



Hazard
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Victorian Injury
Surveillance System
Monash University
Accident Research Centre



VicHealth

This edition of Hazard, produced in conjunction with the Australian Venom Research Unit, provides a profile of venomous bites and stings in Victoria using data from three sources: the Victorian Coroner's Facilitation System, Victorian Inpatient Minimum Dataset and the Victorian Emergency Minimum Dataset. First aid advice and recommendations for the prevention of venomous bites and stings are provided.

Venomous Bites and Stings

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Summary

It is estimated that tens of thousands of Australians are bitten or stung annually by venomous creatures. Fortunately, serious envenomation is relatively infrequent, probably due to the highly urbanised nature of our population. Annually in Victoria there are an average of 375 hospital admissions and more than 1,100 emergency department presentations as the result of venomous bites or stings.

The majority of Victorian envenomations are associated with bee and wasp sting and spider and snake bite. There

is evidence of an increasing trend in hospital admissions, between 1987 and 1996, related to venomous bites and stings, particularly spider bites and bee and wasp stings. The incidence of snake bite has remained constant over the same period.

Young children appear to be over-represented among hospital admissions. However it is unclear whether this represents an increased severity of illness in young children or a generally more conservative admission policy for this age group.

Venomous bites and stings are more frequent in the warmer months,

representing both an increase in the activity of venomous creatures and the prevalence of outdoor activity. Bites and stings are particularly common to the limbs.

General prevention recommendations include: continued public education of the dangers of venomous creatures; more stringent requirements for licensing of snake keepers; development of bite and sting management plans for companies with workers in outdoor and/or remote areas; and promotion of widespread first aid training for bites and stings.

Advice on treatment for bites and stings is available from the Poisons Information Centre on **13 11 26** from anywhere in Australia.

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Introduction

Despite Australian venomous creatures being amongst the most deadly in the world, serious envenomation in Australia is relatively infrequent, probably due to the highly urbanised nature of our population. In addition, advances in medical care and the development of specific antivenoms for most of Australia's highly venomous creatures have significantly reduced the morbidity and case fatality rate of envenomation. Nonetheless, fatalities continue to occur. Many envenomations are without specific therapy and it is estimated that tens of thousands of people are bitten and stung annually. Improved outcomes (reduced mortality and morbidity) depend upon adequate understanding of the current burden and patterns of envenomation injury as they relate to toxin pharmacology.

In the past, estimates of envenomation were largely based on survey data. With the advent of computerised databases in hospitals the recording of patient data for costing and accounting purposes has opened the way for scientific data collection. In this edition of *Hazard* these data are utilised to analyse inpatient and emergency department venomous bite and sting injury data. The main databases utilised for this purpose are the Victorian Coroner's Facilitation System, Victorian Inpatient Minimum Dataset (VIMD) and the Victorian Emergency Minimum Dataset (VEMD)³. Envenomation represents 0.8% of VEMD and 0.7%

of VIMD injury cases. Limitations and strengths of these datasets are outlined in the box on page 12.

Injury presentations to general practitioners, as well as those patients bitten or stung who do not present for treatment, are not represented.

Deaths

From July 1989 to June 1994, an average of one death per year in Victoria has been attributed to bites or stings by venomous creatures (Table 1). This is probably an underestimate due to cases where the cause of death is uncertain.

Of the five recorded fatalities, three were attributed to allergic reactions to bee stings whilst the other two related to snake bite (Table 2). Whether any of the apparent bee sting deaths were actually due to other insects such as the increasingly common European wasp (*Vespula germanica*) is not clearly determined (Levick, Winkel and Smith, 1997). In its native Europe, *Vespula*

germanica is responsible for more deaths than the honey bee (*Apis mellifera*) (Mosbech, 1983). Unfortunately, in contrast to snake bite, there is no diagnostic test available to distinguish between bee and wasp stings at post mortem. The database does not record whether these "bee" victims had a prior history of severe allergic reactions to bee stings. This information may be useful in assessing preventability as immunotherapy and self injectable adrenaline are available to reduce the risk for persons with serious bee and wasp allergies. Future Coroner's investigation protocols should collect this information.

Previous studies of snakebite fatalities emphasise the importance of early application of pressure-immobilisation first aid (see first aid section, p8). Despite such recommendations, Sutherland and Leonard (1995) reported that none of the 12 snake bite related deaths occurring nationally during the three year period 1992-1994 had received appropriate

Bite and Sting Morbidity and Mortality – Victoria Table 1

	Mean annual frequency	Male: female ratio
Deaths	1	4:1
Hospitalisations	375	2.1:1
Emergency Department Presentations (VEMD)	1104	1.3:1

Source: Coroners Facilitation System, July 1989 to June 1994; VIMD, July 1987 to June 1996 and VEMD October 1995 to December 1997

³ VEMD collection, from October 1995: Austin and Repatriation Medical Centre, Ballarat Base Hospital, The Bendigo Hospital, Box Hill Hospital, Echuca Base Hospital, The Geelong Hospital, Goulburn Valley Base Hospital, Maroondah Hospital, Mildura Base Hospital, Mildura Base Hospital, The Northern Hospital (formerly PANCH), Royal Children's Hospital, St Vincent's Public Hospital, Wangaratta Base Hospital, Warrnambool and District Base Hospital, Western Hospital, The Williamstown Hospital and Wimmera Base Hospital. From November 1995: Dandenong Hospital. From December 1995: Royal Victorian Eye and Ear Hospital and Frankston Hospital (formerly Mornington Peninsula Hospital). From January 1996: Latrobe Regional Hospital. From July 1996: The Alfred Hospital and Monash Medical Centre. From September 1996: The Angliss Hospital. From January 1997: Royal Melbourne Hospital.



Venomous bites and stings in Victoria

Table 2

	Emergency Department presentations (N = 2617) %	Hospital admissions (N = 3378) %	Unnatural deaths (N = 5) %
Hornets, wasps and bees	41	33	60
Spiders	46	30	-
Snakes	9	22	40
Marine animals and plants	1.8	1	-
Scorpions	0.4	0.3	-
Centipede and millipede	0.2	0.2	-
Other specified	1.4	8.5	-
Unspecified/missing	0.1	5	-
Total	100	100	100

Source: Coroners Facilitation System, July 1989 to June 1994; VIMD, July 1987 to June 1996 and VEMD October 1995 to December 1997

Major causes of bite and sting hospitalisations

Table 3

Injury Cause	Adult (15+ yrs)		Child (<15 yrs)		Total	
	N	%	N	%	N	%
Hornets, wasps and bees	774	31	340	37	1114	33
Spiders	806	33	200	22	1006	30
Snakes	535	22	223	24.5	758	22
Marine animals and plants	35	1	6	0.7	41	1
Scorpions	11	1	0	0	11	0.3
Centipede and millipede	3	0	3	0.3	6	0.2
Other specified	182	7	94	10	276	8.5
Unspecified/ missing	118	5	48	5.5	166	5
Total	2464	100	914	100	3378	100

Source: VIMD, July 1987 to June 1996

first aid. Better and continuing public education is necessary to address this problem.

It is notable that whilst spider bite is the cause of considerable morbidity, it is not among the causes of fatality in Victoria (Table 2). The Box Jellyfish (*Chironex fleckeri*) is

Australia's most venomous marine creature and has been responsible for at least 61 deaths in tropical Australia since 1884 (Williamson *et al*, 1996). Since it is not found in temperate waters, venomous marine bite and sting related fatalities are rare in Victoria.

Hospitalisations

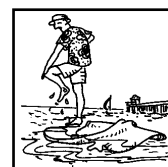
The Victorian Minimum Inpatient Dataset (VIMD) recorded an average of 375 venomous bite and sting related admissions per year to Victorian public and private hospitals from July 1987 to June 1996, with a male to female ratio of 2.1 to 1 (Table 1). Hospital admissions include serious cases, or those cases in which admission is felt to be desirable for reasons such as distance from home, the age or frailty of the patient, or other potential complications.

Major causes of bite and sting hospitalisations

Table 3 displays the number and proportion of hospital admissions coded as venomous bites and stings involving children (under 15 years) and adults (15 years and above) from July 1987 to June 1996. Of those cases in which the category of venomous creature is identified, "spiders" predominate for adults, followed by "hornets, wasps and bees" compared with children where "hornets, wasps and bees" were the largest category, followed by "snakes and lizards". The differences in proportion between adults and children are minor, making bites and stings from these three groups of creatures an important focus for injury prevention measures.

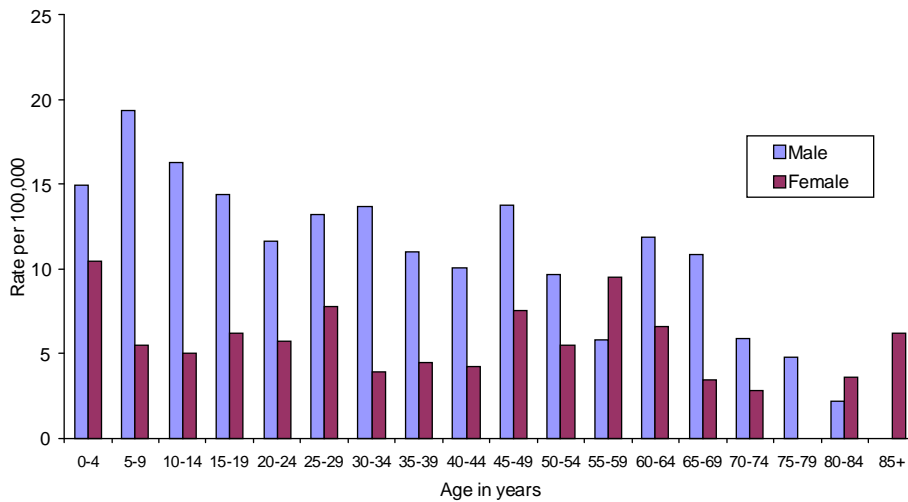
Bite and sting hospitalisations by age and sex

Figure 1 presents Victorian hospital venomous bite and sting injury admission rates (per 100,000) by age and sex for 1995/96. Note that males predominate in these admissions for most age groups. The proportion of males to females in the population is approximately equal except in the older age groups, females begin to predominate over the age of 75. Thus



Bite and sting hospitalisation rate by age and sex for 1995/96

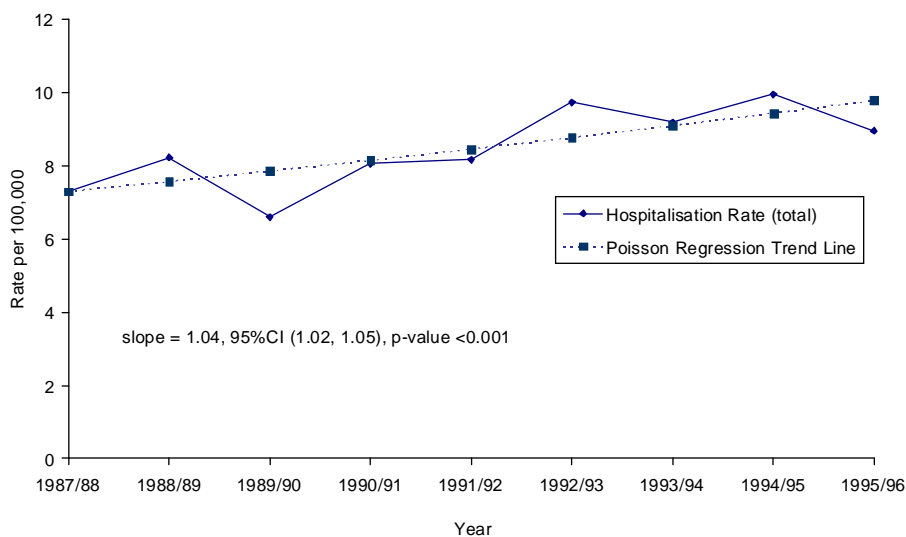
Figure 1



Source: VIMD, July 1995 to June 1996

Trends in all age bite and sting hospitalisations

Figure 2



Source: VIMD, July 1987 to June 1996

the over-representation of males in these injuries is a real phenomenon, and may be related to occupational exposure (more outdoor and rural occupations) as well as to greater risk-taking behaviour in males (for example catching and keeping snakes). This trend is also observed in emergency department presenta-

tions (Figure 3). The over-representation of males amongst beekeepers combined with the frequency of bee stings may also contribute to this trend.

When adjusted for population distribution (Figure 1), it appears that young children are over-represented amongst hospital admissions. It is

unclear whether this represents: increased severity of illness amongst young children (possibly as a result of their lower body weight and therefore relatively higher dose of venom); a generally more conservative admission policy for children; or an increased incidence in children. It is particularly important for parents and children to be warned about the dangers of venomous creatures and to be aware of appropriate first aid for bite and sting injuries (see Prevention box, p10&11).

Venomous bite and sting related hospitalisations appear to be increasing. Figure 2 shows the trend in such hospitalisations over the last decade. Most of the 30% increase over this period is due to spider bites and bee and wasp stings rather than snake bite, which has remained fairly constant. Further research is required to understand the basis of this significant trend. However it is clear that the European wasp is increasing in numbers and distribution (Levick, Winkel and Smith, 1997). Such injury determinants should be targeted for priority interventions. Fortunately most envenomation hospitalisations are relatively brief (1-2 day duration per admission).

An important unanswered question, from this data, is how many of these admissions were related to skin ulceration due to spider bite (termed necrotising arachnidism). Little information is available on the patterns of morbidity due to this condition.

Emergency Department Presentations

The Victorian Emergency Minimum Dataset (VEMD) recorded an average of 1104 emergency department presentations per year for bites or



Major causes of bite and sting emergency department presentations

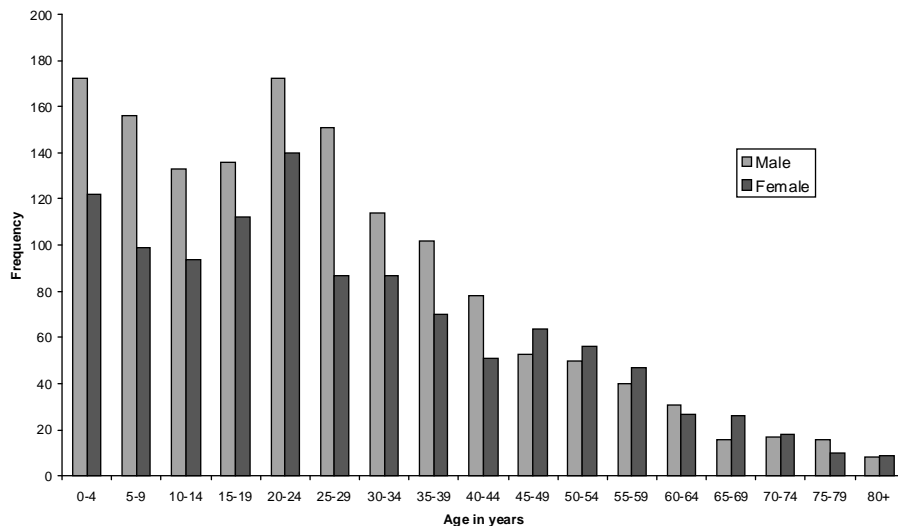
Table 4

Injury Cause	Adult (15+ yrs)		Child (<15 yrs)		Total	
	N	%	N	%	N	%
Spiders	895	49	298	38	1193	46
Bees	492	27	301	39	793	30
Wasps	200	11	73	9	273	11
Snakes	175	9	68	9	243	9
Ant	22	1	15	2	37	1
Jellyfish	21	1	11	1	32	1
Stingray	15	0.8	2	0.3	17	0.7
Scorpions	8	0.4	3	0.4	11	0.4
Tick	7	0.4	3	0.4	10	0.4
Centipede	2	0.1	1	0.1	3	0.1
Catfish	2	0.1	0	0	2	0.1
Millipede	1	0.1	0	0	1	0.1
Other anaphylactic reaction	1	0.1	1	0.1	2	0.1
Total	1841	100	776	100	2617	100

Source: VEMD, October 1995 to December 1997

Bite and sting emergency department presentations by age and sex, Victoria

Figure 3



Source: VEMD, October 1995 to December 1997

stings from venomous creatures in Victoria over the period October 1995 to December 1997, with an overall male to female ratio of 1.3 to 1.0 (Table 1).

Major causes of bite and sting emergency department presentations

Table 4 contains emergency department presentation data from the period October 1995 to December 1997. This table illustrates the difference between the proportions of venomous creatures associated with admissions and those associated with emergency department presentations. In terms of presentations, spider bite represents the largest group of adult presentations at 49%, while spider bite and bee stings are equally dominant amongst paediatric presentations, at 38% and 39% respectively. Little difference appears to exist between the proportions of other causes of adult and child presentations.

Note that in this analysis, the categories of “bees” and “wasps” are separated, and a category for “ants” is also available. Similarly, marine envenomation is divided into separate categories for stingrays, catfish and jellyfish. Very few Victorian emergency department presentations relate to the causes outside the top four however. Prevention recommendations will concentrate on these more frequent causes of bites and stings (see Prevention box, p10 & 11).

Seasonality of envenomation

Bite and sting related hospitalisations and emergency department presentations display marked seasonality, with both presentations and admissions being significantly more frequent in the warmer months (Figure 4). This probably represents not only increased numbers and activity of venomous creatures during this period, but also increased outdoor activity of the at-risk population. Efforts directed towards prevention and education may be particularly



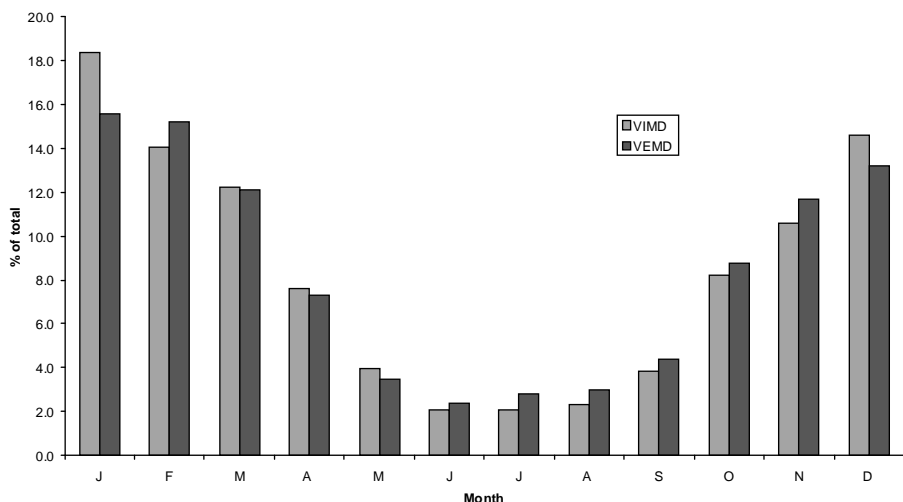
Bites and stings by month of presentation, Victoria Hospitalisations (N = 3378) and emergency department presentations (N = 2422)

Figure 4

Discussion

Table 2 shows the bites and stings presenting to Victorian hospitals categorised by the type of venomous creature involved. Most of the emergency department presentations related to “spiders” and “hornets, wasps and bees”. These categories combined account for 87% of recorded emergency department bite and sting injury presentations. Note that the injury classifications were designed for North America. Australia, for example, is not home to any species of true hornets. Further, the VEMD mostly fails to distinguish between various bite and sting injuries such as between the types of spider and snake bites. The important venomous snakes in Victoria will be discussed on page 8 (see “Dangerous Victorian Snakes”).

Table 2 also demonstrates that “spiders”, “hornets, wasps and bees” and “snakes and lizards” are the major causes of bite and sting admissions to Victorian hospitals. The generally more severe consequences of snake-bite lead to their over-representation amongst admissions (40% of emergency department presentations resulted in admission). The much larger numbers of bee and wasp stings explain their importance, even though proportionately fewer required admission (4% bees, 1% wasps) compared with snake bite. Of spider bites presenting, 5% were admitted. The only venomous lizards in the world are found in North America (the Gila Monster and the Beaded lizard). However our larger native lizards can pose a hazard through their bite which can produce significant wounds with difficult to treat infections.



Source: VIMD July 1987 to June 1996, VEMD January 1996 to December 1997

Location of all-age bite and sting injuries – emergency department presentations

Table 5

Location	Frequency	% of total
Home	1523	58
Place for recreation	131	5
Farm	67	3
Road, street or highway	63	2
Trade or service area	57	2
School or day care centre	46	2
Other specified location	167	6
Unspecified location	563	22
Total	2617	100

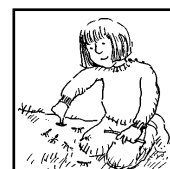
Source: VEMD, October 1995 to December 1997

timely during the lead-up to this period.

Poisons Information Centre

Spider bite, mostly unidentified spider, was the most common poison exposure precipitating calls to the Poisons Information Centre in 1997 (1,335 calls), well ahead of paracetamol and cough and cold pre-

parations. The white tailed spider was the single largest category of identified spider bite calls (209 calls). Wasp stings were in the top ten for 1996 but failed to appear on the list for 1997 (366 wasp sting calls for 1997).



The most significant spider bite in Victoria is that of the Redback spider. Most often, however medical treatment is not required. See the first aid section (p8 & 9) for discussion of the various spider bites in Victoria.

Location

As with other injuries (see *Hazard 32 – Safe Home Design*) most bite and sting injuries presenting to Victorian Emergency Departments (58%) are reported as having occurred in the home (Table 5). Analysis of inpatient data (VIMD) reveals that most bite and sting hospitalisations occur in non-metropolitan regions of Victoria (73%). While this emphasises the greater risk of these injuries in rural communities and the need for prevention strategies to target non-metropolitan Victoria these data could also reflect the different admission policies in rural hospitals. It might be expected that snakebite would occur more frequently in rural areas, although Victoria’s most dangerous snake (the Brown snake *Pseudonaja textilis*) can be found in metropolitan areas. Spider bite and bee and wasp stings are all, theoretically, as likely to occur in an urban environment as in the country, and these types of envenomations comprise most bites and stings. Bite and sting prevention should therefore concentrate on the risky situations and behaviours at home as much as, if not more than, the obvious behaviours such as bushwalking. VEMD text examples reinforce prevalence of bites and stings occurring at home – “*cleaning woodheap when bitten by snake*” or “*bitten on leg by spider at home whilst watering garden*”.

Hundreds of people in Victoria keep and breed venomous snakes at home

(James, personal communication). Such a hobby makes snake bite almost inevitable (Pearn, Covacevich, Charles and Richardson, 1994) – a VEMD snake bite text example “*snake keeper who has 95 snakes at home*”.

Wasps and spiders particularly like living in and around homes. VEMD text examples illustrate typical situations “*wasp bite, stung on arm while hanging out washing*” and “*bitten on ankle by European wasp whilst watering garden at home*”. Occasionally the injury is not due to the bite itself – “*riding off road motorbike, swerved to avoid snake and hit rock*”. Other text examples show the danger in handling venomous creatures even when dead, such as “*kicked a dead stingray – sting went into toe*”.

Activity

VEMD data indicates that persons were mostly undertaking leisure activities (52%) or working for income (5.5%) when the bite or sting occurred. As with the location variable there were a large number of cases for which the activity was “not specified” (22%) or “other specified activity” (4.3%) thus potentially undermining the representativeness of these data.

Further narrative analysis was undertaken of bee and wasp stings and spider bites recorded on the original VISS database. This database collected detailed surveillance data from clusters of Victorian public hospitals from 1988 to 1996.

Certain activities were commonly associated with bites and stings from spiders, bees and wasps. Gardening activities (including planting, weeding, mowing and digging) were associated with 7, 5, and 10% of bites

and stings from spiders, bees and wasps respectively, eg. “*mowing disturbed a wasps’ nest, bitten by wasps*”; “*helping in the garden, bitten on finger by Redback Spider*”. Bites and stings during transportation were also common to all three (4, 6 and 9% respectively) eg. “*passenger in car, bee flew through window, stung by bee*”; “*riding a motorcycle to work, bee came into helmet and stung patient in the eye*”.

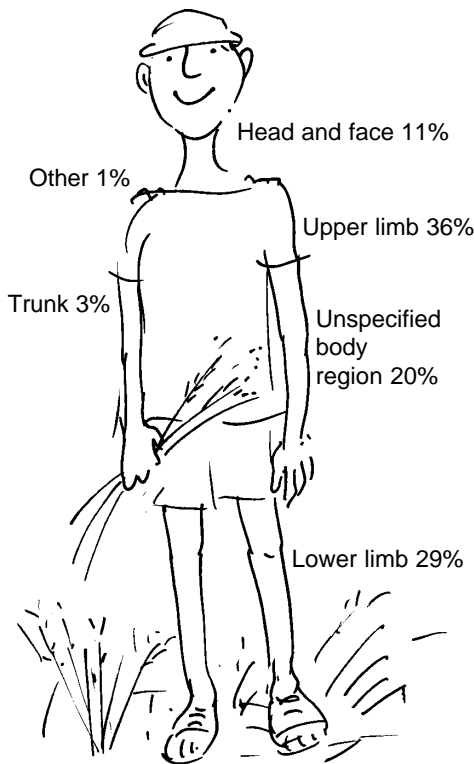
Of the remainder, 18% of bee and 3% of wasp stings occurred when persons trod on, or near, a bee or wasp eg. “*while playing barefoot in yard with brother, child stood on a bee*”; 8% of wasp and 6% of bee stings occurred when the person disturbed a nest; and 7% of spider bites and 6% of wasp stings occurred when the person was dressing, eg. “*putting on old shoe to play outside, Redback spider in shoe, bit child’s big toe*”.

Bite site

Not surprisingly most bites and stings resulting in emergency department presentation occur on the upper (36%) and lower (29%) limbs (Figure 5). The hands and fingers (23% of total bites and sting ED presentations) and feet and toes (16%) were the body parts most often affected. Appropriate attire will reduce the risk of bite and sting injury (see specific prevention recommendations, p10 & 11).



Figure 5



Source: VEMD, October 1995 to December 1997

Dangerous Victorian snakes

Common or Eastern Brown snake (*Pseudonaja textilis*)

- The genus *Pseudonaja*, which also contains the dugite (*P. affinis*) and the gwardar (*P. nuchalis*), is found throughout Australia, and is responsible for the majority of snakebite deaths in this country. Blood clotting disturbance is common after brown snake bites. Neurological symptoms may also occur.

Tiger snake (*Notechis scutatus*)

- Tiger snakes are found in the temperate areas of southern Australia, including Tasmania, where they are particularly large

and venomous. Identification of tiger snakes by the presence of stripes is unreliable. Indeed some tiger snakes are unstriped and black. Features of tiger snake envenomation include neurotoxicity, coagulopathy and muscle destruction. It is potentially deadly.

Black snakes (Genus *Pseudechis*)

- Amongst this genus only the red-bellied black snake (*P. porphyriacus*) is native to Victoria. While still dangerous, this snake is somewhat less venomous than many other Australian snakes. Its bite may cause coagulopathy, neurotoxicity and muscle destruction, but no deaths have been confirmed. Its range covers eastern Australia, but not Tasmania.

Copperhead (*Austrelaps superbus*)

- This snake is limited to Victoria, Tasmania and the western plains of New South Wales. It is a copious producer of venom which has neurotoxic, coagulopathic and myolytic activity, but rarely causes fatalities.

Sea snake bites, although theoretically possible in Victoria, are rare. Most sea snakes live in tropical rather than temperate waters.

First Aid Treatment

Snakes - even though not all snakes are venomous, it is best, from a first aid point of view, to consider all snakes as dangerous. Sometimes only small amounts or no venom is injected, even if puncture marks are present.

Snake venom is injected quite deeply. It was shown many years ago that little venom is removed by incision or excision and this is not a recommended practice. Research has

shown that very little venom reaches the blood stream if pressure is applied over the bitten area and the limb is immobilised (Sutherland *et al*, 1979; Sutherland, *et al* 1981).

The six step pressure/immobilisation procedure is outlined below. This procedure is recommended for snake bites, including sea snakes and the majority of other serious bites and stings (some exceptions are listed below). **Arterial tourniquets are no longer recommended for any type of bite or sting** (Sutherland and Duncan, 1980; Sutherland, 1983).

Redback spiders – no first aid is recommended for these bites other than the local application of iced water. The venom works very slowly and if its movement is restricted pain can become very severe. An antivenom is available to treat this bite.

Other types of spiders – a variety of common house and garden spiders frequently deliver bites causing transient localised pain and swelling. Bites are best lightly washed with water and iced water may give relief from mild pain or itching. Medical advice should be sought if local changes are causing concern. Uncommonly the bite site can ulcerate and cause chronic skin problems. The white tailed spider is one of several spiders implicated in this process. There is no antivenom available to treat this problem. If bitten by a spider try to preserve the spider for identification purposes.

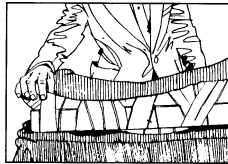
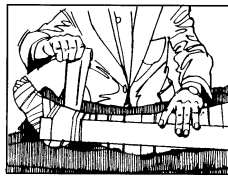
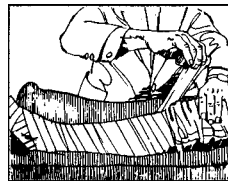
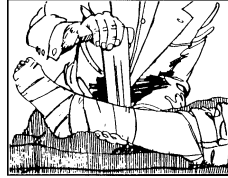
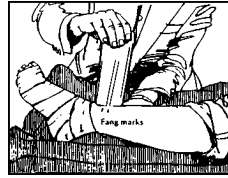
Some species of Funnel-web spiders exist in Victoria. None of these is known to be as dangerous as the more northerly Funnel-web spiders such as the Sydney Funnel-web spider. However all Funnel-webs should be treated as potentially dangerous and



Pressure/immobilisation procedure:

1. Apply a broad pressure bandage over the bite site as soon as is possible (do not take off clothes as the movement in doing so will assist venom to enter the blood stream. Keep the bitten leg still!).
2. The bandage should be as tight as you would apply to a sprained ankle. Note: Bandage upward from the lower portion of the bitten limb. Even though a little venom is squeezed upwards the bandage will be far more comfortable.
3. Extend the bandage as high as possible. Recent research stresses the importance of keeping the patient still, including the non-bitten limbs. (Howarth *et al* 1994). Bring the transport to the patient. The first aid measures can always be quickly reapplied if deterioration occurs and left on until urgent additional antivenom therapy has been effective.
4. Apply a splint to the limb.
5. Bind it firmly to as much of the limb as possible.
6. For bites on hand and forearm
 - a) bind to elbow with bandages
 - b) use splint to elbow
 - c) use sling

If bitten on the trunk apply firm pressure over the bitten area if possible, do not restrict chest movement. There is no first aid for bites to the head or neck.



the pressure-immobilisation type of first aid used. An antivenom is available.

Bees, wasps and ants – anaphylactic death can occur in allergic persons. Toxicity due to the injected venom is less common. Since multiple stings are dangerous, particularly in children, those with more than ten stings should seek medical attention

(Levick and Braitberg, 1996). In non-allergic persons iced water usually relieves the bite site pain. In all cases bee stings should be scraped off or pulled off as quickly as possible. If the person is known to be allergic the pressure/immobilisation procedure should be used and medical care sought immediately. Patients who suffer severe reactions should always

have access to injectable adrenaline and know how to use it (Glaspole *et al*, 1997).

The Australian paralysis tick – The tick should be removed as soon as possible. The tick should be levered out using a pair of curved scissors. If the patient is already ill the pressure/immobilisation procedure should be used if possible to inhibit the movement of any toxic saliva which has been expressed during the removal of the tick. If one tick is found others should be sought as a precaution. An antitoxin is available.

Blue-ringed octopus – the pressure/immobilisation procedure is recommended. Prolonged artificial respiration may be required following a blue-ringed octopus bite. Whilst this octopus is common around Victoria no antivenom is available.

Jellyfish – Most jellyfish in Victoria waters produce only minor local reactions which are best treated with ice water packs and simple analgesics.

For stings in more tropical waters pour domestic vinegar over the adhering tentacles to inactivate them as soon as possible (Hartwick *et al* 1980). This is most important for the Box Jellyfish stings. Cardiopulmonary resuscitation (CPR) may be required for these stings. In severe cases the pressure/immobilisation procedure should be applied to the affected limb after the application of vinegar. Whilst a Box Jellyfish antivenom is available there are no other jellyfish antivenoms. Stings from *Physalia* (the 'Blue Bottle' or 'Portuguese man 'O' war') jellyfish are best washed with sea water and then covered with ice water packs (Exton *et al* 1989).



General prevention recommendations

- Where possible, the creature responsible for the bite or sting should be identified and described to treating doctors but do not attempt to catch snakes responsible for bites.
- The requirements for a licence to keep venomous Australian snakes should include current first aid training. It is recommended that such licences should accurately document the number and type of snakes kept and that this requirement be strictly enforced and updated.
- Further it should be a requirement of such licences that the local hospital be notified of what venomous snakes are kept by snake fanciers or animal parks/zoos in their area. Management plans and protocols should be formulated in case of snake bite, particularly by non-native snakes where the provision of antivenoms urgently may prove difficult. This is also true of organisations holding other venomous creatures, especially those exotic to the locality.
- Companies with employees in remote or rural locations should develop a management plan in case of envenomation, suitable to their industry, locality and the activities undertaken by their workers. Plans could include items such as: up to date first aid procedures; wearing of protective clothing; and procedures for maintaining routine radio contact for workers in remote locations. The plans should be regularly reviewed and expert assistance sought in their drafting. This may prove lifesaving in the case of rapidly life-threatening bites and stings.
- Companies with employees working outdoors should create protocols to prevent bite and stings and document and train personnel in first aid procedures in case of such injuries.
- First aid training for bites and stings should form part of the school curriculum. This should include basic life support techniques, especially for staff.
- Local, State and Federal government should support and fund a coordinated strategy to reduce the health impact of venomous bites and stings. The European wasp is a particular priority. This should include ongoing injury surveillance, dissemination of information to the community on living with wasp problems, subsidies for the destruction of wasp nests and funding for nationwide wasp population control.
- Future revisions of the ICD-10 coding manual should differentiate between species of venomous creatures.
- Emergency Departments collecting surveillance data should attempt to record more specific details of the determinants of the injury such as - *“put hand in glove whilst using chainsaw, bitten by Redback spider”* or *“child bitten by white tailed spider, found playing with it”* rather than simply *“bitten by spider”*.

Specific prevention recommendations:

Snake bite:

- Leave snakes alone. If a snake is seen, walk away quietly, do not attempt to kill it.
- Wear stout shoes and adequate clothing in “snake country”.
- Never put hands in hollow logs or thick grass without prior inspection.
- When stepping over logs, carefully inspect the ground on the other side.
- Always use a torch around camps and farmhouses at night – most snakes are active on summer nights.
- Keep sheds and fodder storage areas free of mice and rats; they will attract snakes.
- Keep grass well cut.
- Never let children collect venomous snakes.
- If a young child says he or she has come in contact with a snake, believe them.
- When possible carry a radio transmitter when travelling far from civilisation.
- Be aware of current first aid methods to treat snake bite (especially if keeping venomous snakes!).

Spider bite:

- Always garden wearing gloves.
- Do not leave clothes lying on the floor as this will provide a refuge for spiders.
- Shake out and inspect clothes, gloves or shoes before wearing, particularly if these items have been placed outside for any amount of time.
- Inspect outdoor furniture before sitting on or carrying.
- If Redback spiders are found - always check for more as one egg sac from one female can give rise to more than 300 young.
- Avoid clutter as it attracts spiders that feed on other spiders or insects.



Specific prevention recommendations (cont.)

Bee and Wasp Stings:

(adapted from 'Living with European wasps', Victorian Department of Natural Resources and the Environment)

- Beware clovered lawns as bees are particularly attracted to this pollen.
- Try to avoid wearing perfumes, cosmetics and bright clothes, particularly on sunny days when bees and wasps are most active.
- As a precaution shoes should be worn around garden lawns, particularly when watering.
- Do not disturb wasp nests or bee hives unless fully prepared and never approach them during daylight hours as this is when they are most active.
- Sweet beverages attract these insects - use glasses or straws rather than drinking from cans or bottles whilst outdoors.
- Before consuming food outdoors check for wasps. Wasps like to hide inside and underneath food - particularly meat, fish and confectionery.
- Do not swat at or annoy wasps that are hovering around food - wasps are attracted to moving targets.
- Warn children of the dangers of wasps and bees - particularly about the dangers of approaching nests.
- Have wasp nests destroyed if found.

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Strengths and limitations of the hospital data

With a view to identifying venomous bites and stings requiring hospital treatment, the Victorian Inpatient Minimum Dataset (VIMD) and the Victorian Emergency Minimum Dataset (VEMD), exhibit certain strengths and limitations.

Strengths:

- VIMD provides statewide coverage of hospitalisations such that rate data can be calculated.
- VEMD provides broad coverage (i.e. up to 80%) of Victorian emergency department presentations.
- The VEMD provides a minimum dataset and, in conjunction with the original VISS database, extremely useful information on patterns of injury, through interrogation of free text. This data is of particular value in identifying risk factors and consequently for the development of injury prevention strategies.
- These datasets are the best available sources of injury morbidity data in Victoria.

Limitations:

- Coding of VIMD data is based on the International Classification of Disease (ICD-9) which limits the resolution of the database for Australian venomous creatures, potentially leading to an underestimation of the true number of cases. The category of spiders, for example, does not differentiate between Redback spider bites, for which a well-recognised clinical syndrome is described, and for which antivenom is available, and other types of spider bites. Thus the reason for admission of the patient is unclear from the database. Identification of the major groups of venomous creatures associated with hospital admissions in Victoria is important for both prevention and treatment purposes and indicates the need for further refinement of the classifications for Australian use.
- Identification of venomous bites and stings on the VEMD is reliant on the type of creature being recorded in the 100 character injury narrative. Thus, cases which failed to mention the creature involved do not appear in the dataset analysed for this report. Preliminary comparison of VEMD and VIMD identified bee and wasp hospital admissions suggests significant case underestimation by the VEMD. It is estimated that the number of presentations annually should be 3,750 at VEMD hospitals and 4,687 statewide.
- For both the “location” and “activity” variables in the VEMD there are a large number of cases for which either or both variables are coded as “other specified” or “unspecified”, thus revealing limitations in the current coding system; either in the codes themselves or in coding practices. These categories represent the second and third largest “locations” of bite and sting injuries and the second and fourth largest “activities” recorded when the bite or sting occurred. Current data quality studies and activities, conducted by VISS, are aimed at resolving these and other coding problems.

Victorian Community Safety Week 1998

September 6 to September 12, 1998

The theme for community safety week is ‘local action for a safer community’

For information contact:

Donna McCormick,
Victorian Community Council Against Violence
(Phone: (03) 9655 5220)



Community Safety Week
is proudly supported by VCCAV,
VicSafe and Information Victoria



Advice and assistance

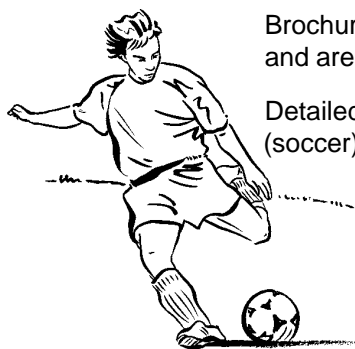
For further information on venomous creatures:

- The State Poisons Information Centre (PIC) is contactable on telephone: 13 11 26. This number is applicable Australia-wide for advice on bites and stings (as well as for other exposures to poisons and toxins).
- The Australian Venom Research Unit (AVRU) is a consultant to the Victorian PIC and provides a medical advisory service for bites and stings.
AVRU is available by telephone (03) 93447753; fax (03) 93482048;
e-mail: avru@pharmacology.unimelb.edu.au; after hours paging service (03) 9483 8204 (should only be used by medical and paramedical professionals seeking urgent advice). The unit is located at the Department of Pharmacology, University of Melbourne, Parkville, 3052 and also continues the venom research work formerly undertaken at CSL Limited. A detailed "First aid for bites and stings" brochure is available from AVRU. An Internet site (which will include first aid recommendations) is currently under construction, it will be linked to: <http://iuphar.pharmacology.unimelb.edu.au/PharmSite>.
- The Victorian Department of Natural Resources and the Environment has a European Wasp Information telephone line on 1800 060 864. A copy of the Department's excellent "Living with European Wasps" brochure is available from the Department or from the AVRU.
- Local council or pest controllers provide information on destruction of European Wasp nests.
- Snake Removal: Contact your local council or The Department of Natural Resources and the Environment.
- For medical advice in a marine bite or sting emergency, telephone 'Divers Emergency Service (DES) Australia' on: 1 800 088 200 (within Australia) or 61 8 8373 5312 (from outside Australia).
- For identification of snakes or spiders consult the Museum of Victoria
telephone: (03) 9651 6777 or the Melbourne Zoo telephone (03) 9285 9300.



Sports injury countermeasure reviews

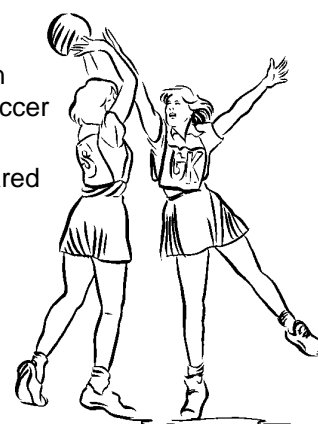
Monash University Accident Research Centre, in conjunction with Sport and Recreation Victoria (SRV), have recently launched two detailed reviews of countermeasures for soccer and netball.



Brochures describing key recommendations have also been prepared and are available free of charge from SRV: (03) 9666 4331.

Detailed reports are available at a cost of \$20 (netball) and \$15 (soccer) (including postage and handling) from the Accident Research Centre on (03) 9905 1805.

Also covered in this series are baseball, softball, equestrian activities, running, alpine skiing, snowboarding, cross country skiing and cricket. Brochures and reports for these sports are still available.



Illustrations by Debbie Mourtziou



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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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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.



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:

www.general.monash.edu.au/muarc



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