

## Water Related Injury in Queensland

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### Summary

- Half the water related injury in Queensland occurred in a river/creek/lake/ocean/beach or sea
- Fishing and swimming were the most common activities when injured
- Drowning or near drowning comprised 3% of water related injury
- 50 people drowned in Queensland in 2003/04
- In toddlers, for every drowning fatality, there were 10 near drownings



### INTRODUCTION

Water recreation is an integral part of the Queensland lifestyle. This issue of the bulletin will review injury that occurs in and around water and discuss injury prevention strategies that can be used in different water recreation settings. Injuries in the QISU data base range from sprains and strains due to falls on jetties, to cuts from fish hooks getting stuck in fingers or to drowning in pools or farm dams.

The following story illustrates the potential dangers of water recreation:

It happened in a split second....

What was supposed to be a happy family outing turned to disaster for the

O'Shea family when father of 2, Matthew O'Shea found himself resuscitating his 2 children and a family friend in the middle of Somerset Dam. The family had been jet skiing on the dam, the children riding at low speed accompanied by adults. Disaster struck when a child grabbed the throttle of one jet-ski and collided mid-water with another stationary jet ski carrying an adult and Matthew's 2 children. All 3 sustained severe head injuries and were knocked into the water. But forethought saved their lives. Matthew had recently replaced the children's life jackets with new ones, and instead of sinking to the bottom, 3-year-old Michael and 6-year-old Brittany floated. Matthew swam over to his children to find Michael, with deep lacerations to his face, and Brittany unconscious in the water. Both children were successfully given mouth to mouth by their father and subsequently retrieved by Careflight helicopter to hospital in Brisbane.

Today, Brittany and Michael are recovering from their injuries. Matthew O'Shea is thankful for taking the decision to upgrade the life jackets and keep his first aid skills current.

"Boating and jet-skiing are family hobbies for us", says Matthew. "We make sure that the life jackets are top order. We never go on the water without checking the gear. A \$40 life jacket and a life-saving certificate.... that's what saved the kids lives."

### METHODS

Emergency Department injury presentations to QISU participating hospitals from 1998 to 2003 were searched to identify patients who had been participating in water related recreational activity at the time of injury. The activity code was searched for boating, fishing, sailing, surfing, water-skiing, other water sport and swimming.

Locations of jetty, wharf, beach, dam, creek, river, waterslide, pool and aquatic centre were also included in the data set if the activity of the injured person at the time was water related.

### RESULTS

Between 1998 and 2003 7543 people presented to a participating emergency department in Queensland with an injury associated with a water related activity.

### Gender and Age

Males outnumbered females by 5:2 and were more likely to present with an injury in all age groups.

Children between the ages of 10 and 14 years were the age most likely to be injured (18%) followed closely by those between the ages of 5 and 9 (13%). Most injuries occurred on weekends, with injury rates peaking between 3pm and 4pm.



### River/Creek/Lake/Reservoir

There were 1862 presentations for treatment of an injury related to a water activity in a river, creek, lake or reservoir (25% of all those who were injured in water related activities). 74% of these were males and the

most common age group injured was 10 to 14 years (17% of people injured in this setting) followed by 30 to 34 years of age (12%). In more than ¼ of these, the activity of the injured person was listed as fishing. Cutting or tearing was the most common mechanism (21%) followed by falls (15%). The most commonly injured body part was foot (20%) followed by hand (15%) and head (9%). Open wounds were the most common injury (35%) and then sprain or strain (13%). 10% of injuries from this setting were admitted to hospital and 18% had a triage category of urgent or above. There were five cases of drowning/near drowning in this setting (less than 1%).



### Beach, Surf, Sea and Ocean

There were 1727 people injured in activities related to the beach, surf, sea and ocean who presented to QISU participating emergency departments (23% of total presentations). Males were 3 times more likely to be injured in this setting than females. The most commonly injured groups were that of 20 to 24 years (12.9%) and then 10 to 14 year olds (12.7%), followed by 15-19 year olds (12.6%). The most commonly cited activity was fishing (28%). Almost half of these injuries (45%) occurred on the beach. The most common external cause of injury was cutting, piercing object (18%) then low falls (17%) followed by struck by or collision with object (15%). Hands (17%) and feet (15%) were the most injured body parts. One quarter of the injuries were open wounds, followed by bite, venomous and non-venomous (15%) and then sprain or strain (13%). There were 16% of cases admitted to hospital and 29% had a triage category of urgent or above.

Drowning/near drowning accounted for 1% (14) of injuries in this setting. The most common age groups were 0 to 4 years and 25 to 29 years (3 each). There were 8 males and 6 females. Seventy-nine per cent had a triage category of urgent or above and three of these required resuscitation.

### Aquatic Centre

1462 people who were treated in a QISU participating emergency department were injured in an aquatic centre (19% of total). 63% of these were male and the most common age group were the 10 to 14 year olds (24%). The most common cause of injury was a fall (26%) followed by struck by or collision with object (23%). The most commonly injured body regions injured were the head (13%) and face (12%). The majority of injuries were open wounds (27%) and then sprain or strains (17%) followed by superficial wounds (11%) and fractures (11%). Twenty-seven per cent of these people had a triage score of urgent or above and 12% were admitted to hospital.

Drowning or near drowning accounted for 1.5% (30) of these injuries. 70% of these were male and the most common age group was 0 to 4 years. Ninety-seven per cent of these had a triage category of urgent or above and 27% had a triage category of resuscitation. 67% were admitted to hospital, and two died in the emergency department.



### Home

There were 1424 water related injury presentations where the injury occurred at home (19% of total). Of these, 2 distinct groups emerge, those who were injured by drowning or near drowning (10%) and others.

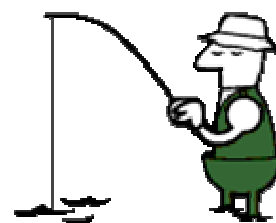
Eighty-five per cent of drowning or near drowning in the home under 4 years of age and 92% were under 10 years of age. For toddlers, 61% of drownings occurred in the swimming pool and 17% occurred in the bath. The remainder (22%) occurred elsewhere (buckets, ponds). Sixty-seven per cent of the drowning cases required admission to hospital and 86% had a triage category of urgent or above.

1273 people sustained injuries other than drowning/near drowning. Males were nearly twice as likely to be injured as females were. Children between 5 and 9 years were the largest group, accounting for more than one quarter of the injuries (28%). The next largest group were the 10 to 14 year olds (21%). The most common mechanism of injury in this group was contact with static object (23%) and fall by slipping, tripping on same level (11%). Eighty per cent of the injuries were associated with an activity of swimming or playing. The next largest activity was unpaid work (6.3%). These people were most likely to injure their face (16%) or head (15%) and the most common type of injury was an open wound (31%) and then sprain or strain (14%). In this group, head injury comprised 4% of the injuries. One quarter had a triage category of urgent or above and 9% were admitted to hospital.

### Fishing

1406 people presented to an emergency department with an injury related to fishing (19% of total). This group may also be included in other sections of the bulletin analysed under the setting. As fishing is such a large group, the details were worth examining separately. Males were 6 times more likely to present with a fishing related injury than females.

Boys between the ages of 10 and 14 years (13%) were the largest group injured followed by those between the ages of 25 and 29 years (11%). The most common place for a fishing related injury to occur is a river, creek, lake or reservoir (36%) followed by the beach (19%) and the sea, surf, bay or ocean (19%). Eleven per cent of injuries occurred on board a boat. Cutting piercing (40%) caused the majority of injuries, followed by animal related (fish bites/ stings) (15%) and falls (15%). There were no drowning or near drownings included in the data from 1998 to 2003. Hands were the most likely body part to be injured (33%) and then feet (19%)



Most injuries were open wounds (36%) and then foreign body in soft tissue (20%). The item which caused the most injuries was a fish hook and was associated with 20% of all injuries; this was followed by fish bites/stings (13%). Twenty per cent of all injuries in this category had a triage score of urgent or above and 7% required admission to hospital.



### Boating

999 people presented for treatment of an injury related to boating activities (13% of total). These were mostly males (80%) and the injuries were evenly distributed across the 15 to 45 year old age groups. The largest group of injuries occurred while the boat was in/ on sea, bay or ocean (25%) and 11% of injuries occurred on boat ramps. The most common external cause of injury was a fall (21%) and then struck by or collision with object (15%). Hands (20%) and feet (14%) were the most common body part injured. Thirty-two percent of injuries were open wounds; this was followed by 14% sprain or strain. 13% of these presentations were admitted to hospital, and ¼ had a triage category of urgent or above.



### Jet-skiing

There were 80 presentations for jet-ski related injury between 1998 and 2003 (1% of total). Eighty-one per cent of these were males and the most common age group was 20 to 24 years of age, followed by 21% in the 25 to 29 year old age bracket. The most common cause of injury was fall (23%) followed by struck by or collision with object (9%). The most common body region injured was face (15%) followed by head and feet (both 14%). An open wound was the most common nature of injury (26%) and then sprain or strain (24%). Thirteen per cent of these injuries required admission to hospital and 33% had a triage score of urgent or above.

### Farm

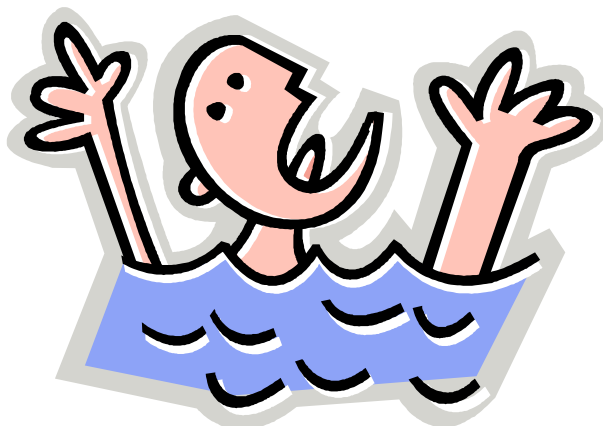
Fifty-one people presented to an emergency department for treatment of a water related activity on a farm (1%). The most common age group was 10 to 14 year olds and 60% of injuries occurred to those under 19 years of age. The most common activity was swimming (16%) and then playing (12%) and the majority of injuries occurred in the dam (55%) followed by river, creek, lake or reservoir (30%). Cutting, piercing object were the most common cause of injury (25%) followed by falls (24%). One quarter of injuries were to the feet, followed by hands (14%) and then face (12%). The most common type of injury was open wound (43%) then superficial and sprain or strain (12% each). One person died in the emergency depart-

ment because of their injuries and 14% were admitted to hospital. Sixty-seven per cent of injuries had a triage code of urgent or above. Drowning/ near drowning was responsible for 4% of these injuries. All of which were toddlers who drowned in dams.

### DISCUSSION

The data in this bulletin highlights a variety of different injury risks depending on the age group, activity and setting of water recreation. The majority of these injuries are minor, (eg. hand and feet lacerations from fishing equipment) with more significant injuries such as head injury due to falls on wet and slippery surfaces. In the majority of settings boys aged 10 to 14 years were the group most likely to be injured. The exceptions to this were boating, where the ages were evenly distributed across all ages 15 to 45 years and jet skiing where the 20 to 24 year old males were more likely to be injured. It is not surprising that river, creek, lake/reservoir and ocean, beach and sea were the settings with the greatest number of injuries responsible for just over half of injuries. However, 20% of all water related injuries occurred in the home setting and another 20% occurred at aquatic centres. Cutting or tearing was the most common mechanism of injury (14%) followed by fall by slipping, tripping on the same level. Apart from drowning and near-drowning, the most severe injuries were boating and jet-ski injuries.

There were 222 drowning and near-drowning in this study which translates to approximately 150 per year for the whole state. Overall, drowning and near drowning represented 3% of injury presentations in this data set. Seventy-one per cent of drowning/ near drowning involved toddlers. There were 157 toddler drowning and near-drowning in this study which translates to approximately 105 per year for the whole state and there were approximately 10 near drownings for every drowning in this age group. The majority of drowning or near drowning presentations involving toddlers were in swimming pools, but just over 15% occurred in baths. Beaches and natural waterways tend to be safer for toddlers, perhaps due to closer parental supervision because of a perceived greater risk. Of the non-toddler drowning and near-drowning, half occurred in pools and approximately one quarter each in salt and fresh water settings. Drowning in older age groups was more likely to be associated with activities other than swimming (eg diving, fishing, boating etc). Other studies have suggested that alcohol, in part contributes to fatal water related injury particularly in young adult males.



## PREVENTION

Strategies for prevention of recreational water related injury depend on the setting and the age group.

At home, make sure the pool gate is free of any impediment that prevents it from closing and latching from any open position and the fence is in good order. Buckets, wading pools and bath tubs must be emptied immediately after use as they are common sites for drowning deaths. Never leave a toddler in or near water even to answer a phone or a knock at the door.

In all water environments children must have designated, direct visual supervision by a competent adult at all times. Siblings under 10 years cannot be relied on to supervise toddlers.

Proper footwear, where appropriate, and avoiding running and horseplay around slippery, wet areas will reduce injury due to falls and slips.

Wearing personal floatation devices will save lives in boats, when water skiing and on jet skis.

Consumption of alcohol and water related activities are a dangerous combination.

The majority of fishing injuries are caused by fish hooks, bait knives and fish/marine stingers. Fishermen need to be acutely aware of this and children should be supervised very closely until they are competent.

Jamie Cupples, Executive Director of Farm Safe Queensland says a number of campaigns aimed at educating people about the dangers of diving or jumping from rope swings into murky dam water, and raising the awareness of the danger of swimming in irrigation channels is helping to reduce the

frequency of these deaths. Young children should have a fenced, segregated safe area to play that does not allow access to water hazards like dams, troughs, dips or ponds.

## CONCLUSION

The Royal Life Saving Water National Drowning Report 2004, reports that nationally, 277 people drowned in Australia in 2003/04. In Queensland, 50 people drowned (18% of national total). In this study we were able to include near drowning and other water related injuries. For toddlers we found that there were 10 near drownings for every drowning. Near drowning and drowning are the most serious water related injuries and Australia has made enormous progress in their prevention. The overall drowning rate in Australia has decreased from around 400 a year in 1993 to less than 300. The specific type of drowning that has had the greatest decrease is toddler drowning in domestic swimming pools. There is no doubt the combination of public awareness campaigns, pool fencing and the work done by organizations such as RLSS, SLSS and Farmsafe has had a significant beneficial impact. Water recreation is an integral part of the Queensland lifestyle and we have a way to go in preventing death and injury. This bulletin demonstrates that injuries in this setting are common and gives strategies to avoid injury in different water settings.

## Links

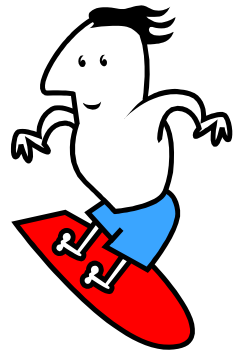
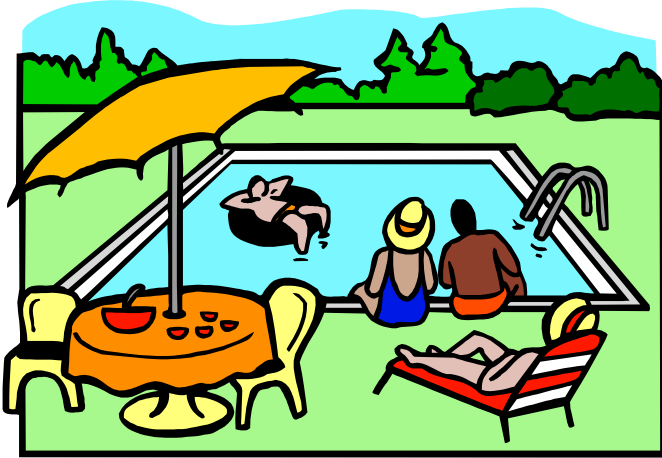
[www.royallifesaving.com.au](http://www.royallifesaving.com.au)  
[www.slsa.asn.au](http://www.slsa.asn.au)  
[www.farmsafe.org.au](http://www.farmsafe.org.au)  
[www.poolfencing.qld.gov.au](http://www.poolfencing.qld.gov.au)

## References

Royal Life Saving Society Australia. The National Drowning Report 2004. RLSSA, Sydney, 2004.

## Acknowledgements

Jamie Cupples, Executive Director of Farm Safe Queensland  
Andrew Clements, Royal Life Saving Society Queensland



QISU collects and analyses data from emergency department injury presentations. Participating hospitals represent three distinct areas of Queensland. QISU publications and data are available on request for research, prevention and education activities.

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## HOSPITALS:

1998 – current : Mater Children's, Mater Adult, Redland, Royal Children's, Mount Isa, Mackay Base,

Proserpine, Mackay Mater, Sarina, Clermont, Dysart, Moranbah and Mareeba.

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