

ADVISING THE PROFESSIONALS: THE ROLE OF MHRA

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Name MHRA

Date 2009

WHAT IS MHRA?



*Medicines and Healthcare
Products Regulatory
Agency*

*Executive Agency of Dept
of Health responsible for
ensuring that medicines
and medical devices work
and are acceptably safe...*

PERSPECTIVE

needle

pacemaker

pregnancy test

thermometer

diathermy machine

hip implant

coronary stent

ICD

condom

blood glucose meter

MRI scanner

specimen collection tube

urinary catheter

contact lens

cholesterol test

blood bag

intra-uterine device

anaesthetic machine

- 90,000 devices on market*
- 1/25 has an implant*
- £10-12 billion UK*
- £200 million maintenance*

GUIDING PRINCIPLES

- apply legal requirements*
- ensure compliance*

but also

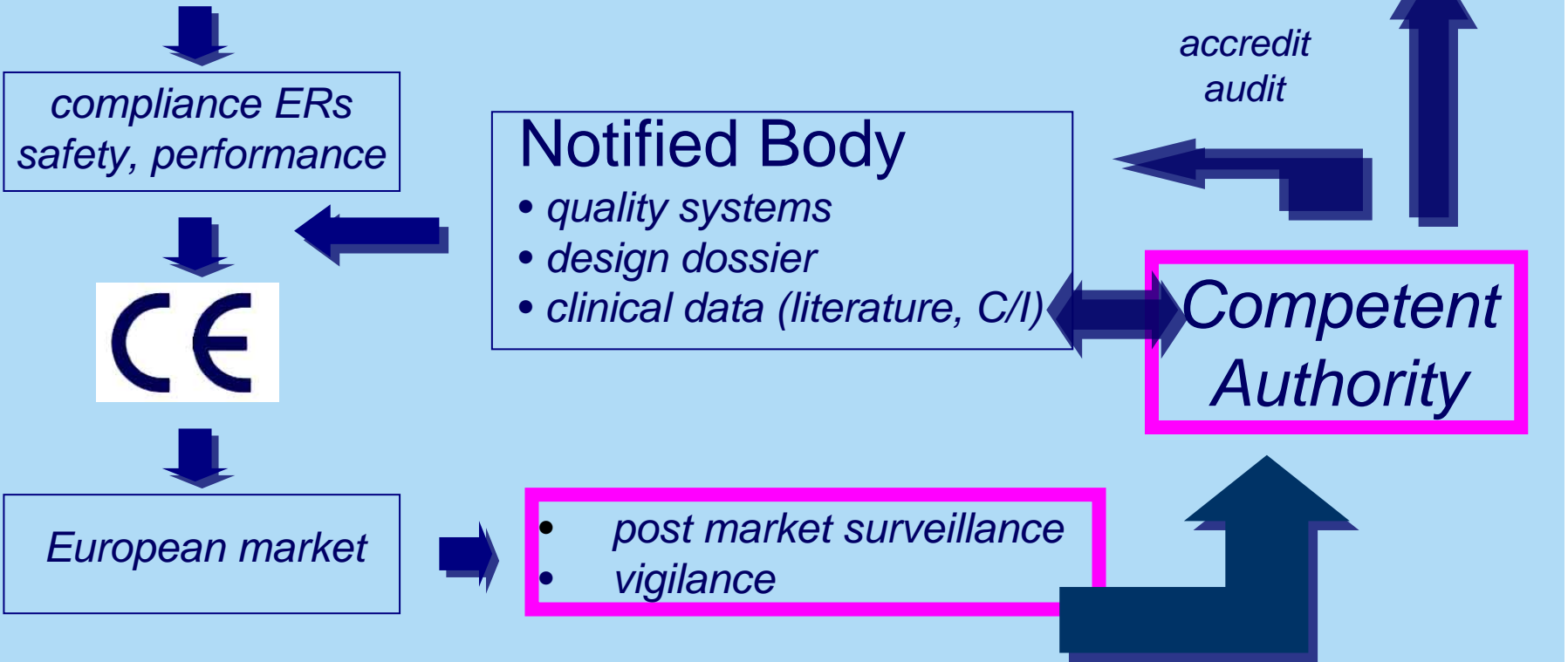
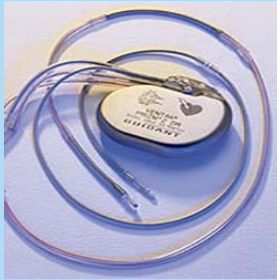
- help manufacturers*
- SUPPORT, ADVISE CLINICIANS***

ADVISING CLINICIANS

- performance not as claimed*
- field actions taken*
- serious adverse events*
- indicative trends*
- changes/limitations in criteria for use*
- problems instructions for use*
- user/training issues*



EU REGULATORY SYSTEM

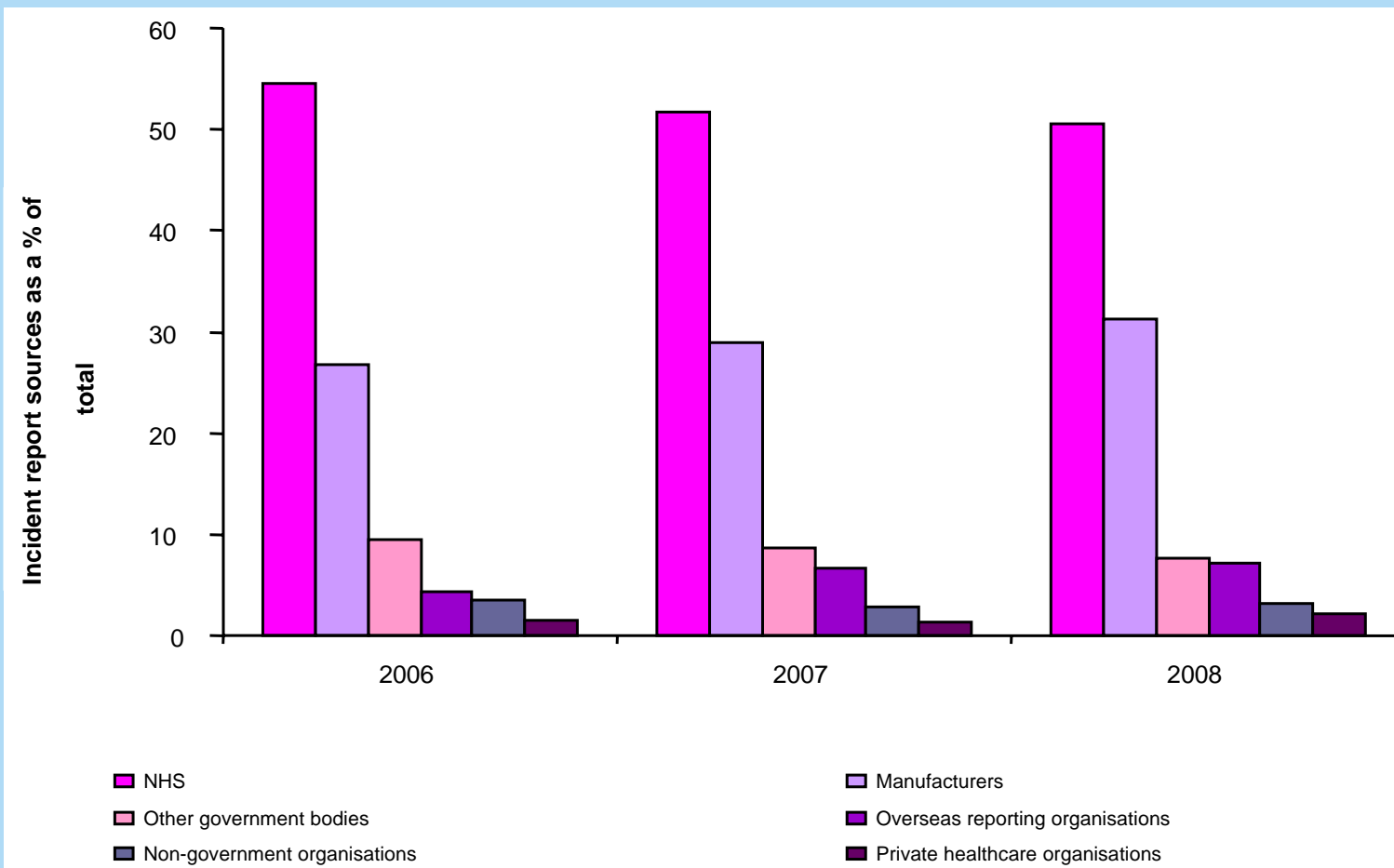


LIMITATIONS VIGILANCE



- failure recognition*
- non-promotion requirements*
- difficulties professional communication*
- differences aetiology*
- difficulties interpretation*
- differences EU/USA systems*
- failure undertake trend analysis*
- failure define corrective action trigger points*

REPORTING SOURCES



ACTIONS

- investigate
- discuss with healthcare workers
- discuss with manufacturer
- test device
- advice to health service (CAS)
- advice on website
- promote field action
- recall (safeguard)



ONE LINERS

Safety on the line Intravenous devices are used throughout hospitals, primary care and home settings. A significant number of adverse incidents and patient injuries occur because of problems with the devices themselves, inadequate training or poor practices associated with their use. This special edition of One Liners attempts to highlight some of the issues that have given rise to problems and provide advice to address this.

Opening the blood gates

MHRA has received several reports of users observing free flow when attempting to stop infusions using administration sets. Because of a change in the material of the roller clamp, the new clamp will only stop flow when it is completely shut (i.e. pushed to its rear-most position).

Users are reminded that although flow may appear to have stopped when the clamp is partially closed, they should always push the clamp fully shut to prevent free flow.

Set-up?

MHRA has evidence to suggest that during intermittent antibiotic therapy, administration sets are disconnected from the patient's cannulae and after remaining on the drip stand for an unspecified length of time, are subsequently reconnected and reused, posing an infection risk.

Once disconnected from the patient, an administration set should be discarded.

Vile vials

MHRA has been made aware of users repeatedly accessing single dose vials and intravenous bags. This is associated with the risk of cross infection and should be avoided.

You crack me up

During central venous catheter site dressing changes, the use of some alcohol-based disinfectants may cause degradation of the catheter.

Users are reminded to refer to the manufacturer's instructions.

Safeguarding public health

MEDICAL DEVICE ALERT

Issued: 13 July 2006 at 15:00

Ref: MDA/2006/

- Immediate action
- Action
- Update
- Information request

Device:

Guidant implantable pacemaker and implantable defibrillator, NEXUS, CONTACT RENEWAL TR, CONTACT VENTAK PRIZM 2 VITALITY, VITALITY 2 – See list of numbers distributed in the UK and the Republic of Ireland at <http://www.mhra.gov.uk>

Problem:

Recall due to component failure.

Action by:

All cardiologists, cardiothoracic surgeons and cardiac physiologists who implanted with any of these devices.

Action:

See actions on Page 3.

Distributed to:

NHS trusts in England – Chief Executive
Healthcare Commission (CHA) – Headquarter

Contacts:

Details of manufacturer, National Pacing and ICD Database and MHF technical and clinical aspects.
Change of address or removal from address list for Healthcare Commission
UK Dear Doctor Letter 28 June 2006.

Appendix:

UK Dear Doctor Letter 28 June 2006.

Action deadlines for the Safety Alert Broadcast

Deadline (action underway): 11 August 2006

Implantable Defibrillators, Pacemakers and Leads: Reporting Adverse Events



What Should I report?

Loss of functionality or non-delivery of therapy
e.g. Loss of pacing, shock therapy, telemetry or programmed settings.

Inappropriate delivery of therapy

Delay in delivery of therapy

Backup and safety mode pacing
If unexplained, and/or irreversible, but not due to normal battery depletion.

Unexpected battery depletion
Rapid or premature, given device age and programmed settings.

Uncertain battery status and longevity indicators
If unclear, conflicting or missing, given follow-up frequency.

Programming problems
Any unexpected anomalies during programming that could have an adverse clinical effect.

Change in lead impedance
Grossly abnormal lead impedance changes.

Why Should I Report?

Reporting adverse events helps the MHRA identify and address device-related safety problems.

How Can I Report?

Online at www.mhra.gov.uk

Or download a form from www.mhra.gov.uk and e-mail to: alic@mhra.gsi.gov.uk

or Fax: 020 7084 3109 Hotline: 020 7084 3080

Important Safety Information

Immediate Action after an Adverse Incident

1. Quarantine Device if removed
2. Report to MHRA
3. Contact the manufacturer / UK distributor



MHRA Recommendations

- Device local protocol to facilitate adverse incident reporting.
- Ensure new staff and locums are made aware of reporting procedures.



This notice is published by the Medicines and Healthcare products Regulatory Agency (MHRA) and is intended to produce the best possible outcomes. The MHRA is an executive agency of the Department of Health.



OUTCOMES



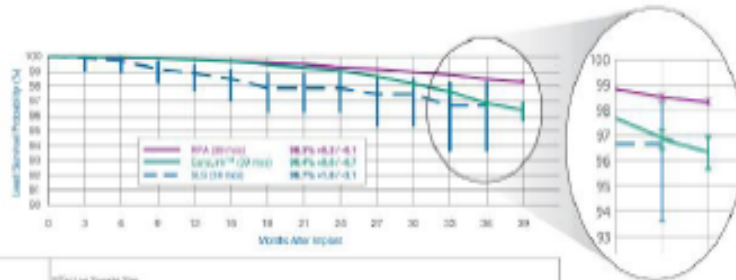
2008: >9000 adverse events reported

- 100 Medical Device Alerts***
- 571 improve design, quality systems, processes***
- 844 field safety corrective actions***
- 470 advice on safer use, training***

SPRINT FIDELIS ICD

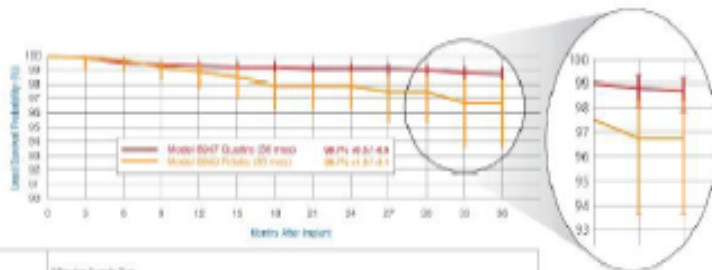


Sprint Fidelis: Lead Survival Probability (RPA, SLS,⁴ and CareLink Network)



Model #443	Effect Size Sample Size											
	0-3 mo	3-6 mo	6-9 mo	9-12 mo	12-15 mo	15-18 mo	18-21 mo	21-24 mo	24-27 mo	27-30 mo	30-33 mo	33-36 mo
RPA	185,526	182,175	178,788	182,315	144,052	130,578	116,684	92,108	87,284	68,879	44,888	31,880
CareLink [®]	21,510	21,642	21,240	18,874	20,527	19,287	17,121	15,808	15,299	13,586	11,792	11,254
SLS	700	726	911	916	881	988	971	1,011	1,144	1,056	766	528

Sprint Fidelis: Lead versus Quattro[®] Lead SLS Survival Probability



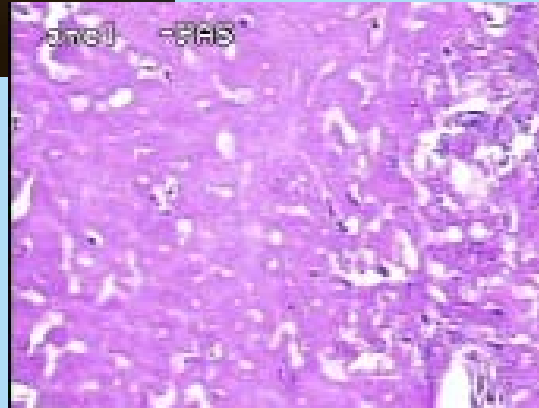
Model	Effect Size Sample Size											
	0-3 mo	3-6 mo	6-9 mo	9-12 mo	12-15 mo	15-18 mo	18-21 mo	21-24 mo	24-27 mo	27-30 mo	30-33 mo	33-36 mo
Model 6047 Quattro	1,387	1,300	1,231	1,177	1,036	1,076	1,104	912	937	839	694	607
Model 6043 Fidelis	735	726	696	626	612	661	671	364	312	266	161	123

- new type of lead*
- flexibility*
- lead conductor fracture*
- inappropriate shocks*
- removal from market*
- advice to clinicians*

LABCOR HEART VALVES



- friable annular tissue*
- endocarditis-type changes*
- early valve failure*
- deaths*



...but advising satisfactorily and scientifically can be a problem.....

INFORMATION TO REGULATOR

- ❑ *launched April 2001*
 - ❑ *31,000 worldwide*
 - ❑ *report September 2003 (2 further)*
 - ❑ *analysis early 2004*
 - ❑ *meeting with manufacturer*
-
- *battery problems 2002*
 - *damage during assembly, manufacturing*
 - *improved manufacturing techniques*
 - *improved quality control*
 - *risk 1/10,000*



HOWEVER IN 2005.....

- ❑ *9 further premature battery depletions (87,000)*
- ❑ *further analysis by manufacturer*
- ❑ *further meeting with manufacturer*
 - *weakness in battery design*
 - *short circuit between internal battery components*
 - *time indeterminate*
 - *shorter time where substantial power consumption*



Medicines and Healthcare products
Regulatory Agency

Medical Device ALERT

Ref. MDA/2005/018
Issued: 17 March 2005

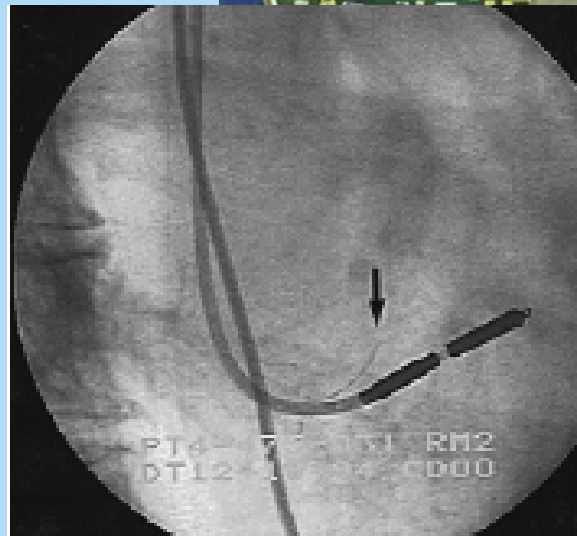
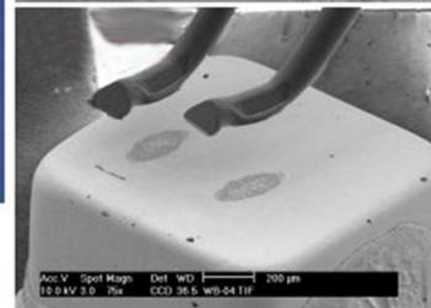
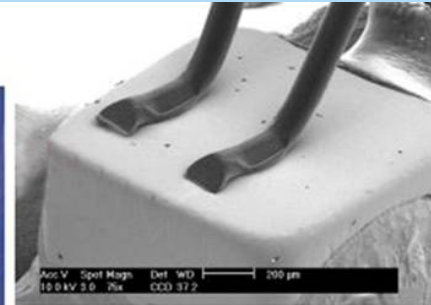
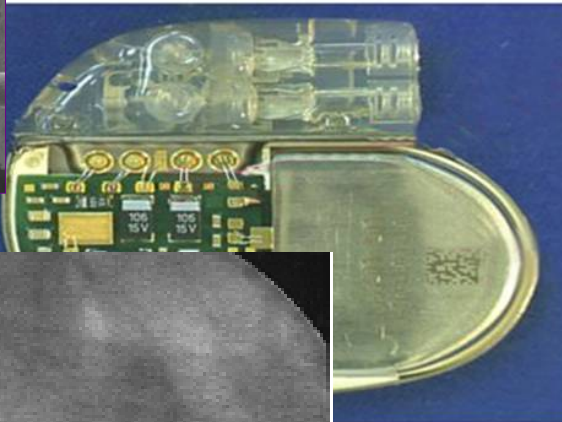
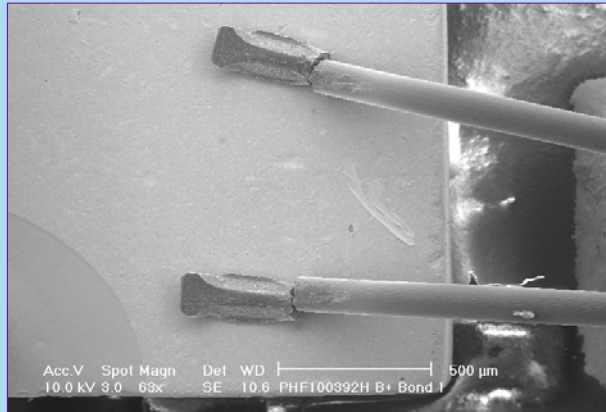
For:

IMMEDIATE ACTION	
ACTION	✓
UPDATE	✓
INFORMATION REQUEST	

	Further Information
DEVICE: Medtronic implantable cardioverter defibrillator (ICD) - various models.	▶
PROBLEM: Battery defect: possible rapid depletion without warning.	▶
ACTION BY: All cardiologists and cardiac technicians managing patients with the above devices.	
ACTION: Clinicians are advised to: <ul style="list-style-type: none"> Identify and return to Medtronic any un-implanted devices (a full list of UK affected serial numbers is available on the MHRA website). Ensure that patient follow-up intervals are no longer than three months, giving priority to dependant patients/those receiving frequent discharges. Inform all patients to contact their follow-up centre without delay if their implant emits battery voltage warning tones. Consider additional actions on page three. 	▶
DISTRIBUTED to: NHS Trusts (England) - Chief Executives* Healthcare Commission (CHA) - Headquarters Primary Care Trusts (England) - Chief Executives* <small>* via CE Bulletin</small>	▶
CONTACTS: Details of manufacturer contacts, MHRA contacts for technical and clinical aspects. Change of address or removal from address list for Healthcare Commission.	▶

- identify, return*
- follow up max 3 months*
- re-programme*
- handheld magnet test*
- patient education*
- immediate follow up*
 - *alternating tone*
 - *lack steady tone*
 - *persistent arrhythmia*
 - *warm sensation, pain*
- elective replacement*

OTHER EXAMPLES



ACTIONS FOR REGULATOR



- ❑ *?random failure (1/10,000), root cause analysis*

- ❑ *consult manufacturer*
 - *true facts, figures*
 - *any interim actions taken*

- ❑ *consult clinician*
 - *appropriate advice to clinicians/uniformity*
 - *advice to patients*

- ❑ *risk/benefit analysis*

RISK/BENEFIT ANALYSIS



- ❑ failure rates (real and estimated)
- ❑ explant effects on mortality, morbidity, quality of life
 - infection to re-op 2%
 - haematomas to re-op 2.5%
 - death 0.5-1%
- ❑ subgroup identification (avoid inappropriate action)
- ❑ costs to health service

ORIGINAL CONTRIBUTION

Management of Recalled Pacemakers and Implantable Cardioverter-Defibrillators: A Decision Analysis Model

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David R. Mactchar, MD
Mark A. Wood, MD
Kenneth A. Ellenbogen, MD

Context: Limited information exists to direct clinical management after an implantable device has been put under advisory. A better understanding of the risks and benefits of device replacement compared with continued clinical follow-up would be helpful to clinicians.

Objective: Using the tools of decision analysis, to determine the best management approach (immediate device replacement vs continued monitoring) in the setting of a device advisory.

Design: A decision model was constructed to evaluate the risks and benefits associated with immediate device replacement compared with continued monitoring.

Main Outcome Measures: variables considered included indications for device implantation, anticipated course following device failure, device failure rates from the advisory ranging from 0.0001% to 1.0% per year, and device replacement mortality rates ranging from 0.10% to 1.00% per procedure. Device replacement was preferred to continued follow-up when replacement led to greater patient survival.

Results: The decision to replace a recalled device depends primarily on the advisory's estimated device failure rate and the likely effects of device failure on mortality. Procedural mortality is an important secondary factor, while patient age and retaining generator life have the least influence on the decision. For pacemaker-dependent patients, advisory device failure rates exceeding 0.1% warrant device replacement in most situations. In patients with implantable cardioverter-defibrillators for primary or secondary prevention, a failure rate associated with an advisory of 1.0% is needed to favor replacement in most cases, decreasing to close to 1.0% as procedural mortality rates decrease to 0.1% or risk of fatal arrhythmias increase to near 20% per year. In cases of pacemaker implantation for non-life-threatening situations (eg, cardiac sinus bradycardia), most device advisories do not warrant device replacement.

Conclusions: The decision to replace a device under advisory is determined primarily by the incidence of device malfunction and the likely effect of device failure. This analysis provides a framework for managing recalled devices in the context of device, patient, and institutional characteristics.

DOI: 10.1093/ajcp/24.4.242

www.jama.com

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PROBLEMS

- no common reporting strategy*
- determining action thresholds*
- determining timing of action*

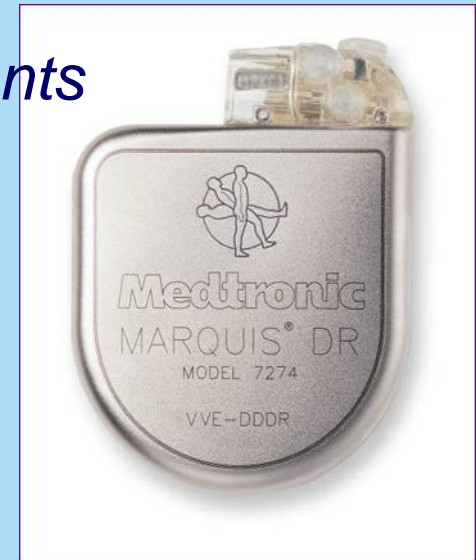
- do not report/time delays*
- time delays with analysis results*
- obtaining numerators/denominators*
- obtaining comparative data*

- persuading clinicians to report/inadequate reports*
- obtaining device for analysis*
- determining explantation morbidity*
- obtaining UK/ European/global consensus*

EVENTUAL OUTCOMES



- ❑ *95 confirmed failures (0.09%)*
- ❑ *37,000 explanted worldwide*
- ❑ *only patient injury/death from explants*



*advising clinicians and
ensuring patient safety
involves co-operation
and communication.....*

- *adverse events*
- *trends*
- *results post market studies*
- *registry information*



Cardiology : MHRA - Microsoft Internet Explorer

Address: http://www.mhra.gov.uk/Safetyinformation/Healthcareproviders/Cardiology/index.htm

Home | Contact us | FAQs | Glossary | Stenap | A-Z Index | Access keys | Help

Advanced search

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In Targeted healthcare professional groups

Cardiology

Welcome to the Cardiology section.

Report medical device adverse incidents | Report a side effect with all other medicines | Yellow Card

Free e-mail alerting service
If you would like to receive an e-mail notification when this section is updated, please subscribe to our **free e-mail alerting service** (see under Safety alerts, messages and guidance/Targeted healthcare professional information on the registration form).

Hot topics

- Abacavir: risk of myocardial infarction - update from epidemiological studies - added 4 August 2009
- Clopidogrel and proton pump inhibitors: possible interaction - added 16 July 2009
- Aliskiren: risk of angioedema and renal dysfunction - added 4 June 2009
- Appointments and reappointments to the Commission on Human Medicines, its Expert Advisory Groups and the Herbal Medicines Advisory Committee - added 4 June 2009
- Off-label or unlicensed use of medicines: prescribers' responsibilities - added 11 May 2009
- Members announced for the Committee on the Safety of Devices
The MHRA and the Appointments Commission are pleased to announce the appointment of two new members to the Committee on the Safety of Devices (CSD). - added 7 May 2009
- Launch of the e-MDA, the web-based UK-wide Medical Device Alert - added 28 April 2009

Recent cardiology-related Medical Device Alerts
Medical devices and equipment are items used for the diagnosis and/or treatment of disease, for monitoring patients, and as assistive technology. Medical Device Alerts (MDAs) are the MHRA's prime means of communicating safety information to medical device users in health and social care. Each MDA is designated either for immediate action or Action. MDAs may also be used to provide updated information.

- 16 June 2009 - Prelude Short Sheath Introducer manufactured by Merit Medical. This has been issued as the sidearm tubing may detach from the sheath during use, which may result in excessive blood loss and potential bloodborne pathogen exposure to those in the surrounding area. - 16 July 2009
- 10 June 2009 - Kappa 600/700/900 series and Sigma 100/200/300 series IPGs manufactured by Medtronic Ltd. This has been issued as certain Kappa® and Sigma® series pacemakers may suffer sudden unexpected failure giving rise to bradycardia symptoms. - 16 July 2009
- 29 April 2009 - Bioprosthetic heart valves. All makes and models. This has been issued due to the premature failure of bioprosthetic heart valves. - added 7 May 2009
- 21 April 2009 - Automatic external defibrillator, Welch Allyn AED 10 (previously branded as MDE, JumoStar). This alert has been issued due to quality and

Printer friendly version (new window)

Related information:

MHRA pages:

- Cardiac pacemakers and defibrillators (implantable)
- Cardiovascular safety of COX-2 inhibitors and non-selective NSAIDs
- Coronary stents
- Drug Alerts
- Drug Safety Update
- Herbal safety advice
- Medical Device Alerts
- MHRA e-mail alerting service
- One Liners
- Stop smoking treatments

Other sites: (open in a new window)

- British Cardiovascular Intervention Society (BCIS)
- British Cardiovascular Society
- Centre for Evidence-based Purchasing
- Heart Rhythm UK
- National Institute for Health and Clinical Excellence (NICE)
- NHS National Library for Health

Help viewing PDFs:

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