

Infant Button Battery Injury and Death (IBBID): Legal Remedies and Options for Redress

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ABSTRACT

Infant button battery injury and death (IBBID) is a known worldwide risk for pre-school age children. An ingested button battery that lodges in a child's oesophagus will be fatal for the child if the button battery is not promptly removed. Button batteries of 20 mm diameter (e.g. CR2032) present a serious risk of such lodgement if ingested, they are in common usage (for example in many car key-fobs), and are readily available in supermarkets. Where such a button battery is removed (say by medical intervention) the child may be permanently disabled. It is the diameter of such button batteries (≥ 20 mm) that leads to lodgement and the electrical charge of such batteries that will cause tissue chemical burn, which, will likely be fatal if the burn creates a fistula (tunnel) through to an organ adjacent to the oesophagus (e.g., a tracheoesophageal fistula joins the windpipe and the gullet). Seven legal options for action are considered in the present paper, with ratings of cost, duration, and potential sources of funding (for the UK): Class action; Representative action; Individual action; Prevention of Future Death Report; Household insurance; Judicial review; and medical negligence. At present injured children 'suffer in silence' and some die, but if the harms of IBBID are sufficiently monetised, then it can be anticipated that the dangerous button batteries will price themselves out of the market and manufacturers and suppliers will seek alternatives (e.g. different size, different chemistry, different design).

Keywords: Coin batteries, CR2032, death, disability, law, Office for Product Safety and Standards, OPSS, paediatric harm, personal injury, product liability, product safety, product standards, UK.

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I. INTRODUCTION

Button batteries (BB) are small coin-size batteries that are used in many car key-fobs and numerous other consumer items including toys. Common button batteries, (e.g. CR2032 and CR2025) will cause death if swallowed by a child and the battery lodges in the oesophagus and is not promptly removed by medical or other intervention. These common batteries are 20 mm in diameter and are too big to pass through the gullet of infants. Young children have a propensity for exploration and that includes ingesting foreign objects. Button batteries are designated by chemistry, diameter, and height; a CR2032 button battery signifies CR = lithium; 20 = 20 mm diameter; 32 = 3.2 mm high (Paull, 2021; 2022).

A swallowed button battery is a medical emergency (Park & Burns, 2022) (Fig. 1). The electrical discharge of a lodged button battery will react with the tissue of the oesophagus and result in a chemical burn. If left in place, this reaction can burn a hole (a fistula) through the oesophagus wall creating a tunnel of burned flesh through to an adjacent organ, leading to death; this is a global problem that has persisted for decades (Abdulkareem *et al.*, 2011). With prompt medical intervention the child may survive but may be left with lifetime disabling injuries.

The UK Office for Product Safety and Standards (OPSS) has generated a set of voluntary standards (OPSS, 2021). There is a call that these voluntary standards be mandatory standards, following the example of Australia where button battery standards are mandated (ACCC, 2022). However, the existing UK guidelines alone - even if mandated - cannot be expected to eliminate infant deaths and permanent injuries.

A recent survey commissioned by the OPSS of UK adults (N=14,330) (OPSS, 2023a, 2023b) reveals that 2% of respondents reported a button battery ingestion event ("ever swallowed or nearly swallowed") in their household and that 21% of these events required medical intervention, 60% (of the 2%) reported that they complained (to the manufacturer, retailer, on social media, or on a review site), with 23% (of the 2%) declaring that they complained "to the manufacturer" (OPSS, 2023a, p.80-81).

The survey did not ask about outcomes, viz: (for example) 'no permanent injury', 'permanent injury', or 'death' (and such data are not otherwise available for the UK). Button battery ingestion is not a reportable event (and so even where there exist case notes there is no standard reporting protocol; an ingested button

battery may be described in a case note merely as a ‘foreign object’ or as a ‘battery’, for example.

The OPSS survey data indicate a widespread problem in UK of button battery ingestion by infants (OPSS, 2023a). If extrapolated from the OPSS sample to the UK population (population 69 million, with 80% ≥ 18 years, worldometers.info) the conclusion is that: 1,264,440 infant battery ingestion events ($79 \text{ m} \times 80\% \times 2\%$); 290,720 complaints to manufacturers ($79 \text{ m} \times 80\% \times 2\% \times 23\%$); and 265,440 medical interventions ($79 \text{ m} \times 80\% \times 2\% \times 21\%$). The cumulative cost to the NHS of such interventions could be £265 m (if we take the cost per intervention as, say, £1000 per child). The real figure may be magnitudes higher - only an X-ray can rule a button battery in or out as an ingested item, surgical intervention is required where a button battery is identified, and a lifetime of medical support may be required where serious non-fatal injury has occurred.

The present paper considers seven legal options for legal redress for infant button battery injuries and death (IBBID).



Fig. 1. A button battery lodged in the oesophagus is a medical emergency:
X-ray of an infant with an ingested button battery (image source: ABC, 2023).

II. LEGAL OPTIONS

A. Class Action

A class action (a Group Litigation Order (GLO) under Rule 19.22 in the Civil Procedure Rules) is indicated where there are multiple injured parties (a ‘class’) and there is an identifiable product or service responsible (Ashurst, 2019; MoJ, 2023). An example is a class action against Astra Zeneca for Covid-19 vaccination injuries. In that case there is an identifiable class of vaccination-injured persons (in the UK), there are government records of vaccination (in the UK), and there is an identifiable defendant (domiciled in the UK). There are at present such vaccination class actions initiated in the UK, Australia, and Canada (Beaulne & Sharfuddin, 2022; Dyer, 2023; Hickey, 2023).

The class action option is neither quick nor cheap. Class actions consume expensive legal resources, are typically vigorously defended, typically extend over a lengthy period of time, and, if successful, may be appealed.

Adding layers of defendants multiplies the cost. Adding defendants domiciled in foreign jurisdictions multiplies the cost and complexity (e.g., particular button battery manufacturers may be domiciled in China or Taiwan (for example), car key-fob manufacturers may be domiciled in Thailand or Vietnam, the car manufacturers may be domiciled in USA or Japan, with assembly plants in Korea, and only the vehicle distributors may be UK-based). Foreign law may apply, and it may prove impossible to successfully enforce a judgement.

In the case of button battery injuries, the offending button battery may not be adequately described (to a legal forensic standard) in medical case notes, nor in police case notes, nor in a coroner’s report. Consequently, the button battery size, the manufacturer, and the item the button battery is for, or from, may be unknown and unknowable (unless the BB is harvested at the time of the medical intervention). This lack of data creates a legal challenge for linking the injury to a specific identifiable party. A plaintiff can claim ‘plausible deniability’ where the provenance of a particular BB, and the chain of custody of the particular BB is decoupled from the injury event, and perhaps irretrievably decoupled.

Conclusion: A class action for IBBID would be lengthy, expensive, and difficult. It is an unlikely candidate for a No-win-No-fee case. In the event of a class action failing there is the risk of the award of

costs against the plaintiffs (although in a personal injury claim the risk of adverse costs is low due to qualified one-way costs shifting (QOCS)) (McIntosh & Walton, 2018). Product liability group actions have a poor track record of success. The class action option may be considered as contraindicated for button battery injuries.

B. Representative Action

A representative action (a Group Litigation Order under Rule 19.8 in the Civil Procedure Rules) is a 'slimmed down' class action, quicker and cheaper (Ashurst, 2021) (MoJ, 2023). The Court can appoint a single claimant and similarly injured parties (with 'same interest' claims) can reap the benefit of the action. Generally Legal Aid is not available for personal injury claims unless exceptional case funding (ECF) applies (LAA, 2022) (which is unlikely).

A challenge, as in a class action, is: who is the defendant? Is it: the manufacturer of the battery (non-UK?); the retailer of the button battery (may be a store in UK); the manufacturer of the key-fob (non-UK?) or other battery powered item (non-UK?); the car, or other consumer product, manufacturer (non-UK?); or the retailer (for a car, may be in UK, for an online purchase, may be non-UK).

A representative action will have the best prospect of succeeding and benefitting other injured parties where the forensics are collected, secured and well documented - button battery type, source, and chain of custody.

Conclusion: This option for IBBID may be considered and successful where there are good data. No-Win-No-Fee may be possible.

C. Individual Action

A harmed individual can sue for personal injury damages. For example, in Canada, a family are suing Astra Zeneca (there is a vaccination-injured child and an identified plaintiff) (CBC News, 2023).

In the case of IBBID there is the challenge of identifying one or several vulnerable defendants, viz. defendants that can be directly linked to the harm and are vulnerable (e.g. because they have funds and are domiciled in the UK). In the case of an original key-fob button battery, candidates for such vulnerable defendants are the car manufacturer or the car dealership (while a button battery manufacturer or key-fob manufacturer domiciled outside UK are less likely candidates). Where the offending button battery is a replacement battery, then the supplying retailer (e.g. supermarket) could be considered as a defendant.

Conclusion: This option may be considered where there are known BB data and chain of custody of the offending battery. Legal Aid is unlikely to support a personal injury claim unless exceptional case funding (ECF) is secured (LAA, 2022).

D. Coroner: Prevention of Future Death Report

A coroner can issue a Prevention of Future Death (PFD) Report (e.g. Wallace, Revie, Sharland, & Mais, 2023). A button battery death is an unnatural death and by rights there should be an inquest. Other parties (e.g. button battery manufacturers or suppliers) can be joined as interested parties. An option for the coroner is to issue a Prevention of Future Death Report. Such a report is unlikely to manifest without robust legal representation of the harmed party and the advocacy of their representative.

Conclusion: For a case where there is a button battery death and no inquest to date, there is the opportunity to have legal counsel appointed and to pursue an inquest with the view to a Prevention of Future Death Report from the coroner as an outcome. Children generally qualify for Legal Aid. There is a Register of PFD Reports, but none for button batteries (judiciary.uk).

E. Household Insurance: Public Liability

Household insurance has provision for legal costs and public liability. A policy may be limited, typically to, say, £5 million. This scenario could involve a claim by the child against the parent. The Court would appoint a 'litigation friend' for the child.

While this option may be a 'tad unsavoury' for the parties (say a loving child with loving parents), the outcome may be that (a) the parent 'owns' the injury (or not) (maybe a key-fob battery was changed and the old battery was inadvertently or carelessly left about, instead of being safely disposed of), and (b) the child is awarded, say, £5 million damages.

This outcome puts funds into the family unit including for future medical care of a disabled child. As the harming event is a one-off event, albeit a catastrophic one and a failure of parenting, this action, per se, is prima facie unlikely to trigger a Social Services intervention against the parents.

Conclusion: Where there is household insurance, this is a candidate for a positive outcome. Such a case is a candidate for a No-Win-No-Fee action. This is a very 'local' solution to a wider societal problem. It can, however, motivate insurance companies, in their own self interest, to lobby for a broader solution to button battery injuries.

F. Judicial Review: Rights of the Child

The UK government is a signatory to the UN Convention on the Rights of the Child (UNCRC) (DfE, 2010). A Judicial Review can address specific questions. Are government decisions congruent with the UNCRC? Are government officers doing their job? The UK button battery guidelines are voluntary not mandated, why not?

The questions continue. Why is there little or no enforcement of the present UK voluntary guidelines regarding button battery safety? Why are the voluntary guidelines weak? Why are no robust data available of IBBID? Why are children killed and maimed when stricter and enforced guidelines could mitigate such harms? Are government officers and agencies deficient or negligent?

Conclusion: A Judicial Review can address such questions and nominate actions to remediate oversights, deficiencies, or negligence, as the case may be. The Office for Product Safety and Standards (OPSS) is one such entity with salient responsibilities pertaining to such a proposed Judicial Review. Legal Aid is chartered to initiate and/or to fund cases in the public interest (PLP, nd). A child will generally qualify for Legal Aid (by passing the income test).

G. Medical Negligence

There are numerous cases where a child has presented at a medical facility with a lodged button battery, the lodged button battery has not been diagnosed, and the child has been sent home (Paull, 2021; Tassell, 2023). It has then taken one or several further presentations before button battery ingestion has been diagnosed. Such cases can lead to multiple future surgeries, lifelong disability, or death. A prompt and timely diagnosis and treatment would likely, in such cases, have led to a more favourable outcome.

This remedy option does not address the core problem, viz. the production and supply of button batteries that are lethal to children if ingested. However, what a medical negligence action can achieve is: (a) heightened awareness of IBBID among medical practitioners, and this can lead to speedier diagnosis and treatment for future cases (so that less IBBID presentations ‘slip through the net’ at the initial presentation); and (b) financial damages to support the harmed child and family.

Conclusion: Medical practitioners, facilities, and hospitals carry medical indemnity or insurance for medical negligence (BMA, 2021). Such cases may be hotly contested and damages awarded can be substantial. A win in a medical negligence case will benefit future IBBID cases by raising awareness, precipitating more timely treatment, and thereby mitigating future harms. Generally Legal Aid will not support a medical negligence claim. A case may be taken on as a No-Win-No-Fee case.

III. DISCUSSION AND CONCLUDING REMARKS

The phenomenon of infant button battery injury and death (IBBID) is a ‘wicked problem’ that has persisted for several decades without resolution. Children are maimed for life and others die from button battery ingestion where the battery is not promptly removed. How are such injuries and deaths to be prevented?

Legal action can motivate the offending parties (whoever they are) to action, by monetising the problem out of existence, for example by making the risk of impost of penalties for such injuries so costly that the offending button batteries are either eliminated from the consumer supply chain (as was the case with asbestos sheeting) or controlled within the supply chain (as in the case of nuclear material). In the alternative, legal action can precipitate the problem out of existence, for example by legislation banning the manufacture and/or importation of the offending button batteries (viz. such button batteries of diameter equal to or exceeding, say, 20 mm).

Seven legal, post facto, remedies are considered in the present paper for infant injury and death caused by ingestion of button batteries. Such remedies by definition are reactive rather than preventative (Table I).

The value of IBBID legal remedies may be in: (i) compensating the loss; and/or (ii) monetising the loss and sheeting that back to a third party or parties in the supply chain (e.g. some or all of: the manufacturer, wholesaler and/or retailer of the battery; the manufacturer, wholesaler or retailer of the button battery powered device (e.g. a key-fob); or the manufacturer, wholesaler or retailer of the consumer product (e.g. a car).

TABLE I: MATRIX OF LEGAL OPTIONS FOR INFANT BUTTON BATTERY INJURY AND DEATH (IBBID)

#	Legal options for IBBID	Complexity	Speed	Cost	Potential Funding	Beneficiaries of success
1	Class Action	High	Slow	High	No-Win-No-Fee?	Many
2	Representative Action	Mid	Mid	High	No-Win-No-Fee?	Many
3	Individual Action	Low-Mid	Mid	Mid	No-Win-No-Fee	One +
4	Prevent Further Death Report	Low	Fast	Low	Legal Aid	Many
5	Householder Insurance	Low	Fast	Low	No-Win-No-Fee	One +
6	Judicial Review	Mid	Mid	Mid	Legal Aid	Many
7	Medical Negligence	Low-Mid	Mid	Low-Mid	No-Win-No-Fee	One +

Button batteries of the size to cause IBBID are non-essential industrial artefacts. There are alternatives – the simplest replacement is button batteries of smaller diameter (say 11 mm). At the point where the potential penalties for selling IBBID products exceed the profits for selling IBBID products, then manufacturer behaviour will change. Legal action may hasten the onset of such a time.

The matrix of actions for consideration and the cell values (Table I) are subjective and indicative, rather than definitive. There is no claim made that the list of actions considered is exhaustive. The British legal system is adversarial, and neither democratic nor consensual.

Legal actions can be expected to be met with ‘push back’ as interested parties pursue their own personal interest (perhaps against the greater good). Interested parties in the case of IBBID may be rich and powerful multinational corporations (e.g. car manufacturers, battery manufacturers, and supermarket chains). Such corporations may have a high awareness of the value of their social license to continue trading and the reputational damage to their brand where children are harmed. They may even be cooperative once a legal action is initiated.

The ideal outcome of IBBID legal actions is that past harms are compensated, and future harms are avoided. Those in the button battery supply chain, including car manufacturers, have had decades to take a proactive approach and eliminate dangerous CR2032 (and other lithium 20+ mm diameter button batteries) from their products.

Legal action can motivate a reactive response from those in the button battery business, to avoid harming or killing their customers, to avoid the cost imposts of legal actions, and to protect their social licence. IBBID is a fixable problem, the solutions are not prohibitive, the supply chain needs the motivation to implement the fix, and legal actions may provide the leverage to do just that (or actors in the supply chain could read the present paper and just fix the problem - and if not why not?).

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CONFLICT OF INTEREST

The author declares no conflict of interest. The contents of this paper are not legal advice.

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