Queensland Injury Surveillance Unit

INJURY BULLETIN

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Level 2
Mater Children's Hospital
South Brisbane 4101
Phone 07 38408569
Facsimile 07 38401684
Email mail@qisu.qld.gov.au
http://www.qisu.qld.gov.au

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

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Paediatric non-pool drowning in Queensland

Paul Baylis, Paediatric Fellow, Mater Children's Hospital, Richard Hockey, Data Analyst, QISU, Rob Pitt, Director, QISU, Elizabeth Miles, Manager, QISU.

Summary

- There were 92 child non-pool drownings in Queensland during the nine years 1992-2000
- 73% of the deaths involved babies or toddlers (0 to 4 years)
- 38% of the drownings occurred in static inland waterways including dams and ponds
- Baths and containers such as buckets were involved in 27% of the drownings
- Recent flooding was a commonly cited factor in drowning cases in rivers and creeks and other rural water hazards such as irrigation channels
- Provision of a fenced play area for young children on farms and properties, awareness raising and targeted education to improve supervision are the key areas for preventing non-pool drowning

Introduction

In Queensland drowning accounts for one-quarter of paediatric injury deaths and is the most common cause of traumatic death in children aged under five years[1]. For every drowning death there are up to fourteen presentations to Emergency Departments[2] and four admissions to hospital[3]. For the children who are admitted following an immersion incident there is up to 20% chance of brain damage due to lack of oxygen[4].

Approximately half of the under five child drownings in Queensland occur in domestic swimming pools. Surrounding domestic swimming pools with an Australian Standards approved fence with a self-latching gate has been shown to significantly reduce the risk of toddler drowning[5]. The issues surrounding childhood pool drownings were examined in detail in a recent QISU Injury Bulletin[6]. However non-pool drowning involves a variety of hazards presenting some different challenges for prevention.

This bulletin examines non-pool drownings for children aged less than 15 years in Queensland.

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Non-pool drowning

Data was obtained from Registrar-General's death data, police and coroner's reports. A total of 102 children, aged 0 to 14, drowned in non-swimming pool incidents in Queensland between 1992 and 2000. For the purposes of this report deaths which resulted from motor vehicle crashes or medical conditions have been excluded. The circumstances of 92 deaths (Figure 2) were examined and categorised according to settings (Figure 1). Overall 73% of the children were aged less than five years.

Static inland waterways

Dams and ponds accounted for 35 deaths (38%). The male female ratio was 24:11, the median age was one year and the average age was three years. The commonest cited factor associated with the incidents was that the child had "wandered off".

Dynamic inland waterways

Rivers and creeks were associated with 20 drowning fatalities. The male: female ratio was 14: 6, the median age was four years and the average age was five years. The commonest cited factor was flooding.

Rural water hazards

Nine children drowned in rural water hazards including irrigation channels and cattle dips. The male: female ratio was 6: 3, the median age was one year and the average age was three years. The commonest cited factors were child wandering and recent flooding.

Bathtub drowning

20 children drowned in the bath. The male: female relationship was 11: 9, the median age was 10 months and the average age was 19 months. The most commonly cited circumstance was an interruption to supervision when the telephone or doorbell rang. Leaving the baby in the care of young siblings was also a common scenario.

Containers

Containers such as buckets and rubbish bins were associated with five fatalities. All of the drownings involved children aged less than one year with a male female ratio of 2:3. Two fatalities involved rubbish bins, one a nappy bucket and two other large buckets. All appeared to be related to the child's easy access to the containers involved and lapses in supervision.

The surf

Three children, all male, died in the sea. These children were older with an average age of seven years.

Non-pool near-drownings

During the period 1998-2000 there were 102 cases of near-drowning of children presenting to participating QISU emergency departments. Of these cases 20 (20%) occurred in situations other than a swimming pool.

The most common place where non-pool near drownings occurred was the bath (50%) fol-

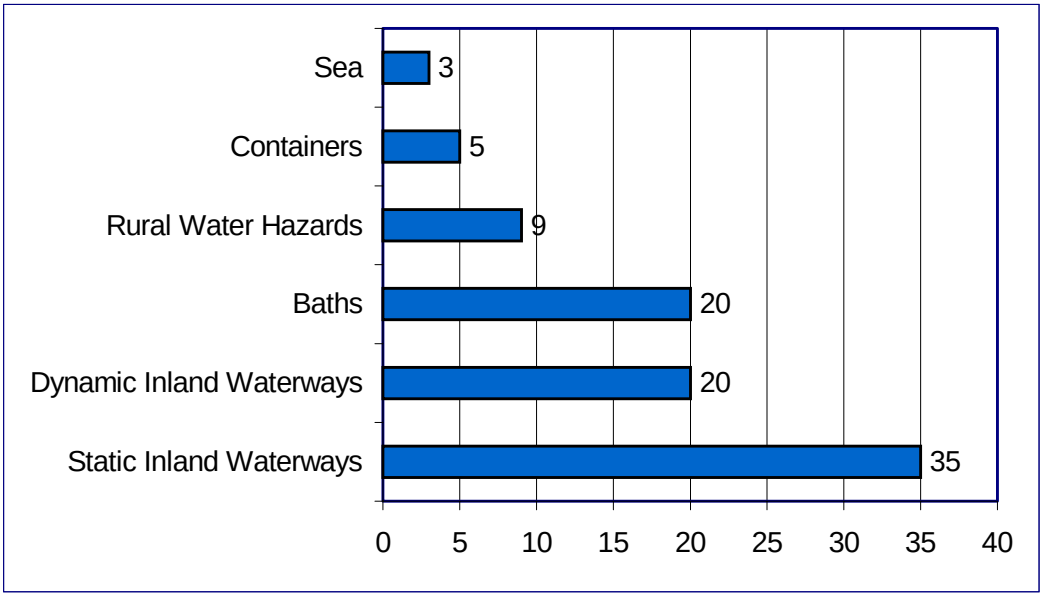

Figure 1 Paediatric non-swimming pool drowning, Queensland, 1992-2000,, by setting.

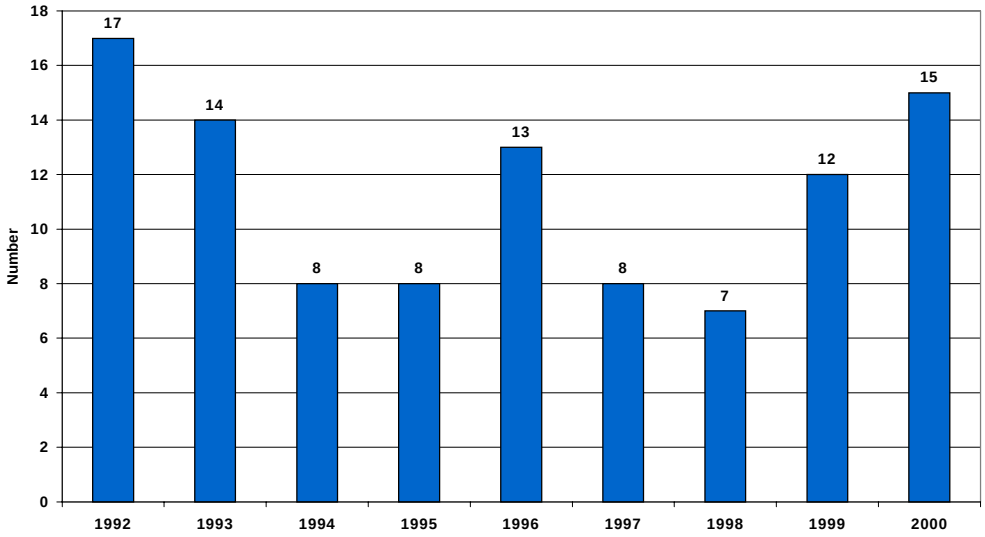

Figure 2 Paediatric non-swimming pool drowning, Queensland, 1992-2000

lowed by containers (20%). More than half of the cases were aged under one and 80% aged under five. Almost three quarters of cases resulted in admission to hospital.

Discussion

Appropriate adult supervision of children in and around water is the key to both understanding why these deaths occurred and to preventing further tragedies. Clearly the level of supervision required to keep children safe will vary according to the age and developmental stage of the child and also the nature of the water hazard.

At one end of the supervision scale is the bathing of babies. A baby can drown in less than 5cm of water and the time scale of deterioration into cardio-respiratory collapse can be terrifying. With this in mind the supervision level required for safe bathing is a competent adult actually touching the child. Our study revealed that responding to minor disturbances such as answering the telephone or the door were often cited as reason for lapses in supervision. Also noted were many instances where the supervision had been delegated to other children, often siblings bathing with the baby.

It would appear from the age data that carers have a graded risk appreciation associated with different outdoor water hazards. The youngest children drowned in static waterways (eg dams and pools), rural water hazards (irrigation channels, cattle dips) and containers (eg rubbish bins, nappy buckets) indicating these hazards had the lowest risk appreciation and supervision level.

Older children were more likely to drown in dynamic water hazards (rivers and creeks) indicating carers were giving better supervision to the younger children around running water, displaying a higher appreciation of the dangers associated with these hazards. The highest risk appreciation appeared to be associated with the sea, this was the smallest group of deaths with the highest mean age. No toddlers drowned in the surf.

The challenge for injury prevention initiatives is to raise in the minds of carers the risk appreciation of apparently innocent water features of the neighbourhood or farm setting up to the level “gold standard” of risk appreciation – the sea.

Heavy rain with flooding was a frequently noted feature of the drowning cases associated with running water and the rural water hazards. The risk appreciation, and hence child supervision level, of these settings needs to be heightened at these times.

It is appreciated that it is not feasible to expect carers to be able to maintain active supervision of their young charges at all times, nor is it possible to fence off all the water hazards in our environment – particularly in a rural setting. With this in mind passive supervision measures specifically the promotion of the concept of a fenced “safe haven” for toddlers to play in should be encouraged.

Recommendations / Prevention

- Appropriate supervision of children in and around water is the key to reducing our unacceptably high level of non-swimming pool child drowning. Further government funding and sponsorship of targeted community education focussing on the need for appropriate supervision of children in and around water is required.

  - Education programs need to address the low risk appreciation of the various water hazards in our community. Children are twelve times more likely to drown in a local dam or pond compared to the surf and thirty times more likely to drown in a swimming pool.

  - Targeted health advice regarding bathing babies – ensuring they are not left unattended at all and that their care is not delegated to another minor.

  - Use of baby bath seats should be discouraged. Bath seats have been associated with 78 bath tub drownings from 1983-2001 in the US[7].

  - Increased community education of resuscitation techniques.

- Provision of a suitably fenced area in which toddlers can safely play on farms and properties should continue to be promoted.

- The dangers associated with flooding need to be highlighted and cooperation sought from media to raise awareness of drowning dangers when providing weather alerts on flooding.

- An Australian Standards compliant pool fence and gate remain the key means of prevention for domestic swimming pool drownings.

Domestic swimming pool drownings

2000 update

Over the last five years an average of 16 children aged less than five years have drowned in this State each year. Almost half of these occurred in domestic swimming pools.

During 2000 17 children aged under 5 drowned in Queensland of which 6 (35%) drowned in a domestic swimming pool.

Almost without exception the children involved in these 6 deaths gained access to the pool via a non-compliant pool gate or fence, or through a pool gate which had been propped open.

References

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