

Queensland Injury Surveillance Unit



INJURY BULLETIN

Mater Clinical Epidemiology Centre
Mater Hospital, South Brisbane 4101

Phone 61 7 38408569 Facsimile 61 7 38401684

Email mail@qisu.qld.gov.au Website <http://www.qisu.qld.gov.au>

Bites & Stings

Richard Hockey, Data Analyst, QISU Elizabeth Miles, Manager, QISU

Summary

- ☚ 37% of bite and sting presentations to participating QISU hospitals were spider bites
- ☚ Snake bites resulted in the highest admission rate (54%) of any animal or insect
- ☚ Each year, on average there is one death from snakebite in Australia
- ☚ Almost two-thirds of bites and stings occurred at home, chiefly in the garden, garage/carport or bedroom
- ☚ One-third of spider bites were identified as Red-backs
- ☚ Children aged less than 15 represented 40% of the bites and stings
- ☚ Ticks may cause paralysis or transmit diseases such as Tick Typhus
- ☚ Stings from the Irukandji jellyfish may result in life threatening symptoms as part of Irukandji syndrome

Introduction

Australia has the distinction of being the home to some of the deadliest creatures on earth and Queensland is no exception. This State has at least 20 snakes which are considered potentially dangerous to humans along with an assortment of venomous spiders, insects and marine animals. Although bites from many of these creatures result in only minor discomfort or pain, bites from some can result in serious illness requiring hospitalisation and in rare cases, death.

The current bulletin examines all presentations of insect, spider, tick, marine animal and reptile bites or stings and any venom effects to participating hospital Emergency Departments in Queensland*.

Results

For the years 1998 to 2000 there were 3708 Emergency Department presentations for bites or stings reported to Queensland Injury Surveillance Unit (QISU) comprising around 3% of all presentations for injury.

* QISU data is based on emergency department presentations to the following hospitals: Mater Children's Hospital, Mater Adult Hospital, Mater Private Emergency Care Centre, Queen Elizabeth II Jubilee Hospital, Redland Hospital, Logan Hospital, Royal Children's Hospital, Mt Isa Hospital, Mackay Base Hospital, Proserpine Hospital, Sarina Hospital, Clermont Hospital, Dysart Hospital and Moranbah Hospital



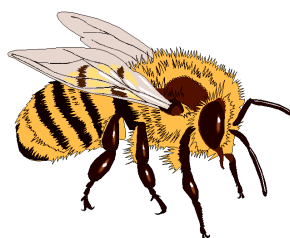
Type of animal

The most common source of bites were spiders (37%) followed by bees and wasps (17%), other insects (12%), ticks (11%), snakes (8%) and marine animals (4%). In the majority of the remaining 11% of cases it was not possible to determine the source of the bite.

Amongst the spider bites the most prevalent was the Redback (32%). Only five cases were reported as having putatively involved a White-tail Spider. Forty-five per cent of the cases with an injury factor of bee/wasp were identified as wasps and 43% bees. Marine animals were dominated by jellyfish and stingers (63%) of which eight were described as Irukandji and one, a Box jellyfish. Amongst the remaining marine animals the largest group observed was stonefish envenomation (15 cases).

Region

While presentations for spider bites dominated in all regions there was variation in the distribution of the type of bite or sting between the three QISU regions. The Mackay region had a higher proportion of marine animal and snake bites while South Brisbane region experienced more tick bites (Figure 1).



Age and sex

Forty per cent of the presentations to an ED for a bite or sting were by children aged less than 15 with the highest proportion being those aged under five years (16%). Similar proportions were observed for the three age groups between 15 and 29 years (8%) with the percentage dropping off steadily for the older age groups (Figure 2). In the main this pattern was observed for each of the individual animals involved with some exceptions. Ticks were more likely to involve children under 15 and snakes, bees and wasps peaked in the 5 to 9 years' age group. Marine animals rarely involved very young children, peaked in the 10 to 14 age group and to

a lesser extent in the 25 to 29 age group. There were slightly more presentations for males (55%) compared with females (45%).

Place

For all animals, except marine animals, the most likely location to be bitten was in the garden, followed by the garage/carport and bedroom. Almost two-thirds of bites occurred in or around the home.

Activity

As might be expected most bites or stings occurred while the victims were engaged in some type of leisure activity (27%) followed by working (20%) and resting or sleeping (17%). This pattern was repeated for all animals except marine animals where the activity was dominated by swimming (46%) and fishing (29%).

Part of body

The part of body bitten or stung varied according to the animal involved. For example nearly 60% of tick bites involved the head, face or neck while a similar proportion of snakebites involved the lower leg or foot.

Month

There were distinct seasonal fluctuations in presentations for bites and stings. Most animals involved exhibited a similar pattern which peaked in January then steadily decreased to a minimum in June/July then increased sharply again at the onset of the warmer weather. Ticks varied from this pattern with least activity in the summer months (December-February) then increased steadily over the winter to peak in October.

Admission

The rate of admission to hospital varied according to the animal involved. The highest admission rate was for snakebites (54%) followed by marine animals (36%). The remaining animal bites and stings presentations had admission rates of less than 10% with tick bites having a rate of only 1%.

Discussion

Most presentations to Emergency Departments as a result of bites or stings in Queensland are of a relatively minor nature. Many involve young children who present with a bite from an unknown source. However, in some cases involving particular animals, such as venomous snakes, spiders, ticks and some marine animals, the bite or sting has the potential to be life-threatening and results in admission to hospital. Raising awareness of potential dangers including seasonal variations in animal activity and knowledge of first aid provide the main avenues for prevention strategies.

	South Brisbane	Mackay	Mt Isa
Spider	41%	25%	36%
Bee, wasp	16%	19%	22%
Other Insect	11%	13%	22%
Tick	13%	8%	3%
Snake	5%	18%	9%
Marine animals	2%	11%	0%
Other or unspec	12%	7%	8%
Total	100%	100%	100%

Figure 1 QISU Emergency Department bites and stings presentations, by region and animal, 1998-2000

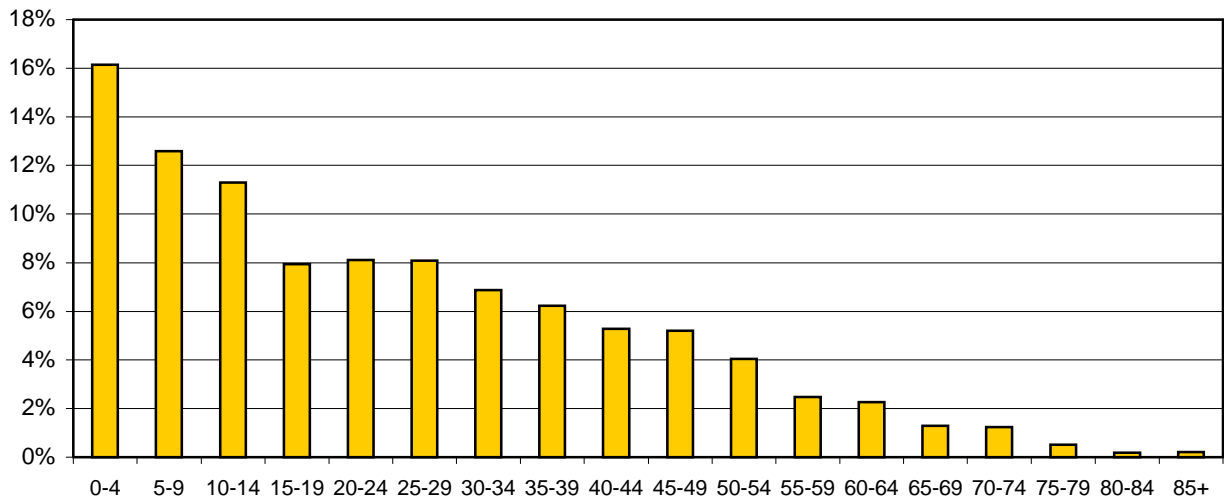


Figure 2 QISU Emergency Department bites and stings presentations, by age, 1998-2000

	0-4 years	5-14 years	15-24 years	25-44 years	45-64 years	65+ years
Spider	206	294	255	397	165	41
Bee, wasp	90	162	85	175	96	27
Other Insect	131	84	64	102	67	15
Tick	77	143	41	62	65	18
Snake	30	75	45	90	54	14
Marine animals	3	43	31	49	20	3
Other or unspec animal	66	67	76	109	50	12

Figure 3 QISU Emergency Department bites and stings presentations, by age and animal, 1998-2000

Prevention and Management

Spiders

Redback spiders are distributed throughout Australia, and have adapted well to an urban environment. They are common in sheds and garages, around houses, in parks, outdoor sports venues and buildings.

A Redback spider bite causes intense local pain about five minutes after the bite. Redback bites are also diagnosed by the localised sweating at the site of the bite. Common symptoms include sweating, muscular weakness, paralysis, stiffness, loss of coordination and tremors. Serious illness should not develop for at least three hours. No specific first aid should be applied. The recommended action is to transport the patient, without panic, to the nearest hospital emergency department.

Bees and wasps

The basic treatment for bee stings is to first remove the sting by scraping it off with a fingernail or

knife without squeezing. Bathe the area and apply ice to reduce the pain and swelling. Seek immediate medical attention if an allergic reaction occurs.

Snakes

The best preventive advice for snakebite is - if you see a snake don't approach it. Most people are bitten when they try to touch or kill a snake or move too close to one. On average, each year one person dies in Australia from snakebite.

Treat any case of real or suspected snakebite seriously. Proceed to the nearest hospital emergency department without delay and apply first aid. Keep the patient still and calm. Apply a firm bandage over the bite area and bandage the whole limb. Use splints to immobilise the limb. Do not cut or wash the wound, or apply a tourniquet.

Ticks

The paralysis tick is distributed throughout eastern Australia and occurs in moist sheltered bushy areas including gardens. Tick bites can cause

muscle weakness, blurred vision, drowsiness, paralysis and, in rare cases, death. In children tick envenomation is a far greater medical problem than snake or spider bite.

In Australia ticks are also capable of transmitting a number of diseases, the most common being Queensland Tick Typhus (*Rickettsia australis*) symptoms of which can occur up to 14 days after being bitten.

The best way to avoid ticks is to avoid the areas where they are by using wider tracks and avoiding brushing vegetation. Dress appropriately when in bushy areas. Wear long trousers (preferably tucked into socks or boots), long sleeved shirts and a hat. Spray clothes and exposed skin with insect repellent. After being outdoors check the whole family for ticks especially the scalp, groin, armpits and back of the knees as well as clothing.

The best way to remove a tick is to use fine tipped tweezers. Grasp the tick behind the head, as close to the skin as possible. Gently pull the tick straight out with steady pressure, don't squeeze, twist or jerk the tick. Don't try to kill the tick before removal unless removal is not easily achievable. If the wound becomes red or painful or if the patient has or develops any symptoms of paralysis, such as gait disturbance or muscle weakness immediately seek medical attention¹.

Marine animals

Most jellyfish stings are painful and irritating. In the northern waters of Australia (Gladstone to Exmouth) stings from the **Box and Irukandji jellyfish** are more serious and can result in death. Swimming in the sea in northern waters should be avoided in the hotter months (November-May). Stings from the less dangerous species should be treated by first removing any tentacles then applying cold packs for 15 minutes. If pain persists seek medical advice.

Irukandji jellyfish stings can lead to a range of symptoms known as Irukandji syndrome which includes severe backache, muscle pains, chest and abdominal pain, nausea and vomiting, headache,

sweating and in around one in ten cases pulmonary oedema². Envenomation from more than one species of jellyfish is now thought to be associated with Irukandji Syndrome. The recommended first aid for Irukandji and Box jellyfish stings is to douse the site with vinegar and to proceed immediately to the nearest hospital ED. Do *not* apply pressure immobilisation bandages³.

Stonefish are also found in northern Australian waters, from Brisbane to 600km north of Perth. They are extremely well camouflaged and dig themselves into the surrounding sand or mud, making them almost impossible to see. Thirteen dorsal spines project from venom glands along their back such that venom is involuntarily expelled when the spine is pressed upon.

The recommended first aid for stonefish stings consists of bathing or immersing the stung area in hot water to reduce pain. Do not attempt to restrict the movement of the injected toxin. Seek medical attention immediately.

Acknowledgments

Queensland Museum, Brisbane

References

1. The Paralysis Tick of Australia. URL: <http://www.ozemail.com.au/~norbert/> 2001
2. Little M, Mulcahy RF. A year's experience of Irukandji envenomation in far north Queensland. MJA 1998; 169: 638-641
3. Pereira PL, Carrette T, Cullen P, Mulcahy RF, Little M, Seymour J. Pressure immobilisation bandages in first-aid treatment of jellyfish envenomation: current recommendations reconsidered. MJA 2000; 173: 650-652

Resources

- **Poisons Information Centre – 13 1126**
- **Spiders - Queensland Museum
24 Hour Spider Bite Emergency Line
0412 848 467**
- **Snake removal – contact the National Parks and Wildlife Service, your local Council or the Police**

QISU Staff

Director – Dr Rob Pitt, Emergency Department
Director, Mater Children's Hospital
Manager – Elizabeth Miles
Data Analyst – Richard Hockey
Coding Clerks – Merle Lange,
– Linda Horth, Julie Dean

QISU Feedback

Injury Bulletin comment or feedback is welcomed and can be directed to: Elizabeth Miles
Phone 07 3840 1591 or email lizm@qisu.qld.gov.

QISU Data

QISU collects and analyses data from emergency department injury presentations on behalf of Queensland Health with the support of the Mater Hospital. Participating hospitals (acknowledged on page 1) represent three distinct regions of Queensland.

QISU publications and data are available on request for research, prevention and education activities.

QISU Web site

www.qisu.qld.gov.au

