

INJURY BULLETIN

Queensland Injury Surveillance Unit

No 99 December 2007

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, Redland, Royal Children's, Queen Elizabeth II, Mount Isa, Mackay Base, Mackay Mater, Proserpine, Sarina, Clermont, Dysart, Moranbah and Mareeba.

QISU STAFF:

Director - A Prof Rob Pitt,
Paediatric Emergency Director,
QISU Director, Mater Children's Hospital
QISU Manager and Qld. Safe Communities Support Centre Director - Dawn Spinks
Paediatric Emergency Specialist- Dr Ruth Barker
QISU Fellow—Dr Dirken Krahn
Data / Web / IT Projects Officer - Goshad Nand
Admin Officer /Bulletin Layout- Margie Brookes
Coding Officers - Linda Horth, Michele Cresson- Limal, Kathleen Stirling

Contact QISU:

Level 2
Mater Community Services Building, 39 Annerley Road
Woolloongabba Q. 4102
Phone 07 3163 8569
Facsimile 07 31631684
Email mail@qisu.org.au


ISSN 1442-1917


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


No 99 December 2007


Christmas Toys


Dr Dirken Krahn, Dr Ruth Barker, Dawn Spinks, Dr Rob Pitt


 An estimated 8500 children present annually to Queensland emergency departments following an injury involving a trampoline, wheeled device or toy related foreign body.


 1 in 5 of those children requires admission to hospital.


 An average of 8 children (aged 0 to 17 years) die in Queensland each year after a crash involving a bicycle, motorcycle or ATV.

 An average of 7 toddlers (aged 1 to 4 years) drown in Queensland each year in domestic swimming pools.

 The number of toy related presentations increases by 30% between Christmas and Australia Day.

 The most common injury was an upper limb fracture (24%) but 5% sustained serious head injuries and 15% sustained other injuries to the face and head.

 Children in rural areas are more likely to sustain motorcycle and ATV related injuries.

 Injuries can be prevented by age appropriate selection of toys, use of appropriate safety equipment and adult supervision and Education.

Don't give a half gift

In Queensland's warm climate, out door activities are a part of everyday life for Queensland children. With Christmas approaching, many families consider giving gifts of sporting or play equipment. Some presents need to be purchased with the appropriate safety equipment & knowledge of where & how the gift will be used—otherwise you are giving half a gift which begs a visit to your local Emergency Department! However, injuries due to sporting or play equipment are a frequent cause for presentations to Queensland emergency Departments. Every year, emergency staff see a surge in presentations after Christmas day as children fall off newly acquired toys that they are learning to use. Appropriate safety equipment is an essential component of any gift of any gift of sporting or play equipment. This edition of the bulletin will describe the pattern of child injury related to sporting or play equipment and, in doing so, will hopefully encourage families to not "give half a gift".

Methods:



Death Data

Queensland death data were obtained by accessing the Commission for Children and Young People and Child Guardian annual publications (2004/5, 2005/6, 2006/7) ⁽¹⁾ and the website of the Queensland Office of Economic and Statistical Research for the period 1991 to 2003. ⁽²⁾

QISU Data

Queensland Paediatric drowning deaths

Coronial data relating to the age, sex and circumstances surrounding all paediatric drowning deaths in Qld. are collected and analysed by QISU. This data is available for the period 1992 to 2004.

Queensland Injury Surveillance Data

Data were identified by searching the QISU database for a nine year period from 1998-2006, for injuries occurring to children aged 0-15. Injuries related to sporting or play equipment were identified by using key word searches in the injury description text for "bike, bicycle, pushbike, skateboard, roller blade, roller skate, scooter, trampoline, trike, tricycle, rollerblade, roller blade, skate, battery, magnet, pool". Additional cases were identified by searching for relevant codes under nature of injury, activity and major injury factor. Our search was designed to identify injury due to motorised and non-motorised cycles, "small wheel" devices such as scooters and skateboards, pool immersion, trampolines, choking/ strangulation due to foreign bodies (toys) and battery and magnet related injuries. These topics were selected because injury associated with these gifts can be prevented or minimised by appropriate selection of gifts and/ or purchasing appropriate safety equipment. QISU data is collected from representative emergency departments across Queensland. Injury numbers represent a proportion (approximately one fifth to one quarter) of all injuries occurring within the state.

Triage category (TC) is a 5 tiered assessment score assigned by the Triage nurse and reflects the urgency with which patients need to be attended to, from immediately to 2 hours: TC 1: resuscitation, requires immediate attention, TC2: to be seen within 10 minutes, TC 3 to be seen within 30 minutes etc.

Results:

Transport related deaths

Transport related death data were available for bicycle and motorcycle related deaths, children aged 0-17 years for the 14 year period 1991-2007. Prior to 2004, ATV related deaths were not reported separately but were included in all other transport related deaths. Twice as many children die on motorcycles than on pushbikes. 24 children died between 1991 and 2003 in Queensland whilst involved in a bicycle crash, averaging 1.7 deaths per year. This number is similar to the 3 year period June 2004 to June 2007 with 2 children dying each year in bicycle crashes. In comparison, 47 children aged 0-17 years died between 1991 and 2003 in motorcycle crashes; an average of 3.3 deaths annually. Deaths related to motorcycle and ATV crashes were reported separately for the 3 year period 2004 to 2007 and are shown in *Table 1*

	Bicycle	Motorcycle	ATV
QLD deaths, 1991-2003	24	47	?
QLD average annual deaths, 1991-2003	1.7	3.3	?
QLD deaths 2004/2005	2	4	3
QLD deaths, 2005/2006	2	1	0
QLD deaths, 2006/2007	2	6	1

Table 1: Queensland paediatric deaths (0-17 years) due to bicycle, motorcycle or ATV crashes.

Pool immersions: deaths and near-drowning



Queensland drowning death data was available for the 13 year period from 1992 to 2004 (QISU data).

Drowning is the leading cause of death in children under 5. In that period 97 Queensland children aged 0 to 14 years died following an immersion in a domestic pool; an average of 8 annually. Of those, 85 toddlers aged 1 to 4 years drowned in a domestic pool; an average of 6.5 per year. Of the toddler drowning, 84% occurred in a pool that did not comply with pool fencing legislation. Of the remaining 16%, half had the pool gates that failed to close and latch as required by pool fencing standards and 40% allowed the children access through the house with no fence between house and pool. One toddler was thought to have climbed over a complying fence. ⁽³⁾ The average age of all drowned toddlers was 2 years.

Queensland Injury Surveillance Data

Pool immersion data

During the study period (1998-2006), 150 children presented following an immersion event in a domestic swimming pool. Two thirds (99) were male and 51 were female. **The peak age** for immersion was 2 years of age accounting for 28% of all pool immersions. The majority of children (82%) presenting following a pool immersion were aged less than 5 years. Presentations were of high acuity with 33 (22%) presenting as TC 1 and 50 (33%) presenting as TC 2. One child presented dead on arrival to the emergency department. Two children in the series fell into the pool and suffered an immersion injury after riding their tricycle around the pool edge.

Other injury data

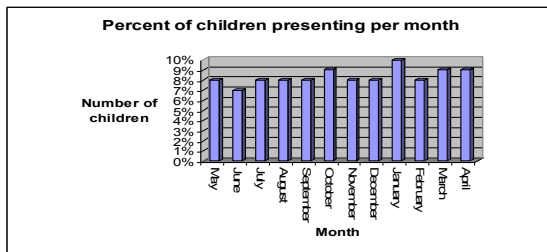
In the period 1998-2006, 37,199 children aged 0-15 presented to QISU participating Queensland emergency departments after any sport or toy related injury. (This number includes a large number of school sport, ball sport and playground injuries). Our specific search criteria identified approximately half (19,247 children) of all sport or toy related injuries to children. We estimate that annually around 8500 children present to Queensland emergency departments with injuries related to wheeled devices, trampolines or foreign bodies (toys, batteries or magnets).

Age, Gender and Severity

The majority of children presenting (13315 or 70 % of all presentations) were male. The male /female proportion was 1.3:1 in children aged 0-2, 1.4:1 in children aged 0-5 and in children aged 0-10. Overall, 60 children or 0.3% presented as triage category (TC) 1, 1065 or 5.5% were TC 2, 5390 or 28% were TC 3 and 3178 children or 17% were admitted to a hospital.

Rural versus Urban Presentations

Patient entries were collected in 3 principal Queensland areas: Brisbane, Mackay and Mount Isa. The largest collection sites including 2 children's hospitals were in the Brisbane area. Overall, 68% of patients in our series presented to hospitals in the wider Brisbane area, 26% of patients presented to hospitals in the rural area of Mackay and 6% presented to hospitals in the rural Mount Isa area. The Rural/ Urban proportion of injury presentation was 0.5:1 overall but 1.2: 1 for motorcycle and ATV presentations.



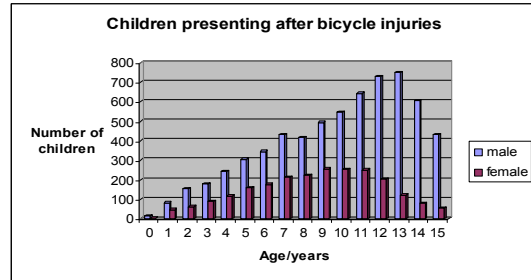
Graph 1: Monthly injury presentations as a percentage of all presentations.

More children presented in the month of January than during any other month. On average, around 1600 children presented per month averaging 53 children a day. The average daily presentation rate was higher on Christmas and Boxing days: 144 children presented on the 25th or 26th of December and 2298 children or 11% of all presentations attended during the festive season (Christmas day 25th of December to Australia day 26th of January) averaging 8 children per day.

Bicycle injuries (push bike)

Push bike injuries were the most common injury. 8685 children or 45%, presented after they had sustained a push bike related injury. Nearly three quarters of these (6378) were male. Five percent or 467 were TC 1 or 2, and 27% or 2341 were TC3. Overall, 15% or 1323 children required admission. One patient died in the emergency department from serious intracranial injuries following a push bike crash.

The age distribution shows a progressive increase of male push bike related injuries to a peak at 13 years. Girls have a peak age of push bike related injuries at 9 years of age.



Graph 2: Number of male and female children presenting with push bike related injury by age.

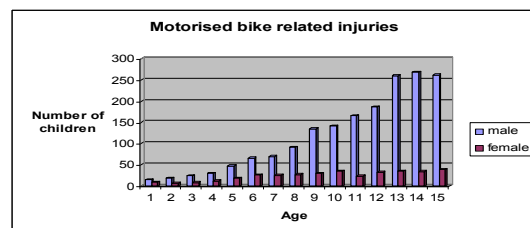
Forty percent (3409) of push bike injuries occurred on a road, 2897 or 33% at home, 1496 or 17% in a sport or recreational area, and 142 or 2% at a school. Another 741 or 9% occurred in other areas. Of all push bike related presentations, 2186 or 25% sustained fractures (337 or 4% lower limb, 1703 or 20% upper limb), 2258 or 26% sustained a laceration, 1877 or 22% sustained superficial injuries, 1208 or 14% sustained sprains, 540 or 6% head injuries, 161 or 2% sustained dislocations and 20 sustained abdominal or chest injuries.

Motorised bikes:



Eleven percent of children presenting in our series (2146) sustained an injury involving a motorised bike, quad bike, ATV, buggy or scooter. The majority were male (83%) and older than 13 years.

Two-wheel bikes (motor bikes and trail bikes) were the most common motorized vehicle associated with an injury (93% or 2004 injuries). Four-wheel bikes (ATV's, motorised go-carts, quad bikes) were less commonly involved accounting for 133 or 6%. Less than 1% (8) were due to a motorized tricycle crash. Overall, 28% or 604 of these children sustained fractures, mainly of the upper limb. A further 389 sustained superficial injuries, 366 sustained sprains, 351 sustained lacerations and 151 sustained burns. Five percent (104) sustained head injuries, 56 dislocated joints and 31 sustained abdominal or chest injuries. With regard to severity, 177 or 8% were TC 1 or 2, and 661 were TC3. Nearly one quarter (498) were admitted or transferred for further care. 75% of injuries occurred outside of the home. The most common area for motorised bike injuries to occur was the paddock (366 injuries or 17%) followed by unsealed roads (278 or 13%) or the garden (261 or 12%).



Graph 3: Motorised bike related injuries to male and female children by age.

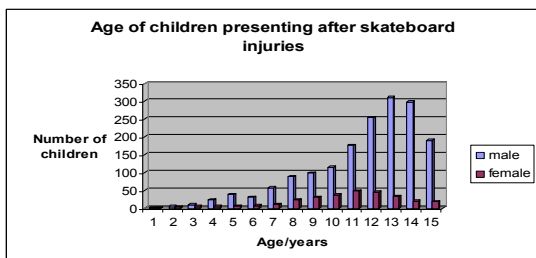
More than half (58%) of all presentations for motorised bike related injuries presented to rural hospitals: 1055 or 49% presented in Mackay and 193 or 9% in Mount Isa compared to 898 or 42% who presented to urban hospitals in Brisbane .

Skateboards

Ten percent of children in our series (1991) presented after a skateboard injury. The majority (1695 or 85%) were male. The age distribution of skateboard related injury presentations shows a progressive increase to a peak at 13 years of age.



773 or 39% sustained limb fractures (mainly of the upper limb), 412 or 21% sprains, 276 or 14% superficial injuries and 249 or 13% lacerations. Five percent of children (100) had head injuries. One third of all skateboard related injuries (665) occurred at home, 649 or 33% happened in sport or recreational areas (skate parks) and 453 or 23% happened on public roads.



Graph 4: Skateboard related injuries to male and female children by age

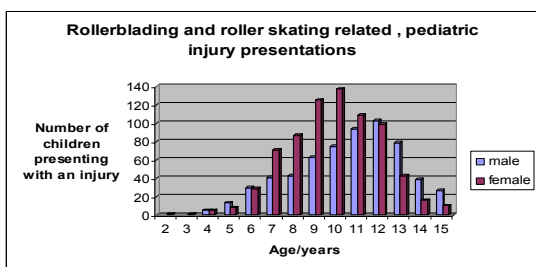
With regard to severity, 93 or 5% were TC 1 or 2, 536 or 27% were TC3 and 15% or 303 were admitted.

Rollerblades and Roller-skates



Seven percent of children (1355) presented after an injury involving rollerblades or roller skates. The majority (55% or 743 presentations) were female.

Injury presentations were uncommon in children less than 7 years of age. Peak age of injury differed between males and females: 12 years for boys and 10 years for girls.



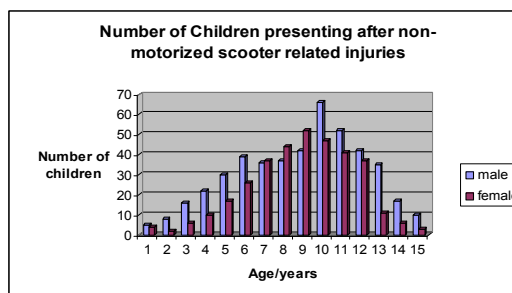
Graph 5: Roller blade and roller skate related injuries to male and female children by age

The most common roller blading/ skating injury sustained was a fracture (772 or 57%). Almost all of these were upper limb fractures (742). Of the remainder 300 (22%) sustained sprains and 9% sustained superficial injuries only. Twenty seven children or 2% had head injuries. With regard to severity, 94 children or 7% were TC 1 or 2 and 32% or 435 children were TC3. Almost one quarter of children (296) were admitted. The majority of roller blading/ skating related injuries occurred at sports or athletic facilities (564 or 42%). A further 450 or 33% happened at home, 220 or 16% occurred on a road and 104 injuries occurred in other areas. Only a small number (18) occurred at schools.

Non-motorised scooters



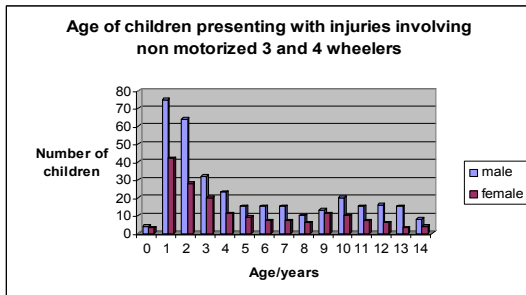
In our series, 802 children (4%) presented to an emergency department following an injury involving a non-motorised scooter. The majority, of children (57% or 457) were male. The age distribution showed a peak age for males of 10 years and a peak age for females of 9 years. Nearly one third of children presented with a fracture (253 or 32%). Girls were proportionally more likely to sustain a fracture: 35% of girls presented with fractures compared to 25% of boys. Of the remainder, 188 children or 23% sustained lacerations, 148 children or 18% sustained superficial injuries and 32 children (4%) sustained head injuries. With regard to severity, 23 or 3% of patients presented as TC2 (no TC1), 168 patients or 21% were TC3 and 79 or 10% were admitted. Half of all non-motorised scooter injuries occurred at home (406), 223 injuries or 28% occurred on a public road and 109 or 14% happened on a public recreational or sport ground.



Graph 6: Push scooter related injuries to male and female children by age.

Non-motorised 4-wheelers, 3-wheelers and ride-on toys

Three percent of children (519) presented after they sustained an injury involving a non motorised ride-on toy with more than 2 wheels (Billy carts, go-carts, tricycles, and other ride on cars, wagons or toys). The age distribution demonstrates the age of intended use for ride on toys and tricycles with a peak at 1 year followed by a rapid decline after 2 years. Males account for 65 % of attendances (342) in this group. The majority (383) presented after a tricycle crash with 136 presentations after a 4-wheeler crash (these included 59 ride on toys, 56 go carts and 16 Billy carts). Overall, 2.5% or 13 children were TC2, 26% or 135 children were TC 3 and 60 or 12% were admitted.

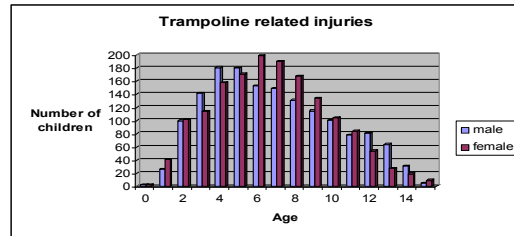


Graph 7: Non- motorised 3 and 4 wheel device related injuries to male and female children by age



Trampolines

Overall, 3115 children (16%) presented after a trampoline related injury. Males and females were equally represented and there was a bell shaped age distribution from age 1 to 15. 40% or 1218 children were younger than 5 years old.



Graph 8: Number of male and female children presenting after a trampoline related injury by age.

In most trampoline related presentations, the child sustained a fracture (1185 or 40%) of which the vast majority (946) involved the upper limb. Five children sustained vertebral fractures. Of the remaining presentations, 368 or 12% sustained lacerations, 445 or 14 % sustained superficial injuries, 99 or 3% sustained head injuries, 96 or 3% sustained dislocations, and 19 sustained other serious injuries including 1 child with a spinal nerve injury, 7 children with abdominal injuries (ruptured spleen, liver , kidney) and 4 children with eye injuries. Of all trampoline related presentations, 212 or 7% were TC 1 or 2, and 924 or 30% were TC3 with 520 or 17% admitted. The majority of trampoline injuries (2725 or 87%) occurred at home.

Summary

Table 2 shows the proportion of children presenting with head injuries, chest and abdominal injuries and fractures related to wheeled devices or trampolines. Severe head injuries (skull fractures, intracerebral bleeds or brain tissue injury) were identified from the ICD codes. The proportion of head injuries that were severe are tabled below, expressed as a proportion of the number of head injuries in each category.

	Bicycle	Trampoline	Motorized Bike	Skateboard	Roller blade / Skate	Non - motorized Scooter	Non - motorized 3 and 4 Wheeler
Number of presentations	8685	3115	2146	1991	1355	802	519
% Head injuries	6%	3%	5%	5%	2%	4%	11%
*Proportion serious head injuries	14%	17%	14%	20%	3%	40%	10%
Limb Fracture	25%	38%	31%	39%	57%	32%	19%
Chest / Abdominal injuries	1.20%	0.20%	0.60%	0.20%	0.07%	0.50%	1.30%

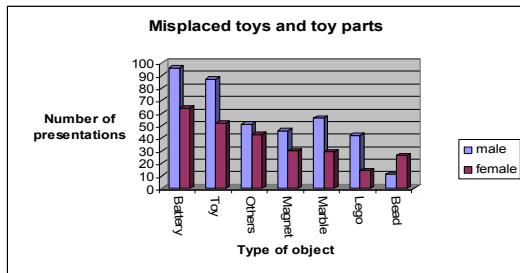
Table 2: Proportion of serious injuries related to wheeled devices or trampolines
* Serious head injuries expressed as a proportion of all head injuries in each category.

Foreign bodies aspirated, ingested and stuck where they do not belong

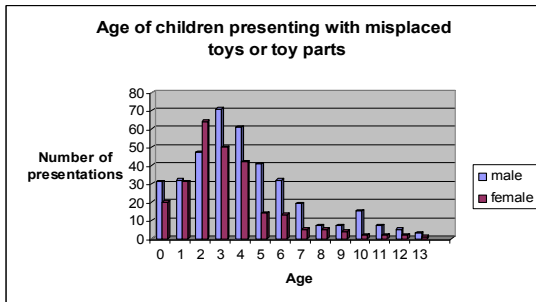
Three percent of children (634) presented with a toy, magnet or battery ingested, aspirated or stuck somewhere. The majority (70%) of children were younger than 5 years of age. Up to 4 years of age the age proportion was almost equal for boys and girls, changing to a male/female ratio of 2:1 from 5 years of age. The peak age for presentation for this injury was 2 years for females and 3 years for males.

Overall, boys were more likely to attend because of a misplaced battery or small object (typically a car wheel or part of a larger toy). Girls were more likely to attend because of a misplaced bead.

Misplaced toys/ toy parts included: 160 children presenting with an ingested, aspirated or inserted battery, 139 with a plastic toy (wheels of a car, Barbie slipper, etc.), 85 with marbles (including magnetic marbles), 63 with magnets, 56 with Lego parts and 37 with beads. A further 94 presented having potentially misplaced an unknown toy part.



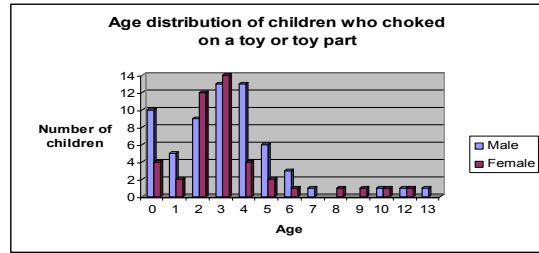
Graph 9: Misplaced toys or toy part related injuries to male and female children by age.



Graph 10: Age of children presenting with misplaced toys or toy parts related injuries.

Choking

Less than one percent of children (106) presented having choked on/ inhaled a battery, magnet or toy. The age distribution is bimodal with peaks at less than 1 year, and again at 2 to 4 years. The peak age for females was 3 years with a bimodal peak for boys of < 1 and 3 to 4 years. Of all toy related choking episodes, 4 % (4) were TC 1 or 2, 60% (63) were TC3 and 15 % (16 children) were admitted.



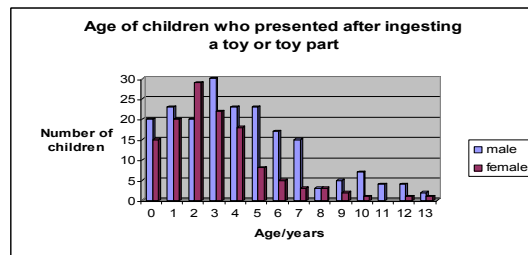
Graph 11: Age of children presenting after choking on a toy or toy part

Most injuries occurred at home with 36 or 34% occurring in the living room, 22 or 21% in the bedroom, 19 or 18% in other indoor areas and 12 or 11% in a family room.

Ingested objects

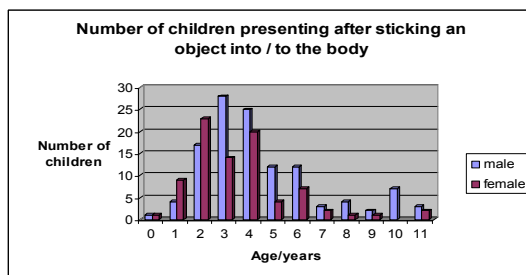
Two percent of children (324) attended after they had ingested a toy/ battery or magnet. The peak age for ingestion was 2 years for females and 3 years for males. Of these injuries, 20 or 6% were TC1/2, 73 or 23% were TC3 and 29 or 9% were admitted. The majority of injuries occurred at home: 85 or 26% occurred in a living room, 63 or 19% occurred in a bedroom and 62 or 19% occurred in a family room.

Inserted Foreign bodies



Graph 12: Age of children presenting after ingesting a toy or toy part.

One percent of children (203) presented after they had stuck a foreign body into openings like the nose, ear, or other orifice. A few children attended after a body part (finger etc) had got stuck in a toy.



Graph 13: Age of children presenting after sticking a toy or toy part into or to the body

Children aged 2 to 4 were more likely to attend with a foreign body in an orifice or a body part trapped in a toy. Girls up to 2 years old were twice as likely to present, but overall the female: male ratio was 0.7:1. The majority of incidents occurred at home, in the bedroom (63 or 31%), family room (40 or 20%) and living room (34 or 17%).

Discussion and Prevention



Learning to ride, jump and learning through experimental play are all part of the normal process of growing up. Children test and continually reset the boundaries of their abilities. Falling and failing is part of the process but injury needn't be. Many of the injuries presented in this bulletin can be prevented or minimised through the appropriate choice of location, of safety equipment and the selection of toys/ play equipment appropriate to the child's developmental age and ability. Not surprisingly, injury and death in relation to contact with cars and buses is the greatest risk for a child. Light protection will not prevent deaths, and even though it is important to wear

protective gear, it is equally or more important to behave in a traffic appropriate way and to obey road rules. It is the parent's responsibility that the children are both familiar with the traffic situation and of the age to have the spatial awareness and physical coordination to be safe around traffic.

In contrast, off road areas provide a challenge not due to speed but because of uneven ground and static objects. In this situation the wearing of protective gear is likely to minimise injury in a relatively low speed crash without influence of another vehicle or object. Use of recreational facilities reduce the danger imposed by road traffic and theoretically provide a more controlled and appropriately challenging environment. However, this is only true if the children are taught the relevant motor skills and wear protective gear.

Bicycles

45% of all presentations in the observation period were due to bicycle related injuries. Boys aged 11-14 were proportionally overrepresented. Bicycle injuries occur both on and off-road. A 2000 and 2003 survey demonstrated that during the 2 week period in April prior to the survey date, over 1.6⁽⁴⁾ million children aged 5-14 years in Australia reported having cycled at least once. This popularity is reflected in the high number of injury presentations related to bicycle crashes in this series. Head injuries and facial injuries are a preventable type of injury in this population.⁽⁵⁾ Whilst a helmet will not save the child in a 60kph frontal crash with a bus, it will provide protection from low speed or force impact onto concrete.



Helmet use whilst bicycling became legally mandated in Queensland in 2001⁽⁶⁾, yet it is our clinical experience that many children presenting to the Mater Children's Hospital Emergency Department still report not wearing their helmets at the time of injury. Studies show that factors reducing bicycle related injuries and death are: the number of cyclists on the road ('safety in numbers') and cyclist behaviour and experience. It is as important to instruct children in road rules and road cycle behaviour and to maintain the bike and specifically the brakes in good working order as it is to wear a helmet. Most paediatric cycle related deaths are due to collision with a car⁽¹⁾, and whilst helmets may reduce injury, they are not designed to withstand this type of impact.

Motorised bikes

Adolescent males in rural areas are overrepresented in the category of motorised bike injuries and deaths. 30 out of 47 persons deaths due to a⁽¹⁾ motorcycle related crash 1991-2004 were 15-17 years old males. Of the 6 children who died in motorcycle crashes in 2006/2007, 4 were 15-17 years old. All were the drivers of the motorcycle, whereas in the lower age group one was a passenger.⁽¹⁾ Almost two thirds of all injuries in this group were sustained in rural areas with the majority in the paddock or on unsealed roads.

The majority of motorised bike injuries occurred on traditional motorcycles or trail bikes. Because of the high speed achieved, even simple abrasions can lead to serious loss of skin, muscle and ultimately limbs. Wearing of protective gear (helmet, trousers, jacket, boots and gloves) reduces injury in the event of a crash. Interestingly, whilst five percent presented with head injury, only 14% of those head injuries were serious. This may indicate a degree of compliance with use of safety gear. As motor bikes are generally manufactured for on road use, the safety standards are stringent and regular maintenance and road worthy tests are required.⁽⁶⁾

⁽⁷⁾ Since 1980 all terrain vehicles and Agricultural bikes (ATV or Ag bikes) have gained increasing popularity in Australia. The use of ATV's and Ag bikes is generally restricted to agricultural use in off road areas, where general road rules around age of driving, helmet use and speed limits are not enforceable. Children that die from ATV/Ag bike injuries are much younger than their motorbike counterparts. In 2004/2005 all children who died were aged 4 -12 and 50% of these children were wearing a helmet. The key issue is that these children are too young to control these vehicles. In our series, children as young as 2 years of age sustained injuries whilst riding an ATV. Parents falsely assume ATV's are more stable than they actually are.

Fatalities have occurred when young children having been left seated on the bike have set the bike in motion.⁽⁸⁾ It is important to disengage the gears when leaving the ATV running so that the bike cannot be inadvertently set in motion. Other prevention strategies relating to ATV use have been discussed in an earlier bulletin.⁽⁹⁾



Child sized motorized “toys”

When is a toy not a toy?

In recent years, child sized motor bikes, go-carts and ATVs have become available. Some of these ‘toys’ are battery driven and reach a speed of 3-5 kph on the flat. When used on a hill the speed will increase significantly. Others are propelled by combustion engines ranging from 50 – 110 cc and are able to reach much higher speed. Small motorbikes are used by children in Pee Wee motocross competitions, with varying limits on age, experience and motorcycle capacity according to the club/competition. The overlap between toys and object of use is large and protective gear and skill is required to prevent injury on all motorized toys. As with riding adult bikes, the use of protective equipment is strongly advised. This is generally strictly enforced by motocross organisations. Parents are encouraged to follow similar safety standards for young children riding in non club settings.

Small wheeled devices

Unlike cyclists, skateboarders and all users of small wheeled devices (rollerblades, roller skates and non-motorised scooters) are not legally required to wear a helmet. Users are permitted to ride on the road and footpath (except where signs prohibit).

Skateboarding tends to be an adolescent male domain. A high proportion of children presenting following a skate board related injury in our series, had limb fractures (39%) or a head injury (5%) of which 20% were serious. This is likely to reflect a combination of poor compliance with use of protective equipment (helmets, wrist guards, and knee and elbow pads) and stunt riding. Whilst the majority of skateboard related injuries occurred at home or in a recreational facility, nearly one quarter occurred on public roads. The potential for serious injury is high when there is a collision with a vehicle. Speed, lack of lighting/ reflective gear and weather can potentiate crash situations.

In contrast roller blades and roller skates are more commonly used by pre-adolescent girls. Three quarters of all rollerblade/skate related injuries occurred at home or a recreational facility. Few presented with serious head injuries but more than half of all injury presentations in this group were with upper limb fractures. Injury following rollerblading or skating was 2-3 times more likely to result in a limb fracture than injury following any of the other activities discussed. This probably reflects the developmental age of the children (where little force is required to cause a forearm fracture) and poor compliance with the use of wrist guards. ^(12, 13, 14)

Non motorized push scooters have gained popularity in recent years. Current models have small firm wheels resulting in a small brake grip surface and a high potential for swivelling of the front wheel causing the scooter to flip. These features coupled with low numbers of helmet use probably account for why the highest proportion of serious head injuries occurred in this group.



Non motorised 3 and 4 wheelers

Ride-on toys are generally built for young children under the age of 3 years. They have no in-built braking system and are designed to be used on the flat in the home environment. The risk of significant injury increases where children are able to access slopes, stairs or pools.

Trampolines

Trampolining remains a popular and healthy outdoor pastime, with a survey performed in 2001 revealing that 10% of all households in Queensland had a trampoline. However, the positioning of the trampoline is important, plus the selection of trampoline and the available padding and netting devices. Trampolines are now available with an inbuilt safety net. In addition to these structural considerations, there needs to be a consideration toward the number of children using the trampoline at any one time. To avoid children bouncing off the trampoline and into an object (branch, furniture, etc.) it is important to position the trampoline in a clear space on a flat surface.



Foreign bodies



Toy manufacturers often advise parents of the suitability of their purchase for children of different ages.

Where some age recommendations refer to the child’s ability to use the toy, the label ‘not suitable for children aged 3 or younger’ advises parents of a possible choking risk due to small parts. This recommendation is based on data showing that the majority of choking/ ingestion injuries occur in children under the age of 3 years. Whilst the data in this series demonstrates a reduction in the number of presentations with foreign bodies after the age of 3 years, a significant proportion of 4 and 5 year olds present with inhaled, ingested or inserted foreign bodies. A recent review by the consumer magazine Choice showed that there are a number of toys on the Australian market that do not comply with required Australian standards. ^(15,16) Many tested failed to adequately identify choking hazards. An easy test that parents can use at home is to avoid anything that will fit into a 35 mm film canister. Parents should also assess accessibility of batteries in toys. Many toys have plates that screw into place to cover ⁽¹⁷⁾the battery. The recent recall of Bindeez beads illustrates not only the problems around standards of toys (the beads contained a chemical that when swallowed caused coma and respiratory depression) but also the fact that children younger than the intended-for age group can ‘misuse’ the product. Potential toxicity (lead and other heavy metals) has prompted the recall of other toys intended for use by young children. Encouraging the older children to clear away their toys will restrict unintended access by the younger siblings.

Pool drowning

Pool drowning remains the leading cause of all deaths for Queensland children aged 1 to 4 years. ^(1, 3)



In the majority of cases, toddlers drown in swimming pools because they gain unintended access to the pool. Legislation introduced in 1991 requires domestic swimming pools to be fenced with a self-closing and self-latching gate in compliance with the Australian Standard for pool fencing. Since the introduction of pool fencing legislation, the toddler drowning death rate has been estimated to fall to one third of pre-legislation levels. Despite this, an average of 7 toddlers still drown each year in Queensland.

Factors associated with these deaths include poor compliance with fencing laws (no fence, panels missing, gate non-functional or propped open), direct access from the house to the pool yard (4-sided pool fencing is optimal) and or climbable objects near the fence. Several deaths in Queensland have occurred in wading pools. These pools are inexpensive and require no pool fence if the water depth is less than 30cm. However, toddlers can drown in less than 30cm of water. With the current water restrictions there is an increased hazard that pools will remain filled and therefore there is an increased risk of a child drowning. Pool drowning deaths of older children (who are generally able to swim) are more often associated with falls/ diving injuries.

When children are swimming or playing near a pool, direct visual one to one supervision by a designated adult is required.



Summary

Christmas is a time of caring and giving, and the most important gift you can give to your family is the gift of good health and safety. This bulletin has highlighted injury patterns associated with some sporting and play equipment. Attention to environmental factors, education as well as good selection processes are likely to improve the chances of safe use of your well intended gifts.

Top ten Recommendations:

-  Make sure your gift is appropriate for the skill, developmental age and size of the child.
-  Give a helmet and appropriate training for any wheeled devices.
-  Supervise young children and show them how to use their new toy.
-  Wrist guards, elbow and knee pads are important if you give roller blades, roller skates or a skateboard.
-  Give appropriate body protection (suit, motorcycle helmet, gloves, shields / pads) with any motorised bike.
-  Adult size ATV's should not be ridden by children under the age of 16 years.
-  Make sure trampolines have a padded safety zone and safety nets and are stable And clear of other objects.
-  Erect and maintain an Australian Standards approved pool fence and be sure that the gate swings back into the closed position at all times. Never prop the gate open.
-  One on one adult supervision is required for young children playing in the home pool including wading pools.

Ensure children under the age of 3 years do not have access to small objects (anything that will fit into a 35mm film canister).

(18, 19)



References:

- (1) Commission for Children and Young People and Child Guardian. Annual Report. Death of Children and Young People Queensland 2004-2008, 2005-2006, 2006-2007
- (2) Website: <http://www.oesr.qld.gov.au>
- (3) Cunningham, K. and Hockey, R. 10 Years On Toddler Drowning in Qld 1992-2001, QISU Bulletin No. 75, November, 2002
- (4) Australian bureau of Statistics 2006 yearbook Number 88. ABS Catalogue number 1301.0. ISSN 0312-4746 Australia 2006. Website: <http://www.abs.gov.au> Bicycle Usage, Queensland Oct ober 2000 / October 2003.
- (5) Cochrane Database of Systematic Reviews 2007. Thompson, D.C., Rivara F.P., Thompson, R. Helmets for Preveting Head & Facial Injury in Bicyclists. Cochrane Review ISSN 1464-7804 Website: <http://cochrane.org.au>
- (6) Website: <http://www.transport.qld.gov.au>
- (7) Lower T., Egginton N., Ellis I. , Larsen "A. Reducing All-Terrain vehicle injuries – A randomised controlled trial study of the effect of driver training" Report by the Australian government Rural Industries research and Development Corporation
- (8) Fragar L., Pollock K., Temperley J; "A National Strategy for Improving ATV safety on Australian farms" Report for the rural Industries .Australian government Research and development corporation June 2005. ISBN 1 74151 145 3 ISSN 1440-6845
- (9) Hockey R., Scott D. "ATV and Lawnmower injuries" QISU bulletin number 81 April 2004 ISSN 1442-1917
- (10) [Skateboards public education campaign.pdf](#) Helmets are not just for pro's
- (11) Website: www.skatesafety.qld.gov.au
- (12) Ellis,J, Kierulf,J, Klassen,T, Injuries associated with in-line skating from the Canadian hospitals injury reporting and prevention program database, Canadian Journal of Public Health, March-April 1995.
- (13) Orenstein,JB, Annals of emergency medicine, 1996;27:204-209. Schieber,R, Branche-Dorsey,C, Ryan,G et al , Risk factors for injuries from in-line skating and the effectiveness of safety gear, N Engl J Med, 1996; 335:1630-1635.
- (14) Chong,A, Sunner,P, Deshpande,S, Wrist guards in in-line and conventional roller-skating injuries, Medical Journal of Australia (letter) 162 (8) 17 April 1995 p144.
- (15) CHOICE Australian consumer organisation publications "Dodgy toy checklist" December 2004.
- (16) CHOICE Australian consumer organisation publications "Toy safety" November 2007.
- (17) Website:<http://www.recalls.gov.au>
- (18) Fact Sheet by Kidssafe Australia "Christmas Toys" 2000, accessible over the website: <http://www.kidsafe.com.au>
- (19) "Safe toys for kids" report by the Australian competition and consuer commission 2005. ISBN 1 920 702 865

