Society of Thoracic Surgeons

Adult Cardiac Surgery Database: Monthly Webinar

May 4, 2022
• Welcome and Introductions
• STS Important Dates
• STS Updates
• IQVIA Updates
• STS Education:
  • Aorta with Nancy Honeycutt
• Q & A
### Important Dates for Adult Cardiac

<table>
<thead>
<tr>
<th>4 May</th>
<th>18 May</th>
<th>27 May</th>
<th>1 Jun.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ACSD Monthly Webinar @ 2pmCT</td>
<td>• ACSD User Group Call @ 2pmCT</td>
<td>• Harvest 2 Closes (OR Dates through March 31, 2022)</td>
<td>• ACSD Monthly Webinar @ 2pmCT • Opt-out ends for H2</td>
</tr>
</tbody>
</table>
## Harvest 2022 Dates

<table>
<thead>
<tr>
<th></th>
<th>Harvest</th>
<th>Close</th>
<th>Opt-Out</th>
<th>Includes procedures performed through</th>
<th>Report Posting</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1 2022</strong></td>
<td>February 25</td>
<td>March 1</td>
<td>December 31, 2021</td>
<td>Spring 2021</td>
<td></td>
<td>Star Rating</td>
</tr>
<tr>
<td><strong>H2 2022</strong></td>
<td>May 27</td>
<td>June 1</td>
<td>March 31, 2022</td>
<td>Summer 2022</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H3 2022</strong></td>
<td>August 26</td>
<td>August 30</td>
<td>June 30, 2022</td>
<td>Fall 2022</td>
<td></td>
<td>Star Rating</td>
</tr>
<tr>
<td><strong>H4 2022</strong></td>
<td>November 18</td>
<td>November 22</td>
<td>September 30, 2022</td>
<td>Winter 2022</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STS Updates

- Harvest 1 2022 Posted (OR dates through December 31, 2021)
- May Training Manual Posted
- STS Password Required for Database Resource Information
The below items were deployed to production the weekend of April 30

Risk Adjusted Report (analyzed)

Report Calculation Updates

- STS-8059 - ACSD: Risk Adjusted Report - NQF Outcome Measures - Mortality - Odds Ratio Values displaying as percent

- STS-8278 - ACSD - RADR Anesthesia Report section displays percentage results exceeding 100%

- STS-7887 - ACSD: Risk Adjusted Report - Multiple Arterial Grafts calculation confirmation and calculation update
Important Notifications

**REOPENED** - STS-8072 - ACSD: Beta Blockers Within 24 Hours on RADR benchmark Report not calculating correctly – the AEP calculation is including cases that should be excluded

DCRI Analysis Known Issue – Composite Results - Failed to Prescribe patient exclusions still appear within drilldown.

- Please note that DCRI has confirmed that the Participant level results are correct. This issue appears for Harvest 1 2022 and earlier harvests.

- DCRI has advised this will be corrected when the Harvest 2 2022 results are deployed.
IQVIA Update

Please note:
Submitted tickets are currently under review and the IQVIA support team will follow up on resolution and/or target release confirmation.

The IQVIA Team is currently reviewing items that will be released in an upcoming release. Those items will be posted to the Notifications section once released.
STS Education for May: Aorta
Coding the Aorta
STS ACSD Monthly Webinar
May 4, 2022
Nancy Honeycutt, BSN RN
Why the Challenge?

- Complex anatomy—normal & abnormal
- Multiple components
- Multiple pathologies
- Multiple devices/implants
- Multiple techniques to accomplish the same goal
Keep it Simple

• Keep calm

• Keep your tools handy
  • Training manual
  • Annotated data collection form
  • Past webinars, slides
  • Keep a friend on speed dial and “phone a friend”
  • Google
  • Ask a clinical question
Keep it Simple

• Bottom-line it

• Most of the information you need to code the case can be found in the “Findings” and “Procedure” sections of the operative report.
• Look for key words
• Anatomy?
• Procedure-repair, replacement or a combo of both?
• Device type?
• Circulatory arrest?
• Coronary reimplantation?
• Hemiarch anastomosis?
• Debranching/arch branch reimplantation?
Complex Anatomy

The key to unlocking the mystery behind the coding of aorta procedures is to have a good understanding of the involved anatomy (normal and abnormal).
Aortic Valve

Tricuspid
• Right Coronary Cusp (RCC)
• Left Coronary Cusp (LCC)
• Non-coronary Cusp (NCC)

Defects are usually degenerative in nature
• Aortic stenosis
Aortic Valve

Bicuspid

Defects are usually congenital in nature

• If there is fusion of the leaflets, code etiology as degenerative
Aortic Root

• Includes everything between the aortic valve and the sinotubular junction (STJ).

• Corresponds to Zone 0 on the DCF.

• Includes the origins of the right and left coronary arteries and the aortic sinuses.

• May see aneurysm or dissection.
**Ascending Aorta and Aortic Arch**

**Ascending Aorta**
- Includes the innominate artery which is in Zone 0 and everything between the first 2 cm distal to the left subclavian artery (Zones 1 through 3)

**Aortic Arch**
- Includes everything between the innominate artery and the first 2 cm distal to the left subclavian artery (Zones 1 through 3).

**Descending Thoracic Aorta**
- Extends from the distal arch (end of Zone 3) to the diaphragm/just above the celiac arteries. (Zones 4 and 5)
Multiple Devices/Implants

Aortic valve (mechanical or bioprosthetic) and a tube graft
   a. Composite
   b. Surgeon-fashioned

Aortic root bioprosthesis
   c. Medtronic Freestyle Bioprosthesis-aortic valve combined with the root (one piece)
      Stentless
Multiple Techniques to Accomplish the Same Goal

Replace
- AV, root, ascending aorta (Bentall)
- AV and root only
- Root and ascending aorta
- AV and ascending aorta

Repair
- Resuspend the AV and primary repair of the root and/or ascending aorta (dissection-suturing of the tear/intimal layers)

Repair and Replace
- Resuspend/repair the AV, repair/replace the root and repair/replace ascending aorta
- David (reimplant), Yacoub (remodel) and Florida Sleeve (reconstruct)
When capturing an aortic valve procedure along with a root and an ascending aorta/aortic arch procedure, you must code the aortic valve portion in the aorta section (M2)
<table>
<thead>
<tr>
<th>I. Operative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon: ______________________________</td>
</tr>
<tr>
<td>Taxpayer Identification Number: ______________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aorta Procedure Performed:</th>
<th>Yes, planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, unplanned due to surgical complication</td>
<td></td>
</tr>
<tr>
<td>Yes, unplanned due to unsuspected disease or anatomy</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>(If Yes complete Section M 2)</td>
<td></td>
</tr>
<tr>
<td>(If Aorta Procedure performed →)</td>
<td></td>
</tr>
<tr>
<td>Did the surgeon provide input for aortic surgery data abstraction?</td>
<td>☐ Yes ☐ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valve Procedure Performed:</th>
<th>☐ Yes ☐ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>(If Yes →)</td>
<td>Was a valve explanted:</td>
</tr>
<tr>
<td>(If Yes complete Section K)</td>
<td></td>
</tr>
<tr>
<td>Aortic Valve Procedure performed:</td>
<td>☐ Yes, planned</td>
</tr>
<tr>
<td>Yes, unplanned due to surgical complication</td>
<td></td>
</tr>
<tr>
<td>Yes, unplanned due to unsuspected disease or anatomy</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>(If Yes →)</td>
<td>Was a procedure performed on the Aorta?</td>
</tr>
<tr>
<td>(If ‘Yes’ complete M2; If ‘No’ complete K1)</td>
<td></td>
</tr>
</tbody>
</table>
Bentall Procedure

Three components

- Replacement of the aortic valve
- Replacement of the aortic root and reimplantation of the coronary arteries
- Replacement of the ascending aorta
Bentall Procedure

You may see this in the procedure section of the operative report

Procedure(s):

MEDIANSTERNOTOMY/ASCENDING AORTA REPLACEMENT / AORTIC ROOT REPLACEMENT WITH 29MM KONECT RESILIA VALVED CONDUIT

OR

MEDIANSTERNOTOMY/AVR/ASCENDING AORTA REPLACEMENT / AORTIC ROOT REPLACEMENT

OR

MEDIANSTERNOTOMY/AVR/ AORTIC ROOT REPLACEMENT/HEMIARCH
Bentall Procedure

You will code this case beginning with
4951-AV or Root Procedure Performed
4963-Root Procedure
4975-Surgical Ascending/Arch Procedure
5440-Devices
Bentall Procedure

If the surgeon uses a composite valve conduit or a biologic full root

Code 4956-Device type- "Other"
Bentall Procedure

Further describe the implant/device beginning with

4965 Composite Valve Conduit vs. Valve-Sparing Root
4966 (AVRootReImpTy)
4967 (AVRepBioTy)

Ex. Biologic Full Root-Medtronic FR995
What if……?

If the surgeon replaces the root and the aorta and no procedure is performed on the aortic valve, code “yes” to 4951, leave 4952 blank, and code “yes” to 4963 and 4975.
Valve Sparing Root Procedures

Valve sparing root

a. Reimplantation (David)
b. Remodeling (Yacoub)
c. Reconstruction (Florida Sleeve)

(no re-implantation of the coronary arteries)
Valve-Sparing Root

When you see this, code this...

Valve-sparing root procedures oftentimes involve resuspension of the aortic valve by using a commissural resuspension suture. Code this in 4951 and 4958.

Context clue “…the aortic valve was resuspended at the tops of each commissure with pledgeted mattress sutures.”
Valve-Sparing Root
When You See, This Code This...

Capture the root portion of the valve sparing root procedure here. Code yes to 4963 and 4964, in order to get to “Valve Sparing Root” in 4965. Then choose the appropriate valve sparing procedure.

Note: When coding the Florida Sleeve (4968), you must say “yes” to “Root Replacement with Coronary Ostial Reimplantation” (4964) in order to capture “Valve Sparing Root” (4965), even though the coronary arteries are not reimplanted. Code no to Coronary Reimplantation (4969).
Coronary Reimplantation

Types

• Button technique-(pictured) most common
• Vein graft extension-SVG Cabrol
• Dacron graft extension-Classic Cabrol

You can only code one choice

• Button combined with Cabrol in the same case, code Cabrol.
• SVG Cabrol combined with Classic Cabrol, code SVG Cabrol.
Coronary Reimplantation

*When you see this, code this...*

“An aortotomy was performed and the aortic valve was not competent. The leaflets were excised. The sinuses were resected and the **coronary buttons developed**. The annulus was sized to a 29 mm Konect Edwards bioprosthetic valved conduit.”

“...pledgeted sub-annular 2-0 Ethibond sutures were taken through the annulus and then through the sewing ring of the 29 mm bioprosthetic root/conduit (Konect) . The conduit was seated. The **coronary buttons were oriented and then anastomosed to the neo-root**.”
Distal Technique (4980)

Was the distal anastomosis performed with or without a clamp?

Open/Unclamped
- Arch procedures are usually performed with the aortic clamp removed.
- Requires circulatory arrest.
- Context clue—if the surgeon states that the arch vessels are visualized, the aorta is open and distal technique is “open/unclamped”.

Clamped
- The aortic clamp remains in place and the anastomosis is completed proximal to the clamp.
Circulatory Arrest

• Complete cessation of blood flow to the patient.
• Used during arch procedures.
• Circulatory arrest is a surgical technique that involves cooling the body of the patient and stopping blood circulation.
• Serves to keep the surgical field free of blood flow to aid visualization.

Cerebral perfusion
• Circulatory arrest technique that allows for provides involves blood flow and metabolic support to the brain while circulation to the rest of the body is stopped.
• Minimizes the risk of stroke and other serious complications.
Circulatory Arrest

Context clues

PROCEDURE:
MEDIAN STERNOTOMY/ASCENDING AORTA REPLACEMENT/AORTIC ROOT REPLACEMENT WITH 29MM KONECT RESILIA VALVED CONDUIT UNDER CIRCULATORY ARREST

“After completion of the aortic root and confirmation that we reached 18 °C, we then placed the patient in steep Trendelenburg, turned off the pump, removed our cross clamp and then transected the aorta at the level of the innominate”.

You may also see documentation referring to cannulation of the innominate artery for cerebral perfusion. Sometimes a graft is used to assist cannulation (is not coded in the device section).
Aortic Arch Procedures

Hemiarch

Partial arch

Total arch
Distal Site (4985) Hemiarch

Hemiarch is a single anastomosis somewhere in the ascending aorta or proximal arch without separate grafts to the head vessels.

Hemiarch anastomoses require circulatory arrest and are performed “open/unclamped”.
Hemiarch

Context clues

“... the 32 mm Dacron graft portion of the Konect was trimmed/divided and the distal end was brought onto the field. The aorta trimmed with the bevel extending on the **underside of the arch** opposite the left subclavian origin, and the distal anastomosis was performed. “

**Lesser curvature** of the arch.
Partial and Total Arch

Most times requires arch branch reimplantation.

Performed under circulatory arrest (open/unclamped).

Code the appropriate zone for the distal anastomosis (zones 1-4).
Distal Extension (4990)

Elephant trunk is a technique whereby excess tubular **graft** material is inserted during ascending aortic and arch repair to facilitate the subsequent treatment of distal aortic aneurysms (1).

Frozen elephant trunk refers to a distal extension consisting of a **stent** as opposed to a graft (2).
Arch Branch Reimplantation/Debranching

The reattachment of the arch vessels to the graft implant after they are detached from the native aorta during an arch replacement.
Arch Branch Reimplantation

Arch branch reimplantation is coded in 4995 and 4996.

<table>
<thead>
<tr>
<th>Arch Branch Reimplantation</th>
<th>Yes</th>
<th>No (If Yes - select all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch Branch Reimplantation: ArchBranReimp (4995)</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>Arch Branch Location: ArchBranReimpLoc (4996)</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

- Innominate
- Right Subclavian
- Right Common Carotid
- Left Common Carotid
- Left Subclavian
- Left Vertebral
- Other
Arch Branch Reimplantation

In Figure 1, no arch branches are reimplemented. Code no to 4995.
Arch Branch Reimplantation

In Figure 2, three arch branches are reimplanted. Code yes to 4995 and code the appropriate vessels in 4996.

| Arch Branch Reimplantation: Yes ☐ No (If Yes ↓ select all that apply) |
|-------------------------|-----------------------------|
| Arch Branch Location:   | ArchBranReimpLoc (4996)     |
| ‡ Innominate            | ☐ Right Subclavian           |
| ☐ Right Common Carotid  | ☐ Left Common Carotid        |
| ☐ Left Subclavian       | ☐ Left Vertebral             |
| ☐ Other                 |                             |

In this example, code innominate, left common carotid and left subclavian.
Devices/Implants

Only devices implanted within the aorta are coded in the device section.

This includes all synthetic prosthetics inserted (Dacron, PTFE, homografts, autografts, stents, stent-grafts, and patch grafts).

Felt and Bioglue are not included.

Note: Some aortic interventions may not require prosthetic materials or device implants, such as primary repair of a pseudoaneurysm.
Devices

Code aortic valve implants, composite valve conduits and biologic full roots in 5440 and 5441.

Include size and model# in 5442 and 5443.
Surgeon-fashioned Devices
Code the aortic valve implant in 5440 and 5441 (model and size in 5442 and 5443).

Code grafts, and/or stent grafts (endovascular implants) in 5450.

Note: When coding grafts and stent grafts, the device location is coded twice in order to capture the proximal and distal locations.
Devices

Example: AVR, root and partial arch with a surgeon-fashioned device.

Do not code the debranching implant in the device section.

<table>
<thead>
<tr>
<th>Location (Letter)</th>
<th>Implant Method</th>
<th>Outcome</th>
<th>Model Number</th>
<th>UDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>3</td>
<td>ADevModel01 (5460)</td>
<td>ADevUDI01 (5470)</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>3</td>
<td>ADevModel02 (5490)</td>
<td>ADevUDI02 (5495)</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Copy and paste UDI# if able. Do not enter manually.
Things to think about...

- Annular enlargement is part of the aortic valve replacement. Do not code a separate root procedure if the patient has an isolated AVR with annular enlargement.

- Surgical ascending aorta/arch procedures involve an incision. The aorta is replaced with a *graft* (or repaired).

- Thoracic endovascular aorta repairs (TEVAR) are catheter-based procedures where a *stent* is deployed into the aorta.

- Hybrid aortic procedures (surgical and TEVAR) occurring during the same episode of care are captured with the index procedure on the same data collection form (use the OR times from the open procedure).
Questions?
Thank you for your attention!

Nancy Honeycutt, BSN RN
nnhoneycutt@novanthealth.org
Resources

- [STS National Database Webpage](#)
- [ACSDTechSupport@IQVIA.com](mailto:ACSDTechSupport@IQVIA.com) (Uploader, DQR, Missing Variable, Dashboard, Password and Login)
- Phone Support: 1-833-256-7187
- [STS National Database Feedback Form](#)
- Resource Documents
  - Contact Information
  - Webinar Information
  - FAQ Document
  - Go-Live Checklist
  - Tiered-level Support Document
  - Training Videos
  - Link to IQVIA
- ckrohn@sts.org
Contact Information

- Carole Krohn, Sr. Clinical Manager, STS National Database
  - CKrohn@sts.org
  - 312-202-5847
- Database Operational Questions
  - STSDB@sts.org
Open Discussion

Please use the raise-hand function.

Please use the Q&A Function.

We will answer as many questions as possible.

We encourage your feedback and want to hear from you!