

July 2006 to June 2007 *Injury Surveillance Annual Report*



With the support of:



In conjunction with:



TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY	1
2.	INTRODUCTION	2
3.	METHOD OF DATA COLLECTION	2
	3.1 DATA ACCURACY AND COMPLETENESS	2
	3.2 LIMITATIONS	2
4.	DEMOGRAPHIC DATA	3
	4.1 TOTAL EMERGENCY DEPARTMENT PRESENTATIONS DUE TO INJURY	3
	4.2 AGE AND SEX DISTRIBUTION	4
	4.3 AREA OF RESIDENCE	5
	4.4 ABORIGINALITY	5
5.	INJURY DATA	6
	5.1 INJURY INTENT	6
	5.2 MAIN CAUSE OF INJURY	6
	5.3 PLACE OF INJURY	7
	5.4 EQUIPMENT / OTHER FACTORS INVOLVED IN INJURY	7
6.	ASSESSMENT AND TREATMENT DATA	8
	6.1 TIME FACTORS	8
	6.2 DAY OF ATTENDANCE	9
	6.3 TRIAGE CATEGORY	9
	6.4 SOURCE OF REFERRAL	10
	6.5 OUTCOME OF ATTENDANCE	10
7.	SPORTING ACTIVITY INJURIES IN CHILDREN	11
	7.1 DEMOGRAPHIC DATA	11
	7.2 AGE AND SEX DISTRIBUTION	12
	7.3 ETHNICITY	13
	7.4 MAIN CAUSE OF SPORTING INJURY	13
	7.5 PLACE OF SPORTING INJURY	14
	7.6 TIME AND DAY OF SPORTING INJURY	15
	7.7 OUTCOME OF SPORTING INJURY	16
	7.8 SAFETY EQUIPMENT USAGE	17
8.	DISCUSSION	19
9.	FUTURE (RECOMMENDATIONS)	19
10.	REFERENCES	19
11.	SUMMARY OF CHILDHOOD INJURY SURVEILLANCE BULLETINS 2005-06	20
	11.1 July 2006 Bulletin	20
	11.2 October 2006 Bulletin	21
	11.3 January 2007 Bulletin	22
	11.4 April 2007 Bulletin	23

TABLE OF FIGURES

<i>Figure 4.1</i>	<i>Number of ED presentation July 06 – Jun 07</i>	3
<i>Figure 4.2.1</i>	<i>Sex Distribution July 06 – Jun 07</i>	4
<i>Figure 4.2.2</i>	<i>Age Distribution July 06 – Jun 07</i>	4
<i>Figure 4.3</i>	<i>Area of Residence</i>	5
<i>Figure 4.4</i>	<i>Aboriginality</i>	5
<i>Figure 5.1</i>	<i>Injury Presentation by Human Intent</i>	6
<i>Figure 5.2</i>	<i>Main Cause of Injury</i>	6
<i>Figure 5.3</i>	<i>Place of Injury</i>	7
<i>Figure 5.4</i>	<i>Injury Factors</i>	7
<i>Figure 6.1.1</i>	<i>Time of Presentation</i>	8
<i>Figure 6.1.2</i>	<i>Time of Injury</i>	8
<i>Figure 6.2</i>	<i>Day of Attendance</i>	9
<i>Figure 6.3</i>	<i>Triage Category</i>	9
<i>Figure 6.4</i>	<i>Source of Referral</i>	10
<i>Figure 6.5</i>	<i>Outcome of Attendance</i>	10
<i>Figure 7.1</i>	<i>Number of Sporting Activity Injury Presentations June 2006 – May 2007</i>	11
<i>Figure 7.2.1</i>	<i>Sex Distribution of Sport Activity Injuries</i>	12
<i>Figure 7.2.2</i>	<i>Age Distribution of Sport Activity Injuries</i>	12
<i>Figure 7.3</i>	<i>Ethnicity of Sporting Activity Injuries</i>	13
<i>Figure 7.4.1</i>	<i>Main Cause of Sporting Activity Injuries</i>	13
<i>Figure 7.4.2</i>	<i>Sporting Activity by Gender</i>	14
<i>Figure 7.5</i>	<i>Location of Sporting Activity Injury</i>	14
<i>Figure 7.6.1</i>	<i>Time of Presentation after Sporting Activity Injury</i>	15
<i>Figure 7.6.2</i>	<i>Day of Sporting Activity Injury by Gender</i>	15
<i>Figure 7.6.3</i>	<i>Time of Sport Activity Injury versus All Injury Presentations</i>	16
<i>Figure 7.7</i>	<i>Outcome of Attendance</i>	16
<i>Figure 7.8</i>	<i>Usage of Safety Equipment</i>	17

LIST OF TABLES

<i>Table 1</i>	<i>Triage Categories</i>	9
<i>Table 2</i>	<i>Rate of Admission by Sporting Activity</i>	17
<i>Table 3</i>	<i>Injuries by Sporting Activity and Body Part</i>	18
<i>Table 4</i>	<i>Injuries by Sport Type and Main Injury</i>	18

ACKNOWLEDGEMENTS

We would like to thank the staff of Princess Margaret Hospital Emergency Department for the continued completion of the injury surveillance data. In particular, thanks is extended to Dr Gary Geelhoed, Director of PMH Emergency Department for his continuing support of this data collection and the triage nurses who are given the responsibility for entering the appropriate injury details into the Emergency Database (EDIS).

We also acknowledge the Department of Health, Western Australia's Injury Prevention program for its ongoing financial support.

This report was prepared by:

Andrew Hiskins, Injury Surveillance Officer
Princess Margaret Hospital

In conjunction with:

Kidsafe WA

The data is collected and analysed at Princess Margaret Hospital on a quarterly basis and provided to Kidsafe WA to prepare quarterly WA Childhood Injury Surveillance Bulletins on selected injury issues.

During 2006 to 2007 the following WA Childhood Injury Surveillance Bulletins were prepared by Kidsafe WA in conjunction with Princess Margaret Hospital and made available through the Kidsafe WA website www.kidsafewa.com.au

July 2006	-	Factors associated with child injuries: A snapshot of Injury Factors
October 2006	-	Bike Injuries: Two Wheels and on the Move
January 2007	-	Burns and Scalds: Hot Water Burns Like Fire
April 2007	-	School Based Injuries

1. EXECUTIVE SUMMARY

Princess Margaret Hospital for Children (PMH) as the tertiary paediatric centre for Western Australia, remains the major referral source for injured children. This is the second annual report using the revised Injury Surveillance code.

The financial year 2006/07 saw 49,820 children present to the emergency department, of these 11,344 (24%) after suffering an injury. This represents a 5.7% increase when compared with the previous financial year. The injury rate was slightly below the long-term average, 25% of total presentations, but represented a significant 8.1% increase in actual injury presentations from the previous financial year. The male to female injury ratio, 3 to 2 respectively, is the same the long term ratio. The pre-school age group continue to dominant injury presentations, representing 40% of the total injuries seen at PMH. During this financial year the greatest presentation numbers (35%) occurred in the early evening period of 5 to 8pm, with this being delayed 30 minutes on weekends. The peak period was 1 hour later in the summer, than in winter due to the later sunset. It was noted that the introduction of "daylight saving" for a several months on the summer did have an impact upon injury times. The injury rate after 6pm was up to 3 times higher than for the other months of the year.

The majority of injured children presenting to PMH reside within the Metropolitan area of Perth (94%) and are not of Aboriginal background (95%). The overall rate of aboriginal presentation (5%) was above their general population percentage (4%), however a significantly higher percentage of rural children were of Aboriginal descent (18.5%). The majority of injuries occur in or around the child's home (59%). The sporting field was the next likely place for injury, though with a decline in numbers during the school holidays. Falls remain the dominant cause (40%) followed by being hit by or hitting an object (25%). The overall rate of admission following an injury was 19%, however was near 52% for those presenting from a rural region.

An analysis of sporting activity injuries is included within this report. Whilst sporting injuries represented only 5% of total ED presentations, they accounted more than 1 in 5 injury presentations. The admission rate following a sporting related injury (19%) was slightly above the total injury rate, with serious injury a rarity. Males presented at a rate near the long term injury rate, and dominated all sports with the exception of netball. The upper limb was the most common site of injury, but field hockey players were more likely to receive a facial injury. It was noted that use of appropriate safety equipment had occurred in less than 50% of presentations.

In conclusion, the financial year 2006/07 has seen the total emergency and injury presentations continue to increase, but a reduction in the admission rate. The unexpected cooler and drier weather experienced during the last quarter of the year resulted in an increase in almost all injury classification. In particular, outdoor activities like bike riding, skateboarding and rollerblading, and burns.

2. INTRODUCTION

Princess Margaret Hospital for Children (PMH) is the only tertiary paediatric centre for Western Australia and is thus the reference centre for paediatric illness and injury for the state. Although the catchment zone may potentially be the entire state, it does not see all children requiring hospital treatment in any given year. Many will be treated appropriately at regional hospitals and medical centres. On average, approximately 44,000 children present to PMH seeking medical assistance from the hospital's emergency department each year. The majority of these children will be under 6 years of age.

Injury surveillance is a systematic data collection related to all children presenting to the emergency department with an injury. A modified version of the International Classification of External Causes of Injury (ICECI), version 1.1a is currently used to code injury presentations. The ICECI is a member of the World Health Organisation's (WHO) Family of International Classifications. The five major data elements collected are: cause, human intent, location of injury, activity and injury factor. This report is based on data extracted from these injury surveillance data fields.

The PMH emergency department uses the Emergency Department Information System (EDIS) version 9.31.000.01, a computer-based database, to record and collate all patient details of children presenting to the hospital's emergency department. This is a real time electronic database used to record and manage patient data. The system has been in operation since January 1998 and is subject to quality assurance checking to ensure data accuracy and integrity. Access to EDIS is via remote terminals within the emergency department, the database being networked.

3. METHOD OF DATA COLLECTION

A triage nurse initially assesses the children presenting to the emergency department of PMH. All clinical information and basic demographic details are recorded together with the child's triage code, an indication of the level of "emergency", based upon their reason for presentation. Those children presenting due to injury then have injury surveillance data taken, based on the following fields: date, time and cause of injury, intent of injury, place of injury, activity when injured and any appropriate injury factor. One full-time Injury Surveillance Officer is employed at PMH to monitor and analyse the injury data.

3.1 DATA ACCURACY AND COMPLETENESS

PMH is committed to the provision of quality data for health professionals and other interested parties. Daily validation of injury data fields is undertaken by the Injury Surveillance Officer to ensure the accuracy of data. This involves the checking for null or missing data fields and identifying any misclassification of data.

3.2 LIMITATIONS

The data contained in this report represents the paediatric population that presents to PMH and as such comparisons made on a state or other basis must be done so with due care. The data used for this report is reliant on the accuracy of those entering data within EDIS. As such, it may be subject to coding bias and associated skewing of injury data. Finally there is scope for inadequate or under reporting of injury data.

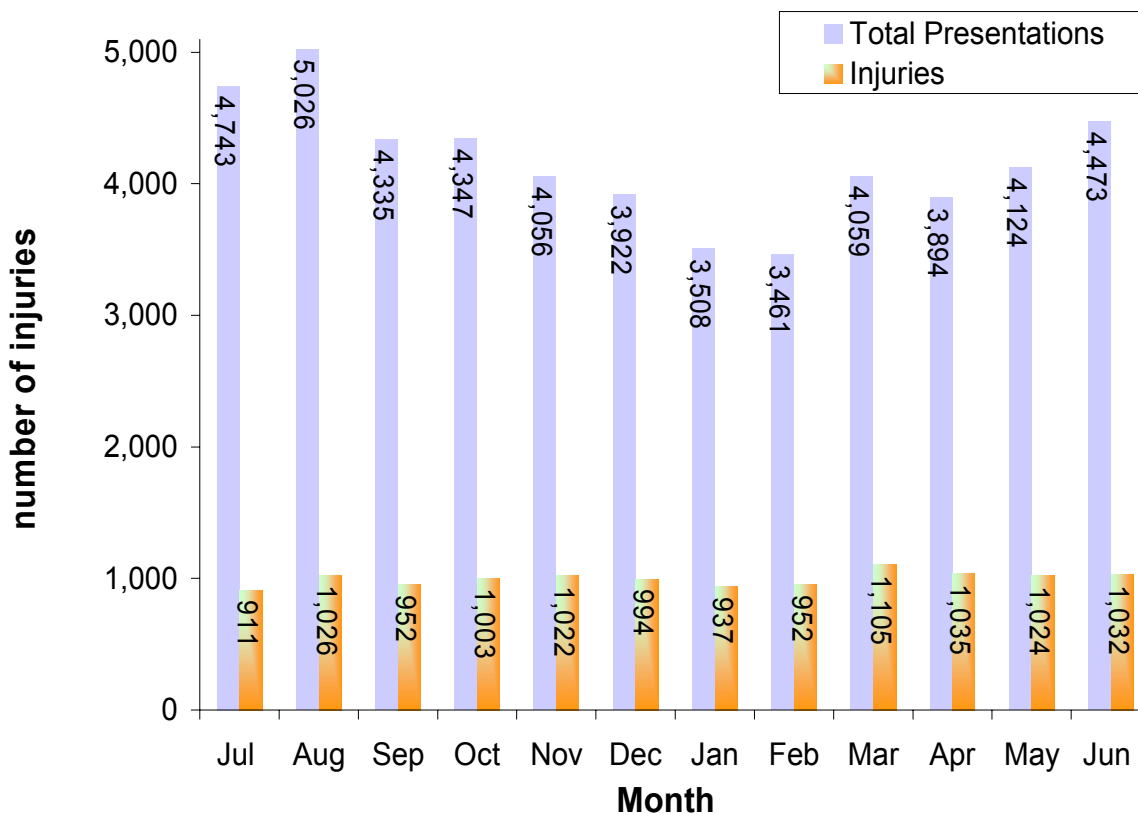
4. DEMOGRAPHIC DATA

4.1 TOTAL EMERGENCY DEPARTMENT PRESENTATIONS DUE TO INJURY, JULY 2006 TO JUNE 2007

The financial year saw a total of 49,820 presentations to the emergency department of PMH, with figure 4.1 displaying the monthly breakdowns. This represents a 5.7% increase when compared to the presentations seen during the previous financial year. Presentations have increased by a similar percentage over the past two financial years, over 5700 patients. The yearly cycle experienced within the emergency department is clearly evident with late winter peak and late summer trough.

Injury presentations for the year, 11,993 (24.1%) were below the long-term average of 25% of total presentations but a 5.7% increase in injury numbers when compared with the previous financial year. The monthly percentage of injury presentations (figure 4.1) shows no obvious seasonal cycle. However a cycle is noted when injury presentations are viewed as a percentage of total monthly presentations, with a February peak of 27.5% and a July trough of 19.2%.

Figure 4.1 Number of ED presentations July 06 – June 07

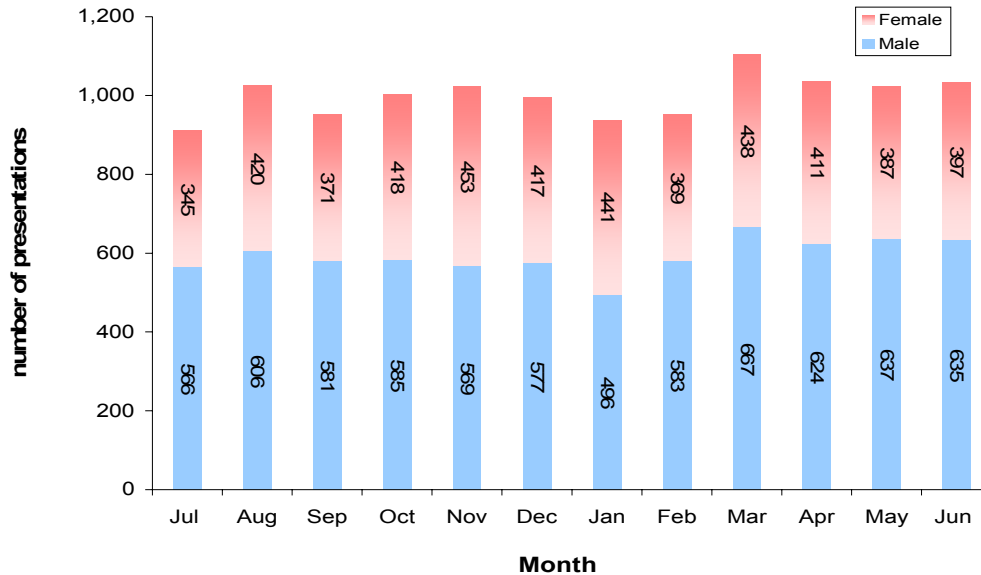


4.2 AGE AND SEX DISTRIBUTION

Male: 25.6% Of Total Male Admissions: (27,841)

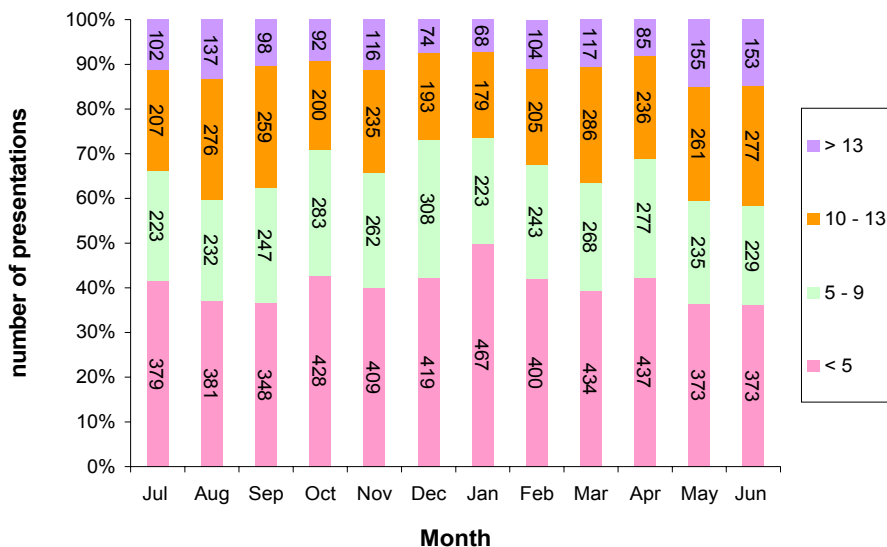
Female: 22.0% Of Total Female Admissions: (22,107)

Figure 4.2.1 Sex Distribution July 06 – June 07



During this report period, males represented 59.4% of injury presentations (n=7,126) and females 40.6% (n=4,867). Figure 4.2.1 displays the monthly breakdown of presentations. This is consistent with known injury rates between the sexes. The increasing presentation numbers each year appears to not affect the general gender ratio, which varies little throughout the year. January saw the highest female presentation rate, with May for males.

Figure 4.2.2 Age Distribution July 06 – June 07



The pre-school age group, those under 5 years of age, remained the dominant group representing 40% (n=4,848) of total injury presentations to PMH. Those under 10 years of age represented 66% of total injury presentations. Figure 4.2.2 displays the monthly breakdown by age groupings. Those under 10 years of age have a peak presentation in summer, with the older children peaking in winter months. The males dominated injury presentations in all age groups. Teenagers represent a smaller percentage (8%) due to the predictable trailing off to adult medical centres.

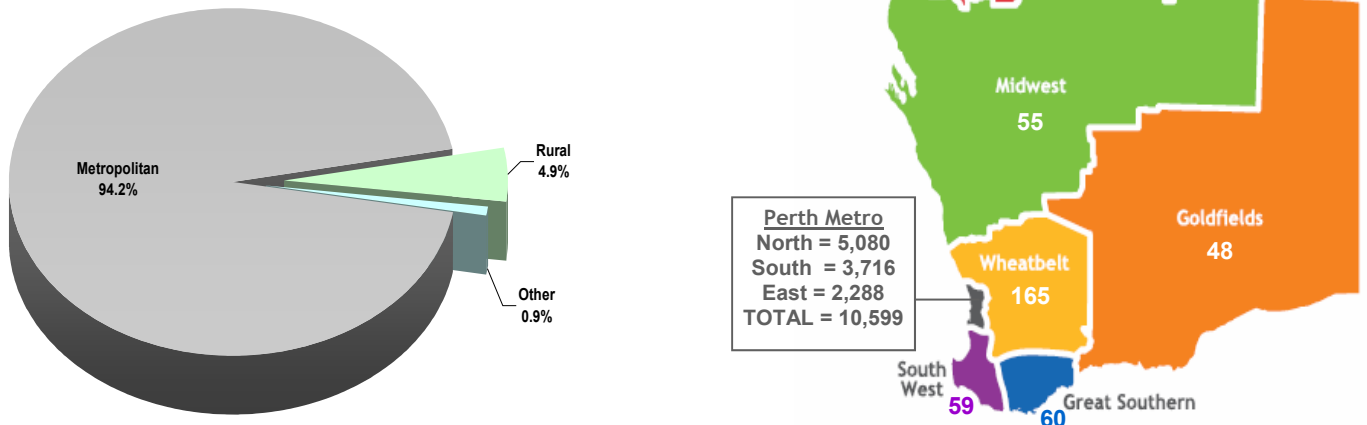
4.3 AREA OF RESIDENCE

Metro: (n = 11,293)

Rural/Remote: (n = 588)

Other: (n = 112)

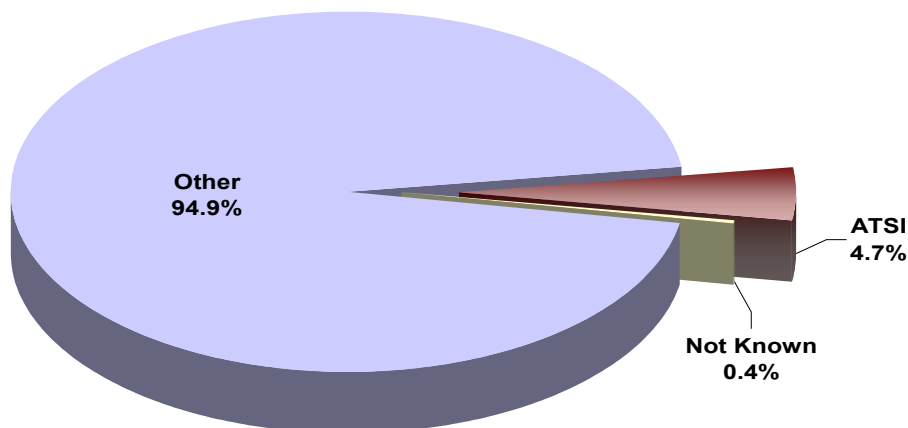
Figure 4.3 Area of residence (Based on home postcode)



Children with a Perth metropolitan residential postcode represent the majority (94%) of the injured children seen by the emergency department, as displayed in figure 4.3. There is no significant difference between the sexes between metropolitan and rural children, though a higher percentage of primary school age children presented from rural regions. Presentations from a rural area decreased 9% during the financial year compared with a 6.5% increase from the Perth metropolitan area.

4.4 ABORIGINALITY

Figure 4.4 Aboriginality

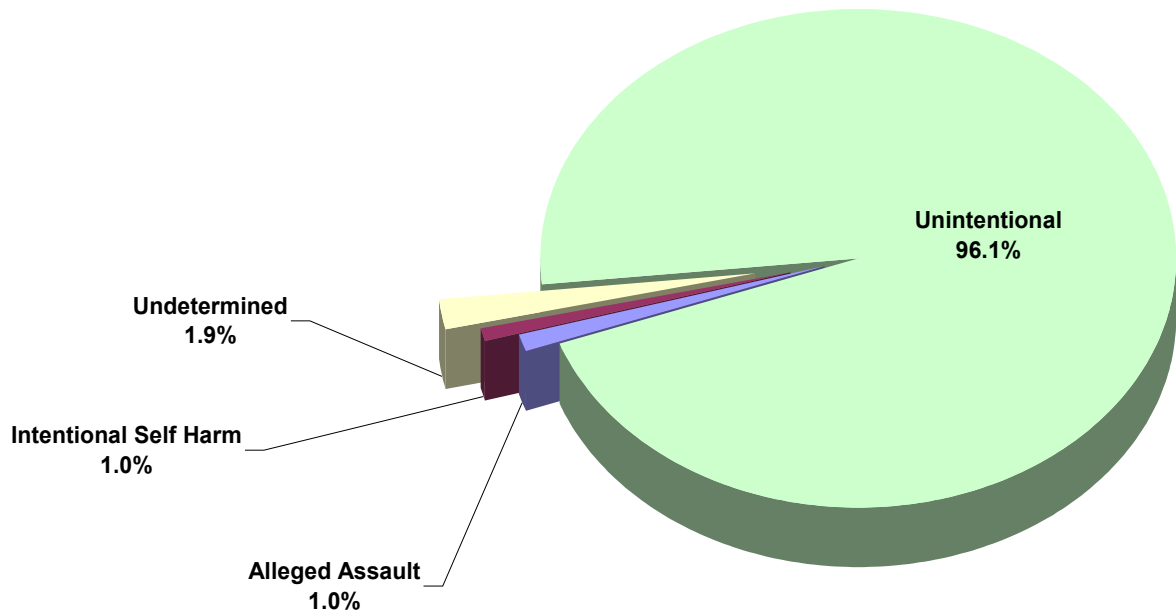


Children of Aboriginal or Torres Strait Island decent represented 5% of children attending the emergency department during the past financial year. There were no significant gender or age grouping differences between Aboriginal and non-aboriginal children, however 18.5% of presentations from a rural region were of Aboriginal descent. A significant 18% of assault injuries occurred to Aboriginal children, however there was a significant reduction of intentional injuries from 22% to 8% for the year.

5. INJURY DATA

5.1 INJURY INTENT

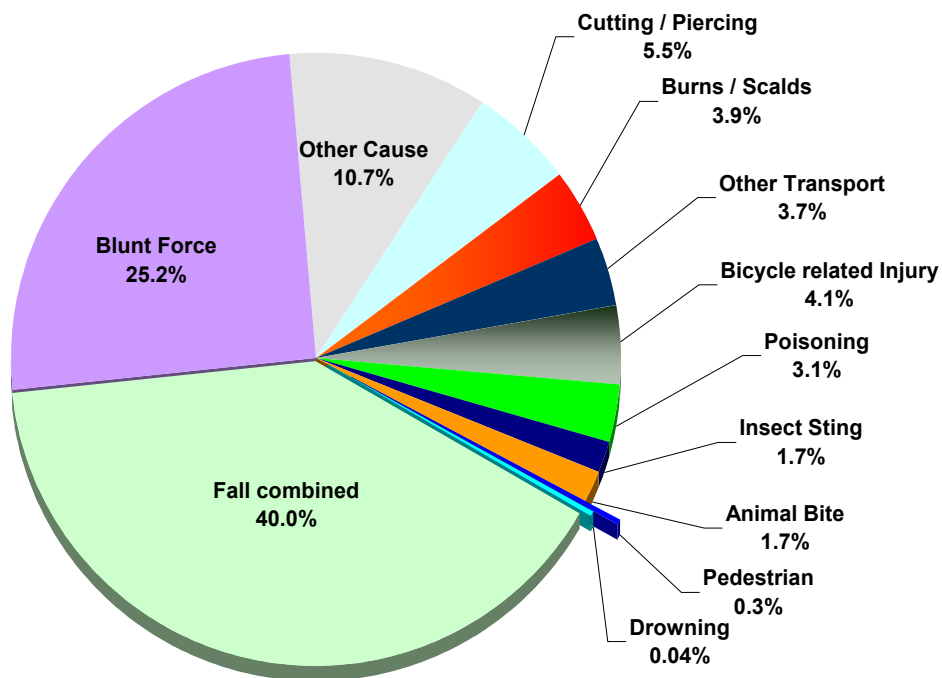
Figure 5.1 Injury Presentation by Human Intent



The great majority (96%) of injury is unintentional, with intentional and assault injuries more prominent in the older age groupings.

5.2 MAIN CAUSE OF INJURY

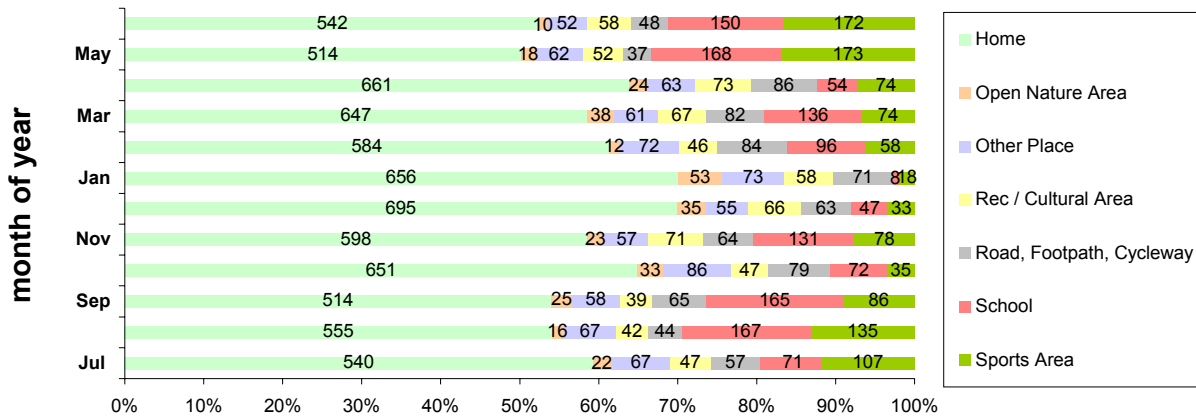
Figure 5.2 Main cause of injury



During the past financial year, falls were the dominant cause of injury, a direct correlation with the majority of presentations being in the under 5 age group. Burn injuries may only comprise 4% of injury presentations, but result in the greatest period of hospitalisation.

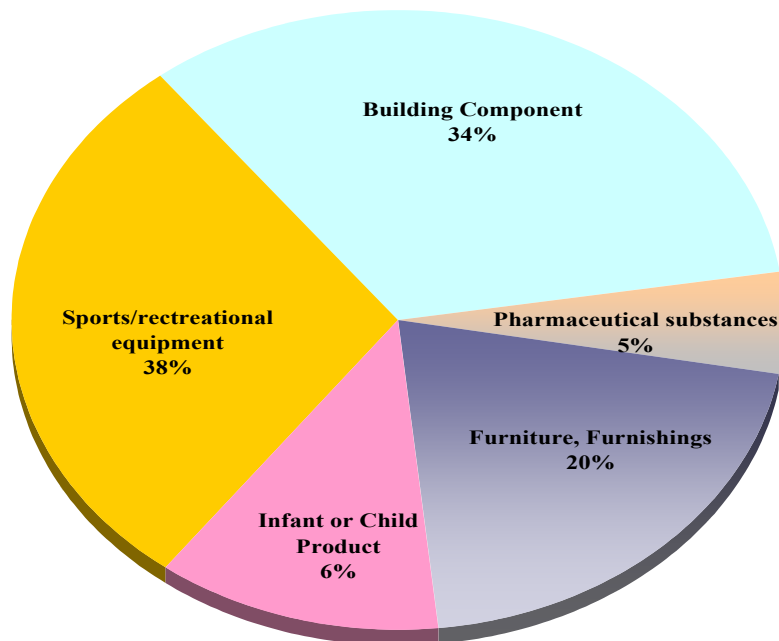
5.3 PLACE OF INJURY

Figure 5.3 Place of Injury



Children presenting to PMH are most commonly injured in the home or its surrounds (n=7,157) as displayed in figure 5.3. This continues a trend noted during 2005. The school / Daycare centres and sporting areas (n=2,308) were the next most common. These 3 locations accounted for 4 in every 5 injuries. The males were the more commonly injured at each location. As the children age, injuries increasingly occur outside the home environment. The pattern of home injuries appears to follow the seasonal nature of presentation, with a summer peak and winter trough in injuries. In comparison, sporting injuries are the reverse with a peak in May and June.

Figure 5.4 Injury Factor

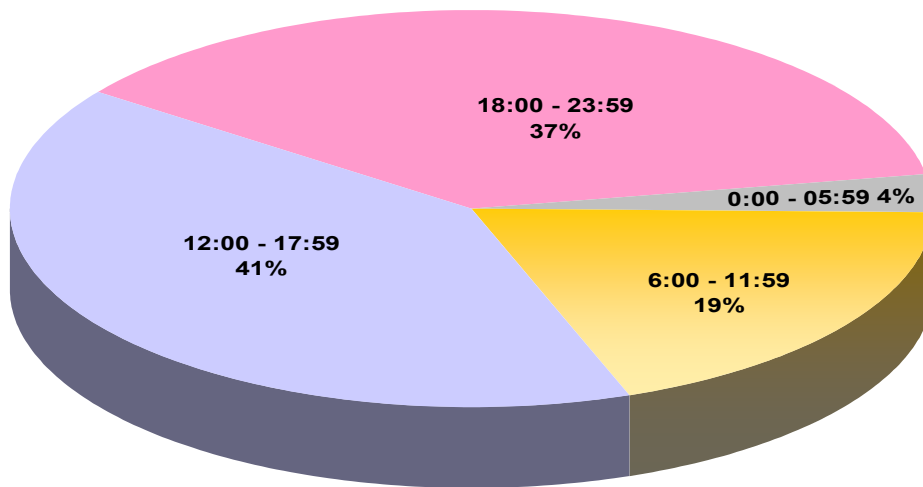


It must be noted that over half of all injury presentations (56%) did not have an associated injury factor recorded. Figure 5.4 displays those injury factors recorded. Sporting or recreational equipment (38%) were the common injury factors, the majority of these associated with being struck by sport ball. Household items such as furniture, beds or tables are associated with 1 in 5 injuries. This result correlates with the home and sporting field being the most common locations of injury.

6.0 ASSESSMENT AND TREATMENT DATA

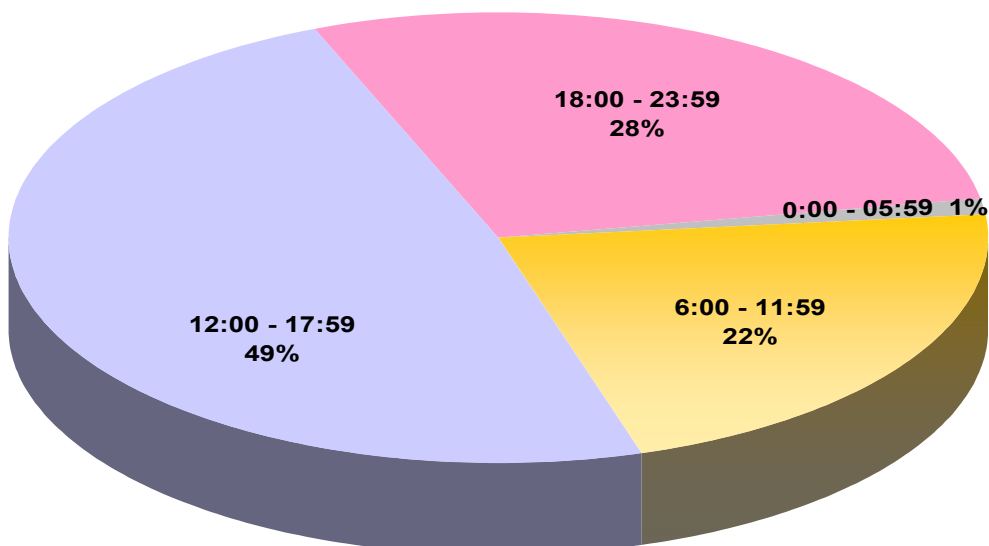
6.1 TIME FACTORS

Figure 6.1.1 Time of presentation



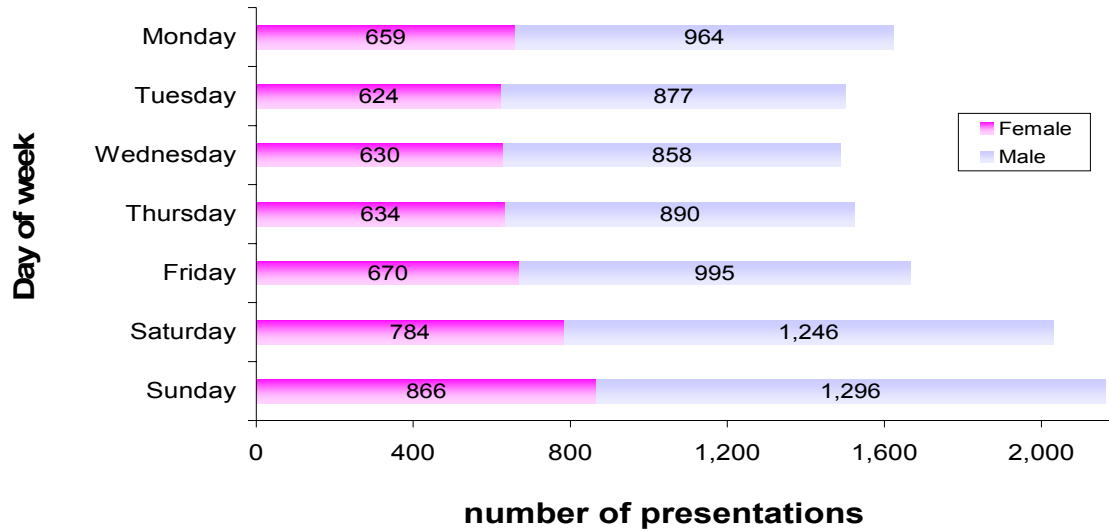
The majority of injured children present after midday each day, as displayed in figure 6.1.1, with 60% arriving between noon and midnight, with a peak period between 5 and 9pm (34%). Of the children presenting to PMH after an injury, 55% from a metropolitan region arrived within 2 hours compared with 23% of rural children. As displayed in figure 6.1.2, 49% of injuries occur between noon and 6pm with a peak period between 4 and 8pm. This correlates with the time period after school and before an evening meal. A comparison between the two time graphs displays the time lag between time of injury and presentation. Many children from rural regions arrive after 10pm, due to the longer transportation time.

Figure 6.1.2 Time of injury



6.2 DAY OF ATTENDANCE

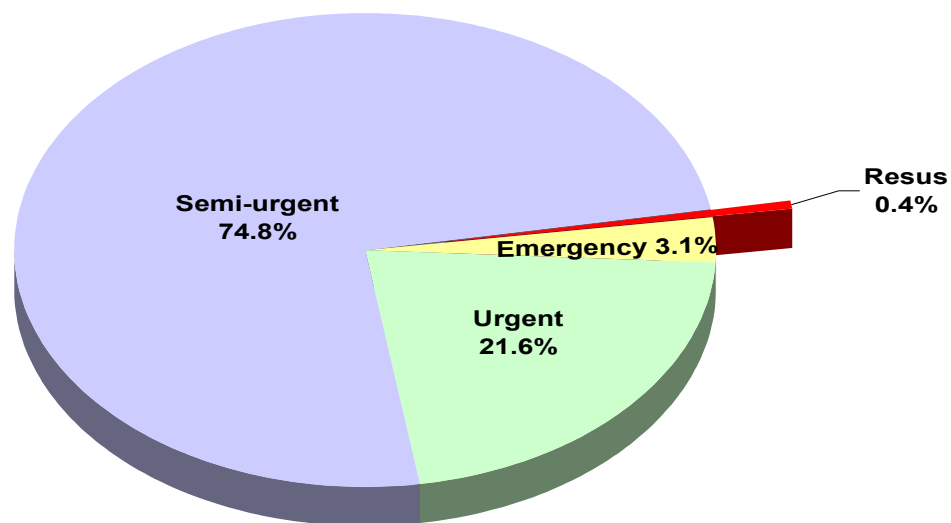
Figure 6.2 Day of attendance



The weekend saw the highest presentations during the year (35%), with a peak on Sundays and a trough on Wednesday most weeks. The male/female ratio approached the historical 3:2 ratio on each day during this year.

6.3 TRIAGE CATEGORY

Figure 6.3 Triage category



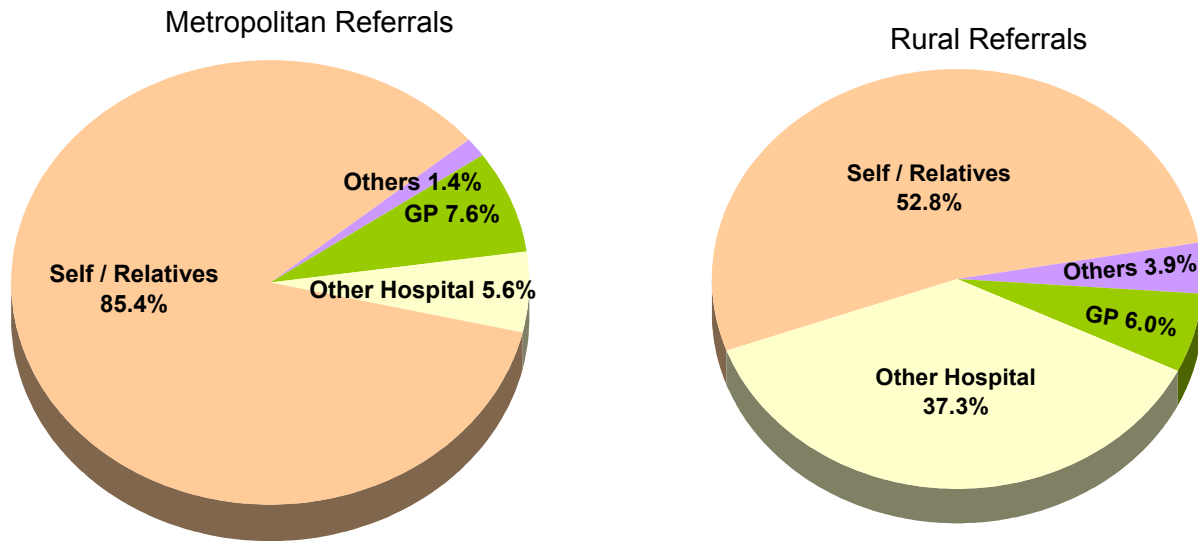
The majority of children (96.4%) are given a triage category of either semi-urgent or urgent, as displayed in figure 6.3. These are injuries deemed to require medical attention within 1 hour of being triaged. There was no identified difference between the sexes or age grouping with reference to triage code. The triage category (code) is a reflection upon a child's urgency for medical intervention, as shown in table 1.

Table 1: Triage categories

Category	Seen within (mins)
Resus (1)	0
Emergency (2)	10
Urgent (3)	30
Semi-Urgent (4)	60
Non-Urgent (5)	120

6.4 SOURCE OF REFERRAL

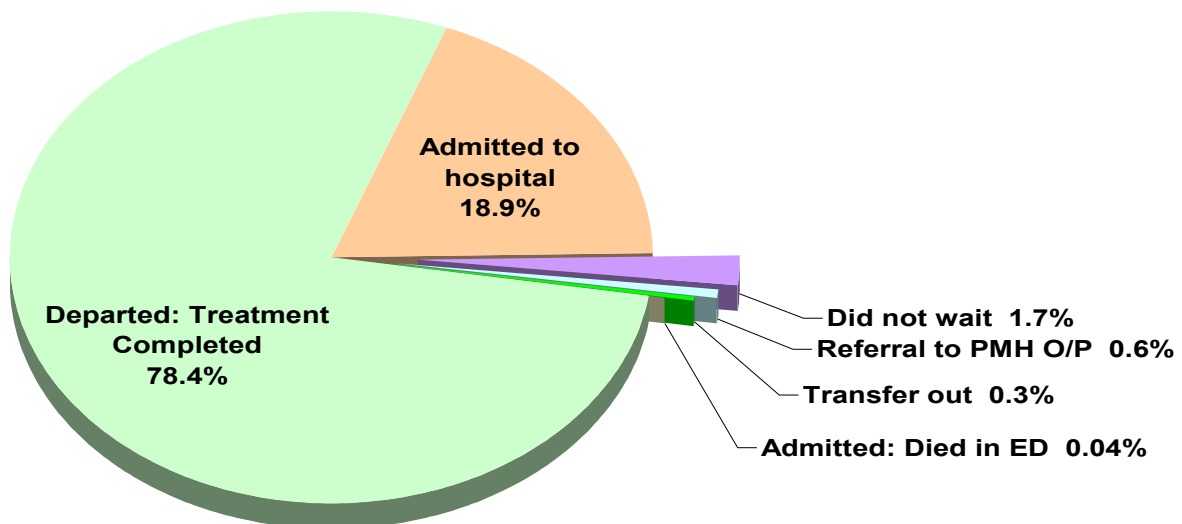
Figure 6.4 Source of referral



The vast majority of children (84%) present without referral from another medical source, with a further 15% having been reviewed by either their local GP or another hospital. A significantly higher proportion of rural children present to PMH after medical review as displayed in Figure 6.4. Similarly, 85% of metropolitan children present directly to the emergency, compared with 53% for those living in rural areas.

6.5 OUTCOME OF ATTENDANCE

Figure 6.5 Outcome of attendance



In the majority of cases (98%) children receive treatment for their injuries within the emergency department. Of these, nearly 4 in 5 were subsequently discharged home after their treatment, with a further 19% admitted to PMH or transfer to another hospital.

There was a significant difference in the admission rate between children from rural and metropolitan regions. Rural children were nearly 3 times more likely to be admitted to PMH following an injury presentation than those from the metropolitan region, but rarely left before having their injury treated.

7. SPORTING ACTIVITY INJURIES IN CHILDREN

The participation in a sporting pastime has long been considered beneficial to children and adults alike. Whether this was an organised event or simply riding the bicycle down the road, it was taken as what children did whenever possible. However over the last decade of the 20th century there has been a noted decline in the overall participation rates in active exercise, not only in organised sporting activities. This may have led to some startling statistics, with Australian Medical Association research estimating that nearly 1 in 4 Australian children are either overweight or obese.

Sedentary pursuits like computer games and television viewing compete with sporting activity. Increasing urban density and parental time constraints are also promoted as limiting the child's sporting opportunities. Coupled with the likelihood of injury following sporting activity is given by some parents and children for non involvement. However the benefits from the activity far outweigh the possibility of injury, and may in fact prevent some injuries occurring. These include increased cardiovascular fitness, the development of stronger bones, muscles, ligaments and tendons as well as improved coordination and balance abilities. It is often noted that the child will usually gain an improvement in confidence and social skills, thus participation in a sporting activity should be considered essential to a child's development.

The data presented in this report examines the extent and nature of sporting injuries that presented to the emergency department at Princess Margaret Hospital for Children during the 12 month period June 2006 – May 2007 inclusive.

7.1 DEMOGRAPHIC DATA

During the study period the emergency department of Princess Margaret Hospital saw 49,303 presentations of which 11,947 (24.2%) were due to an injury of which 2,610 (5%) were recorded following a sporting activity. Figure 7.1 displays the monthly breakdown of presentations. The number of injury presentations varied slightly during the study period. However, the percentage of sporting injuries presenting in January (3.7%) were half the number seen in May and June (7.4%) of total presentations. The cyclical nature of sporting injuries may be due to the more physical nature of winter sporting activities compared with those traditionally associated with the summer period.

Figure 7.1 Number of Sporting Activity Injury presentations June 2006 – May 2007



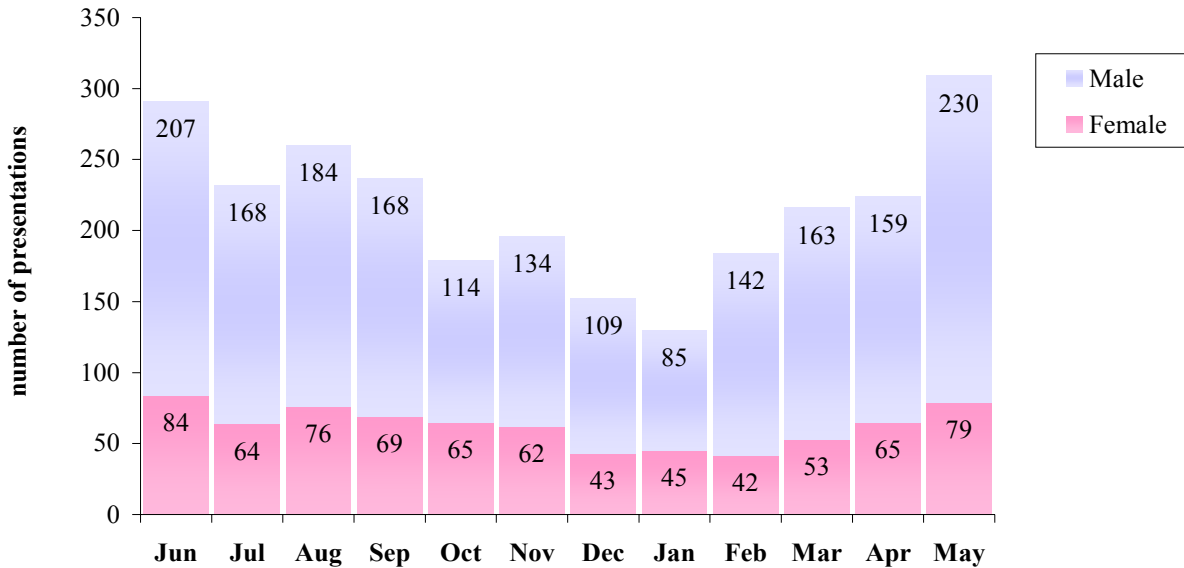
7.2 AGE AND SEX DISTRIBUTION

Male: (1,863) 26.2% of Total Male Injury Presentations: (7,100)

Female: (747) 15.4% of Total Female Injury Presentations: (4,847)

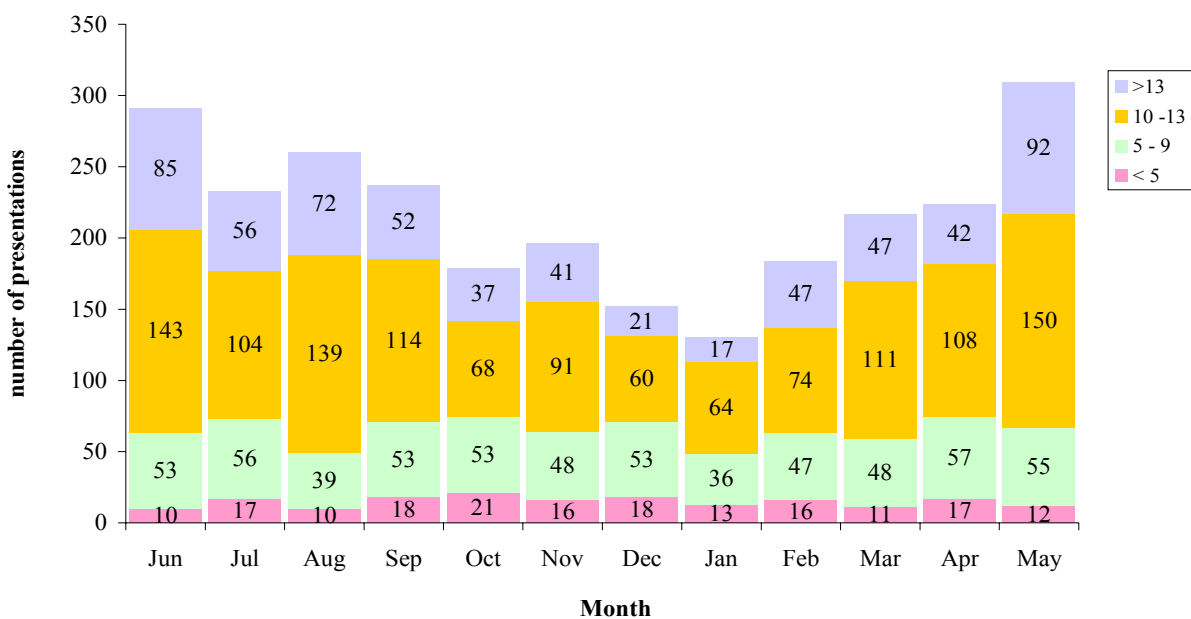
During the study period males presented at a rate 2.5 times that of females following a sporting activity injury. Figure 7.2.1 displays the monthly breakdown of presentations. This gender ratio is significantly higher than the 2:1 for all injury presentations to PMH.

Figure 7.2.1 Sex Distribution of Sport Activity Injuries



The upper primary school age group, those between 10 and 13 years of age, dominated presentations throughout the year representing 47% (n=1,226) of total sporting injury presentations to PMH during the study period. Those aged over 10 represented 70% of sport injury presentations. Figure 7.2.2 displays the monthly breakdown by age groupings. The level of sporting activity injury seen in the under 8 age groups varied little over the year.

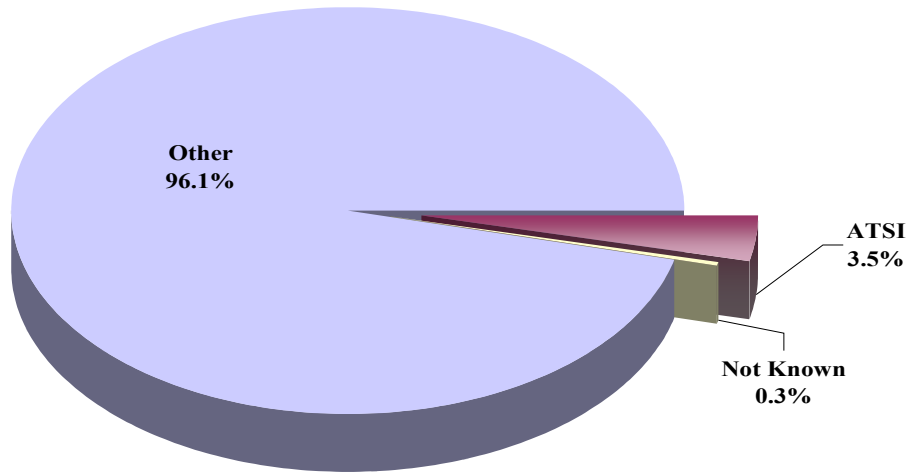
Figure 7.2.2 Age Distribution of Sport Activity Injuries



7.3 ABORIGINALITY

Children of Aboriginal or Torres Strait Island descent represented 3.5% of children attending the emergency department after a sporting activity injury, a level 25% lower than present for all injuries. There were no significant gender or age grouping differences between Aboriginal and non-aboriginal children, with 19% of ATSI presentations from a rural region. Figure 7.3 displays sporting presentations by ethnicity.

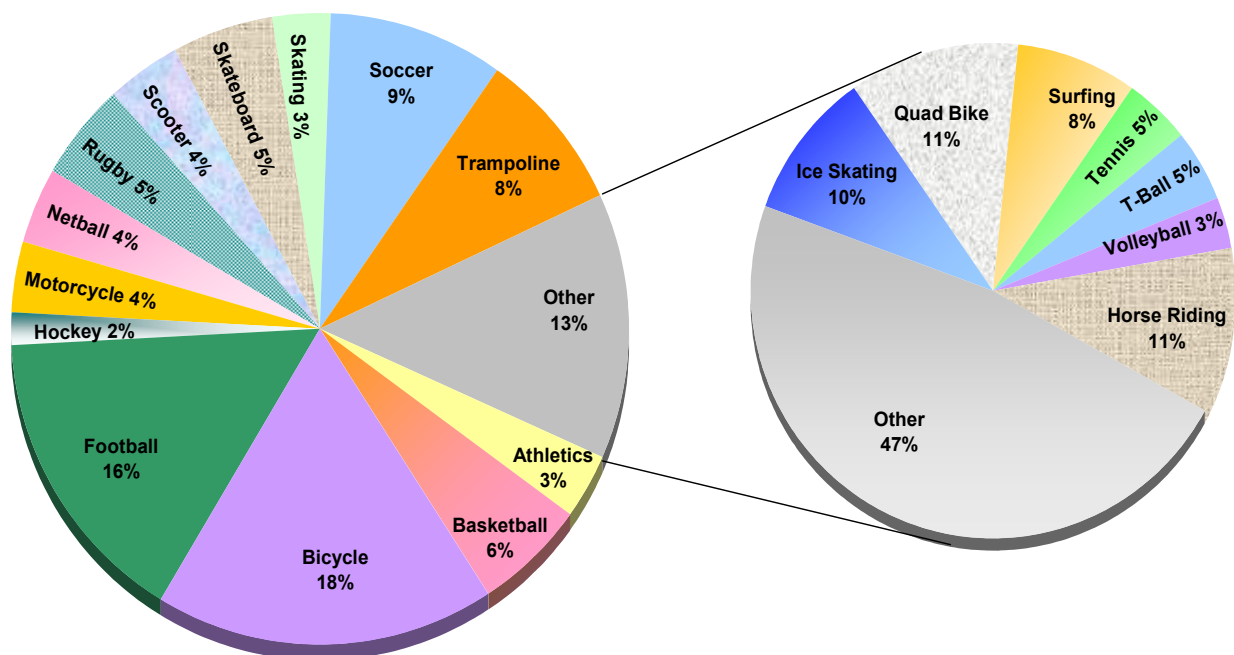
Figure 7.3 Aboriginality of Sporting Activity Injuries



7.4 MAIN CAUSE OF SPORTING INJURY

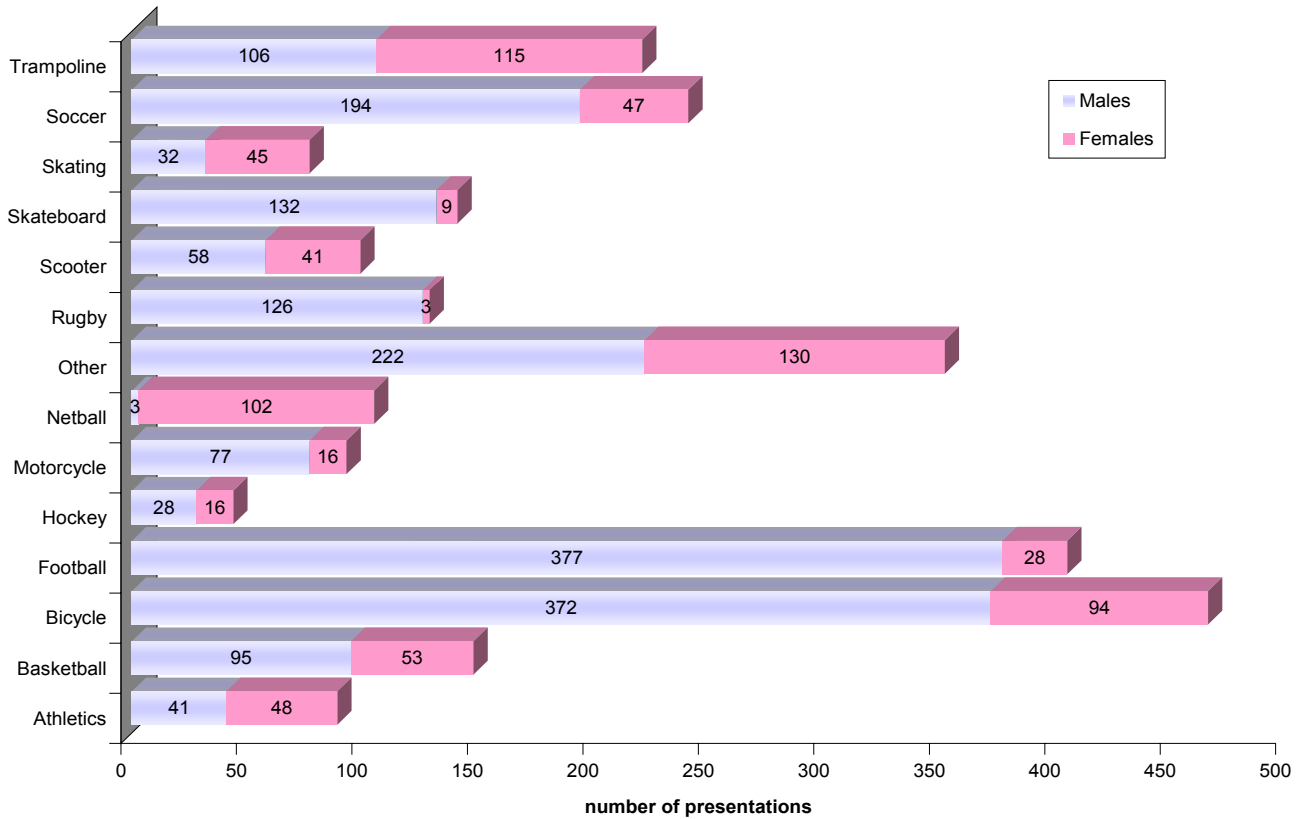
The sporting activities that resulted in an injury presentation, as displayed in figure 7.4.1, were many and varied. The majority of injuries were the result of a football related activity. Australian Rules football had the highest presentations, but when combined with other football codes (rugby, soccer, etc) represented 30% of total sporting injuries.

Figure 7.4.1 Main Cause of Sporting Activity Injuries



Males dominated presentations in the majority of sporting activities, particularly in the various football codes. Figure 7.4.2 displays the breakdown of sporting activity by gender. However skating, trampoline and of course netball saw more females injured. Riding of a bicycle represented the highest number of presentations, though football had the highest injury number by gender.

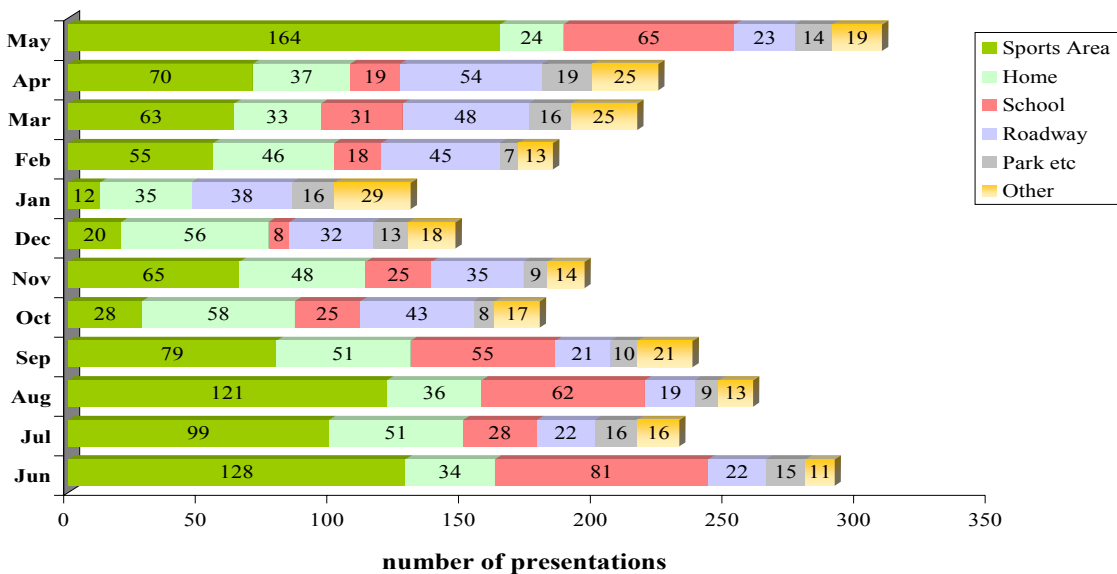
Figure 7.4.2 Sporting Activity by Gender



7.5 PLACE OF SPORTING INJURY

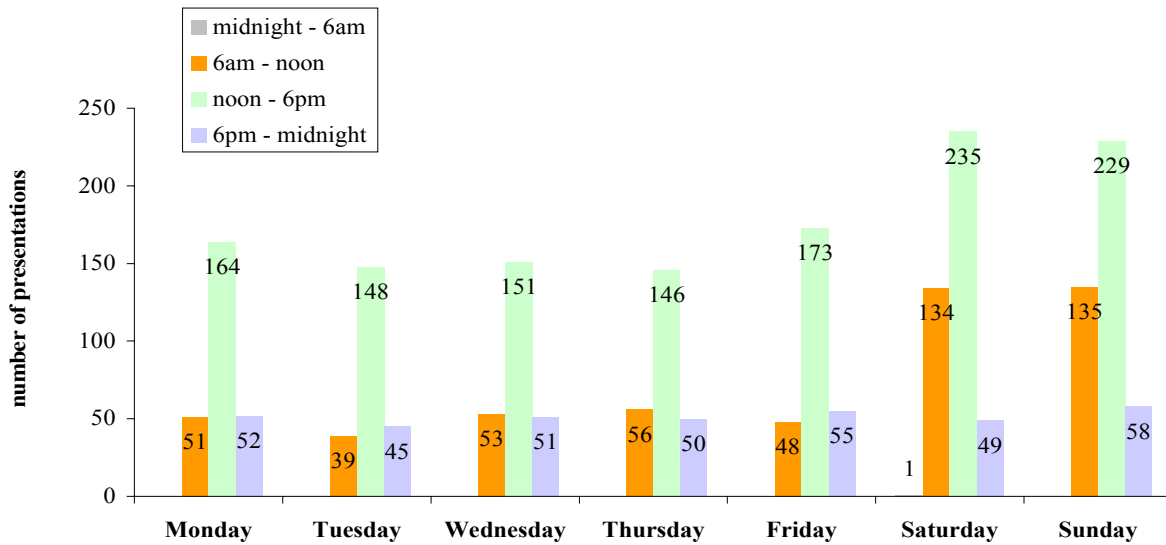
The location of injury for the sporting activity is displayed in figure 7.5. A designated sporting field was the most common location over the study period, however there was a noticeable decline during the months of December and January. This may correlate with a reduction in organised sport at this time of year. The roadway and home were the next common locations, being dominant during the summer months mentioned before.

Figure 7.5 Location of Sporting Activity Injury



7.6 TIME AND DAY OF SPORTING INJURY

Figure 7.6.1 Time of Presentation after Sporting Activity Injury



The majority of injured children presented after midday each day, as displayed in figure 7.6.1, with nearly 1 in 2 presenting between midday and 6pm. The peak period each day was between 5 and 9pm (34%), though higher presentation rates occurred on the weekend. This correlates with the daily presentation numbers displayed in figure 7.6.2, with the weekend rates 60% higher than other days. It should be noted that female presentation rates are lowest during the weekend. This may reflect a significant increase in male sporting activity participation over these days.

Figure 7.6.2 Day of Sporting Activity Injury by Gender

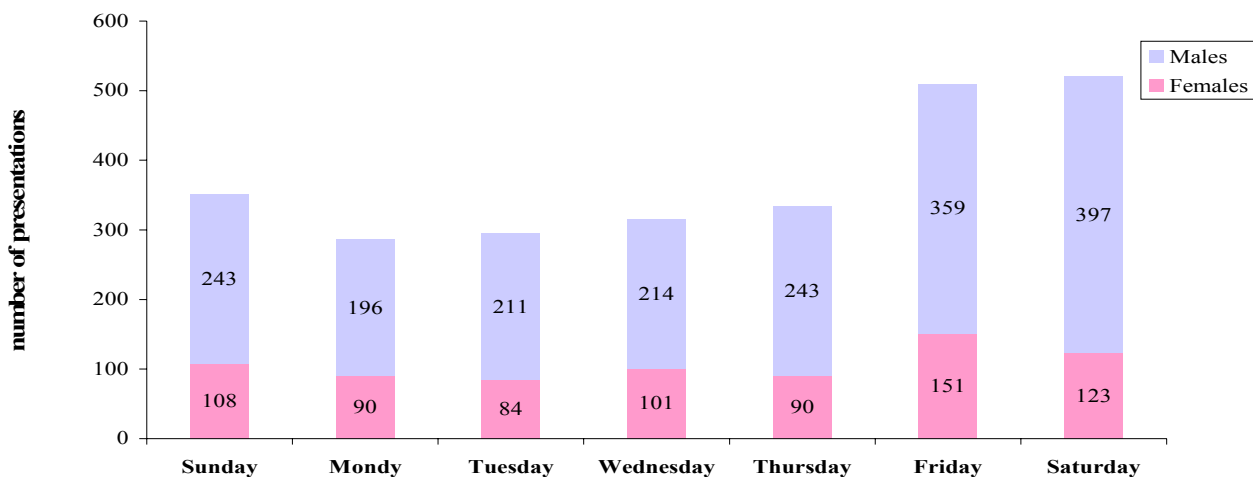
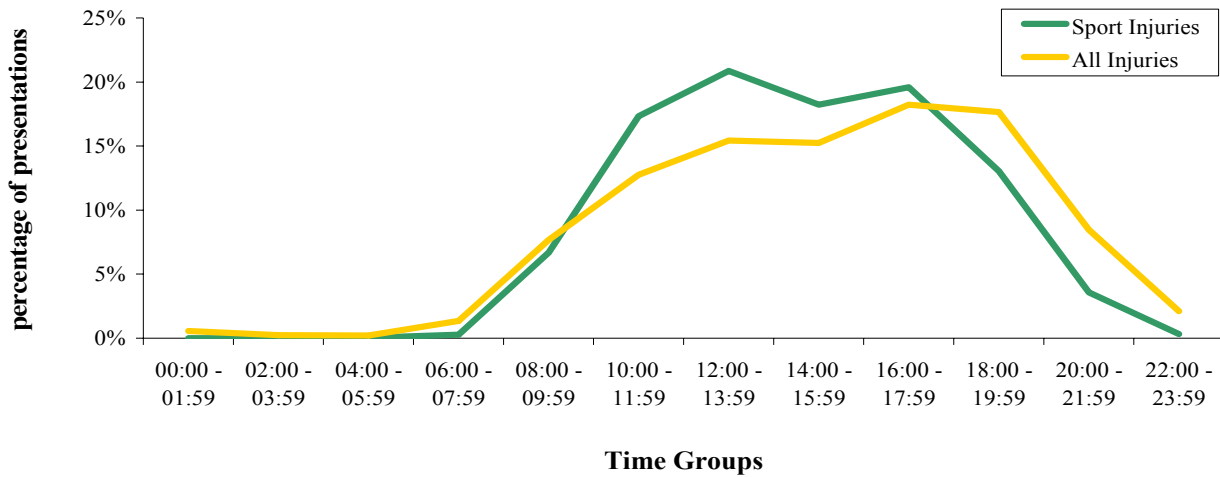


Figure 7.6.3 indicates the majority of children are injured during daylight hours whilst participating in a sporting activity. There were two peak injury periods during the day, one after midday and the second late in the day before sunset. During the study period a trial of daylight saving was introduced. The injury rate after 6pm during the summer months was noted to be 3 times higher than the average for the remaining 9 months of the year.

Figure 7.6.3 Time of Sport Activity Injury versus All Injury Presentations



7.7 OUTCOME OF SPORTING INJURY

In the majority of cases (99%) children receive treatment for their injuries within the emergency department. Of these, 79% were subsequently discharged home after their treatment, with 20% receiving injuries requiring admission to PMH or transfer to another hospital (figure 7.7). There was significant variation in admission rates by sporting activity as shown in table 2. The highest admission rates were for injuries resulting from motorcycle and bicycle accidents. The data does not enable these rates to be linked to non usage of safety equipment, though this may be a contributing factor. The least admissions resulted from the two ball sports of netball and basketball. This is likely due to the less serious nature of injuries received.

Figure 7.7 Outcome of Attendance

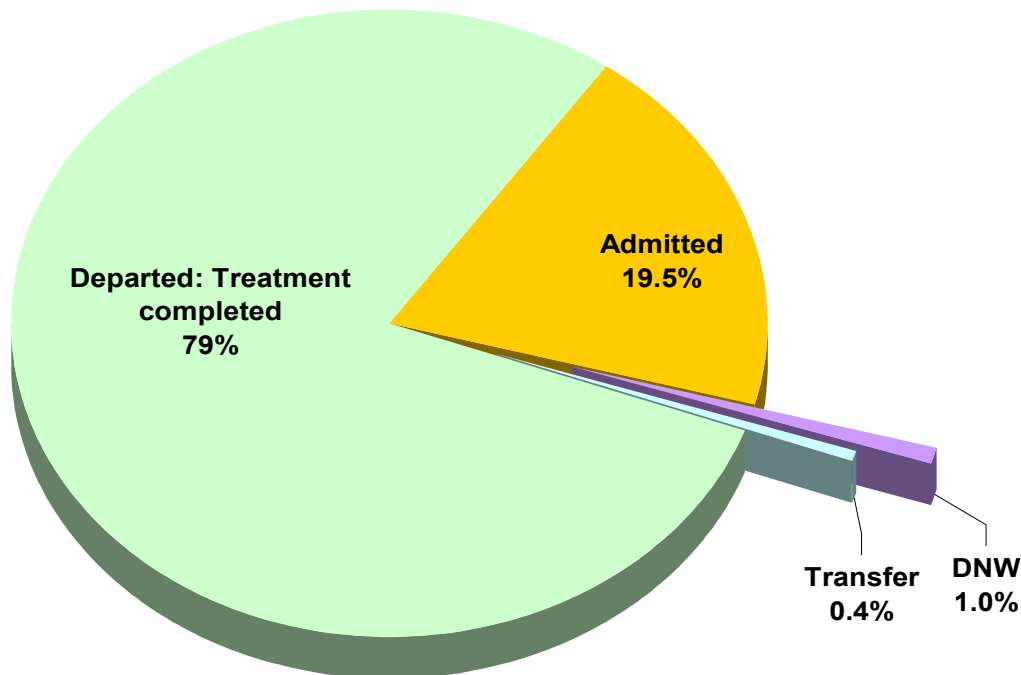


Table 2: Rate of Admission by Sport Activity

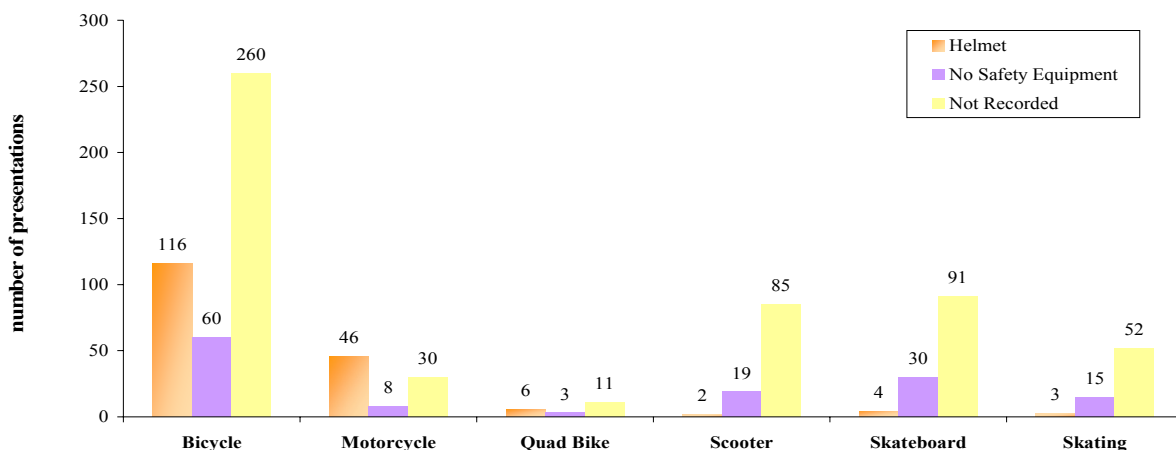
	ADMITTED	HOME
ATHLETICS	12.6%	87.4%
BASKETBALL	8.3%	91.7%
CYCLING	28.8%	71.2%
FOOTBALL	14.6%	85.4%
HOCKEY	11.4%	88.6%
MOTORCYCLING	50.0%	50.0%
NETBALL	7.6%	92.4%
RUGBY	10.1%	89.9%
SCOOTERING	23.2%	76.8%
SKATE BOARDING	26.2%	73.8%
SKATING	19.6%	80.4%
SOCCER	13.9%	86.1%
TRAMPOLINE	22.6%	77.4%

Participation in a sporting activity coupled with usage of safety equipment where appropriate is promoted by health authorities throughout Australia to improve the health of children. Whilst many sporting activities may be modified for particular age groups to reduce the seriousness of injury, the use of helmets and sporting guards remain significant devices in injury reduction.

Helmet usage was able to be determined in 37% of all presentations where it would be appropriate to use them, as displayed in figure 7.12. Sporting activities like skateboarding, roller-skating and scooters were the least likely to have helmet usage recorded. Usage of a helmet whilst riding a pedal cycle and motorcycle is currently a legal requirement, however less than 50% of presentations were recorded as wearing one. The under 5 year olds were the least likely to wear a helmet compared with older age groups.

7.8 SAFETY EQUIPMENT USAGE

Figure 7.8 Usage of Safety Equipment



The most common cause of injury whilst participating in a sporting activity results from the child losing their balance. Whilst injury in a competitive sport like football, soccer or netball may result from a collision with another player, the result is a fall to the playing surface and an injury to the upper limb. Table 3 displays the part of the body injured by sporting activity. Clearly the hand or lower arm is the most commonly injured part of the body, correlating with a fall preceding the injury.

When analysing injuries sustained whilst playing, field hockey is the clear exception. More than 1 in 2 of these injuries were to the face, often due to being struck by either the hockey ball or stick.

Table 3: Injuries by Sporting Activity and Body Part

	Head	Face	Shoulder	Elbow	Lower Arm	Hand	Knee	Ankle	Foot	Leg
Athletics	5.6%	4.5%	6.7%	5.6%	15.7%	13.5%	3.4%	11.2%	9.0%	13.5%
Basketball	3.4%	9.5%	2.0%	4.1%	10.8%	39.2%	6.8%	11.5%	3.4%	8.8%
Bicycle	10.5%	18.3%	4.3%	4.7%	20.2%	11.0%	4.1%	1.9%	4.5%	8.8%
Football	10.1%	8.2%	9.9%	2.0%	15.3%	30.0%	4.2%	2.7%	2.0%	9.7%
Hockey	4.5%	54.5%	2.3%	2.3%	9.1%	13.6%	9.1%	2.3%	0.0%	2.3%
Motorcycle	14.0%	7.5%	2.2%	6.5%	17.2%	8.6%	5.4%	0.0%	7.5%	26.9%
Netball	3.8%	2.9%	2.9%	3.8%	16.3%	35.6%	11.5%	14.4%	4.8%	2.9%
Rugby	14.7%	5.4%	14.7%	1.6%	13.2%	17.1%	7.0%	5.4%	2.3%	6.2%
Scooter	4.0%	24.2%	1.0%	3.0%	33.3%	11.1%	5.1%	1.0%	9.1%	6.1%
Skateboard	9.9%	15.6%	2.1%	4.3%	20.6%	17.0%	1.4%	5.7%	5.0%	9.9%
Skating	6.6%	3.9%	1.3%	5.3%	43.4%	18.4%	2.6%	3.9%	1.3%	5.3%
Soccer	3.8%	7.1%	4.6%	2.9%	17.1%	17.5%	12.9%	6.3%	7.1%	16.7%
Trampoline	10.9%	13.1%	4.5%	7.2%	32.1%	5.0%	2.3%	3.6%	4.1%	13.1%
All Sports	9.0%	13.5%	5.4%	4.0%	18.8%	18.3%	5.2%	4.4%	4.3%	10.2%

Fortunately the great majority of injuries presenting to the emergency department at PMH are of a minor nature. That is they are rarely life threatening and a return to the particular sporting activity will occur once the injury is resolved. Table 4 displays the most common injuries by sporting activity. Clearly fracture bones occur in nearly 50% of presentation, a striking correlation with the child falling to the surface. Field hockey again provides the striking variation with a majority of injuries classed as superficial abrasions, contusions or lacerations to the face. Intercranial injury was only seen in less than 2% of presentations and more likely in sporting activities where riding a bicycle or skateboard and football codes.

Table 4: Injuries by Sport Type and Main Injury

	Fractures	Sprain / Strain	Intercranial	Superficial
Athletics	47.2%	28.1%	1.1%	10.1%
Basketball	48.0%	28.4%	0.7%	15.5%
Bicycle	42.8%	6.7%	3.0%	36.3%
Football	50.0%	22.0%	2.2%	14.9%
Hockey	29.5%	4.5%	0.0%	59.1%
Motorcycle	51.6%	5.4%	2.2%	24.7%
Netball	49.0%	38.5%	0.0%	5.8%
Rugby	42.6%	32.6%	3.1%	10.9%
Scooter	53.5%	7.1%	1.0%	33.3%
Skateboard	51.1%	14.2%	2.8%	21.3%
Skating	63.2%	19.7%	0.0%	9.2%
Soccer	46.7%	27.1%	0.8%	13.8%
Trampoline	56.6%	17.2%	0.9%	14.0%
All Sports	47.9%	18.0%	1.6%	21.5%

8. DISCUSSION

The collection of injury data plays a vital role in the development of strategies to prevent or minimise childhood injury. It relies on an efficient and reliable computer system and the co-operation of nursing, clerical and medical staff within the emergency department of PMH. Through the analysis of this collected data, injury trends and changes can be noted as well as the effectiveness (or not) of injury prevention programs.

The last financial year saw the highest number of total and injury presentations recorded on the EDIS system, a fact seen over the past 3 reporting periods. This report has enabled a brief analysis of the seasonal nature of presentations to the emergency department of PMH. Injuries from burns, bicycles and skateboards clearly have a cyclical pattern of presentation. Despite the 6% increase in children presenting, these underlying cycles appear to have not altered. However despite this increase, the overall admission rate declined 1% following an injury. The male to female gender ratio equated the 3 to 2 long-term average, a fact that all injury campaign designers should keep in mind. Whilst total number of injuries increased there was no significant increase in a specific cause of injury. Presentations following a burn or scald remain somewhat static in number, a fact that should be of concern. This type of injury often results in longer lengths of hospitalisation than other causes of injury, but can be considered one of the most preventable injuries. The majority children present to the emergency department after an unintentional injury and are discharged home following treatment. This financial year saw no deaths within the emergency due to an injury.

9. FUTURE (RECOMMENDATIONS)

The injury data collection at PMH continues to evolve with changes made where appropriate. This financial year was the first complete year to be able to make use of the data collection changes introduced in June 2006. These enabled the identification of sporting and recreational activity and the usage of safety equipment (helmets, seatbelts, mouthguards, etc) where appropriate. This should assist in the structuring of specific and appropriate campaigns aimed at injury prevention or reduction.

This report contained a feature on the injuries that occurred whilst children were partaking in a sporting or recreational activity during a 12 month period. The analysis clearly identified the arms as the area of the body most commonly injured, with field hockey the only exception. It would be a challenge to design an injury prevention program to reduce these presentations, given that many result from a fall during the course of play. Reducing facial injuries during field hockey would seem the easier task. Children over 10 years of age dominated the sporting presentations, particularly males in a game of football. Netball was the only sporting activity with females only presenting following an injury. The usage of safety equipment was not determined in the majority of bike injuries. This should be of concern given the current legislative requirements.

10. REFERENCES

1. Sport Injuries in Children – The five most commonly presented sports:
<http://www.monash.edu.au/muarc/VISU/hazard/haz09.pdf>
2. Sports Injuries
http://www.qisu.org.au/modcore/PreviousBulliten/backend/upload_file/issue059.pdf

11. SUMMARY OF WA CHILDHOOD INJURY SURVEILLANCE BULLETINS FROM 2006-2007

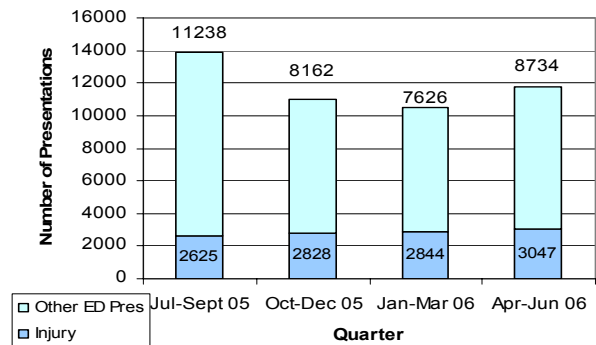
11.1 July 2006 Bulletin

Factors associated with child injuries: A snapshot on Injury Factors

Childhood Injury Presentations: April to June 2006

- There were a total of 11,781 presentations for all causes to Princess Margaret Hospital Emergency Department (PMH ED) from April to June 2006 (See graph below).
- Injury presentations accounted for 26% (n=3,047) of all PMH ED presentations in the quarter.
- The leading cause of injury presentations to PMH ED from April to June remained Falls (44.4%, n=1,353).
- Indigenous children accounted for 5.3% of all injury presentations in the quarter.
- 94.7% of all injury presentations were Unintentional. Intentional/ self harm & assault injuries (2%) were more prominent in the older age groups. A further 3.2% of injury presentation were of unknown intent.
- The home remains the most common location for injuries to occur (58.7%), followed by the school/sports area (14.3%).
- In the financial year 2005-06, there were a total of 11,344 injury presentations at PMH ED representing an increase of 8.1% in injury presentations from the previous financial year.

Total PMH ED Presentations July to June 2005-06



Introduction – Injury Factors

- This report aims to look at the factors that are associated with injuries presenting at PMH ED for the 2005-06 financial year.
- Nearly half of all injury presentations to PMH ED did not have an associated injury factor recorded.
- Injury Factors include items such as Nursery Equipment, Furniture, and Play Equipment that may be associated with an injury occurring to a child.
- The most common individual injury factors reported in PMH ED injury presentations occurring for April to June 2006 are the Floor (n=202), Sports Ball (n=139) & Playground Equipment (n=110).



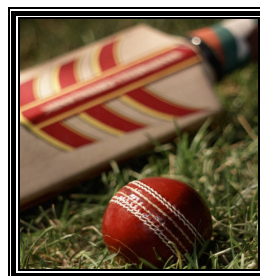
Furniture/Furnishings



Infant/Child Products



Building Component



Sport Equipment



Pharmaceutical

- For the purpose of this report the Injury Factors have been grouped into Five Categories: Furniture/Furnishings, Infant/Child Products, Sports/Recreational Equipment, Building Component, and Pharmaceutical Substances.

Bike Injuries: Two Wheels and on the Move



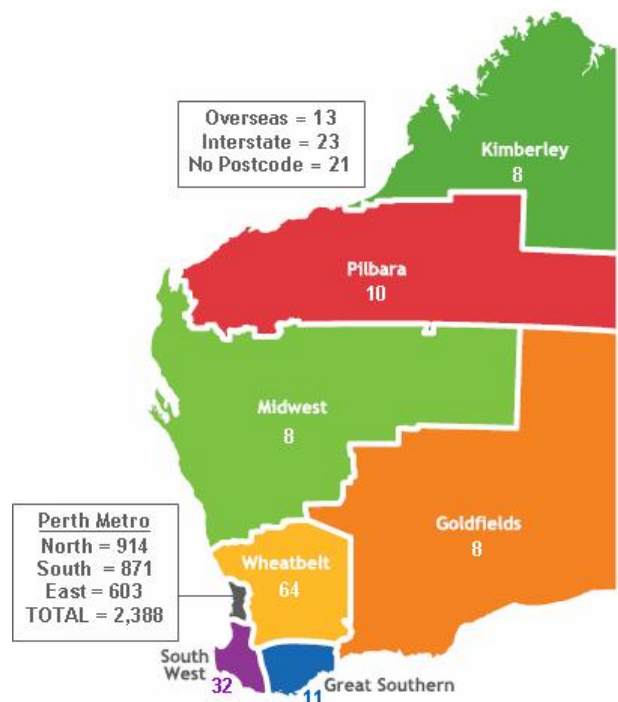
Childhood Injury Presentations: July to September 2006

- There were 14,104 presentations to Princess Margaret Hospital Emergency Department (PMH ED) from July to September 2006.
- Injury presentations accounted for 20.5% (n=2,889) of the total number of PMH ED presentations.
- The leading cause of injury presentations to PMH ED from July to September was Falls (41.5%, n=1,213).
- 94% of presentations were for children from the metro area, with a further 5.1% from rural WA, and 0.9% from interstate/overseas.
- For July to September 2006, 95.5% of injury presentations were unintentional, with a further 2.4% undetermined intent, 1.1% Intentional Self harm and 1.0% Alleged Assault
- So far this year (January to September 2006) there have been 8,820 injury presentations to PMH ED; an increase of 7.6% (n=671) compared to the same time last year.

Introduction – Bicycle Injuries

- There were 2,588 bicycle related injury presentations to PMH ED in the 6 year period from July 2000 to June 2006.
- Children aged 11 to 13 years of age accounted for the highest number of bicycle injuries (11: n=275; 12: n=292; 13: n=277).
- The Road/Pathway (n=1,349) was the most common location for bicycle injuries to occur, followed by the Home (n=607).
- Metropolitan children accounted for 92.3% of bicycle injury presentations to PMH ED and rural children accounted for 5.5%. 2.2% were either missing a postcode classification or from Interstate/overseas locations.

Figure 1: Number of Bicycle Injury Presentations for children aged 1-16 years by Health Region, 2000-2001 to 2005-2006 financial years

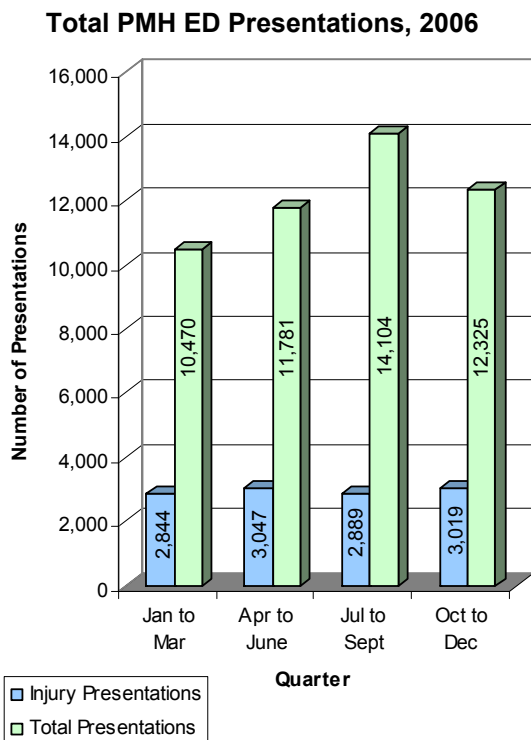


11.3 January 2007 Bulletin

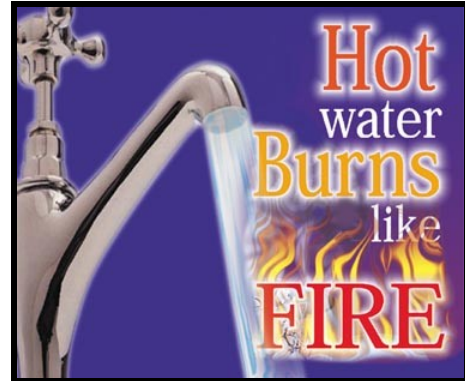
Burns and Scalds: Hot Water Burns Like Fire

Childhood Injury Presentations: October to December 2006

- There were 12,325 presentations to Princess Margaret Hospital Emergency Department (PMH ED) from October to December 2006.
- Injury presentations accounted for 24.5% of the total number of PMH ED presentations.
- The leading cause of injury presentations to PMH ED from October to December was Falls (39.7%, n=1,204).
- For the calendar year 2006, injuries accounted for 24% (n=11,799) of the total number of all PMH ED presentations. (See graph below). This is a 7% increase in injury presentations from 2005 (n=822).



Introduction – Fire, Burns and Scalds



- There were 780 burn related injury presentations to PMH ED in 2005-06.
- Children aged 1 year and less than 12 months of age accounted for the highest number of burn injuries (1 year: n=233; <1 year: n=89).
- The majority of burns were for Contact with Hot Liquid/Steam (n=351).
- Burns accounted for 7% of the Total Emergency Department Injury Presentations for 2005-06.
- The most common body regions burnt were the arms (n=282), Legs (n=153), Face (n=111) and Body (n=109).



Scald injury from a Hot Cup of Coffee

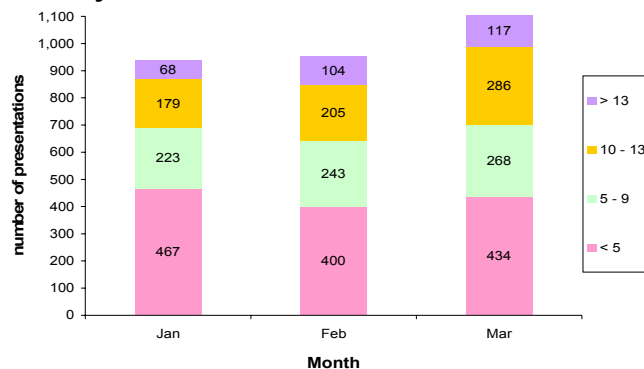
11.4 April 2007 Bulletin

School Based Injuries

Childhood Injury Presentations: January to March 2007

- There were 11,028 presentations to Princess Margaret Hospital Emergency Department (PMH ED) from January to March 2007.
- Injury presentations accounted for 27% (n=2,994) of the total number of PMH ED presentations.
- The leading cause of injury presentations to PMH ED from January to March was Falls (38.1%).
- The pre-school age group, (under 5 years of age), remained the predominant group representing 43.5% (n=1,301) of total injury presentations to PMH for January to March 2007 (See Graph below).

Age Distribution of Injury Presentations, January to March 2007



- Children of Aboriginal or Torres Strait Island descent represented 4.4% of children attending the emergency department during the first quarter of 2007.
- Children with a Perth metropolitan residential postcode represented the majority (94%) of the injured children seen by the emergency department, while rural postcodes accounted for 5%.
- During this quarter, more than 50% of rural children were admitted after presentation to PMH compared to 17% for those from the metropolitan area.

Introduction – School Based Injuries



Children playing tunnel ball at school to learn how the spine works, Bentley Primary School 2005 SISW Launch

- Between 2003 to 2006 there were a total of 4,671 presentations to Princess Margaret Hospital Emergency Department (PMH ED) for injuries that occurred at school (See Graph below).
- This equates to an average of 1,167 school injury presentations per year.
- The majority of school injury presentations were Falls (n=2,344).
- Injuries occurring at school or day care represented 11% of the PMH ED Injury presentations during 2003 to 2006.
- The proportion of school injury presentations increases steadily with age, peaking at age 13 for boys and 11 for girls.
- Nearly 60% of presentations were primary school aged children.

Number of Injury Presentations occurring at school & day care, by year & sex, 2003 to 2006

