

Kidsafe WA

Kidsafe WA is 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 zero to fourteen, accounting for nearly half of all deaths in this age group. More children die of injury than of cancer, asthma and infectious diseases combined. However, many of these deaths and injuries can be prevented. Kidsafe WA works to educate and inform parents and children on staying safe at home, at play and on the road.

Perth Children's Hospital Injury Surveillance System

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 64,000 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. This bulletin summarises button battery injuries occurring across the five-year period between July 2018 and June 2023.

Button Batteries

A snapshot of button battery injuries

- A total of 74 children presented to the PCH ED as a result of a button battery injury or suspected injury over the five year period, accounting for an annual average of **15 children per year**.
- **Children aged between 0 and 4 years** are most at risk, accounting for 74.3 percent of button battery injuries.
- **Females** were slightly over-represented accounting for 51.4 percent of button battery injuries.
- The most common mechanism of button battery injury resulted from it being **swallowed** (83.8%)
- Most button battery injuries (74.3%) were triaged as an **Emergency**.
- A relatively high number of button battery presentations were from children from **regional Western Australia** (14.9%).
- Most cases (91.9%) had limited information regarding the **specific source or product** where the child obtained the button battery from.
- Most of button battery presentations were recorded as occurring in an **unknown location** (94.6%)
- Over a quarter (25.7%) of children presenting with a button battery injury were **admitted to hospital** for further treatment.



Partner:



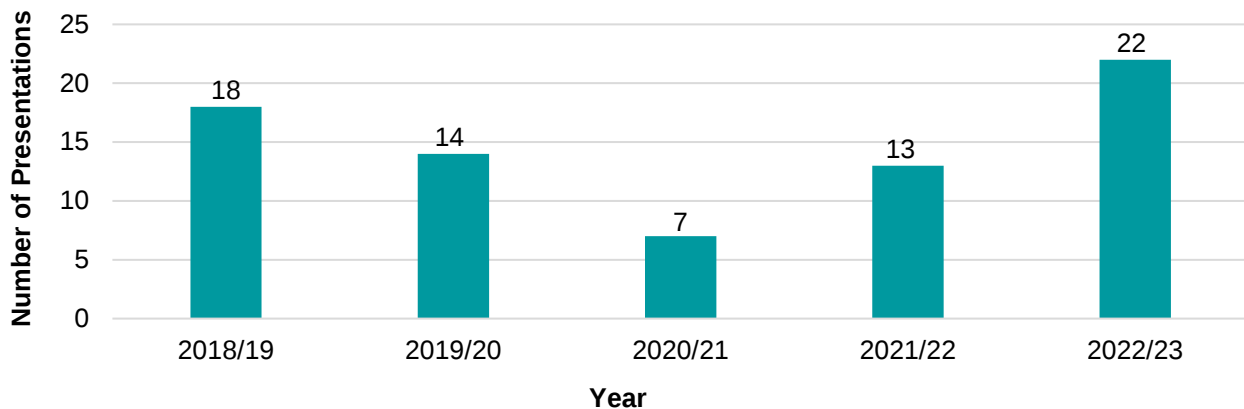
Government of **Western Australia**
Department of **Health**

Introduction

Button batteries are flat, round, coin sized batteries that can cause severe injury and death if swallowed. They are commonly found in household products, such as hearing aids, toys, musical greeting cards, remote controls, kitchen and bathroom scales and calculators. Children under the age of five are at particular risk of injury due to their narrow oesophagus and innate curiosity to place small objects into their mouth, ears and nose.¹ When swallowed, a battery can get lodged in a child's oesophagus. The saliva triggers an electrical current, initiating a chemical reaction that can cause severe burns and tissue damage within two hours of ingestion. Three children in Australia have died after swallowing a button battery and it is estimated that one child per month suffers serious injury as a result of a button battery injury.²

Between July 2018 to June 2023, there were 74 presentations to the PCH ED, due to button batteries. From 2020/21 onwards, the number of presentations has been increasing, with 2022/23 recording the highest number of presentations, accounting for 29.7 percent of total injuries in the 5-year timespan (n=22). This was followed by 2018/19 with 24.3 percent (n=18), and 2019/20 with 18.9 percent (n=14) (Figure 1).

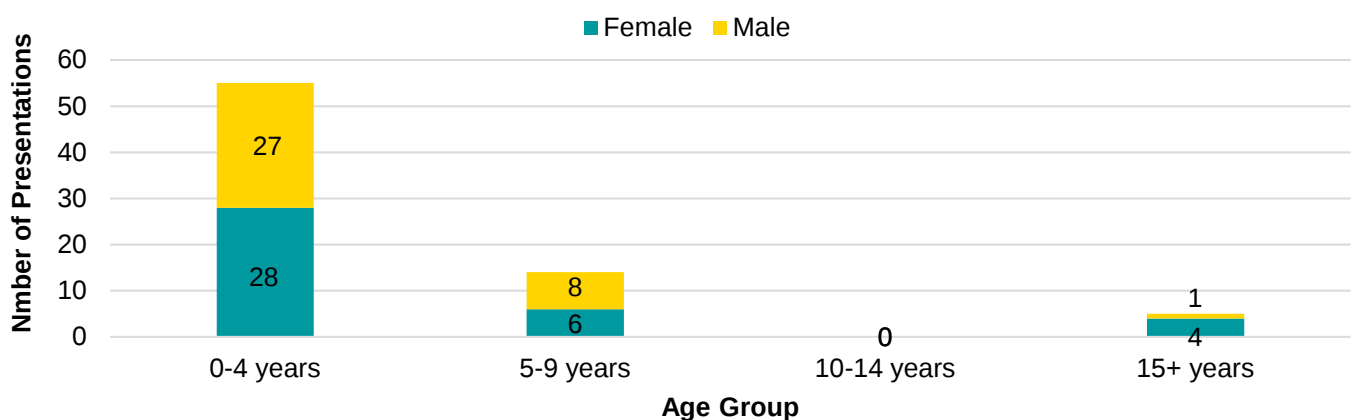
Figure 1: Button Battery Presentations by Financial Year



Demographics

Children aged between 0 and 4 years were most at risk of button battery injury accounting for 74.3 percent (n=55) of presentations, followed by children aged between 5 and 9 years (18.9%, n=14). Of the five presentations involving children aged over 15 years, four were recorded as due to intentional self-harm. Females were slightly over-represented accounting for 51.4 percent (n=38) of all button battery injuries, as compared to males (48.6%, n=36) (Figure 2).

Figure 2: Button Battery Presentations by Age and Sex

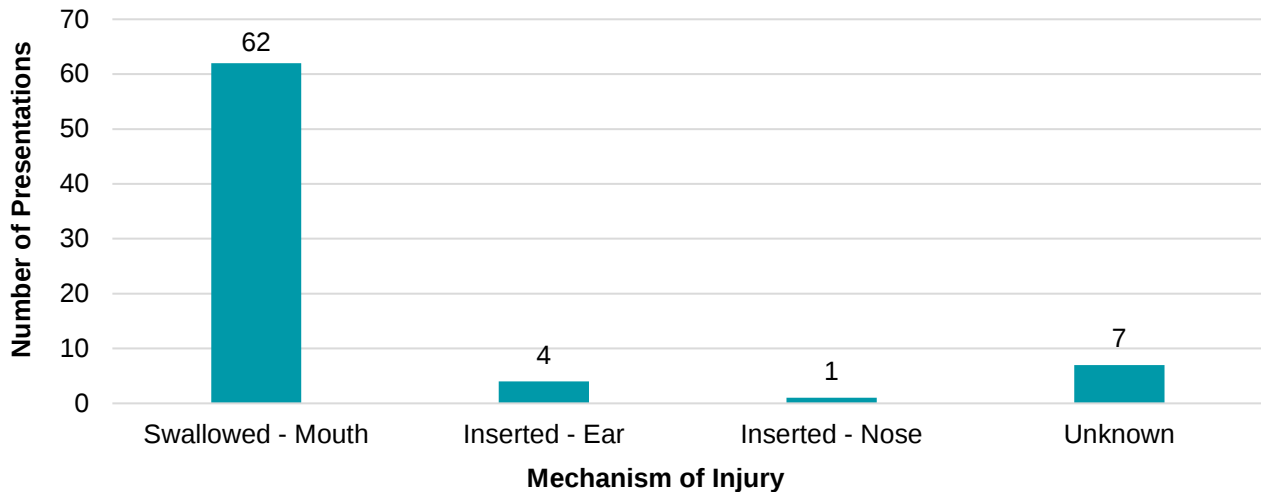


While a large proportion of children resided within the Perth Metropolitan Area (81.1%, n=60), in comparison to all injuries a high number of button battery presentations were from children from regional Western Australia (14.9%, n=11). Over half of presentations (54.5%, n=6) from regional WA were transferred from other hospitals, where they may not have had the appropriate medical facilities to treat the severity of the injury. A small number of children presenting with a button battery-related injury identified as Aboriginal and/or Torres Strait Islander (n=5, 6.8%).

Injury

The most common mechanism of button battery injury resulted from it being swallowed (83.8%, n=62), followed by insertion into either the ear (5.4%, n=4) or nose (1.4%, n=1) (Figure 3). The mechanism for the remainder of button battery injuries was unknown (9.5%, n=7). Among the 62 presentations resulting from ingestion of button battery via the mouth, 48.4 percent (n=30) were confirmed cases of swallowing of button battery, while 51.6 percent (n=32) were suspected. A suspected ingestion was commonly when a parent or carer suspected a button battery was swallowed by a child, however it was unconfirmed at the time of triage.

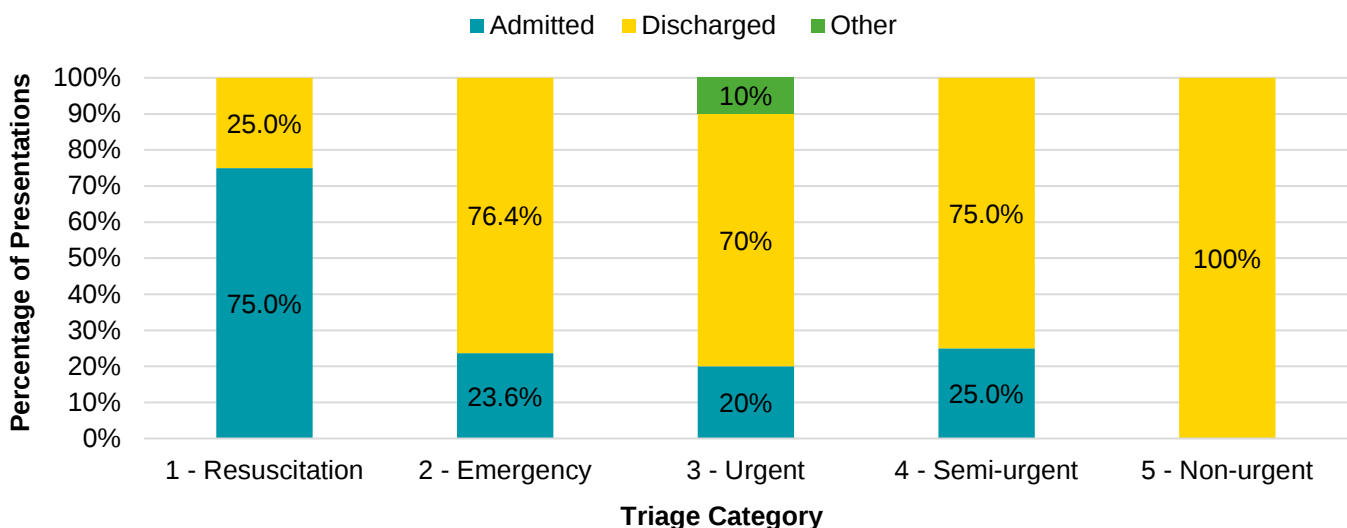
Figure 3: Button Battery Injury by Mechanism of Injury



There was limited information regarding the specific source or product where a child obtained the button battery from. When known (n=6), the presentations involved products such as a fidget spinner, hearing aid, laser pointer and calculator. Most of the button battery presentations were recorded as occurring in an unknown location (94.6%, n=70). The remaining occurred either within a school or at home.

Children who present to the PCH ED are allocated a triage category that reflects the level of medical urgency required, with one being most urgent and five the least urgent. The majority of button battery injuries were triaged as 2 - Emergency (74.3%, n=55), followed by 3 - Urgent (13.5%, n=10). More than half of the children who presented to the PCH ED with a button battery injury were discharged from the ED with their treatment complete (71.6%, n=53). A further 25.7 percent (n=19) of children were admitted to hospital for further treatment. The majority of admissions were triaged as Emergency (42.1%, n=8), Urgent (21%, n=4) or Resuscitation required (15.8%, n=3). For the most part, the more urgent the triage category, the more likely it is that a child will require admission to hospital for further treatment (Figure 4).

Figure 4: Button Battery Injury by Triage Category and Outcome of Attendance



Prevention

In June 2022 mandatory safety standards were established in Australia to specify a minimum requirement in regard to secure battery compartments for products, child-resistant packaging, compliance testing and additional warning labels and emergency advice.¹ Products must now meet the mandatory standard before they can be sold in Australia. Primary prevention is key to a reduction in the incidence of button battery injuries in children. Retailers, manufacturers, legislators and consumers all play an important role. The following preventative measures can assist in reducing the risk of button battery injuries:

Retailers:

- Only carry products which comply with the mandatory button battery safety standards.
- Encourage consumers to purchase alternative products which do not use button batteries and where the battery does not need to be replaced and instead can be recharged.
- Displayed button batteries at a sufficient height to avoid small children from accessing them.

Consumers:

- Avoid buying products that use button batteries. Look for those with an alternate power source.
- Purchase button battery operated products with a child-resistant battery compartment. Products purchased from overseas suppliers, may not be child resistant.

At home:

- Identify devices around your home that may contain button batteries.
- Ensure battery compartments are secure, regardless of whether the device is intended for a child.
- Place button batteries and devices that contain them out of reach and out of sight of young children.
- Inspect toys and other items regularly to make sure the button battery compartment is still secure.
- Stop using the product if it is damaged or the button battery compartment does not close securely.
- Dispose of batteries safely by wrapping them in sticky tape and putting them in a child resistant container, out of reach of children until you can recycle them at a battery recycling collection point. Even old button batteries can be dangerous.

Diagnosis can be difficult as the symptoms of swallowing a button battery can be similar to other childhood illnesses. Symptoms can include coughing, drooling, discomfort, vomiting, abdominal pain, fever, diarrhoea and respiratory distress.

If a child is suspected of swallowing a button battery call the Poisons Information Line on 13 11 26 immediately. However, if the child is choking or struggling to breathe, phone 000 for an ambulance.

Kidsafe WA and the WA Consumer Product Advocacy Network continue to advocate for and raise awareness of the risk associated with button battery-related injuries. For more information visit:

<https://www.kidsafewa.com.au/professionals/wa-consumer-product-advocacy-network/>

References

1. Australian Competition and Consumer Commission (AU). Button Batteries [Internet]. Product Safety Australia; n.d [cited 2023 September 20]. Available from: <https://www.productsafety.gov.au/products/electronics-technology/button-batteries#toc-risks-and-injuries>
2. Button/coin batteries and consumer goods containing button/coin batteries factsheet [Internet]. Canberra: Australian Competition and Consumer Commission; 2021 Oct 7 [cited 2023 September 20]. Available from: <https://www.productsafety.gov.au/about-us/publications/buttoncoin-batteries-and-consumer-goods-containing-buttoncoin-batteries-fact-sheet>

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For further information please contact Kidsafe WA