



Button battery injuries

A demonstration plan for practitioners
Safekids Aotearoa



Sponsored by

TheBatteryControlled.co.nz

Energizer[®]

safekids
Aotearoa

Contents

Background: Coin-sized lithium battery-related injuries	4
Battery identification and imprints	5
Key safety messages:	5
In Case of Emergency	5
The button battery injury demonstration plan	6
Information for practitioners	6
Who can do the demonstration?	6
Who to target	6
Project objectives	7
Method: what you will need:	7
How it works	8
Observations/ what you will see	9
Tips	9
Discussion	9
Information and help	10
References	10
Sample quiz for target audience	11

Suggested citation

Safekids Aotearoa (2014) *Button Battery Injuries: A demonstration plan for practitioners*. Auckland: Safekids Aotearoa. If you use information from this publication please acknowledge Safekids Aotearoa as the source.

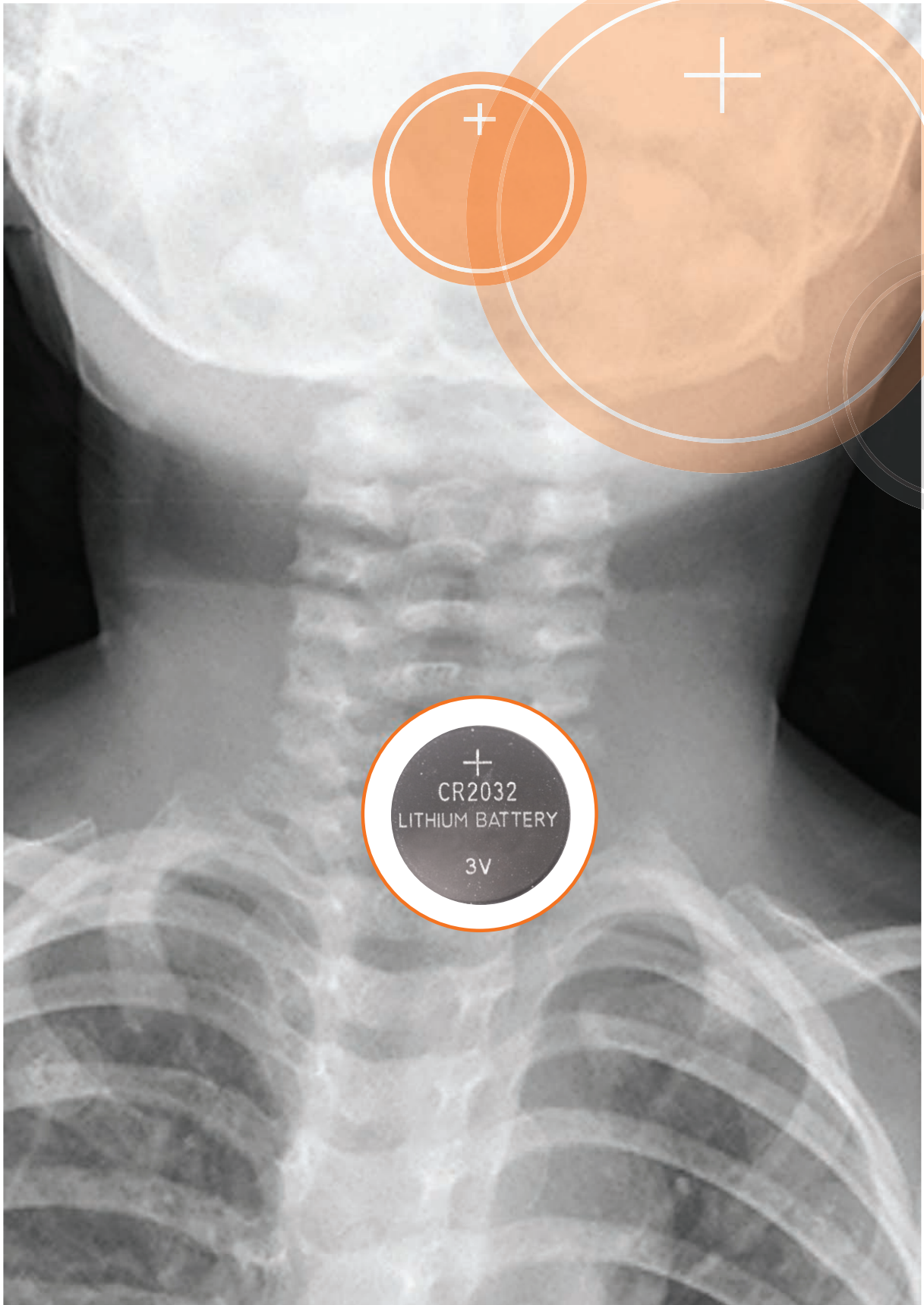
Safekids Aotearoa
5th Floor, Cornwall Complex,
40 Claude Road, Epsom, Auckland 1023
PO Box 26488, Epsom, Auckland 1344 New Zealand
P. +64 9 630 9955 F. +64 9 630 9961

Published 2013

If you have further queries, call the Safekids Aotearoa Information & Resource Centre on +64 9 631 0724 or email us at Infocentre@safekids.org.nz. This document is available on the Safekids Aotearoa website at www.safekids.org.nz

About Safekids Aotearoa

Safekids Aotearoa is the national injury prevention service of Starship Children's Health and an affiliated member of Safe Kids Worldwide. Safekid's vision is that New Zealand children are able to enjoy their childhood free from unintentional injuries. Our mission is to reduce the incidence and severity of unintentional injuries to New Zealand children aged 0 to 14 years.



Background: Coin-sized lithium battery-related injuries

Coin-sized lithium button batteries, also known as cell batteries, are found in common household items such as remote controls, calculators, singing greeting cards, car key fobs or remotes, watches, hearing aids and other electronic devices. Whilst such devices are often easily and readily accessible to young children, the severe injury risk they pose is little known to parents and caregivers.

Button sized lithium batteries are extremely powerful and can become stuck in the throat if swallowed. Saliva triggers an electrical current causing a chemical reaction that can cause severe burns and tissue damage within 2 hours and can result in death¹. Similar injuries occur if a battery is inserted into the ear, nose or other body orifice.

International statistics: Approximately 3,500 button batteries are ingested in the USA each year². USA research shows that ingestion of 20mm lithium battery cells has increased and that these batteries pose a greater injury risk than other types of batteries³.

In Australia, an estimated four children per week are seen at emergency departments with a button battery-related injury⁴.

New Zealand statistics: Starship Children's Hospital reported 61 button battery ingestion/ insertion incidents in the three year period March 2009 and February 2012⁵. The National Poisons Centre has also received 175 calls (2011–2013) regarding children less than six years swallowing or inserting batteries in their nose and ears⁶.

Batteries that were ingested by children who were younger than 6 years were most often obtained directly from a product (61.8%), were loose (29.8%), or were obtained from battery packaging (8.2%)⁷.

An international alliance of child injury prevention experts, clinicians and industry from the US, Australia, Japan and New Zealand are exploring possible engineering interventions to address the risks of lithium button batteries⁸.

The Battery Controlled is a partnership to raise awareness about the severity of this issue and share information with parents, caregivers and the medical community. Launched by Energizer and Safekids Aotearoa, this effort is committed to helping parents prevent children from swallowing coin-sized button batteries.



The Battery  Controlled

Working together to help prevent injury.

  | TheBatteryControlled.co.nz



Battery identification and imprints

Whilst all batteries should be kept out of reach of children, the most serious injuries are usually associated with 20 mm diameter batteries, about the size of 20 cent coin, because they are most likely to get lodged in the esophagus.

These Batteries can be recognised by an identification code imprinted on the battery cell surface and on the battery packaging. For example: 'CR2016', 'CR2032', 'CR2430' and 'CR2450'.

It may help to explain what the codes mean, for example, where the battery code is CR2032:

- 'C'** refers to the lithium chemistry of the battery
- 'R'** indicates a round (cylindrical) form
- '20'** refers to the diameter of the battery in millimetres (i.e. 20 mm)
- '32'** indicates the battery height in millimetres (i.e. 3.2 mm).

The CR prefix is interchangeable with the letters 'BR' and 'DL', for example 'BR2032' or 'DL2032'.

If a parent or caregiver suspects that a child has swallowed or inserted a battery, the battery code will help doctors to quickly assess the severity of the injury and decide what action should be taken.

Key safety messages:

The following key safety messages have been designed for parents, caregivers and members of the public

- **SEARCH** your home, and any place your child goes, for gadgets that may contain button batteries.
- **SECURE** button battery-controlled devices out of sight and reach of children and keep loose batteries locked away.
- **SHARE** this life-saving information with caregivers, friends, family and whanau.

Get Help Fast:

Keeping these batteries out of reach and secured in devices is key, but if you think your child may have swallowed a battery, or put a battery in his/ her nose or ear parents and caregivers should follow these steps:

1. Go to your nearest hospital emergency department immediately. Tell doctors and nurses that your child may have swallowed or inserted a battery. If possible, provide the medical team with the identification number found on the battery's package.
2. Do not let the child eat or drink until a chest x-ray can determine if a battery is present. Do not induce vomiting.

The button battery injury demonstration plan

The Button Battery Demonstration has been designed to raise awareness of the injury risks posed by button batteries. The project uses sliced ham to simulate a button battery burn injury providing a visual demonstration for parents, caregivers, families and member of the public.

Information for practitioners

The following information provides some useful hints and tips for practitioners conducting a button battery demonstration.

Who can do the demonstration?

The project plan can be used by anyone who has a basic understanding of button battery related injuries and is in a position to influence child safety. They include:

- **Health service providers:** such as Whanau Ora providers; Well Child, Tamariki Ora, Karitane and Plunket services; Public Health Units; Primary Health Organisations and B4 School Check teams; family support services; maternity services and district nurses;
- **Māori providers;**
- **Pacific Peoples providers;**
- **Refugee and new migrant services:** Refugees As Survivors facilitators and Asian Network facilitators;
- **Social support services:** family/ whanau and community services such as Family Start workers and REAP facilitators;
- **Early childhood educators:** home-based (HIPPY, PAFT, Barnardos) and educators based at learning centres, such as kindergartens, Te Kohanga Reo, Pacific language nests, play groups and Playcentres;
- **Injury prevention practitioners:** local government and community safety advisers and ACC consultants;
- **Adult education services:** parent educators and workplace educators.

Who to target

Child safety is everybody's responsibility. Groups you can do a demonstration to are:

- **Community groups:** parent, teen parent and grandparent groups;
- **Māori communities:** marae, kura kaupapa, te kohanga reo;
- **Community events:** Tamariki Ora Days; A&P shows; health and safety days and fun days;
- **Pacific communities;**
- **Church communities;**
- **High risk groups:** refugee and new migrant communities and low socio-economic communities;
- **Secondary school students:** through courses on housekeeping skills and teen parenting;
- **Parents, family/ whanau:** of young children/ tamariki Māori;
- **Workplace education:** retailers, large organisations, supermarkets, shopping malls.

Project objectives

1. To increase awareness of the injury risks associated with lithium button batteries amongst parents and caregivers.
2. To increase awareness of the safe use, storage and disposal of lithium button batteries amongst parents and caregivers.

Safekids Aotearoa can provide Safekids Coalitions and community partners with a 'demo kit' containing most of the materials needed, including awareness flyers and posters.

To enquire, campaign@safekids.org.nz



Method: what you will need:

1. Thin sliced ham
2. Coin lithium button batteries (different voltages and sizes, new and expired batteries)
3. Small containers (for example plastic petri dishes)
4. Timer or watch
5. Display table, Post It notes, disposable gloves, markers and hand sanitizer



How it works

Before implementing this as a project plan, Safekids advises that you have a test run first. Try the experiment with a range of batteries, using different voltages, new and expired cells.

1. Cut the ham in to strips, wide enough to fit the batteries.
2. Sandwich each button battery between two pieces of ham. Make sure contact is made with the positive and negative ends of the battery. This simulates a button battery lodged in the oesophagus; an electrical current is generated causing hydrolyses leading to a serious burn injury.
3. Place inside plastic container and seal.
4. Time the experiment.

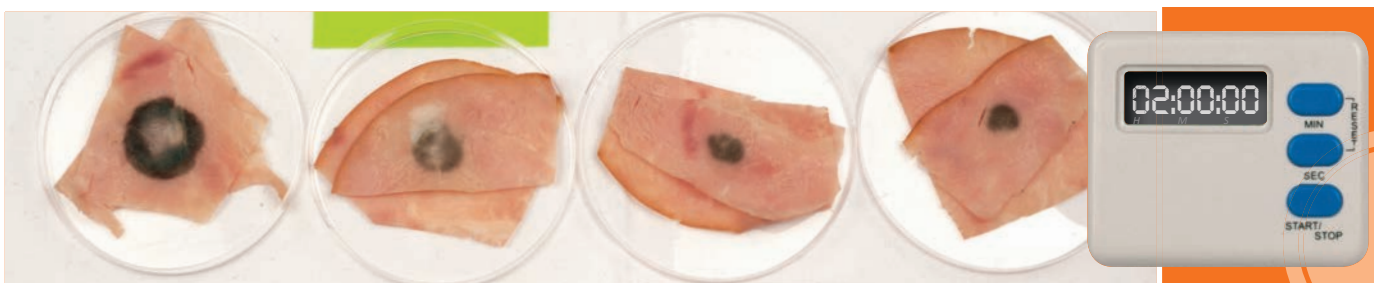


Observations/ what you will see

Within 5 minutes, a dark ring starts to form on the ham around the site of the battery, simulating necrosis in living tissue.



After approximately 2 hours, a hole has almost burnt through the ham.



Tips

1. For easy handling, place the ham and batteries in plastic petri dishes
2. If conducting the demonstration at an event, ask people to come back to the table later to see what has happened to the ham
3. Use disposable gloves and hand sanitizer when handling ham
4. Dispose of ham and batteries safely and hygienically
5. To view a video about button battery ingestion visit: www.thebatterycontrolled.co.nz.

Discussion

1. Discuss with the participant what he/ she can see
2. Explain that the demonstration shows what can happen if a button battery gets lodged in a child's throat or inserted into a child's ear or nose
3. Explain that the black marks on the ham are burns and that such injuries require difficult and extremely painful treatment and can result in death
4. Talk battery safety in the participants' personal situation:
 - What devices do they have that use button batteries?
 - Do children who live in or visit their home have easy access to them?
5. Talk about the key safety messages
6. Consider running a quiz with an incentive or prize. A quiz will reinforce safety messages and provide an opportunity to collect feedback for an evaluation. For an example of a quiz, turn to page 11.

Information and help

For more information on button battery injuries visit:

- www.thebatterycontrolled.co.nz
- www.facebook.com/EnergizerNZ
- www.safekids.org.nz
- Contact the Safekids Aotearoa Information & Resource Centre at SafeKidsInfoCentre@adhb.govt.nz / 09 630 9955

References

- 1 Litovitz T, Whitaker N, Clark L: "Preventing battery ingestions: an analysis of 8648 cases." *Pediatrics* 2010; 125(6): 1178-1185. Epub 2010 May 24.
- 2 <http://www.safekids.org/safety-basics/safety-spotlight/battery-safety/>. Accessed by Safekids, 25 March 2012
- 3 Litovitz T, Whitaker N, Clark L, White NC, Marsolek M. "Emerging battery ingestion hazard: Clinical implications." *Pediatrics* 2010; 125(6): 1168-1177. Epub 2010 May 24
- 4 <http://www.kidsafe.com.au/hot-topic.html>. Accessed by Safekids, 25 March 2013.
- 5 Safekids New Zealand: "Multi-pronged strategy needed to address button battery injuries." *Safekids News*, 2012, December, 59: 4.
- 6 Unpublished child button battery injury data Jan 2010 - Nov 2013 National Poisons Centre, University of Otago, Dunedin, 2013.
- 7 Litovitz T, Whitaker N, Clark L: "Preventing battery ingestions: an analysis of 8648 cases." *Pediatrics* 2010;125(6): 1178-1185. Epub 2010 May 24.
- 8 <http://www.consumeraffairs.govt.nz/for-consumers/goods/product-safety/button-batteries>. Accessed by Safekids, 25 March 2013.



Sample quiz for target audience

1. Name 3 objects found at home that contain coin-sized lithium button batteries:

2. What can happen when a child swallows a button battery?

3. What will you do if you find loose button batteries at home?

4. What are the three safety messages to prevent button battery-related injuries

5. If you think a child has swallowed a button battery or put a button battery in his/ her ear or nose, what should you do?

Notes





Safekids Aotearoa
PO Box 26-488
Epsom, Auckland 1344
New Zealand

Ph: +64 9 630 9955

Fx: +64 9 630 9961

A Member Of



Sponsored by

