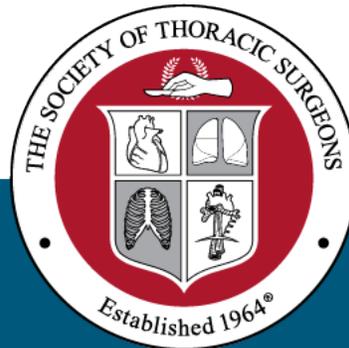


The Society of Thoracic Surgeons

Adult Cardiac Surgery Database

Monthly Webinar

March 4, 2026



STS National Database™
Trusted. Transformed. Real-Time.

Agenda

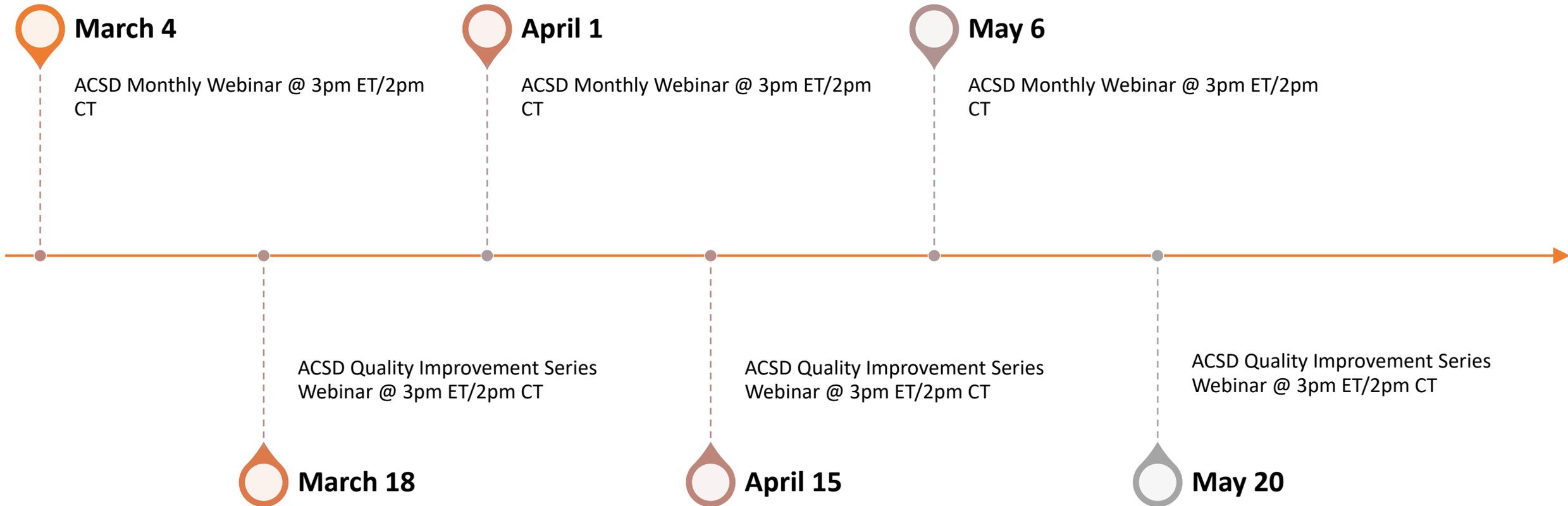
Welcome and Introductions

STS Updates

Clinical Education-Aorta Session #2

Q&A

Important Dates-Timeline



AQO 2026 – New Orleans

- September 30-October 2, 2026
- Intermacs & Pedimacs-Live Virtual Forum-September 24th
- CHSD & GTSD Sessions will be held Sept 30th (full day) and October 1st (half day)
- ACSD Sessions will be held October 1st (full day) and October 2nd (half day)
- Half day sessions will include breakout sessions for the on-site databases
- [AQO 2026 Session Proposal Form | STS](#)
- Deadline for proposal submission Friday, April 3.



An anatomical illustration of the human heart and aorta. The heart is shown in a frontal view, with the aorta extending upwards and then curving to the left. The illustration is rendered in a realistic style with various shades of red, brown, and blue. The text is overlaid on the central part of the image.

Aorta Session #2

Aorta Risk Factors

Melinda Offer, RN, MSN

Family history of disease of aorta

Definition: Indicate whether there is a family history of disease of the aorta

Intent/Clarification: For the purposes of this database (and published guidelines), **family history means any alive or dead first-degree relative (sibling, parent, child) with either a thoracic aortic aneurysm (include ‘dilated’ or ‘enlarged’ aorta), or thoracic aortic dissection/rupture.** Patients with a family history of thoracic aneurysm who require aortic surgery, may have more fragile aortic tissue or require a more extensive procedure, which could affect procedural outcomes.

Notes:

- Half-siblings are considered second-degree relatives
- Abdominal aneurysms and abdominal dissections should be excluded, as they are typically not familial in nature.
- For this database, in the case of family history of an unexplained death of a first- degree family member select ‘unknown’.

M.2. Aorta And Aortic Root Procedures

(If AortProc = Yes ↓)

Family history of disease of aorta: Aneurysm Dissection Both Aneurysm and Dissection Sudden Death Unknown None

FamHistAorta (4500)

The Most Frequently Asked Question Family History of Aorta Disease

If there is no mention of family history of aortic disease, should it be coded as "no" or "unknown"?

Answer – Use the concepts found in the No and Unknown Questions and code NO

No and Unknown Questions - When a H&P or a consultation exists in the medical record and the values are not specifically addressed in the documentation, code no. For example, if there is no mention of a history of cancer, then code No to history of cancer.

Unknown should be coded in the circumstance where no clinical documentation exists, and the patient cannot give history and in certain situations for example when you know the patient has a history of cancer, but you do not know if it is within 5 years.

Patient's Genetic History

Definition: Indicate the genetic history of the patient

Intent/Clarification: Indicate whether or not the patient has a history of any of the well-known, genetically triggered thoracic aortic conditions listed below. The condition must be documented in the medical record and the diagnosis made by clinical or genetic testing.

Patient's genetic history:

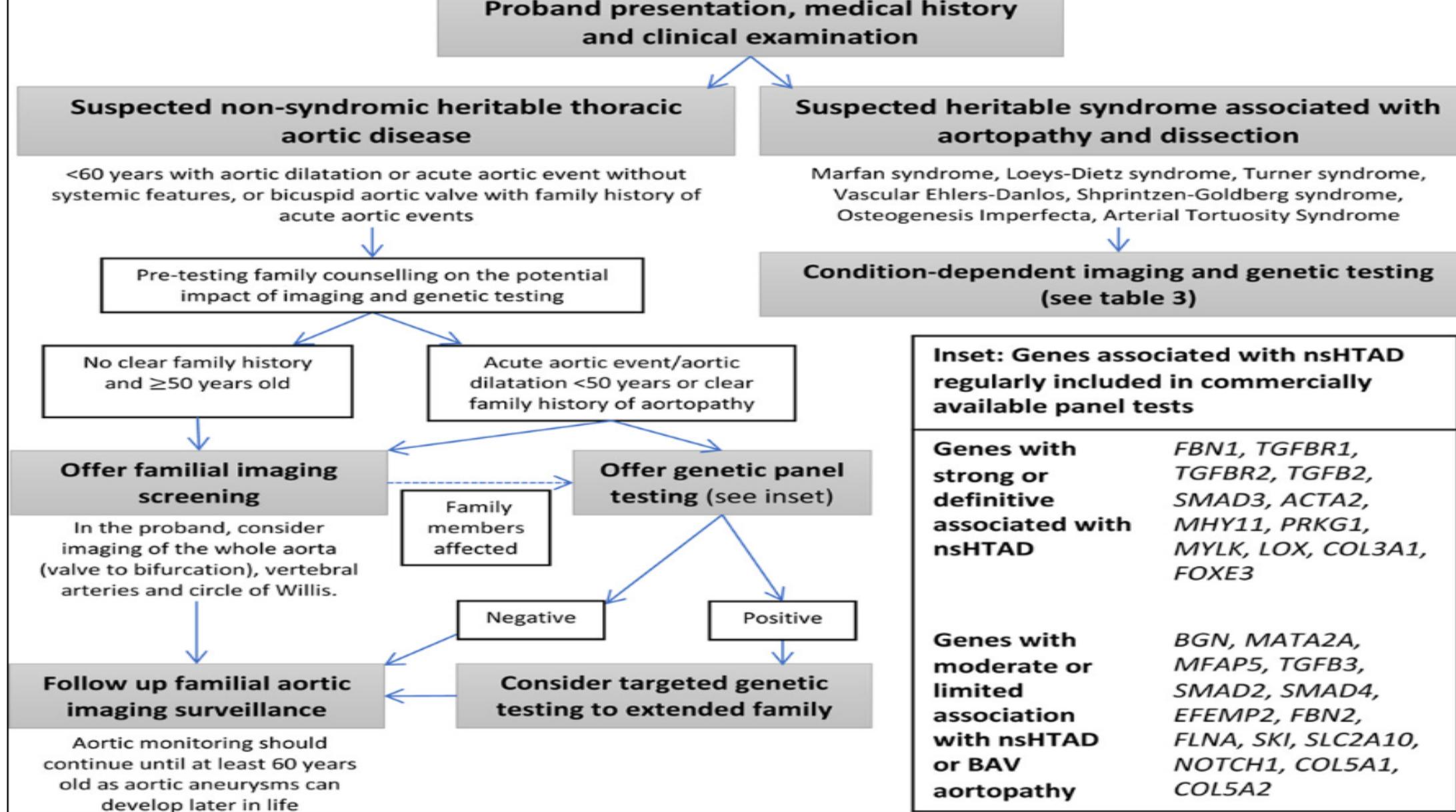
PatGenHist (4505)

- | | | | |
|--|--|--------------------------------------|---|
| <input type="checkbox"/> Marfan | <input type="checkbox"/> Ehlers-Danlos | <input type="checkbox"/> Loeys-Dietz | <input type="checkbox"/> Non-Specific familial thoracic aortic syndrome |
| <input type="checkbox"/> Aortic Valve Morphology | <input type="checkbox"/> Turner syndrome | <input type="checkbox"/> Other- | <input type="checkbox"/> Unknown <input type="checkbox"/> None |

Inherited aortopathies are generally categorized into 2 broad groups: Syndromic or Nonsyndromic

Syndromic inherited aortopathies	
Marfan syndrome	<i>FBN1</i>
Loeys-Dietz syndrome	<i>TGFBR1/2, TGFB2, SMAD3</i>
Turner syndrome	<i>45X</i> <i>?TIMP1, ?TIMP3</i>
Vascular Ehlers-Danlos syndrome	<i>COL3A1</i>
Osteogenesis imperfecta	<i>COL1A1, COL1A2</i>

Nonsyndromic inherited aortopathies	
Heritable thoracic aortic disease	<i>FBN1, TGFB1, TGFB2, SMAD3, TGFB2, COL3A1, ACTA2, MYH11, MYLK, LOX, PRKG1, FOXE3</i> ...
Bicuspid aortic valve	<i>ROBO4 GATA5, NOTCH1</i>



Syndromic Inherited Aortopathies

Choices on DCF

- Marfan Syndrome
- Ehlers-Danlos Syndrome
- Loeys-Dietz Syndrome (LDS)
- Turner syndrome
- Other Choice

Nonsyndromic Inherited Aortopathies

Choices on DCF

- Non-Specific Familial Thoracic Aortic Syndrome
- Aortic Valve Morphology-variant AV morphology

Patient's genetic history:

PatGenHist (4505)

Marfan Ehlers-Danlos Loeys-Dietz Non-Specific familial thoracic aortic syndrome
 Aortic Valve Morphology Turner syndrome Other- Unknown None

Marfan Syndrome – is an inherited syndrome where several physical changes occur in a recognizable pattern. Marfan is caused by a mutation in the FBN1 gene that affects connective tissue. Symptoms often include long arms, legs, fingers, and toes.



Ehlers-Danlos Syndrome – is an inherited syndrome where several physical changes occur in a recognizable pattern. It is a connective tissue disorder with COL3A1 gene mutation. Symptoms often include loose joints, joint pain, stretchy, velvety skin, and abnormal scar formation.



Loeys-Dietz Syndrome (LDS) – is an inherited syndrome where several physical changes occur in a recognizable pattern. LDS is caused by mutations in genes involving the TGF Beta signaling pathway which regulates tissue growth and development. The main genes implicated are TGFBR1, SMAD2, SMAD3, TGFB2 and TGFB3. These gene mutations lead to defective connective tissue. The primary manifestations of Loeys–Dietz syndrome are widely spaced eyes, wide or split uvula, and aneurysms at the aortic root.



Turner syndrome – is an inherited syndrome where there is the complete or partial loss of the second X chromosome. It is associated with short stature, abnormal facies, and hypogonadism, with congenital heart disease affecting 25% to 50%, typically bicuspid aortic valve or coarctation of the aorta. Patients with Turner Syndrome may also be at a higher risk of aortic dilatation and dissection.



Syndromic Inherited Aortopathies Continued:

Other Choice

Patient has a **syndrome or genetic condition where several physical changes occur in a recognizable pattern that have** a relevant gene mutation related to thoracic aneurysm but did not match any of the syndrome choices listed above.

Includes:

- Osteogenesis imperfecta (COL1A1 gene) also called brittle bone disease. Short stature and skeletal deformities
- Shprintzen-Goldberg Syndrome (SKI gene) also called marfanoid-craniosynostosis syndrome
- Arterial Tortuosity Syndrome (SLCA10 gene) characterized by abnormal twists and turns of arteries, joints that are either loose and very flexible, and distinctive facial features, long face, down-sloping eyes, beaked nose, small chin



Nonsyndromic Inherited Aortopathies

Non-Specific Familial Thoracic Aortic Syndrome, also known as Non-Syndromic Hereditary Thoracic Aortic Disease (nsHTAD), is a condition suspected in families where multiple members have experienced thoracic aortic aneurysms. This diagnosis is considered when affected individuals do not display physical characteristics associated with any named syndrome.

Genetic testing may reveal a mutation or a detrimental change in a gene related to thoracic aortic disease. However, it is important to note that a specific gene mutation is not always found. Even if testing shows no changes in genes associated with nonsyndromic HTAD, an individual may still have the disease.

Gene mutations or deficiencies commonly associated with this condition include *ACTA2*, *MYH11*, *MYLK*, *LOX*, *PRKG1*, and *FOXE3*.

[Familial Nonsyndromic Thoracic Aortic Aneurysms: Unraveling the Mystery and Defining Long-Term Outcome* | JACC](#)

[Nonsyndromic Heritable Thoracic Aortic Disease \(nsHTAD\)](#)

Nonsyndromic Inherited Aortopathies Continued:

Aortic Valve Morphology-variant AV morphology (bicuspid, unicuspid, quadricuspid)

The structure of the aortic valve is associated with the formation and progression of thoracic aortic aneurysms (TAAs). The altered shape of the AV orifice often leads to abnormal blood flow dynamics in the aorta resulting in increased wall shear stress and higher oscillatory indexes. These changes contribute to the progression and worsening of thoracic aortic aneurysms.

Remaining Choices on the DCF for Patients Genetic History

Unknown - No known syndromic/genetic diagnosis but has not specifically been tested for pathogenic mutations.

None - Patient has undergone genetic testing with no positive finding

The patient is a 68-year-old female. She has had an ACTA2 deficiency with an ascending aortic aneurysm that has been followed. Sudden Death (age of onset: 48) in her maternal grandfather. Genetic Testing showed an ACTA2 variant. She is asymptomatic, and her aorta had been stable, but because of the underlying connective tissue disorder, she wished to pursue an elective aneurysm repair.

How would you code patient's genetic history

- A. Other**
- B. Non-Specific familial thoracic aortic syndrome**
- C. Unknown**
- D. None**

Answer: Non-Specific Familial Thoracic Aortic Syndrome

Non-Specific Familial Thoracic Aortic Syndrome, also known as Non-Syndromic Hereditary Thoracic Aortic Disease (nsHTAD), is a condition suspected in families where multiple members have experienced thoracic aortic aneurysms. This diagnosis is considered when affected individuals do not display physical characteristics associated with any named syndrome.

Genetic testing may reveal a mutation or a detrimental change in a gene related to thoracic aortic disease. However, it is important to note that a specific gene mutation is not always found. Even if testing shows no changes in genes associated with nonsyndromic HTAD, an individual may still have the disease.

History: 40-year-old male with history of prior repair of coarctation of the aorta at age 8 and a congenital bicuspid aortic valve with a dilated aortic root (max 46 cm) and ascending aorta (max 43 cm) presents for Bentall with ascending aorta replacement. No genetic testing located in the records.

How would you code patient's genetic history

- A. Aortic Valve Morphology**
- B. Other**
- C. Unknown**
- D. None**

Answer: Aortic Valve Morphology

Aortic Valve Morphology-variant AV morphology (bicuspid, unicuspid, quadricuspid).

The structure of the aortic valve is associated with the formation and progression of thoracic aortic aneurysms (TAAs). The altered shape of the AV orifice often leads to abnormal blood flow dynamics in the aorta resulting in increased wall shear stress and higher oscillatory indexes. These changes contribute to the progression and worsening of thoracic aortic aneurysms.

History: Patient with a functionally bicuspid aortic valve. No genetic testing located in the records

How would you code patient's genetic history

- A. Aortic Valve Morphology**
- B. Other**
- C. Unknown**
- D. None**

Answer: Unknown

Patient has a functionally bicuspid aortic valve.

A functionally bicuspid aortic valve occurs when a person's aortic valve has three leaflets initially, but 2 of the leaflets fuse together over time, causing the valve to function like a bicuspid valve. This fusion can lead to altered blood flow dynamics and increased stress on the valve, similar to a congenital bicuspid aortic valve.

- Unknown - No known syndromic/genetic diagnosis but **has not specifically been tested for pathogenic mutations.***
- None - Patient has undergone genetic testing with no positive finding*

Prior Aortic Intervention

Prior aortic intervention: PriorAorta (4510)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown (If Yes ↓)			
Location	Previous repair location(s)	Repair Type	Repair failure (If Yes ↓)	Disease progression (If Yes ↓)
	Select all that apply	Select all that apply	Select all that apply	Select all that apply
Root (Zone 0 –A)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorRepRoot (4520)	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid PriorRepTyRoot (4521)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorFailRoot (4522)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorProgRoot (4523)
Ascending (Zone 0 – B&C)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorRepAsc (4525)	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid PriorRepTyAsc (4526)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorFailAsc (4527)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorProgAsc (4528)
Arch (Zones 1,2,3)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorRepArch (4530)	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid PriorRepTyArch (4531)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorFailArch (4532)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorProgArch (4533)
Descending (Zones 4,5)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorRepDesc (4535)	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid PriorRepTyDesc (4536)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorFailDesc (4537)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorProgDesc (4538)
Suprarenal abdominal (Zones 6,7)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorRepSupraAb (4540)	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid PriorRepTySupraAb (4541)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorFailSupraAb (4542)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorProgSupraAb (4543)
Infrarenal abdominal (Zone 8,9,10,11)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorRepInfraAb (4545)	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid PriorRepTyInfraAb (4546)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorFailInfraAb (4547)	<input type="checkbox"/> Yes <input type="checkbox"/> No PriorProgInfraAb (4548)

FAQ Feb 2021 - What do you code when a patient has had a prior open and endovascular repair in the arch. The STS Database only allows one answer, either prior open or Endo repair?

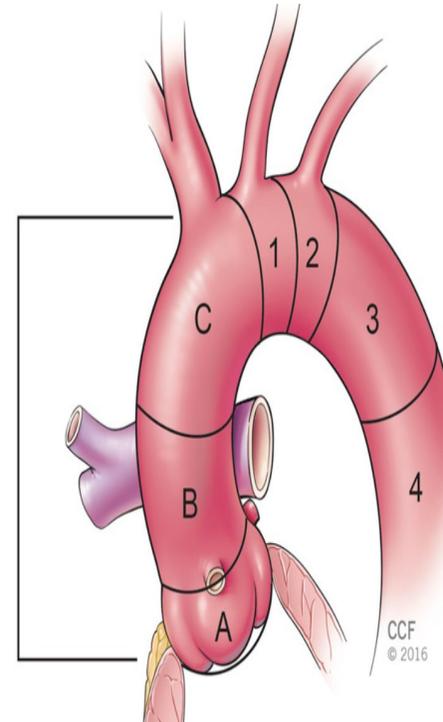
Answer – Since you can only select one choice, it is more important to know what intervention is being done now. For example, if the current procedure is a distal endovascular intervention for a type II endoleak related to the arch TEVAR, select prior endovascular intervention. If the current procedure is a new root replacement in the setting of prior ascending/hemiarch, select prior open surgery. That way, you're capturing what was the previous procedure that's most relevant to the indication or difficulty of doing the present procedure.

Prior Aortic Intervention Scenarios

Patient had a prior open surgical aortic valve resuspension, aortic ascending replacement, and hemiarch replacement.

Prior aortic intervention: <i>PriorAorta (4510)</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown (If Yes ↓)	
Location	Previous repair location(s)	Repair Type
	Select all that apply	Select all that apply
Root (Zone 0 –A)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepRoot (4520)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyRoot (4521)</i>
Ascending (Zone 0 – B&C)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepAsc (4525)</i>	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyAsc (4526)</i>
Arch (Zones 1,2,3)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepArch (4530)</i>	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyArch (4531)</i>
Descending (Zones 4,5)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepDesc (4535)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyDesc (4536)</i>
Suprarenal abdominal (Zones 6,7)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepSupraAb (4540)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTySupraAb (4541)</i>
Infrarenal abdominal (Zone 8,9,10,11)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepInfraAb (4545)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyInfraAb (4546)</i>

Zone 0 - Divided into 3 sections – see figure:



- A. Aortic root** below the sinotubular junction. STJ is the sinotubular junction and identifies the boundary between the aortic root and the ascending aorta. The aortic root, aortic annulus, and the Sinus of Valsalva are below the STJ.
- B. Sinotubular junction to mid ascending** - STJ- mid ascending - The segment of the ascending aorta between the sinotubular junction and the mid-point of the ascending aorta (i.e., proximal tubular ascending aorta) from the coronary ostia to the distal margin of the right pulmonary artery.
- C. Mid ascending to distal ascending** - The segment of the ascending aorta between the mid-point of the ascending aorta from the right pulmonary artery to the origin of the innominate artery or first branch vessel off the aortic arch.

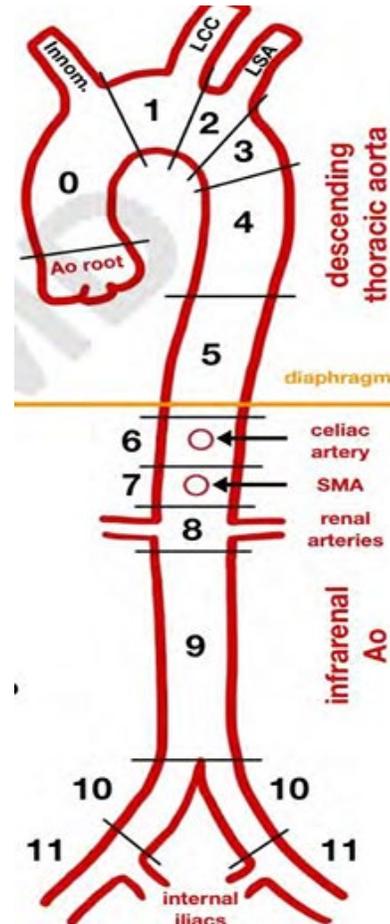
Prior Aortic Intervention Scenarios

Patient has a history of open surgical aortic coarctation repair at age 20.

Pre-op CT ANGIOGRAPHY CHEST

Aorta: Post repair of mid descending thoracic aortic coarctation

Prior aortic intervention: <i>PriorAorta (4510)</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown (If Yes ↓)	
Location	Previous repair location(s)	Repair Type
	Select all that apply	Select all that apply
Root (Zone 0 –A)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepRoot (4520)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyRoot (4521)</i>
Ascending (Zone 0 – B&C)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepAsc (4525)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyAsc (4526)</i>
Arch (Zones 1,2,3)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepArch (4530)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyArch (4531)</i>
Descending (Zones 4,5)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepDesc (4535)</i>	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyDesc (4536)</i>
Suprarenal abdominal (Zones 6,7)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepSupraAb (4540)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTySupraAb (4541)</i>
Infrarenal abdominal (Zone 8,9,10,11)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepInfraAb (4545)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyInfraAb (4546)</i>



Zone 1 - includes the segment of aorta between the innominate artery and left carotid artery as well as the segment of aorta from which the left carotid artery arises (see figure)

Zone 2 - includes the segment of aorta between the left carotid artery and left subclavian artery as well as the segment of aorta from which the left subclavian artery arises (see figure).

Zone 3 - is the 2 cm segment of aorta just beyond the left subclavian artery (see figure).

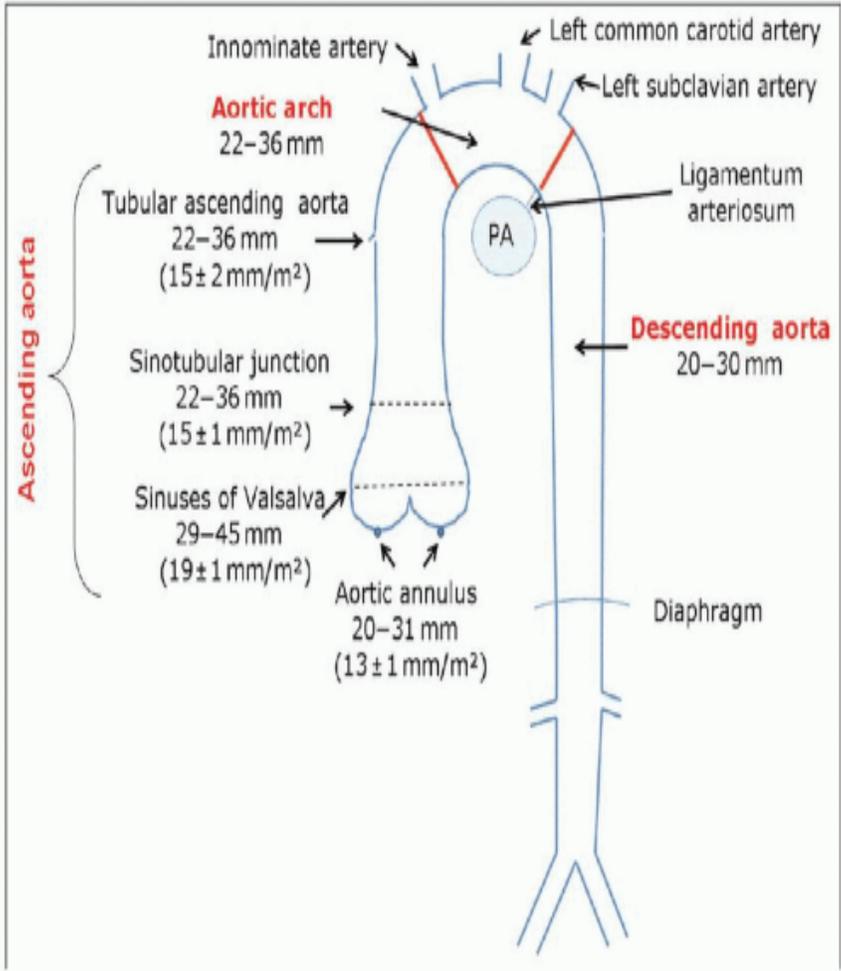
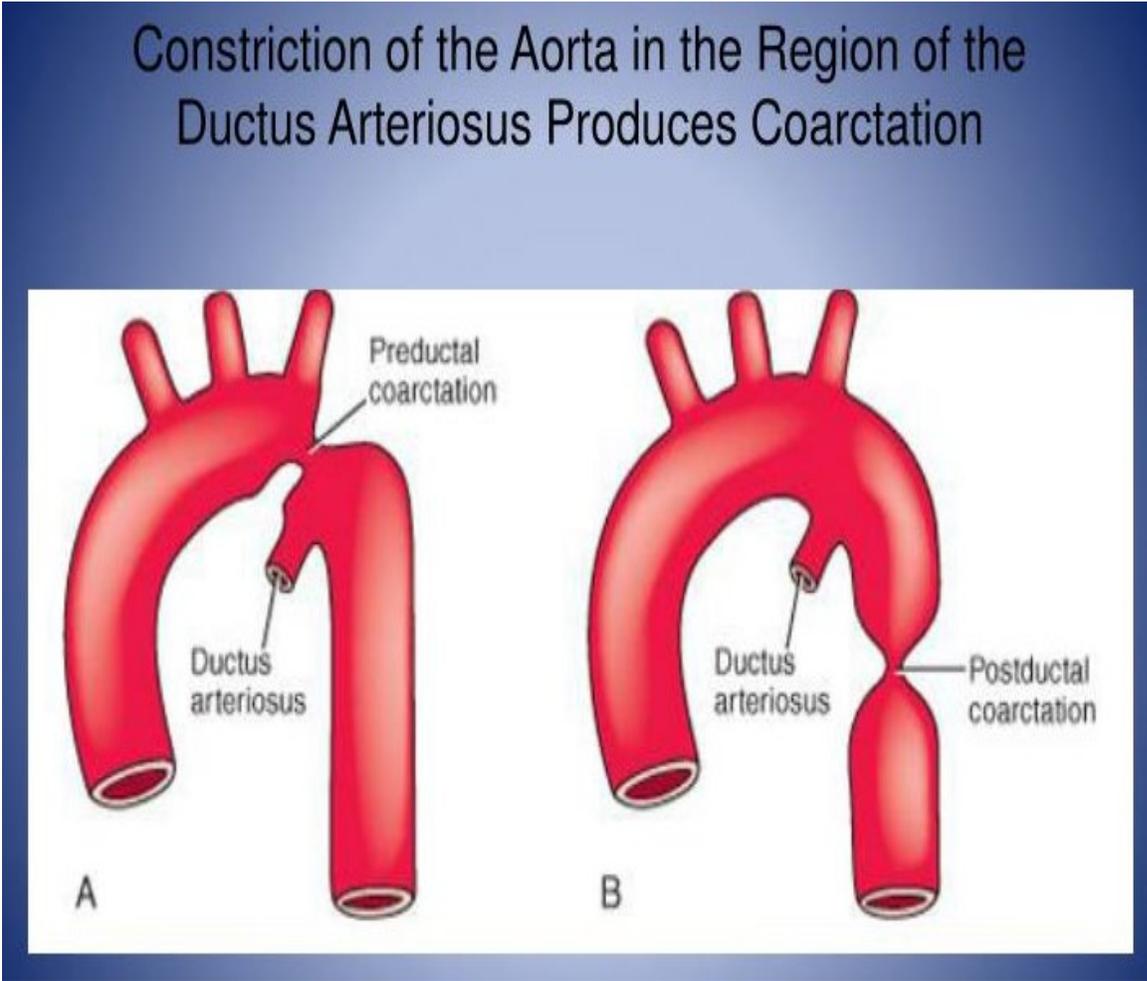
Zone 4 - end of zone 3 to mid descending aorta from 2 cm beyond the left subclavian artery to the mid descending thoracic aorta, which is usually defined by the T6-T7 vertebral bodies (see figure).

Zone 5 - mid descending aorta to celiac extends from the mid descending thoracic aorta (at T6-T7) to the origin of the celiac artery but does not include the origin of the celiac artery (see figure).

Zone 6 - Suprarenal Abdominal zone - celiac to superior mesenteric is **the segment of aorta beginning at the level of the diaphragm** from the celiac artery to the origin of the superior mesenteric artery but does not include the origin of the superior mesenteric artery (see figure).

A word about prior coarctation repairs

The aortic arch just after the subclavian artery is the most common location for coarctation. However, it can occur lower



Prior Aortic Intervention Scenarios

Patient had a prior Ross procedure.

Ross procedure

- A. Aortic root replacement with pulmonary autograft
- B. Coronary artery reimplantation
- C. Pulmonic valve and main pulmonary artery replacement with a 30 mm pulmonic homograft

Prior aortic intervention: <i>PriorAorta (4510)</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown (If Yes ↓)	
Location	Previous repair location(s)	Repair Type
	Select all that apply	Select all that apply
Root (Zone 0 –A)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepRoot (4520)</i>	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyRoot (4521)</i>
Ascending (Zone 0 – B&C)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepAsc (4525)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyAsc (4526)</i>
Arch (Zones 1,2,3)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepArch (4530)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyArch (4531)</i>
Descending (Zones 4,5)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepDesc (4535)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyDesc (4536)</i>
Suprarenal abdominal (Zones 6,7)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepSupraAb (4540)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTySupraAb (4541)</i>
Infrarenal abdominal (Zone 8,9,10,11)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepInfraAb (4545)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyInfraAb (4546)</i>

The Ross Procedure

- Involves replacing the diseased aortic valve with the patient's own pulmonary valve (autograft) and using a biologic substitute, most commonly a homograft, in the pulmonary position and an aortic root procedure with coronary ostial re-implantation.
- May involve a surgical ascending or arch procedure if there is an aneurysm associated with the ascending aorta.
- May be in combination with annular enlargement techniques including, but not limited to Manouagian, Konno and Nicks

Prior Aortic Intervention Scenarios

Patient had a prior AVR with ascending aorta aortoplasty. Now presenting for an ascending aorta aneurysm repair. For Prior Aortic Intervention, it says to include prior aortoplasty as a prior aortic intervention. However, I coded seq 805 (POC) Previous Other Cardiac as "no" since the patient only had an AVR and an aortoplasty which is not considered an additional procedure per STS (Seq 2123). I get a conflict for this inconsistency. How should I code this?

Prior aortic intervention: <i>PriorAorta (4510)</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown (If Yes ↓)	
Location	Previous repair location(s)	Repair Type
	Select all that apply	Select all that apply
Root (Zone 0 –A)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepRoot (4520)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyRoot (4521)</i>
Ascending (Zone 0 – B&C)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepAsc (4525)</i>	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyAsc (4526)</i>
Arch (Zones 1,2,3)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepArch (4530)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyArch (4531)</i>
Descending (Zones 4,5)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepDesc (4535)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyDesc (4536)</i>
Suprarenal abdominal (Zones 6,7)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepSupraAb (4540)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTySupraAb (4541)</i>
Infrarenal abdominal (Zone 8,9,10,11)	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>PriorRepInfraAb (4545)</i>	<input type="checkbox"/> Open <input type="checkbox"/> Endovascular <input type="checkbox"/> Hybrid <i>PriorRepTyInfraAb (4546)</i>

Even though we don't capture aortoplasty as a procedure when done in conjunction with an AVR, we do want to capture if the patient had a prior aortoplasty in Previous Other Cardiac Interventions and in the Prior Aortic Interventions.

Current Procedure with Endoleak Involvement

Current Procedure with Endoleak involvement: Yes No
Endoleak (4620)

Definition: Indicate if current procedure is with endoleak involvement.

Intent/Clarification: An endoleak is defined as the presence of blood leaking through or around an endograft into the aneurysm sac resulting in perfusion and persistent pressurization of the aneurysm sac. **It is the most common complication after endovascular aneurysm repair.** In the case of an aortic dissection, an endoleak refers to persistent false lumen perfusion. The intent is to identify the efficacy of the procedure with the optimal therapy resulting in the absence of any endoleak.

- Complication after an endovascular procedure that repair the aortic aneurysm
- Involves the flow of blood within an aneurysm sac after it is sealed
- About 1 in 4 people who have endovascular aneurysm repair procedures experience an endoleak

Simple Version:

Normally after aneurysm repair, your blood flows through the stent graft. The stent graft prevents blood from flowing into the aneurysm sac. Blood shouldn't flow outside of your stent graft within the aneurysm sac. If that happens, it's called an endoleak.

Type of Endoleak

- There are different types of endoleaks
- Each type has a different cause.
- Some endoleak types are becoming less common, as stent graft technology improves.
- Type 2 endoleaks are the most common.
- Types 1 and 3 are the most dangerous because they have the highest risk of rupture.

(If Yes →)	Type I: leak at graft attachment site: <input type="checkbox"/> Yes <input type="checkbox"/> No EndoleakTypeI (4625)
(If Yes →)	Type I location: <input type="checkbox"/> Ia-proximal <input type="checkbox"/> Ib -distal <input type="checkbox"/> Ic- iliac occluder EndoleakTylLoc (4630)
	Type II: aneurysm sac filling via branch vessel: <input type="checkbox"/> Yes <input type="checkbox"/> No EndoleakTypeII (4635)
(If Yes →)	Number of vessels: <input type="checkbox"/> IIa: single vessel <input type="checkbox"/> IIb: two vessels or more EndoleakVessNum (4640)
	Type III: leak through defect in graft: <input type="checkbox"/> Yes <input type="checkbox"/> No EndoleakTypeIII (4645)
(If Yes →)	Graft defect type: <input type="checkbox"/> IIIa: junctional separation of modular components
	<input type="checkbox"/> IIIb: endograft fractures or holes EndoleakType (4650)
	Type IV: leak through graft fabric – porosity: <input type="checkbox"/> Yes <input type="checkbox"/> No EndoleakTypeIV (4655)
	Type V: endotension - expansion aneurysm sac without leak: <input type="checkbox"/> Yes <input type="checkbox"/> No EndoleakTypeV (4660)

Endoleak - Type I - Leak At Graft Attachment

Definition: Indicate whether endoleak is type I

Intent/Clarification: The intent is to identify the presence of a Type I endoleak. A Type I endoleak is defined as leakage of blood around a graft at the proximal or distal seal zones. This is a result of a gap between the aortic wall and the endograft at either the proximal or distal seal zone.

A Type I endoleak occurs when there is a gap between the graft and the vessel wall at “seal zones.” The gap allows blood to flow along the side of the graft into the aneurysm sac, which creates pressure within the sac and increases the risk of sac rupture. This type of endoleak typically requires urgent attention due to high risk of sac enlargement and rupture.

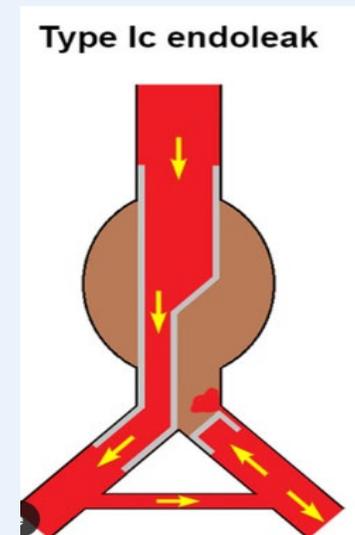
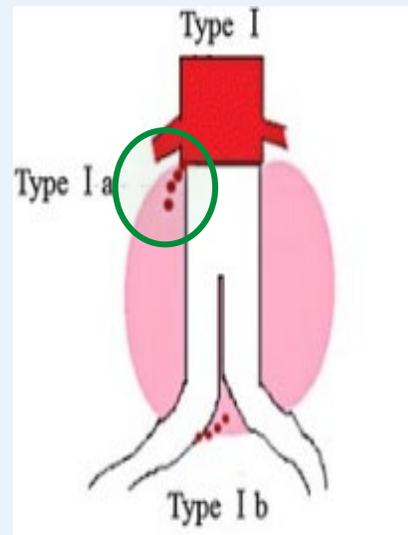
Type of Endoleak	Source of Blood Flow
Type I	Stent-graft attachment sites
Type II	Inflow from collateral vessels
Type III	Structural stent-graft failure
Type IV	Endograft material porosity
Type V	Endotension

Endoleak - Type I - Location

Definition: Indicate the location of the type I endoleak

Intent/Clarification: The intent is to identify the location of the Type I endoleak.

- Ia-Proximal - A Type Ia endoleak is defined as a leak occurring at the proximal seal zone.
- Ib-Distal - A Type Ib endoleak is defined as a leak occurring at the distal seal zone.
- Ic-Iliac occluder - Type Ic endoleak is defined as a non-occluded iliac artery in patients with an aorto-uni-iliac device with a patent femoral-femoral bypass.



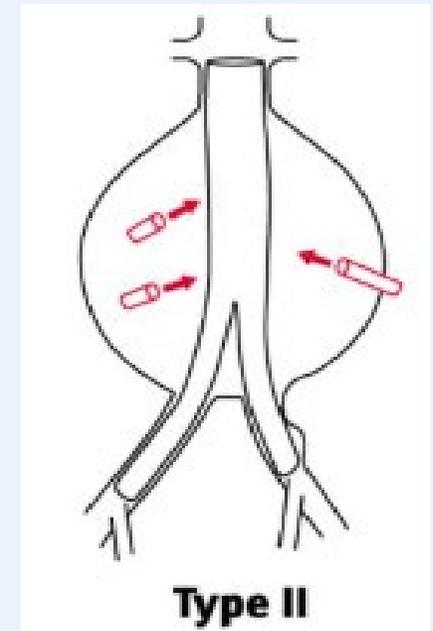
Endoleak - Type II - Aneurysm Sac Filling Via Branch Vessel

Definition: Indicate whether endoleak is type II

Intent/Clarification: The intent is to identify the presence of a Type II endoleak. A Type II endoleak is defined as retrograde filling of the aneurysm sac or false lumen in the case of dissection by aortic branch vessels (e.g., left subclavian artery, intercostal arteries, etc.).

A Type II endoleak results when there is persistent blood flow in the aneurysm sac from small side branches coming off the aorta. This is the most common type of endoleak and is generally considered benign.

Type of Endoleak	Source of Blood Flow
Type I	Stent-graft attachment sites
Type II	Inflow from collateral vessels
Type III	Structural stent-graft failure
Type IV	Endograft material porosity
Type V	Endotension

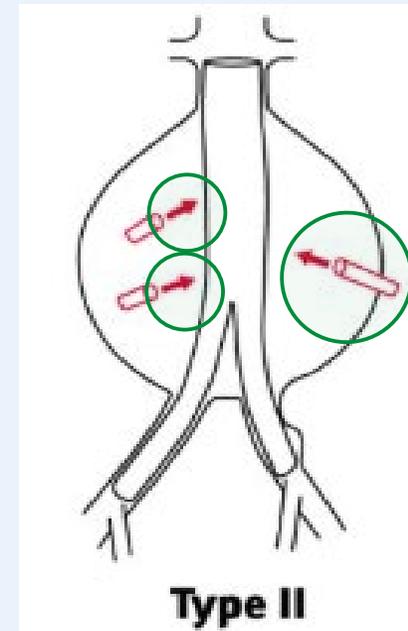


Endoleak - Type II - Number Of Vessels

Definition: Indicate the number of vessels involved in the type II endoleak

Intent/Clarification: The intent is to identify the number of vessels providing retrograde flow into the aneurysm sac or false lumen.

- IIa-Single vessel - A Type IIa endoleak is defined as one branch vessel with retrograde flow causing an endoleak.
- IIb-Two vessels or more - A Type IIb endoleak is defined as more than one branch vessel with retrograde flow causing an endoleak.



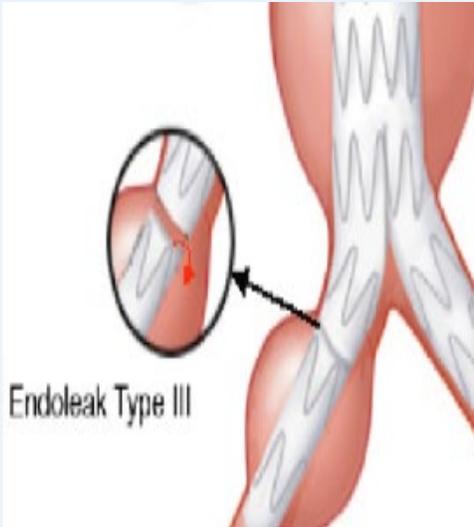
Endoleak - Type III - Leak Through Defect In Graft

Definition: Indicate whether endoleak is type III

Intent/Clarification: The intent is to identify the presence of a Type III endoleak. A Type III endoleak is defined as leakage of blood into the aneurysm sac, or false lumen in the case of dissection, due to either a gap between separate endograft components, or a defect in the fabric of the graft secondary to graft strut fracture or erosion.

A Type III endoleak results from a defect or misalignment between the components of endografts. Similar to what happens with a Type I endoleak, a Type III causes systemic pressure within the aneurysm sac that increases the risk of sac rupture. Therefore, a Type III endoleak also requires urgent attention.

Type of Endoleak	Source of Blood Flow
Type I	Stent-graft attachment sites
Type II	Inflow from collateral vessels
Type III	Structural stent-graft failure
Type IV	Endograft material porosity
Type V	Endotension

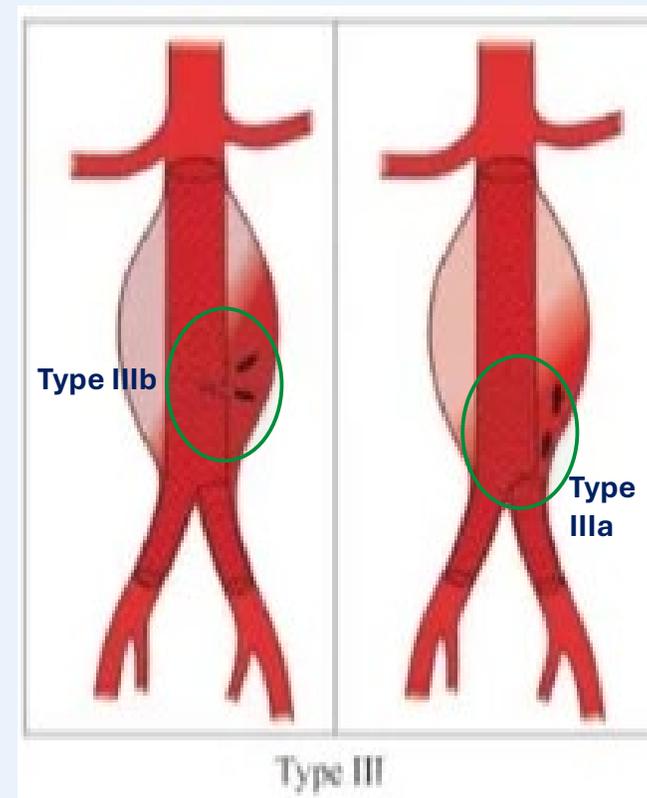


Endoleak - Type III - Graft Defect Type

Definition: Indicate the graft defect type

Intent/Clarification: The intent is to identify which type of Type III endograft exists

- IIIa - Junctional separation of modular components - A Type IIIa defect (junctional separation of modular components) occurs when an endoleak occurs secondary to junctional separation of overlapping endografts. Type IIIa endoleaks are often diagnosed on completion angiography and are attributed to either insufficient overlap between graft components or inadequate balloon expansion at component junctions.
- IIIb - Endograft fractures or holes - A Type IIIb defect (endograft fracture or holes) occurs when an endoleak occurs secondary to a perforation in the fabric of an endograft secondary to graft strut fracture or erosion. Type IIIb endoleaks are rare with modern devices, and entail a preexisting endograft fabric tear or injury to the endograft during placement or manipulation



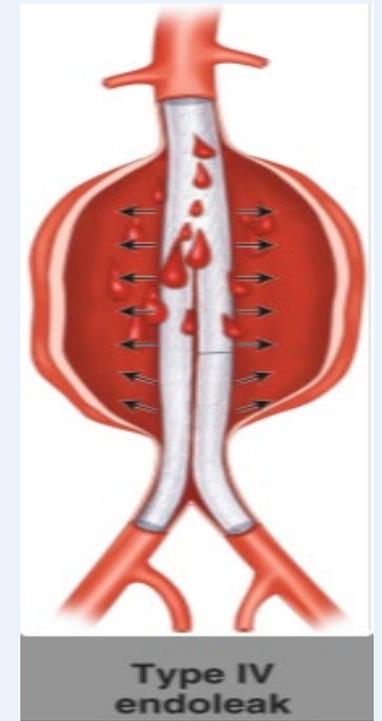
Endoleak - Type IV - Leak Through Graft Fabric - Porosity

Definition: Indicate whether endoleak is type IV

Intent/Clarification: The intent is to identify the presence of a Type IV endoleak. A Type IV endoleak is defined as the presence of an endoleak secondary to graft porosity. All other types of endoleaks must be definitively ruled out prior to selecting this diagnosis.

A Type IV endoleak can occur soon after some procedures due to the porosity of certain graft materials. This type is uncommon with modern low-porous grafts.

Type of Endoleak	Source of Blood Flow
Type I	Stent-graft attachment sites
Type II	Inflow from collateral vessels
Type III	Structural stent-graft failure
Type IV	Endograft material porosity
Type V	Endotension



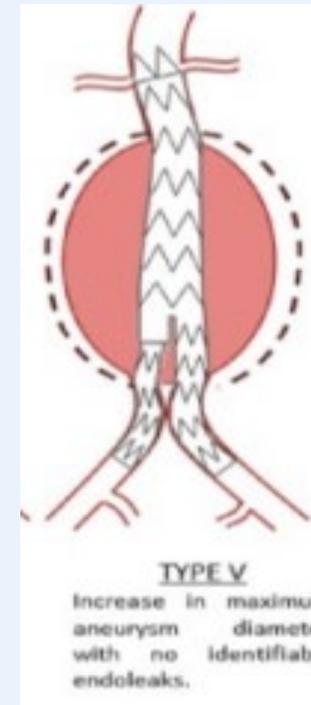
Endoleak - Type V - Endotension-Expansion Aneurysm Sac Without Leak

Definition: Indicate whether endoleak is type V

Intent/Clarification: The intent is to identify the presence of a Type V endoleak. A Type V endoleak, also known as endotension, is defined as persistent aneurysm expansion in the absence of a confirmed endoleak.

A Type V endoleak, sometimes called endotension, is a poorly understood phenomenon. It is thought to occur when increased graft permeability allows pressure to be transmitted through the aneurysm sac. This happens when the aneurysm sac expands even though imaging tests show no signs of an endoleak.

Type of Endoleak	Source of Blood Flow
Type I	Stent-graft attachment sites
Type II	Inflow from collateral vessels
Type III	Structural stent-graft failure
Type IV	Endograft material porosity
Type V	Endotension



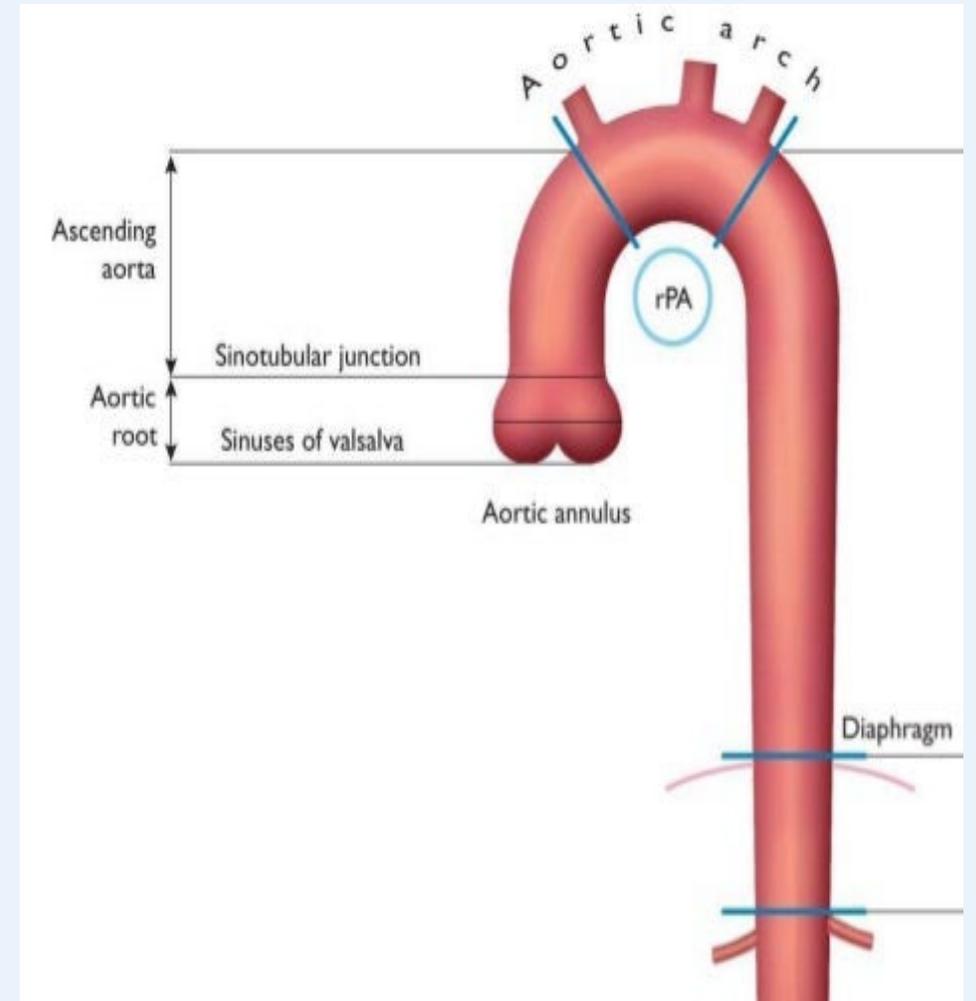
Parent Field - Current Procedure with Aorta Infection

Definition: Indicate if current procedure is with infection.

Intent/Clarification: The intent is to establish the presence of a primary aortic infection (either native aorta or prosthetic graft).

Main Question:

Are you doing an aorta procedure where the aorta involves an infection



Aorta Infection Type

Definition: Indicate the type of aortic infection

Intent/Clarification:

- The intent is to determine the nature and extent of infection within the aorta, including the Sinus of Valsalva the aortic valve and/or endocardial lining of the heart.
- This includes distinguishing whether the infection affects native aorta tissue or involves prosthetic grafts or valve devices.
- Specifically, the goal is to clarify whether the infection is limited to the native aorta or if the infection extends to include the Sinus of Valsalva, the aortic valve, and/or endocardial lining of the heart.

Current Procedure with Aorta Infection: <i>Infection (4665)</i>		<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Graft infection <input type="checkbox"/> Valvular endocarditis <input type="checkbox"/> Nonvalvular endocarditis <input type="checkbox"/> Native aorta	
	<input type="checkbox"/> Multiple infection types	

Aorta Infection Type

Straightforward DCF Choices:

- **Graft infection:** Infection in a surgical aortic graft or endovascular aortic stent graft
- **Native aorta:** Infection in native aortic tissue
- **Multiple infection types:** Involves a mixed infection of both native and prosthetic / grafted materials within the aorta, sinus of Valsalva, endocardium, and/or the aortic valve. For example, aorta graft and native aortic valve infection.

Aorta Infection Type

More Challenging DCF Choices:

- **Valvular endocarditis:**
 - Native aortic valve infectious endocarditis that includes the native aorta

OR

 - Prosthetic aortic valve infectious endocarditis that includes a grafted or stented aorta
- **Nonvalvular endocarditis:** Also known as primary mural endocarditis is a rare form of bacterial infection directly involving the endocardium lining of the heart without attacking the valves.
 - Native aorta infection that resulted from nonvalvular endocarditis arising from the native surface or endocardial lining of the heart.

OR

 - Prior surgical or endocardial aorta graft infection that resulted from nonvalvular endocarditis arising from another graft / non-native portion of heart (excludes prior valves)

Current Procedure with Aorta Infection Scenario

History: Prior prosthetic aortic valve replacement. Endocarditis.

Procedure Performed: AVR with root replacement

Op note: "**The prosthetic aortic valve was infected.** There was a large abscess cavity below the valve seen towards the non and the right commissure. The aortic valve was excised by removing all sutures. All foreign material including all the pledgets and sutures were removed. Now we examined the aortic root. **The aortic root was destroyed more than 50% of the circumference around 3/4 of the non-commissure and noncoronary sinus and about 3/4 of the right sinus were completely infected.** I did not think that I could reconstruct this without a full aortic root replacement.

Current Procedure with Aorta Infection: Infection (4665)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Aorta Infection Type: InfecType (4670)
(If Yes →)	<input type="checkbox"/> Graft infection <input type="checkbox"/> Valvular endocarditis <input type="checkbox"/> Nonvalvular endocarditis <input type="checkbox"/> Native aorta
	<input checked="" type="checkbox"/> Multiple infection types

Prosthetic valve and native aorta involved.

Multiple infection types – In this scenario, there is a prosthetic valve infection and a native aorta infection.

Current Procedure with Aorta Infection Scenario

History: 23 year with past medical history of genetic bicuspid aortic valve who initially presented to outside facility with complaint of cough, nausea, and vomiting. He was found to have infectious endocarditis of his aortic valve.

Procedure Performed: AVR with aortic root replacement

Findings: Large aortic root abscess with destruction of the aortic valve.

Current Procedure with Aorta Infection: <i>Infection (4665)</i>	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
(If Yes →)	Aorta Infection Type: <i>InfecType (4670)</i>
	<input type="checkbox"/> Graft infection <input checked="" type="checkbox"/> Valvular endocarditis <input type="checkbox"/> Nonvalvular endocarditis <input type="checkbox"/> Native aorta <input type="checkbox"/> Multiple infection types

*Infectious endocarditis
involving native aortic valve
and aortic root*

Current Procedure with Trauma

Definition: Indicate if current procedure is with trauma.

Intent/Clarification: Indicate whether there was aortic trauma. Aortic trauma will include blunt trauma (i.e., blunt aortic injury in motor vehicle accident), penetrating trauma (i.e., gunshot, stabbing, etc.), and iatrogenic trauma (i.e., endovascular catheter induced perforation or dissection, may include catheter trauma.)

Includes:

- Blunt trauma - MVA
- Penetrating trauma – Gun and Knife Club
- Iatrogenic trauma – Endovascular / Catheter trauma - traumatic injury to aorta related to procedural complication

Do not include surgical induced aorta trauma that occurred during the index procedure in this field.

Current Procedure with Trauma: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trauma (4675)	
(If Yes, select all that apply →) AorticTraumaLoc (4676)	<input type="checkbox"/> Root <input type="checkbox"/> Ascending <input type="checkbox"/> Arch <input type="checkbox"/> Descending <input type="checkbox"/> Thoracoabdominal <input type="checkbox"/> Abdominal

ANY QUESTIONS???

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!

We Need You!

If you or someone at your site have been successful in implementing a QI project to decrease postoperative renal failure, please reach out to Nancy Honeycutt @ nhoneycutt@sts.org.



Thank You for Joining!

Reminder: Our next ACSD QI Series Webinar will be held on
Wednesday, March 18, 2026 at 3pm ET/2pm CT.

