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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.

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Injuries related to furniture and large appliances

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Summary

- Q Four child deaths in QLD since 1993 have involved furniture
- Q QISU recorded 8207 injuries related to furniture or major appliances in the four years 1998-2001
- Q 45% of the recorded injuries were to children aged less than five years
- Q The most common injuries were open wounds and fractures
- Q Chairs, beds, tables and benches accounted for almost two-thirds of the injuries
- Q Half of the injuries were the result of a fall
- Q Falls greater than 1 metre were almost all associated with bunk beds and more often resulted in serious injury
- Q Televisions were associated with 110 injuries, mostly to children under 5.
- Q A third of TV injuries resulted from the TV toppling onto the victim.

Introduction

Injuries associated with furniture items are a relatively common occurrence particularly in the home and amongst young children. Since 1993, there have been four child deaths in Queensland involving furniture items.¹ All of these deaths involved items such as refrigerators, cupboards and in one case a birdbath toppling onto the child. Recently in NSW the child of a well known sports star was killed when a television toppled on top of her. While such fatalities do occur the more frequent scenarios involve falls or young children colliding with a furniture item resulting in a laceration to the forehead. By examining which household furniture items are associated with high numbers of injuries and the mechanisms involved measures can be developed to modify these items to make them safer or remove or restrict access to them, if practical.

This analysis examines the circumstances and nature of emer-

gency department (ED) presentations to QISU participating hospitals for injury associated with household furniture including large electrical appliances and selected outdoor items.

Results

For the years 1998 to 2001 there were 8207 furniture-related injury presentations to participating hospital EDs in Queensland comprising around 5% of all injury presentations and 13% of injury presentations by children aged under five years.

Eighty-five per cent of furniture related injuries occurred in the home with the only other significant location for these types of injuries being schools, kindergartens and child care centres (4%).

Two-thirds of furniture related injuries reported were to children aged less than 15 years with almost fifty per cent involving children aged under five. In most age groups there were similar numbers of males and females injured. The exceptions being males aged 5 to 9 years and females aged 65 years and over.

The most common furniture items associated with injuries were chairs or stools (21%), beds (20%), tables (18%), cabinet (8%), sofa or couch (8%) and bunk bed (6%). Most injuries occurred in the bedroom, living, family or dining room.

An open wound was the most frequent injury reported (28%) followed by fracture (18%),

sprain or strain (15%), superficial (14%) and intracranial (13%). The most frequent body part injured was the head or face (44%), lower arm (13%) and foot (9%).

Mechanism

More than half of the furniture related injuries resulted from a fall of some type, followed by contact with a static object (26%), contact with moving object (6%) and cutting or tearing (6%). Amongst the falls most were described as on the same level (25%) or less than one metre (33%). Eleven per cent of the falls were described as being from a height of greater than one metre.

Falls

Overall falls were most often associated with chairs (25%), beds (24%), tables (13%) sofas or couches (10%) and bunk beds (10%). Falls over one metre were almost all associated with bunk beds. Fractures, particularly of the lower arm made up nearly a quarter of the injuries resulting from a furniture-related fall. The other most frequent fall injuries after fractures were open wound (20%), intracranial (18%), sprain or strain (16%) and superficial (13%). The most common part of the body injured was the head or face (43%) and the lower arm (20%). Falls from bunk beds more often resulted in more severe injuries such as fractures (36%) or head injuries (18%) with more than 1 in 5 requiring admission to hospital. Six percent of falls were also associated with rugs or mats, mainly involving females aged 65 years and over.

	Head / Face	Thorax upper back	Lower back	Shoul- der	Lower arm	Hand	Hip	Lower leg	Foot	Other	Total
Superficial	16%	39%	13%	10%	7%	13%	12%	11%	15%	15%	14%
Open wound	47%	1%	2%	2%	5%	26%	4%	23%	17%	11%	28%
Fracture	2%	30%	4%	39%	57%	23%	40%	15%	31%	12%	18%
Dislocation	0%	0%	1%	11%	4%	2%	2%	2%	4%	0%	2%
Sprain or strain	0%	25%	70%	31%	23%	14%	31%	39%	26%	17%	15%
Crushing injury	0%	0%	1%	0%	1%	11%	0%	2%	4%	1%	2%
Eye injury	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Intracranial	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%
Other	3%	5%	10%	8%	3%	11%	11%	8%	3%	44%	8%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Figure 1 QISU Emergency Department presentations, furniture-related injury, nature of injury by body part, 1998-2001

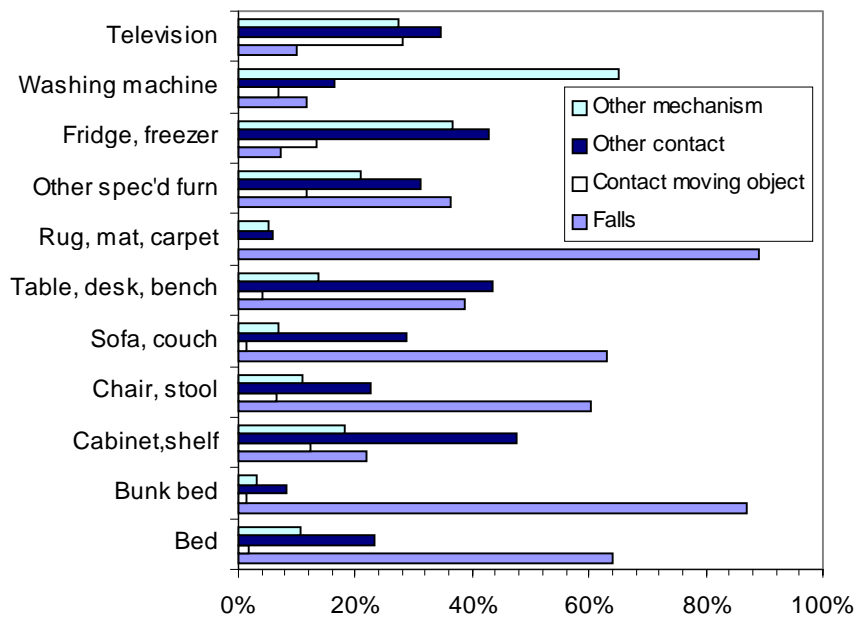


Figure 2 QISU Emergency Department presentations, furniture-related injury, by major injury factor and mechanism, 1998-2001

Contact with static object

After falls the next most common mechanism found was contact with a static object – the classic “coffee table lacerations”. This type of injury was most often associated with a table or desk (27%), chair or stool (17%), bed (16%) and cabinet (13%). For example, “Running in house and ran into edge of cupboard”, “tripped over loose rug hit lower cheek on coffee table”. Open wounds were the most frequent injury (36%) with the head or face being the most common part of the body injured (49%). Seventeen per cent of contact with static object injuries were to the foot mainly older children and adults kicking or tripping over furniture items.

Contact with moving object

Furniture related injuries resulting from contact with a moving object were most commonly associated with chairs or stools (24%), cabinets (17%) and tables or desks (13%). These types of injuries usually involve the furniture item toppling or dropping onto the victim sometimes with fatal consequences. The most frequent injury in this group was open wound (24%), superficial (19%), sprain or strain (15%), fracture (12%), intracranial (12%) and crush (8%). The head or face was the most frequent part of the body injured (31%) followed by the foot (22%) and the hand (14%).

Of the 110 injuries associated with televisions a third involved the appliance falling or toppling onto the victim. Two thirds of these injuries involved children aged less than 5 years with the

majority being aged 1 to 2 years. A typical case from the data which involved a two-year old was described as: “Fractured right neck of femur and internal injuries, TV fell on him at home”. Although most of these toppling incidents resulted in minor injuries a third resulted in more serious injuries such as fractures or head injuries.

Another item with a tendency to topple onto young children is the birdbath. There were 11 injuries involving birdbaths of which seven involved it toppling and

70% involving victims age 1 to 2 years.

Severity

Eleven per cent of furniture related injury presentations resulted in admission to hospital. The highest admission rate was amongst the fall injuries (15%) with lowest being for contact with a static object (6%).

Discussion

Most injuries involving furniture involve children going about their normal daily living. In the UK in 1996 more than 13% of all injuries in the home were reported as being associated with furniture while in the US 15% of product related injuries are associated with furniture increasing to 31% for children aged under five.^{2,3} It may be argued that for the most part these injuries are minor and a consequence of their activities as part of the developmental process. However, some of the injuries sustained are more severe, particularly head injuries and fractures, and can result in death or hospital admission and in some cases long-term disability.

Many of these injuries could have been avoided or been less severe if simple modifications had been made to the child’s environment. Consider for example “coffee tables”, which an analysis of furniture related injuries to children in the US found were involved in 25% of the injuries.⁴ If parents chose tables with rounded edges and/or used corner protectors or located these items out of traffic areas the severity and incidence of these injuries could be reduced.

Falls are commonly associated with beds and bunk beds. Because of their nature bunk beds are usually associated with high falls resulting in more severe injuries. A study in Austria found that 42% of bunk bed injuries to children resulted in a major injury such as head injury and long bone fractures.⁵ The authors concluded that children should never sleep in bunk beds. In Australia a mandatory standard for bunk beds which addresses some safety issues in relation to these items will come into effect later this year.⁶

Falls from normal beds, usually less than one metre, were associated with fewer fractures but a similar proportion of head injuries. A number of falls from beds involved infants aged under one year, highlighting the need for carers to never leave infants on elevated surfaces unattended.

The risk of injury resulting from televisions especially large ones toppling onto the victim has until recently not been widely recognised. Other studies which have examined this issue report similar numbers and types of injuries to the current bulletin.^{7,8} One study in the US found toppling TVs resulted in 28 child deaths over a seven year period.⁷

The physical properties of a TV increase its propensity to be unstable. Large format TVs can weigh in excess of 50kgs. The heaviest part of a TV, the tube, has a centre of gravity that is high and near the front of the set. This property becomes more exaggerated as the screen size increases. In addition TVs are often placed on other furniture items which are unsuitable for this purpose. Parents need to ensure that televisions particularly large ones are placed on a secure and stable surface and fixed securely to prevent toppling. Most large format TVs now have a fixing point at the rear and instructions on how to secure them and in some cases the required hardware is included.

Similarly, other large potentially unstable items of furniture such as bookcases, pantry cupboards and modular wall units should be fastened to the wall to prevent toppling. Again, the hardware required should be included with the item on purchase. In the case of birdbaths they should ideally be concreted or fastened to the ground in some way to prevent toppling.

Prevention

- Q The use of bunk beds should be avoided, but where they are used ensure they meet the Australian Standard
- Q Children under the age of nine should not sleep in bunk beds
- Q Bookcases, cabinets and shelving units that may be unstable should be secured to the wall.
- Q Televisions should be placed on a stable, secure surface and secured if necessary to prevent toppling.
- Q Furniture with safer design (stable, rounded edges etc) should be selected where possible
- Q Corner protectors can be used to cushion sharp corners on tables and benches
- Q Items, attractive to children, should not be placed on climbable furniture. This includes not placing the remote control on top of the television
- Q Promote and advocate for safer furniture design
- Q All potentially unstable furniture items should be sold with hardware to secure them.

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