



# Patient Safety Alert

## Stage One: Warning

*Risk of death and serious harm from delays in recognising and treating ingestion of button batteries*

**19 December 2014**

Alert reference number: NHS/PSAW/2014/017

Alert stage: One - Warning

Ingestion of button batteries can cause serious harm and death. Severe tissue damage results from a build up of sodium hydroxide (caustic soda) as a result of the electrical current discharged from the battery, and not, as commonly supposed, from leakage from the battery. The sodium hydroxide causes tissue burns, often in the oesophagus, which can then cause fistulisation into major blood vessels, resulting in catastrophic haemorrhage. Even apparently discharged ('flat') batteries can still have this effect, and button batteries pushed into ears or nostrils can also cause serious injuries.

Button battery ingestion affects all age groups, although most cases involve children under the age of six who mistake the battery for a sweet, or older people with confusion or poor vision who mistake the battery for a pill. Older children and adults may ingest batteries as a means of self harming.

Review of incident reports from a recent four year period identified five cases where severe tissue damage occurred after apparent delays in suspecting, diagnosing or treating button battery ingestion in small children; one child died.

Incident reports suggested that when ingestion was reported, healthcare staff did not recognise the need for this to be **treated as a medical emergency**. Additionally, symptoms of tissue damage such as haematemesis, haemoptysis and respiratory difficulties can **manifest up to 28 days** after ingestion of the battery. Incident reports suggested that where such symptoms occur, staff did not always consider the possibility of prior button battery ingestion.

Removal of the battery alone may be insufficient action to prevent further damage, with further symptoms manifesting later; patients need expert input, and careful monitoring and follow-up. One further incident described the death of a child from late complications after they had been treated and sent home.





A further 241 incidents also described a range of battery types swallowed as self-harm by inpatients; whilst only one incident described severe tissue damage from delay in treatment, the incident reports suggested some nursing and medical staff believed battery ingestion would be harmless unless the battery was damaged or leaking, and therefore urgent advice was not always sought.

Whilst the focus of this Alert is on prompt recognition and treatment of ingestion, healthcare providers caring for children, vulnerable adults or people who may self-harm should also consider if action to protect patients from button battery ingestion needs to be taken; the review of incidents above identified six occasions when older patients accidentally swallowed button batteries from hearing aids.

## Actions

**Who:** All providers of NHS funded care

**When:** To commence immediately and no later than 19 January 2015

-  1 Identify if delay in recognising and treating ingested button batteries has occurred, or could occur, in your organisation
-  2 Consider if immediate action needs to be taken locally and develop an action plan, if required, to ensure prompt recognition and treatment of cases of button battery ingestion
-  3 Distribute this Alert to all relevant staff who care for children or adults in primary care, ambulance services, emergency departments, and inpatient care settings, including mental health and learning disability units
-  4 Share any learning from local investigations or locally developed good practice resources by emailing [patientsafety.enquiries@nhs.net](mailto:patientsafety.enquiries@nhs.net)

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### Technical notes

#### **NRLS search dates and terms**

The National Reporting and Learning System (NRLS) was searched on 15 December for incidents that occurred since 1 January 2010 and which contained the keywords 'battery' (or misspellings of battery) and 'swallow\*'. All incidents were reviewed (except those describing self-harm resulting in no harm). The Strategic Executive Information System (STEIS) was searched on 12 December 2014 for reports since 2010 containing the terms 'watch battery', 'lithium battery', 'button battery', 'cell battery' and 'button cell'. Incidents found in both systems were reconciled (i.e. there is no double-counting of harm).

#### **Stakeholder engagement**

- Infant, Children and Young People's Patient Safety Expert Group
- Learning Disability Patient Safety Expert Group
- Medical Patient Safety Expert Group
- Mental Health Patient Safety Expert Group
- Surgical Services Patient Safety Expert Group
- Safe Anaesthesia Liaison Group at the Royal College of Anaesthetists
- Association of Anaesthetists Great Britain and Ireland Safety Committee

#### **Other**

<http://www.apagbi.org.uk/safety/safety-statements/salg>

<http://www.collemergencymed.ac.uk/Shop-Floor/Safer%20Care/Safety%20News/Safety%20Newsflash%20Alerts/Button%20batteries%20as%20a%20cause%20of%20haematemesis%20in%20children/>