



# WA Consumer Product Advocacy Network

## Choking Hazards to Children



Partner:



Government of Western Australia  
Department of Health



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



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



Government of **Western Australia**  
Department of **Mines, Industry Regulation and Safety**  
**Consumer Protection**



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## About the WA Consumer Product Advocacy Network

The WA Consumer Product Advocacy Network (WA CPAN) was established in October 2014 in partnership with the Department of Health Western Australia. WA CPAN 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. The network consists of representatives from organisations who are involved in the regulation, safe use, injury prevention, treatment and sale of products for use by consumers. These organisations include:

- the Department of Health Western Australia, Public and Aboriginal Health Division
- the Perth Children’s Hospital Emergency Short Stay Unit
- the WA Poisons Information Centre
- the Australian Competition and Consumer Commission
- the Burns Injury Research Unit - School of Surgery University of Western Australia
- the Department of Mines, Industry Regulation and Safety – Consumer Protection
- Goodstart Early Learning
- Kidsafe Western Australia

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 quickly emerging issues can be dealt with in a timely manner.

## Report Overview

This report provides an overview of injuries to Western Australian children resulting from choking hazards. The report also outlines the actions taken by WA CPAN to address the issue and to raise community awareness of choking hazards.

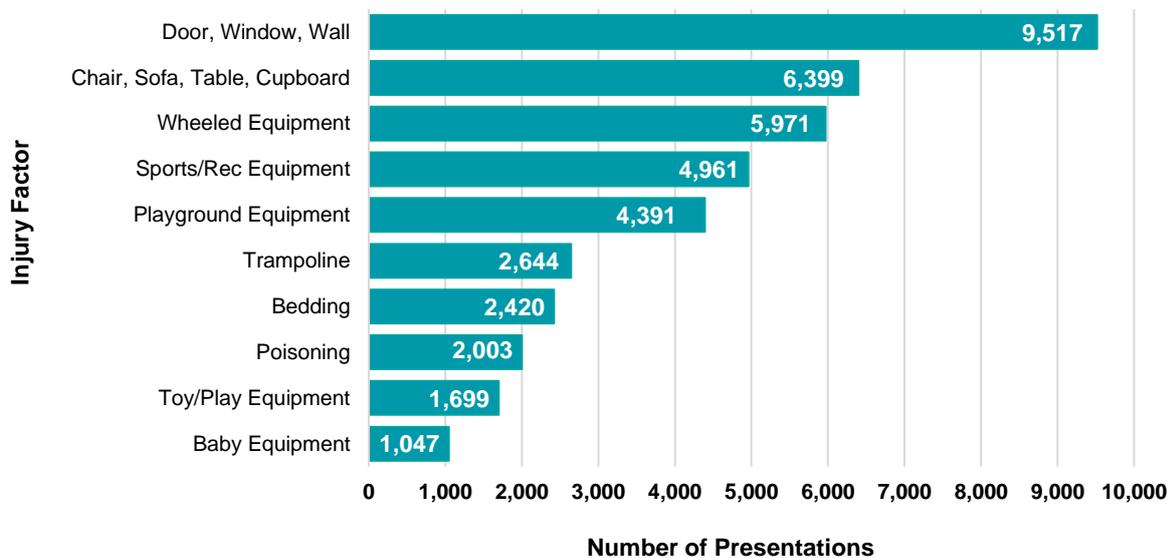
The data used in this report was provided by Perth Children’s Hospital (PCH) which was previously known as Princess Margaret Hospital. PCH is the sole tertiary paediatric hospital in Western Australia, acting as a key referral source for childhood injury and disease within the state. The PCH Injury Surveillance System is an electronic database that involves the systematic collection of all emergency department (ED) injury data. Data is collected by triage nurses who initially assess the child presenting to ED. All clinical information and basic demographic details are recorded, together with the child’s triage code, indicating the level of urgency based on the presentation reason. Additional surveillance data is collected for those children presenting with an injury. This data is then validated by a dedicated Injury Surveillance Officer.

## Childhood Injuries in Western Australia

Twenty seven Western Australian children die each year as a result of injury, with a further 7,000 children hospitalised<sup>1</sup>. Between January 2014 and December 2018 there were more than 93,321 injury presentations to the PCH ED (previously known as Princess Margaret Hospital) for children aged under 16 years. Of these presentations, approximately 44 percent (n=41,052) involved an injury factor. An injury factor can be a product or a structure that contributed to the cause of injury.

Consistent with previous reporting, of the presentations involving an injury factor the most common injury factors were house structures/building components such as doors, walls, and windows accounting for 23.2 percent (n=9,517) of the presentations. This was followed by furniture, including items such as chairs, sofas, tables and cupboards (15.6%, n=6,399) (see Figure 1).

**Figure 1:** Presentations to PCH ED by Injury Factor, 2014 - 2018



Each child presenting to the emergency department is assigned a triage code, which is based on the level of urgency (see Table 1). Looking specifically at injuries with an associated injury factor, the majority of the presentations were recorded as being semi-urgent, accounting for approximately 78 percent of the presentations (n=31,996). In the majority of the cases (73.8%, n=30,298) children were able to depart the ED with treatment completed. A further 15.1 percent (n=6,213) of children were admitted to hospital for further treatment, and the remainder were either transferred to another department/hospital or did not wait for treatment.

**Table 1:** Triage Category

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

## Choking Hazards to Children

Choking is a common cause of injury to children. Choking can be defined as a blockage of the internal airway by a foreign object causing difficulty to breathe. This can be fatal if there is severe obstruction of the airway<sup>2</sup>. Foreign objects can be either food or non-food items, however many studies have shown that food is the most common cause of choking injuries to children<sup>3</sup>. Of the food items, nuts and raw fruit or vegetables have been identified as common causes of choking<sup>4,5</sup>, while coins and toys are the most common cause among non-food items<sup>2,3,5</sup>.

Physical characteristics of items including the size, shape and consistency can increase the potential of choking<sup>2</sup>. High risk foods for choking share a number of physical characteristics with non-food items which are likely to cause choking. Foreign objects which are high risk choking hazards tend to be cylindrical shaped, the size of a child's airway and can be compressed. These characteristics increase the likelihood of airway obstruction<sup>3</sup>. Objects which are more likely to cause health complications when swallowed are those which are rigid with sharp edges<sup>5</sup>.

Taking age into consideration, studies have shown that choking injuries are most common in children under three years old. This is likely due to the following developmental and behavioural factors:

- children use their mouths to explore objects as they lack the ability to identify food and non-food items;
- children's teeth and swallowing coordination are still developing; and
- young children are more easily distracted<sup>5</sup>.

There are a number of educational campaigns and resources available to the community to raise awareness of choking injuries. There are also legislative requirements in Australia which exist for a range of products to reduce the risk of choking injuries. This includes labelling products with warnings or safety instructions and/or conducting safety tests<sup>6,7</sup>. For example, toys sold in Australia for children up to 36 months must meet safety standards before they are made available to the public. Another example is baby dummies and dummy chains, where strength, durability and size is taken into account<sup>8</sup>. Choking is one of the injury mechanisms considered for these items<sup>7</sup>.

In Australia suppliers have the ability to voluntarily recall a product if it presents a safety risk by notifying the Commonwealth Minister responsible for product safety<sup>9</sup>. Items that have been recalled in Australia appear on the Product Safety Australia Recalls page available at <https://www.productsafety.gov.au/>. Between 2011 and 2017, 258 products were voluntarily recalled in Australia as there were concerns that these products could be choking hazards<sup>10</sup> (see Table 2).

**Table 2:** Choking hazards product recalls, Australia 2011 – 2017<sup>10</sup>

Global Product Classification*	Total
Arts/Crafts/Needlework	1
Beauty/Personal Care/Hygiene	2
Clothing	23
Computing	1
Electrical Supplies	2
Food/Beverage/Tobacco	5
Footwear	6
Healthcare	15
Household/Office Furniture/Furnishings	36
Kitchen Merchandise	10
Personal Accessories	2
Safety/Security/Surveillance	1
Sports Equipment	3
Stationery/Office Machinery/Occasion Supplies	1
Textual/Printed/Reference Materials	1
Toys/Games	149
<b>Total</b>	<b>258</b>

\*\*GS1 Global Product Classification is a product classification standard that is mostly widely recognised as the basis to the retail barcode system and is also used by the OECD Global Recall Portal.

Although efforts have been made to reduce choking injuries, this continues to be a common cause of morbidity to children. It is important to identify the mechanism of injury to assist with an action plan to prevent these injuries in the future. To achieve this, choking injury presentations to PCH ED have been identified, analysed and summarised in this report.

## Presentations to Perth Children’s Hospital Emergency Department

### Methods

Using Crystal Reports (v14) a custom search query was set up to identify potential injuries resulting from choking hazards. The query searched the PCH ED injury surveillance database between January 2014 and December 2018. The following inclusion criteria were used:

- Injury cause: *Other threat to breathing*
- Intent: *Unintentional*
- Location: *All*
- Injury factor: *All*

After identifying the injuries of interest each case was manually reviewed where 628 injuries resulting from choking hazards were identified.

Using the injury description provided in the triage text, the choking hazard involved in the injury presentation was identified and grouped into categories as listed below:

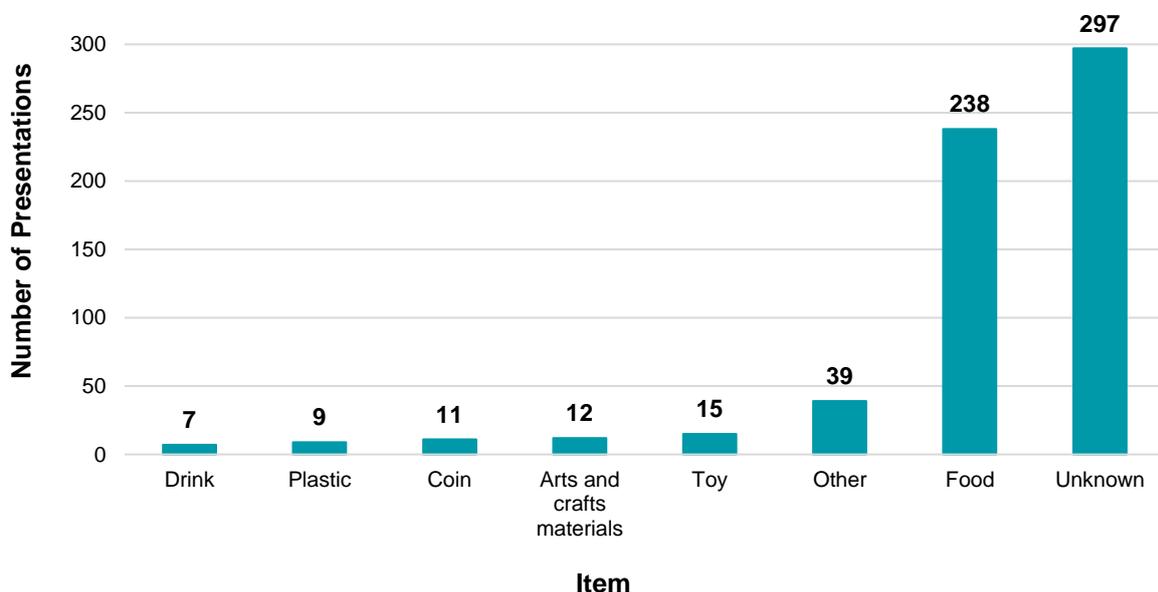
- Arts & crafts materials (stickers, beads, sequins etc.)
- Coins
- Drinks
- Food
- Plastic
- Toy

Items that did not fit the category descriptions listed above were classified as ‘other’ and items that were not specified in the injury description were classified as ‘unknown’.

### Results

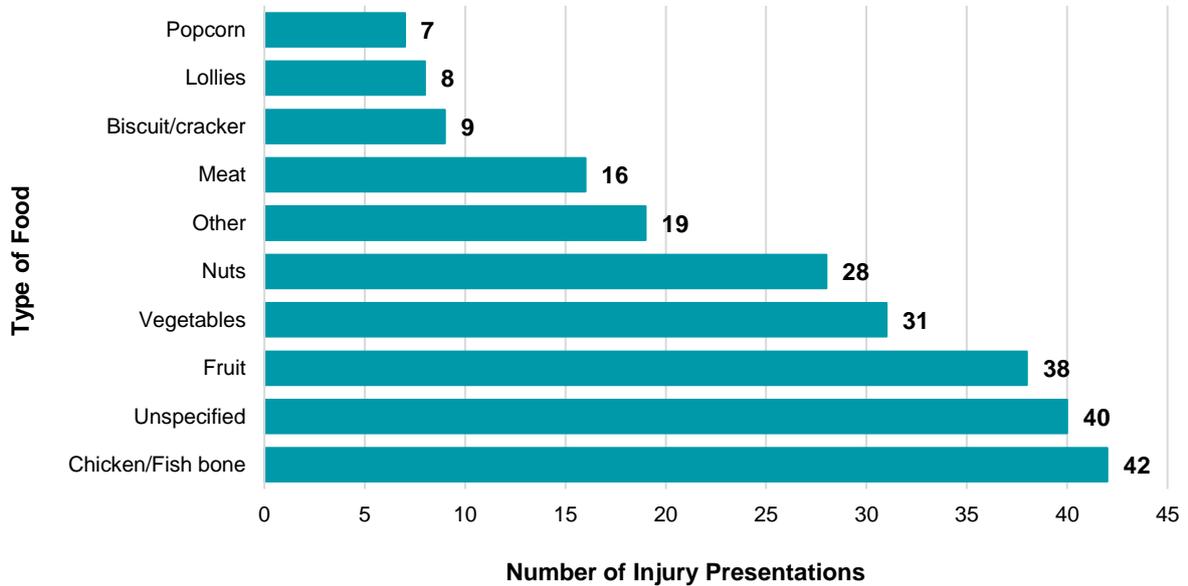
Between January 2014 and December 2018, there were 628 choking injury presentations to the PCH ED. Almost half (47.3%, n=297) of these presentations involved an unknown item. This was followed by food (37.9%, n=238), other items (6.2%, n=39) and then toys (2.4%, n=15) (see Figure 2).

**Figure 2:** Choking Injury Presentations by Item, Jan 2014 - Dec 2018



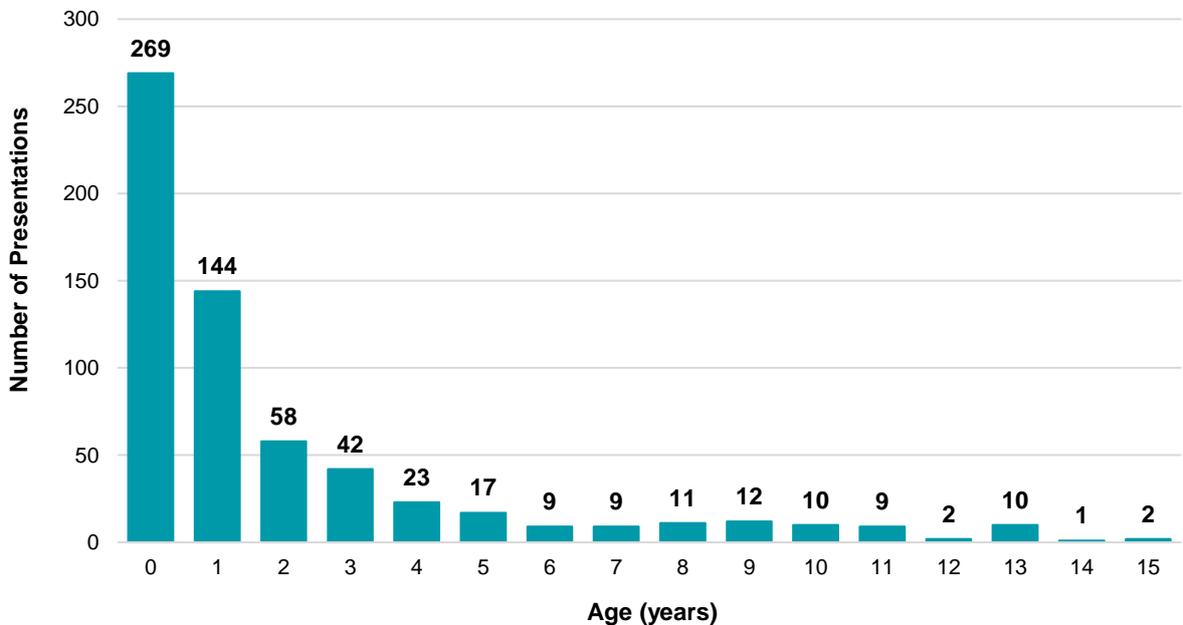
Of the known items, food accounts for a large proportion of the injury presentations (71.9%, n=238). When reviewing choking injuries associated with food, a chicken or fish bone was identified as the most common cause (17.6%, n=42). This was followed by food which was not specified (16.8%, n=40) and then fruit (16.0%, n=38) (see Figure 3).

**Figure 3: Choking Injury Presentations by Type of Food, Jan 2014 - Dec 2018**



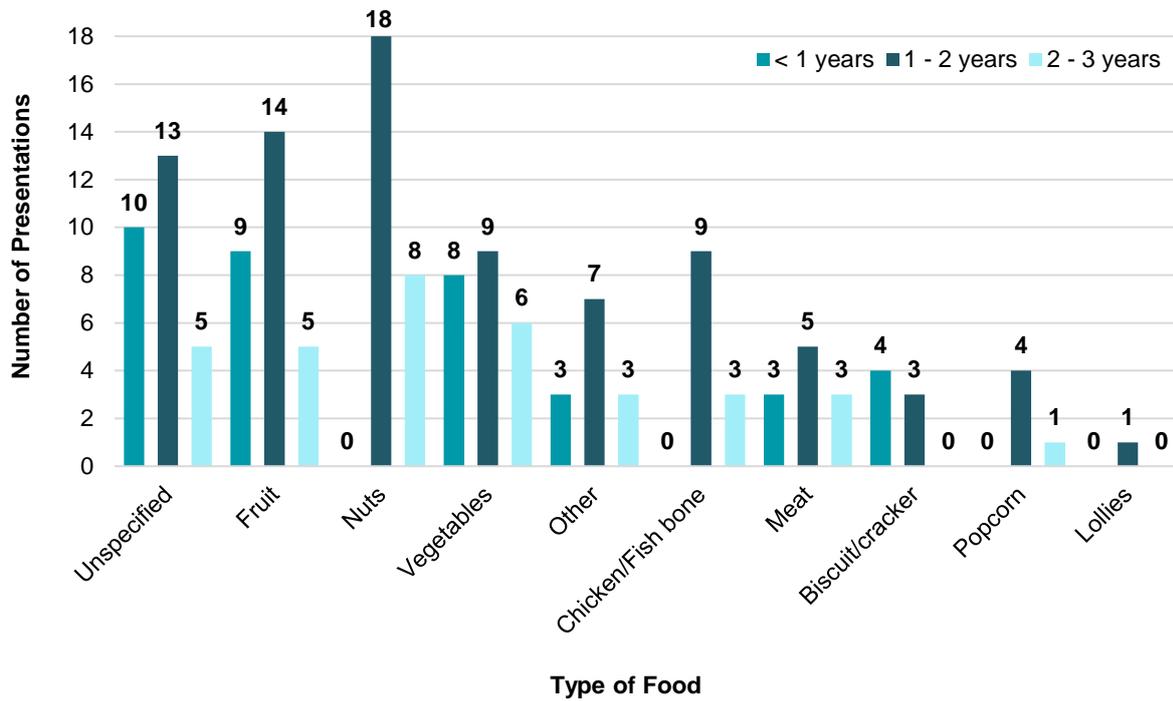
The majority of these children presenting with a choking injury were under three years old (75.0%, n=471) (see Figure 4).

**Figure 4: Choking Injury Presentations by Age, Jan 2014 - Dec 2018**



When looking specifically at children under three years old and food as the cause, children aged between 1 and 2 years account for the largest number of choking injury presentations (53.9%, n=83). This is followed by children less than one year old and children between two and three years old respectively (24.0%, n=37 and 22.1%, n=34). Of the known food items for children under three years old, fruit (22.25%, n=28), nuts (16.9%, n=26) and vegetables (14.9%, n=23) are the most common cause of choking injuries to children (see Figure 5).

**Figure 5: Choking Injuries by Age and Food, Jan 2014 - Dec 2018**

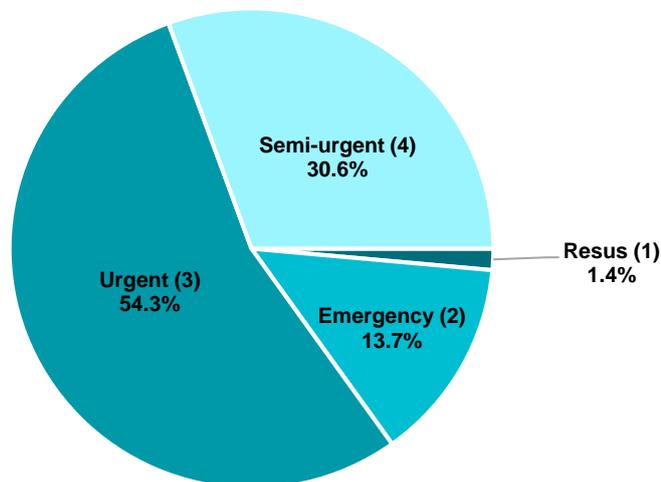


Similar to other injury presentations, males presented more than females for choking injuries. Males accounted for 53.0 percent (n=333) of choking injury presentations and females 47.0 percent (n=295).

The injury location for many of the choking injuries was unknown, accounting for 87.6 percent (n=550) of the cases. Many of these locations are unknown as this was not reported at the time of triage or the location was unknown by the parent/carer. Of the known locations, 73.1 percent (n=57) occurred in the home which was followed by school/residential institutions accounting for 11.5 percent (n=9) of the injury locations.

Over half of the presentations (54.3%, n=341) were triaged as urgent. This was followed by semi-urgent presentations (30.6%, n=192) (see Figure 6). The level of urgency for choking injuries is much greater compared to the level of urgency for all injuries with an injury factor. For all injuries with an injury factor, almost 90 percent of the presentations were semi-urgent and 12.7 percent were either resus, emergency or urgent.

**Figure 6: Choking Injuries by Triage Category, Jan 2014 - Dec 2018**



Just over half of the children (52.9%, n=332) that presented for a choking injury were able to depart the ED with treatment completed, while 45.7 percent (n=287) were admitted to hospital for further treatment. The remaining children were either transferred to another hospital for treatment or did not wait to be seen in the ED (1.4%, n=9).

### *Discussion*

This report describes choking injury presentations to PCH ED between January 2014 and December 2018. During this period 628 choking injuries were identified. Of the known items identified, food was the most common cause accounting for 71.9 percent (n=238). Looking at food specifically, a chicken or fish bone was identified as the most common cause of choking (17.6%, n=42), which was followed by fruit (16.0%, n=38). This is consistent with other studies where bones and raw fruit are listed as high-risk food<sup>2, 3, 5</sup>.

Children under three years old present more commonly for choking injuries, accounting for 75.0 percent (n=471) of the presentations. This is similar to observations in other studies where children younger than four years old are identified as a high risk group<sup>2, 3, 5</sup>.

Looking at presentations to children under three years old and food as the cause, children aged between 1 and 2 years account for the largest number of choking injury presentations (53.9%, n=83). Of the known food items for this age group, fruit (22.2%, n=28) was found to be the most common cause of choking injuries. This was followed by nuts (16.9%, n=26) and vegetables (14.9%, n=23).

Like other injuries, choking injury presentations are more common among males, accounting for 53.0 percent (n=333) of choking injuries to children presenting to PCH ED.

The injury location for many of the presentations was unknown, however of the known locations 73.1 percent (n=57) occurred in the home. This was followed by school/residential institutions accounting for 11.5 percent (n=9) of the injury locations.

The majority of choking injury presentations were triaged as urgent, accounting for over half (54.3%, n=341) of the presentations. This was followed by semi-urgent presentations (30.6%, n=192). This is different to all other injuries with an injury factor, as majority of the presentations are deemed as semi-urgent (87.3%).

Half of the children (52.9%, n=332) that presented for a choking injury were able to depart the ED with treatment completed, while 45.7 percent (n=287) were admitted to hospital for further treatment. This is approximately three times higher than the baseline admission rate for all injuries (15.1%) with an injury factor within the same time period.

In conclusion, many of the choking injury presentations to PCH ED are occurring to children of a very young age where they are likely still exploring and developing new skills. The data suggests that children are being given food and/or have access to non-food items that they are not developmentally ready for.

### Recommendations

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

- Ensure food is prepared appropriately for young children. Grating and mashing are suitable ways to prepare food for young children.
- Supervise young children while they are eating and make sure they sit quietly while they are eating.
- Check children's play areas regularly for small, potential choking objects.
- Buy toys that are suitable for your child's age by following the labels. Toys that can break easily and have parts that can come loose should be avoided.
- If you have older children, be aware that some of these toys may not be suitable for younger children and can be a choking hazard.
- Store other items which could be a choking hazard to children up high out of reach.

It is also recommended that parents complete a first aid course to learn the skills required to assist a child if choking occurs.

### Limitations

There are some limitations with the data used in this report. A considerable portion of paediatric injuries in Western Australia may go unreported, as many children may not present to a healthcare facility. Children that do present to a healthcare facility may also present to general practitioners or other local hospitals which may have different injury patterns compared to the PCH ED sample used for this report.

In addition, the accuracy of this report's data is heavily dependent on parental recollection under stressful circumstances, good triage recording and data validation by the Injury Surveillance Officer.

### WA Consumer Product Advocacy Network's Role

Members of WA CPAN meet every two months to discuss product safety issues and take appropriate actions in a timely manner. Actions taken by WA CPAN are typically led by the member who could have the biggest impact. Between July 2018 and June 2019 WA CPAN members have been involved in a number of initiatives to raise awareness of choking injuries to children. This includes:

- Advocating for changes to high risk choking hazards identified;
- Delivering workshops providing choking injury prevention tips;
- Monitoring products through injury surveillance and safety checks;
- Providing safety messages in media releases and newsletters; and
- Providing a number of resources such as brochures, fact sheets, tools and videos on choking injuries which are available through websites and social media channels.

Table 3 provides examples of initiatives and resources member organisations of WA CPAN have been involved with to raise awareness of choking injuries.

**Table 3: Choking Injury Prevention Initiatives/Resources**

Initiatives/Resources	Evidence
Choke Check – the DIY safety tool (ACCC)	<a href="https://www.productsafety.gov.au/publication/choke-check-the-diy-safety-tool">https://www.productsafety.gov.au/publication/choke-check-the-diy-safety-tool</a>
Choking and Suffocation Fact Sheet (Kidsafe WA)	<a href="http://www.kidsafewa.com.au/fact-sheets-at-home">http://www.kidsafewa.com.au/fact-sheets-at-home</a>
Choking Injury Prevention Tips on Social Media	Facebook pages: <a href="https://www.facebook.com/KidsafeWA">https://www.facebook.com/KidsafeWA</a> <a href="https://www.facebook.com/ConsumerProtectionWesternAustralia/">https://www.facebook.com/ConsumerProtectionWesternAustralia/</a> <a href="https://www.facebook.com/ACCCProductSafety/">https://www.facebook.com/ACCCProductSafety/</a>  Example post – video on using the ACCC Choke Check Tool available at <a href="https://www.facebook.com/KidsafeWA/videos/2086191691452569/">https://www.facebook.com/KidsafeWA/videos/2086191691452569/</a>
Keeping Kids Safe Workshops with choking injury prevention tips (Kidsafe WA)	Workshops to over 600 participants in metropolitan and regional areas
Media release for product recalls (DMIRS)	<a href="https://www.commerce.wa.gov.au/announcements/recall-water-absorbing-balls-pose-danger-children-alpak-trade-pty-ltd-fremantle-water">https://www.commerce.wa.gov.au/announcements/recall-water-absorbing-balls-pose-danger-children-alpak-trade-pty-ltd-fremantle-water</a>
Product Safety Checks (DMIRS)	<a href="https://www.commerce.wa.gov.au/announcements/bags-fun-perth-royal-show-after-successful-safety-checks">https://www.commerce.wa.gov.au/announcements/bags-fun-perth-royal-show-after-successful-safety-checks</a>

It is important WA CPAN continue raising community awareness of the dangers associated with foreign objects with the potential to cause choking injuries to children. Member organisations of WA CPAN will continue to take actions to achieve this. This includes conducting safety tests of products on the Australian marketplace and promoting safety messages and recommendations within the WA community through education, data dissemination, advocacy, digital media and regulation. Members of the network also hold positions on relevant Australian Standards Committees.

In addition, WA CPAN will continue to identify other 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.

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