Injuries to Aboriginal and Torres Strait Islander Children

Introduction

- There were a total 416,632 presentations to PMH ED during the 8 year period between July 2005 and June 2013. Of these presentations 29.9% (n=124,630) were due to injury.
- During this time period, Aboriginal and Torres Strait Islander children accounted for 4.7% (n=5,798) of presentations to the PMH ED, equating to an average of 725 presentations per year.
- Of these presentations children under five years of age were most at risk, accounting for 42.2% (n=2,446).
- Males were also found to be slightly more at risk, accounting for 58.5% (n=3,389) of the presentations.

- Over half of the injuries to Aboriginal and Torres Strait Islander children occurred within the home environment (40.3%, n=2,336).
- Within the home, 64.5% (n=1,507) of presentations were recorded as occurring in an unspecified area of the house. The home outdoors was the next most commonly recorded area at 15.7% (n=366), followed by the bedroom at 6.5% (n=152).
- The majority of injuries to Aboriginal and Torres Strait Islander children were unintentional (92.3%, n=5,350).
- Falls were the most common cause of injury to Aboriginal and Torres Strait Islander children, accounting for 28.9% (n=1,678) of injury presentations to the PMH ED.
- Just under two-thirds of the presentations (65.8%) were treated in the PMH Emergency Department and discharged with treatment complete. A further 31.0% of presentations required admission to hospital.

Childhood Injury Presentations:
January to June 2013

- Between January 2013 and June 2013 there were 33,665 presentations to the Princess Margaret Hospital Emergency Department (PMH ED).
- Injury presentations accounted for 29% (n=9,771) of the total number of presentations to PMH ED during this time period.

Number of Injury Presentations by Month; January 2013 to June 2013

- The majority of injury presentations were children under 5 years of age (40.2%), with children aged 1 and 2 years accounting for 10.3% and 10.1% of presentations respectively.
- Males represented 57.3% of injury presentations (n=5,599).
- The home remains the most common location for childhood injuries to occur (24.3%). The yard/outdoors continues to record the highest number of injuries, accounting for 17% of injuries within the home.
- Falls were the most common cause of injury presentations to PMH ED. During the period between January and June 2013, there were 3,795 cases, representing 38.8% of all injury presentations.
- The majority of children presenting to PMH ED were recorded as living within a metropolitan postcode (93.5%; n=9,132).
- Children of Aboriginal and/or Torres Strait Islander ethnicity accounted for 3.8% (n=375) of presentations.
- Unintentional injuries accounted for 96.2% of injury presentations.

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Results

Across Western Australia young Aboriginal people are nearly twice as likely as non-aboriginal people to be hospitalised for an injury¹. Between 2006 and 2010, the injury death rate for Aboriginal children was 3 times higher than that of non-Aboriginal children². The causes of injury within Aboriginal and Torres Strait Islander children are similar to those of non-Aboriginal children; however the rate of these injuries occurring continues to be significantly higher².

From July 2005 through to June 2013, injuries to Aboriginal and Torres Strait Islander children between 0 - 15 years of age presenting to the Princess Margaret Emergency Department (PMH ED) have steadily increased. Over the eight year period, there have been a total of 5,798 injury presentations to Aboriginal and Torres Strait Islander children, with a rise from 584 presentations between July 2005 and June 2006 to 821 presentations between July 2012 and June 2013 (figure 1).

Figure 1: Total injury presentations of Aboriginal and Torres Strait Islander children by financial year; July 2005 to June 2013

When looked at as a percentage of total injury presentations to the PMH ED there has been a decrease from 5.2% between July 2005 and June 2006 to 4.3% between July 2012 and June 2013 (figure 2). Over the eight years Aboriginal and Torres Strait Islander children have accounted for on average 4.7% of total injury presentations. As identified in the 2011 Western Australian Census data, children who identify as Indigenous Australian decent represent 5.6% of the population of children under the age of 15 years³. PMH is the only tertiary paediatric facility for Western Australia and is the reference for paediatric illness and injury for the state. The catchment zone is the entire state, however it does not see all children requiring hospital treatment in any given year, with many treated at other metropolitan or regional facilities. With the majority of Indigenous Australians (69%) living in regional or remote areas many children may present to regional facilities instead of Princess Margaret Hospital.

Figure 2: Percentage of Injury presentations by Aboriginal and Torres Strait Islander children by financial year; July 2005 to June 2013
Demographic Data
Consistent with non-Aboriginal and Torres Strait Islander child injury presentation trends, Aboriginal and Torres Strait Islander children under 5 years of age are at the greatest risk of sustaining an injury, accounting for 42.2% (n=2,446) of PMH ED presentations (figure 3). Similarly, children between 10 and 14 years of age and 5 and 9 years of age present somewhat less than the younger age group, accounting for 27.7% (n=1,608) and 24.8% (n=1,438) respectively. Children 15 years of age and over (5.2%, n=302) generally present to PMH ED at considerably lower rates due to a tendency for adolescents to present to non-paediatric facilities.

More specifically, toddlers aged 1 and 2 years of age had the highest number of injury presentations to the PMH ED for Aboriginal and Torres Strait Islander children between July 2005 and June 2013, with total presentations of 646 and 558. This again is mirrored in non-Aboriginal and Torres Strait Islander data as all children of this age are newly mobile without the necessary skills to be able to assess risks for themselves, consequently needing to rely heavily on adult supervision for their wellbeing.

During the 8 year time period, male Aboriginal and Torres Strait Islander children presented at greater rates than females, representing 58.5% of all presentations (figure 4). These statistics remain consistent with the known male:female gender ratio of 3:2 seen across all child injury statistics. Higher levels of male presentations were reflected across all ages of Aboriginal and Torres Strait Islander children except in the under 1 year age category. Within this age group females accounted for 52.2% (n=189).

Figure 3: Percentage of injury presentations by age group; July 2005 to June 2013

Figure 4: Percentage of injury presentations by gender; July 2005 to June 2013
Children presenting to the PMH ED identifying as indigenous decent are recoded as Aboriginal and Torres Strait Islander, Aboriginal not Torres Strait Islander or Torres Strait Islander not Aboriginal. Between July 2005 and June 2013 over 98% (n=5,695) of indigenous children presenting to the PMH ED with an injury identified as being Aboriginal not Torres Strait Islander (figure 5). Only small percentages of children identified as either Aboriginal and Torres Strait Islander (1.4%, n=81) or Torres Strait Islander not Aboriginal (0.4%, n=22).

**Figure 5: Percentage of injury presentations by ethnicity; July 2005 to June 2013**

![Percentage of injury presentations by ethnicity](image)

Nearly 80% (n=4,620) of Aboriginal and Torres Strait Islander children presenting to the PMH ED are recorded as living within a Western Australian metropolitan area of residence (figure 6). This is considerably less than that of non-Aboriginal and Torres Strait Islander presentations, which identifies 93.8% of children as living within a Western Australian metropolitan area of residence. This can be largely attributed to a greater proportion of Indigenous Australians living in regional or remote settings in comparison to non-indigenous Australians. Across Australia the Bureau of Statistics estimates that just under one third of the total Indigenous Australian population reside in major cities (32%) compared to 69% of non-indigenous Australians. A further 21% of Indigenous Australians reside in inner regional areas, 22% in outer regional areas, 10% in remote areas and 16% in very remote areas, with the distribution of Indigenous Australians across Western Australia closely reflecting that of the total Indigenous population⁴.

The remaining Aboriginal and Torres Strait Islander children presenting to the PMH ED for injury were recorded as living within either a Western Australian rural area of residence, interstate or were unknown. Within regional Western Australia the highest percentage of presentations were from the Wheatbelt accounting for 4.6% (n=267). Following the Wheatbelt was the Midwest (4.1%, n=238), the Kimberley (4.1%, n=235) and the Pilbara (3.2%, n=187) (figure 6).

**Figure 6: Percentage of injury presentations by area of residence; July 2005 to June 2013**

![Percentage of injury presentations by area of residence](image)

People living within regional and remote settings are at a greater risk of sustaining a serious injury than those living in major cities⁵. In remote and very remote areas across Australia, hospital separation rates for children were nearly 90% higher than those in major cities². A high proportion of Aboriginal and Torres Strait Islander communities living in regional or remote locations can lead to limited access to primary care facilities and injury prevention education⁵.
Injury Data

Of Aboriginal and Torres Strait Islander children that present to the PMH ED for an injury, the large majority were recorded as due to unintentional circumstances (92.3%, n=5,350), with the remainder of cases recorded as either alleged assault (3.3%, n=189), undetermined (2.3%, n=132), intentional self-harm (2.2%, n=126) or alleged legal or military action (0.0%, n=1). When compare to non-Aboriginal and Torres Strait Islander child injury presentations, a higher percentage of cases (96.8%) are recorded as due to unintentional circumstances. Aboriginal and Torres Strait Islander children are at greater risk of alleged assault, intentional self-harm and have higher rates of undetermined cases (figure 7).

Similarly to total injury presentations, falls were the most common cause of injury (28.9%, n=1,678). This includes falls from the same level, falls from less than 1 metre and falls from greater than 1 metre. Falls from the same level and falls from less than 1 metre accounted for the highest percentage of presentations at 44.6% (n=749) and 42.3% (n=710) respectively, with falls from greater than 1 metre considerably less at 13.1% (n=219) (figure 8). Secondary to falls is blunt force injuries. This refers to contact with an object that may be moving, static, thrown or falling and accounts for 21.8% of Aboriginal and Torres Strait Islander children presenting to PMH ED with an injury.

In comparison to non-Aboriginal and Torres Strait Islander injuries, Aboriginal and Torres Strait Islander injury presentations have an increased proportion of injury due to animal bites, burns and scalds, cutting/piercing, poisoning, insect stings and other transport events and a decreased proportion of fall injuries (figure 8).

Over the 8 year data period the most commonly recorded location for an injury to Aboriginal and Torres Strait Islander children to occur was the home or farm accounting for 40.3% of presentations. Of those, an unspecified home location was the most commonly recorded, accounting for 64.5% (n=1,507) of home/farm presentations, followed by outdoors (15.7%, n=366), bedroom (6.5%, n=152), and living or dining area (6.0%, n=140). Other place was the second highest recorded location (38.7%, n=2,244), referring to an unknown or unspecified place not elsewhere classified. Further recorded locations include road, footpath, cycleway or parking area (6.7%, n=389), school or residential institution (5.1%, n=298) and recreation or cultural area (4.2%, n=244).
Diagnosis and Treatment Data

Over three quarters of Aboriginal and Torres Strait Islander children who presented to the PMH ED for injury did so under concerns of themselves or a relative (77.1%, n=4,470). This number is slightly lower than the 84.5% of non-Aboriginal and Torres Strait Islander injury presentations referred by themselves or a relative, as a greater proportion of Aboriginal and Torres Strait Islander children are referred by other hospitals (14.5%, n=841) in both the Perth metropolitan area and regional Western Australia.

All children who present to the PMH ED are assigned a triage code (table 1), with the majority of Aboriginal and Torres Strait Island children (93.5%, n=5,421) assigned a triage code of urgent (67.4%, n=3,909) or semi-urgent (26.1%, n=1,512). Few Aboriginal and Torres Strait Island children were given a triage code of emergency (5.0%, n=288) and even fewer a triage code of resuscitation (1.3%, n=74) or non-urgent (0.3%, n=15).

<table>
<thead>
<tr>
<th>Table 1: Triage Categories</th>
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<tr>
<td>Category</td>
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<tr>
<td>(1) Resuscitation</td>
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<td>(2) Emergency</td>
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<td>(3) Urgent</td>
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<tr>
<td>(4) Semi-Urgent</td>
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<td>(5) Non-Urgent</td>
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The majority of Aboriginal and Torres Strait Island children presenting to the PMH ED are able to depart having completed treatment (65.8%, n=3,814), however nearly a third required a ward or inpatient unit admission (31.0%, n=1,797). A small proportion of children did not wait for treatment (1.9%, n=109) or were referred to another PMH department (0.4%, n=26). During the 8 year period between July 2005 and June 2013, one child was recorded as having died in the emergency department.

Month, Day and Time of Injury

Between July 2005 and June 2013 Aboriginal and Torres Strait Islander children presented most during the month of January when viewed across the 12 months of the year. On average January recorded the highest percentage of presentations at 9.7% (n=562) and in four out of the eight years recorded the highest number of presentations (figure 8). March and December followed January in percentage of presentations recording 9.2% (n=536) and 8.9% (n=514) respectively. July, September and August recorded the lowest percentage of presentations throughout the year, accounting for 7.2% (n=420), 7.2% (n=418) and 7.7% (n=449) (figure 9). The data shows an increase in presentations over the warmer summer months and a decrease during the cooler winter months, which is consistent with non-Aboriginal and Torres Strait Islander injury presentations.

Figure 9: Number of injury presentations by month and year; July 2005 to June 2013
As with non-Aboriginal and Torres Strait Islander injury presentations, the incidence of Aboriginal and Torres Strait Islander children getting injured and presenting to the PMH ED was greatest over the weekend. Saturday and Sunday accounted for the highest number of injuries and presentations accounting for 16.7% (n=966) and 15.6% (n=904) of injuries occurring and 15.6% (n=903) and 15.6% (n=906) of injury presentations respectively (figure 10). The lowest number of injuries and presentations both occurred midweek on Thursday representing 12.6% (n=728) of injuries and 12.9% (n=759) of presentations (figure 10).

**Figure 10: Number of injury presentations by day of injury and day of presentation; July 2005 to June 2013**

The time of presentation is recorded for each injury case presenting to the PMH ED. Presentation times are broken down into four 6 hour time intervals over the 24-hour day. The most common time for presentation by an Aboriginal or Torres Strait Islander child is between 12:00-17:59 (12:00pm to 5:59pm) accounting for 39.5% (n=2,291) of presentations, narrowly followed by 18:00-23:59 (6:00pm to 11:59pm) accounting for 38.5% (n=2,231) of presentations (figure 11a).

The time the injury occurred is also recorded for each case, however for a large number of cases the exact injury time is unknown. The time period of 0:00-0:01 (0:00am to 0:01am) is used to record any unknown injury times and accounts for the majority of injury presentations (40.8%, n=2,364). Second to this time interval is 12:00-17:59 (12:00pm to 5:59pm) (28.7%, n=1,664), followed by 18:00-23:59 (6:00pm to 11:59pm) (19.8%, n=1,146) (figure 11b).

**Figure 11: Percentage of injury presentations by time of injury (a) and time of presentation (b); July 2005 to June 2013**

(a) Time of Presentation

(b) Time of Injury
Discussion
Aboriginal and Torres Strait Islander children are one of the most vulnerable population groups at risk of death or hospitalisation due to injury in Western Australia. High rates of serious and fatal injury are often attributed to factors associated with high levels of Indigenous Australians living in rural and remote settings and many living within areas of socioeconomic disadvantage. Aboriginal and Torres Strait Islander people have been recognised as a priority area for intervention in the National Injury and Safety Promotion Plan: 2004-2014 and are widely identified as a population group that is too regularly over-represented in injury statistics.

Kidsafe WA supported by the Department of Health WA has recently produced two Aboriginal-specific child injury prevention resources including a Watch Out for your New Baby Brochure and Watch Out for your Kids Magnet. The development of both resources involved an extensive consultation period with Aboriginal people and Aboriginal health professionals across Western Australia to ensure resources were relevant to the needs of the Aboriginal community.

The National Aboriginal and Torres Strait Islander Safety Promotion Strategy outlines principles for best practice in Aboriginal and Torres Strait Islander Safety promotion. These include:

- Acknowledge Aboriginal and Torres Strait Islander cultural influences and the historical, social and cultural context of communities.
- Ensure ongoing community involvement and consultation.
- Adhere to the holistic definition of health.
- The practical application of self-determination principles is fundamental in all Aboriginal and Torres Strait Islander health promotion planning.
- The establishment of effective partnerships is required to address many of the determinants of health.
- Build the capacities of the community, government, service systems, organisations and the workforce ensuring equitable resource allocation, cultural security and respect in the workplace.
- Practice should be based on available evidence.
- Programs that are multi-faceted and include effective evaluation and sustainability strategies will also improve the design of future programs.
- Programs should aim to be sustainable and transferable.
- Demonstrate transparency of operations and accountability.

References

Suggested Citation: