



Risk of harm to babies and children from coin/button batteries in hearing aids and other hearing devices

Date of issue:

13-Dec-19

Reference no:

NatPSA/2019/003/NHSPS

This alert is for action by: all organisations supplying NHS-funded hearing aids to babies, children or adults.

This is a safety critical and straightforward National Patient Safety Alert. Implementation should be co-ordinated by the head of audiology, or equivalent role, with oversight by an executive leader (or equivalent role in organisations without executive boards).

Explanation of identified safety issue:

Babies and young children (under five years) can suffer serious injury if they ingest coin/button batteries or poke them into their nostrils or ears.^{1,2,3} This group is at most risk of serious harm because they tend to explore the world by putting things in their mouths and batteries can become lodged in their narrow oesophagus and cause rapid tissue necrosis, perforation, and haemorrhage.^{1,3}

While the larger lithium batteries have the greatest potential to cause harm, including death, the smaller zinc-air batteries, used in hearing aids, cochlear implants, bone-anchored hearing aids (BAHA) and similar equipment, still present a significant risk.^{4,5}

An alert issued in 2014 brought attention to the risk to children from ingestion of any coin/button battery and the need to treat this as a medical emergency.²

We received a report of a one-year old child who swallowed the button battery from their hearing aid, which did not have a secure battery compartment. Investigation of current guidance identified that although standards for manufacturers of hearing aids exist,⁶ national^{7,8} and local policies are inconsistent about when hearing aids with secure battery compartments should be supplied; this can put children at risk.

Actions required



Actions to be completed by 11/09/2020

1. Review audiology team guidance/protocols to ensure:
 - a. **for babies and children aged under five years;** all hearing aids and other hearing devices, including temporary replacements or those previously issued, have secure battery compartments
 - b. **for older children and adults;** consideration of the need for secure battery compartments for:
 - i. those living with babies or children aged under five years
 - ii. those with additional risk factors* or living with someone with additional risk factors.*
2. Review purchasing and supply to ensure audiology teams have access to the full range of hearing devices with secure battery compartments.
3. Revise information supplied to:
 - a. parents/carers of babies or children who use hearing aids or other hearing devices to explain the risks of coin/button battery ingestion**
 - b. all hearing aid or other hearing device users on the importance of keeping batteries away from babies, children and anyone with additional risk factors.*

* In the context of this alert, this means any adult or child aged five or over with health conditions or disabilities that might put them at increased risk of swallowing a coin/button battery or pushing one into an ear or nostril, including those with a significant learning disability, dementia or other cognitive or sensory impairment.

** Information should explain the risks of coin/button battery ingestion, how to reduce the risk, including safe storage of spare batteries and batteries for recycling, and the need to act immediately if ingestion is suspected.¹

Additional information:

Patient safety incident data:

The trigger incident was identified on the Strategic Executive Information System. The National Reporting and Learning System (reference 5170) was searched on 9 July 2019 for incidents reported as occurring between 7 July 2016 and 8 July 2019 and containing the term battery or batteries in children under five years. Thirteen incidents related to possible or actual ingestion of coin/button batteries; in most cases it was not clear where the battery came from. One more incident specifically mentioned possible ingestion of a battery from a hearing aid. As ingestion of a coin/button battery at home does not warrant completion of an incident report, actual numbers are unknown but these 13 reports confirm the potential for severe harm when coin/button batteries from any source are swallowed; they describe oesophageal perforation/fistula, life-threatening haemorrhage, perforation of the nasal septum and oesophageal abrasion, with three of the children requiring critical care.

The Child Accident Prevention Trust suggest around two children per year in the UK die from coin/button battery ingestion, but the actual numbers seriously injured or requiring hospital treatment are unknown.¹

A small opportunistic sample of local policies differed in whether children under 3 or 5 years needed secure battery compartments and did not consistently consider siblings or people with additional risk factors.

Past national resources, which are still used for reference locally,^{7,8} describe these risks but are not comprehensive in terms of age ranges and the risks to others.

References

1. Child Accident Prevention Trust: <https://www.capt.org.uk/button-batteries>
2. NHS England (2014) Patient Safety Alert – ‘Risk of death and serious harm from delays in recognising and treating ingestion of button batteries’: <https://www.england.nhs.uk/2014/12/psa-button-batteries/>
3. HSIB report – ‘Undetected button/coin cell battery in children’: <https://www.hsib.org.uk/investigations-cases/undetected-button-battery-ingestion-children/>
4. Litovitz et al (2010) Preventing battery ingestions: analysis of 8648 cases. *Pediatrics* 125: 1178–1183.
5. Litovitz et al (2010) Emerging battery-ingestion hazard: clinical implications. *Pediatrics* 125: 1168–1177.
6. IEC 60601-2-66:2015 Medical electrical equipment – Part 2-66.
7. Modernising Children’s Hearing Aid Services: <http://research.bmh.manchester.ac.uk/mchas>
8. Newborn Hearing Screening Programme Clinical Advisory Group (2009) - ‘Guidelines for Fitting Hearing Aids to Young Infants’: <http://research.bmh.manchester.ac.uk/mchas/innfantHAFittingguidelines/infantHAFittingguidelines.pdf>

Stakeholder engagement:

1. National Patient Safety Response Advisory Panel (see [here](#) for a list of members)
2. The British Society of Audiology (BSA)
3. The British Academy of Audiology (BAA)
4. UK Accreditation Service (UKAS)
5. British Association of Teachers of the Deaf (BATOD)

Advice for Central Alerting System (CAS) officers and risk managers

This is a safety critical and straightforward National Patient Safety Alert. In response to [CHT/2019/001](#) your organisation should have developed new processes to ensure appropriate oversight and co-ordination of all National Patient Safety Alerts. CAS officers should send this Alert to the head of audiology, or equivalent role, to co-ordinate the implementation of this National Patient Safety Alert, copying in their nominated executive leader (or equivalent role in organisations without executive boards).