



**The Society of Thoracic Surgeons
Adult Cardiac Surgery Database
Data Collection Form
Version 2.52.1**

A. Administrative

Participant ID: Record ID
 Cost Link Field: STS Trial Link Number: Patient ID

B. Demographics

Last Name: First Name: Patient M.I.: Name Fields Not Harvested
 Date of Birth (mm/dd/yyyy): Patient Age: System Calculation
 Gender: Male Female
 Social Security (or National Patient ID) Number: Not Harvested Medical Record Number: Not Harvested
 Patient ZIP or Postal Code: Race: Caucasian Black Hispanic Asian Native American Other
 Referring Cardiologist's Name: Not Harvested Referring Physician's Name: Not Harvested

C. Hospitalization

Hospital Name: Hospital ZIP Code Hospital State
 Payor: Not Harvested
 Date of Admission: Date of Surgery: Date of Discharge:
 ICU Visit: Yes No If Yes, → Initial ICU Hours:
 Readm to ICU: Yes No If Yes, → Additional ICU Hours
 Total Hours in ICU:

D. Risk Factors

Weight (kg): Height (cm):
 Smoker: Yes No If Yes, → Current Smoker: Yes No
 Family History of Coronary Artery Disease: Yes No
 Diabetes: Yes No If Yes, select one: → Diabetes Control: None Diet Oral Insulin
 Dyslipidemia: Yes No
 Last Creatinine Level Preop:
 Renal Failure: Yes No If Yes, → Dialysis: Yes No
 Hypertension: Yes No
 Cerebrovascular Accident: Yes No If Yes, → When: Recent <= 2 weeks Remote > 2 weeks
 Infectious Endocarditis: Yes No If Yes, → Infectious Endocarditis Type: Treated Active
 Chronic Lung Disease: No Mild Moderate Severe
 Immunosuppressive Therapy: Yes No
 Peripheral Vascular Disease: Yes No
 Cerebrovascular Disease: Yes No If Yes, → CVD Type: Coma CVA RIND TIA Non Invasive > 75% Prior Carotid Surgery

E. Previous CV Interventions

Incidence: First CV Surgery First Re-op CV Surgery Second Re-op CV Surgery Third Re-op CV Surgery Fourth or More Re-op Surgery
 Previous CV Interventions: Yes No If Yes, complete the rest of this section ↓
 Previous Coronary Artery Bypass: Yes No
 Previous Valve: Yes No
 Previous Other Cardiac – Intrapericardial or Great Vessel: Yes No
 Previous Other Cardiac – AICD: Yes No
 Previous Other Cardiac – Pacemaker: Yes No If Yes, → Previous Other Cardiac – Pacemaker Type: Biventricular Univentricular
 Previous Other Cardiac – PCI: Yes No If Yes, → Previous Other Cardiac – PCI Interval: <= 6 Hours > 6 Hours

F. Preoperative Cardiac Status

Myocardial Infarction: Yes No If Yes, → When: <= 6 hours > 6 hours but <24 hours 1 - 7 days 8 - 21 days > 21 days
Congestive Heart Failure: Yes No
Angina: Yes No If Yes, → Angina Type: Stable Unstable
Cardiogenic Shock: Yes No If Yes, → Cardiogenic Shock Type: Refractory Shock Hemodynamic Instability
Resuscitation: Yes No
Arrhythmia: Yes No If Yes, → Arrhythmia Type: Sust VT/VF Heart Block AFib/Flutter None
Classification - NYHA: I II III IV

G. Preoperative Medications

Beta Blockers: Yes No
ACE Inhibitors: Yes No
Nitrates I.V.: Yes No
Anticoagulants: Yes No If Yes, → Anticoagulants Medication Name: Heparin (Unfractionated) Heparin (Low Molecular) Thrombin Inhibitors
Coumadin: Yes No
Inotropes: Yes No
Steroids: Yes No
Aspirin: Yes No
Lipid-Lowering: Yes No If Yes, → Lipid Lowering Medication Name: Statin Non statin
ADP Inhibitors: Yes No
Glycoprotein IIb/IIIa Inhibitor: Yes No If Yes, → Glycoprotein IIb/IIIa Inhibitor Medication Name: Abciximab (ReoPro)
Eptifibatid (Integrilin)
Tirofiban (Aggrastat)

H. Hemodynamics and Cath

Number of Diseased Coronary Vessels: None One Two Three
Left Main Disease >= 50%: Yes No
Ejection Fraction Done? Yes No If Yes, → Ejection Fraction: _____
Method: LV gram Radionucleotide Estimate ECHO
Pulmonary Artery Mean Pressure Done? Yes No If Yes, → Pulmonary Artery Mean Pressure: _____
Aortic Stenosis: Yes No If Yes, → Gradient: _____
Mitral Stenosis: Yes No
Tricuspid Stenosis: Yes No
Pulmonic Stenosis: Yes No
Aortic Insufficiency: 0=None 1=Trivial 2=Mild 3= Moderate 4= Severe
Mitral Insufficiency: 0=None 1=Trivial 2=Mild 3= Moderate 4= Severe
Tricuspid Insufficiency: 0=None 1=Trivial 2=Mild 3= Moderate 4= Severe
Pulmonic Insufficiency: 0=None 1=Trivial 2=Mild 3= Moderate 4= Severe

I. Operative

Surgeon's Name: _____ Surgeon ID: _____
Status of the procedure: ↓
Elective
Urgent → Reason: AMI IABP Worsening CP CHF Anatomy USA Rest Angina
Valve Dysfunction Aortic Dissection Angiographic Accident
Emergent → Reason: Shock Circ Support Shock No Circ Support Pulmonary Edema AEMI
Ongoing Ischemia Valve Dysfunction Aortic Dissection Angiographic Accident
Emergent Salvage
Robotic Technology Assisted: Yes No

Coronary Artery Bypass: Yes No → If Yes, also complete Section J

Valve Surgery : Yes No → If Yes, also complete Section K

Ventricular Assist Device: Yes No → If Yes, also complete Section L

Other Cardiac Procedure: Yes No → If Yes, also complete Section M

Other Non-Cardiac Procedure: Yes No → If Yes, also complete Section N

Skin Incision Start Time: _____ 24 hour clock Skin Incision Stop Time: _____ 24 hour clock

CPB Utilization: None Combination Full ↓

If Combination, → Combination Plan: Planned Unplanned → If Unplanned, Unplanned Combination Reason: Exposure/visualization

Bleeding
Inadequate size and/or diffuse
disease of distal vessel
Hemodynamic Instability
Conduit quality and/or trauma
Other

If Combination or Full, → Perfusion Time (min): _____

Cannulation Method: → Aorta and Fem/Jug Vein
Fem Art and Fem/Jug Vein
Aorta and Atrial/Caval
Fem Art and Atrial/Caval
Other

Aortic Occlusion: → None

Aortic Crossclamp → If Aortic Crossclamp or Balloon Occlusion, → Cross Clamp Time (min): _____
Balloon Occlusion
Partial Crossclamp

Cardioplegia: Yes No

IABP: Yes No → If Yes, When Inserted: → Preoperatively Intraoperatively Postoperatively

Indication: → Hemodynamic Instab PTCA Support Unstable Angina CPB Wean Prophylactic

Intraop Blood Products: Yes No → If Yes, Red Blood Cell Units _____

Fresh Frozen Plasma Units _____

Cryoprecipitate Units _____

Platelet Units _____

J. Coronary Bypass

Number of Distal Anastomoses with Arterial Conduits: _____

Number of Distal Anastomoses with Venous Conduits: _____

Anastomotic Device Used: Yes No If Yes, → Anastomotic Device: Glue Magnets Clips Staples Other

IMAs Used as Grafts: Left IMA Right IMA Both IMAs No IMA If Left, Right, or Both ↓

IMA Harvest Technique: Direct Vision Thoracoscopy Combination Robotic Assisted

Number of IMA Distal Anastomoses: _____

Radial Artery Used: No Radial Left Radial Right Radial Both Radials If Left, Right, or Both ↓

Number of Radial Artery Distal Anastomoses: _____

Number of Gastro-Epiploic Artery Distal Anastomoses: _____

Number of Other Arterial Distal Anastomoses: _____

K. Valve Surgery

<u>Aortic:</u>	<u>Mitral:</u>	<u>Tricuspid:</u>	<u>Pulmonic:</u>
No	No	No	No
Replacement	Annuloplasty Only	Annuloplasty Only	Replacement
Repair/Reconstruction	Replacement	Replacement	Reconstruction
Root Reconstruction w/ Valve Conduit	Reconstruction w/ Annuloplasty	Reconstruction w/ Annuloplasty	
Replacement + Aortic Graft Conduit	Reconstruction w/out Annuloplasty	Reconstruction w/out Annuloplasty	
Root Reconstruction w/ Valve Sparing		Valvectomy	
Resuspension Aortic Valve with replacement ascending Aorta			
Resuspension Aortic Valve without replacement ascending Aorta			
Resection Sub-Aortic Stenosis			

Annular Enlargement: Yes No

↓ Key M = Mechanical B = Bioprosthesis H = Homograft A = Autograft (Ross) R = Ring/Annuloplasty BA = Band/Annuloplasty

Aortic Prosthesis -	Implant Type:	None M B H A R BA	Implant: _____	Size: _____
Mitral Prosthesis -	Implant Type:	None M B H A R BA	Implant: _____	Size: _____
Tricuspid Prosthesis -	Implant Type:	None M B H A R BA	Implant: _____	Size: _____
Pulmonic Prosthesis -	Implant Type:	None M B H A R BA	Implant: _____	Size: _____

Valve Key

Mechanical

ATS Mechanical Prosthesis = M1
 Björk-Shiley Convex-Concave Mechanical Prosthesis = M2
 Björk-Shiley Monostrut Mechanical Prosthesis = M3
 CarboMedics Mechanical Prosthesis = M4
 CarboMedics Carbo-Seal Ascending Aortic Valved Conduit Prosthesis = M16
 CarboMedics Carbo-Seal Valsalva Ascending Aortic Valved Conduit Prosthesis = M17
 CarboMedics Reduced Cuff Aortic Valve = M18
 CarboMedics Standard Aortic Valve = M19
 CarboMedics Top-Hat Supra-annular Aortic Valve = M20
 CarboMedics OptiForm Mitral Valve = M21
 CarboMedics Standard Mitral Valve = M22
 CarboMedics Orbis Universal Valve = M23
 CarboMedics Small Adult Aortic and Mitral Valves = M24
 Edwards Tekna Mechanical Prosthesis = M5
 Lillehei-Kaster Mechanical Prosthesis = M6
 MCRI On-X Mechanical Prosthesis = M10
 Medtronic-Hall/Hall Easy-Fit Mechanical Prosthesis = M7
 Medtronic ADVANTAGE Mechanical Prosthesis = M25
 OmniCarbon Mechanical Prosthesis = M8
 OmniScience Mechanical Prosthesis = M9
 Sorin Bicarbon (Baxter Mira) Mechanical Prosthesis = M11
 Sorin Monoleaflet Allcarbon Mechanical Prosthesis = M12
 St. Jude Medical Mechanical Prosthesis or St. Jude Medical® Mechanical Heart Valve = M13
 SJM® Masters Series Mechanical Heart Valve = M26
 SJM® Masters Series Aortic Valve Graft Prosthesis = M27
 St. Jude Medical® Mechanical Heart Valve Hemodynamic Plus (HP) Series = M28
 SJM® Masters Series Hemodynamic Plus Valve with FlexCuff™ Sewing Ring = M29
 SJM Regent™ Valve = M30
 Starr-Edwards Caged-Ball Prosthesis = M14
 Ultracor Mechanical Prosthesis = M15

Bioprosthetic

Baxter Prima Stentless Porcine Bioprosthesis – Subcoronary = B24
 Baxter Prima Stentless Porcine Bioprosthesis – Root = B25
 Biocor Porcine Bioprosthesis = B3
 Biocor Stentless Porcine Bioprosthesis – Subcoronary = B26
 Biocor Stentless Porcine Bioprosthesis – Root = B27
 CarboMedics PhotoFix Pericardial Bioprosthesis = B5
 Carpentier-Edwards Duraflex Porcine Bioprosthesis = B28
 Carpentier-Edwards Prima Plus Stentless Porcine Bioprosthesis – Subcoronary = B29
 Carpentier-Edwards Prima Plus Stentless Porcine Bioprosthesis – Root = B30
 Carpentier-Edwards PERIMOUNT Pericardial Bioprosthesis = B6
 Carpentier-Edwards Standard Porcine Bioprosthesis = B7
 Carpentier-Edwards Supra-Annular Aortic Porcine Bioprosthesis = B8
 Cryolife O'Brien Stentless Porcine Bioprosthesis – Subcoronary = B31
 Cryolife O'Brien Stentless Porcine Bioprosthesis – Root = B32
 Hancock Standard Porcine Bioprosthesis = B10
 Hancock II Porcine Bioprosthesis = B11

Hancock Modified Orifice Porcine Bioprosthesis = B12
 Ionescu-Shiley Pericardial Bioprosthesis = B13
 Labcor Stented Porcine Bioprosthesis = B14
 Labcor Stentless Porcine Bioprosthesis – Subcoronary = B33
 Labcor Stentless Porcine Bioprosthesis – Root = B34
 Medtronic Freestyle Stentless Porcine Bioprosthesis – Subcoronary = B35
 Medtronic Freestyle Stentless Porcine Bioprosthesis – Root = B36
 Medtronic Intact Porcine Bioprosthesis = B17
 Medtronic Mosaic Porcine Bioprosthesis = B18
 Medtronic Contegra Bovine Jugular Bioprosthesis = B37
 Mitroflow Pericardial Bioprosthesis = B19
 St. Jude Medical - Toronto SPV Stentless Porcine Bioprosthesis or SJM Toronto SPV® Valve = B21
 St. Jude Medical-Bioimplant Porcine Bioprosthesis = B22
 SJM Biocor™ Valve = B38
 SJM Epic™ Valve = B39
 SJM Toronto Root™ Bioprosthesis = B40
 Sorin Pericarbon Stentless Pericardial Bioprosthesis = B20

Homograft

CryoLife Aortic Homograft = H6
 CryoLife Pulmonary Homograft = H7
 CryoLife CryoValve SG(Decellularized)Aortic Homograft = H8
 CryoLife CryoValve SG Pulmonary Homograft = H9
 Homograft Aortic – Subcoronary = H1
 Homograft Aortic Root = H2
 Homograft Mitral = H3
 Homograft Pulmonic Root = H4
 LifeNet CV Allografts = H10

Autograft

Pulmonary Autograft to aortic root (Ross Procedure) = A1

Ring - Annuloplasty

CarboMedics AnnuloFlo Ring = R8
 CarboMedics AnnuloFlex Ring = R9
 CarboMedics CardioFix Bovine Pericardium with PhotoFix Technology = R10
 Carpentier-Edwards Classic Annuloplasty Ring = R1
 Carpentier-Edwards Physio Annuloplasty System Ring = R2
 Cosgrove-Edwards Annuloplasty System Ring = R3
 Edwards MC³ Tricuspid Annuloplasty System G Future Band = R11
 Genesee Sculptor Annuloplasty Ring = R12
 Medtronic Sculptor Ring = R4
 Medtronic-Duran AnCore Ring = R5
 Sorin-Puig-Messana Ring = R6
 St. Jude Medical Sequin Ring or SJM® Séguin Annuloplasty Ring = R7
 SJM Tailor™ Annuloplasty Ring = R13

Band – Annuloplasty

Medtronic Colvin Galloway Future Band = Ba1
 Medtronic Duran Band = Ba2
 Medtronic Duran – Ancore Band = Ba3

Other = 777

L. VAD

Previous VAD: Yes No

Please note that future references to "initial VAD" refer to the initial VAD for this hospitalization, not a VAD placed during a previous hospitalization.

Current Circulatory Support: For Initial VAD only

Indication for VAD: (Bridge to Transplant) (Bridge to Recovery) (Destination) (Separation from CPB) (Device Malfunction)

Intubated Pre VAD: Yes No

Hemodynamics Pre VAD: May be obtained Prior to induction in the OR, or in an ICU immediately prior to OR

PCWP: ___mm/Hg CVP: ___mm/Hg PVR: ___woods units CI: ___L/(min x m2)

RV Function: (Normal) (Mildly Impaired) (Moderately Impaired) (Severely Impaired)

RV Function method: ___ (Pre-op ECHO) (Intra-op pre VAD TEE)

VO2 Measured: Yes No

Peak VO2: ___ml/kg/min

VAD Device Data:

Implant Type: Fill in below: (RVAD) (LVAD) (BIVAD)

Product Type: Fill in below: 1. HeartQuest VAD 2. Lion Heart 3. Novacor LVAS 4. Heartsaver VAD 5. Jarvik 2000 6. DeBakey VAD 7. TandemHeart pVAD 8. AB-180 iVAD 9. CardioWest TAH 10. Thoratec iVAD 11. HeartMate VE 12. HeartMate IP LVAS 13. HeartMate SNAP-VE 14. HeartMate XVE 15. HeartMate II 16. HeartMate III 17. BVS5000i 18. AbioCor 19. InCor 20. ExCor 21. Other

Explant Reason: Fill in below: 1. Cardiac Transplant 2. Recovery 3. Device Transfer 4. Device Related Infection 5. Device Malfunction

Initial Implant Data

Implant Type	Product Type	Implant Date	Explant	Explant Date	Explant Reason	Cardiac Tx	Tx Date
_____	_____	___/___/___	Y N	___/___/___	_____	Y N	___/___/___

Initial VAD Cannulation/Attachment Sites:

LVAD Inflow: (LA) (LV)

RVAD Inflow: (RA) (RV)

Additional Implant(s) Data

Implant(s) Type	Product Type	Implant Date	Explant	Explant Date	Explant Reason	Cardiac Tx	Tx Date
_____	_____	___/___/___	Y N	___/___/___	_____	Y N	___/___/___
_____	_____	___/___/___	Y N	___/___/___	_____	Y N	___/___/___

Primary VAD Complications Data:

Intracranial Bleed: Yes No

Embolic Stroke: Yes No

Driveline/Cannula Infection: Yes No

Pump Pocket Infection: Yes No

VAD Endocarditis: Yes No

Device Malfunction: Yes No

Additional Complications (not specific to initial VAD as above) to be collected in section "P", Complications.

VAD Status: Discharged from hospital: (with VAD) (without VAD)

M. Other Cardiac Procedures

Yes	No	Left Ventricular Aneurysm Repair	Yes	No	Ventricular Septal Defect Repair	Yes	No	Atrial Septal Defect Repair
Yes	No	Batista	Yes	No	Surgical Ventricular Restoration	Yes	No	Congenital Defect Repair
Yes	No	Transmyocardial Laser Revasc	Yes	No	Cardiac Trauma	Yes	No	Cardiac Transplant

Arrhythmia Correction Surgery → None

- Permanent Pacemaker
- Permanent Pacemaker with Cardiac Resynchronization Therapy (CRT)
- Implanted Cardioverter Defibrillator (ICD)
- ICD with CRT

If "Permanent Pacemaker with CRT" or "ICD with CRT", then answer ↓

Arrhythmia Correction Surgery – Lead Placement → Epicardial Endocardial

Atrial Fibrillation Correction Surgery → None

- Standard Surgical Maze Procedure
- Other Surgical Ablative Procedure
- Combination of Standard and Other

If Other or Combo, then answer ↓

- Atrial Fibrillation Surgery – Energy Source →
- Unipolar Radiofrequency
 - Bipolar Radiofrequency
 - Microwave
 - Cryothermia
 - Other
 - Combination of above

Yes	No	Aortic Aneurysm	If Yes, →	Yes	No	Ascending Aorta
				Yes	No	Aortic Arch
				Yes	No	Descending Aorta
				Yes	No	Thoracoabdominal Aorta

Yes No Other

N. Other Non Cardiac Procedures

Yes	No	Carotid Endarterectomy	Yes	No	Other Vascular	Yes	No	Other Thoracic	Yes	No	Other
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O. Post Operative

Blood Products Used Postoperatively: Yes No → If Yes, Red Blood Cell Units _____
 Fresh Frozen Plasma Units _____
 Cryoprecipitate Units _____
 Platelet Units _____

Extubated in OR: Yes No If No, → Initial # Hrs Ventilated Postop: _____

Re-intubated During Hosp Stay: Yes No If Yes, → Addl Hours Ventilated Postop: _____

Total Hours Ventilated Postop: _____

P. Complications

In Hospital Complications: Yes No

Operative:

- Yes No ReOp for Bleeding Tamponade
- Yes No ReOp for Valvular Dysfunction
- Yes No ReOp for Graft Occlusion
- Yes No ReOp for Other Cardiac Problem
- Yes No ReOp for Other Non Cardiac Problem
- Yes No Perioperative MI

Infection:

- Yes No Sternum – Deep
- Yes No Thoracotomy
- Yes No Leg
- Yes No Septicemia

Neurologic: Yes No Postoperative Stroke for >72 hours Yes No Transient Neurologic Deficit Yes No Continuous Coma >=24Hrs	Pulmonary: Yes No Prolonged Ventilation Yes No Pulmonary Embolism Yes No Pneumonia
Renal: Yes No Renal Failure If Yes, ↓ Yes No Dialysis (Newly Required)	Vascular: Yes No Iliac/Femoral Dissection Yes No Acute Limb Ischemia
Other: Yes No Heart Block Yes No Cardiac Arrest Yes No Anticoagulant Complication Yes No Tamponade Yes No Gastro-Intestinal Complication	Yes No Multi-System Failure Yes No Atrial Fibrillation Yes No Aortic Dissection Yes No Other

Q. Mortality

Mortality: Yes No Discharge Status: Alive Dead Status at 30 days after surgery: Alive Dead Unknown

Operative Death: Yes No Only answered if Mortality = Yes

Mortality - Date ___/___/___ (mm/dd/yyyy) Only answered if Mortality = Yes

Location of Death: OR during initial surgery Hospital Home Other Care Facility OR during reoperation Only answered if Mortality = Yes

Primary Cause of Death (select only one): Only answered if Mortality = Yes

Cardiac Neurologic Renal Vascular Infection Pulmonary Valvular Unknown Other

R. Discharge (Note: This section is only answered if Discharge Status is "Alive")

ADP Inhibitors: Yes No

Antiarrhythmics: Yes No If Yes, ↓
 Antiarrhythmics – Discharge – Medication Name: Amiodarone Other

Aspirin: Yes No

Ace-Inhibitors: Yes No

Beta Blockers: Yes No

Lipid Lowering: Yes No If Yes, ↓
 Lipid Lowering – Discharge – Medication Type: Statin Non statin

Coumadin: Yes No

Discharge Location: Home Extended Care/TCU Other Hospital Nursing Home Other

Cardiac Rehabilitation Referral: Yes No Not Applicable

Smoking Cessation Counseling: Yes No Not Applicable

S. Readmission (Note: This section is only answered if Discharge Status is "Alive")

Readmit <=30 Days from Date of Procedure: Yes No ↓ If Yes, select the primary reason and procedure

Readmit Reason:

- Anticoagulation Complication – Valvular
- Anticoagulation Complication - Pharmacological
- Arrhythmias/Heart Block
- Congestive Heart Failure
- Myocardial Infarction and/or Recurrent Angina
- Pericardial Effusion and/or Tamponade
- Pneumonia or other Respiratory Complication
- Coronary Artery Dysfunction
- Valve Dysfunction
- Infection - Deep Sternum
- Infection – Conduit Harvest Site
- Renal Failure
- TIA
- Permanent CVA
- Acute Vascular Complication
- Subacute Endocarditis
- VAD Complication
- Other – Related Readmission
- Other – Nonrelated Readmission

Readmit Reason – Primary Procedure:

- OR for Bleeding
- Pacemaker Insertion/AICD
- PCI
- Pericardiotomy/Pericardiocentesis
- OR for Coronary Arteries
- OR for Valve
- OR for Sternal Debridement/Muscle Flap
- Dialysis
- OR for Vascular
- No Procedure Performed
- Other Procedure
- Unknown