

The Battery Controlled

Search. Secure. Share. Get Help Fast.



RISK OF SERIOUS INJURY FROM BATTERY INGESTION:

What Medical Professionals Need to Know

The Battery Controlled is a national partnership led by Safekids Aotearoa and Energizer, with Trading Standards, Starship Children's Health, Ministry of Health, National Poisons Centre, NZ Retailers Association and Victoria University of Wellington School of Design.

Our aim is to raise awareness about the injury risks associated with the ingestion and insertion of coin lithium batteries.

A GROWING DANGER

As demand for smaller, slimmer and sleeker electronic devices has grown, the number of button batteries that power them has also increased.

- **Each year 20 children are taken to the Starship Emergency Department because of button battery-related injuries, or have been suspected of swallowing one. The National Poison Centre also receives on average 90 button battery-related calls per year.**
- In the US more than 3,500 button battery swallowing cases are reported to U.S. poison control centres every year.
- In Australia it is estimated that four children per week present to emergency departments with a button battery-related injury.
- It is likely the number of cases is much higher, as many of these ingestions are never reported.

While all sizes of button batteries pose a risk, the most serious injuries are usually associated with 20 mm diameter batteries, **the size of a 10 cent coin**, because they can become lodged in the oesophagus if swallowed.

Commonly involved button battery types – their codes and sizes

- CR 2016 (20 mm x 1.6 mm)
- CR 2025 (20 mm x 2.5 mm)
- CR 2032 (20 mm x 3.5 mm)



The recommendations of this overview apply to any 3 volt CR, BR or DL type lithium coin battery.

When this happens, saliva immediately begins to work with the battery to trigger an electrical current. The battery generates hydroxide through an electrolysis reaction that occurs when the battery is in contact with tissue fluids. The hydroxide causes alkaline burns and perforations of the oesophagus, nasal septum or ear canal.

Serious injuries can occur in as little as two hours.

MEDICAL COMPLICATIONS

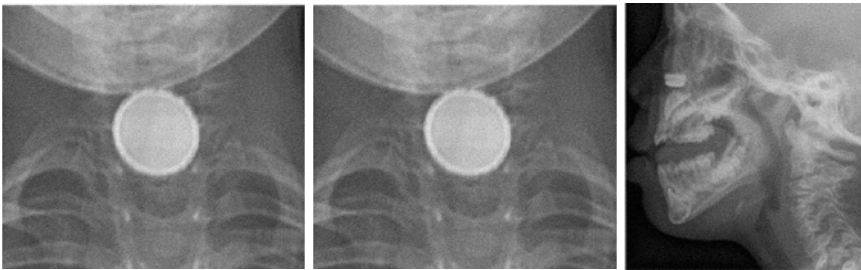
Complications may develop immediately, or they may not appear for days or weeks following battery removal. They include: septal perforation, mucosal ulceration, tracheoesophageal fistula, oesophageal perforation, oesophageal stricture, mediastinitis, vocal cord paralysis, tracheal stenosis, spondylodiscitis, and exsanguination from fistulization into a large blood vessel.

MAKE AN X-RAY DIAGNOSIS AND REMOVE FAST

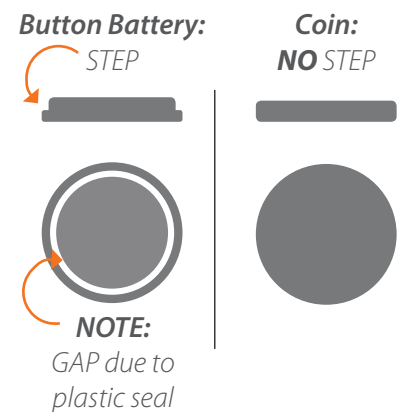
Most button batteries pass through the gut uneventfully and are eliminated in the stool. However, a battery that gets stuck in the oesophagus is likely to cause tissue damage. When a battery is swallowed, it is impossible to know whether it will pass through — although a larger diameter battery (around 20 mm) in a child younger than 4 years increases the risk.

In making an x-ray diagnosis, you should always regard any circular metallic foreign body as a button battery, unless proven not to be by a convincing history or clear radiological features of an alternative foreign body.

Sample X-Rays



Identification guide in x-rays:



TREATMENT GUIDELINES

If you see a child suspected of swallowing a button battery, take the following steps:

1. Direct parents and caregivers to immediately take the child to the nearest hospital emergency department or a medical facility that can remove the battery.
2. Keep the patient NBM until an oesophageal battery position is ruled out by x-ray.
3. If the patient is asymptomatic, consider taking up to five minutes to determine the battery identification number from the package or a matching battery if this is available or known.
4. Obtain an immediate x-ray for all children who have ingested a battery. Do not wait for symptoms to develop. Patients may be asymptomatic initially or may have vomiting, cough, decreased appetite, drooling, stridor, dysphagia, fever or haematemesis.
5. Immediately remove batteries found in the oesophagus. Oesophageal batteries should be urgently referred to a paediatric surgeon to complete prompt endoscopic removal.
6. Endoscopic removal is preferred, as direct visualization determines subsequent treatment. Oesophageal perforations and fistulas involving the trachea or major vessels may be delayed up to 18 days after battery removal. Monitor aggressively for these complications. Oesophageal strictures may not manifest for weeks to months post ingestion.
7. Allow batteries to pass spontaneously if they have moved beyond the oesophagus and there is no clinical indication of significant gastrointestinal injury. Retrieval is indicated only if a magnet is co-ingested, symptoms develop or a large diameter battery (more than 15 mm) fails to pass the pylorus in four days (ie consider a repeat X-ray at 72 hours if a large battery is in the stomach). Manage all other patients with batteries beyond the oesophagus at home with regular diet and activity. Confirm passage by stool inspection. Consider repeat x-rays if passage is not documented in 10-14 days.

OTHER RISKS

Button batteries may also cause permanent injury when inserted in the nose or ear. Young children are particularly at risk. Symptoms to watch for are pain and/or discharge from the nose or ear. The removal of batteries from these locations is equally time critical.

Avoid using nasal or otic drops until a battery in the ear or nose is ruled out on examination, as these fluids accelerate injury if a battery is involved.

LEARN MORE


The Battery Controlled partnership, led by Safekids Aotearoa and Energizer, are taking steps to address this hazard. Prevention efforts are focusing on strengthening warnings, securing battery compartments, and educating medical staff and the public.

The Battery Controlled partnership welcomes any questions or feedback you may have.

Contact us at partner@thebatterycontrolled.co.nz Videos, tip sheets and more information can be found at www.thebatterycontrolled.co.nz

For more information, visit:

- **National Poisons Centre** | www.poisons.co.nz
- **Trading Standards** | www.consumeraffairs.govt.nz/news-1/word-of-advice/2013/watch-those-button-batteries
- **The Battery Controlled** | www.thebatterycontrolled.co.nz
- **Safekids Aotearoa** | www.safekids.org.nz

The Battery  **Controlled** | Working together to help prevent injury. | **Energizer** **safekids** Aotearoa | TheBatteryControlled.co.nz

In Partnership With:

