STS National Database™

Trusted. Transformed. Real-Time.

The Society of Thoracic Surgeons

Congenital Heart Surgery Database

February 17, 2026

Agenda

- Welcome and Introduction
- STS Update
- STS Data Manager Education Q&A
  - Preoperative Factor – Shock
  - Operation Type – VAD vs. ECMO
  - Procedure Clarifications – Ozaki

STS Updates

- February Training Manual Posted
  - Note: There were no updates for January
- 2026 Harvest Dates

2026 Harvest

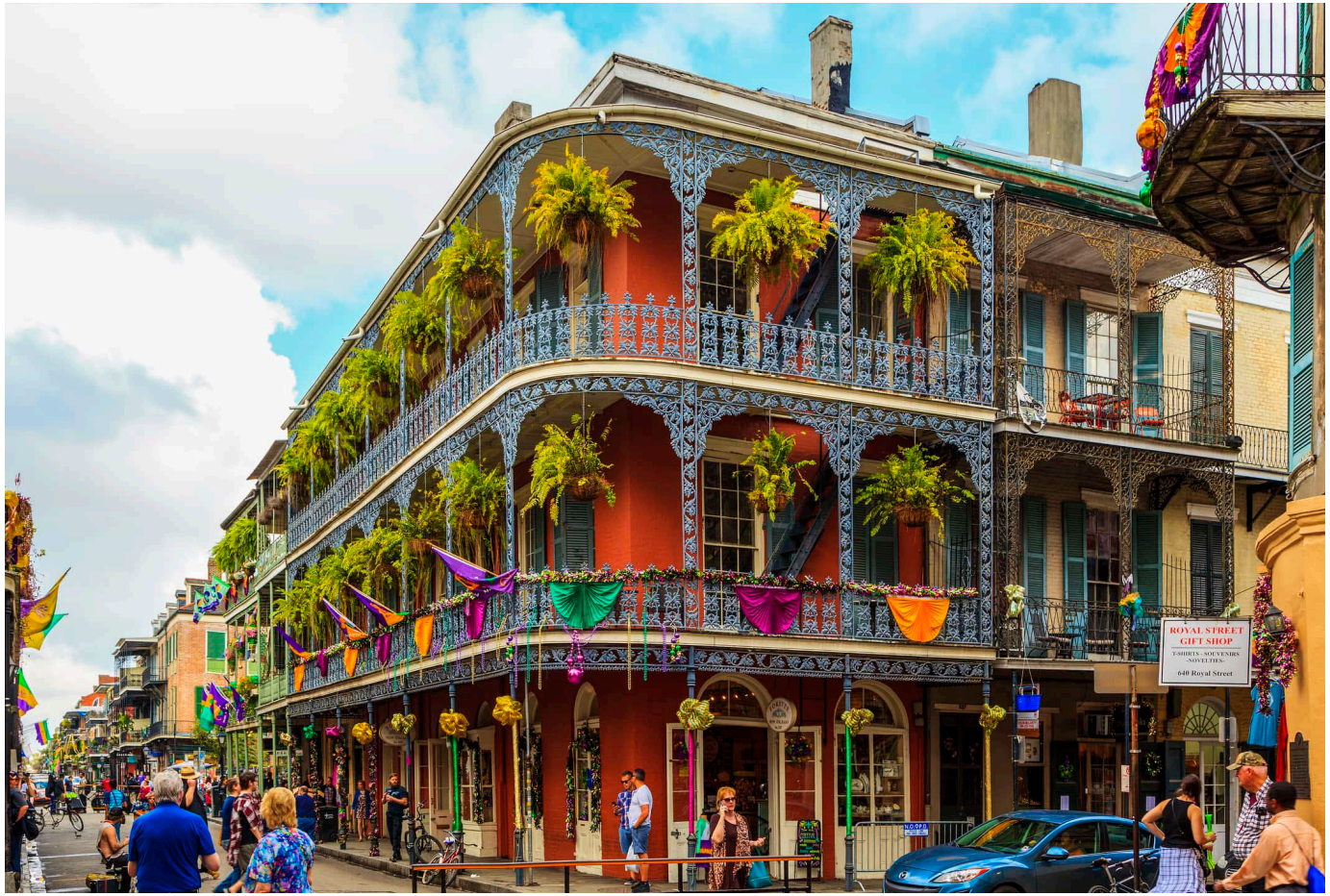
Term	Harvest Submission Window Close	Opt-Out Date	Includes Procedures Performed Through:	Report Posting	Comments
Spring 2026	March 27	March 31	December 31, 2025	Summer 2026	
Fall 2026	October 9	October 13	June 30, 2026	Winter 2026	
Analysis for each harvest is based on a 48-month window.					

Data Submission Open is continuous for all harvest terms. Data Submission Close occurs at 11:59 p.m. Eastern on the date listed.

AQO 2026 – New Orleans

- **September 30 - October 2, 2026**
- CHSD & GTSD Sessions will be held Sept 30th (full day) and October 1st (half day)
- Intermacs & Pedimacs-Live Virtual Forum-September 24th
- ACSD Sessions will be held October 1st (full day) and October 2nd (half day)
- Half day sessions will include breakout discussions for the on-site databases

- AQO 2026 Session Proposal Form | STS



AQO 2026 Working Groups

If you are interested in volunteering an AQO Working Group, let us know!

AQO Planning Group

Members wanted who are willing to be involved in AQO on the day of the event

- giving a talk in person or working with an experienced speaker to do a presentation,
- facilitating a break-out discussion
- reviewing content that someone else made to make sure it is correct
- presenting on-demand content
- helping a surgeon speaker

AQO Abstract Review

- Members wanted who have experience or knowledge in reviewing abstracts.
- Members will receive 3-5 abstracts to review prior to AQO and provide feedback to authors

Education Discussion Topics

Preoperative Factor Update – Shock

Operation Type Update – VAD vs. ECMO

Procedure Clarifications – Ozaki procedures

TM UPDATE

Preoperative Factor:

(230) Shock, Persistent at time of surgery

Code this factor: if the patient is undergoing active chest compressions with or without medications or in the event of an open chest, internal cardiac massage at the time of OR entry date/time (update Feb-26)

or

if ***both*** criteria below are met at the time of OR entry date/time:

(1) the patient's clinical condition is characterized by signs and symptoms of inadequate tissue perfusion when the cardiac output is insufficient

and

(2) the patient has at least one of the following at the time of and/or within 2-hours of (update Oct-25) OR entry date/time:

TM UPDATE

Preoperative Factor:

(230) Shock, Persistent at time of surgery

Laboratory Value Updates:

- pH: must be obtained from an arterial or venous blood sample; do not use values from capillary or umbilical cord samples
- Lactate: must be obtained from an arterial or venous blood gas or serum sample; do not use values from capillary or umbilical cord samples

Preoperative Shock – Example #1

Patient experiences cardiac arrest while in the CICU. Chest compressions are initiated and code medications administered. The CT surgeon comes to the bedside and places temporary pacing wires awaiting the arrival of the ECMO team with the circuit.

Which of the following preop factors should be coded:

- ☐ (240) Shock, Resolved at time of surgery
- ☐ (230) Shock, Persistent at time of surgery
- ☐ (220) Preoperative/Preprocedural mechanical circulatory support

Preoperative Shock – Example #1 Answer

Patient experiences cardiac arrest while in the CICU. Chest compressions are initiated and code medications administered. The CT surgeon comes to the bedside and places temporary pacing wires awaiting the arrival of the ECMO team with the circuit.

Which of the following preop factors should be coded:

- ☐ (240) Shock, Resolved at time of surgery
- ☑ (230) Shock, Persistent at time of surgery
- ☐ (220) Preoperative/Preprocedural mechanical circulatory support

Preoperative Shock – Example #1 Explanation

Feb-26 TM update to include patients who are receiving active chest compressions upon entry to the OR

Code this factor: if the patient is undergoing active chest compressions with or without medications or in the event of an open chest, internal cardiac massage at the time of OR entry date/time (update Feb-26)

or

if ***both*** criteria below are met at the time of OR entry date/time:

(1) the patient's clinical condition is characterized by signs and symptoms of inadequate tissue perfusion when the cardiac output is insufficient

and

(2) the patient has at least one of the following at the time of and/or within 2-hours of (update Oct-25) OR entry date/time:

Preoperative Shock – Example #2

Current documentation a patient experienced cardiogenic shock in the CICU. Shock is also listed in the active problem list in both the surgeon and intensivist documentation prior to the patient going to the OR for their index operation. The patient required intubation and inotrope infusions.

Which of the following preop factors should be coded:

- ☐ (240) Shock, Resolved at time of surgery as it was documented in the EHR by the CICU provider and surgeon
- ☐ (230) Shock, Persistent at time of surgery as the patient is on inotropes and required ventilation upon entry to the OR
- ☐ None of the above

Preoperative Shock – Example #2 Answer

Current documentation a patient experienced cardiogenic shock in the CICU. Shock is also listed in the active problem list in both the surgeon and intensivist documentation prior to the patient going to the OR for their index operation. The patient required intubation and inotrope infusions.

Which of the following preop factors should be coded:

- ☐ (240) Shock, Resolved at time of surgery as it was documented in the EHR by the CICU provider and surgeon
- ☐ (230) Shock, Persistent at time of surgery as the patient is on inotropes and required ventilation upon entry to the OR
- ☑ None of the above

Preoperative Shock – Example #2 Explanation

- While there is documentation of shock, it does not meet the criteria of shock (persistent or resolved) as defined by the database
- The documentation is insufficient and further review of the records is necessary:
  - Medication infusion parameters / lab values / active compressions / signs and symptoms
  - Timing of the shock prior to OR entry date/time

TM UPDATE

Operation Type:

VAD vs. ECMO

Updates:

- While it is understood VAD circuits with oxygenators are ECMO, for the consistency of the CHSD the addition/removal of an oxygenator to/from a VAD circuit will be the appropriate VAD OpType, *not OpType ECMO*

- When adding/removing an oxygenator to a VAD circuit, code the procedure as (3850) VAD, Procedure.

VAD vs. ECMO – Example #1

Patient undergoes planned implantation of a CentriMag device with the use of Berlin cannulas without the use of CPB. Per the preoperative plan, immediately following the VAD implant, an oxygenator is added to the VAD circuit.

Which of the following is the correct OpType?

- ☐ (3) ECMO
- ☐ (6) VAD Operation Done With CPB
- ☐ (7) VAD Operation Done Without CPB

VAD vs. ECMO – Example #1 Answer

Patient undergoes planned implantation of a CentriMag device with the use of Berlin cannulas without the use of CPB. Per the preoperative plan, immediately following the VAD implant, an oxygenator is added to the VAD circuit.

Which of the following is the correct OpType?

- ☐ (3) ECMO
- ☐ (6) VAD Operation Done With CPB
- ☑ (7) VAD Operation Done Without CPB

VAD vs. ECMO – Example #1 Explanation

~~VAD circuits with oxygenators are ECMO thus, procedures done on VAD circuits with oxygenators are OpType (3) ECMO.~~ (update Mar-26)

While it is understood VAD circuits with oxygenators are ECMO, for the consistency of the database the addition/removal of an oxygenator to a VAD circuit will remain OpType (6) VAD Operation done with CPB, or (7) VAD Operation done without CPB as appropriate. Scenario 1: patient with a VAD implant requires further support and the surgeon takes the patient to the OR to add an oxygenator without the use of CPB. Code OpType (7) VAD Operation done without CPB. Scenario 2: patient with a VAD implant no longer requires the support of an oxygenator and the surgeon removes the oxygenator without the use of CPB. Code OpType 7) VAD Operation done without CPB. (update Mar-26).

VAD vs. ECMO – Example #2

Patient undergoes planned implantation of a CentriMag device with the use of Berlin cannulas without the use of CPB. Per the preoperative plan, immediately following the VAD implant, an oxygenator is added to the VAD circuit.

Which of the following are correct procedures to code?

- ☐ (3850) VAD, Procedure
- ☐ (1910) ECMO procedure
- ☐ (2380) VAD, Implant

VAD vs. ECMO – Example #2 Answer

Patient undergoes planned implantation of a CentriMag device with the use of Berlin cannulas without the use of CPB. Per the preoperative plan, immediately following the VAD implant, an oxygenator is added to the VAD circuit.

Which of the following are correct procedures to code?

- ☑ (3850) VAD, Procedure
- ☐ (1910) ECMO procedure
- ☑ (2380) VAD, Implant

VAD vs. ECMO – Example #1 Explanation

Mar-26 TM update:

- Code procedure (3850) VAD, Procedure when an oxygenator is added to or removed from a VAD circuit

In Summary:

- Do not perform word searches to capture preoperative factors (further review required)
- Follow criteria for each field as noted in the STS CHSD Training Manual

TM UPDATE

"Ozaki" procedures:

Procedure codes Valve section

Background:

- Inconsistencies were identified between the new adult valve fields and existing CHSD procedure codes describing "Ozaki" procedures
- "Ozaki" procedures fall within valve REPAIRs (valuloplasty) but are sometimes considered replacements in Adult
- Updates made to harmonize data collection for ***congenital patients***, regardless of age

TM UPDATE

"Ozaki" procedures:

Procedure codes
Valve section

Update:

- Collect "Ozaki" procedures as Valvuloplasty procedures using the appropriate procedure code for valve location:
  - (3510) Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
  - (3560) Valvuloplasty, Aortic/neo-aortic valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
  - (830) Valvuloplasty, Mitral or systemic atrioventricular valve
  - (460) Valvuloplasty, Tricuspid or Non-systemic Atrioventricular Valve
  - (590) Valvuloplasty, Pulmonic

"Ozaki" Procedure – Example #1 (<6575 days)

14-year-old patient with Truncus Arteriosus s/p neonatal complete repair returns with severe progressive truncal valve insufficiency. Patient undergoes repair truncal valve including patch replacement of right coronary sinus leaflet/neocuspidization using autologous ascending aorta patch.

"Ozaki" Procedure – Example #1 (<6575 days)

14-year-old patient with Truncus Arteriosus s/p neonatal complete repair returns with severe progressive truncal valve insufficiency. Patient undergoes repair truncal valve including patch replacement of right coronary sinus leaflet/neocuspidization using autologous ascending aorta patch.

Which is the correct procedure code?

- ☐ (3510) Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
- ☐ (240) Valvuloplasty, Truncal valve
- ☐ (2290) Valvuloplasty converted to valve replacement in the same operation, Truncal valve

"Ozaki" Procedure – Example #1 Answer

14-year-old patient with Truncus Arteriosus s/p neonatal complete repair returns with severe progressive truncal valve insufficiency. Patient undergoes repair truncal valve including patch replacement of right coronary sinus leaflet/neocuspidization using autologous ascending aorta patch.

Which is the correct procedure code?

- ☑ (3510) Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
- ☐ (240) Valvuloplasty, Truncal valve
- ☐ (2290) Valvuloplasty converted to valve replacement in the same operation, Truncal valve

"Ozaki" Procedure – Example #1 (<6575 days)

	(If Operation Type contains 'CPB Cardiovascular' OR 'No CPB Cardiovascular') AND <18 →	Coronary Artery Bypass Procedure Performed: OpCAB (1820)	☐ Yes ☐ No *(If Yes, complete section L1)*
		Valve Operation: OpValve (1825)	☑ Yes ☐ No *(If Yes, complete section M1)*

"Ozaki" Procedure – Example #1 (<6575 days)

	(If Operation Type contains 'CPB Cardiovascular' OR 'No CPB Cardiovascular') AND <18 →	Coronary Artery Bypass Procedure Performed: OpCAB (1820)	☐ Yes ☐ No *(If Yes, complete section L1)*
		Valve Operation: OpValve (1825)	☑ Yes ☐ No *(If Yes, complete section M1)*

M1. VALVE PROCEDURES <18

If OpValve = Yes ↓

	Valve Device Explanted and/or Implanted: ValExImp (2475)	☐ No	☐ Yes, Explanted	☑ Yes, Implanted	☐ Yes, Explanted and Implanted

"Ozaki" Procedure – Example #1 (<6575 days)

M1. VALVE PROCEDURES <18					
If OpValve = Yes ↓					
	Valve Device Explanted and/or Implanted: ValExImp (2475)	☐ No	☐ Yes, Explanted	☑ Yes, Implanted	☐ Yes, Explanted and Implanted

IMPLANT(S)	
First Valve Implant	
Valve Implant Location #1 ValImpLoc1 (2615)	☐ Aortic or Neo-Aortic valve ☐ Mitral or Systemic AV valve ☐ Tricuspid or Non-Systemic AV valve ☐ Pulmonary or Neo-Pulmonary valve ☐ Common AV Valve ☑ Truncal Valve
Valve Implant Type #1 ValImpType 1 (2620)	☐ Mechanical ☐ Bioprosthetic ☐ Homograft/Allograft ☐ Annuloplasty Band/Ring ☐ Leaflet Clip ☐ Transcatheter Valve ☐ Transcatheter Valve-in-Valve with prosthetic valve ☑ Surgeon Fashioned ☐ Autograft ☐ Other

"Ozaki" Procedure – Example #1 (<6575 days)

IMPLANT(S)

First Valve Implant

Valve Implant Location #1 ValImpLoc1 (2615)	☐ Aortic or Neo-Aortic valve ☐ Mitral or Systemic AV valve ☐ Tricuspid or Non-Systemic AV valve ☐ Pulmonary or Neo-Pulmonary valve ☐ Common AV Valve ☑ Truncal Valve
Valve Implant Type #1 ValImpType	☐ Mechanical ☐ Bioprosthetic ☐ Homograft/Allograft ☐ Annuloplasty Band/Ring ☐ Leaflet Clip ☐ Transcatheter Valve ☐ Transcatheter Valve-in-Valve with prosthetic valve ☑ Surgeon Fashioned ☐ Autograft ☐ Other
(If Valve Implant Type 1= Transcatheter Valve or Transcatheter Valve-in-Valve →)	Approach: ☐ Transapical ☐ Transaxillary ☐ Transfemoral ☐ Transaortic VSTCVR1 (2625) ☐ Subclavian ☐ Transiliac ☐ Transeptal ☐ Transcarotid ☐ Transcaval ☐ Other **Not applicable**
(If Valve Implant Type 1= Surgeon fashioned →)	Material #1: ValImpSFMat1 (2630) ☐ PTFE (Gore-Tex) ☐ Pericardium ☑ Other
If Valve Implant Type 1 is not 'Autograft' or 'Surgeon Fashioned' →	Model #1: ValImpComMod1 (2635) — UDI#1 ValImpUDI1 (2640)
If Valve Implant Type 1 is not transcatheter valve or transcatheter	Device Size #1: ____ ValImpComSz1 (2645) **Leave blank**

"Ozaki" Procedure – Example #2 (>6575 days)

24-year-old patient with Truncus Arteriosus s/p neonatal complete repair returns with severe progressive truncal valve insufficiency. Patient undergoes repair truncal valve including patch replacement of right coronary sinus leaflet/neocuspidization using autologous ascending aorta patch.

"Ozaki" Procedure – Example #2 (>6575 days)

24-year-old patient with Truncus Arteriosus s/p neonatal complete repair returns with severe progressive truncal valve insufficiency. Patient undergoes repair truncal valve including patch replacement of right coronary sinus leaflet/neocuspidization using autologous ascending aorta patch.

(3510) Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)

"Ozaki" Procedure – Example #2 (>6575 days)

	(If Operation Type contains 'CPB Cardiovascular' OR 'No CPB Cardiovascular') AND =>18 →)	Coronary Artery Bypass Procedure Performed: OpCAB18 (1760)	☐ Yes, Planned ☐ Yes, Unplanned due to surgical complication ☐ Yes, Unplanned due to unsuspected disease or anatomy ☐ No (If Yes, complete section L2)
		Aorta Procedure Performed: AortProc (1765)	☐ Yes, Planned ☐ Yes, Unplanned due to surgical complication ☐ Yes, Unplanned due to unsuspected disease or anatomy ☐☐No (If Yes, complete section R)
		Valve Procedure Performed: OpValve18 (1770)	☑ Yes ☐ No

"Ozaki" Procedure – Example #2 (>6575 days)

		(If Yes →)	Was a valve explanted: ☐ Yes ☐ No ValExp (1775) *(If Yes, complete section M)*		
			Aortic/Neo-Aortic/Truncal Valve Procedure Performed: VSAV (1780)	☐ Yes, planned ☐ Yes, unplanned due to surgical complication ☐ Yes, unplanned due to unsuspected disease or anatomy ☐ No	
				(If Yes →)	Was a procedure performed on the Aorta? ☐ Yes ☐ No *(If 'Yes' complete R; If 'No' complete M3)* AVAortaProcPerf (1785)
			Mitral/Common AV/Systemic	☐ Yes, planned ☐ Yes, unplanned due to surgical complication	

"Ozaki" Procedure – Example #2 (>6575 days)

		(If Yes →)	Was a valve explanted: ☐ Yes ☐ No ValExp (1775) *(If Yes, complete section M)*		
			Aortic/Neo-Aortic/Truncal Valve Procedure Performed: VSAV (1780)	☐ Yes, planned ☐ Yes, unplanned due to surgical complication ☐ Yes, unplanned due to unsuspected disease or anatomy ☐ No	
				(If Yes →)	Was a procedure performed on the Aorta? ☐ Yes ☐ No *(If 'Yes' complete R; If 'No' complete M3)* AVAortaProcPerf (1785)
			Mitral/Common AV/Systemic	☐ Yes, planned ☐ Yes, unplanned due to surgical complication	

M3. Aortic, Neo-Aortic or Truncal Valve without concomitant Aorta Procedure

(If AVAortaProcPerf = No ↓)

Which Valve: ☐ Aortic Valve ☐Neo-Aortic Valve ☐Truncal Valve
ANTValve (2900)

Procedure Performed:
VSAVPr (2905)

☐Replacement: (If Replacement↓)

Transcath[illegible]alve Replacement: ☐Yes ☐No (If Yes ↓)
VSTCV (2[illegible])

(If Yes'→) Approach: ☐ Transapical ☐ Transaxillary ☐ Transfemoral ☐ Transaortic ☐ Subclavian
VSTCVR (2915) ☐ Transiliac ☐ Transeptal ☐ Transcarotid ☐ Transcaval ☐ Other

Surgical valve Replacement: ☐ Yes ☐ No (If Yes ↓)
VSAVSurgRep (2920)

(If 'Yes'→)

Device type: ☐ Mechanical ☐ Bioprosthetic ☐ Surgeon fashioned pericardium (Ozaki) ☐ Other
VSAVSurgType (2925)

(If Bioprosthetic→)

Valve type: ☐ Stented ☐ Stentless sub coronary valve only ☐ Sutureless/rapid deployment
VSAVSurgBioT (2930)

☐ Repair/Reconstruction *(If Repair/Reconstruction, select all that apply ↓)*

Repair Type *(Select all that apply)* ↓
AVProcRepType (2940)

☐ Commissural suture annuloplasty
☐ Nodular release
☐ Leaflet resection suture
☐ Leaflet plication
☐ Leaflet shaving
☐ Leaflet pericardial patch
☐ Leaflet commissural resuspension suture
☐ Leaflet debridement
☐ Leaflet patch augmentation, other than pericardium
☐ Division of fused leaflet raphe
☐ Leaflet free edge reinforcement
☐ Ring annuloplasty external ring
☐ Ring annuloplasty internal ring
☐ External suture annuloplasty
☐ Pannus/Thrombus Removal (Native Valve)
☐ Reduction of number of cusps/sinus resection for Truncal
☐ Neocuspidization

(If Neocuspidization →)
AVNumCusps (2945)

☐One Cusp ☐Two Cusps ☐Three Cusps

☐ Surgical Prosthetic Valve Intervention (Not Explant of Valve): (Select All That Apply ↓)

Type of Intervention: ☐Repair of periprosthetic leak ☐ Removal of pannus ☐ Removal of clot ☐Other
AVSurgProsthValInt (2950)

Surgical valve Replacement: ☐ Yes ☐ No (If Yes ↓)
VSAVSurgRep (2920)

(If 'Yes'→)

Device type: ☐ Mechanical ☐ Bioprosthetic ☐ Surgeon fashioned pericardium (Ozaki) ☐ Other
VSAVSurgType (2925)

(If Bioprosthetic→)

Valve type: ☐ Stented ☐ Stentless sub coronary valve only ☐ Sutureless/rapid deployment
VSAVSurgBioT (2930)

☑ Repair/Reconstruction *(If Repair/Reconstruction, select all that apply ↓)*

Repair Type *(Select all that apply)* ↓
AVProcRepType (2940)

- ☐ Commissural suture annuloplasty
- ☐ Leaflet plication
- ☐ Leaflet commissural resuspension suture
- ☐ Leaflet free edge reinforcement
- ☐ External suture annuloplasty
- ☐ Reduction of number of cusps/sinus resection for Truncal
- ☐ Nodular release
- ☐ Leaflet shaving
- ☐ Leaflet debridement
- ☐ Pannus/Thrombus Removal (Native Valve)
- ☑ Neocuspidization
- ☐ Ring annuloplasty external ring
- ☐ Leaflet resection suture
- ☐ Leaflet pericardial patch
- ☐ Leaflet patch augmentation, other than pericardium
- ☐ Division of fused leaflet raphe
- ☐ Ring annuloplasty internal ring

(If Neocuspidization →)
AVNumCusps (2945)

☑ One Cusp ☐ Two Cusps ☐ Three Cusps

☐ Surgical Prosthetic Valve Intervention (Not Explant of Valve): (Select All That Apply ↓)

Type of Intervention: ☐ Repair of periprosthetic leak ☐ Removal of pannus ☐ Removal of clot ☐ Other
AVSurgProsthValInt (2950)

"Ozaki" Procedure – Example #2 (>6575 days)

Aortic annular enlargement: ☐ Yes ☑ No (If Yes ↓) AnlrEnl (2955)			
(If 'Yes'→)	Technique: ☐ Nicks-Nunez ☐ Manougian ☐ Konno ☐ Other ☐ Unknown AnlrEnlTech (2960)		
Aortic Valve or Valve Repair Device Implant: ☐ Yes ☐ No AorticImplant (2970)			
(If 'Yes'→)	Implant Model Number: **Choose "Surgeon Fashioned"** VSAoIm (2975)	Implant Size: **Leave blank** VSAoImSz (2980)	
	Unique Device identifier (UDI): **Leave blank** VSAoImUDI (2985)		

In Summary:

- "Ozaki" procedures are to be considered VALVULOPLASTY procedures regardless of patient age or material used
- No requirement to go back and re-code
- Currently, valve details are collected slightly different based on age
- ***Please send FAQs if something doesn't quite fit – we need examples for updates to a future version***

Open Discussion

Please use the Q&A Function.

We will answer as many questions as possible.

We encourage your feedback and want to hear from you!

Upcoming CHSD Webinars

Monthly Webinars

- 3/24/26 @ 12pmCT*
- 4/21/26 @ 12pmCT

Contact Information

Leigh Ann Jones, STS National Database Manager, Congenital and General Thoracic	Tech Support Analysis Report/Data Submission Questions	Database Operational Questions (STS Contracts/Database Participation)
• Ljones@sts.org	• STSDB_helpdesk@sts.org	• STSDB@sts.org

Congenital STS Database Consultants

- Leslie Wacker lwacker@sts.org
- Chasity Wellnitz cwellnitz@sts.org

STS National Database™

Trusted. Transformed. Real-Time.

THANK YOU FOR JOINING!