Queensland Injury Surveillance Unit

INJURY BULLETIN

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QISU collects and analyses data from emergency department injury presentations on behalf of Queensland Health. Participating hospitals represent three distinct areas of Queensland.

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

HOSPITALS:
Mater Children's, Mater Adult, Queen Elizabeth II Jubilee, Princess Alexandra, Redland, Logan, Royal Children's, Mt Isa , Mackay Base, Proserpine, Sarina, Clermont, Dysart and Moranbah.

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Horse-related injury

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Summary

- There have been 8 deaths related to horse riding in Queensland in the three years 1997-99
- Queensland has the highest national mortality and hospital admission rates for horse-related injury
- 1169 horse-related injury presentations to Emergency Departments were recorded by QISU in the three years 1998-2000
- One-third of the injuries required hospital admission
- Females aged 10 to 14 represented 15% of cases
- Almost one-third of the injuries were fractures, 8% were intracranial injuries
- 65% of the injuries resulted from falls, 16% from being kicked or trodden on and 5% from colliding with objects such as tree branches
- In urban areas young women were more likely to be injured while in rural areas it was young men

Introduction

Horse riding is a popular sport and recreational activity in Queensland. A recent survey by the Australian Bureau of Statistics (ABS) found that 49,400 persons aged 18 years and over, or 2% of the population, participated in horse riding as a sport or recreational activity during 1998-99[1]. In addition horse riding continues to be a characteristic of rural work practice in Queensland.

Injuries associated with horse riding while representing only a small fraction of all injuries presenting at hospital emergency departments (<1%) tend to be more severe than injuries from other recreation activities. Reports from other studies into horse riding suggest that it may be more dangerous than motorcycle riding or car racing[2]. Participation in horse riding also tends to be concentrated in particular groups of the population such as young females and certain agricultural workers.

Queensland has the highest mortality and hospital admission rate for horse related injury being almost double the national rate[2]. Eight horse riding related deaths were recorded in Queensland during the period 1997 to 1999.

Horse riding has also been identified by the Commonwealth Government's Injury Prevention Control Implementation Strategy as one of the areas to be

QISU is funded by Queensland Health with the support of the Mater Health Service

targeted to reduce injury in sport and recreational activities[3].

This report examines all horse-related injuries presenting at hospital emergency departments in Queensland, which contribute to the QISU injury database (listed page 1).

Results

During the three years 1998 to 2000 there were 1169 presentations for horse related injury to QISU participating hospital emergency departments in Queensland.

Age and sex

Almost half of the horse related injury presentations involved persons aged under twenty years with the peak injury age group being 10 to 14 years (19%) (Figure 1). Over all ages the sex ratio was 1:1.3 with females dominating the injuries up to age 25 years with a peak at age 10 to 14 of almost 1:4. Females aged 10 to 14 made up 15% of all horse related injuries.

Nature and body location

Fractures made up more than a third of the horse related injuries followed by sprain or strain (22%), superficial (15%), intracranial (8%) and open wound (7%). The most common body part injured was the upper limb (36%) followed by the lower limbs (23%) and the head, neck or face (18%). Injuries to multiple sites were sustained in 4% of the cases. More than 60% of the fractures were associated with the upper limbs particularly the forearm (Table 1).

Mechanism of injury

Sixty five percent of horse related presentations were described as falls (Figure 2). In the remaining cases mechanism was described as contact with animal (22%), contact with object (5%), pinching or crushing (2%) and biting (1%).

Of the contact with animal cases 40% were described as being kicked and 15% as being stepped on. Almost half of the cases described as contact with object involved collisions with trees whilst riding. In 16 cases injuries were sustained through entanglement of hands or fingers in reins or lead ropes with two cases resulting in traumatic amputation of fingers.

Location

Almost 45% of cases were described as occurring on a farm, with the next most frequent locations being park or bushland (15%), private house (14%), race track, arena or stadium (9%) and road (3%). Within farms the most common place of injury mentioned was paddock or field (76%), stockyard (12%) and stable (2%).

Activity

As would be expected the most common activity described was horse riding – leisure or sport (56%). This was followed by agriculture and services to agriculture (11%) and other work (9%). Of those engaged in paid work 75% had agriculture related occupations and 6% had occupations associated with the racing industry. Amongst those injured while engaged in paid work almost all were aged over 15 years with the peak age group being 20 to 24 years and males outnumbering females 4:1.

There were 20 cases (2%) which were identified as being associated with rodeos, two-thirds of which involved falls. Injuries associated with club or riding school activities were described in 27 cases (2%).

Injury severity

Overall nearly 30% of horse related injuries resulted in admission to hospital with this increasing to 35% for children aged less than 15 years.

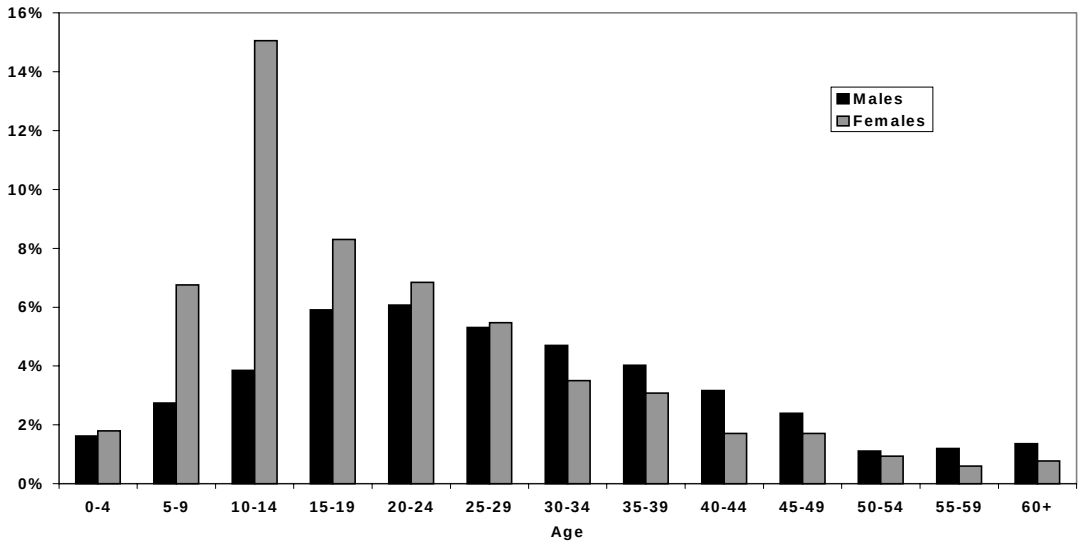

Figure 1 QISU Emergency Department presentations, horse-related injury, by age and gender, 1998-2000

More than 45% had a triage category of urgent or higher and 6% emergency or resuscitation. For children the corresponding figures were 54% and 9%. The high admission rate and triage categories are associated with the high number of fractures and head injuries sustained.

	Head /neck	Trunk	Upper limb	Lower limb	All
Fracture	12.3	31.8	56.3	25.9	33.6
Sprain or strain	10	22.9	20.4	35	21.6
Superficial	12.8	25.3	7.8	19.3	14.9
Intracranial	42.6	-	-	-	8.4
Open wound	17.1	-	5.9	6.6	6.8
Crushing injury	-	2.9	1.9	6.2	2.9
Multiple injuries	-	-	-	-	1.6
Internal injury	-	8.2	-	-	1.2
All	18	14.5	36.4	23.4	100

Table 1 QISU Emergency Department presentations, horse-related injury, by nature of injury and body location, 1998-2000

	Males	Females	M:F Ratio
South Brisbane	15.3	35	0.44
Mackay	106.3	123.2	0.86
Mt Isa	281	129.1	2.18

Table 2 QISU Emergency Department presentations, horse-related injury rates by region, 1998-1999 (per 100,000)

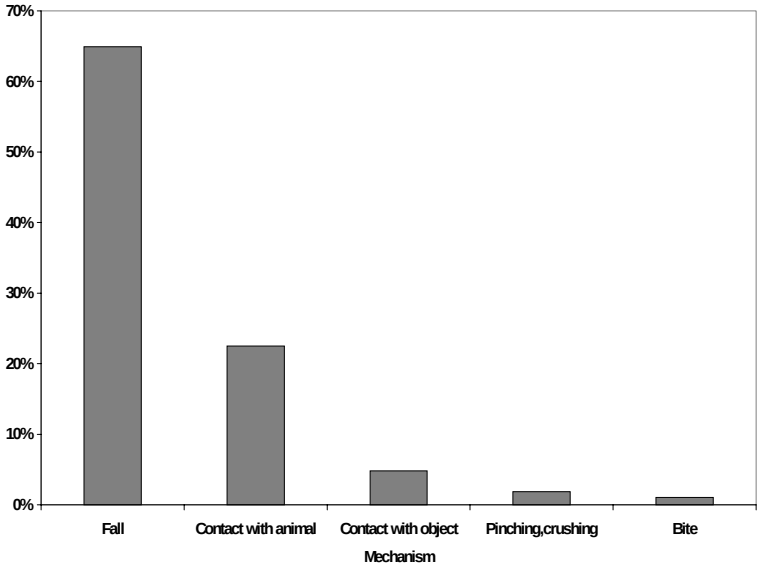

Figure 2 QISU Emergency Department presentations, horse-related injury, by mechanism of injury, 1998-2000

Regions

Presentation rates for horse related injury by QISU region[4] varied from 15.3 per 100 000 for South Brisbane males to 281.0 per 100 000 for Mt Isa males (Table 2). The male:female ratio also varies markedly across the regions, from 0.44:1 for South Brisbane to 2.18:1 for Mt Isa.

Discussion

The risk of serious injury associated with horse riding is higher than amongst those participating in most other sport or recreational activities. This risk is influenced by the fact that a horse is a large animal with the rider's head being up to three metres above ground level, and the fact that horses can act independently, whether being ridden or not. Thus measures to reduce injury need to work within these parameters by both minimising the severity of the injury and reducing the incidence through use of protective equipment, appropriate riding environment and modifying horse and rider behaviour.

While the differential between the rural and remote Mt Isa and largely urban South Brisbane is not surprising the shift in the male female ratio is of interest reflecting perhaps the shift away from recreational horse riding prevalent in urban areas to more occupational riding in rural locations.

This feature of horse related injuries in Queensland indicates the presence of two distinct populations at risk. There is the group involved in horse riding as a sport or recreational activity dominated by young females and largely urban based. The other group represents those involved in horse riding secondary to their occupation involving mostly young rural males.

These two quite diverse populations of riders require different approaches to prevention. The sport and recreational riders are likely best targeted through clubs and other organised equestrian bodies while those associated with agricultural activities via farming and occupational health and safety organisations.

Although only making up a small proportion of all horse related injuries, those associated with riding schools, trail riding and horse hiring establishments tend to have a higher profile. As a result of an

injury at a riding school in Queensland Workplace Health and Safety (WHS) recently established an Industry Code of Practice for these establishments[5]. This code describes the main risks associated with handling horses and what should be considered to safeguard the health and safety of workers, clients and visitors.

Horse-related injuries represent a small but often severe proportion of injury in Queensland and at a rate higher than the national average. Measures such as the WHS Industry Code of Practice go some way to address this issue but interventions such as mandatory helmet wearing for all riders should perhaps be explored.

References

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Prevention

The Horse

- Choice of an appropriate horse for the rider is important. Size and temperament of the horse needs to suit the experience, skill and age of the rider
- Horses are large, powerful and often unpredictable animals that need to be respected and understood

Education and supervision

- Riders need training that covers handling and care of the horse and maintenance of tack in addition to riding skills
- Riding lessons should be conducted in safe surroundings by experienced instructors
- More challenging riding situations such as uneven terrain and traffic areas should be used only by riders with an appropriate level of skill and experience
- Young children should be carefully supervised and not allowed to play in the vicinity of horses

Clothing and gear

- A helmet that complies with the Australian Standard should be worn at all times
- Smooth-soled, elastic sided, heeled boots should be worn when riding while sturdy boots are recommended during non-riding handling

Riding equipment

- Saddles need to be the appropriate size for both the rider and the horse
- Stirrups must be 2-3 cm larger than the rider's boot
- All riding equipment must be regularly checked, adjusted for fit and well maintained
- Reins and ropes should be handled in such a way as to avoid trapping fingers

Further Information

- Horse riding and farm safety - Division of Workplace Health and Safety www.whs.qld.gov.au
- Equestrian Federation of Australia www.equestrianfederation.com.au
- Pony Club Association of Queensland www.pcaq.asn.au