

Adverse Events

Device Malfunction

Was there a device malfunction:

- Yes
- No
- Unknown

Date of event:

Was there a device malfunction:

- In hospital
- Out of hospital
- Unknown

Major pump unit involved:

Check all the apply

- Blood Pump
- Drive Unit Failure
- External Control System Failure

Suspected device Thrombosis:

- Yes
- No
- Unknown

Anticoagulant therapy

At time of event:

- Warfarin
- Heparin
- Lovenox
- Aspirin
- Dipyridamole
- Clopidogrel (plavix)
- Argatroban
- Bivalirudin
- Fondaparinux
- Dextran
- Ticlopidine
- Hirudin
- Lepirudin
- Ximelagatran
- None
- Other specify: _____

Specific component affected:

Check all the apply

- External Battery Malfunction specify: _____
- Internal Battery Malfunction specify: _____
- External Controller Malfunction specify: _____
- Internal Controller Malfunction specify: _____
- Driveline Malfunction specify: _____
- Inflow Graft Malfunction/Malposition specify: _____
- Outflow Graft Malfunction/Malposition specify: _____
- Pump Drive Unit Malfunction specify: _____
- Inflow Valve specify: _____
- Outflow Valve specify: _____
- Volume Compensator Malfunction specify: _____
- Other Component Malfunction, specify specify: _____

Device malfunction intervention:

Check all that apply

- Replacement of External Battery
- Replacement of Internal Battery
- Replacement of External Controller
- Replacement of Internal Controller
- Replacement of Driveline
- Replacement of Inflow Graft
- Replacement of Outflow Graft
- Replacement of Pump
- Repair of Driveline
- Replacement of Pump Valve
- Replacement of Volume Compensator
- Replacement of Other Component specify: _____
- Switch from Vented Electric to Pneumatic-mode
- Other Interventions specify: _____
- None
- Unknown

Surgical procedure required:

- Yes
- No
- Unknown

Device explanted:

- Yes
- No
- Unknown

Did this device malfunction adverse event cause patient's death:

- Yes
- No
- Unknown

Causative or contributing factors to the Device Malfunction:

Check all that apply

- Patient/Device Interaction
- Medical Management (interaction between health system and patient)
- Primary Device Malfunction
- Patient/Disease Related
- End of Pump Life
- No specific contributing cause identified

Major Infection

Was there a major infection:

- Yes
- No
- Unknown

Date infection first diagnosed:

Percutaneous Driveline Infection:

- Yes
- No
- Unknown

Location:

- Superficial Infection
- Deep Infection

Pocket Infection:

- Yes
- No
- Unknown

Pump and/or Cannula Infection:

- Yes
- No
- Unknown

Predominant organism causing infection: Genus Species:

- ACINETOBACTER spp
- ASPERGILLUS
 - Aspergillus fumigatus
 - Aspergillus spp
- BACTEROIDES
 - Bacteroides spp
 - Bacteroides fragilis
- BACILLUS spp
- CANDIDA
 - Candida spp
 - Candida albicans
 - Candida glabrata
- CLOSTRIDIUM
 - Clostridium spp
 - Clostridium perfringens
- CORYNEBACTERIUM spp
- ENTEROBACTER
 - Enterobacter spp
 - Enterobacter cloacae
 - Enterobacter aerogenes
- ENTEROCOCCUS
 - Enterococcus spp
 - Enterococcus faecalis
 - Enterococcus faecalis VRE
 - Enterococcus faecium
 - Enterococcus faecium VRE
- ESCHERICHIA COLI
- KLEBSIELLA
 - Klebsiella spp
 - Klebsiella pneumoniae
 - Klebsiella pneumoniae KPC
 - Klebsiella oxytoca
- PROTEUS
 - Proteus spp
 - Proteus mirabilis
 - Proteus vulgaris
- PSEUDOMONAS
 - Pseudomonas spp
 - Pseudomonas aeruginosa
- SERRATIA
 - Serratia spp
 - Serratia liquefaciens
 - Serratia marcescens
- STAPHYLOCCUS
 - Staphylococcus aureus (MSSA)
 - Staphylococcus aureus (MRSA)

- Staphylococcus Lugdunensis
- Staphylococcus Warneri
- Staphylococcus epidermidis
- Staphylococcus coag-neg, not epidermidis
- STENOTROPHOMONAS
 - Stenotrophomonas spp
 - Stenotrophomonas maltophilia
- STREPTOCOCCUS
 - Streptococcus spp
 - Streptococcus constellatus group
 - Streptococcus Group B/agalactiae
 - Streptococcus Group C/G
 - Streptococcus Group A/Strep pyogenes
 - Streptococcus pneumonia
- OTHER, SPECIFY _____

VAD-related infective endocarditis:

- Yes
- No
- Unknown

Genus Species:

- ACINETOBACTER spp
- ASPERGILLUS
 - Aspergillus fumigatus
 - Aspergillus spp
- BACTEROIDES
 - Bacteroides spp
 - Bacteroides fragilis
- BACILLUS spp
- CANDIDA
 - Candida spp
 - Candida albicans
 - Candida glabrata
- CLOSTRIDIUM
 - Clostridium spp
 - Clostridium perfringens
- CORYNEBACTERIUM spp
- ENTEROBACTER
 - Enterobacter spp
 - Enterobacter cloacae
 - Enterobacter aerogenes
- ENTEROCOCCUS
 - Enterococcus spp
 - Enterococcus faecalis
 - Enterococcus faecalis VRE
 - Enterococcus faecium
 - Enterococcus faecium VRE
- ESCHERICHIA COLI
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 - Klebsiella spp
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 - Streptococcus spp
 - Streptococcus constellatus group
 - Streptococcus Group B/agalactiae
 - Streptococcus Group C/G
 - Streptococcus Group A/Strep pyogenes
 - Streptococcus pneumonia
- OTHER, SPECIFY _____

Bloodstream infection:

- Yes
- No
- Unknown

CVC present:

- Yes
- No
- Unknown

Were there other devices or lines present when the blood cultures were reported positive?:

- Yes
- No
- Unknown

Please list devices:

- Haemodialysis ports
- Short term catheter
- Long term catheter
- AV fistula
- Intracardiac devices
- Pacemaker
- ICD
- Other Intravascular catheters
- PIC/PICC lines
- Orthopedic prosthesis
- Hips/knees
- Other specify: _____

Mediastinitis:

- Yes
- No
- Unknown

Were blood cultures positive with event:

- Yes
- No
- Unknown

Genus Species:

- ACINETOBACTER spp
- ASPERGILLUS
 - Aspergillus fumigatus
 - Aspergillus spp
- BACTEROIDES
 - Bacteroides spp
 - Bacteroides fragilis
- BACILLUS spp
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 - Candida spp
 - Candida albicans
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 - Streptococcus spp
 - Streptococcus constellatus group
 - Streptococcus Group B/agalactiae
 - Streptococcus Group C/G
 - Streptococcus Group A/Strep pyogenes
 - Streptococcus pneumonia
- OTHER, SPECIFY _____

Location:

- VAD-Pocket Involved
- Sternal wound/Bone Involved
- Other, Source (eg. Esophageal perforation)

Non VAD related infection:

- Yes
- No
- Unknown

Were blood cultures positive with event:

- Yes
- No
- Unknown

Genus Species:

- ACINETOBACTER spp
- ASPERGILLUS
 - Aspergillus fumigatus
 - Aspergillus spp
- BACTEROIDES
 - Bacteroides spp
 - Bacteroides fragilis
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 - Streptococcus Group C/G
 - Streptococcus Group A/Strep pyogenes
 - Streptococcus pneumonia
- OTHER, SPECIFY _____

Type:

- Pneumonia/Pulmonary
- Cholecystitis
- Urinary Tract Infection
- Clostridium Difficile
- Other specify: _____

Was the patient known to be penicillin allergic?:

- Yes
- No
- Unknown

Was the organism susceptible to antibiotic therapy?:

- Yes
- No
- Unknown

Was the antibiotic stopped prematurely?:

- Yes
- No
- Unknown

If yes, please choose why:

- Renal Impairment
- Hepatic Impairment
- Allergy to treatment
- Intolerant/Patient Refused

Check all the apply:

- Amikacin _____ days
- Amphotericin _____ days
- Anidulafungin _____ days
- Aztreonam _____ days
- Caspafungin _____ days
- Cefazolin _____ days
- Cefuroxime _____ days
- Ceftazidime _____ days
- Ceftriaxone _____ days
- Cefepime _____ days
- Ceftaroline _____ days
- Ciprofloxacin _____ days
- Co-amox/Clavulanate _____ days
- Daptomycin _____ days
- Ertapenem _____ days
- Flucloxacillin _____ days
- Fluconazole _____ days
- Gentamicin _____ days
- Levofloxacin _____ days
- Linezolid _____ days
- Meropenem _____ days
- Micafungin _____ days
- Pip/Tazobactam _____ days
- Rifampicin _____ days
- Teicoplanin _____ days
- Ticarcillin/Clavulanate _____ days
- Tigecycline _____ days
- TMP/SMX _____ days
- Vancomycin _____ days
- Voriconazole _____ days
- Other specify: _____

Did the infection resolve completely?:

- Yes
- No
- Unknown

Did the patient remain on oral or IV antibiotics indefinitely or until heart transplantation?:

- Yes
- No
- Unknown

Was surgery an intervention for this AE?:

- Yes
- No
- Unknown

If yes, what kind of surgical intervention was carried out?:

- Debridement
- Irrigation of wound
- VAC pump
- Transplantation
- Replacement of new VAD

Re-siting of the driveline

Other

specify: _____

Replacement:

Partial Removal

Complete Removal

Did the patient die?:

Yes

No

Unknown

Neurological Dysfunction

Was there a neurological dysfunction?:

Yes

No

Unknown

Date of event:

Location of patient:

In hospital

Out hospital

Unknown

Neurological dysfunction categories:

TIA

Confusion

CVA

Seizure

Encephalopathy

Type of CVA:

Ischemic

Hemorrhagic

Other

Stroke severity:

Left sided weakness

Right sided weakness

Left sided paralysis

Right sided paralysis

Speech deficit

Altered mental status

Coma

Other

specify: _____

Seizure type:

Generalized

Focal

Encephalopathy type:

Metabolic

Anoxic

Traumatic

Other

**Did this Neurological Dysfunction
Adverse Event contribute to the
patient's death:**

Yes

No

Unknown

Anticoagulant therapy at time of event:

Check all that apply

- Warfarin
- Heparin
- Lovenox
- Aspirin
- Dipyridamole
- Clopidogrel (plavix)
- Argatroban
- Bivalirudin
- Fondaparinux
- Dextran
- Ticlopidine
- Hirudin
- Lepirudin
- Ximelagatran
- None
- Other

specify: _____

Major Bleeding

Was there a major bleeding event?:

- Yes
- No
- Unknown

AN EPISODE OF SUSPECTED INTERNAL OR EXTERNAL BLEEDING THAT RESULTS IN ONE OR MORE OF THE FOLLOWING:

1. Death,
2. Re-operation,
3. Hospitalization,
4. Transfusion of red blood cells

Date of bleeding episode onset:

Location of patient:

- In hospital
- Out hospital
- Unknown

Did the major bleeding episode result in one or more of the following?:

- Episode resulted in Death
- Episode resulted in re-operation
- Episode resulted in rehospitalization
- Episode resulted in transfusion

Source/cause/location of bleeding:

Check all that apply

- Mediastinal: chest wall
- Mediastinal: outflow-aorta anastomosis
- Mediastinal: outflow conduit
- Mediastinal: inflow conduit
- Mediastinal: aortic-venous cannulation site
- Mediastinal: coagulopathy with no surgical site
- Mediastinal: other surgical site
- Pump pocket
- Mediastinal: Unspecified
- Pleural space
- Intra-abdominal
- Retroperitoneal

- Pulmonary
- Device anastamosis
- Urinary tract
- GI: Upper gastrointestinal (esophagus, stomach, duodenum, small bowel)
- GI: Lower gastrointestinal (colon, rectum, and anus)
- GI: unknown, but guaiac positive stools
- ENT/Dental
- Other specify: _____

Did the bleeding episode occur during the 1st 7 days post implant?:

Yes
 No

Did the patient receive more than 4 units during any 24 hour period of the bleeding episode?:

Yes
 No

Did the bleeding episode occur 8 or more days post implant?:

Yes
 No

If yes, did the patient receive 1 Or more units during any 24 hour period of the bleeding episode?:

Yes
 No

- Anticoagulant therapy at time of event:**
Check all that apply
- Warfarin
 - Heparin
 - Lovenox
 - Aspirin
 - Dipyridamole
 - Clopidogrel (plavix)
 - Argatroban
 - Bivalirudin
 - Fondaparinux
 - Dextran
 - Ticlopidine
 - Hirudin
 - Lepirudin
 - Ximelagatran
 - None
 - Other specify: _____

Death

Is the patient deceased?:

Yes
 No

Death date:

Was device functioning normally:

Yes
 No
 Unknown

Location of death:

- In hospital
- Out hospital
- Unknown

Timing of death:

- Expected
- Unexpected
- Unknown

Primary cause of death:

- Respiratory: Venous Thromboembolism Event
- Respiratory: Respiratory Failure
- Respiratory: Pulmonary: Other specify: _____
- Circulatory: Arterial Non-CNS Thromboembolism
- Circulatory: Myocardial Infarction
- Circulatory: Myocardial Rupture
- Circulatory: Ruptured Aortic aneurysm
- Circulatory: Right Heart Failure
- Circulatory: Major Bleeding
- Circulatory: Cardiac Arrhythmia
- Circulatory: Hemolysis
- Circulatory: Hypertension
- Circulatory: Other specify: _____
- Circulatory: Sudden unexplained death
- Circulatory: CHF
- Circulatory: Heart Disease
- Circulatory: End Stage Cardiomyopathy
- Circulatory: Ischemic Cardiomyopathy
- Circulatory: Pericardial Fluid Collection
- Digestive: Hepatic Dysfunction
- Digestive: Renal Dysfunction
- Digestive: GI Disorder
- Digestive: Fluid/Electrolyte Disorder
- Digestive: Pancreatitis
- Nervous System: Neurological Dysfunction
- Psychiatric Episode/Suicide
- Major Infection
- Device Malfunction
- MSOF
- Withdrawal of Support specify: _____
- Other: Wound Dehiscence
- Other: Trauma/accident specify: _____
- Other: Cancer
- Endocrine
- Hemotological
- Other specify: _____
- Cardiovascular, Other specify: _____

Explant

**Explant: For Device Exchange,
Recovery or Transplant:**

- Yes
- No

Device Type:

- LVAD
- RVAD
- Both (in the same OR visit)
- Total Artificial Heart

Explant date:

Explant Reason:

- Transplant
- Device Malfunction - Elective
- Device Malfunction – Emergent
- Device Thrombosis – Elective
- Device Thrombosis – Emergent
- Infection – Emergent
- Infection – Elective
- Ventricular Recovery – Device removed
- Ventricular Recovery – Device not removed but turned off
- Other specify: _____

Transplant date:

Waitlist ID:

Respiratory Failure

Did an impairment of respiratory function requiring reintubation, tracheostomy, or the inability to discontinue ventilator support within six days post-VAD implant?:

- Yes
- No
- Unknown

Date of event:

Intubation duration:

days

Was a tracheotomy performed:

- Yes
- No
- Unknown

Right Heart Failure

Did the patient have signs or symptoms of Right Heart Failure?:

- Yes
- No
- Unknown

Date of event:

Indication of SEVERE RIGHT HEART FAILURE:

Implantation of a right ventricular assist device (RVAD) indicates a SEVERE RIGHT HEART FAILURE

Indication of MODERATE RIGHT HEART FAILURE:

- Was the patient on IV inotrope therapy or inhaled nitric oxide at 1 week or more post-implant?:
- Yes
 - No
 - Unknown

Indication of MILD RIGHT HEART FAILURE: The patient must have experienced at least 2 of the questions listed below to constitute MILD RIGHT HEART FAILURE:

- Does the patient show evidence of elevated CVP pressure (dilated IVC, IVS with collapse, physical exam – signs of increased jugular venous pressure)?:
- Yes
 - No
 - Unknown

- Does the patient have a CVP or mean RA Pressure greater than 18 mmHg?:
- Yes
 - No
 - Unknown

- Does the patient have ascites or evidence of moderate to severe peripheral edema?:
- Yes
 - No
 - Unknown

- Does the patient have a CI less than 2.3L/min/M² (by Swan)?:
- Yes
 - No
 - Unknown