Medical Device Batteries – Blessing or Burden?

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ECRI Institute is an independent, nonprofit organization that researches the best approaches to improving the safety, quality, and cost-effectiveness of patient care.
ECRI monitors medical technology issues and advises hospitals through various services:

- PRN problem reporting system
- Health Device Alerts product recall notification system
- Patient Safety Organization
- Member consultation services
- BiomedTalk list serve
- Accident and Forensic Investigation consulting services
FDA MAUDE database – the past decade

Maude Reports by Battery Type

- Primary batteries (implantable devices) [PERCENTAGE]
- Rechargeable batteries (capital equipment) [PERCENTAGE]
FDA MAUDE database – the past decade

Percent of MAUDE reports discussing batteries
Surge in battery powered devices

- Evolution of miniaturized low-powered electronics
- Demand for portable or mobile devices
- More wireless devices
- Avoids software boot up time when mobile
- Maybe, just because we can …
### Sampling of battery powered devices

<table>
<thead>
<tr>
<th>Vital</th>
<th>Helpful</th>
<th>Questionable</th>
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<tbody>
<tr>
<td>Defibrillators</td>
<td>Patient Lifts</td>
<td>Sequential compression devices</td>
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<tr>
<td>Transport ventilators</td>
<td>Ventilators</td>
<td>Patient scales</td>
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<td>Patient transport monitors</td>
<td>Infusion Pumps</td>
<td>Stationary infant incubators</td>
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<tr>
<td>Telemetry monitors</td>
<td>Electric beds</td>
<td>OR tables</td>
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<tr>
<td>Heart-lung machines</td>
<td>Surgical saws</td>
<td>Enteral feeding pumps</td>
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<tr>
<td>VADs</td>
<td>Suction pumps</td>
<td>Diagnostic ultrasound</td>
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<tr>
<td>IABPs</td>
<td>Mobile x-ray</td>
<td>Pulse oximeters</td>
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But it’s not a free ride...

- Many types of batteries – lead acid, NiCad, NiMH, Li-Ion – each has different characteristics and maintenance requirements
- Batteries have been associated with fires and explosions
- Charge status indicators aren’t accurate
- Batteries need to be assessed during IPM
- Costly and time consuming to replace
- Finding suitable less expensive 3rd party batteries can be challenging
To summarize...

- Batteries are being used in a growing number of devices.
- Hospitals need to recognize that there is a tradeoff between the convenience of battery power and the burden to maintain them.
- More accurate charge status indicators would be helpful for critical care devices.
- Battery replacement cost should be considered in life cycle computations.
- Hospitals need a practical way to identify reliable, and less costly replacements.
Do you believe that the batteries in some of the medical devices your facility has purchased are clinically unnecessary?

A. Yes
B. No
C. I don’t have an opinion

Online Results

- Yes: 26%
- No: 15%
- No Opinion: 59%

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