

# HAZARD ALERT

## Important Medical Device Advisory

### Premature Battery Depletion with Implantable Cardioverter Defibrillator

**Table 1 – Affected New Zealand Models**

Model	Trade Name	Model	Trade Name	
CD1233-40	Fortify™ VR	CD3251-40	Unify Quadra™	
CD1233-40Q		CD3251-40Q		
CD1235-40	Fortify™ ST VR	CD3255-40	Unify Quadra MP™	
CD1235-40Q		CD3255-40Q		
CD1259-40	Fortify Assura™ VR	CD3261-40	Unify Assura™	
CD1259-40Q		CD3261-40Q		
CD1359-40	Fortify Assura™ VR	CD3267-40	Quadra Assura™	
CD1359-40C		CD3267-40Q		
CD1359-40Q		CD3361-40	Unify Assura™	
CD1359-40QC		CD3361-40C		
CD2233-40		CD3361-40Q		
CD2233-40Q		CD3361-40QC		
CD2235-40	Fortify™ ST DR	CD3367-40	Quadra Assura™	
CD2235-40Q		CD3367-40C		
CD2259-40	Fortify Assura™ DR	CD3367-40Q		
CD2259-40Q		CD3367-40QC		
CD2359-40	Fortify Assura™ DR	CD3371-40		Quadra Assura MP™
CD2359-40C		CD3371-40C		
CD2359-40Q		CD3371-40Q		
CD2359-40QC		CD3371-40QC		
CD3235-40	Unify™			
CD3235-40Q				

11 October, 2016

Dear Doctor,

### Issue

We are advising you of a risk of premature battery depletion associated with St. Jude Medical ICD and CRT-D devices manufactured before May 23, 2015. Affected models include Fortify™, Fortify Assura™, Quadra Assura™, Quadra Assura MP™, Unify™, Unify Assura™ and Unify Quadra™.

Among 398,740 devices sold worldwide, 841 devices returned for analysis due to premature battery depletion have had evidence of lithium material in the form of “clusters” in the battery. Forty-six (46) exhibited visible clusters bridging the cathode and anode causing shorting. Lithium cluster formation is a known phenomenon with this type of battery.

## Health Risk

We are contacting physicians to provide details regarding risk and patient management recommendations because premature battery depletion has been observed to occur within days. There have been 2 deaths that have been associated with the loss of defibrillation therapy as a result of premature battery depletion.

## Action

- Please read and ensure that you understand the content of this notice
- Note the following patient management recommendations
- Ensure relevant staff members are informed of this notice
- Complete and return the Acknowledgement form
- Please follow the instructions provided below
- Please ensure a copy of this letter is kept in a prominent position

## Patient Management Recommendations

In consultation with our Medical Advisory Board, we recommend the following:

- **Do not implant unused affected devices.**
- **Conduct patient follow-up per standard practice.**
- **Prophylactic device replacement is NOT recommended** because complications following replacement have been reported to occur at a greater rate than the rate of harm associated with premature battery depletion due to lithium cluster induced shorts (see appendix for selected references).
- **In the event of an ERI indicator in these devices, immediate device change is recommended.** At this time there is no factor, method or test to identify devices with this form of premature battery depletion approaching ERI or to accurately predict remaining battery life once ERI appears.
- Physicians should reaffirm the availability of remote monitoring to avoid or minimize time without device therapy for bradycardia and tachycardia events.
- **Enroll patients in Merlin.net utilizing the “Direct Alerts” feature** to provide you with an immediate alert notification in the event ERI is reached. For patients currently enrolled in Merlin.net, remind them of the importance of using remote monitoring.
- **Review the most recent Programmed Parameters printout** (see attached for an example).
  - Ensure that under the “**Trigger Alerts When**” section, that the “**Device at ERI**” parameter is **ON** (it is normally ON) for both “Show on FastPath” and “Notify Patient” selections.
  - If the “Device at ERI” alert is OFF, we recommend that the patient be seen promptly to program this parameter ON.
- **Advise patients that an ERI indication triggers a vibratory alert.** At the next scheduled office visit:
  - Interrogate the patient’s device to determine if an ERI alert has been triggered. Premature battery depletion can be identified by physicians through remote monitoring showing ERI or more advanced battery depletion.
  - Perform a patient notifier test to confirm that the patient feels and recognizes the vibratory alert.
  - Patients who cannot feel the vibratory alert may experience loss of battery and/or loss of device function without their awareness.
  - **Advise the patient to contact your office promptly should they feel a vibratory alert.**
    - In-office evaluation should be performed to determine the reason for the alert as other non-critical events can also trigger a vibratory alert.

## Additional Information

### **Mode and Identification of Premature Battery Failure**

High voltage devices (ICDs and CRT-Ds) that utilize Lithium-based battery chemistries are subject to Lithium cluster formation during high voltage charging. Depending on their location, Lithium clusters may cause a short circuit that can lead to premature battery depletion. Our investigation indicates that if a short

circuit occurs, battery depletion can occur in these devices within a day to a few weeks, which may result in the inability to deliver therapy.

Premature battery depletion can be identified by physicians through remote monitoring or in person visits showing ERI or more advanced battery depletion. Patients may become aware when their device reaches ERI because they may feel a vibratory patient notifier alert. Patients who cannot feel the vibratory alert may not know their device has reached ERI. Therefore, we have provided recommendations below that include confirming patients can feel and recognize vibratory alerts and reaffirming the availability and usage of remote monitoring to avoid or minimize time without device therapy for bradycardia and tachycardia events.

### **Estimation of Rate of Premature Battery Failure**

A precise estimate of the rate of premature battery failure is difficult to obtain due to potential underreporting of battery depletion in general and battery depletion which may be due to this failure mode but not recognized.

841 returned devices (0.21%) of 398,740 devices worldwide have premature depletion in association with lithium clusters, including 549 in the US. Forty-six (46) devices worldwide had visible electrical shorting due to lithium clusters. See Table 2 below for details.

At this time 349,852 affected devices are still in service worldwide and, therefore, potentially at risk.

We recognize that individual patients may require unique clinical considerations. If the decision is made to replace an affected device for individual patient circumstances, St. Jude Medical will provide a replacement device at no cost. Please return any explanted devices to SJM for further evaluation.

Should you have questions about patient management, including observed changes in battery longevity, please contact Rupa Kirubakaran, Product Sales Manager or Gerald Russell, Field Technical Manager, on 0800 756 269.

Your St. Jude Medical representative will replace any affected inventory you may have at your centre(s). To determine if a device serial number is subject to this advisory, please go to the following website: [www.sjm.com/batteryadvisory](http://www.sjm.com/batteryadvisory).

This recall action is being taken in consultation with Medsafe, Ministry of Health.

We apologize for any difficulties this causes you and your patients.

Sincerely,



Jeff Fecho  
Vice President, Global Quality



Michael Goldberg  
Managing Director ANZ

Attachments

**APPENDIX**

**Table 2 - Rates**

The table below summarizes the worldwide experience for the affected devices that were returned for product analysis due to premature battery depletion. In these 841 devices, 46 batteries had confirmed shorts due to Lithium clusters that bridged the battery’s cathode and anode. In the remaining 795 devices a battery short was not confirmed by returned product analysis, but the presence of Lithium clusters was noted during battery analysis and no other cause for premature battery depletion was identified. Therefore, we have included both confirmed and unconfirmed shorts in the rate table below to help you assess the risk to your patients:

<b>Patient Impact</b>	<b>Confirmed Shorts / Rate</b>	<b>Unconfirmed Shorts / Rate</b>	<b>Total / Rate</b>
<b>Additional Surgery Only</b>	46 / 0.012%	746 / 0.187%	792 / 0.199%
<b>Loss of Pacing – Minor (Dizziness)</b>	0 / 0.000%	37 / 0.009%	37 / 0.009%
<b>Loss of Pacing – Major (Syncope)</b>	0 / 0.000%	10 / 0.0025%	10 / 0.0025%
<b>Loss of Defibrillation - Death</b>	0 / 0.000%	2 / 0.0005%	2 / 0.0005%
<b>Total</b>	46 / 0.0115%	795 / 0.199%	841 / 0.211%

**Device Replacement Complication Publications**

1) John W. Moore III, William Barrington, et. al.; "Complications of replacing implantable devices in response to advisories: A single center experience"; International Journal of Cardiology 134 (2009) 42–46  
**(5.5% overall, 2.1% major complications)**

2) Paul A. Gould, MBBS, PhD, Lorne J. Gula, MD, et. al.; "Outcome of advisory implantable cardioverter- defibrillator replacement: One-year follow-up"; Heart Rhythm, Vol 5, No 12, December 2008  
**(9.1% overall, 5.9% major complications, including two deaths)**

3) Krystina B. Lewis, Dawn Stacey, R.N., Ph.D, et. al.; “Estimating the Risks and Benefits of Implantable Cardioverter Defibrillator Generator Replacement: A Systematic Review; PACE, Vol. 39, July 2016  
**(7.5% overall, 4.0% major complications)**

# Parameters

## CorVue® Thoracic Impedance Monitoring

Impedance Monitoring Off

Trigger Alerts When	Show on FastPath®	Notify Patient
AT/AF Episode (3 hours)	On	Off
AT/AF Burden (6 hours evaluated daily)	On	Off
V Rate during AT/AF (100 bpm for 6 hours, evaluated daily)	On	Off
A Lead Impedance Out of Range (200 - 2,000 Ω)	On	On
V Lead Impedance Out of Range (200 - 2,000 Ω)	On	On
HV Lead Impedance Out of Range (20 - 125 Ω)	On	Off <sup>a</sup>
Percent V Pacing Alert (>40% over 7 days)	On	
Device at ERI	On	On
Charge Time Limit Reached (32 sec)	On	On
Possible HV Circuit Damage	On	On
Device Parameter Reset	On	On
Backup VVI	On	On

## Patient Notifier Delivery

Vibration Duration	6 sec
Number of Notifications	4
Time Between Notifications	10 hours

## Episode Triggers

Atrial Episode (AMS)	Low
VT (Detection)	High
VF (Detection)	High
PMT	Off
Noise Reversion	Off
Magnet Response	Low
Morphology Template Update	Low

## Stored EGM Configuration

VT/VF EGM Max Duration	1 min
VT/VF Pre-Trigger Max Duration	14 sec
Channels (Storage)	2 (22 min)
Channel 1	A Sense Amp
Channel 2	V Sense Amp