Consumer product-related injuries in Queensland children

A snapshot of current problem areas for potential action

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CONSUMER PRODUCT-RELATED INJURIES IN QUEENSLAND CHILDREN: A SNAPSHOT OF CURRENT PROBLEM AREAS FOR POTENTIAL ACTION

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# Executive Summary

Background ................................................................................................................................. 4
Overview of the Consumer Product Safety Environment .............................................................. 4
Child Injury in Queensland ........................................................................................................... 5
Consumer Product-Related Injuries ............................................................................................. 5
Conclusion ..................................................................................................................................... 5

## 1. The Extent of the Childhood Injury Problem in Queensland

Ijury-Related Emergency Department Presentations and Hospitalisations in Queensland Children ......................................................... 6

## 2. Consumer Product-Related Injuries

### 3. Products That Were Overrepresented in the Data

#### 3.1 Bunk Beds

Emergency Department Presentations for Bunk Bed-Related Injuries ........................................ 9
Admissions to Hospital for Bunk Bed-Related Injuries .................................................................. 11
Opportunities for Action: Bunk Beds .............................................................................................. 12

#### 3.2 Magnets

Emergency Department Presentations for Magnet-Related Injuries ......................................... 13
Opportunities for Action: Magnets .................................................................................................. 15

#### 3.3 Trampolines

Emergency Department Presentations for Trampoline-Related Injuries ................................. 16
Admissions to Hospital for Trampoline-Related Injuries ............................................................... 17
Opportunities for Action: Trampolines ........................................................................................... 19

#### 3.4 Cots and Portacots

Emergency Department Presentations for Cot-Related Injuries ............................................. 20
Admissions to Hospital for Cot-Related Injuries .......................................................................... 21
Opportunities for Action: Cots and Portacots ................................................................................. 22

#### 3.5 Strollers and Prams

Emergency Department Presentations for Pram-Related Injuries ........................................... 23
Admissions to Hospital for Pram-Related Injuries ....................................................................... 24
Opportunities for Action: Strollers and Prams .............................................................................. 25

#### 3.6 Change Tables

Emergency Department Presentations for Change Table-Related Injuries .......................... 26
Admissions to Hospital for Change Table-Related Injuries ......................................................... 27
Opportunities for Action: Change Tables ..................................................................................... 28

#### 3.7 High Chairs

Emergency Department Presentations for High Chair-Related Injuries ............................... 29
Admissions to Hospital for High Chair-Related Injuries .............................................................. 30
Opportunities for Action: High Chairs ........................................................................................ 31

#### 3.8 Other Household Products

Emergency Department Presentations for Furniture and Appliances ................................. 32
Opportunities for Action: Furniture and Appliances ................................................................. 34


### 4.1 Burns

Emergency Department Presentations for Burn-Related Injuries ........................................... 35
Admissions to Hospital for Burns ............................................................................................... 37

### 4.2 Poisonings

Emergency Department Presentations for Poisoning-Related Injuries ................................ 38
Admissions to Hospital for Poisonings ....................................................................................... 40
Opportunities for Action: Products with a Burns or Poisoning Hazard .................................... 40

# Table of Contents
Executive Summary

Background

This report presents a snapshot from work which was funded by the Queensland Injury Prevention Council in 2010-11 titled “Feasibility of Using Health Data Sources to Inform Product Safety Surveillance in Queensland children”. The project provided an evaluation of the current available evidence-base for identification and surveillance of product-related injuries in children in Queensland and Australia. A comprehensive 300 page report was produced (available at: http://eprints.qut.edu.au/46518/) and a series of recommendations were made which proposed: improvements in the product safety data system, increased utilisation of health data for proactive and reactive surveillance, enhanced collaboration between the health sector and the product safety sector, and improved ability of health data to meet the needs of product safety surveillance. At the conclusion of the project, a Consumer Product Injury Research Advisory group (CPIRAG) was established as a working party to the Queensland Injury Prevention Council (QIPC), to prioritise and advance these recommendations and to work collaboratively with key stakeholders to promote the role of injury data to support product safety policy decisions at the Queensland and national level. This group continues to meet monthly and is comprised of the organisations represented on the second page of this report. One of the key priorities of the CPIRAG group for 2012 was to produce a snapshot report to highlight problem areas for potential action arising out of the larger report. Subsequent funding to write this snapshot report was provided by the Institute for Health and Biomedical Innovation, Injury Prevention and Rehabilitation Domain at QUT in 2012. This work was undertaken by Dr Kirsten McKenzie and researchers from QUT’s Centre for Accident Research and Road Safety - Queensland. This snapshot report provides an evidence base for potential further action on a range of children’s products that are significantly represented in injury data. Further information regarding injury hazards, safety advice and regulatory responses are available on the Office of Fair Trading (OFT) Queensland website and the Product Safety Australia websites. Links to these resources are provided for each product reviewed.

Overview of the consumer product safety environment

The consumer product safety environment is complex, involving a mix of regulating authorities, industry participants, front line clinicians, injury research professionals, community groups and consumers, all with different priorities and needs. The consumer product safety system covers all goods and product-related services that aren’t already covered by other specific legislation (i.e. goods such as cars, food, pharmaceuticals etc are not included as they are covered by other regulatory bodies). Product safety policy decisions have a major impact on all stakeholders (industry, community, health, regulators) therefore it is important that policy decisions are well informed, logically argued and clearly articulated to all stakeholders. Whilst evidence based decisions are preferred, there are many instances where evidence is lacking, emergent or incomplete. Therefore, evidence needs to be considered in light of its limitations and balanced by an assessment of risk.

Currently, the information base from which this evidence is drawn is largely health and coronial data on product related injuries. This data lacks consistency, particularly in relation to product causality in the injury (product failure, product use, product misuse). This limitation of the current evidence base was recognised in 2006 in a report into the Australian product safety system published by the Productivity Commission (2006). The report stated:

“The available information on product-related injuries and deaths in Australia remains piecemeal, uncoordinated and beset by methodological problems. As such, determining with any degree of precision the share of total injuries and deaths currently caused directly by unsafe consumer products, and trends in this share across time, is difficult”. Pg 359 (http://www.pc.gov.au/__data/assets/pdf_file/0008/9998/productsafety.pdf)

Current health and coronial systems are generally able to provide the following in relation to product related injury events:
- the product class (e.g. pram, bike, bed, chair, nail gun);
- the demographics about the person (e.g. age, sex, location);
- the injury mechanism (e.g. fall, struck by a moving object, crushing, suffocation, piercing, chemical, thermal);
- the time of day of injury;
- the part of the body injured; and
- some level of detail of the injury event (i.e. what was the person doing at the time?, where was it?).

The amount of detail provided and the amount of data captured depends on the data source with coronial data providing a large amount of detail for a small number of fatal cases, and emergency department data providing scant
information for a large number of injury cases of varying severity. Routine emergency data capture only some of these items and with varying consistency. Specialised injury surveillance systems and inpatient data capture the product type and mechanism with more consistency, but there are still limitations.

**Child injury in Queensland**

- Between 2004 and 2011 there were over 475,000 injury-related emergency department presentations (recorded in the emergency department information system data) for children and youth under 18 years of age, 6% of which were deemed to be of high urgency and almost 11% of which resulted in an admission to hospital.
- Between 2001 and 2010 there were over 208,000 injury-related hospital admissions for children and youth under 18 years of age.
- Males present for injury-related treatment at a ratio of approximately 3:2 compared to females, with the most common age groups in males being ages 13-15 years and in females being 1-3 years.

**Consumer product-related injuries**

Emergency department and admitted patient data were analysed to profile several consumer products identified in the QIPC report as high frequency and/or high severity products associated with injuries in children, including bunk beds, magnets, trampolines, cots, prams, change tables, high chairs, other household furniture and appliances. Data were also analysed to profile two major high frequency/severity hazards, burns and poisonings. The average number of emergency department presentations and hospital admissions for the main products of concern were as follows:

- Trampoline-related emergency department presentations account for over 2000 emergency department cases and over 540 hospital admissions per annum.
- Bunk bed-related emergency department presentations account for almost 300 emergency department cases and over 90 hospital admissions per annum.
- Pram-related emergency department presentations account for over 150 emergency department cases and around 35 hospital admissions per annum.
- High chair-related emergency department presentations account for over 110 emergency department cases and around 27 hospital admissions per annum.
- Change table-related emergency department presentations account for over 90 emergency department cases and around 33 hospital admissions per annum.
- Cot-related emergency department presentations account for over 55 emergency department cases and over 20 hospital admissions per annum.
- Magnet-related emergency department presentations account for almost 50 emergency department cases per annum.

**Conclusion**

Consumer products are a significant cause of the burden of child injury requiring treatment in emergency departments and hospitals in Queensland. There are considerable opportunities for strengthening the current product safety surveillance system within Queensland, nationally, and internationally. This work is critical for ensuring better monitoring of and responsiveness to product safety concerns, identification of prevention opportunities, prioritisation of efforts, and evaluation of the efficacy of product safety initiatives. Understanding the high frequency, severity injuries in children for products where there are noticeable gaps/disparities in regulatory responses to injury patterns is an important first step to prioritise actions to reduce the risks of serious injuries in children. It is hoped that this report will be the first in a series of similar reports to focus and target regulatory initiatives in the consumer product safety area into the future.
1. The extent of the childhood injury problem in Queensland

Injury-related emergency department presentations and hospitalisations in Queensland children

Table 1 illustrates the age and sex distribution of the children that presented for treatment of an injury to emergency departments using the Emergency Department Information System (EDIS) database. It is estimated that the emergency departments in Queensland that use EDIS currently capture approximately 71.8% of all emergency department presentations in public hospitals in Queensland [1]. (It is important to note the number of hospitals using the EDIS database has changed over the years, with 2 hospitals in 2004, 8 in 2005, 13 in 2006, 23 in 2007 and 25 from 2008-2011). The median age for all injury-related ED presentations was 10 years (age 11 for males and age 9 for females).

<table>
<thead>
<tr>
<th>Table 1: Age and sex distribution by ED presentation year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED presentation year</td>
</tr>
<tr>
<td>MALES</td>
</tr>
<tr>
<td>0-4</td>
</tr>
<tr>
<td>5-9</td>
</tr>
<tr>
<td>10-14</td>
</tr>
<tr>
<td>15-17</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>FEMALES</td>
</tr>
<tr>
<td>0-4</td>
</tr>
<tr>
<td>5-9</td>
</tr>
<tr>
<td>10-14</td>
</tr>
<tr>
<td>15-17</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td>0-4</td>
</tr>
<tr>
<td>5-9</td>
</tr>
<tr>
<td>10-14</td>
</tr>
<tr>
<td>15-17</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Figure 1 shows the patterns by three-year age groups (17 years and under) presenting to emergency departments for males and females. Males aged between 13-15 years and females aged between 1-3 years were the most common age groups presenting for treatment of an injury at an ED over the period.

Figure 1: Age group proportions by gender for injury-related ED presentations in Qld children
Table 2 outlines the outcomes for patients presenting for treatment of an injury at an ED. The urgency of treatment required (based on triage score) showed that 6% of patients were classified as high urgency (category 1 resuscitation or 2 emergency), almost 32% were classified as urgent (category 3), and 42% of patients were classified as semi-urgent or non-urgent (category 4 or 5).

<table>
<thead>
<tr>
<th>Mode of Separation</th>
<th>(n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Died</td>
<td>32</td>
<td>&lt;0.0</td>
</tr>
<tr>
<td>Discharged from ED</td>
<td>420938</td>
<td>88.6</td>
</tr>
<tr>
<td>Admitted</td>
<td>51850</td>
<td>10.9</td>
</tr>
<tr>
<td>Did not wait/leave after treatment commenced</td>
<td>2536</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>475356</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3 shows by three-year age groups (17 years and under) injury-related admission to hospitals for males and females. The Queensland Hospital Admitted Patient Data Collection (QHAPDC) includes data for all hospital admissions in Queensland hospitals, with data provided for all children 17 years and under admitted between January 1st 2001 and December 31st 2010 with a principal diagnosis of an injury (S or T code in the ICD-10-AM). The data shows that for males the most common age group were the 13-15 year olds and for females the most common age group were those aged 1-3 years. 64.2% of patients admitted to hospital between 2001 and 2010 were male. The mean (SD) length of stay (LOS) for males was 1.75 (3.995) days; higher than the average overall LOS. The average length of stay for females of 1.66 (3.652) days was below the overall average. Figure 2 illustrates the age distribution of the children that were admitted to hospital each year for the period 2001-2010. The median age for all cases was 9; age 10 for males and age 8 for females.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male (n)</th>
<th>Male (%)</th>
<th>Female (n)</th>
<th>Female (%)</th>
<th>Total (n)</th>
<th>Total (%)</th>
<th>Mean (SD) LOS</th>
<th>Median LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 yr</td>
<td>4369</td>
<td>3.3%</td>
<td>3462</td>
<td>4.6%</td>
<td>7831</td>
<td>3.8%</td>
<td>2.03 (5.094)</td>
<td>1</td>
</tr>
<tr>
<td>1-3 yrs</td>
<td>22324</td>
<td>16.7%</td>
<td>16281</td>
<td>21.8%</td>
<td>38605</td>
<td>18.5%</td>
<td>1.59 (3.629)</td>
<td>1</td>
</tr>
<tr>
<td>4-6 yrs</td>
<td>18008</td>
<td>13.5%</td>
<td>12465</td>
<td>16.7%</td>
<td>30473</td>
<td>14.6%</td>
<td>1.52 (3.047)</td>
<td>1</td>
</tr>
<tr>
<td>7-9 yrs</td>
<td>17045</td>
<td>12.7%</td>
<td>11151</td>
<td>14.9%</td>
<td>28196</td>
<td>13.5%</td>
<td>1.59 (4.658)</td>
<td>1</td>
</tr>
<tr>
<td>10-12 yrs</td>
<td>20560</td>
<td>15.3%</td>
<td>10802</td>
<td>14.5%</td>
<td>31308</td>
<td>15.0%</td>
<td>1.63 (3.589)</td>
<td>1</td>
</tr>
<tr>
<td>13-15 yrs</td>
<td>29656</td>
<td>22.2%</td>
<td>11077</td>
<td>14.8%</td>
<td>40733</td>
<td>19.5%</td>
<td>1.83 (3.447)</td>
<td>1</td>
</tr>
<tr>
<td>16-17 yrs</td>
<td>21874</td>
<td>16.4%</td>
<td>9471</td>
<td>12.7%</td>
<td>31345</td>
<td>15.0%</td>
<td>2.05 (4.488)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>133782</td>
<td>100.0%</td>
<td>74709</td>
<td>100.0%</td>
<td>208491</td>
<td>100.0%</td>
<td>1.72 (3.876)</td>
<td>1</td>
</tr>
</tbody>
</table>

a. LOS refers to the number of days a patient remains in hospital for treatment

Figure 2: Age distribution by year of admission to a Queensland hospital
2. Consumer Product-Related Injuries

Figure 3 shows the percentage of cases by age group which specified that a consumer product was related to the injury\(^1\). In order to identify and quantify the frequency of product-related injuries, a range of injury codes were selected based on their product safety relevance (i.e. whether they were products that are regulated exclusively by consumer protection agencies or not). Assistance in the code selection process was provided by product safety experts. Codes were excluded if they were covered by other regulatory bodies such as the Therapeutic Goods Association or the transport authorities. Codes were also excluded if they represented natural phenomena, objects or animals. The proportion of injuries definitely related to a consumer product steadily decreases from < 1 year old to ages 16-17 with a slight increase for age group 4-6. Injuries definitely not related to a consumer product steadily increases with age with a slight decrease for age group 4-6. An additional 11-15% of cases are flagged as potential consumer product-related injuries for each age group. If these were all product-related injuries, then consumer product-related injuries would be the dominant cause of injury up to age 9.

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\(^1\) The proportion of injuries per age group which were considered to be consumer product-related using all Queensland Injury Surveillance Unit data from 1999 to 2011, as identified by selected NDS-IS Major Injury Factor codes.
3. Products that were overrepresented in the data

3.1 Bunk Beds
For young children, bunk beds raise many hazards. A number of studies indicate that falls from the top bunk are a common occurrence, especially among children between ages 1-9 years. Injuries reported include traumatic brain injuries, contusions to the head and fractures to the arm. The following profile provides a brief overview of the Queensland experience of bunk bed-related injuries. The Queensland Injury Surveillance Unit has published a Bulletin on bunk bed injuries for more information (http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin_10387.pdf).

Emergency department presentations for bunk bed-related injuries
What the data show
Figure 4 shows the proportion of bunk bed-related injuries for 2004-2011 for children that presented to emergency departments using EDIS. There were a total of 1564 bunk bed-related cases identified, averaging almost 300 cases per annum in recent years.

Figure 4: Injuries associated with bunk beds as a proportion of all injury-related ED presentations, by age group, 2004-2011

Age and sex distribution
The median age of children presenting to an emergency department for a bunk bed-related injury was five years with an interquartile range of three to eight years. Males sustained around 55% of the injuries, and 4-6 year olds accounted for 36% of presentations (See Figure 5).
Circumstances of injury
A sample of 2 years of injury description data from the Queensland Injury Surveillance Unit was analysed in more detail, and the circumstances associated with injuries were found to be due to: falls from bunk bed (76%), being hit by a ceiling fan (14%), striking against bunk bed (5%), jumping from the bunk bed (3%), being pushed from bunk bed (1%), being crushed by a person jumping off the bunk bed (1%), or other causes (1%).

Nature of injury
The most frequently injured body region was the head region (54.9%) followed by the upper extremity region (30.0%). Figure 6 shows the distribution of the nature of injuries. About 30.9% of all injuries were superficial contusions and 25.8% were fractures.

Severity of injuries
Nearly 15% of patients were admitted to hospital, which is around 1.3 times higher than the average hospital admission rate for the EDIS sample reviewed. High urgency patients (Category 1 and 2) comprised over 7% of the cases, with the majority of these patients aged between one to three years of age (43%).
Admissions to hospital for bunk bed-related injuries

What the data show
Between the years 2001-2010 ‘falls from beds’ (incl. cots, hammocks) were responsible for an average of nearly 300 admissions per year of children to Queensland hospitals. A specific code to record ‘falls involving bunk beds’ was created for use in hospitalisation data from July 2006 to enable differentiation of bunk-beds from single beds. Bunk bed-related cases averaged around 94 cases per annum since 2006. The average LOS for a bunk bed-related injury for this period was 1.29 (SD 1.206) which was lower than the average LOS for all admissions. Figure 7 shows the proportion of bunk bed-related hospital admissions for 2007-2010 for children that were admitted to hospital by age group.

Age and sex distribution
The median age of children being admitted to hospital for a bunk bed-related injury was five years with an interquartile range of three to seven years. Males sustained around 60% of the injuries, and 4-6 year olds accounted for 37.2% of presentations. Figure 8 shows patterns by age groups admitted to hospital for males and females.

Nature of injury
The most frequently injured body region was the head region (48.4%) followed by upper extremity region (43.6%). Figure 9 shows the distribution of the nature of injuries.

Figure 7: Bunk bed-related admissions as a proportion of all injury-related admissions, by age group, 2007-2010

Figure 8: Age group proportions by gender for bunk bed-related admissions to Queensland Hospitals (2006-2010) in children
Opportunities for Action: Bunk Beds

Information for Consumers

Most product safety agencies provide information about bunk bed safety. However, it is not clear whether this is having an impact on injury prevention. The Australian Standard for bunk beds requires the fitting of guardrails on all four sides of the top bunk to reduce the risk of falling/rolling off the top bunk bed. The key messages for bunk bed safety outlined on the OFT Queensland website (http://www.fairtrading.qld.gov.au/Consumers/Bunk_bed_safety_flyer.pdf) are:

1. Only children over nine years of age should use bunk beds.
2. Consider using single beds as a safer alternative to bunk beds.
3. Don't allow children to play on bunk beds.
4. Allow at least two metres of clearance between ceiling fans and bunk beds.
5. Ensure the ladder is firmly fixed to the bunk bed.
6. Ensure there are no gaps of between 95mm and 230mm that could trap your child's head.
7. On the top bunk, make sure that the top of the guardrail is at least 160mm above the top of the mattress to prevent children rolling out.

The ACCC also provide safety information (http://www.productsafety.gov.au/content/index.phtml/itemid/972969).

Regulatory Initiatives

Comprehensive information about the mandatory safety requirements for bunk beds is provided in the Trade Practices Act 1974 - Consumer Protection Notice No. 1 of 2003 (http://www.comlaw.gov.au/Details/F2005B01055). The mandatory standard for bunk beds came into effect on 7 April 2005 and was based on AS/NZS 4220:1994 (http://infostore.saiglobal.com/store/Details.aspx?ProductID=1391791). This standard sets out essential safety requirements for bunk beds and other elevated beds used in domestic situations, nurseries and institutions, and functional durability, stability and performance criteria to meet these safety requirements, in order to reduce the likelihood of deaths and injuries to children. This Standard specifies safety requirements for bunk beds and other elevated beds including material, construction, design, and performance requirements. The mandatory standard aims to reduce the likelihood of a sleeping child rolling out (through the use of guard rails) and prevent asphyxiation through entrapment or snagging on elements of the bunk bed.

Next Steps

The bulk of the injuries that are occurring are to children well below the recommended age for use of bunk beds, with injuries more likely to occur while the children are playing on the bunk bed then sleeping on the bunk bed. Hence, while the design standards may be contributing to a reduction in injuries occurring, behavioural elements around the use of bunk beds for play still need to be addressed. Industry could consider providing safety information at the point of sale of bunk beds to consumers. This would allow parents or caregivers to make a purchasing decision based on safety. Although the data does not make this clear, it is possible that a proportion of injuries are a result of the continual use of old bunk beds that are unlikely to comply with the current safety standards. Consumers should ensure that bunk beds in use in their households meet current safety standard requirements.
3.2 Magnets

Small, powerful magnets are a hidden hazard that many parents or caregivers would be unaware of. Most product safety agencies have taken some action to remove unsafe magnets from the marketplace or warn consumers about the dangers to small children if they are inserted/ingested. When more than one powerful magnet, or one magnet and a ferromagnetic object, is swallowed, the objects can attract one another over a short period of time, while travelling through the intestines. The magnets can then twist the intestines and create a blockage and/or cause intestinal perforations through the process of pressure necrosis. The results can be very serious and even fatal. Surgery is often required to remove the objects. Magnet ingestions by children have been reported worldwide. Other injuries associated with external application of magnets, predominantly as fake jewellery, have been reported. The Queensland Injury Surveillance Unit has published a Bulletin on magnet-related injuries for more information (http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin109259269.pdf).

Emergency department presentations for magnet-related injuries

What the data show

Figure 10 shows the proportion of magnet-related injuries for 2004-2011 for children that presented to emergency departments using EDIS. There were a total of 231 magnet-related cases, with almost 50 cases per annum in more recent years.

Figure 10: Injuries associated with magnets as a proportion of all injury-related ED presentations, by age group, 2004-2011

Age and sex distribution

The median age of children presenting to an emergency department for a magnet-related injury was five years with an interquartile range of three to eight years. Males sustained around 69% of the injuries, and 4-6year olds accounted for 36% of presentations. Figure 11 shows patterns by age groups presenting to emergency departments for males and females.
Circumstances of injury
There were 130 (56%) of cases where the type of magnet was identified; of those identified approximately 66% were magnetic balls, and an additional 13% were described as round or circular in shape, but were not specified as balls. The remaining 26 magnets were other magnet types; 7 were fridge magnets, 6 were coin sized magnets and 3 were from magnetic dart sets. Approximately 43% of the magnetic admissions had an unspecified magnet type. The majority of magnet-related injuries involved the child swallowing a magnet (82.3%). Around 15% of cases involved the magnet being placed in the nose or ear. 27.7% of cases indicated involvement of more than one magnet. Half of these were cases were ingestions. It should be noted that EDIS cases do not typically provide details regarding the magnet characteristics, such as strength, and provide limited information on the number of magnets involved.

Nature of Injury
Overall, 96% of all cases involved the magnet as a foreign body; 83.1% were ingested, and 13.5% were inserted in the nose or ear. The remaining seven cases involved the magnets being applied to male genitalia (6 cases) and there was one case involving the lip area.

Severity of injuries
The proportion of admitted cases (6.9%) was 4% lower than the EDIS average of 10.9% for the same age group and time period, however, no patients were admitted prior to 2007. The admission rate rises to 7.6% for the latter years 2007-2011. High urgency patients (Category 1 and 2) comprised 3% of the cases, with the majority of these patients aged between four to six years of age (43%).

Figure 11: Age group proportions by gender for magnet-related ED presentations in Qld children, 2004-2011
Opportunities for Action: Magnets
Information for Consumers

Strong magnets are present in a wide variety of everyday household items, with the magnetic components of many of these items accessible to young children. Any products with strong magnets small enough to swallow are a risk to children. When deciding whether to allow children to play with magnetic toys, parents should primarily be guided by the manufacturer’s age grading (however, the age grading is a guide only, with the injury data showing injuries to children well above the stated age gradings). Parents should also be conscious of other children who may access the toys, such as younger siblings or friends and ensure these toys are stored out of reach. The ACCC provide safety information pertaining to small high-powered magnets on their website (http://www.productsafety.gov.au/content/index.phtml/itemId/997517) as well as safety information about magnets in toys (http://www.productsafety.gov.au/content/index.phtml/itemId/975279).

Regulatory Initiatives
On the 15th November 2012 the Australian government issued a permanent ban on the supply of some small, high-powered magnets in Australia. Complete information about the ban is provided in the Consumer Protection Notice No. 5 of 2012 (http://www.comlaw.gov.au/Details/F2012L02171). This ban only relates to some small high-powered magnets.

The mandatory standard for children’s toys containing magnets came into effect on 1 July 2010 and is based on AS/NZS ISO 8124.1:2002 (http://infostore.saiglobal.com/store/Details.aspx?ProductID=1595908). The mandatory standard only covers warning labels required for packaging, and instructions to prevent serious illness that can result if children swallow hazardous magnets. Under this mandatory standard, toys containing children’s magnets are children’s toys that:

- are supplied new and are designed or clearly intended for use in play by children under the age of 14 years
- contain hazardous small magnets
- contain hazardous small magnetic components.

Next Steps
The ban on some small high-powered magnets is an important first step to addressing the growing injury concerns associated with these products. However, the ban only covers specific types of magnets, and magnets are available in a wide variety of products and forms. Hence, ongoing monitoring of magnet-related ingestions is critical to ensure a) the ban is sufficiently wide enough in scope to capture the magnets with the most significant risks, b) that banned products are removed from sale, and c) that households who had purchased the products prior to the ban implementation are aware of and comply with the ban. Monitoring compliance (including in stores, online and at markets) with the ban will be especially important to ensure cheap excess products don’t flood the marketplace.
3.3 Trampolines

Trampoline-related injuries have become increasingly common in recent years due to the availability of relatively low-cost backyard models resulting in an increased exposure of children to trampolines in the domestic setting. Lack of supervision, lack of compliance (by both industry and consumers) with safety warnings/standards and the potential for high impact scenarios and neurotrauma has focused attention on the safety of these products (3).

Emergency department presentations for trampoline-related injuries

What the data show

Figure 12 shows the proportion of trampoline-related injuries for 2004-2011 for children that presented to emergency departments using EDIS. There were a total of 9,099 trampoline-related cases, averaging around 2,000 cases per annum in recent years. From 2004 to 2011 the rate per 1000 ED presentations injuries rose by 84% overall.

Figure 12: Injuries associated with trampolines as a proportion of all injury-related ED presentations, by age group, 2004-2011

Age and sex distribution

The median age of children presenting to an emergency department for a trampoline-related injury was seven years with an interquartile range of four to ten years. Males sustained 52.8% of the injuries, and 4-6 year olds has the largest proportion of injuries with 27% of presentations (See Figure 13).

Figure 13: Age group proportions by gender for trampoline-related ED presentations in Qld children
Circumstances of injury
A sample of 2008-2009 data was analysed to identify whether the product was at fault for trampoline injuries. Data for this period showed that nearly 48% of cases were due to the trampoline itself being potentially defective or having inadequate protective barriers. For around 45% cases the descriptions were not adequate to allow judgement of the product. For 7% the incident arose due to misuse of the product and for <1% injury occurred due to the child striking another object in close proximity to the trampoline. Of the cases where the product was found to be potentially defective around 83% of the injuries were caused by the child falling from the trampoline. An additional 9.4% were due to the child striking against a part of the trampoline.

Nature of injury
The most frequently injured body region was the upper extremities (44.4%) followed by the lower extremities (28.8%). About 18% of trampoline-related injuries were to the head region with around half of these being categorised as causing traumatic brain injuries through open wounds to the head largely (over 80%). Figure 14 shows the distribution of the nature of injuries. About 30.9% of all injuries were superficial contusions and 25.8% were fractures.

Severity of injuries
Nearly 12% of patients were admitted to hospital, which is slightly higher than the EDIS average for hospital admissions. High urgency patients (Category 1 and 2) comprised 4.3% of the cases, with the majority aged four to six years (30%).

Admissions to hospital for trampoline-related injuries
What the data show
Between the years 2003-2010 falls from trampolines were the cause of an average of around 445 admissions per year of children to Queensland hospitals, though the average increased to 544 per year in the latter three years. A specific code to record ‘fall involving trampoline’ was created for use in hospitalisation data from July 2002 to enable differentiation from other playground equipment. The average LOS for a trampoline-related injury for July 2002-Dec 2010 was 1.33 (SD 1.313) which was lower than the average LOS for all admissions. Figure 15 shows the proportion of trampoline-related hospital admissions for 2003-2010 for children that were admitted to hospital for treatment by age group.

Age and sex distribution
The median age of children being admitted to hospital for a trampoline-related injury was six years with an interquartile range of four to nine years. Males sustained around 60% of the injuries, and 4-6 year olds accounted for 37.2% of presentations. Figure 16 shows patterns by age groups admitted to hospital for males and females.

Nature of injury
The most frequently injured body region was the upper extremities (73.2%) followed by the head region (11.5%). 87% of head injuries involved a traumatic brain injury through open wounds to the head (which accounted for over 1/3). Figure 17 shows the distribution of the nature of injuries.
Figure 15: Trampoline-related admissions as a proportion of all injury-related admissions, by age group, 2003-2010

Figure 16: Age group proportions by gender for trampoline-related admissions to Queensland Hospitals (2002-2010) in children

Figure 17: Nature of Injury proportions for trampoline-related admissions to Queensland Hospitals (2002-2010) in children
Opportunities for Action:
Information for Consumers

The ongoing injury issues associated with trampolines requires a shared and concerted effort by government, industry, and safety professionals as well as parents and caregivers if any inroads into injury prevention are going to be achieved.

Most trampolines are safe if used appropriately. However, there are risks associated with poorly made trampolines and inappropriate use of trampolines. While trampolines provide children with a great way to develop balance and coordination skills, children can suffer cuts, bruises, sprains, fractures and internal organ injury if they strike other people, or fall and hit the side of the trampoline, the ground or a nearby object. In addition they are at risk of entrapment injuries (limb contusions, fractures and neck or strangulation injuries) if they get their limbs or heads entangled in the trampoline springs. The key messages for trampoline safety outlined on the OFT Queensland website (http://www.fairtrading.qld.gov.au/Consumers/trampoline_safety_flyer.pdf) are:

1. Choose a trampoline that meets the Australian Standard (AS 4989–2003). Ask the retailer if you are unsure.
2. Buy safety pads that completely cover the springs and the frame. The pads should be a different colour from the mat. Buy a trampoline with side nets to reduce the risk of falls. Check them regularly for wear and tear.
3. Inspect the trampoline before each use to make sure that the mat, frame and springs are not damaged. Ensure that the padding is correctly and securely positioned and the leg braces are securely locked. Do not use the trampoline until damaged parts have been repaired or replaced.
4. Make sure the area around the trampoline is soft and ideally at least two metres clear on all sides.
5. Keep the area around and above the trampoline free from hazards such as fences, toys, clothes lines, trees and wires. A minimum overhead clearance of eight metres from the ground is recommended.
6. Supervise children at all times and never allow more than one person on the mat.
7. Ensure that children only perform high-risk actions (such as somersaults) after they have been trained by professionals. These actions should only be performed under supervision.

The ACCC also provide safety information pertaining to trampolines on their website (http://www.productsafer.gov.au/content/index.phtml/itemId/971684).

Regulatory Initiatives


There appears to be limited compliance with the standard for goods supplied into the Australian marketplace, including in relation to the padding systems which cover the frame and suspension system. Some suppliers provide domestic trampolines with padding systems, but a number of these systems are of poor quality and the trampoline out lasts the padding thereby creating an added injury risk to users. AS4989—2006 does not address the risk of children falling from the trampoline. While a number of suppliers provide safety nets with their domestic trampolines as a safety measure to reduce the risk that users will fall from the trampoline this is not a requirement currently set out in AS4989—2006. A review of AS 4989—2006 is expected to be completed by the end of 2013 to consider the case for safety net enclosures. The ACCC proposed regulation of trampolines in January 2012 by publishing a draft regulation impact statement for domestic trampolines and inviting comment (http://www.productsafer.gov.au/content/index.phtml/itemId/991929).

Next Steps

Mandatory safety standards for padding is an important step towards reducing injuries associated with springs. However, contact with the springs is not the main cause of injuries associated with trampolines, with falls from trampolines due to no/insufficient safety net enclosures the leading cause of injuries associated with trampolines. Further work to develop, implement and regulate design standards for safety net enclosures is critical for reduction of injuries associated with falls. Furthermore, while design standards will assist in reducing injuries, behavioural elements also need to be further investigated including issues around the compliance of consumers with warnings about risks associated with multiple persons on trampolines and issues around the quality of supervision of children whilst using trampolines.
3.4 Cots and Portacots

Although there are mandatory standards existing in Australia for both full size cots and portacots, these products still feature high on the product safety agenda. These products are looked at very closely by safety regulators because sleeping is one activity unable to be permanently supervised by the parent. The pattern of injury associated with cot and portacot use is related to the following design elements: mattress design, fit and firmness, stability of cot construction, entrapment hazards, and pattern of use by young children with rapidly developing climbing skills. Only the mattress fit, stability of the cot and entrapment hazards are addressed in standards.

Emergency department presentations for cot-related injuries

What the data show

Figure 18 shows the proportion of cot-related injuries for 2004-2011 for children that presented to emergency departments using EDIS. There were a total of 275 cot-related cases, averaging around 55 cases per annum in recent years. Ten of these cases involved portacots.

Age and sex distribution

42.5% of cot-related injuries occurred in children aged 1 year and 30.2% in children of <1 year. There were more cot-related incidents involving males (56.4%).

Circumstances of injury for cot-related cases

The data was analysed in more detail, and the circumstances associated with injuries were identified. The majority of cases were due to a fall from the cot (78.2%) and 9.5% of injuries were due to the child striking against a part of the cot while either inside or outside of the cot. 4.4% of injuries were due to entrapment of a body part by part of the cot and 4% were due to overextension of a body part. There were 3 cases (1.1%) of a falling or collapsing cot injuring a child.

Nature of Injury

Around 64% of cot-related injuries occurred to the head region with around 22% of these injuries being traumatic brain injuries. Nearly half of the head injuries occurred in babies aged between 6-12 months, and with this age group being the peak age group for head injuries in male babies (1/3 of the head injuries occurred in this age group for males), and the 12-18 month age group being the peak age group for female babies (35% of head injuries occurred in this age group for females). Most of the remaining injuries were to the upper extremity region (26.9%). Figure 19 shows the distribution of the nature of these injuries. About 54% of all injuries were superficial contusions and 19% sustained a fracture.
Severity of injuries
Nearly 15% of patients were admitted to hospital, which is around 1.3 times higher than the EDIS average for hospital admissions. High urgency patients (Category 1 and 2) comprised 7% of the cases, with the majority of these patients aged between one to three years of age (52%).

Admissions to hospital for cot-related injuries
What the data show
A specific code to record ‘falls involving cot’ was created for use from July 2006. There were 104 children admitted to Queensland hospitals with injuries attributed to cots from July 2006 to Dec 2010 staying a total of 141 days. The average LOS for a cot-related injury for July 2006-Dec 2010 was 1.36 (SD 1.945) which was lower than the average LOS for all admissions.

Age and sex distribution
Of those admitted 33.7% were aged 1 year, 26.9% were aged <1 year and 23.1% were aged 2. 52.9% of admissions were male.

Nature of injury
The most common body region affected for cot-related admissions was the head and neck region (58.7%) and 38.5% sustained an injury to the extremities. Figure 20 shows the distribution of the nature of these injuries.

Figure 20: Nature of Injury proportions for cot-related admissions to Queensland Hospitals (2006-2010) in children
Opportunities for Action: Cots and Portacots

Information for Consumers

Both full size and portacots must by law meet key mandated safety components of the Australian Standards for each product. Compliance with these standards is generally high. However, it is felt that consumers may still be using older cots that may not meet safety standards. There may be some opportunities to provide further education on product safety to parents and would be parents at antenatal classes. The key messages for cot safety, extracted from the sleep safety guidelines from the OFT Queensland website (http://www.fairtrading.qld.gov.au/Consumers/Safe_sleep_flyer.pdf) are:

1. Use a cot that meets the Australian Standard (AS 2172).
2. There should be no quilts, doonas, duvets, pillows, cot bumpers, sheepskins or soft toys in your baby’s cot or sleeping place.
3. Make sure your baby’s head remains uncovered while sleeping. Place your baby with their feet to the foot of the cot. You can use a baby sleeping bag with fitted neck and arm holes (but no hood) rather than using extra bedding like quilts and doonas.
4. Use a firm mattress that fits snugly into the cot with a firmly fitted sheet. If bedding is used it should be securely tucked in and not loose.

The ACCC also provide safety information pertaining to cots (http://www.productsafety.gov.au/content/index.phtml/itemId/973331) and to portacots on their website (http://www.productsafety.gov.au/content/index.phtml/itemId/974944).

Regulatory Initiatives


Next Steps

Most of the guidance around cot safety provided to parents is currently aimed at addressing suffocation and strangulation hazards whilst children are sleeping. However, the majority of non-fatal injuries associated with cots relate to falls from cots in babies/toddlers who have reached the climbing stages of development. Further investigation of the behavioural components associated with babies/toddlers climbing out of cots (and falling) and parents approaches to reduce the likelihood of such incidents is needed to identify opportunities for more targeted design/information/education solutions.
3.5 Strollers and Prams

The pattern of pram/stroller related injuries relevant to design features can be explained largely by the following mechanisms: Children falling from prams, Pram rollaway events, Entrapment injuries (causing amputation or asphyxia).

Emergency department presentations for pram-related injuries

What the data show

Figure 21 shows the proportion of pram-related injuries for 2004-2011 for children that presented to emergency departments using EDIS. There were a total of 717 pram-related cases, averaging around 150 cases per annum in recent years. The Queensland Injury Surveillance Unit has published a Bulletin on pram-related injuries for more information (http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin-108256.pdf).

Figure 21: Injuries associated with Prams as a proportion of all injury-related ED presentations, by age for the period 2004-2011

Age and sex distribution

Around 52% of pram-related injuries occurred in children of <1 year and 27% in children of 1 year. Males and females had similar numbers of pram-related injuries.

Circumstances of injury for pram-related cases

The data showed that 90.7% of incidents were due to some type of fall from the pram. The ‘fall from pram’ category encompassed various scenarios including the following:

- Child not strapped in and slipping from pram
- Child standing in pram and falling out the pram
- Child strapped in pram and falling down stairs
- Pram falling over due to being knocked by a dog, horse, child

The second most common reason for pram-related injuries (4.5%) was due to a child trapping a part of the body (usually fingers) in a section of the pram. 1.7% of injuries were due to the child striking against the pram. In addition to the more common causes of pram-related injury there were five prams (0.7%) which rolled away from the operator, two of which ended up submerged in water, and there were three injuries (0.4%) due to the pram (or part of) collapsing.

Nature of Injury

Most pram-related injuries occurred to the head region (87.7%) with 22% of these injuries being traumatic brain injuries. Almost half of all the head injuries occurred for babies under six months of age. Most of the remaining injuries...
were to the upper extremity region (8.9%). Figure 22 shows the distribution of the nature of these injuries. About 70% of all injuries were superficial contusions and 12% sustained an open wound.

**Figure 22: Nature of Injury proportions for pram-related ED presentations (2004-2011) in Qld children**

Severity of injuries
14.4% of patients were admitted to hospital, which is around 1.3 times higher than the EDIS average for hospital injury admissions. High urgency patients (Category 1 and 2) comprised 8.6% of the cases, with the majority of these patients aged under one year of age (76%).

Admissions to hospital for pram-related injuries
What the data show
A specific code to record ‘falls involving baby carriage’ was created for use from July 2006. There were 174 children admitted to Queensland hospitals from July 2006 to Dec 2010 staying a total of 185 days. The average LOS for a pram-related injury for July 2006-Dec 2010 was 1.09 (SD 0.525) which was lower than the average LOS for all admissions.

Age and sex distribution
Of those admitted 57.5% were <1 year old and 24.7% were aged 1 year. 52.9% of admissions were female.

Nature of injury
Most of the injuries for pram-related admissions were to the head and neck region (93.1%). Figure 23 shows the distribution of the nature of these injuries. The majority (94%) of the injuries within the ‘Other’ category were unspecified injuries to the head region.

**Figure 23: Nature of Injury proportions for pram-related admissions to Queensland Hospitals (2006-2010) in children**
Opportunities for Action: Strollers and Prams

Information for Consumers

Prams and strollers continue to be strongly represented in injury data to children less than 12 months of age. The key messages for pram safety outlined on the OFT Queensland website [http://www.fairtrading.qld.gov.au/Consumers/pram_and_stroller_safety_flyer.pdf] are:

1. Use a pram or stroller that meets the Australian Standard (AS/NZS 2088). By law, prams and strollers must meet key safety features of this standard. Ask the retailer if you are unsure.
2. Never leave a child asleep, unsupervised or unrestrained in a pram or stroller.
3. Make sure the brake is activated when the pram or stroller is stationary—even for short periods.
4. Always use the wrist tether strap to avoid the stroller or pram rolling away.
5. Do not overload the carry basket or hang shopping bags on the handles. Doing either of these can tip the pram or stroller over.
6. Do not carry extra children on the pram or stroller.
7. If you adjust the pram or stroller, make sure you remove your child first. Small fingers and toes can easily get caught.

The ACCC also provide safety information pertaining to prams on their website [http://www.productsafety.gov.au/content/index.phtml/itemId/974044].

Regulatory Initiatives


Next Steps

Safety guidance and design standards for prams address the main causes of injuries associated with prams. Pram design, construction, loading and stability address issues associated with fall, rollaway, and entrapment-related injuries. Behavioural components are likely to explain the majority of injuries associated with prams, given the pattern of injuries evidenced. With a peak age of head injuries due to falling out of the pram being 6 months, an age at which children are unlikely to be developmentally capable of climbing out of a pram if appropriately restrained, it is likely that compliance with restraint use is limited in such incidents. Further investigation of behavioural components affecting compliance with restraint use and overloading of prams (with objects or other children) is needed to identify potential preventative approaches to address falls from prams in young babies. Other design opportunities may include such things as an automatic braking system to stop the pram or stroller inadvertently rolling away when stationary.
3.6 Change Tables

Change tables are purpose built elevated structure designed for changing or dressing an infant. The usual pattern of injury associated with change table use is a child being left briefly unattended and falling, or wriggling from the carers hold and falling from the change table.

Emergency department presentations for change table-related injuries

What the data show

Figure 24 shows the proportion of change table-related injuries for 2004-2011 for children that presented to emergency departments using EDIS. There were a total of 433 change table-related cases, averaging around 90 cases per annum in recent years.

Figure 24: Injuries associated with change tables as a proportion of all injury-related ED presentations, by age for the period 2004-2011

Age and sex distribution

Around 75% of change table-related injuries occurred in children of <1 year and 98% in children of <3 years. 17% were aged between 1 and 2 years and 5.5% were between 2 and 3 years old. An additional ten children aged 3 and over were injured in incidents relating to change tables; four were 3 years old, 5 were four years old and one was aged 15 years. More accidents occurred in females (51.3%) (See Figure 25).

Figure 25: Age proportions (0-2 years) by gender for change table-related ED presentations in Qld children
Circumstances of injury for change table-related cases
A total of 93.3% of change table-related injuries were due to a child falling from the change table. 5.1% of injuries were caused by the child striking the change table. Two change tables (0.5%) fell, or were pulled over, onto the child.

Nature of Injury
Most change table-related injuries occurred to the head region (87.5%) with 19% of these injuries being traumatic brain injuries. The peak age for head injuries was between six to nine months, with almost 40% of head injuries occurring in babies in this age group. Most of the remaining injuries were to the upper or lower extremity region (11.6%). Figure 26 shows the distribution of the nature of these injuries. About 72% of all injuries were superficial contusions.

Severity of injuries
22% of patients were admitted to hospital, which is double the EDIS average for hospital admissions. High urgency patients (Category 1 and 2) comprised 10.6% of the cases, with the majority of these patients aged under one year of age (89%).

Admissions to hospital for change table-related injuries
What the data show
A specific code to record ‘falls involving baby change table’ was created for use from July 2006. There were 167 children admitted to Queensland hospitals from July 2006 to Dec 2010. The average LOS for a change table-related injury for July 2006-Dec 2010 was 1.29 (SD 1.794) which was lower than the average LOS for all injury admissions.

Age and sex distribution
As expected for injuries due to change tables most involved children of 1 year and less, with approximately 82% of the injuries to babies of <1 year old. More females (52.7%) than males were admitted.

Nature of injury
Most of the injuries for change table-related admissions were to the head and neck region (90.4%), of those 78% were traumatic brain injuries. Figure 27 shows the distribution of the nature of these injuries. The majority (94.7%) of the injuries within the ‘Other’ category were unspecified injuries to the head region.
Opportunities for Action: Change Tables

Information for Consumers

The data clearly shows that further action is required to reduce the rate and severity of injuries associated with change tables. The ACCC also provide safety information pertaining to change tables on their website (http://www.productsafety.gov.au/content/index.phtml/itemid/971589). The ACCC advise consumers to:

1. Consider whether you really need a change table to change the baby or whether a towel on the floor would be appropriate.
2. Only buy a change table that has some roll-off protection (such as raised sides and ends of 100mm at least and a safety harness (though parents need to be conscious of strangulation hazards presented from safety harnesses).
3. Ensure there are no gaps that could present entrapment hazards to the child’s head, limbs or fingers.
4. Ensure all locking devices are secured so that the table doesn’t collapse accidentally.
5. Never leave the baby unattended on a change table.
6. Have everything at arms’ reach when the baby is on the change table and always keep one arm on the baby at all times when using the change table.
7. Repair any broken or loose parts immediately or return the damaged change table to the supplier.

Regulatory Initiatives

There are no specific voluntary or mandatory safety standards for change tables in Australia. In April 2012, Choice tested a sample of the change tables and found most to be unsafe according to their testing standards (http://www.choice.com.au/reviews-and-tests/babies-and-kids/furniture/nursery/change-tables-review-and-compare.aspx). There is an opportunity, based on the data, for stakeholders to initiate the work required to develop an Australian design and information standard. There is a US and a European Standard for change tables that many imported products would comply with, however work is needed to assess the suitability of this standard in the Australian context (http://infostore.saiglobal.com/store/Details.aspx?ProductID=1137946).

Next Steps

The injury data clearly indicates a need for some intervention in the marketplace in relation to change tables. Although it has been suggested that most change tables meet safety standards that apply in the USA or Europe, the lack of an Australian Standard may be having a detrimental effect the injury rate. It is recommended that work is undertaken to identify design standards which will be effective in reducing the risk of babies rolling off change tables. This work needs to consider designs to reduce falls risk, but also not raise the possibility of entrapment hazards if infants are left secured to the table. Parents and caregivers may assume that products intended for use by infants meet a safety benchmark, and this assumption may be influencing behaviours when using change tables. Hence, as design solutions are likely to take some time, it is important to also raise the awareness of parents about the current lack of design standards for change tables, the injury risks associated with change tables, and the need for vigilance, particularly at the age bracket where children start rolling (the peak age where injuries related to change tables start occurring). Further investigation of parents understanding of risks, approaches to supervision, and compliance with warnings is needed to identify opportunities for prevention campaigns.
3.7 High Chairs

High chairs are elevated seats designed to assist young children to sit at table level for meals. Some have trays and some do not. The pattern of injury associated with high chairs is similar to that of prams, with the majority of injuries resulting from falls where children are not secured within the high chair. A small proportion of injuries are associated with high chair collapse or entrapment events.

Emergency department presentations for high chair-related injuries

What the data show

Figure 28 shows the proportion of high chair-related injuries for 2004-2011 for children that presented to emergency departments using EDIS. There were a total of 498 high chair-related cases, averaging around 110 cases per annum in recent years.

Age and sex distribution

Around 46% of high chair-related injuries occurred in children of <1 year and 38.6% in children aged between 1-2 years (See Figure 29). More accidents occurred in males (54.8%).
Circumstances of injury for high chair-related cases
The main cause of high chair-related injury was due to falls from the high chair (88.8%). A number of children were injured from striking the high chair (5.6%) and 4.4% were injured due to the high chair tipping over. The remaining children (1.2%) suffered overextension injuries.

Nature of Injury
Around 91% of high chair-related injuries occurred to the head region with 21.4% of these injuries being traumatic brain injuries. Most of the remaining injuries were to the upper extremity region (5.8%). Figure 30 shows the distribution of the nature of these injuries. About 72% of all injuries were superficial contusions and 10.8% sustained an open wound.

Figure 30: Nature of Injury proportions for high chair-related ED presentations (2004-2011) in Qld children

Severity of injuries
12% of patients were admitted to hospital, which slightly higher than the EDIS average for hospital admissions. High urgency patients (Category 1 and 2) comprised 5.8% of the cases, with the majority of these patients aged under one year of age (65%).

Admissions to hospital for high chair-related injuries
What the data show
A specific code to record ‘falls involving high chair’ was created for use from July 2006. There were 134 children admitted to Queensland hospitals from July 2006 to Dec 2010. The average LOS for a high chair-related injury for July 2006-Dec 2010 was 1.11 (SD 0.530) which was lower than the average LOS for all admissions.

Age and sex distribution
Most injuries attributed to high chairs were sustained by children of 2 years or less. There was the same proportion of children admitted of <1 year and between 1-2 years (38.1%). 59% of admissions were female.

Nature of injury
Most of the injuries for high chair-related admissions were to the head and neck region (88.8%), of those 76% were traumatic brain injuries. Figure 31 shows the distribution of the nature of these injuries. The majority (93.3%) of the injuries within the ‘Other’ category were unspecified injuries to the head region (See Figure 32).
Figure 31: Nature of Injury proportions for high chair-related admissions to Queensland Hospitals (2006-2010) in children

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<td>18.7%</td>
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Opportunities for Action: High Chairs
Information for Consumers
The ACCC provide safety information pertaining to high chairs on their website (http://www.productsafety.gov.au/content/index.phtml/itemid/971598). The ACCC advise consumers to:

1. Only buy a high chair that has a five point harness or at least has a restraint system that prevents the child from standing or slipping down in the high chair.
2. Ensure sturdy construction and stability.
3. Ensure there are no gaps that could present entrapment hazards to the child’s head, limbs or fingers.
4. Ensure all locking devices are secured so that the high chair doesn’t collapse accidentally.
5. Never leave the baby unattended in a high chair.
6. Ensure chair is 500mm or more away from hazards such as windows, appliances and cords, blind cords/curtains etc.
7. Repair any broken or loose parts immediately or return the damaged high chair to the supplier.

Regulatory Initiatives
There are currently no mandatory standards in Australia for high chairs. The voluntary Australian standard AS4684-2009 (http://infostore.saiglobal.com/store/Details.aspx?ProductID=1132816) includes guidance around design, construction, performance, labelling and marking. The Standard is applicable to high chairs that may be converted to low chairs, and reclining chairs. When a chair is convertible to other purposes these additional functions are not covered by this Standard. There are currently no mandatory standards in Australia for high chairs.

Next Steps
Safety guidance and voluntary design standards for high chairs address the main causes of injuries associated with high chairs. High chairs design, construction, stability and safety features address issues associated with falls, tipover, and entrapment-related injuries. Behavioural components are likely to explain the majority of injuries associated with high chairs, given the pattern of injuries evidenced. With a peak age of head injuries due to falling out of the high chairs of under 12 months, an age at which children are unlikely to be developmentally capable of undoing safety harnesses if appropriately restrained, it is likely that compliance with restraint use is limited in such incidents. Further investigation of behavioural components affecting compliance with restraint use is needed to identify potential preventative approaches to address falls from high chairs.
3.8 Other Household Products

There are numerous products in and around the home that present an injury risk to infants, children, and youth. Some are “hidden” hazards (e.g. televisions, blind cords) and others are more apparent (e.g. backyard trampolines, bunk beds). Some hazards are common, others rare, but with potentially severe injury consequences. The following section presents injury profiles using Queensland Injury Surveillance Unit data related to furniture and appliances. The Queensland Injury Surveillance Unit has published a Bulletin on furniture-related injuries for more information (http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin_71119.pdf).

Emergency department presentations for furniture and appliances

Furniture and appliances are a frequent factor in injuries suffered by children and youth of all ages. Furniture and appliances are ubiquitous in domestic settings. Thus, children and youth are highly exposed to such products, and related injury patterns are useful to inform prevention and mitigation efforts. Different types of furniture will present specific injury mechanisms that may be reflected in the injury severity. Some pieces of furniture/appliances have a propensity to tip (e.g. TVs, bookcases, dressers, wall units, ovens/ stoves, water coolers), while others are more likely to be run into (e.g. tables, washers and dryers), while still others are associated with jumps and falls (e.g. bunk beds, chairs, sofas). Furniture with glass presents an additional layer of hazard. The purpose of this broad overview is to profile the Queensland experience with regards to furniture, television and large appliance-related injuries and to identify specific issues for further study.

What the data show

In the QISU data, furniture and appliance-related injuries were fairly stable year-to-year, averaging about 95 per 1000 injury-related ED presentation cases annually, though for the younger age group (0-3) there has been a rise of 38% from the year 2001 compared with 2011. Furniture-related injury was responsible for at least 16% of all injuries which occurred in and around the home. Figure 32 shows the rate per 1000 injury-related ED presentation cases from July 2001 to June 2011.

Age and sex distribution

Overall, about 69% of all furniture/appliance-related incidents involved children under five years old and 56% were male.

Figure 32: Injuries associated with household furniture as a proportion of all injury-related ED presentations, by age group, July 2001- June 2011
Table 1 presents a detailed breakdown of household furniture and appliance-related injuries among children and youth under 18 years of age.

**Nature of injury**

Beds, tables, and chairs account for the large proportion (63%) of all furniture/appliance-related injuries. Chairs, stools and beds accounted for the largest proportion of furniture/appliance-related fractures, and beds resulted in the largest proportion of hospital admissions attributed to furniture and appliances.

**Severity of injuries**

Overall, 25.5% of all injuries were superficial. Superficial injuries accounted for 29.3% of all bed-related (excl. Bunk bed) injuries, 28.9% of all sofa/couch-related incidents, 27.1% of all chair and stool-related incidents and 27.7% of all table, desk and bench-related cases.

Approximately 13.5% of all furniture-related injuries were classified as serious injuries when based on the admission to hospital rate; slightly lower than the overall QISU admission rate. 12.8% of furniture-related injuries were fractures and 11.9% resulted in intracranial injuries. In Addition, there were 27 (0.1%) traumatic amputations and 7 injuries to internal organs. Furniture-related fractures accounted for nearly 7% of all fractures and for 19.7% of all intracranial injuries. Conventional beds accounted for the highest proportion of furniture-related fractures (23.8%) and intracranial injuries (28.4%) followed by Chairs and Stools (23.3% and 19.2% respectively).

<table>
<thead>
<tr>
<th>Furniture Type</th>
<th>Number of Cases (%)</th>
<th>% Intracranial Injury b</th>
<th>% Fracture</th>
<th>% Observed/Admitted</th>
<th>Median Age (year)</th>
<th>Interquartile Range (year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table, desk, bench, etc</td>
<td>4543 (20.9)</td>
<td>10.9</td>
<td>7.6</td>
<td>10.9</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Bed (excl. bunk bed, cot)</td>
<td>4442 (20.4)</td>
<td>16.6</td>
<td>14.9</td>
<td>12.5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Chair, Stool (excl. Step stool)</td>
<td>3997 (18.4)</td>
<td>12.5</td>
<td>16.3</td>
<td>13.0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Sofa, couch, lounge, divan, etc</td>
<td>2208 (10.1)</td>
<td>16.0</td>
<td>20.0</td>
<td>12.1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Cabinet, rack, room divider, shelf</td>
<td>1568 (7.2)</td>
<td>7.9</td>
<td>7.3</td>
<td>9.5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Bunk bed</td>
<td>888 (4.1)</td>
<td>19.0</td>
<td>28.5</td>
<td>22.3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Cooking appliance c</td>
<td>768 (3.5)</td>
<td>0.7</td>
<td>0.9</td>
<td>28.1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Rug, mat, loose carpet</td>
<td>306 (1.4)</td>
<td>10.1</td>
<td>19.9</td>
<td>11.1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Iron, clothes press</td>
<td>248 (1.1)</td>
<td>1.2</td>
<td>0.4</td>
<td>35.9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Television</td>
<td>219 (1.0)</td>
<td>7.8</td>
<td>15.1</td>
<td>15.5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Bedding (Sheets, blankets, etc)</td>
<td>182 (0.8)</td>
<td>6.6</td>
<td>22.0</td>
<td>8.2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Heating appliance d</td>
<td>161 (0.7)</td>
<td>0.6</td>
<td>1.9</td>
<td>31.1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Refrigerator, freezer</td>
<td>99 (0.5)</td>
<td>9.1</td>
<td>13.1</td>
<td>16.2</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Electric kettle or jug</td>
<td>36 (0.2)</td>
<td>N/A</td>
<td>N/A</td>
<td>27.8</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Washing Machine</td>
<td>23 (0.1)</td>
<td>13.0</td>
<td>17.4</td>
<td>17.4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Other or unspecified furnishing</td>
<td>1258 (5.8)</td>
<td>8.7</td>
<td>10.2</td>
<td>12.6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Other or unspecified appliance</td>
<td>836 (3.8)</td>
<td>3.7</td>
<td>3.7</td>
<td>14.4</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21,782 (100)</td>
<td>11.9</td>
<td>12.8</td>
<td>13.5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

**Notes**

a. Due to the specialised nature and narrow age range, nursery furniture (high chairs, change tables, cots) is excluded
b. Intracranial injuries (includes concussion and cases coded as unspecified injury to head)
c. Cooking appliance includes stove, oven, cook-top, BBQ
d. Heating appliance includes space-heater, electric radiator, slow combustion heater
Opportunities for Action: Furniture and appliances

Information for Consumers

The key messages for furniture safety outlined on the OFT Queensland website (http://www.fairtrading.qld.gov.au/Consumers/Safe_furniture_flyer.pdf) are:

1. Select safer furniture with broad and stable bases rather than legs. Be particularly mindful of freestanding bookcases, television stands and chests of drawers.
2. Carefully test the furniture in the shop to make sure it is stable. Pull out the top drawers of a chest of drawers and apply a little pressure to see how stable it is. Make sure that the drawers do not fall out easily.
3. Secure unstable furniture, such as bookcases, televisions and television stands, to the wall using angle braces, straps or anchors screwed into wall studs. Secure any furniture unit that is higher than one metre. Consumers should make sure any bracket or strap to secure large furniture, and in particular large flat screen TV's, are rated to take the weight of the furniture or TV.
4. Choose tables that will not tip if a child climbs on them. Glass tables should be made of thick, toughened glass.
5. Use child resistant locks on all drawers to prevent children opening them and using them as steps.
6. Always discourage children from climbing on furniture.
7. Never place items that might be attractive to small children, such as feeding bottles favourite toys, or remote controls, on top of furniture. This encourages children to climb up and reach for them.

The ACCC also provide safety information pertaining to furniture on their website (http://www.productsafety.gov.au/content/index.phtml/ItemId/972989).


Regulatory Initiatives

Bunk beds are the only furniture item regulated in Australia. Details are available on page 10. New free standing stoves are required to include installation instructions regarding securing the stove to the wall to reduce the risk of tipping over. It is strongly recommended these instructions be followed closely. Older stoves may not be secured and not as stable as the new products. It is important as part of any home safety check to ensure free standard stoves are secured so they don't tip over.


Next Steps

Further work to identify the main furniture and appliances causing the most frequent and/or severe injuries requiring treatment in each age group would help prioritise product safety regulators energies. Once these products are identified, investigation of the main mechanisms by which injuries occur (through more in depth review of injury surveillance data, medical records or patient follow-up interviews/surveys) would identify those products for which potential design solutions may exist to reduce the risk of injury, as well as identifying those products for which a behavioural approach is more appropriate (to educate parents and/or children about the dangers associated with such products).
4. Injury mechanisms – An alternative way of looking at a product safety problem

As well as specific products of concern, product safety regulators and others interested in product safety injury prevention are interested in common mechanisms of injury, especially where there are common consumer product safety issues contributing to such mechanisms of injury. Burns and poisonings represent two of these mechanisms where there is a high involvement of consumer products with common safety hazards. The Queensland Injury Surveillance Unit has published Bulletins on burn-related injuries, medicinal poisonings, and non-medicinal poisonings in young children for more information. ([http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin_89100.pdf](http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin_89100.pdf); [http://www.qisu.org.au/ModCoreFilesUploaded/bulletin101293.pdf](http://www.qisu.org.au/ModCoreFilesUploaded/bulletin101293.pdf); [http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin_87102.pdf](http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin_87102.pdf)).

4.1 Burns

Emergency department presentations for burn-related injuries

What the data show

Figure 33 shows the proportion of burn-related injuries for July 2001- June 2011 for children that presented to emergency departments providing data to QISU. There were a total of 6,056 burn-related cases for this period which represented 2.6% of the total ED presentations.

Age and sex distribution

Approximately 55% of burn injuries occurred in children 3 years and under. Children aged between 4-6 accounted for 11.3% of burn injuries in children under 18 years. Males experienced more burn injuries (59.1%) than females. Figure 34 shows patterns by age groups presenting to emergency departments for males and females.
Nature of injury

When data was analysed in terms of nature and bodily location of injuries for each age group burns of upper extremities was the fifth most common injury diagnostic group for the under 1 year olds. It was also the ninth most common diagnostic group for the 1-3 year olds. Figure 35 shows the most common regions affected by burn injuries.

Severity of injuries

40.2% of patients were admitted to hospital, which is nearly 3 times higher than the EDIS average for hospital admissions. High urgency patients (Category 1 and 2) comprised 15.7% of the cases, with the majority of these patients aged one to three years of age (53%).

Top 10 products requiring treatment of burns

Figure 36 shows the top 10 objects coded for burn-related emergency department presentations in Queensland children (using the Queensland Injury Surveillance Unit database). Those in purple represent product-related injury and those with purple borders include an unknown proportion of consumer products.
Admissions to hospital for burns

What the data show
There were 8,257 children admitted to Queensland hospitals from July 2006 to December 2010 with burn-related injuries.

Age and sex distribution
Around 45% of burn injuries were sustained by children aged 1-3, 11.5% were between 4 and 6 years old and 11.3% were under 1 year.

Circumstances of injury for burn-related cases
Some of the consumer products identified as the cause of burns in admitted patients include:

- Highly inflammable material (6.5%)
- Household appliances (4.5%)
- Hot stove, oven, cook-top (2.8%)
- Hot heating appliances, radiators and pipes (2.7%)
- Hot engines, machinery & tools (2.7%)
- Clothes iron/press (1.6%)
4.2 Poisonings

Poisonings in young children represent another mechanism of concern with similar safety hazards spanning various products. Poisonings in older children are more commonly the result of deliberate use. Childhood poisonings is an area that has generally been neglected by product safety regulators in the past, with some complex overlaps in the regulatory responsibilities of consumer product safety and the Therapeutic Goods Administration. The sample from the QISU data included poisonings due to any drug (medicinal product) administered by any route, and also included poisoning from any other substance including gases, solvents, alcohol, food, detergents and pesticides (non-medicinal). The sample was then restricted to include only accidental poisonings.

Emergency department presentations for poisoning-related injuries

What the data show

There were a total of 5,219 poisonings for this period which represented 2.3% of the total ED presentations. Around 3/4 of the total poisonings were confirmed as accidental which represents 1.7% of total ED presentations. Figure 37 shows the proportion of accidental poison-related injuries for July 2001- June 2011 for children that presented to emergency departments providing data to QISU. Poisonings have decreased between 60-65% for children aged 3 and under.

Figure 37: Accidental poisonings as a proportion of all injury-related ED presentations, by age for the period July 2001- June 2011

Age and sex distribution

Approximately 70.7% of accidental poisonings occurred in age group 1-3 years. 8.9% occurred in children aged 4-6 and 8.5% in babies <1 year. Males presented with more poisonings (54.7%) than females. Figure 38 shows patterns by age groups presenting to emergency departments for males and females.
Nature of injury
When data was analysed in terms of nature and bodily location of injuries for each age group poisonings was the third most common injury diagnostic group for the 1-3 year olds. It was also the fourth most common diagnostic group for the 13-15 year olds and the second most common diagnostic group for the 16-17 year olds.

Severity of injuries
35.4% of patients were admitted to hospital, which is about 2.5 times higher than the QISU average for hospital admissions. High urgency patients (Category 1 and 2) comprised 28.1% of the cases, with the majority of these patients aged one to three years of age (76%).

Top 10 substances requiring treatment for poisonings
Figure 39 shows the top 10 substances requiring treatment in an emergency department for poisonings in Queensland children (as recorded in the QISU database). Those in purple represent product-related injury and those with purple borders include an unknown proportion of consumer products. Those in blue may represent concerns to product safety even though they fall under the TGA regulation, with product safety regulators responsible for monitoring the packaging and child resistant closures on consumer substances.
Admissions to hospital for poisonings
What the data show
There were 8,098 children admitted to Queensland hospitals from July 2006 to December 2010 for accidental poisonings.

Age and sex distribution
Around 65% of admissions for poisonings were for children aged 1-3, 9.1% were between 4 and 6 years old and 5.9% were under 1 year. Figure 40 shows the top 12 substances requiring hospital admission for poisonings.

Figure 40: Substances involved in poisonings(%) in Qld children admitted to hospital (2001-2010)

Opportunities for Action: Products with a burns or poisoning hazard
Information for Consumers

Regulatory Initiatives

Next Steps
When consideration is given to common injury mechanisms across a range of products this may provide opportunity for a more strategic approach to standard setting and assessing risks with new products by being able develop a standard based on a hazard rather than individual products. This modular and risk based approach could reduce the time taken for standards development and allow for standards to keep pace with product design. Further emphasis should be placed on this approach by product safety regulating agencies in the future.