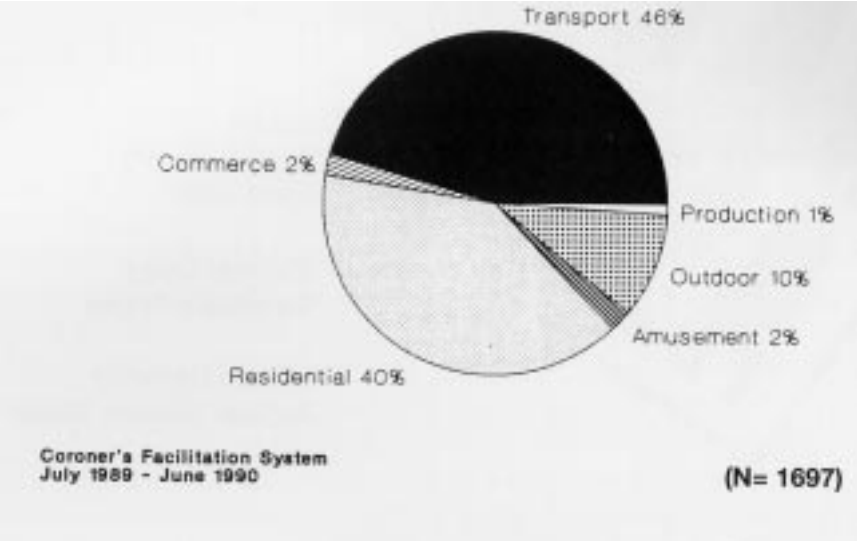
From a peak at one year of age injuries steadily declined. Home as a location of injury declined from 78% of injuries for one year olds to 41% for 5-9 years and 25% for 10-14 years. In fact home injuries were 7.5 times more likely to occur to a child aged one than a child aged 14. This partly reflects the child's increasing independence and absence from home. See Fig. l.

As can be seen below in Figs. 4, 5 and 6 injuries were most frequent at the week-end, in the evenings between 4 and 9 pm and in summer for outdoor injuries. Around the evening meal time the family are home, the children are tired and parents busy.

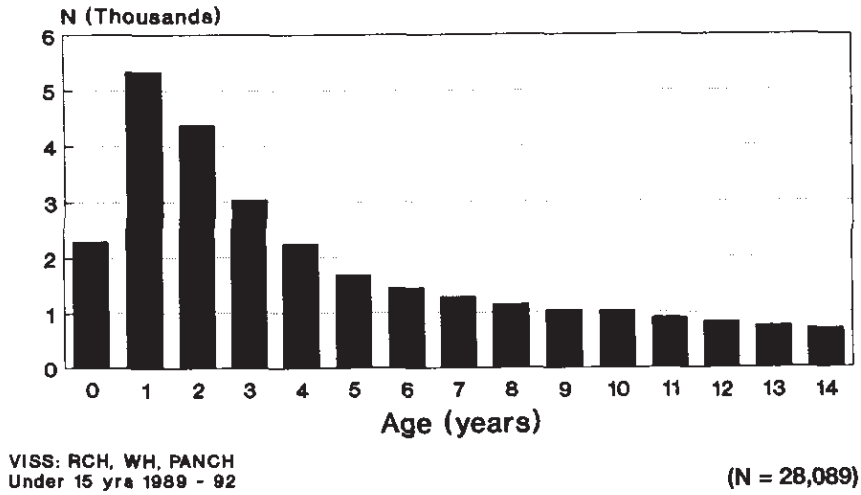
Location

The majority of injury cases occurred in the victim's own home (83%). Within the home the living/sleeping area followed by garden/garage was the most common location of injury. See Fig7. Treating the former as 5 rooms (ABS (986 Census, median of 3 bedrooms in a detached house), the latter as equivalent to 3 rooms (front and rear garden and garage) and the bath, laundry and toilet as two rooms all areas of the house appear to have equal proportions (approximately 10% of cases) with the exception of the bath, toilet and laundry with only 2%.

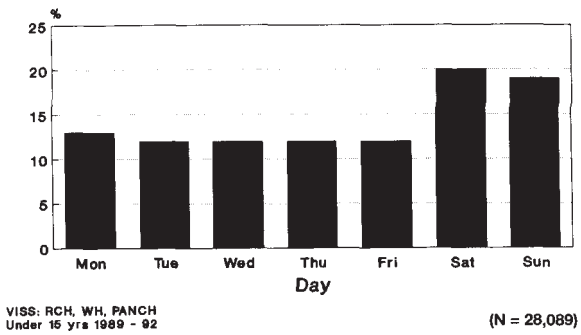
Type of Location Unnatural Deaths 1989-1990 **Fig. 2**

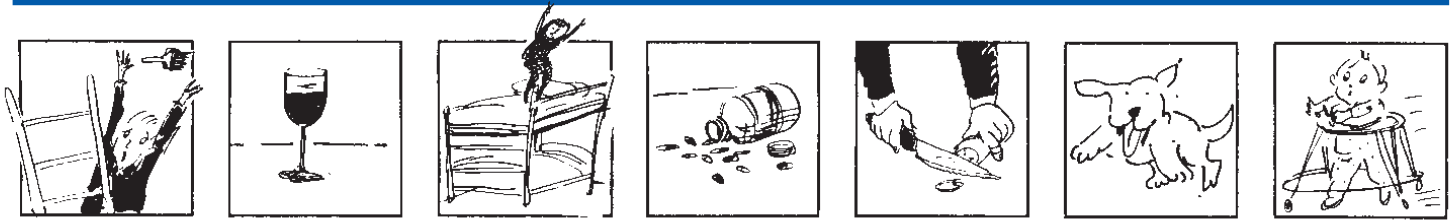


Age Distribution Home Injuries **Fig. 3**



Weekly Distribution Home Injuries **Fig. 4**





Falls

Almost half (46%) of home injuries were a result of falls. These were often associated with other events which led to the injury occurring, such as over exertion (n=1017), losing control (n=486) and an object dropping onto them (n=407).

As for home injuries generally falls were most frequent to those aged one year and their frequency declined with age.

Most falls were from a height of one metre or less (31% of falls), followed by falls on the same level (28%).

Children were most often playing (80%), sleeping/resting (5%) or cycling (317( ) when the fall occurred. Factors most often associated with fails were beds, chairs, stairs/steps, bikes, playground equipment and fences.

The most frequently presented injuries were cuts and lacerations (31% of injuries), especially to the face and scalp; fractures (20%), especially to the forearm and bruising (16%), especially to the face and scalp. Falls resulted in injuries of average severity (15% admitted/ transferred) and 3 children died in the Emergency Department or were dead on arrival.

Mechanism of Injury

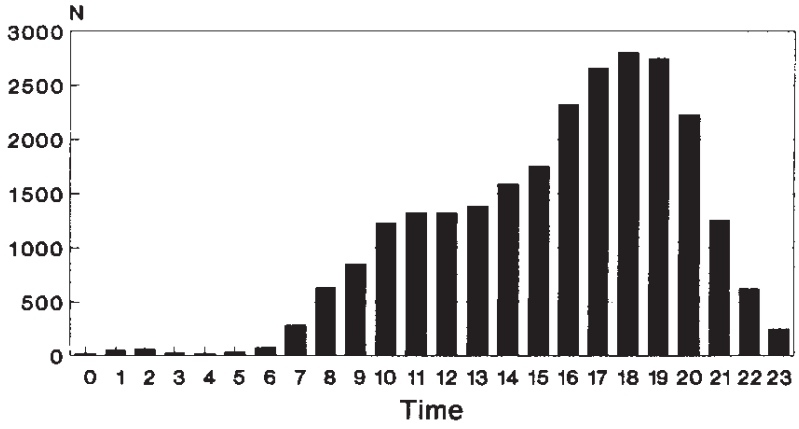
The most common direct cause of injury was the victim hitting against an object (47%) and this reflects falls being involved in half the injury cases. Poisoning and burns were over represented for admissions, victims hitting against an object ie falls, were under-represented. See Fig. 8.

The frequency of the descriptors foreign bodies, burns and caught in/between objects declined with age while grazed/ lacerated/punctured and object hit victim increased with age.

Types of Injury

The most frequently occurring types of injury were cuts and lacerations (25%), fractures, bruising and systemic injuries (each 12%), burns (9%) and sprains strains (7%). By comparing age groups it can be seen that cuts and lacerations

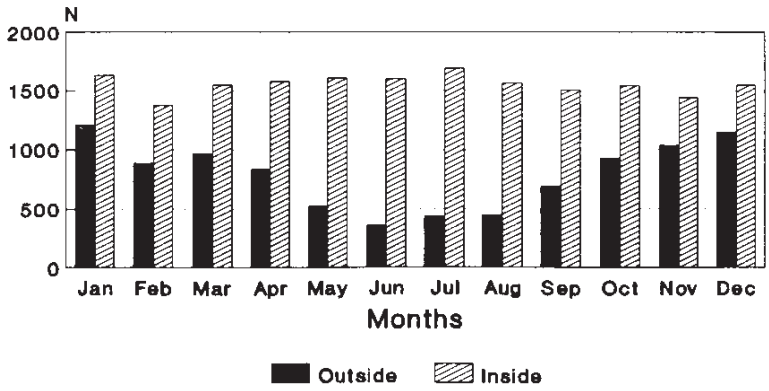
Time of Day Home Injuries — Fig. 5



VISS: RCH, WH, PANCH
Under 15 yrs 1989 - 92

(N = 28,089)

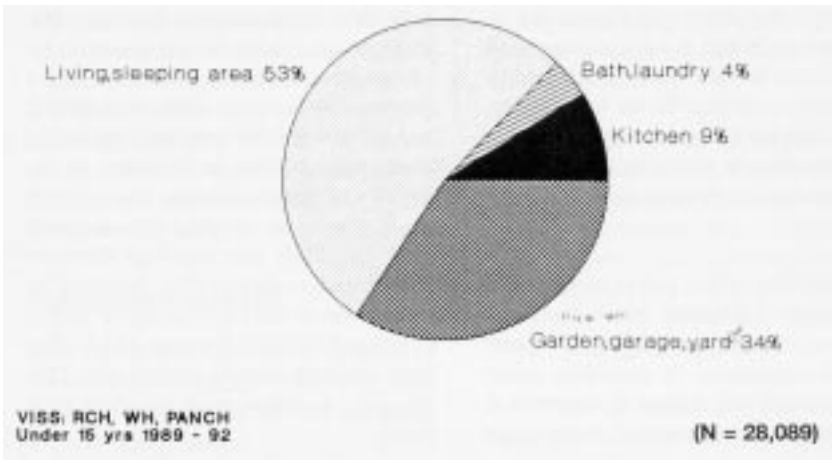
Indoors/Outdoors Home Injuries — Fig. 6



VISS: RCH, WH, PANCH
Under 15 yrs 1989 - 92

(N = 28,089)

Location of Injury Home Injuries — Fig. 7



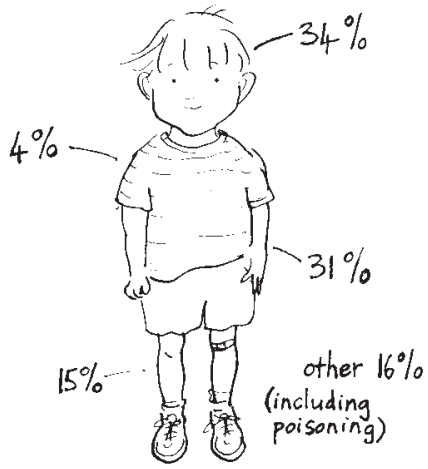
VISS: RCH, WH, PANCH
Under 15 yrs 1989 - 92

(N = 28,089)

are the most common injury type in all age groups, in addition to bums and poisoning in the under 5 age group, fractures in the 5-9 year age group and sprains/strains and inflammation in the 10-14 age group.

Proportions of injuries by body part are shown in Figure 9. By age group head and face injuries were particularly high in the under 5 age group and decreased with age in contrast to extremity injuries which increased with age.

Children - Injuries by Body Parts **Fig. 9**



Note - Up to 3 injuries recorded per case

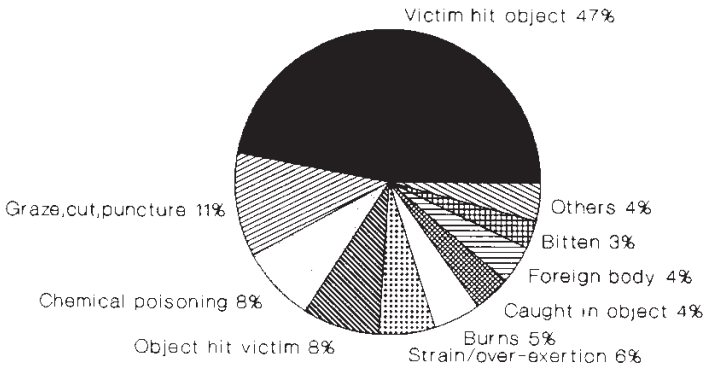
VISS:RCH, WH, PANCH
Under 15 yrs 1989-92

Factors associated with injury causation

It should be noted that persons accounted for almost one third of causes of injury in each of the 3 major age groups. The non-person factors which occurred most frequently are shown in Appendix 1. Appendices 1 and 2 are a summary of **breakdown factors**, those which lead to the injury occurring. In the text the frequencies in the factor headings are usually higher than in this table because they represent the **injury cases** associated with that factor.

The following factors will be examined in some detail: furniture, doors, stairs and steps, toys, dogs nursery and playground equipment. It should be noted that although they feature in Appendix 1 poisoning, sport, burns and trampolines are not further described because they feature in Hazards 5, 8, 9, 12 and 13 respectively.

Mechanism of Injury - Home Injuries **Fig. 8**



VISS: RCH, WH, PANCH
Under 15 yrs 1989 - 92

(N = 28,089)

Furniture (n=6124)

Beds(n=1533)

Injuries associated with beds represented 5% of injuries on the database. Of these almost one fifth were from bunk beds. The age group with the highest proportion for conventional beds was under 5 years (74% of injury cases) and 2 to 7 years inclusive for bunk beds (70% of injury cases).

Bunk Beds (n=321)

Bunk beds caused more severe injuries than conventional beds (18% v 11% of injury cases admitted). At least seventy percent of injury cases were caused by falls from a level over one metre. It is interesting to note that over two thirds of the injuries **occurred while playing** and only 28% while sleeping/resting. The younger age groups do not appear to be sleeping in bunks, they are more often playing (87% of the under 5 year olds and 60% of the 5-9 year olds injured in bunks were playing at the time). In the 10-14 age group as many were injured while playing as sleeping. Injuries were most frequently arm and wrist fractures (22%); concussion (14%); bruising or lacerations to the face, scalp or mouth (15%) and clavicle fractures (2%). The bunk structure directly injured only 12% of cases. Ladders were involved in 6 cases.

In response to lobbying by the SA Health Commission and other bodies a standard has now been drafted by Standards Australia which is the most advanced bunk-bed guideline in the world. To address the remaining problem of existing dangerous bunk beds a brochure which outlines steps that owners can take to modify poorly designed bunk beds has been produced by the Commission in conjunction with the SA Department of Public and Consumer Affairs (Injury Surveillance Monthly Bulletin Nov/Dec 1992).

Conventional Beds (n=1212)

Over half the injury cases were caused by falls from a level under one metre. Forty percent of victims were aged one or two years. Three quarters of the victims were playing, the remainder were sleeping/resting. Over one fifth of injuries were cuts and lacerations to the face, scalp or mouth; 11% fractures to the arm and wrist; 3% fractures to the clavicle and 7% concussion. The bed structure directly caused 30% of the injury cases.

Of the 90 children who were sleeping/ resting while injured 60% were aged under 3 years and one third under 3 years and one third under one year. It appears that children are being placed on beds when a cot would be more appropriate. Only 8% occurred in other home ie children being placed on beds was not largely a temporary measure. Several victims fell from a bed despite having cushions placed around them on the bed.

If a cot is unavailable young children should be placed on a mattress on the floor or have cushions etc placed as a "landing pad" on the floor. The area around the bed should also be as clear as possible since children frequently injured themselves by falling from the bed onto bedside tables, toys etc.

Twenty percent of the cases were to 3 and 4 year olds.

At this age children are moving into beds and it would seem appropriate to install guardrails wedged under the child's matress, (as sold by Babyco) or lower the cot sides and delay the child's entry into beds. A mattress has been designed which has slightly raised edges made of high density foam in order to prevent children rolling off the bed. (S.A. Health Commission Injury Surveillance Monthly Bulletin). A simple alternative to this would be to place a rolled up towel under a fitted sheet along the length of the bed.

Chairs, stools and sofas (n=1738)

Injuries from chairs, stools and sofas accounted for 6% of home injuries. Of these 75% of injuries involved children under 5 years of age. Over half of the injuries were caused from falls up to one metre, with the majority involving chairs. Of the factors that directly caused an injury, floors or flooring materials caused 29% of injuries, chairs 25%, tables 6% and drugs 2%. The latter were usually a case of children climbing onto chairs to access drugs.

Chairs (n=1086)

Sixty five percent of injuries were caused by falls up to one metre. The majority of cases (84%) involved the child either standing, sitting or climbing onto the chair. In almost all cases the child fell from a stable chair rather than the chair itself collapsing. Chairs were directly involved in the cause of 39% of injuries, floors 26%, tables 4% and drugs 3%.

Cuts and lacerations accounted for 36% of injuries (mainly to the face and scalp), fractures 17%, bruising 16% and concussion 5%.

Twenty eight percent of injuries occurred to one year olds and 20% to two year olds.

Sofas, couches, lounges and divans (n=488)

There were 488 injuries associated with sofas, couches, lounges and divans, 70% from falls up to one metre. Most injuries (91%) occurred while the child was playing and 5% while sleeping or resting. Floors and flooring materials caused 37% of injuries. 29% were caused when they hit against a sofa, couch, etc.

Tables (n=1242)

Tables were associated with 6% of all injury cases. Almost half the victim's were one and two year olds, with 28% and 20% of injury cases respectively. Eighty-three percent of table injuries occurred in the living or sleeping area, 11% in the kitchen and 6%, in the garden or garage. Falls up to one metre caused 59% of injuries. Most injuries occurred while children were playing (90%).

Tables directly caused 61% of injuries, including 7% from glass topped tables. Floors and flooring materials caused 9% and children being scalded by tea. coffee and hot beverages 4%.

Cuts and lacerations accounted for 50% of injuries, mainly to the face and scalp (27%). Bruising caused 15%, burns 9%, fractures 6% and concussion 4%. The majority of injuries occurred to the head and face area (62%).

Injuries may be prevented by having rounded corners on tables. whereas glass topped tables should have safety glass. Coffee tables should be moved from the centre of a room to the side to prevent young children who fall hitting the table and to make hazardous objects on them less accessible.

Stairs/Steps (n=942)

Over half of these injuries (58%) occurred in the garden or garage. They were concentrated in the one to two year age group (37% of injury cases).

At least three quarters of the injury cases were caused by falls. Of these 37% fell up to one metre, 20% slipped. 20% tripped, 14% fell on the same level and 6% fell over one metre. It is interesting to note that 28 were sleeping, or resting (eg *lying on a verandah, rolled over falling down a step*) and 21 cycling (eg. *riding small bike down stairs, lost control of bike, fell and hit concrete*).

The most common injuries were cuts and lacerations to the face, mouth and scalp (21%); bruising to the face, nose, and scalp (10%); arm and wrist fractures (8%); ankle sprains/strains (6%) and concussion (8%).

Stairs or steps lead to the injury occurring, in 80% of cases and directly caused over half the injuries. **Baby walkers were involved in 48 cases** while the numbers for bikes, prams and skateboards were 25, 11 and 10 respectively.

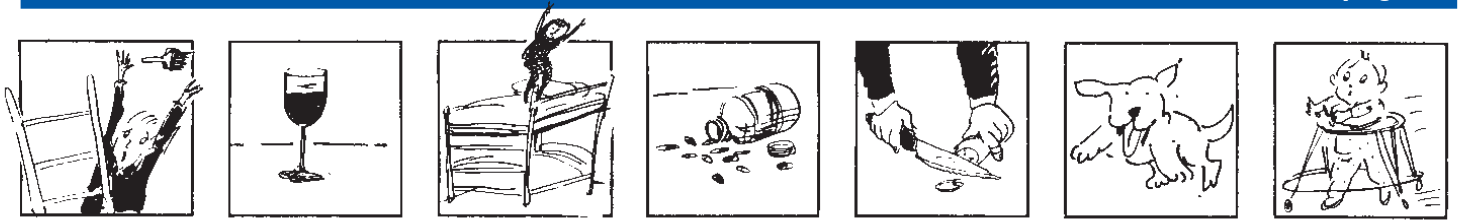
Countermeasures to reduce stair and step injuries are borne designs without change of level, guard rails on verandahs and rules implemented by parents for the location of play with wheeled toys.

Door Injuries (n=1,222)

Although door injuries occurred in all age groups and were 4% of all children's injury cases they occurred with particular frequency to one year olds (24% of door injury cases). Eighty-three percent of door injuries occurred in the child's own home and 74% occurred in the living or sleeping area. Sixty percent of injuries were caused by the victim being caught in or between and one quarter by the victim hitting against the door.

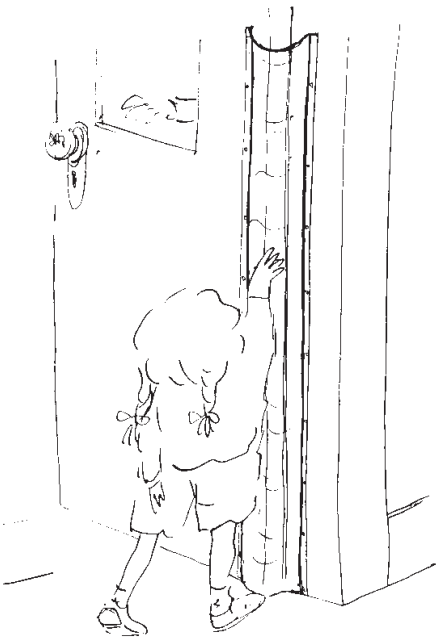
Most injuries were to the fingers (57%) and to the head (20%). Cuts and lacerations represented 45% of injuries, bruising 17% and fractures 6%. Thirteen per cent of injuries were admitted with traumatic amputations or crush injuries. Admissions were particularly high to the under 5 year age group (30%).

A follow-up study by the Monash University Accident Research Centre into finger jam injuries found the hinge side of the door to have caused 60% of the injuries. The hinge side was more common for the under 5 year age group, the closing side for the older age groups. (Ozanne-Smith, 1993).



To prevent door injuries occurring a useful countermeasure is for the hinge side to be fitted with a vinyl plastic covering device at children's height. These are available from the Child Safety Centre at the RCH for $14. See Fig.10

Countermeasures for the closing side are door-stops to retain the door in an open position, door closures to prevent doors slamming shut or the gap between the door and frame to be filled with material that compresses. These are also available from the CSC.



Toys (n=782)

Seventy five percent of toy injuries occurred in children under 5 years with one year olds having the highest occurrence at 21%. Most injuries occurred in the living or sleeping,, areas (79%) or the garden or garage (15%).

Most injuries occurred when a child bit against an object (44%). Foreign bodies caused 24%, of injury cases; grazes, cuts & punctures 12% and being hit by an object or person 9%.

The major types of injury were cuts and lacerations (33%), including 12% face and scalp and 12% mouth injuries (lips, jaw, gum). Foreign bodies accounted for 22% of injuries (nose 9%. stomach 4%), bruising 10% and fractures 8%.

Toys directly caused 66% of injuries, floors and flooring materials 7%, furniture 6% and concrete and other surfaces 2%.

The following table lists the major toys involved.

Table 1

Toys	% (n = 782)
Toy cars, trucks & trains	10
Riding toys	8
Blocks, stacking toys & building sets	7
Marbles	4
Dolls & doll accessories	4
Toy boxes & chests	3
Balls	3
Balloons	2
Crayons	2

VISS: 1989-92 RCH, WH, PANCH, <15 yrs

It is important when purchasing toys to buy those which are age appropriate.

Dog Related Injuries (n = 746)

Slightly more than half the injuries occurred to children less than 5 years of age (52%), 30% to children aged 5-9 years, and 18% to children aged between 10 and 14 years. Twenty-seven percent of the injuries were severe enough to warrant hospital admission. Other than for children under one year of age where 71% of the injury cases referred to boys, few sex differences were apparent.

Eighty-two percent of the injuries occurred outdoors in the garage or garden (40% in the patients own home and 41% in another private home). 91% of the injuries occurred within the context of playing and 81% of the injuries referred specifically to dog bites.

Dog Bites (n = 605)

Children less than 5 years of age comprised 51 % of the dog bite cases, of which 39% required hospital admission. Overall, 30% of the patients were admitted. Most injuries occurred in the home garage or garden (83%), and 92% of the injuries occurred while playing.

Thirty-five percent of the injuries occurred to the face and scalp, and 23% to the eyes, nose, mouth and ears. Cuts and lacerations **made** up 22% of the dog bite injuries. Not surprisingly, 61% of the injuries occurred to the head region, and 20% to the upper extremities.

Dog Related Injuries (excluding bites) (n = 141)

Non-bite dog related injuries were less severe (18% admitted) and were also most prevalent among the under 5 year old age group (55% of dog related injuries).

Seventy-two percent of the injuries occurred in the patients own home, of which 76% occurred in the garage, garden or yard. 88% of the injuries occurred while playing, and 32% occurred from falls or tripping over.

Cuts and lacerations made up 27% of injuries. A further 20% of injuries referred to bruising and 18% to fractures. Forty eight percent of all injuries were to the head region, and 28% to the upper extremity of the body.

Since a large proportion of injuries are sustained by the under 5 year old age group, **it appears that dogs and young children do not mix well.** A recent ABS Home Safety Survey found that 35% of households with young children have dogs and this percentage represents a higher proportion than families without young children. (ABS Household Survey 1993)

It is suggested that families while their children are young delay the acquisition of a dog and when they finally do so avoid acquiring breeds such as bull terriers, ger**man** shepherds and dobermans which have been found to have the highest attack rates. (Injury Surveillance Monthly Bulletin Jan 1991)

Nursery Furniture (n=620)

Injuries from nursery furniture were almost entirely confined to the under 3 year age group and one half were aged under one year. Ninety percent were located in the victim's own borne. Falls tea tuned very prominently in events leading to injury (62%, of injury causes). It is interesting that one quarter occurred to children while they were sleeping or resting.

The articles of nursery furniture which caused the injury are in order of frequency.

As can be seen from Table 2 changing tables and bouncinettes, although not so frequent, result in more serious injuries than the other nursery items.

High Chairs (n=154)

Eighty percent of injury cases occurred to children aged under 2 years. One half of the injuries occurred in the kitchen and one half in the living/sleeping area. Two thirds were a result of falls - 40% fell from a level up to one metre and 21% from a level over one metre, 6% were a result of a collapse or malfunction. Two thirds were playing and one quarter eating/drinking when the injury occurred. The admission rate was 19%.

Bruising, especially to the face and scalp accounted for 29% of injuries, cuts and lacerations, especially to the face, scalp and mouth (22%), concussion (1 8%) and fractures (1 1 %.)

Currently, high chairs are not regulated by a mandatory Australian standard. VISS recommends that a standard should he devised that requires rounded edges with no projections, secure locking mechanisms to prevent collapse of either the chair itself or the tray, stability and effective child restraints.

A MUARC study which followed up cases of falls from high chairs recommends the use of shoulder harnesses to restrain children in high chairs. (Watson and Ozanne Smith, 1993). See Fig. 11.

Cots (n=135)

Ninety percent of cot injuries occurred to children aged under 3 years with a peak at one year. The majority of the injuries were caused by falls 34% were associated with falls from a level up to one metre and 25% from a level over one metre. Slightly less than one half were sleeping/ resting and slightly over one half playing. The rate of admission was 14%.

The most common injuries were fractures (21%), especially to the radius/ulna, clavicle and humerus, cuts and lacerations (19%), especially to the face and scalp; bruising (16%), especially to the face and scalp and concussion (11%).

Four percent of the cot injury cases were associated with portable cots.

Figure 11

Currently cots are covered by a voluntary standard (AS 2172 - 1991). VISS strongly recommends that manufacturers and importers comply with the safety requirements as prescribed in this standard, and that the standard be **made** mandatory.

Baby Walkers (n= 1 19)

Ninety percent of the injuries occurred to children in their first year of life and 13% of injured children were admitted to hospital. The events leading to injury **were** falls up to one **metre** (35%), moving a person or thing into a dangerous position (23%) and overexerted or over reached **(**12%).

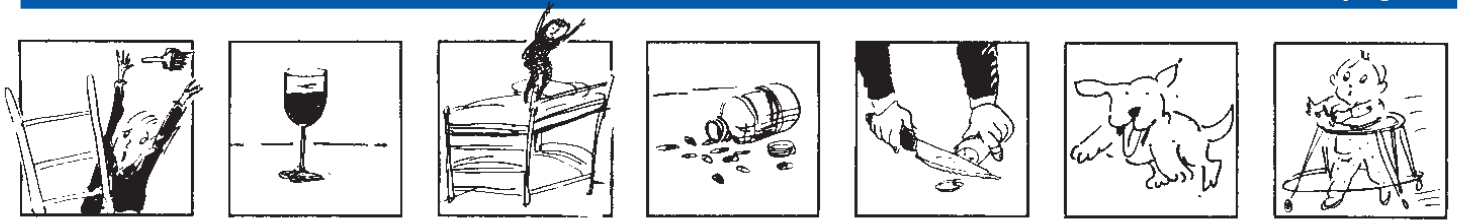
Two thirds of injuries were to the head, in particular concussion and bruising, cuts and lacerations and superficial abrasions to the face and scalp. Thirteen percent of injuries were burns and 4% fractures.

The most frequent age for injury was 9 months and 80% of injuries occurred to children aged between 7 and 11 months.

Stairs or steps were associated with almost one quarter of cases. A typical scenario was Playing in baby walker.

Table 2

Nursey Furniture	Presentations (n=620) %	Admissions (n=111) %
High chairs	25	26
Cots	22	17
Baby walkers	19	14
Carriages, prams, pushers	19	18
Changing Tables	9	12
Baby exercisers (bouncinettes)	5	12
Other	1	1
Total	**100**	**100**



Victim followed sister down back step. Fell on concrete. The baby walker itself was responsible for only 6 injury cases. Baby walkers make children more mobile and hazards therefore more accessible than they would otherwise be eg In a baby walker. Pulled box of soap powder down. Ingested soap flakes or Pulled on cord which was hanging off bench. Splashed by hot water.

VISS supports the warning notice published by the Health Department of Victoria and believes consideration should he given to banning babv walkers altogether. There is no evidence that baby walkers are of any advantage to child development (Greensher and Mofenson. 1985) and medical associations in Canada have called for a ban on baby walkers. (Watson and Ozanne-Smith, 1993

Prams, Strollers & Pushers (n=114)

These were concentrated in the under 3 year age group, particularly under 12 months. The admission rate was average for home injuries at 17%. Half of the injury cases occurred in the living/ sleeping area and 42% in the garden/ garage. Forty-two percent fell from a level up to one metre. Slightly over half were sleeping/resting, the remainder were playing. Eighty-four percent were caused by the victim hitting against an object, presumably the result of a fall while 8% were caught in or between.

Prams accounted for 73 cases and strollers and pushers 41.

Bruising, especially to the face, scalp, nose and mouth represented 36% of injuries, cuts and lacerations especially to the face, scalp and mouth 26% and concussion 10%.

A MUARC study which followed up cases of falls from prams and strollers recommends the use of full shoulder harnesses in prams and strollers. (Watson and Ozanne-Smith, 1993). See Fig. 11.

While design improvements are fundamental the education of parents in safety in the home is also an important tool in fighting injury from nursery furniture items. Parents should he made aware of safety issues when buying either new or secondhand products. Pamphlets outlining the safety features of each item should be made available at the point of sale, and. for those buying secondhand goods, through health centres and maternity hospitals. VISS supports warnings or recommendations for use appearing as a sticker on the actual product.

Australian standards are required for items such as high chairs and mandation of current voluntary standards for other items of nursery furniture would encourage and assist those manufacturers and retailers who are currently promoting safe products.

Playground Equipment (n=579)

The majority of injury cases were caused by swings or swing sets (51%) and slides (18%). Monkey bars/climbing equipment and treehouses/playhouses each accounted for 8%. See-saws were involved in 3% of injuries.

Falls from playground equipment accounted for 63% of injuries - the majority were to the ground or other natural surfaces.

The most frequently occurring injury was fractures (38%)" especially to the radius/ ulna (14%), followed by cuts and lacerations (21%), and bruising (16%) Almost half of the injuries were to the upper limbs of the body.

Measures that can be implemented to decrease injuries are to place an impact absorbing surface under the equipment eg tan bark to absorb the impact when a child falls, to ensure that the equipment is stable and has been installed properly using manufacturer's instructions, to maintain the equipment and not allow the structure to weaken or deteriorate and to construct barriers around equipment or supervise while children are playing to avoid children being hit by, for example, a moving swing.

Adult Injuries

There were 10,081 home injury cases which presented to the Western Hospital (1991-92), Latrobe Regional Hospital (July 1991 to June 1992). Preston & Northcote Community Hospital (Feb 1991 to Dee 1992) and the Royal Melbourne Hospital (March 1991 to Dec 1992) aged 15 years and over. They represented 30% of all adult injuries, 35% of all injury admissions. Of these cases 21% were admitted to hospital (cf 18% for children) and 55%, were male. The age pattern showing the peak for both males and females in the 20-24 age group is demonstrated below in Fig 12.

It should he kept in mind when interpreting the data that approximately 1,500 injury cases in January and February this year have not been included for PANCH and RMH because they were not available at the time of analysis.

Injuries occurred most frequently on the weekends, particularly in the afternoons. Almost all injuries occurred in the patient's own home (86% of injury cases) as distinct from other home. The living sleeping area (46% of injury cases) and the garden / garage (38%) were the most common locations for injury to occur. See Fig 13.

Falls

Falls were the most common event leading to injury (35% of injury cases). Slips and falls on the same level were most frequent and represented 35% and 27% of falls respectively. They were frequently associated with other hazards which will be dealt with in detail, in particular - furniture, ladders, floors and flooring materials, stairs and steps and outdoor surfaces. Water was often associated with the 3 latter factors.

The elderly (65 years and over) had a higher frequency of falls than did younger patients, often resulting in a fracture of the femur - over 60% of home injuries to the elderly were a result of falls, particularly falling on the same level.

Slips (n=1004)

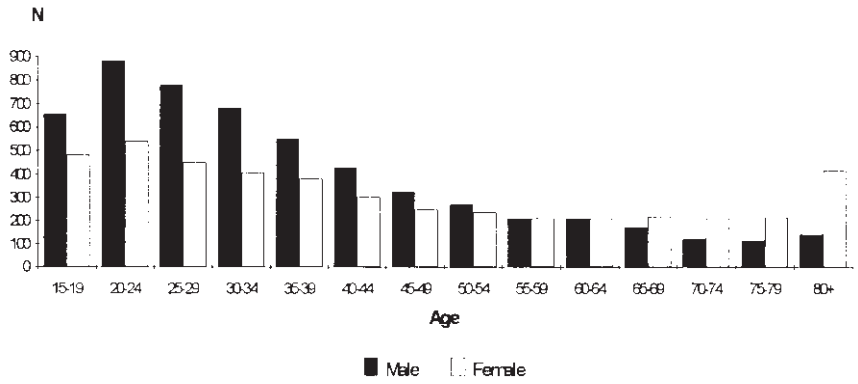
These occurred at all ages and close to half occurred in the garden or garage, 29% in the living/ sleeping area, 16% in the bathroom/toilet and 16% in the kitchen. Over half were involved in leisure or recreation and 10% in washing, showering or bathing.

Stairs and steps, floors and flooring materials, water, the ground and bathtubs and showers represented 175, 146, 106, 56 and 59 injury cases respectively.

Injuries were most frequently fractures (35%), especially to the femur, ankle and radius/ulna; cuts and lacerations (18%), especially to the face and scalp, fingers and hand and sprains/strains (18%), especially to the ankle and knee.

Countermeasures are to mop up spilt water immediately, to maintain decking and paths so that mould does not grow and perhaps paint them with a sand textured paint, to adhere rough adhesive strips to steps and to fix scatter rugs to floors. An exciting new development is an acid etching process which makes tiles, baths, marble, concrete and other smooth surfaces inure slip resistant. An evaluation of this new development and other measures should he undertaken.

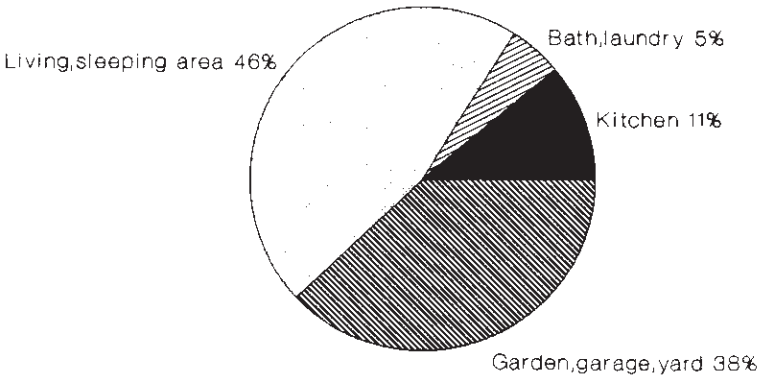
Age and Sex Distribution Adult Home Injuries — Figure 12



VISS: WH, PANCH, LRH, RMH
Over 15 yrs 1991 - 92

(N = 10,081)

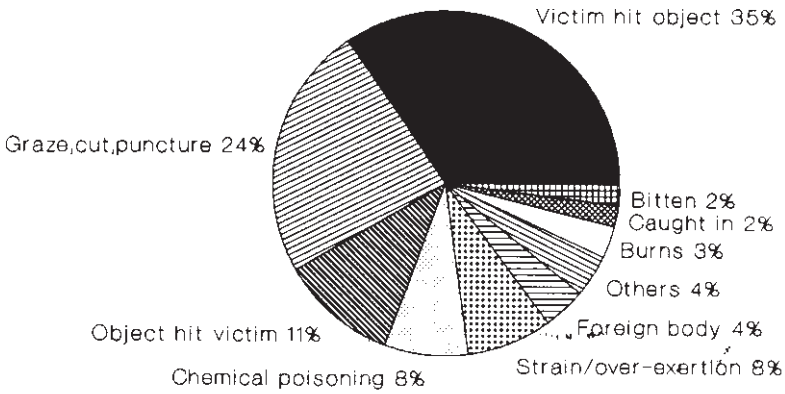
Location of Injury - Home Injuries — Figure 13



VISS: WH, PANCH, LRH, RMH
Over 15 yrs 1991 - 92

(N = 10,081)

Mechanism of Injury - Home Injuries — Figure 14



VISS: WH, PANCH, LRH, RMH
Over 15yrs 1991 - 92

(N = 10,081)

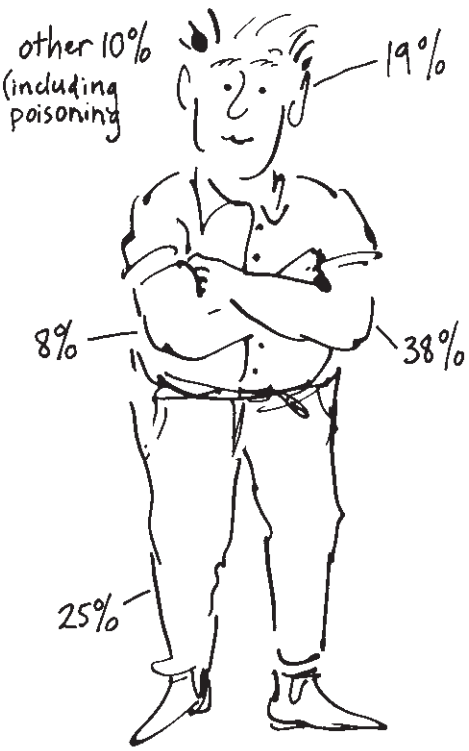
Mechanism of Injury

As for children the most direct cause of injury was the victim hitting against an object, reflecting the involvement of falls for adults in 35% of cases. Grazes, cuts and punctures represented a greater proportion of adult than child mechanisms of injury (24% v 11 %) at the expense of vic**tim** hit object re falls (47% children v 35% adult).

Poisoning at 26% of injury cases represented a much greater proportion of admissions than that shown for presentations in Figure 14, grazes etc were less at 17%.

Activity being undertaken

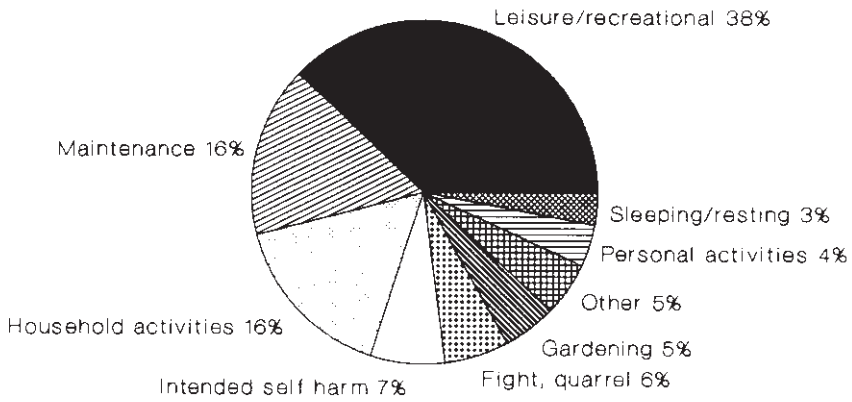
The context or activity being undertaken at the time were most often leisure or recreation excl. sport (38%), maintenance, excl. gardening (16%), intended self-harm (7%), fight or quarrel (6%), gardening (5%) and cooking and food preparation (5%). See Figure. 15



VISS: WH, PANCH, LRH, RMH
Over 15yrs 1991 - 92

Note - Up to 3 injuries recorded per case

Context - Activity being undertaken **Figure 15**
Home Injuries



VISS: WH, PANCH, LRH, RMH
Over 15 yrs 1991 - 92

(N = 10,081)

Injuries

The most frequent injuries were cuts and lacerations (26%), especially to the hand, face and scalp; fractures (17%), especially to the hand, wrist, femur: sprains/strains (9%), especially to the ankle and knee; bruising (9%,); inflammation, swelling, oedema, pain (8%); poisoning (7%) and foreign bodies in the eyes (3%).

The body parts most frequently injured are illustrated in Figure 16.

Causes of Injury (Factors)

The most common causes or injury were drugs and medications, knives, furniture, food and drink, stairs and steps, ladders, doors, grinders and dogs. (See Appendix 2).

Drugs and Medications (n=766)

Women outnumbered men in every age group and represented 58% of the total. The peak age group for women was 15-19 years and for men 20-24 years - from these groups the presentations declined with age.

The admission rate was high at 65% and there were 3 deaths in the emergency department.

Three quarters were coded as intended self-harm, 13% as other leisure or recreation and 8% as a fight or quarrel.

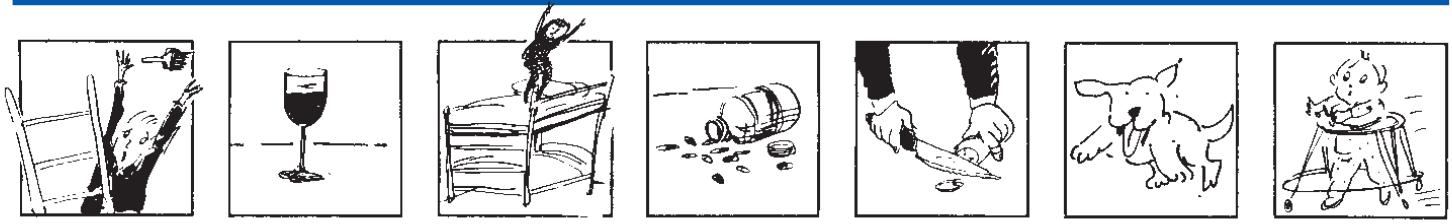
The most frequent causes of injury are outlined below. It should be noted that the sum is less than the parts because there were 154 cases of drugs from two groups being used - most often alcohol and sedatives etc. Many of the drug and medication victims would also have used more than one drug within groups.

Sedatives and Tranquilizers (n = 446)
The severity of these injuries was particularly high as 68% of patients required hospital admission or transferral. Three patients died in the emergency department as a result of their injuries. Females comprised 60% of the injury cases, and out-numbered males in every age group.

Seventy-seven percent were directly related to suicide attempts; 80% to intended self-harm; 9% to a fight or quarrel and 93% were categorised as self-inflicted.

The most frequently involved medications were benzodiazepines and antidepressants.

Analgesics (n = 130)
Females comprised 75% of the injury cases and outnumbered males in every



age group. Sixty-two percent of the patients were admitted to hospital for further treatment.

A breakdown by age shows that 45% of the injuries occurred in the 15-24 year old age group, and that 80% of these refer to women. Forty-two percent of the males belonged to the 20-29 year old age group.

Most injuries occurred in the patients own living or sleeping area (92%), and 73% were directly related to suicide attempts. Ninety-four percent of the overdoses were self inflicted, and 9% occurred within the context of a fight or quarrel.

Paracetamol was highlighted as being involved in 83% of the cases and 64% of these were admitted. Given that paracetamol is readily available, easily accessed, and is a general pain-killing drug suitable for a number of purposes, more research is required into the complex mechanisms which cause paracetamol ingestions in order to better formulate solutions.

Alcohol (n = 220)

Contrary to the two previous groups, slightly more males (57%) presented to hospital with alcohol related ingestions than females (43%). However, more females, were admitted to hospital for treatment in comparison to males (61% and 52% respectively).

The overall rate of admission was 55%. No obvious age trends were apparent, excepting that males in the 20-29 year age group were slightly over represented (38% of alcohol related cases).

Although alcohol poisoning accounted for 62% of the injuries, cuts and lacerations accounted for a further 21 %. Thirteen percent of the injuries were to the upper extremities of the body, 11 % to the head region, and 8% to the lower extremities, e.g., fell down the stairs and broke a leg.

Seventy-six percent of the injuries occurred in the patient's own home living or sleeping area, and 15% occurred in someone else's home.

Fifteen percent of the injury cases resulted from a fall, and 6% of the cases occurred within the context of a fight or quarrel. Intended self harm described 60% of the injury cases, and 49% were directly categorised as suicide attempts.

Given that these poisonings tend to be self-inflicted and therefore do not fall within the realm of accidental or unintentional, any intervention measures must work from the premise that the wish to inflict harm is often embedded in deeper domestic, financial, personal or relationship difficulties.

Knives (n=599)

These injuries occurred to all adults but were most frequent to those in the 25 to 29 year age group. Injuries were less severe than for injuries overall (13% admitted).

Ninety percent occurred in the patient's own home. Over half the knife injuries occurred in a kitchen and one third **in** a living/sleeping area.

Half the knife injuries occurred while preparing food or cooking, 14% during leisure or recreation. 12% during maintenance, 7% were a result of intended self harm and 7% of a fight or quarrel.

Almost all wounds were cuts and lacerations (88%) or punctures (4%). The body parts most frequently injured were the upper extremities - fingers (5 1 % of injuries), hands (18%), forearm (6%) and wrist (5%).

Knives with replaceable blades were involved in at least 5% of knife injuries, electric knives in only 3 cases.

Knife Injuries During Food Preparation and Cooking

Of the 284 injury cases which occurred during food preparation or cooking **90% had loss of control as the event leading to injury and 57% specifically mentioned the knife having slipped.** Fruit or vegetables, particularly pumpkin, were associated with 17% of the injury cases and meat or poultry with 9%. Stay sharp knives were mentioned in 13% of cases.

Injuries were less severe than other home injuries (only 8% were admitted) and almost all were cuts and lacerations to the fingers and hand.

The peak time for food preparation and cooking injuries was the evening (nearly half occurred between 4 and 9 pm). The injury incidence was higher during the weekends where injuries occurred more evenly throughout the day than during the week. Overall cooking and food preparation injuries from knives were equal between the sexes. It is interesting to note however, that for the 20 to 40 year age group, male knife injuries were more common than female injuries. A sign of the liberated man, perhaps! In this age group injuries from cutting fruit and vegetables were approximately equal between the sexes, the higher male incidence was from cutting meat.

Advice from the William Angliss College to reduce injuries from knives was as follows

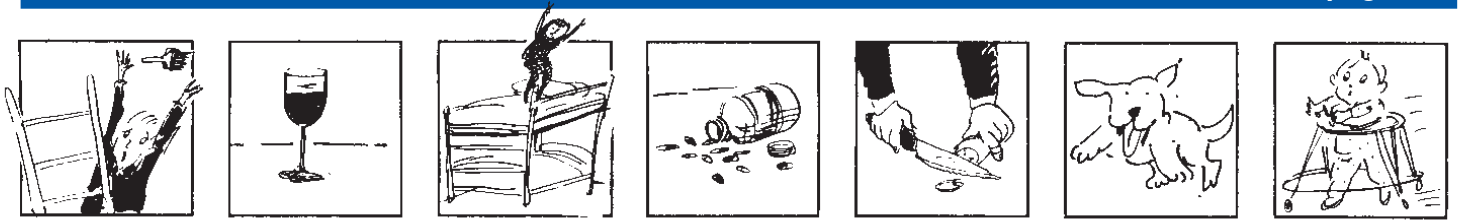
1. Use the knife appropriate to the purpose.
2. Hold the handle so that it is comfortable.
3. Purchase knives **which have large, rough handles** - as are used industrially.
4. Sharpen knives correctly. Blunt knives mean that a greater force must be applied and there is more opportunity for the knife **to** slip.
5. Be aware of a **fat build up on the handle when cutting meat** and water when cutting fruit and vegetables.

(Dark, 1993).

Furniture (n= 958)

Chairs, stools, and sofas (n=317)

There were more females than males who received injuries from chairs, stools and sofas. Injuries were higher for women in the 60 to 69 year age group and for men the 40 to 49 year age group. Over half of the injuries were **caused** by falls, mainly up to one metre, and most injuries were from chairs. Recreation and leisure activities were the most frequent activity being undertaken at the time of injury.



Floors and flooring materials directly caused 30% of injuries, chairs 20%, sofas 9% and stools 5%.

Chairs (n=217)

Falls accounted for 63% of injuries from chairs. Falls up to one metre were the most frequent event leading to injury (32%) while 13% were falls caused by tripping.

Eight percent of chair injuries were involved in cleaning activities, some of these involved the victim standing on a chair to clean walls and light fittings. There were 6% of injuries from maintenance which involved standing on chairs to change light bulbs, hang curtains and paintings, etc. An additional 6% fell off the chair while sleeping or resting.

Most injuries were caused by the victim hitting against an object or surface (81%), usually striking a chair or floors and flooring **materials.**

The most common type of injury was fractures (38%), especially to the wrist. Seventeen percent were inflammation injuries, 16% cuts and lacerations, 11% sprains/strains and 10% bruising. The majority of injuries occurred in the upper extremities of the body.

Stools (n=59)

The living and sleeping area was the location with the highest incidence of stool injuries (66% of injury cases), 17% of injury cases occurred in the kitchen. Falls accounted for 61 % of injury cases including falls up to 1 metre with 42%.

Seventeen percent of injury cases occurred while performing maintenance activities such as painting or plastering, changing light bulbs, hanging up curtains etc. Injuries from cleaning accounted for 12% eg. standing on a stool to clean a window.

Hitting against an object or surface, mainly floors or stools, was the most common cause of injury (83% of injury cases).

Injuries that were sustained from stools were fractures 43%, cuts and lacerations 16%, inflammation 15% and sprains 12%.

Chairs and tables should not be used for purposes other than those for which they are designed - sitting. Step stools and/or brushes with long poles should be used for cleaning and other duties which require reaching heights.

Beds (n=136)

Bed associated injuries occurred most frequently to elderly women, in fact one quarter occurred to women aged over 70 years. From 40 years of age women were more likely than men to have bed associated injuries. There were only 4 cases of injury to adults from bunk beds.

Injuries to Older People (n=52)

Injuries to those aged 65 years and over were most often the result of a fall from bed whilst sleeping or resting (64%). Femur fractures (29% of injuries) were a particularly common occurrence. Injuries to the aged were relatively severe, over 70% were admitted to hospital (cf 21% for all adult home injuries).

Injuries to Other Ages (n=84)

Injuries to those aged under 65 years were incurred in a variety of ways and only 36% occurred while sleeping/ resting. There was only 1 injury to the femur. Injuries were predominantly bruising, fractures and sprains/strains. Relatively few were admitted (18% of cases).

Countermeasures to falls from bed are night lights, soft floor coverings, the bed height to be at a level comfortable enough to climb out of and not too dangerous to fall from. The elderly should climb out of bed slowly to avoid sudden drops in blood pressure which can result in dizziness or fainting.

Stairs & Steps (n=277)

Injuries from stairs and steps occurred at all ages and were more common to women than men (60% women). The injuries tended to be less serious than overall injuries in that only 17% were admitted to hospital. They occurred most often in the victim's own home (80% of injury cases) and more than hall occurred in the garden or garage.

The event leading to injury was most often falls (80% of injury cases) and almost one half of these were slips, one quarter trips and one fifth falls from another level less than one metre.

The ankle featured most prominently for injuries (14% of all injuries), in particular sprains and strains. Ankle and femur fractures were common causes of admission. Water, dogs and alcohol were other factors most often associated with stair and step injury. In addition victims often fell while carrying goods, presumably in doing so restricting the vision of their feet and balance.

Countermeasures are home/yard design without change of level; slip resistant and luminous tape; non-slip surfaces; handrails, especially for the elderly; mopping up of water; regular maintenance and adequate lighting.

Ladders (n=254)

Men, particularly in the 60-69 year age group were disproportionately represented for ladder injuries (82% of ladder injuries were to men and 20% to men in the fore mentioned age group).

Nearly three quarters of the incidents occurred in the garden/garage, almost all the remainder in the living/sleeping area. Eighty percent occurred in the patient's own home. Close to one half fell over one metre and another 20% up to one metre.

In 16%, of cases the ladder slipped or collapsed, in 4% the ladder broke.

Two thirds were involved in maintenance at the time of the injury in particular working on the roof (n=4 1), including cleaning the guttering (n=21). Other frequently occurring activities were pruning (n=l 9) or picking fruit (n=6).

Injuries

Forty percent of the injuries Were fractures, particularly to the wrist, ribs, radius/ulna and lower leg. Ankle strains/ sprains and concussion were each 4% of injuries. Injuries associated with ladders tended to be more severe than most (32% admission rate cf 21% for all adult home

injuries). One half of men in the 60-69 year age group were admitted, a particularly high admission rate. There were 3 deaths from ladders in the year 117/89 to 30/6190 in Victorian homes. (Unnatural Deaths State Coroner's Office Victoria 1989/90

In order to reduce injuries from ladders:

1. Older men especially should consider carefully their ability to use a ladder safely, especially if they have a history -of dizzy spells or heart disease.
2. The instructions on the ladder in regard to load limit and maintenance should be carefully followed.
3. Lean the ladder against a solid structure. If it has to be leant against a tree the ladder should be secured at the top with rope or against guttering with a device such as ladder stabilizer, stand off bracket or leveller.
4. The highest point from which work conducted should be 3 rungs from the top of the ladder. Marking these unuseable rungs a different colour to the remainder of the ladder could assist in reminding users not to step on these rungs.
5. The ladder should he placed at an angle of 68 to 75 degrees to the ground and not next to an unlocked door.
6. The ladder should be frequently repositioned so that stretching is not required.
7. Ensure the base of the ladder won't slip. It should be placed on an even. non-.slippery surface and a wide plank placed under the feet when working on soft soil. The [reads of the ladder should be kept free of grease, mud or anything which may cause a slip. Treads wider than the base are used on industrial ladders and this principal could also be applied to the handyman's ladder.
8. Punch locks are regarded as stronger than pop riveted front frames.

(Points 5 to 7 ,front DIY Home Safety, Safety at Home Series, Queensland Health 1992)

Doors (n=239)

The age and sex patterns for door associated injury are fairly typical of adult home injuries overall although the severity is less (admission rate 11%).

Almost 70% of injury cases occurred in the living/sleeping area, 207e in the garden/garage. At the time of the injury two thirds of the victims were involved in general activity or recreation and 8% in a fight or quarrel. The victim bumped into the door in 41 % of cases, was grazed by the door in 24%, was caught in the door in 20% (cf 60% for children) and was hit by the door in 12%.

The injuries incurred were most often cuts and lacerations (50%), especially to the lower part of the arm, head, face and foot; fractures (16%), especially to the hand and bruising (12%), also especially to the hand.

Half of the cuts and laceration injuries were caused by glass doors (n=56). There were a multitude of events leading to the injury tripping, breaking into houses, fights or quarrels, attempting to walk through the door etc. Men in the 20-24 year age group represented one quarter of the injury cases which is consistent with a New Zealand study. (Johnston, S. et al New Zealand Medical Journal 1990).

Glass injuries represented a greater proportion of adult than children's door injuries. (20% cf 6%).

Countermeasures for glass door injuries are safety glass according to the Australian Standard (AS 1288 1989), mar 1 Kings at eye level so it is obvious the door is closed and ensuring the surface around the door is slip resistant. The countermeasures outlined to prevent door injuries to children also apply to adults.

Workshop grinders (n=188)

All injuries from workshop grinders were to males. The highest age category for injuries was the 20 to 29 year age group with 28% of all such injuries. Most injuries occurred in the garden or garage (80%).

The majority of injuries were caused by over-exertion (37%) and loss of control of the object (17%). Ninety percent of injuries occurred during maintenance activities.

Eye injuries accounted for 64% of injuries and 51% of total injuries were foreign bodies to the eye. Most of the foreign body injuries were caused by metal parts or pieces getting into the eye. Cuts and lacerations accounted for 11%, mainly cuts to the finger.

Forty percent of victims were wearing safety glasses and of these 80% received eye injuries (almost half of the eye injuries). Most of the injuries were caused by metal pieces getting in through the sides of the glasses. This seems to suggest that the glasses that are being worn are not suitable. (S.A Injury Surveillance Bulletin No.31 March 1991).

Countermeasures to reduce eye injuries are using the shields provided to cover the grinding wheel and wearing glasses which are covered at the sides. Gloves should be worn and the work piece held with pliers to prevent finger injuries. (DIY Home Safety Safety at Home Series Queensland Health 1992

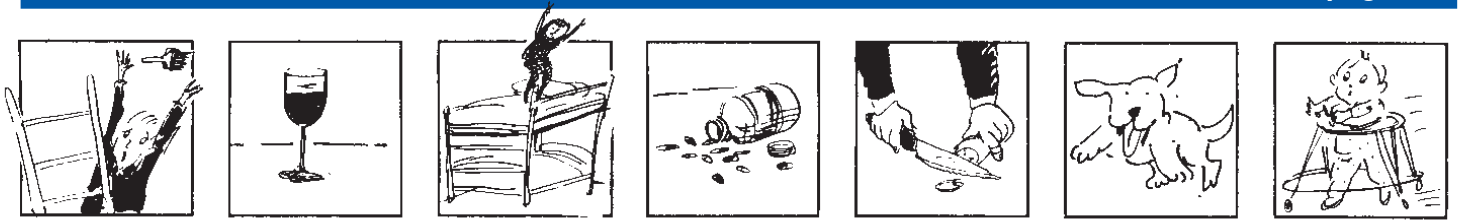
Dog Related Injuries (n=177)

There were similar numbers of men and women injured in dog related cases although more men were bitten by dogs (62% of bites) while more women were injured in dog related events excluding bites (60%).

Over three quarters of cases in residential areas occurred in the patient's own home or surrounds (76%). Backyards accounted for 77% of total injuries.

Dog Bites (n=99)

Dog bites to adults tended not to he serious - only 4% were admitted and they were proportionally less frequent than for children. Bites were mostly received on the hand or forearm (61% of all injuries) while only 14% were to the leg or foot. This figure corresponds to the types of activities that led to bites. Twenty percent of injuries occurred when the patient tried to break up a dog fight, and was bitten in the process. In 15% of cases, the patient was playing with the



dog which either turned aggressive or accidentally bit the patient. In 6% of cases, the patient was feeding the dog when bitten.

Dog related Injuries (excluding Bites) (n=78)

Dog related injuries tended to be more serious than dog bites in that 15% were admitted to hospital. This could he linked to the prevalence of fractures among types of injuries. Fractures accounted for (22%) of all injuries and were divided equally between the upper and lower extremities. Twenty three per cent of injuries were cuts and lacerations, nearly half of these were to the upper extremities - finger, hand, fore and upper arm - while a further third were to the head and face.

Thirty two percent (32%) were incurred by tripping over a dog and failing onto another object. A further 27% occurred when the dog jumped or pushed the patient over. Interestingly, 10% of injuries occurred while the dog was being fed or its meal prepared, suggesting dogs are more active or aggressive at this time.

Conclusion

Children and adults spend a considerable amount of time at home and approximately 40% of injuries occur there. HENCE, the potential for injury reduction through creating a safer home environment is high.

Preventive measures have been identified for many home injury problems. However the recent ABS Home Safety Survey (ABS, 1993) indicates that considerable effort is still required for widespread implementation.

In addition, research needs to be undertaken into adult home injuries in particular and this may involve the means of promoting the wider use of worksafe practices in the home.

A variety of safety devices and applications have also been developed and there is need for their evaluation.

Acknowledgements

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References

Australian Bureau Statistics, Household Survey ABS, 1993

Dark, G. William Angliss College. Personal Communication, March 1993

Johnston,S. Langley,J. Chalmers,D. "Serious Unintentional Injuries Associated with Architectural Glass", New Zealand Medical Journal, March 1990, pp117-119

Ozanne-Smith,J., Heffernan,J. Child Injuries Associated with Nursery Furniture. Monash University Accident Research Centre (MUARC) March, 1990

Ozanne-Smith, J. Child Accident and Injury Prevention Research in other than Road Accidents: Part 2 MUARC

"Finger Jam Injuries to Children in Doors" MUARC 1993 (In preparation)

S.A. Health Commission Injury Surveillance Monthly Bulletins Jan 1991, March 1991, Nov/Dec 1992

Spinks, D, Driver,M. Do-lt-Yourself Home Safety. Safety at Home Series. Health Advancement Branch. Queensland Health. 1992.

State, Coroner's Office Victoria, Unnatural Deaths 1989/90, 1992

Watson,W., Ozanne Smith, J. "The Use of Child Safety Restraints with Nursery Furniture", Journal of Paediatrics and Child Health, Vol 29, Issue 3. 1993.

Products & Other Agents Associated with Child Injury

VISS:RCH,WH,PANCH 1989-92

APPENDIX 1

Breakdown Factors	0-4 yrs (N = 13,479)		5-9 yrs (N = 5,327)		10-14 yrs (N = 3,432)		Total (N = 22,238)
	N	%	N	%	N	%	N
Furniture	3060	23	769	14	267	8	4096
- chairs, stools, sofas	1050	8	221	4	99	3	1370
- beds	761	6	194	4	58	2	1013
- cabinets, racks, shelves	516	4	80	1	25	1	621
- tables	354	3	76	1	15	0.4	445
- bunk beds	135	1	141	3	35	1	311
Poisoning & Ingestion Hazards	2071	15	294	5	253	10	2618
- drugs & medications	1095	8	51	1	171	5	1317
- cleaning/maintenance compounds & chemicals	418	3	84	1	87	2	589
- cosmetic & personal item	376	3	118	2	83	2	577
- coins	182	1	41	1	12	1	235
Structures	1625	12	700	13	461	13	2786
- doors	657	5	197	4	104	3	958
- stairs and steps	449	3	138	3	123	4	710
- floor & flooring materials	96	1	59	1	41	1	196
Sport & Recreation	998	7	1236	23	867	25	3101
- bikes	266	2	267	5	165	5	698
- swings,play equipment, seesaws etc.	283	2	226	4	45	1	554
- trampolines	113	1	240	4	106	3	459
- skateboards	16	-	37	1	66	2	119
- basketball	10	-	34	1	66	2	110
Animals	642	5	358	7	233	7	1233
- dogs	372	3	211	4	135	4	718
- insects & spiders	224	2	96	2	55	2	375
Nursery Equipment	680	5	14	1	0	0	694
- baby walkers & exercisers	154	1	-	-	-	-	154
- cots	122	1	5	-	-	-	127
- high chairs	121	1	1	-	-	-	122
- prams, strollers & pushers	111	1	3	-	-	-	114
Food & Drink	566	4	147	3	102	3	815
- tea, coffee, other hot beverage	224	2	15	0.2	9	0.3	248
Toys	520	4	119	2	38	1	677
Kitchenware	541	4	188	3	166	5	895
- knives	94	1	92	2	103	3	289
- tableware & accessories	242	2	30	0.5	14	0.4	286
Packaging Materials & Containers	405	3	120	2	105	3	630
Bathtubs, showers & fittings	350	3	78	2	37	1	465
Garage & Yard Items	410	3	305	6	207	6	922
- fences	154	1	204	4	128	4	486
- pesticides	100	1	-	-	3	-	103
Environmental Factors	283	2	383	7	169	5	835
- stick, branch, tree	78	1	224	4	72	2	374
Kitchen Appliances	213	2	27	0.5	17	0.5	257

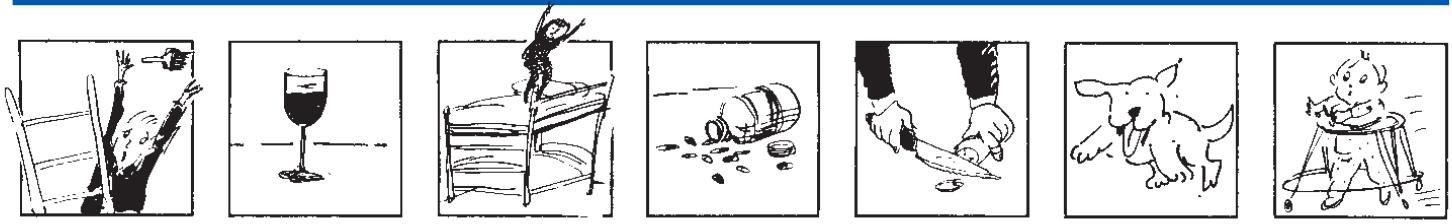
This table is based on factors which led to the injury occurring. The frequencies in the headings throughout the text are usually higher because they refer to factors which led to and / or were directly involved with the injury.

VISS : RMH 1992, WH (1991-92), PANCH (1992), LRH (1/6/91-30/6/92)

APPENDIX 2

BREAKDOWN FACTORS	>= 15 years (N = 8,046)	
	N	%
Structures	1342	16.7
- stairs & steps	479	6.0
- floor & flooring materials	175	2.2
- doors	155	2.0
- windows	92	1.1
- concrete & other manmade outdoor surfaces	92	1.1
Drugs, Medications & Alcohol	925	11.5
- sedatives, tranquilisers, psychotropic drugs etc	407	5.1
- alcohol	200	2.5
- analgesic	129	1.6
- drugs n-s, nec	104	1.2
Kitchenware	721	9.0
- knives	493	6.1
- glasses	75	0.9
Workshop Tools & Appliances	622	7.7
- power workshop grinders/buffers/polishers	175	2.2
Garage & Yard Items	606	7.5
- ladders	312	3.9
- unpowered gardening tools & equipment	85	1.1
- fences	63	0.8
Furniture	532	6.6
- chairs, stools, sofas	255	3.2
- beds	106	1.3
- cabinets, racks, shelves	60	0.7
- tables	40	0.5
Environmental Factors	396	4.9
- water (not hot)	111	1.4
- stick, branch, tree, & plant material	89	1.1
Food & Drink	351	4.4
- meat, poultry & fish	147	1.8
- fruit & vegetables	73	0.9
Animals	324	4.0
- dogs	153	1.9
- insects, bees, wasps & spiders	111	1.4
Sport & Recreation	248	3.1
- football	33	0.4
- dance, aerobics & gymnastics	25	0.3
- martial arts & boxing	21	0.3
- bikes	16	0.2
- basketball	14	0.2
Vehicles (especially car maintenance)	209	2.6
Industrial/Retail Plant or Equipment	205	2.5
Packaging Materials & Containers	158	2.0
Bathtubs, showers & fittings	137	1.7
Personal items	182	2.3
Nails, screws, carpet tacks or thumbtacks	86	1.1
Kitchen Appliances	80	1.0
Cleaning/maintenance compounds/chemicals	75	0.9
Rugs & Mats	61	0.8

This table is based on factors which led to the injury occurring. The frequencies in the headings throughout the text are usually higher because they refer to factors which led to and / or were directly involved with the injury.



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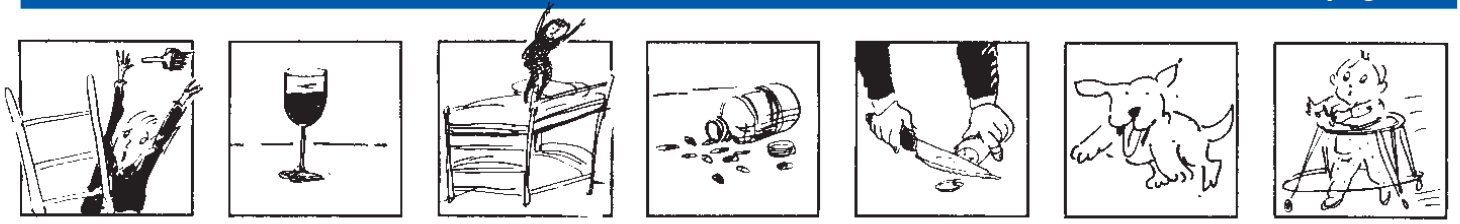
* Special edition



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How to Access VISS Data:

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

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Thse are available from VISS. A handling and postage fee of $10 applies.

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

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

General Acknowledgements

Participating Hospitals

Royal Children's Hospital

Western Hospital
(Footscray and Sunshine)

Preston and Northcote
Community Hospital

Latrobe Regional Hospital
(Traralgon and Moe)

Royal Melbourne Flospital

The contributions to the collection of VISS data by the directors and staff of the Emergency Departments of these hospitals, other participating clinicians, Medical Records Departments, and ward staff are all gratefully acknowledged. The surveillance system could not exist without their help and co-operation.

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.

National Better Health Program

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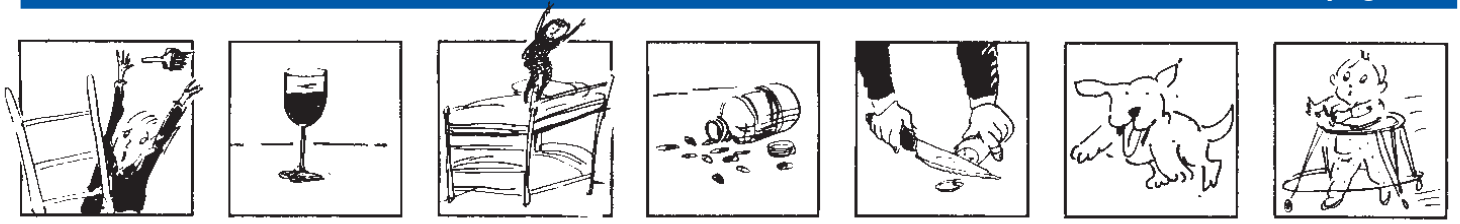

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