



▶ **Battery-Powered Medical Devices  
Workshop: Challenges and Opportunities**

*July 30, 2013*

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Pioneering

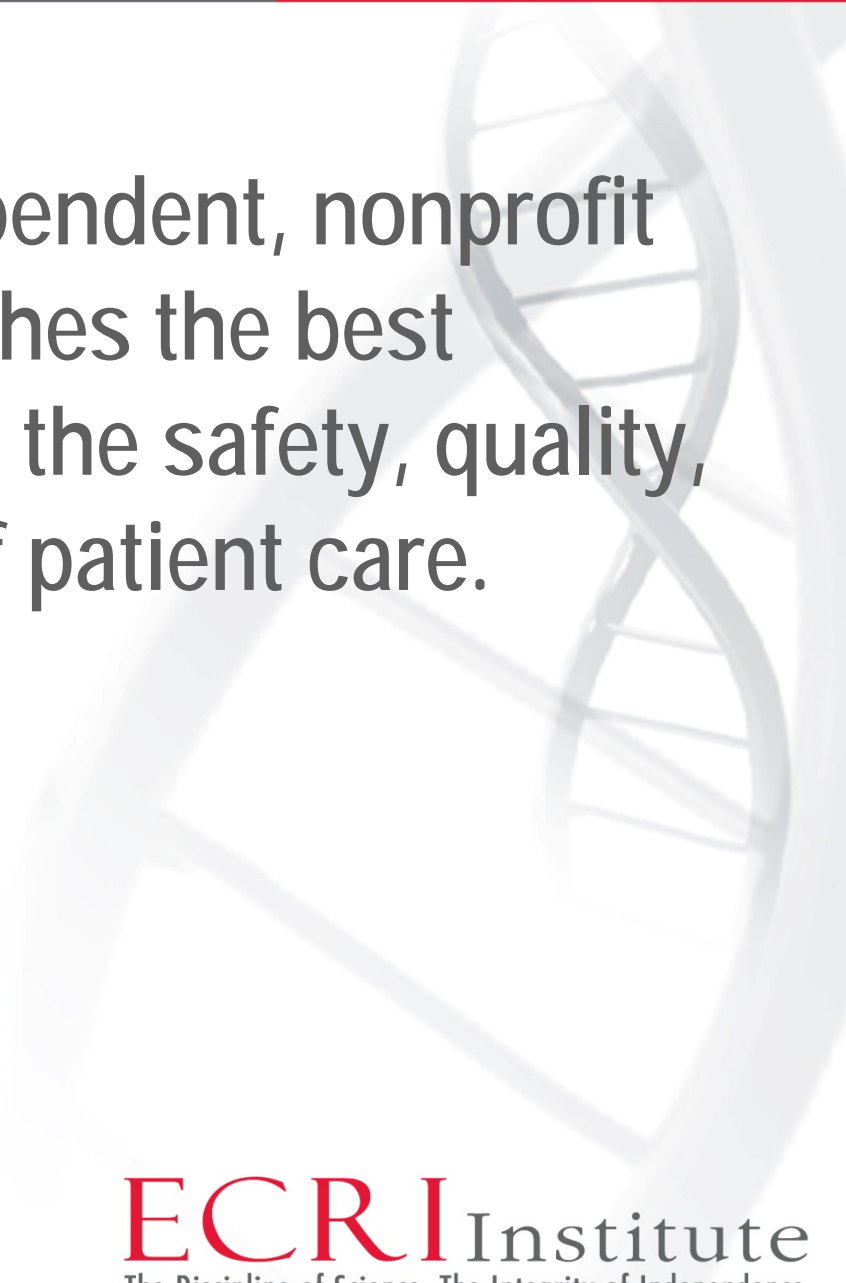
Experienced

Independent

▷ **Medical Device Batteries –  
Blessing or Burden?**

*July 30, 2013*

Evidence-based



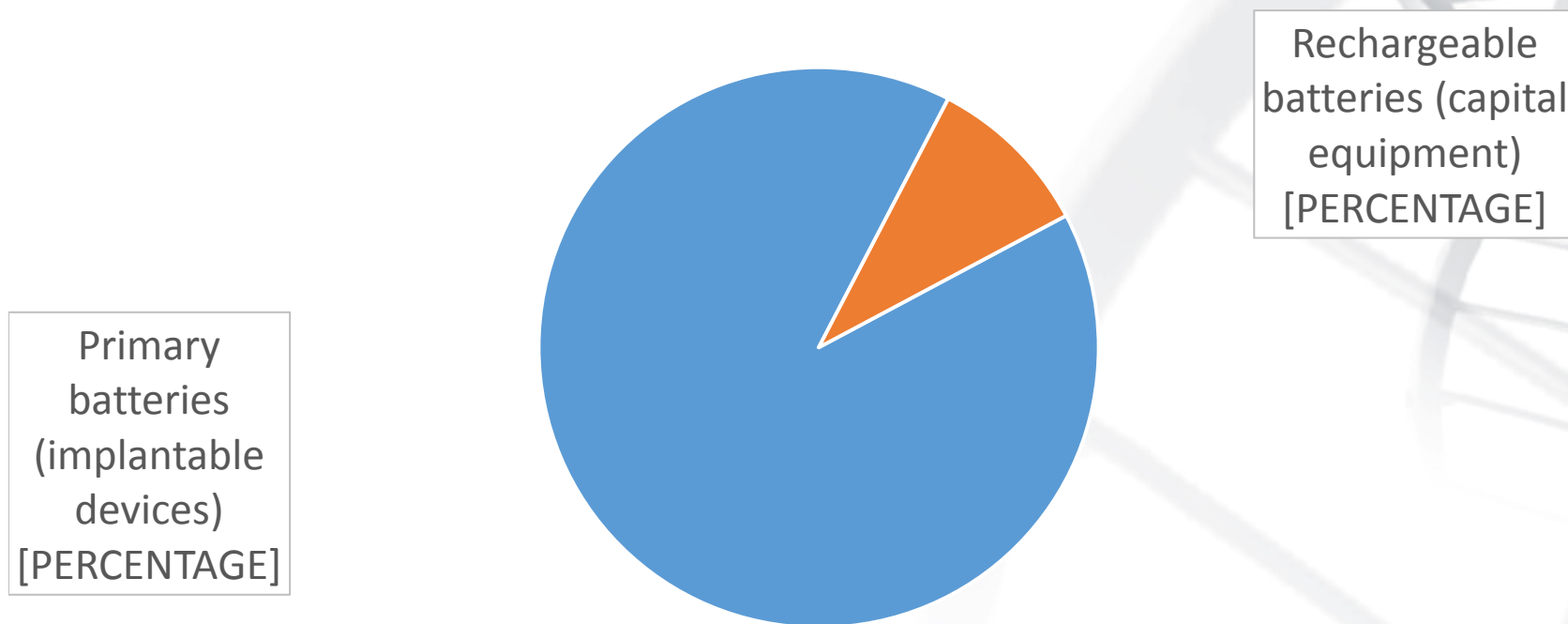
ECRI Institute is an independent, nonprofit organization that researches the best approaches to improving the safety, quality, and cost-effectiveness of patient care.

# 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

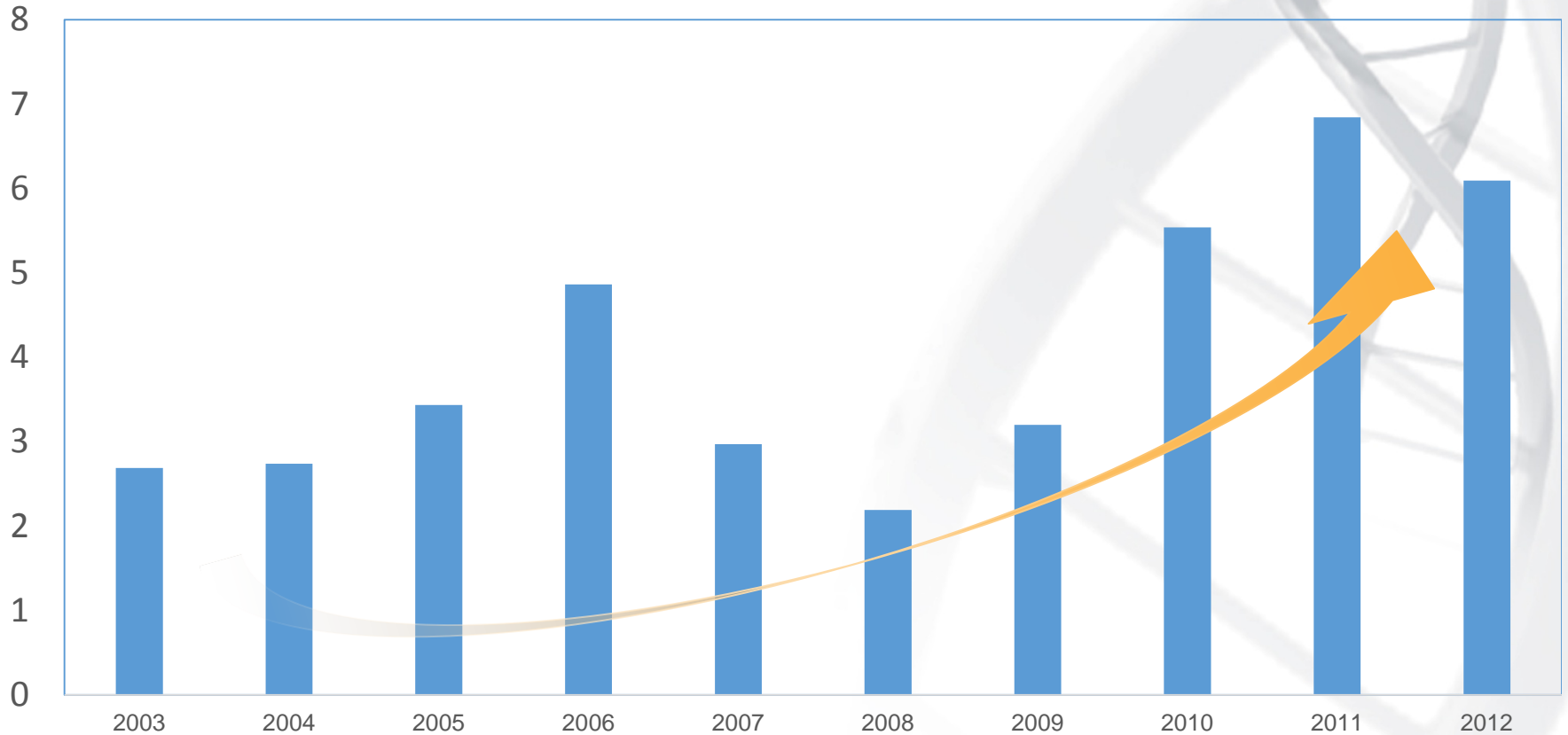


Primary  
batteries  
(implantable  
devices)  
[PERCENTAGE]

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

Vital	Helpful	Questionable
Defibrillators	Patient Lifts	Sequential compression devices
Transport ventilators	Ventilators	Patient scales
Patient transport monitors	Infusion Pumps	Stationary infant incubators
Telemetry monitors	Electric beds	OR tables
Heart-lung machines	Surgical saws	Enteral feeding pumps
VADs	Suction pumps	Diagnostic ultrasound
IABPs	Mobile x-ray	Pulse oximeters



## But it's not a free ride...

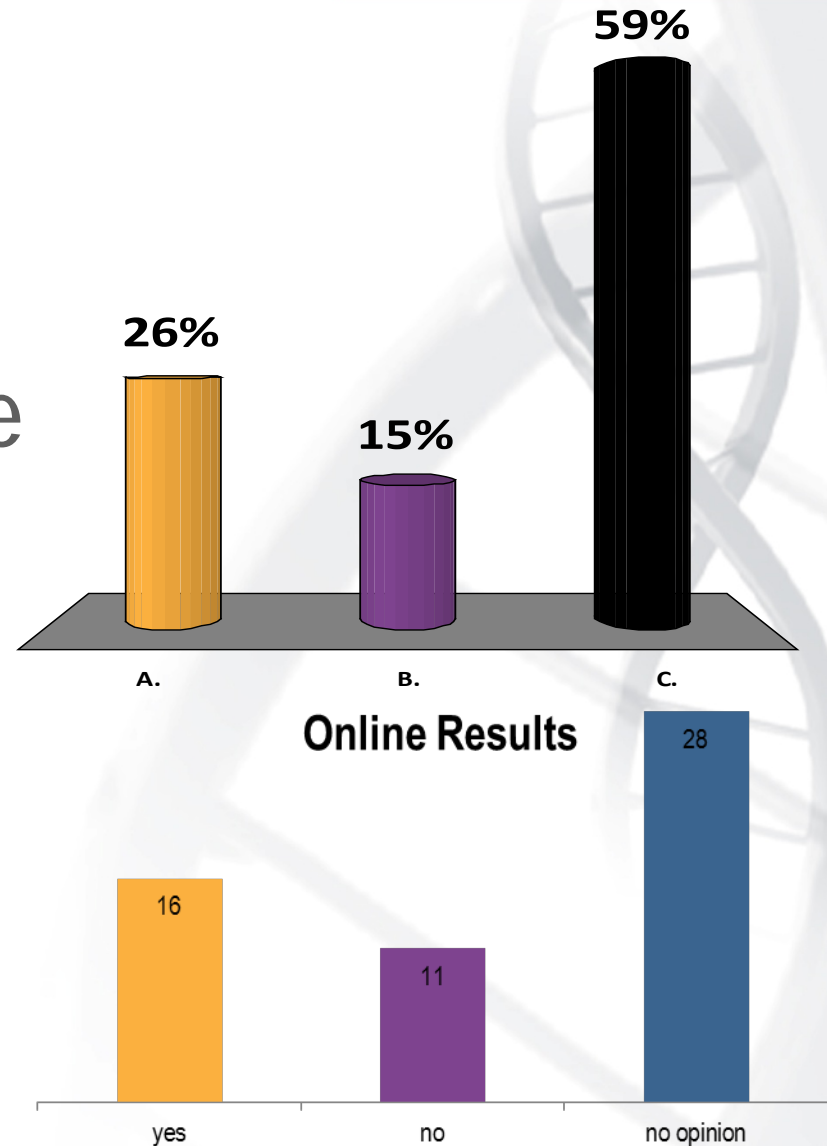
- ▶ Many types of batteries – lead acid, NiCad, NiMH, Li-Ion – each has different characteristics and maintenance requirements
- ▶ Batteries have been associated with fires and explosions
- ▶ Charge status indicators aren't accurate
- ▶ Batteries need to be assessed during IPM
- ▶ Costly and time consuming to replace
- ▶ Finding suitable less expensive 3<sup>rd</sup> 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





▶ THANK YOU

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