



Child Accident Prevention Foundation of Australia
Western Australia

WA Consumer Product Advocacy Network

Wheeled Device Injuries Research Report



Government of **Western Australia**
Department of **Health**

This report was produced by Kidsafe Western Australia in collaboration with members of the WA Consumer Product Advocacy Network.



Government of **Western Australia**
Department of **Health**



ACCC
AUSTRALIAN COMPETITION
& CONSUMER COMMISSION



Department of **Local Government,**
Industry Regulation and Safety



Fiona Wood
Foundation

© Kidsafe WA

Suggested Citation:

Tsvetkov, A., Jamieson, K., Skarin, D. WA Consumer Product Advocacy Network. Wheeled Device Injuries Research Report. Perth (WA): Kidsafe WA (AUS); 2026 January

CONTENTS

Terminology	1
About us	2
Injuries at a Glance	3
Introduction	4
Method	7
Results	8
Discussion	15
Prevention	17
Limitations	18
References	19

TERMINOLOGY

Term	Meaning
Perth Children's Hospital (PCH)	PCH is a paediatric hospital in Western Australia and is the referral centre for paediatric illness and injury within the state.
Category 'other'	In each of the PCH ED injury surveillance fields there is often a 'other' category. This is used when presentations are missing information or do not fit in the categories outlined.
Emergency Department (ED) Presentations	Children between zero and <16 years old that present to the triage desk at PCH ED.
eRideable	Is an electric rideable device that: • has at least one wheel • is designed to be used by only one person • is no more than 125cm long, 70cm wide and 135cm high • is 25kg or less • has a speed limit of 25km/h on level ground. This includes eScooters, eSkateboards, hoverboards, eSkates, and eUnicycles. In Western Australia only people over 16 years old are allowed to use eRideables. Devices that are not classified as eRideables include motorised wheelchairs, mobility scooters, eBikes or power assisted pedal cycles, and segways. For more information visit https://www.wa.gov.au/organisation/road-safety-commission/erideables.
Injury factor	This can be a product or a structure that contributed to the cause of the injury.
Motorised scooter	A scooter that: • has 1 or more electric motors with a maximum power output of 200 watts; and • has a top speed of 10km/h. These are not considered to be eRideables and are legal for children under 16 years old.
Wheeled device	A device or vehicle that uses wheels for movement or support such as bicycles, go carts, motorcycles, quad bikes, roller skates, rollerblades, scooters and skateboards. This category also includes eRideables and other electric/motorised wheeled devices.

Kidsafe WA

The leading independent not-for-profit organisation dedicated to promoting safety and preventing childhood injuries and accidents in Western Australia. Injuries are the leading cause of death among Australian children aged 0 to 17 and many of these deaths and injuries can be prevented. Kidsafe WA works in the community to educate and inform parents and children on staying safe at home, at play and on the road.

WA Consumer Product Advocacy Network

The WA Consumer Product Advocacy Network (WA CPAN) was established in October 2014 by Kidsafe WA in partnership with the Department of Health Western Australia. The network provides leadership to ensure ongoing and emerging injury issues associated with unsafe products are identified and minimised, with a focus on products used by children. WA CPAN consists of representatives from organisations who are involved in the regulation, safe use, injury prevention, treatment and sale of products for use by consumers. This includes:

- Australian Competition and Consumer Commission
- Fiona Wood Foundation
- Department of Health Western Australia, Public and Aboriginal Health Division
- Department of Local Government, Industry Regulation and Safety – Consumer Protection
- Goodstart Early Learning
- Kidsafe Western Australia
- Perth Children's Hospital Emergency Department
- WA Poisons Information Centre

Products identified through the network are prioritised according to the level of risk posed or safety concerns raised by WA CPAN members. A documented action plan then supports the ability to advocate for change. The network aims to explore solutions for identified unsafe products and ultimately reduce the number and severity of childhood injuries related to consumer products. WA CPAN members meet every two months, with approximately six meetings per year. The members are also in regular email contact between meetings so that emerging issues can be dealt with in a timely manner. Once a product safety issue is identified appropriate actions are taken and typically led by the member with the biggest potential impact or reach. Actions can include:

- Advocating for changes
- Delivering workshops to provide injury prevention information
- Monitoring products through injury surveillance and safety checks
- Providing safety messages in media releases and newsletters
- Providing resources such as brochures, fact sheets, tools and videos which are made available through websites and social media channels
- Enforcement of appropriate regulations or consumer law

Perth Children's Hospital Injury Surveillance System

The Perth Children's Hospital (PCH) is the only paediatric hospital in Western Australia and is the referral centre for paediatric illness and injury within the state. Each year approximately 68,000 children present to the PCH Emergency Department (ED). The PCH ED Injury Surveillance System is designed to capture data related to all children who present with an injury. Injury data is collected by triage nurses who initially assess the child presenting to ED. All clinical information and basic demographic details are recorded. This data is then coded and validated by a dedicated Injury Surveillance Officer daily.

INJURIES AT A GLANCE

7,296

Children were seen at the Perth Children’s Hospital Emergency Department (PCH ED) due to a wheeled device injury between July 2019 and June 2024



58

Children per year are seen at PCH ED for an electric/motorised wheeled device injury



59%

Of wheeled device injuries occurred in children between 10 and 14 years

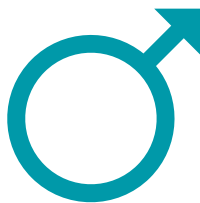
Devices

Most common wheeled device associated with injuries seen at PCH ED



42.1%

Bicycle



71.3%

Of children presenting with a wheeled device injury were male



22.5%

Scooter



76.1%

Of wheeled device injuries seen at PCH ED were caused by falls



11.9%

Skateboard



79.1%

Of children presenting with a wheeled device injury were discharged from the PCH ED with treatment complete

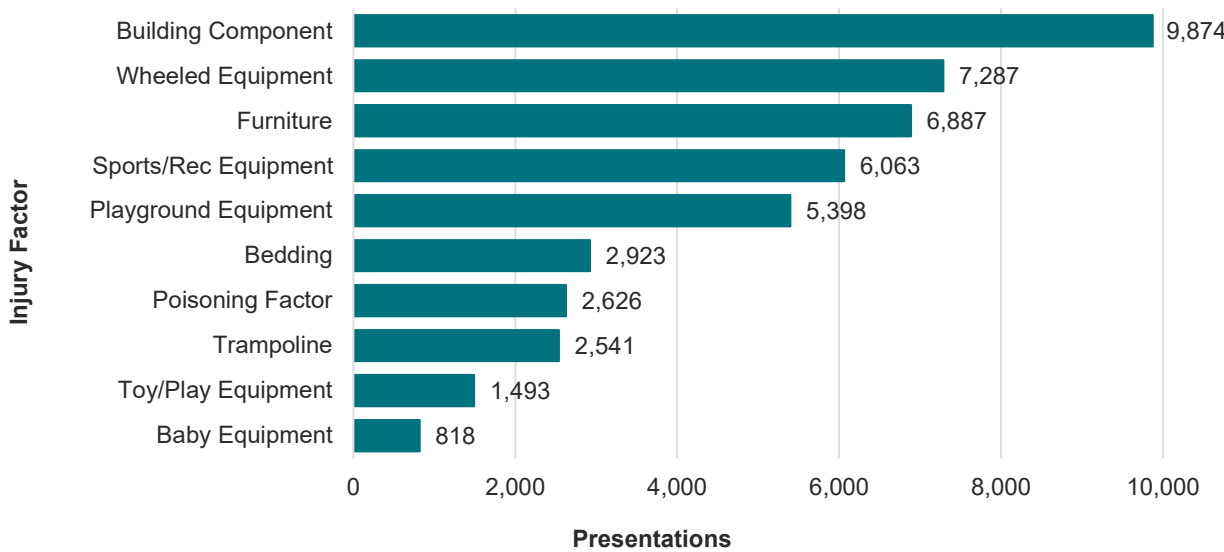
INTRODUCTION

Childhood Injuries in Western Australia

Each year approximately 23 Western Australian children die as a result of injury, with a further 8,000 children hospitalised¹. Between July 2019 and June 2024, approximately 100, 579 children presented to the PCH ED with an injury. Of these presentations, approximately 46 percent (n=45,910) involved an injury factor². An injury factor is a product or a structure that contributed to the cause of injury.

The most common injury factors were house structures/building components such as doors, walls, and windows accounting for 21.5 percent (n=9,874) of presentations. This was followed by wheeled equipment (15.9%, n=7,287) and furniture including items such as chairs, sofas, tables and cupboards (15.0%, n=6,887) (Figure 1).

Figure 1: Presentations by Injury Factor; July 2019 to June 2024



With each child presenting to PCH ED a triage category is assigned, indicating the level of urgency of their injury (Table 1). When all presentations with an injury factor are examined, 73.5 percent (n=33,745) were triaged as semi-urgent, followed by 19.6 percent (n=8,988) triaged as urgent, 6.1 percent (n=2,809) triaged as an emergency and 0.7 percent (n=309) triaged as resuscitation. The remaining 0.1 percent (n=59) were triaged as non-urgent. When compared to injuries without an injury factor present, the urgency of injury presentations is slightly higher.

Table 1: Triage Category

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

In most cases (85.8%, n=39,370) the child was able to depart the ED with treatment completed. A further 12.5 percent (n=5,758) were admitted to hospital for additional treatment and the remaining cases either did not wait, were transferred to other hospitals or their disposition was unknown (1.7%, n=782). The admission rate was slightly higher for presentations with an injury factor compared to those without an injury factor.

Wheeled Device Injuries

Wheeled devices are popular methods of childhood recreation for children aged zero to 14 years³. These devices encourage children to get outside and exercise whilst having fun. It is also a great way for kids to improve balance and develop their gross motor skills. As children grow, they are more likely to use wheeled devices to travel independently to school or socialise with others⁴.

Engaging in activities that include wheeled devices offers many health benefits, however this does come with a number of injury risks. In Australia between 2002 and 2012, 24,458 children aged zero to 16 were hospitalised for a fall injury associated with a wheeled device⁵. The most common wheeled devices associated with injuries include bicycles, quad bikes, dirt bikes, scooters, skateboards and motorcycles⁶. The most common injuries resulting from wheeled device incidents includes fractures, lacerations and sprains/strains⁷, however many of the injuries are of low severity and do not require hospital admission. As wheeled device injuries continue to occur, a number of public health interventions to improve rider behaviour have been introduced. Despite these efforts, wheeled device injury presentations remain high.

In recent years, electric/motorised wheeled devices have become more popular as they are more available and affordable⁸. Within this device category there are eRideables, which are larger, heavier and faster devices. The introduction of these devices highlighted many safety concerns, prompting recognition that road safety legislation in Western Australia needed to be updated to reflect evolving technology. As a result, eRideable legislation was introduced in Western Australia in December 2021. This legislation outlines the specific sizing requirements for an eRideable, as well as speed limits, age restrictions and where these devices can be used⁹.

The following information is a summary of eRideables from the Road Safety Commission. For more detailed information visit <https://www.wa.gov.au/organisation/road-safety-commission/erideables>.

eRideables

Under WA legislation an eRideable is classified as an electric device designed to be used by one person that is at least 16 years old. The device itself must meet the following specifications:

- has at least one wheel;
- is less than 125cm (L), 70cm (W) and 135cm (H);
- weighs 25kg or less; and
- is not capable of travelling faster than 25km/h on level ground.

Other electric/motorised devices for children that are not considered an eRideable are covered by their own rules. See Table 2 below for Device Classification.

Table 2: Device Classification

eRideable Device	Other electric/motorised devices*
eScooters	eBikes
eSkates	EPT's (segways)
eSkateboards	Motorised scooters <,200W
eUnicycles	Motorised wheelchairs
eWheels	<i>*These devices are governed by their own regulations under the Road Traffic Code 2000</i>
Hoverboards	

An eRideable is a type of vehicle and therefore unless expressly excluded, all road laws that apply to vehicles apply to eRideables. This includes:

- Speed limits;
- Safety equipment;
- Mobile phones;
- Alcohol and illicit substances; and
- Parking.

It is also important to note where you can/cannot ride an eRideable. See Table 3 for details.

Table 3: eRideable Riding Locations

Allowed	Not allowed
• Footpaths, bicycle paths and shared paths • Roads where there are no dividing lines AND the speed limit is 50 km/h or less • Bicycle lanes (on roads with a speed limit of 50km/h or less)	• Roads with a dividing line • Roads where the speed limit is more than 50km/h • Any path marked 'no wheeled devices' • Any path or road where a 'no bicycle' sign or marking applies

Other electric/motorised devices

Other electric/motorised devices are outlined in Table 2. These are governed by their own regulations under the *Road Traffic Code 2000* and are not included in the new eRideable legislation.

A safer and legal alternative to eRideables for children under 16 years old are motorised scooters. These are low powered scooters with one or more electric motors that do not exceed 200w and have a maximum speed 10km/hr. Whilst current eRideable legislation in Western Australia prohibits children under the age of 16 years from riding an eRideable, there have been several admissions to the Perth Children's Hospital due to eRideable incidents, highlighting an emerging issue that needs to be addressed.

As children continue to present with injuries associated with all types of wheeled devices, it is important to identify the mechanisms of injury in order to inform the development of effective prevention strategies. To achieve this, wheeled device injury presentations to the PCH ED in Western Australia have been identified, analysed, and summarised in this report.

METHOD

A custom search query was created to identify potential injury presentations resulting from wheeled devices. The PCH ED injury surveillance database, covering the period from July 2019 to June 2024, was reviewed using the following inclusion criteria:

- Injury cause: All
- Intent: All
- Location: All
- Injury factor: Wheeled Equipment

After reviewing 7,329 wheeled device cases, a total of 7,296 true injuries were identified by using the following inclusion criteria:

- Sport: all-terrain vehicles (quad bikes), cycling - BMX, cycling - road, go carting, motorcycling, other athletic activity, other motor sport, roller blading, roller skating, scootering, skateboarding and unknown.

During this process, wheeled equipment was also flagged as an eRideable or other electric/motorised device. These presentations were identified using a keyword search in the triage text, capturing the terms e-scoot, e-skate, e-bike, escoot, eskate, ebike, electric, hoverboard and segway. Additionally, a manual review of the triage text was conducted to identify and remove presentations that were miscoded and did not involve a wheeled device. This process also enabled identification of the specific product associated with the injury and provided more information about the injury mechanism.

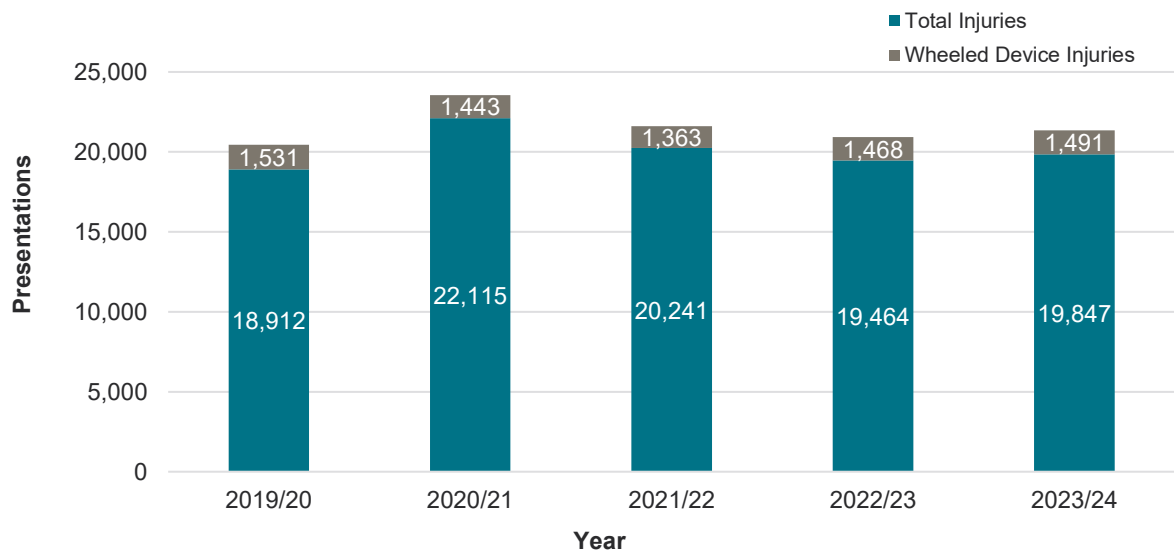
RESULTS

Demographics

Between July 2019 and June 2024, there were 7,296 wheeled device injury presentations to PCH ED, accounting for 7.3 percent of total injury presentations during this period. Of these cases, 291 presentations were identified as involving an eRideable or other electric/motorised device, accounting for 4.0 percent of wheeled device injury presentations.

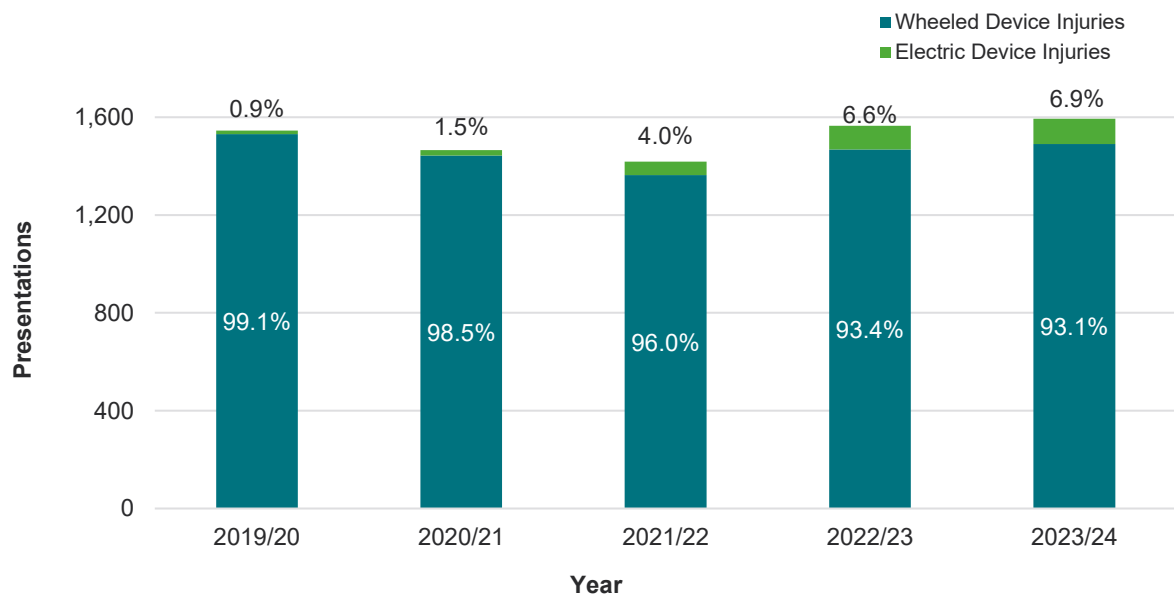
As a proportion of the total injury presentations to PCH ED, wheeled device injuries decreased from 8.1 percent (n=1,531) in 2019/20 to 6.5 percent (n=1,443) in 2020/21. Presentations then steadily increased, reaching 7.5 percent (n=1,491) by 2023/24 (Figure 2).

**Figure 2: Total Injuries and Wheeled Device Injuries;
July 2019 to June 2024**



Looking at injury presentations from electric/motorised devices as a proportion of all wheeled device injuries, a steady increase is observed from 0.9 percent (n=14) in 2019/2020 to 6.9 percent (n=103) in 2023/2024) (Figure 3).

**Figure 3: Wheeled Device Injuries and Electric/motorised Device Injuries;
July 2019 to June 2024**



Half of the children presenting with wheeled device injuries are 10 to 14 years old (50.9%, n=3,715), with 10 year olds presenting most within this age group (21.2%, n=789). This is followed by children aged 5 to 9 years (29.6%, n=2,161), 0 to 4 years (12.3%, n=895) and 15 years and older (7.2%, n=525). A similar pattern is observed for electric/motorised devices, however children aged 0 to 4 years see the lowest number of presentations (Table 4).

Table 4: Wheeled Device Injuries and Electric/motorised Device Injuries by Age Group; July 2019 to June 2024

Age Group	Wheeled Device Injuries		Electric/motorised Device Injuries	
	Number	Percentage	Number	Percentage
0 to 4 years	895	12.3%	13	4.5%
5 to 9 years	2,161	29.6%	50	17.2%
10 to 14 years	3,715	50.9%	182	62.5%
15 + years	525	7.2%	46	15.8%
Total	7,296	100%	291	100%

Males accounted for a higher proportion of wheeled device injuries (71.3%, n=5,204) in comparison to females. A similar pattern is observed when looking at injuries specifically associated with an electric/motorised device.

The majority of children presenting with wheeled device injuries reside in the metropolitan area (90.9%, n=6,633), followed by children living in regional areas (6.4%, n=464). The remaining cases resided interstate, internationally or unknown (2.7%, n=199). This pattern is also observed for children presenting with injuries associated with electric/motorised devices.

Approximately 4.1 percent (n=300) of children presenting to PCH ED with a wheeled device related injury identified as Aboriginal and/or Torres Strait Islander. When looking at injury presentations associated with electric/motorised devices, Aboriginal and/or Torres Strait Islander children accounted for almost three times the proportion of presentations compared to all wheeled device injuries (11.3%, n=33).

Injury

Almost all wheeled device injuries were due to unintentional circumstances (99.9%, n=7,292) with the remaining classified as intentional self-harm, undetermined or other. This is similar for electric/motorised devices where all injury presentations were deemed as unintentional.

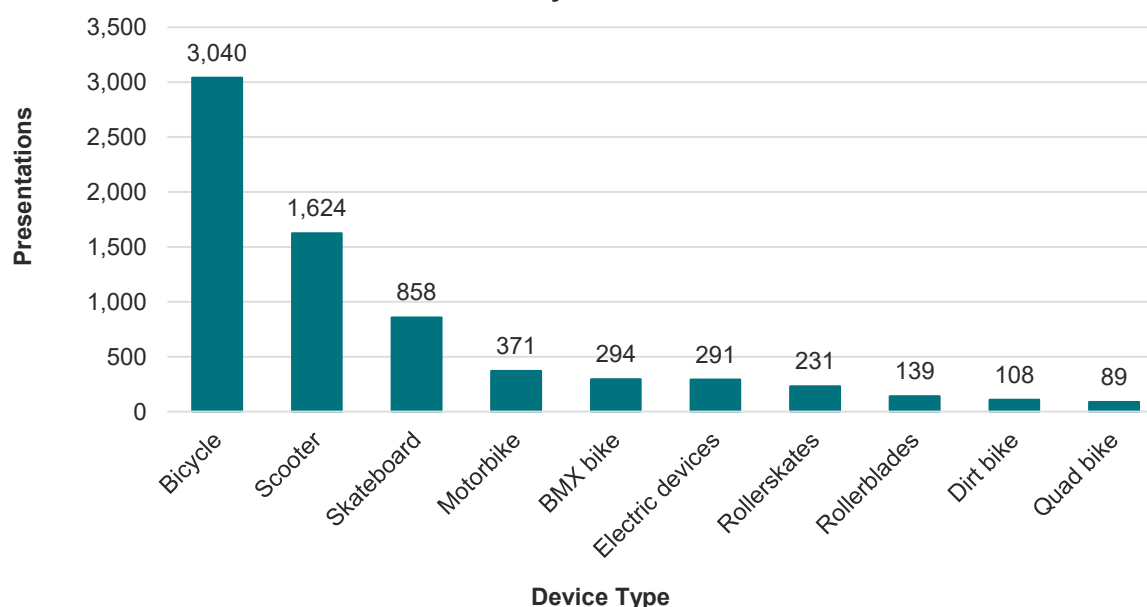
For many of the presentations, the location of where the injury occurred was recorded as unknown (72.0%, n=5,256). Of the known locations (28.0%, n=2,040), almost half occurred on the road/footpath/cycleway/parking area (46.1%, n=940). This was followed by sports area (27.1%, n=552) and home/farm (11.9%, n=243). For electric/motorised device presentations, the majority of injuries with a known location occurred on the road/footpath/cycleway/parking area (84.6%, n=88). This was followed by home/farm (6.7%, n=7) and recreational/cultural areas (5.8%, n=6) (Table 5).

**Table 5: Wheeled Device Injuries and Electric/motorised Device Injuries by Location;
July 2019 to June 2024**

Location	Wheeled Device Injuries		Electric/motorised Device Injuries	
	Number	Percentage	Number	Percentage
Road/Footpath/Cycleway/Parking	940	46.1%	88	84.6%
Sports Area	552	27.1%	2	1.9%
Home/Farm	243	11.9%	7	6.7%
Recreational/Cultural Area	136	6.7%	6	5.8%
School/Residential Institution	100	4.9%	0	0%
Open Nature Area	59	2.9%	1	1.0%
Commercial/Industrial/Medical Area	10	0.5%	0	0%
Total	2,040	100%	104	100%

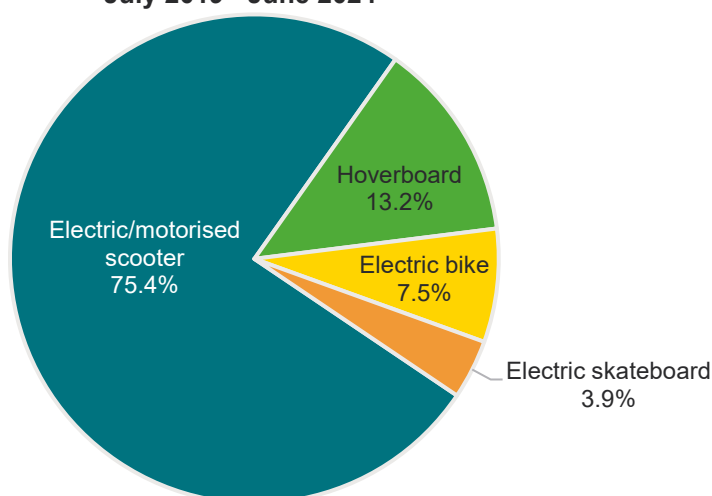
For cases where the wheeled device type was known, approximately 40 percent (n=3,040) of injuries involved bicycles (excluding BMX). This was followed by scooters (22.5%, n=1,624) and skateboards (11.9%, n=858) (Figure 4).

**Figure 4: Wheeled Device Injuries by Top Ten Device Types;
July 2019 to June 2024**



Looking at electric/motorised devices only, electric scooters (75.3%, n=210) were most commonly associated with injuries, followed by hoverboards (13.3%, n=37), electric bicycles (7.5%, n=21) and electric skateboards (3.9%, n=11) (Figure 5). For approximately 70 percent (n=203) of presentations, it was unknown if the device was an eRideable. Of the remaining presentations, 17.9 percent (n=52) stated that the device used was an eRideable, while 12.4 percent (n=36) were non-eRideable devices. All children presenting with eRideable-related injuries were 15 years or younger.

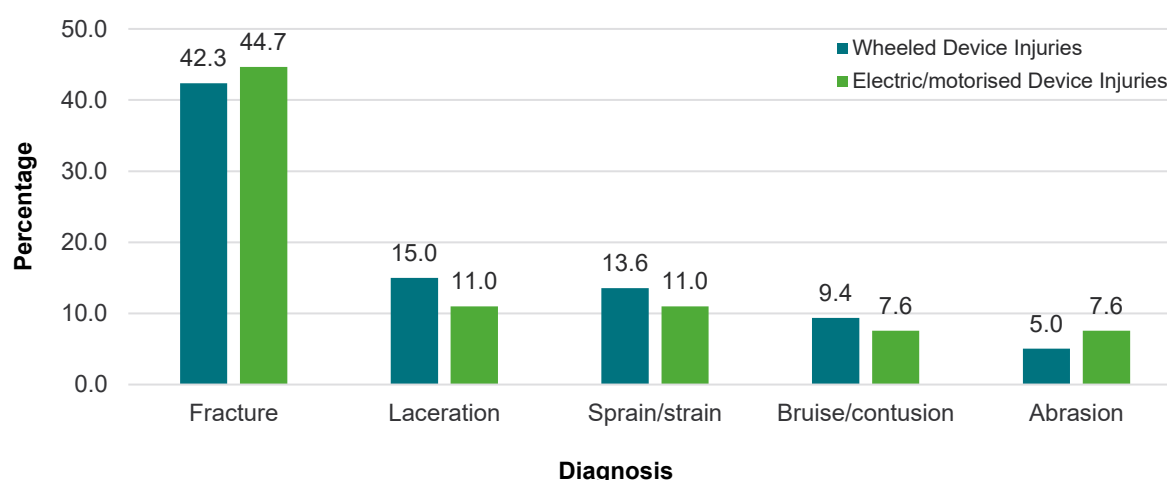
**Figure 5: Electric/motorised Device Injuries by DeviceType;
July 2019 - June 2024**



For the majority of the wheeled device injury presentations, it was noted that the child fell from the device (73.2%, n=5,342), followed by the child colliding with an object (3.3%, n=238). When looking at electric/motorised devices only, a similar pattern was observed where 60.5 percent (n=176) of injuries occurred from the child falling from the device and 7.9 percent (n=23) from the child colliding with an object.

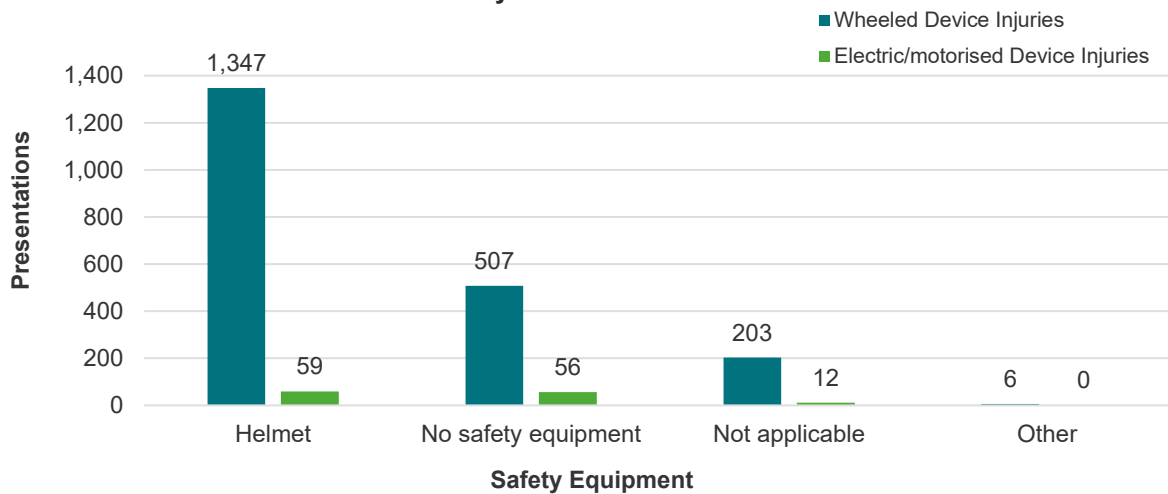
The majority of the injury presentations associated with wheeled devices resulted in fractures (42.3%, n=3,089), followed by lacerations (15.0%, n=1,095) and sprains/strains (13.6%, n=989). This is similar for electric/motorised devices injuries only, with fractures (44.7%, n=130) being the most common diagnoses, followed by lacerations (11.0%, n=32) and sprains/strains (11.0%, n=32) (Figure 6).

**Figure 6: Wheeled Device Injuries by Diagnosis;
July 2019 to June 2024**



The use of safety equipment for wheeled device injury presentations was largely unknown with over two thirds (72.7%, n=5,233) recorded as unknown or inadequately described. Amongst presentations where safety equipment was adequately described, 65.3 percent (n=1,347) noted that a helmet was used, 24.6 percent (n=507) did not use any safety equipment and 9.8 percent (n=203) were recorded as not applicable. Children riding electric/motorised devices were less likely to use safety equipment, with 46.5 percent (n=59) reported as not using any, 44.1 percent (n=56) using a helmet, and 9.4 percent (n=12) recorded as not applicable (n=12) (Figure 7).

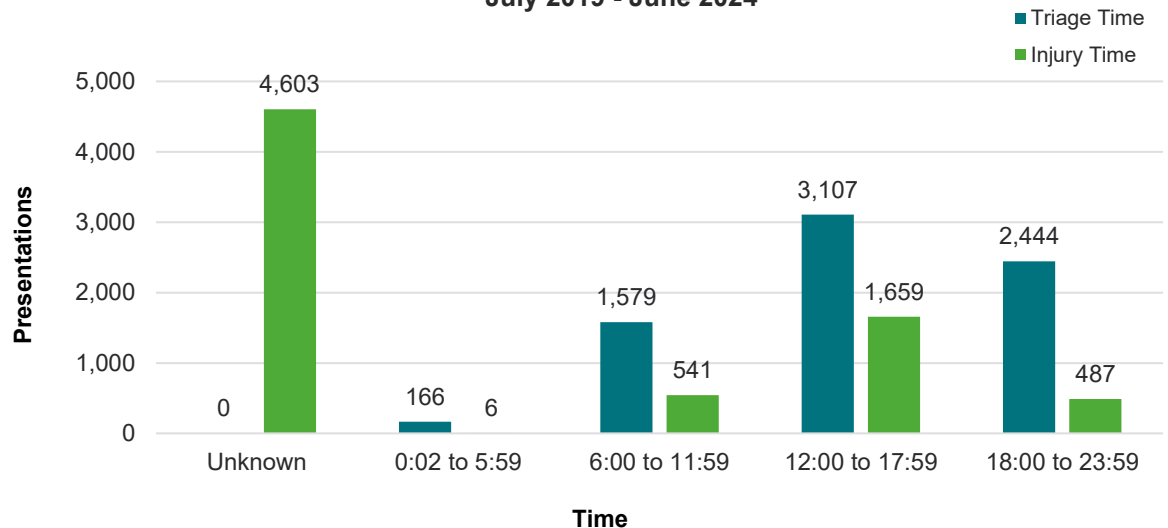
**Figure 7: Wheeled Device Injuries by Use of Safety Equipment;
July 2019 - June 2024**



Treatment

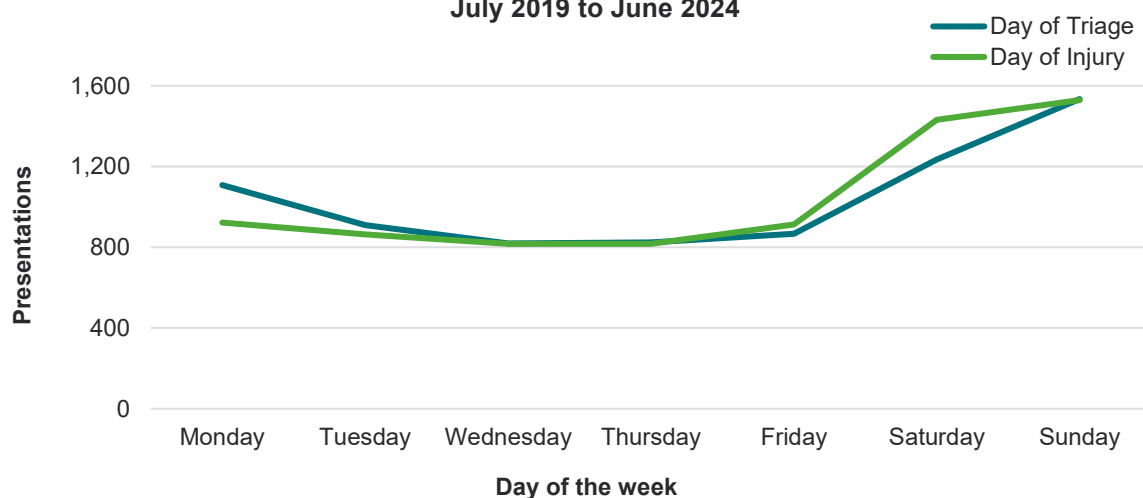
The most common time for children to present to PCH ED with a wheeled device related injury was between 12:00 and 17:59 (42.6%, n=3,107), followed by 18:00 to 23:59 (33.5%, n=2,444). A similar pattern was observed for time of injury, however the time was unknown for almost two thirds of presentations (63.1%, n=4,603). Amongst presentations with a known time of injury (36.9%, n=2,693), over half occurred between 12:00 and 17:59 (61.6%, n=1,659), followed by 6:00 to 11:59 (20.1%, n=541) (Figure 8).

**Figure 8: Wheeled Device Injuries by Time of Triage and Time of Injury;
July 2019 - June 2024**



The day of injury and day of presentation are also recorded during the triage process. Of the presentations where the day of injury is recorded (99.9%, n=7,292), the greatest number of injuries occurred on Sunday and Saturday accounting for 21.0 percent (n=1,529) and 19.6 percent (n=1,431) respectively. The day of triage also follows a similar pattern (Figure 9).

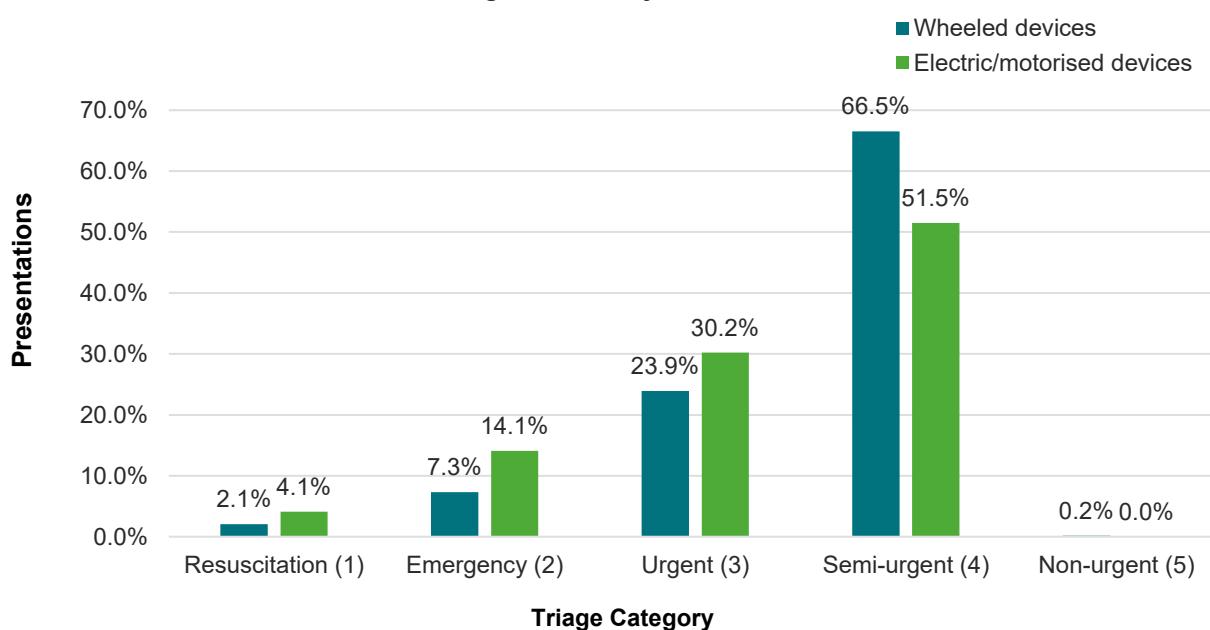
**Figure 9: Wheeled Device Injuries by Day of Injury and Triage;
July 2019 to June 2024**



A triage category reflects the level of medical urgency required. Every child that presents to PCH ED with an injury is allocated a triage category (Table 1). Amongst wheeled device injury presentations, two thirds were classified as semi-urgent (66.5%, n=4,855), followed by urgent (23.9%, n=1,745) and emergency (7.3%, n=533). The remaining presentations were triaged as resuscitation or non-urgent (2.2%, n=163).

For electric/motorised device injuries a similar pattern was observed, however the urgency for treatment was slightly higher. Approximately half were classified as semi-urgent (51.5%, n=150), followed by urgent (30.2%, n=88) and emergency (14.1%, n=41). The remaining presentations were triaged as resuscitation (4.1%, n=12) (Figure 10).

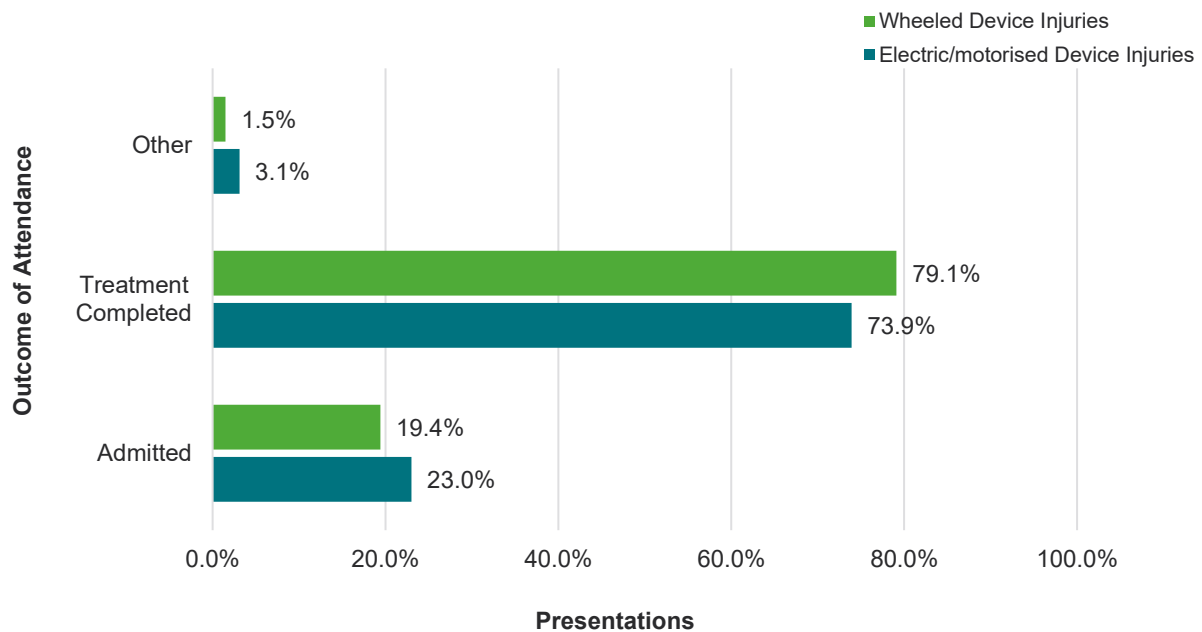
**Figure 10: Wheeled Device Injuries and Electric/motorised Device Injuries by
Triage Code; July 2019 to June 2024**



Most children attending PCH ED for a wheeled device injury were referred by themselves or a relative (88.1%, n=6,427). This is followed by referrals from another hospital (6.7%, n=488) or a general practitioner (4.0%, n=292). The remaining presentations are recorded as unknown or other (1.2%, n=89). A similar pattern was observed for electric/motorised device presentations.

More than three quarters of children presenting to PCH ED with a wheeled device injury were discharged from the ED with their treatment complete (79.1%, n=5,768), while 19.4 percent (n=1,419) were admitted to hospital for further treatment. The remaining presentations either did not wait for treatment, were transferred to another hospital or the outcome of their attendance is unknown or recorded as other (1.5%, n=109). A similar pattern was observed for electric/motorised device presentations, although hospital admissions were slightly higher. For electric/motorised device injuries, 73.9 percent (n=215) were discharged from the ED with their treatment complete, 23.0 percent (n=67) were admitted to hospital and the remaining 3.1 percent (n=9) were classified as other (Figure 11).

Figure 11: Wheeled Device Injuries and Electric/motorised Device Injuries by Outcome of Attendance; July 2019 to June 2024



DISCUSSION

Wheeled devices are a great way for kids to keep active, however there are inherent risks associated with their use, with resulting injuries having long lasting impacts on young children⁵. This report examines wheeled device injury presentations to PCH ED between July 2019 and June 2024. While this data does not capture all wheeled device injuries in Western Australia, it highlights the nature and severity of injuries associated with this type of activity.

Between July 2019 and June 2024, there were 7,296 wheeled device injury presentations to PCH ED, with a small proportion of these identified as an eRideable or another electric/motorised device. Overall, wheeled device injury presentations remained relatively consistent across the five years, however when looking specifically at electric/motorised devices a steady increase was observed each year. This increase is likely due to the growing popularity of electric/motorised devices⁸.

The majority of the wheeled device presentations to PCH ED were children aged 10 to 14 years, a trend that is also seen for electric/motorised wheeled devices. This is likely due to older children becoming more independent and often using wheeled devices to ride to and from places such as school⁴. At this age children are also using wheeled devices to socialise with peers and are less likely to have adult supervision, which often leads to more risk taking behaviour^{4,10}. Research also suggests that many children under 12 years old often lack the maturity to make educated and safe decisions when riding unsupervised, therefore increasing their risk of injury^{11,12}.

Looking at injury presentations associated with electric/motorised devices only, children 15 years and older are twice as likely to injure themselves when compared to injuries from all wheeled devices. This may be due to an increase in the number of young people of this age using electric/motorised devices¹². When examining this further, it was also identified that over half of the presentations, were associated with an eRideable device. This suggests that many people are either unaware of or not adhering to the law in Western Australia that prohibits the use of eRideables for children under 16 years old.

Similar to other injury presentations, males presented more frequently than females for wheeled device injuries. This can be attributed to a tendency for males to participate in greater risk-taking behaviours, particularly when influenced by peers, which can potentially result in a serious injury^{5,12}. This aligns with other research where males are more likely to injure themselves whilst using wheeled devices when compared to females^{5,6,8,13}. This disparity is more significant when compared with all injury presentations to PCH ED, likely reflecting greater use of wheeled devices among males⁴.

Aboriginal and/or Torres Strait Islander children accounted for a small proportion of wheeled device injury presentations, consistent with the proportion observed amongst all injury presentations during the same period. However, this increased to nearly three times the proportion for injuries specifically associated with electric/motorised devices, which may reflect greater use of these devices amongst this population group.

The most common location for injuries was the road/footpath/cycleway/parking area, followed by sports areas. This aligns with other studies where the road was the most common location for wheeled device injuries, followed by private residences, parks and skate parks¹¹. For electric/motorised device injuries, a similar pattern was observed however injuries were more commonly reported in the home/farm category, which became the second most frequent location, while sports areas were fourth. This is likely due to restrictions around the use of electric/motorised devices at sport complexes.

In terms of devices, bicycles were identified as the most common device associated with wheeled device injuries to children, however looking at electric/motorised devices, the majority were electric scooters. This is likely due to scooters being a more popular, affordable and readily available electric/motorised device for children. Another contributing factor is that children must also be 16 years or older to use an eBike with a motor engaged¹⁴.

There was little difference in the injury mechanism between all wheeled devices and electric/motorised devices, with most injuries resulting from the child falling off the device or the child colliding with an object. This is consistent with other studies which also identify falls as the most common injury mechanism for wheeled device injuries^{12,13}.

The most common injuries were fractures, lacerations and sprains/strains, which again aligns with findings from other research⁷. Fracture injuries however may be overrepresented, as people may be more likely to present to a hospital with an injury that requires medical treatment.

Data collection for the use of safety equipment is limited in this report, with over two thirds of presentations recorded as unknown or inadequately described. Where safety equipment was adequately captured, more children were reported as wearing a helmet than not wearing any safety equipment at all, however the use of safety equipment is still considered poor overall. Helmet use was even lower amongst electric/motorised device riders, with only half of the presentations reporting helmet use. Research shows that the correct use of safety equipment and adherence to safe riding practices can significantly reduce the risk of head injury and hospital admission^{11,7}, yet many children still do not use them¹⁵.

Overall, wheeled device injuries were more urgent than other injuries with a higher proportion triaged as urgent, emergency and resuscitation. This proportion was even higher for electric/motorised devices only, likely due to more severe injuries caused by devices that are larger, heavier and capable of higher speeds⁹. The higher urgency is also reflected in hospital admission rates, with wheeled device injury presentations resulting in admissions at twice the rate of all other injuries.

Wheeled devices continue to be an area of concern with electric/motorised devices representing an emerging issue due to their potential to cause injury when used incorrectly by children. This report examines trends in wheeled device injuries among children and adolescents presenting to PCH ED. Overall, injury patterns are similar between wheeled devices and electric/motorised devices, however there are a few areas of concern with electric/motorised devices. This report also highlights that children under 16 years may be using eRideables, despite this being prohibited by law in Western Australia. This is likely an underestimation as many injuries may go unreported or present to other health facilities.

The findings from this report provide key insights to guide planning for injury prevention efforts. This includes the delivery of tailored initiatives and messaging to educate and empower the community to use wheeled devices safely. To gain a deeper understanding of the mechanisms contributing to wheeled device injuries, further research and improved data collection are required.

Advice for parents/carers

To reduce the risk of wheeled device injuries to children the following safety steps should be taken:

- Be aware of laws around wheeled devices in Western Australia. Do not purchase an eRideable for children under 16 years old.
- Do your research before purchasing a wheeled device for your child. This will ensure you know the product you are purchasing, it is age appropriate and aligns with the legislation.
- Where possible, look for devices that have lights and reflectors fitted.
- Ensure the device is fitted with a warning device such as a bell or something similar.
- Provide and encourage the use of protective equipment such as helmets, elbow, wrist, and knee guards. Ensure helmets are certified to the AS/NZS 2063 mandatory standard, indicated by a product certification label.
- Always supervise children when using wheeled devices.
- Teach children and role model safe behaviours around using these devices.
- Educate children on road safety rules to ensure they can ride safely around the community.

WA Consumer Product Advocacy Network's Role

It is important WA CPAN raise community awareness around wheeled devices and how to reduce the risk of these injuries. This includes promoting safety messages within the WA community through education, data dissemination, advocacy, digital media and regulation. Members of the network may also have an influence on relevant Australian Standards Committees.

Here are some other ways WA CPAN can make a difference:

- Work with PCH ED to improve reporting/data collection in relation to safety equipment used, information about the specific product, and specific location of the incident.
- Work with both retailers and buyers to ensure they are aware of the eRideables legislation.
- Educate the community to increase knowledge about eRideables and the legislation, particularly those responsible for supervising children and purchasing wheeled devices.
- Liaise with eRideable rental vendors to ensure helmets are provided to every customer.

In addition, WA CPAN will continue to identify unsafe products and advocate for change in order to reduce the number and severity of child injuries associated with consumer products. WA CPAN will use its network to:

- Identify emerging child product safety issues through data collection and research;
- Continue to monitor existing child product safety issues;
- Advocate for appropriate product safety measures in children's products;
- Raise public awareness of child product safety concerns; and
- Collaborate to achieve the best outcome for Western Australian children.

LIMITATIONS

There are some limitations that present with utilising the data from this report. Many wheeled device injuries that occur to children go unreported and therefore are not represented in this data. This could be for reasons such as:

- Children may not present to a facility for treatment;
- Others may go to a facility closer to home; or
- May seek medical assistance from a general practitioner.

The accuracy of this report's data is also heavily dependent on patient or parental recall of the injury. This may not always be an accurate relay of what happened, and information can be lost between triage staff and the family affected.

There may also be some confusion around the terminology with some of the wheeled devices and therefore the accuracy of product information provided at the time of triage may not be correct. For example, the term electric scooter might be used instead of a motorised scooter. In this instance it is important to know as legally children under the age of 16 years should be using a motorised scooter and not an eScooter which is classified as an eRideable.

REFERENCES

1. McKenna, J, Reid, N, Skarin, D, Jian, L. Kidsafe WA Childhood Injury Research Report: Injuries to Children in Regional Locations 2011-2015. Perth (WA): Kidsafe WA (AU); 2020 July.
2. Perth Children's Hospital Injury Surveillance System: Injury Presentations, July 2019 to June 2024. Perth (WA): Kidsafe WA (AUS); 2025 June.
3. Anderson, L., McKenna, J., Skarin, D. Small-wheeled Devices. Perth (WA): Kidsafe WA (AU); 2021 June. Report No.: 44.
4. Wati, K., Burke, M.I., & Sipe, N.G. (2012). Children's cycling in Australia: A review of determinants, the role of social connectedness and implications for policy and practice. [Paper presentation]. Australasian Transport Research Forum, ATRF 2012 – Proceedings. Retrieved from: https://research-repository.griffith.edu.au/bitstream/handle/10072/48867/80989_1.pdf%3Bsequence=1
5. Mitchell, R., Curtis, K., & Foster, K. (2017). A 10-year review of the characteristics and health outcomes of injury-related hospitalisations of children in Australia. Day of Difference Foundation. University of Sydney. Available from: https://paediatricinjuryoutcomes.org.au/wp-content/uploads/2017/06/Australian-child-injury-report_FINAL-070617.pdf.
6. Nichols, J.C., Sorrentino, A., Hayslip, M. *et al.* Pediatric injury due to wheeled recreational devices: a single-institution retrospective study. *Inj. Epidemiol.* **9** (Suppl 1), 44 (2022). <https://doi.org/10.1186/s40621-022-00395-5>
7. Lindsay, H., & Brussoni, M. (2014). Injuries and helmet use related to non-motorized wheeled activities among pediatric patients. *Chronic diseases and injuries in Canada*, 34(2-3), 74–81.
8. Šucha, M., Drimlová, E., Rečka, K., Haworth, N., Karlsen, K., Fyhri, A., Wallgren, P., Silverans, P., & Sloomans, F. (2023). E-scooter riders and pedestrians: Attitudes and interactions in five countries. *Heliyon*, 9(4), e15449. <https://doi.org/10.1016/j.heliyon.2023.e15449>.
9. eRideables Road Rules [Internet]. WA.gov.au. (2025). Available from: <https://www.wa.gov.au/organisation/road-safety-commission/erideables>.
10. Lenton S, Finlay F. Public health approaches to safer cycling for children based on developmental and physiological readiness: implications for practice. *BMJ Paediatrics Open*. 2018;2(1):e000123.
11. Kaddis, M., Stockton, K. and Kimble, R. (2016), Trauma in children due to wheeled recreational devices. *J Paediatr Child Health*, 52: 30-33. Available from: <https://doi.org/10.1111/jpc.12986>.
12. Improving safety when young people ride e-scooters and e-bikes. The State of Queensland (Queensland Family and Child Commission) (2025). Available from: <https://www.qfcc.qld.gov.au/sites/default/files/2025-06/Improving-safety-when-young-people-ride-e-scooters-and-e-bikes.pdf>.
13. Rod, J.E., Oviedo-Trespalacios, O. and King, M. (2022), A retrospective registry analysis of the transport-related health burden of wheeled recreational devices in Queensland, Australia. *Australian and New Zealand Journal of Public Health*, 46: 208-215. <https://doi.org/10.1111/1753-6405.13162>.
14. Cyclists [Internet]. WA.gov.au. (2024). Available from: <https://www.wa.gov.au/organisation/road-safety-commission/cyclists>.
15. Ong, J.S., Soundappan, S.V., Adams, S. and Adams, S. (2018), Helmet use in bicycles and non-motorised wheeled recreational vehicles in children. *J Paediatr Child Health*, 54: 968-974. <https://doi.org/10.1111/jpc.13925>.



Child Accident Prevention Foundation of Australia
Western Australia

www.kidsafewa.com.au