Estates and Facilities Alert

Reference:	Issued:	Review Date:
EFA/2017/003	**06 September 2017**	**06 September 2023**

Guidance for correct use and disposal of batteries used in health and social care equipment

Summary

The use and incorrect disposal of batteries may result in equipment/devices emitting smoke and fumes, not functioning normally, quickly running out of power, being permanently damaged and, in certain circumstances, there may be a fire.

Action

1) Never use a battery that is damaged.

   When replacing batteries:

   a) only use batteries approved by the manufacturer of the equipment

   b) check that they are not damaged

   c) handle them carefully to avoid causing damage

   d) check that they click fully into place so there is good contact with the terminals.

2) When disposing of batteries:

   a) ensure compliance with waste regulations and organisational procedures for handling waste.

   b) consider use of a battery discharging device to remove any remaining charge (if available).

   c) cover the battery terminals with an insulator – insulating tape is acceptable. Batteries must only be placed in collection receptacles designed for that purpose and they must be clearly labelled. It may be advantageous to segregate lithium cells from alkaline cells as the former have higher waste value and sorted batteries may provide financial savings to the organisation. Seek guidance from battery waste contractor.

Action by

- Health & Safety Managers, Technical Managers, Risk managers, Service Managers, Procurement Managers, Supplies Managers, Waste Managers

Deadlines for action

Actions underway: 20 September 2017
Actions complete: 29 November 2017

Device details

All batteries supplied for use with medical and social care equipment. To date, only AA, AAA, PP3 and button cell battery types have been implicated in incidents, however, this alert should be considered relevant to all battery types.

Problem / background

Battery damage.

At first glance, all AA and AAA batteries may appear identical. They normally comprise of a canister with an insulated covering. There are positive and negative terminals at either end. The positive terminal (anode) is indicated with a + symbol or may be indicated as +ve. The negative terminal (cathode) is indicated with a – symbol or may be indicated as –ve.

Conventionally, the cathode on AA and AAA batteries will completely cover the base and an insulated cover prevents any contact with the positively charged canister. The insulation separating the anode and cathode is positioned such that it is naturally protected from damage, and even if damaged there is a low likelihood of a short-circuit (Figure 1).

The cathode is smaller on newer battery designs (Figure 2) and the insulator is more exposed to damage. The battery may be short circuited if the insulating cover is damaged, especially if the damage is around the base. This damage may result in a short circuit internally, or may allow for a short circuit via the contact/terminal of the device into which it is inserted. This may cause accelerated battery depletion and/or generate a significant amount of heat with potential for thermal runaway. This can lead to the equipment / device emitting smoke and fumes, not functioning normally, quickly running out of power, being permanently damaged, and in certain circumstances it may go on fire.

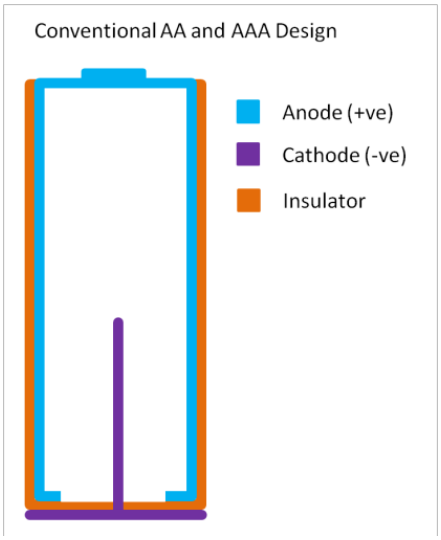

Figure 1

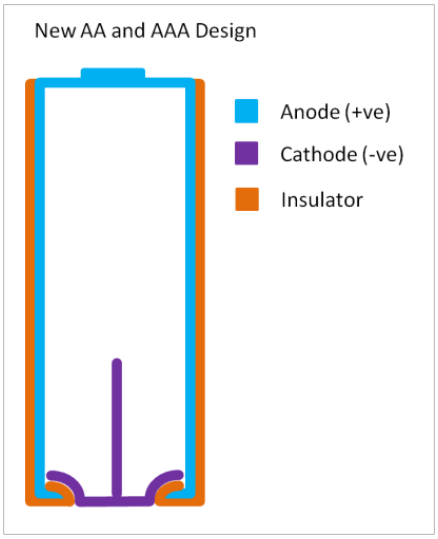

Figure 2

Battery Disposal.

Issue 1 – disposal of batteries with significant remaining charge.

Batteries used in a medical/care environment and in emergency devices, such as smoke/carbon monoxide alarms, are often disposed of before they are fully depleted and may, therefore, have significant remaining charge. This may lead to significant flow of current if a short circuit situation occurs through random contact with any conductor. This is even more likely if the battery terminals have not been insulated before disposal (taping is one way of achieving this). In situations like this, the remaining electrical charge/energy within the battery can be released extremely rapidly, either internally to the battery or externally over the object shorting the battery terminals. On at least one occasion this has resulted in a battery recycling container going on fire.

Issue 2 – sending devices for decontamination.

There have been incidents of disposable laryngoscopes being sent for decontamination or disposal (as clinical waste) without the batteries first being removed. The laryngoscopes are exposed to heat during the decontamination / waste treatment process and this can cause the batteries to explode.

Explosions damage the decontamination equipment and place decontamination staff at risk of injury. Although, to date, incidents have been restricted to laryngoscopes, care should be taken when sending any battery powered device for decontamination to ensure the batteries are removed.

Issue 3 – Incorrect disposal of batteries contrary to national/local laws and guidance.

Waste producers have a legal duty of care to ensure that they correctly segregate and ensure waste is only transferred to contractor/sites authorised to manage it. The duty of care continues until final disposal and is shared by all those with responsibility throughout the waste management chain. Producers must, therefore, ensure that they are aware of who is collecting their waste and where it is being managed.

The Carriage of Dangerous Goods Regulations specifies the requirements for the carriage of dangerous goods, including certain wastes, on public roads. There are similar regulations relating to air, sea and rail carriage. The Regulations directly refer to international agreements.

Certain items of waste electrical and electronic equipment (WEEE) and batteries are classified as dangerous goods. Guidance should be sought from a qualified Dangerous Goods Safety Advisor.

Acid and alkaline batteries are generally classified as Class 8 Corrosive Dangerous Goods whilst Lithium Batteries are classified as Class 9: Miscellaneous Dangerous Goods. The requirements for Class 9 batteries are more onerous and there are strict controls and limitations on multi-modal transport e.g. the carriage by road and then rail, sea or air for all batteries.

Distribution

Accident & Emergency
Ambulance Services
Blood Transfusion
Care Home Services
Central Decontamination Units
Community Care
Device Managers
District Nursing
Estates/Facilities
Fire Safety Advisors
General Medical Practitioners
Health & Safety
Health Centres
Hospices
Loaned Equipment Stores
Local Decontamination Units
Maternity
Medical Physics
Nominated Officer Fire
Nursing
O.D.A.s / O.D.P.s
Occupational Health
Occupational Therapy
Oncology
Operating Departments
Paediatrics
Practice Nurses
Renal Technologists
Risk Management
Safety Representatives
Sterile Supplies Departments
Supplies/Procurement
Wards

Enquiries

This alert has been compiled under a partnership arrangement by the organisations below and it has been distributed across the UK. Enquiries should be directed to the appropriate Regional Office quoting the alert reference number.

England

Enquires should quote reference number EFA/2017/003 and be addressed to:-
nhsi.mb-defectsandfailures@nhs.net

Reporting adverse incidents in England
Defects or failures should be reported on this system: http://efm.hscic.gov.uk/

The web-based D&F reporting system is managed by the NHS and Social Care Information Centre on behalf of the Department of Health. For further information on this system, including obtaining login details, please contact the efm-information Helpdesk. Tel 0300 303 5678.

Northern Ireland

Enquiries and adverse incident reports in Northern Ireland should be addressed to:

Northern Ireland Adverse Incident Centre, CMO Group,
Department of Health
Tel: 028 9052 3868 Email: niaic@health-ni.gov.uk
http://www.health-ni.gov.uk/niaic

Reporting adverse incidents in Northern Ireland
Please report directly to NIAIC using the forms on our website.

Scotland

Enquiries and adverse incident reports in Scotland should be addressed to:

Incident Reporting and Investigation Centre (IRIC)
Health Facilities Scotland, NHS National Services Scotland
Tel: 0131 275 7575 E-mail: nss.iric@nhs.net

Reporting adverse incidents in Scotland
Use our online report form or download the PDF form
Independent facilities which only provide private care should report to the Care Inspectorate.

Wales

Enquiries and adverse incident reports in Wales should be addressed to:

Simon Russell, Principal Engineer, NHS Wales Shared Services Partnership – Specialist Estates Services, 4th Floor, Companies House, Crown Way, Cardiff CF14 3UB

Tel: 029 2090 4100
E-mail: Simon.Russell@Wales.nhs.uk