

Intermacs Implant

Implant Date

Durable Implantable VAD Support

Device type

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

Please remember to fill out the RHF adverse event form

Approach to insertion

- ☐ Full Sternotomy
☐ Right thoracotomy only
☐ Percutaneous
☐ Left subcostal
☐ Right subcostal
☐ Left Thoracotomy only
☐ Bilateral Thoracotomy
☐ Axillary (cut down)
☐ Left Thoracotomy plus Mini Sternotomy
☐ Left Thoracotomy to Right Mini Sternotomy
☐ Unknown
☐ Other, specify

LVAD device brand

- ☐ HeartMate IP
☐ HeartMate VE
☐ Novacor PC
☐ Novacor PCq
☐ HeartMate XVE
☐ Thoratec IVAD
☐ Medtronic HVAD
☐ Berlin Heart EXCOR (paracorporeal)
☐ Micromed DeBakey VAD - Child
☐ Thoratec PVAD
☐ HeartMate II LVAS
☐ HeartMate III
☐ Abiomed BVS 5000
☐ Abiomed AB5000
☐ TandemHeart
☐ Thoratec Centrimag (Levitronix)
☐ Sorin Revolution
☐ Abiomed Impella CP
☐ Abiomed Impella 2.5
☐ Abiomed Impella 5.0
☐ Abiomed Impella RP
☐ Abiomed Impella 5.5

Temporary: Other, specify:

LVAD: Serial Number

ST: ☐ Unknown

LVAD: cannulae location-inflow

- ☐ Left ventricle, Apex
☐ Left ventricle, Diaphragmatic surface
☐ Left atrium, Interatrial groove
☐ Left atrium, Left atrial appendage
☐ Left Atrium, Dome Left Atrium
☐ Right Atrium (Option for Adult Congenital Cases)
☐ Right Ventricle (Option for Adult Congenital Cases)
☐ Unknown
☐ Other, specify

LVAD: cannulae location-outflow

- ☐ Ascending aorta
☐ Descending thoracic aorta
☐ Abdominal aorta
☐ Left subclavian artery
☐ Right subclavian artery
☐ Unknown
☐ Other, Specify

RVAD device brand

- ☐ Thoratec IVAD
☐ Medtronic HVAD
☐ Berlin Heart EXCOR (paracorporeal)
☐ Thoratec PVAD
☐ HeartMate III
☐ Abiomed BVS 5000
☐ Biomedicus
☐ Abiomed AB5000
☐ TandemHeart
☐ Thoratec Centrimag (Levitronix)
☐ Sorin Revolution
☐ Abiomed Impella CP
☐ Abiomed Impella 2.5
☐ Abiomed Impella 5.0
☐ Abiomed Impella RP
☐ Abiomed Impella 5.5

RVAD, Temporary: Other, specify:

RVAD: Approach to insertion

- ☐ Full Sternotomy
☐ Right thoracotomy only
☐ Percutaneous

- ☐ Left subcostal
- ☐ Right subcostal
- ☐ Left Thoracotomy only
- ☐ Bilateral Thoracotomy
- ☐ Axillary (cut down)
- ☐ Left Thoracotomy plus Mini Sternotomy
- ☐ Left Thoracotomy to Right Mini Sternotomy
- ☐ Unknown
- ☐ Other, specify

RVAD: Serial Number

ST: ☐ Unknown

RVAD: cannulae location-inflow

- ☐ Right atrium
- ☐ Right ventricle
- ☐ Left Atrium (option for adult congenital cases)
- ☐ Left Ventricle (option for adult congenital cases)
- ☐ Unknown
- ☐ Other, Specify

RVAD: cannulae location-outflow

- ☐ MPA (main pulmonary artery)
- ☐ LPA (left pulmonary artery)
- ☐ RPA (right pulmonary artery)
- ☐ Aorta
- ☐ Conduit
- ☐ Unknown
- ☐ Other, Specify

TAH device brand

- ☐ SynCardia TAH - 50cc
- ☐ SynCardia TAH - 70cc
- ☐ AbioCor TAH
- ☐ Other, Specify

TAH: Serial Number

ST: ☐ Unknown

Anticipated need for RVAD

- ☐ Planned (decision for insertion made prior to surgical incision)
- ☐ Unplanned (unanticipated complication)
- ☐ Unknown

The association of the right heart failure event should be classified as:

- ☐ Patient related e.g., pre-implant right heart failure, volume overload secondary to non-adherence with medical management, severe aortic regurgitation, cardiorenal syndrome, arrhythmia induced, pulmonary disease, elevated pulmonary vascular resistance
- ☐ Management related e.g., related to implant surgery, volume overload, inotropic agent withdrawal

- ☐ Device related e.g., associated with Pump malfunction, outflow graft compromise
- ☐ No association identified

Associated findings
Surgical observations or Intraoperative TEE

- ☐ PFO / ASD
- ☐ Aortic Insufficiency
- ☐ Mitral insufficiency
- ☐ Tricuspid Insufficiency
- ☐ None

Aortic Insufficiency

- ☐ Mild
- ☐ Moderate
- ☐ Severe

Mitral Insufficiency

- ☐ Mild
- ☐ Moderate
- ☐ Severe

Tricuspid Insufficiency

- ☐ Mild
- ☐ Moderate
- ☐ Severe

Is the VAD implant occurring in the setting of a failed cardiac operation (same operation or hospitalization)?

- ☐ Yes
- ☐ No

If yes, select an indication

- ☐ Failure to wean from Cardio Pulmonary Bypass
- ☐ Failure to Wean from ECMO
- ☐ Persistent heart failure following cardiac surgery (same hospitalization)
- Enter cardiac operation:
- ☐ None

Concomitant surgery
Planned or accompanying LVAD procedure

- ☐ None
- ☐ ASD closure
- ☐ PFO closure
- ☐ CABG
- ☐ VSD closure
- ☐ Congenital cardiac surgery, other
- ☐ Aortic Valve Procedure
- ☐ Aortic Valve Surgery - Replacement - Biological
- ☐ Aortic Valve Surgery - Replacement - Mechanical
- ☐ Mitral Valve Surgery - Repair
- ☐ Mitral Valve Surgery - Replacement - Biological
- ☐ Mitral Valve Surgery - Replacement - Mechanical
- ☐ Tricuspid Valve Surgery - Repair - DeVega
- ☐ Tricuspid Valve Surgery - Repair - Ring
- ☐ Tricuspid Valve Surgery - Repair - Other
- ☐ Tricuspid Valve Surgery - Replacement - Biological
- ☐ Tricuspid Valve Surgery - Replacement - Mechanical
- ☐ Tricuspid Valve Surgery - Excision
- ☐ Pulmonary Valve Surgery - Repair
- ☐ Pulmonary Valve Surgery - Replacement - Biological
- ☐ Pulmonary Valve Surgery - Replacement - Mechanical
- ☐ Left ventricular aneurysmectomy
- ☐ Other, specify
- ☐ Arrhythmia surgery (ablation)
- ☐ Ligation of left atrial appendage
- ☐ Temporary MCS Removal (ECMO, IABP removal documented here)

☐ Extracorporeal Membrane Oxygenation (ECMO Insertion)

Indication for CABG

- ☐ Planned (decision for CABG made prior to skin incision)
☐ Unplanned (unanticipated complication)
☐ Unknown

Territories revascularized

- ☐ RCA
☐ LAD
☐ Circumflex
☐ Unknown

Aortic Valve Procedure

- ☐ Full (annular patch or complete leaflet closure)
☐ Partial leaflet closure (Park Stitch or plication leaflet tips only)
☐ Unknown

Mitral Valve Repair

Select all that apply

- ☐ Annuloplasty
☐ Alfieri stitch
☐ Unknown

Annuloplasty

- ☐ Complete ring
☐ Partial band
☐ Unknown

Annuloplasty - Size

mm

ST: ☐ Unknown

Arrhythmia surgery (ablation)

- ☐ Ventricular
☐ Atrial
☐ Unknown

Atrial

Select all that apply

- ☐ Left-sided
☐ Right-sided
☐ Unknown

Left-sided

Select one

- ☐ Pulmonary vein isolation only
☐ Complete left sided lesion set (Maze procedure)
☐ Unknown

Ligation of left atrial appendage

Select one

- ☐ Surgical device (e.g., AtriClip)
☐ Oversew and or staple
☐ Excision
☐ Unknown

Temporary MCS Removal

Select all that apply

- ☐ ECMO decannulation
☐ IABP
☐ RVAD, Temporary
☐ LVAD, Temporary
☐ Other, specify

Temporary RVAD Brand

Select one

- ☐ Abiomed BVS 5000
☐ Biomedicus
☐ Abiomed AB5000
☐ TandemHeart
☐ Thoratec Centrimag (Levitronix)
☐ Sorin Revolution

- ☐ Abiomed Impella CP
- ☐ Abiomed Impella 2.5
- ☐ Abiomed Impella 5.0
- ☐ Abiomed Impella RP
- ☐ Abiomed Impella 5.5
- ☐ Temporary: Other, Specify

Temporary LVAD Brand

Select one

- ☐ Abiomed BVS 5000
- ☐ Abiomed AB5000
- ☐ TandemHeart
- ☐ Thoratec Centrimag (Levitronix)
- ☐ Sorin Revolution
- ☐ Abiomed Impella CP
- ☐ Abiomed Impella 2.5
- ☐ Abiomed Impella 5.0
- ☐ Abiomed Impella RP
- ☐ Abiomed Impella 5.5
- ☐ Temporary: Other, Specify

Extracorporeal membrane oxygenation

- ☐ Veno-venous (VV) ECMO
- ☐ Veno-arterial (VA) ECMO
- ☐ Unknown

Outflow

- ☐ Femoral artery
- ☐ Ascending aorta
- ☐ Descending thoracic aorta
- ☐ MPA (main pulmonary artery)
- ☐ LPA (left pulmonary artery)
- ☐ RPA (right pulmonary artery)
- ☐ Conduit
- ☐ Left subclavian artery
- ☐ Right subclavian artery
- ☐ Femoral (percutaneous)
- ☐ Femoral (cut down)
- ☐ Unknown
- ☐ Other, Specify

Inflow

- ☐ Femoral vein
- ☐ Left atrium, Left atrial appendage
- ☐ Left atrium, Interatrial groove
- ☐ Left ventricle, Apex
- ☐ Left ventricle, Diaphragmatic surface
- ☐ Left atrium, Dome left atrium
- ☐ Right atrium
- ☐ Right ventricle
- ☐ Femoral (percutaneous)
- ☐ Femoral (cut down)
- ☐ Unknown
- ☐ Other, Specify

Was the patient put on Cardiopulmonary Bypass Pump?

- ☐ Yes
☐ No

CPB Time

Enter total cardiopulmonary bypass time

 minutes

- ST: ☐ Unknown
☐ Not Done

Was an aortic cross clamp used?

- ☐ Yes
☐ No
☐ Unknown

Enter duration of the aortic cross clamp time in minutes

 minutes

- ST: ☐ Unknown
☐ Not Done

Temperature:

Lowest body temperature during cardiopulmonary bypass

- ☐ Normothermia (37°C)
☐ Mild hypothermia (32 to <37°C)
☐ Deep hypothermia (<32°C)
☐ Not done

Lowest Hematocrit on pump:

 %

- ST: ☐ Unknown

Highest serum arterial lactate on pump:

 mmol/L

- ST: ☐ Unknown

Surgery Time

Enter total surgery time from primary incision to closure

 minutes

- ST: ☐ Unknown

Status of incision at end of procedure

Select one

- ☐ Open (i.e., delayed sternal closure)
☐ Closed
☐ Unknown

Additional Operative Details

Was left ventricular thrombus present at operation?

If you select Yes, you are confirming that the left ventricular thrombus was removed.

- ☐ Yes
☐ No
☐ Unknown

Was left atrial appendage clot present at operation?

- ☐ Yes
☐ No
☐ Unknown

Was the left atrial appendage clot removed?

- ☐ Yes
☐ No
☐ Unknown

Was palpable atherosclerotic plaque or calcified plaque present in the ascending aorta or aortic arch at operation?

- ☐ Yes
☐ No
☐ Unknown
☐ Did not evaluate

Did the presence of palpable atherosclerotic plaque or calcified plaque change operative plans?

- ☐ Yes
☐ No
☐ Unknown

Was a patent foramen ovale present at operation?

- ☐ Yes
☐ No
☐ Unknown

Was the patent foramen ovale closed?

- ☐ Yes
☐ No
☐ Unknown

Were traction/stabilization sutures utilized to optimize (inlet cannula) LVAD pump position?

- ☐ Yes
☐ No
☐ Unknown

Which deairing techniques were utilized at device implantation?

Select all that apply

- ☐ None
☐ Use of CO2 to flood the operative field
☐ Needle evacuation of air from the outflow graft
☐ Aortic root vent
☐ Left ventricular vent (Right superior pulmonary vein)
☐ Unknown
☐ Other, specify

Was the LVAD procedure complicated by vasoplegia (MAP <60 mmHg requiring > 1 vasopressor to treat or unexpected ECMO) during or following cardiopulmonary bypass in the operating room?

- ☐ Yes
☐ No
☐ Unknown
☐ Not Applicable

Implant Hemodynamics

(At the start of procedure following induction of anesthesia but prior to skin incision):

Heart rate

beats per min

- ST: ☐ Unknown
☐ Not done

Systolic blood pressure

(millimeters of mercury) should be determined from auscultation or arterial line if necessary.

mmHg

- ST: ☐ Unknown
☐ Not done

Diastolic blood pressure

(millimeters of mercury) should be determined from auscultation or arterial line if necessary

mmHg

- ST: ☐ Unknown
☐ Not done

Mean arterial blood pressure

mmHg

- ST: ☐ Unknown
☐ Not done
☐ Not applicable

Pulmonary artery systolic pressure

mmHg

ST: ☐ Unknown
☐ Not done

Pulmonary artery diastolic pressure

mmHg

ST: ☐ Unknown
☐ Not done

Mean Pulmonary Artery Capillary Wedge Pressure

mmHg

ST: ☐ Unknown
☐ Not done

Central Venous Pressure (CVP) or Right Atrial Pressure

mmHg

ST: ☐ Unknown
☐ Not done

Cardiac Index

L/min/M2 (by Swan)

ST: ☐ Unknown
☐ Not done

Was Cardiac Index Measured by Fick or Thermodilution?

☐ Yes
☐ No
☐ Unknown

Choose Method

☐ Fick
☐ Thermodilution

Cardiac output

L/min

ST: ☐ Unknown
☐ Not done

Was Cardiac Output Measured by Fick or Thermodilution?

☐ Yes
☐ No
☐ Unknown

Choose Method

☐ Fick
☐ Thermodilution

Intraoperative Transfusions

Intraoperative transfusions are not counted as a major bleeding event

Were intraoperative blood products or clotting factors given to treat bleeding/coagulopathy?

☐ Yes
☐ No
☐ Unknown

**Check any transfusions or clotting factor
replacements administered:**

- ☐ Packed RBC
- ☐ Prothrombin Complex concentrate
- ☐ Factor VII
- ☐ Platelets
- ☐ Cryoprecipitate
- ☐ Fresh frozen plasma
- ☐ Other

☐ Unknown

Number of packed RBC units:

ST: ☐ Unknown

Number of platelet units:

ST: ☐ Unknown

Number of fresh frozen plasma units:

ST: ☐ Unknown

Number of cryoprecipitate units:

ST: ☐ Unknown