

Battery Round-Ups: Get Charged!

The Problem With Batteries

Many different types of batteries are in use in hospitals. Pagers, infusion pumps, fetal monitors, portable EKG monitors, flashlights, smoke detectors, hearing aids, and portable generators are just a small sampling of devices that use batteries in hospitals. Several types of batteries contain mercury and may also contain other heavy metals such as lead and cadmium.

Many hospitals have battery-recycling programs for a portion of their batteries. Unfortunately, there is considerable confusion on proper management methods for batteries. This confusion can lead to poor capture rates, and improper disposal of batteries into red bag waste.

A battery round-up is an excellent way to provide education on the hazards associated with batteries, and on proper battery management to hospital staff and their families. It is also an excellent way to initiate, or improve upon, an ongoing, comprehensive battery collection program. Finally, they are an excellent follow-up to a mercury thermometer collection program.

What is a Battery Round-up?

A battery round-up is a permanent hospital-wide battery collection and recycling program for employees and their family members. All non-mercury containing batteries are collected for proper disposal (they will not be incinerated) and all mercury-containing batteries are recycled.

Within a hospital, a number of different types of batteries are utilized. Special care should be taken to separate each type individually, as they are disposed of in different ways, depending on their content. Batteries should not be incinerated. The battery types to look for in your facility include:

Mercury-Containing Batteries

- **Mercuric-oxide** (button, some cylindrical, and rectangular) Mercuric-oxide batteries contain the highest percentage of mercury, and are classified as hazardous waste. Businesses and institutions are required to manage these hazardous materials through recycling or hazardous waste treatment/disposal.

Common uses: pacemakers, defibrillators, fetal monitors, heart monitors, pagers, telemetry devices, temperature alarms and blood analyzers

Recycling/disposal options: recycle to reclaim mercury

- **Alkaline and Carbon-zinc** (nine volt, D, C, AA, AAA, alkaline button) Alkaline and carbon-zinc batteries contain chromium and zinc, and older ones (pre-1996) may contain mercury. All imported batteries (even new) are likely to contain mercury (except those manufactured in Western Europe and Japan, which may contain trace levels). These are classified as non-hazardous.

Common uses: pumps, diagnostic equipment, defibrillators, otoscopes, ophthalmoscopes, dictation machine, pen lights, glucometers, flash lights and telemetry devices

Recycling/disposal options: recycle older alkalines to reclaim mercury; recycle newer alkalines to reclaim zinc, or dispose of in a landfill or treat as hazardous waste

Non-Mercury Containing Batteries

The following batteries are classified as hazardous waste. Businesses and institutions are required to manage these hazardous materials through recycling or hazardous waste treatment/disposal.

- **Lead-acid** (button, some cylindrical and rectangular) Lead-acid batteries contain lead. Some are rechargeable.

Common uses: wheelchairs, portable generators

Recycling/disposal options: recycle to reclaim lead, or treat as hazardous waste

- **Nickel-cadmium** (9 volt, C, D, AA, AAA, battery packs) Nickel-cadmium batteries contain high levels of nickel and cadmium. They are labeled as rechargeable.

Common uses: emergency lighting, portable communication devices and medical equipment backup

Recycling/disposal options: recycle to reclaim nickel and cadmium, or treat as hazardous waste

- **Silver-cadmium** (9 volt, C, D, AA, AAA, battery packs) Silver-cadmium batteries contain silver and cadmium. These batteries are rechargeable.

Common uses: medical electronics

Recycling/disposal options: recycle to reclaim silver and cadmium, or treat as hazardous waste

- **Nickel-Metal Hydride** (Introduced in 1990) (Ni-MH) battery is a rechargeable power source. The Ni-MH battery provides up to 40 percent longer service life than Nickel-Cadmium batteries (and, doesn't contain toxic cadmium).

Common uses: portable computers, cellular phones, cameras, camcorders, portable information devices, audio visual equipment, premium electronic products and other devices.

Recycling/disposal options: recycle to reclaim nickel (also contain cobalt, titanium and zirconium)

Although disposal procedures for nickel-metal hydride cells are still evolving, as a minimum, observe the following precautions:

- Discharge fully prior to disposal.
- Do not incinerate.
- Do not open or puncture cells.
- Observe all national, state, and local rules and regulations for disposal of rechargeable cells.

- **Lithium ion batteries** (Introduced in 1991, Lithium ion polymer batteries introduced in 1999) Sony Corp. developed lithium-ion rechargeable batteries with lithium cobalt dioxide, these batteries also contain manganese, titanium disulfide and vanadium oxides.

Common uses: mobile phones, PDA's, notebook computers, headsets, portable mp3 players, other portable electronic devices

Recycling/disposal options: recycle to reclaim lithium or lithium alloy or treat as hazardous waste. Do not incinerate, lithium can be explosive

- **Small sealed lead-acid flat plates** (gum packs, pack configurations) Small sealed lead-acid flat plates contain high levels of lead. They are labeled and are rechargeable.

Common uses: emergency lighting, portable communication devices, medical equipment backup and laptop computers

Recycling/disposal options: recycle to reclaim lead, or treat as hazardous waste

Planning

Such a program may seem like a big undertaking, but with proper planning a battery round-up provides for good public relations, employee morale, and potential savings from the elimination of battery disposal in red bag waste. Important stakeholders to involve in a planning team include: hospital department staff from Safety, Facilities, Community Relations, Communications, Purchasing and Laboratory. Other important stakeholders to include are: State Hazardous Waste or Pollution Control Agencies and your hospital recycling contractor(s). Anticipate six months to plan your battery round-up.

Important committees to include in the planning process are:

- **Fundraising** – to cover printing costs for posters, tent cards, advertising and the reception;

- **Event Planning** – a high visibility event and reception for employees and family members that will mark the beginning of a permanent hospital-wide ongoing battery collection and recycling program;
- **Publicity** – internal public information planning (posters, email alerts, tent cards for tables, newsletters, etc.) and external media communications; and
- **Education** – responsible for development of educational pieces for distribution to hospital workers and their families about battery recycling, including types of batteries used in health care, examples of their use, and mercury content.

Resources

Recycling America's Rechargeable Batteries. The Plan. Rechargeable Battery Recycling Corp.

Reducing Mercury Use in Health Care "Greening Hospitals" HCWH

Mercury Disposal Options for Region 1 US EPA June 1999 by Rebecca Herman, contractor

Mercury Pollution Prevention in Healthcare: A Prescription for Success by Guy Williams

Pollution Prevention for Health Care Facilities by Hollie Shaner.

11th International Seminar on Battery Waste Management, Conference Literature

Florida Educational Seminars, Inc. (Sponsored by the Battery Industry)

Implementation of the Mercury-Containing & Rechargeable Battery Management Act (EPA530-K-97-009)

Used Dry Cell Batteries: Is a Collection Program Right for Your Community US EPA EPA 530-K-92-006

Universal Waste Rule US EPA EPA530-F-95-025



Without Harm

1755 S Street, NW
Suite 6B
Washington, DC 20009
Phone: 202.234.0091
Fax: 202.234.9121
www.noharm.org
info@hcwh.org

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