# Data Managers Training Session 3

- Case Inclusion
- Selection of the Index Procedure
- PROC ID Chart

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Objectives:

Upon completion of this session, participant will be able to:

- Identify if the Case is included in the ACSD

- Define required entry versus optional entry cases

- Understand how to determine the index procedure for the episode of care

- Know how to read the Procedure ID Chart
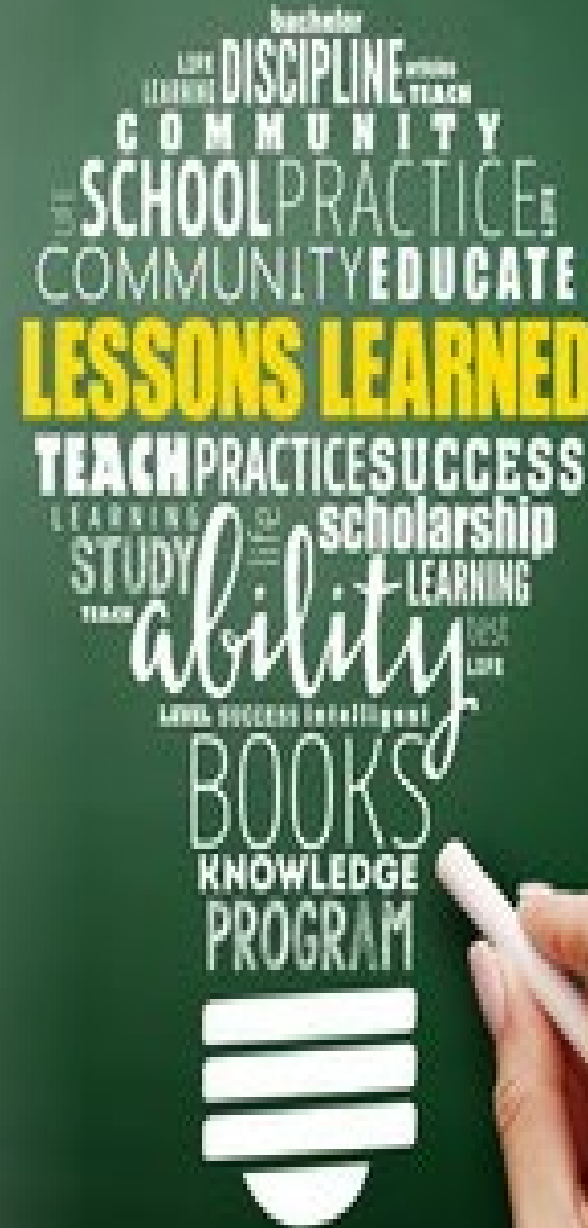
Case Inclusion Step #1 - Determine if a participating cardiac thoracic surgeon performed or participated in the case

- A cardiac thoracic surgeon on the Participation Agreement performs the case or participated in the case.

- If a participating CTS performs a surgery with a non-participating surgeon, then the cardiac thoracic surgeon's name is entered into the database field Surgeon.

- Surgeons who are not on the Participant Agreement who perform cases without a participating cardiac thoracic surgeon can't be entered unless they are added to the Participant Agreement.

Step #2 – Review the Case Inclusion Guide to see if the procedure is required entry or optional entry

STS ACSD Additional Resources – Case Inclusion Guide

https://www.sts.org/sites/default/files/2025-01/ACSD%20Case%20Inclusion%20Guide%20NH%20MO%201.29.25.pdf

STS Adult Cardiac Database Case Inclusion Document

General information

This document is provided to sites to assist in procedure inclusion and identification of the index procedure for the episode of care. There is only one data collection form and one index procedure for your site per episode of care in ACSD. The first step is to determine if a participating cardiac thoracic surgeon performed or participated in the case using the concepts below:

- A cardiac thoracic surgeon on the site's Participation Agreement performs the case or participated in the case.

- Surgeons who are not on the site's Participant Agreement who perform cases without a participating cardiac thoracic surgeon can't be entered unless they are added to the site's Participant Agreement.

- If a participating Cardiothoracic Surgeon performs a surgery with a non-participating surgeon, then the cardiac thoracic surgeon's name is entered into the database field Surgeon (Surgeon)

The Case Inclusion Document is not an all-inclusive list. If your procedure cannot be found on the list, please send in a FAQ to determine if the procedure should be included in the Database.

Required Cases in-conjunction with other CV surgery or stand-alone procedure

1. CABG

2. Valve to include:
   - Aortic valve repair, surgical
   - Aortic valve replacement, surgical
   - Mitral valve commissurotomy, surgical
   - Mitral valve repair, surgical
   - Mitral valve replacement, surgical
   - Tricuspid valve repair, surgical
   - Tricuspid valve replacement, surgical
   - Tricuspid valvectomy
   - Pulmonary valve repair, surgical
   - Pulmonary valve replacement, surgical
   - Pulmonary valvectomy
   - Prosthetic valve repair

What's included?

Required Cases in-conjunction with other CV surgery or stand-alone procedure

3. Aorta - starting above diaphragm, includes dissections to include:

- Aortic procedure, arch
- Aortic procedure, ascending
- Aortic procedure, descending
- Aortic procedure, root
- Aortic procedure, thoracoabdominal
- Aortic root procedure, valve sparing
- Aortic Procedure, TEVAR.
  - TEVAR with any portion above the level of the diaphragm are included as endovascular aorta cases if a CT surgeon on the Participant Agreement participated in the TEVAR.
    - EVARs are not included in the STS Database.

Required Cases in-conjunction with other CV surgery or stand-alone procedure

4. Procedures performed on the heart, aorta, pulmonary arteries or veins and/or the intrathoracic inferior/superior vena cava to include:
   - Left/ Right Ventricle or Atrium procedure or repair
   - Cardiac Trauma
   - LV Aneurysm Repair
   - Minimally invasive Patent foramen ovale closure
   - Cardiac Tumor
   - Closure atrial septal defect
   - Closure ventricular septal defect
   - Subaortic Stenosis Resection
   - Septal myectomy
   - Pulmonary Thromboembolectomy
   - Pulmonary Artery Aneurysm Repair
   - Transmyocardial Laser Revascularization (TMR)
   - Stand – alone Pericardiectomy – If the pericardium is performed from the left phrenic nerve to the right phrenic nerve it can be included in the Adult Cardiac Surgery Database; otherwise submit to the General Thoracic Database

include

Required Cases in-conjunction with other CV surgery or stand-alone procedure

Atrial fibrillation cases done by Cardiac Thoracic Surgeon to include:

- Maze

- Pulmonary vein isolation etc...

- LAA clips

- Ablation, catheter atrial fibrillation ablation, surgical, atrial fibrillation such as Maze, Pulmonary vein isolation etc...

- Convergent Procedure - The surgical component of the Convergent MAZE procedure completed by a Cardiothoracic Surgeon is captured.

- Total thoracoscopic MAZE (thoracoscopic stand-alone maze)

CHOOSE TO INCLUDE

Required Cases in-conjunction with other CV surgery or stand-alone procedure

6. ICD and Pacemaker Lead Extractions done by Cardiac Thoracic Surgeon. For stand-alone lead extractions, enter all lead extractions regardless of approach when a participating Cardiac Thoracic Surgeon performs or actively participates in the procedure.

   - Stand-alone explantation of Micra leadless ventricular pacemaker is coded as lead extraction, even though they are not traditional leads, as it still connects to the myocardium.
   - Stand-alone extraction of leads for a subcutaneous ICD is not required entry in the ACSD since these leads are placed subcutaneously and do not attach to the myocardium.

7. VAD explants and implants <u>done in conjunction</u> with CV surgery, performed anytime during same admission (pre, intra, or post-op).

What's included

Optional Cases - If there is no required entry case performed during the episode of care

- Optional cases should be entered at the discretion of the CV surgeon(s) on your STS Participation Agreement.

- Sites are encouraged to check with surgeon(s) to determine if they want these cases entered the database.

- To enter these cases the surgeon performing these cases must be on the STS ACSD participation agreement.

Optional Cases - If there is no required entry case performed during the episode of care
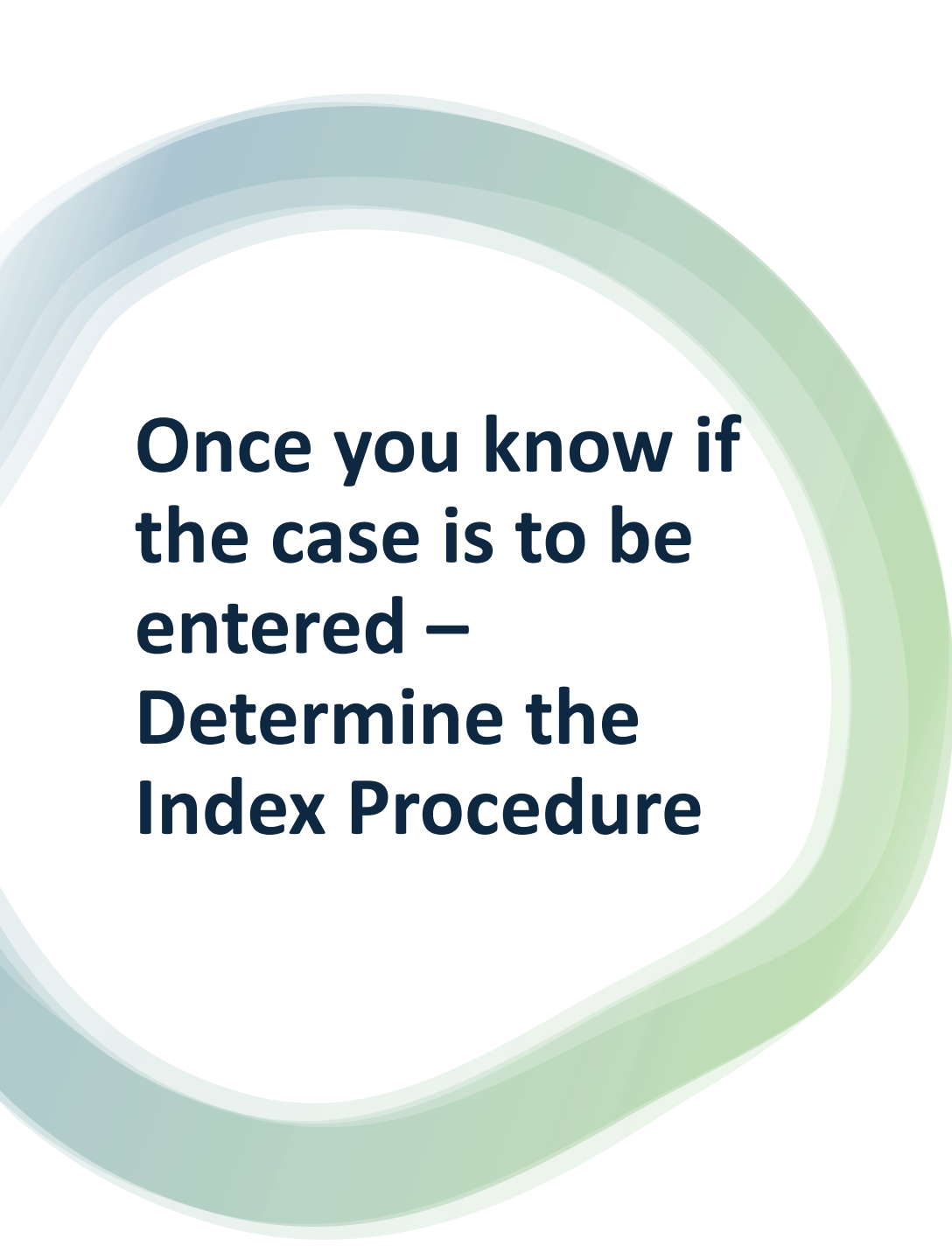
- Stand-alone ECMO / Impella insertions / Temporary Mechanical Assist Devices/ IABP insertions
- Stand-alone VAD insertions or explants
- Stand-alone Total Artificial Heart (TAH) - this is coded as VAD
- Stand-alone TAVR / TMVR / Mitral clips/ TTVR / Tricuspid Clips
- Stand-alone pericardial windows, pacemaker/ ICD insertions / lead insertions
- Stand-alone Lung Transplants
- Stand-alone Heart Transplants – All heart transplants should be entered into the UNOS registry. They are not required to be entered into the STS ACSD unless your surgeon would like the cases entered.
- Stand-alone Angiovac assisted extirpation of matter from the valve via percutaneous approach with cardiopulmonary bypass
  - If you choose to enter these cases in ACSD, code as (OpOCard) Other Cardiac Procedure and then (OCarOthr) Other Cardiac Procedure. Do not code these as valve procedures.

OPTIONAL

Optional Cases - If there is no required entry case performed during the episode of care

- A stand-alone percutaneous pulmonary thromboembolectomy with INARI FlowTriever or Angiovac device

    o If you choose to enter in ACSD code as (OpONCard) Other Non-Cardiac Procedure and (ONCOVasc) Other Vascular.

- Stand-alone Endovascular Aortic Valve repair
    o If your site chooses to enter it, then enter it as code as (OpOCard) Other Cardiac Procedure and then (OCarOthr) Other Cardiac Procedure.

- Repair of LV aneurysm using a transcatheter approach using the Revivent Transcatheter Ventricular Enhancement System
    o If your site chooses to enter it, then enter it as code as (OpOCard) Other Cardiac Procedure and then (OCarOthr) Other Cardiac Procedure.

- Barostim placement procedures
    o If your site chooses to enter it, then enter it as code as (OpOCard) Other Cardiac Procedure and then (OCarOthr) Other Cardiac Procedure.

Once you know if the case is to be entered – Determine the Index Procedure

There is only one data collection form and one index procedure for your site per episode of care in ACSD.

- Cancelled or Aborted cases without any procedure performed are not entered into V 4.2.

How to Choose the Index Procedure

1. Required entry analyzed cases are top priority, so if you have one of them, then that is the index procedure.

2. Always enter required entry cases over optional cases. So, if you have a TAVR, then a SAVR, the SAVR is the index procedure.

3. If you have 2 required entry cases and neither of them are analyzed, then choose the first required entry case where a procedure is performed on the heart, aorta, pulmonary arteries or veins and/or the intrathoracic inferior/superior vena cava. For example, aortic dissection repair, followed by RV perforation repair, the aortic case is index.
   a. **Note** – if one of these 2 non-analyzed cases has a Risk Calculator and the other does not, then enter the case with a Risk Calculator. For example, ICD Lead extraction followed by TV Repair – enter the TV repair.

4. If you have 2 optional entry cases such as stand-alone LVAD and then heart transplant, the transplant is the index procedure in this episode of care.

Scenarios: Case Inclusion

Well, what do I do now?

Preoperative Diagnosis
1. Massive saddle pulmonary emboli
2. Cardiopulmonary collapse
3. Morbid obesity with BMI > 65 and BSA >3.3

Postoperative Diagnosis
1. Massive saddle pulmonary emboli
2. Cardiopulmonary collapse
3. Morbid obesity with BMI > 65 and BSA >3.3

Procedure Performed
1. Mediastinal sternotomy for surgical thrombectomy of saddle pulmonary embolus and bilateral pulmonary emboli
2. Institution of VV ECMO with 30Fr dual stage cannula via right internal jugular

Is this case included in the Registry?

Required entry - Procedures performed on the heart, aorta, pulmonary arteries or veins and/or the intrathoracic inferior/superior vena cava to include Pulmonary Thromboembolectomy

Scenarios: Case Inclusion

FIGURE iT OUT

PREOPERATIVE DIAGNOSIS:
Left atrial laceration, cardiac tamponade, cardiac arrest and hemorrhagic shock secondary to attempted Watchman procedure.

NAME OF PROCEDURE:
Median sternotomy, mediastinal exploration and evacuation of large pericardial hematoma.
Repair of complex left atrial laceration.
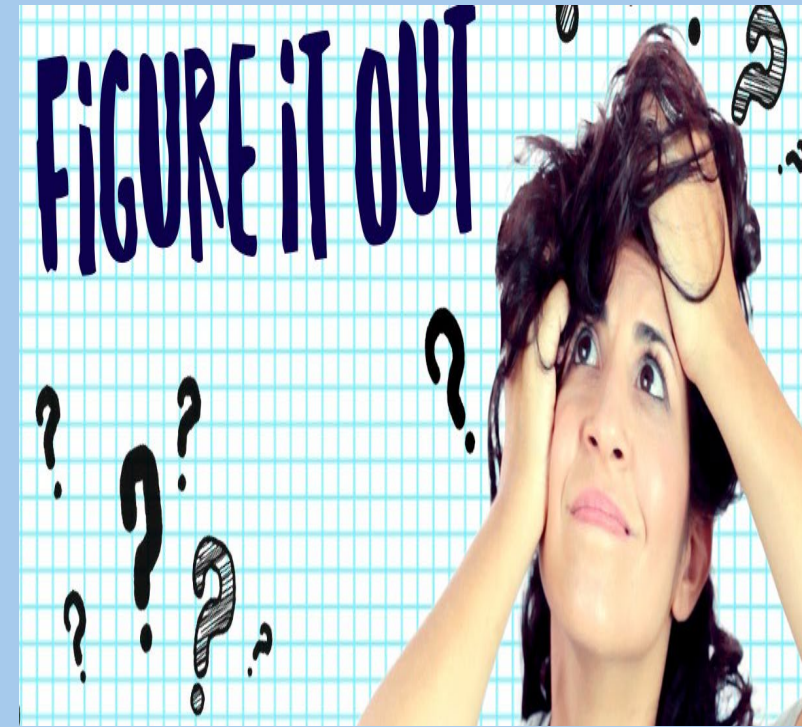
Is this case included in the Registry?

Required entry - Procedures performed on the heart, aorta, pulmonary arteries or veins and/or the intrathoracic inferior/superior vena cava to include LA/RA Repair

Watchman is coded as a prior CV intervention

Scenarios: Case Inclusion

Robotic Left atrial clip with Robotic Da Vinci system and 3 port approach performed by cardiac thoracic surgeon

Is this case included in the Registry?

Required entry Atrial fibrillation cases done by Cardiac Thoracic Surgeon to include LAA clips

Scenarios: Case Inclusion

Preoperative Diagnoses: Chest pain, retained foreign body, and pericardial effusion
Procedures:
Subxiphoid pericardial window
Open removal of foreign body under cardiopulmonary bypass
Tricuspid valve repair with patching of the anterior leaflet and a 32 mm Physio tricuspid ring

Is this case included in the Registry?

Required entry all Valve repairs / replacements

Scenarios: Case Inclusion

Subxiphoid minimally invasive epicardial ablation convergent procedure done by CTS

Is this case included in the Registry?

    Required entry – All Atrial fibrillation cases done by Cardiac Thoracic Surgeon

    The surgical component of the Convergent MAZE procedure completed by a Cardiothoracic Surgeon is captured in the Afib section as primarily epicardial and Epicardial Posterior Wall Other (i.e., Convergent procedure)

    Only capture the surgical component of the Convergent procedure completed by a Cardiothoracic Surgeon. Do not code the Cardiologist's portion (lesions)

Scenarios: Case Inclusion

PROCEDURE PERFORMED:

Redo-sternotomy

Right axillary artery cannulation (8 mm Dacron graft)

Aortic arch debranching ascending to innominate artery bypass and ascending to left common carotid artery bypass (Vascutek trifurcated graft, 14 x 8 x 8 mm) using cardiopulmonary bypass
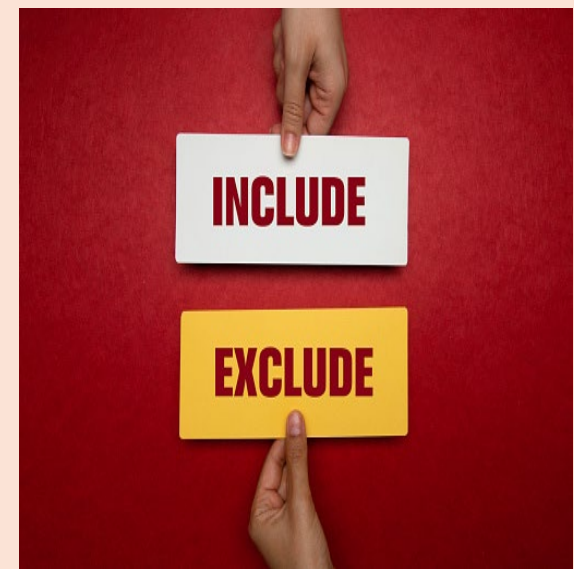
Is this case included in the Registry?

If this was a stand-alone procedure and the only procedure done in the episode of care, then this isolated head vessel case does not have to be entered into ACSD.

If you choose to enter this case, enter it as other vascular

Scenarios: Index Procedure

Patient arrested during cath procedure, CT surgery called emergently for ECMO placement and in same admission 3 days later had redo AVR

What is the index procedure?

Stand-alone ECMO is optional to enter

AVR is required entry and is analyzed

Always enter required entry cases over optional cases

AVR is the index procedure

Scenarios: Index Procedure

Patient had a Correction Of Anomalous Origin Of Right Coronary Artery With Reimplantation. Patient had signs of myocardial ischemia post-op and was taken back to the OR for an Emergency CAB x1.

What is the index procedure?

Correction of Anomalous RCA is required entry, but is not analyzed since it is a Congenital procedure

CABG is required entry and is analyzed

Required entry analyzed cases are top priority, so if you have one of them, then that is the index procedure

CABG is the index procedure

Scenarios: Index Procedure

Patient presented with MVA and had cardiac trauma. Taken to OR for LV perforation repair. Four days later, patient complained of severe back pain and was found to have an acute type aortic dissection and was taken to the OR for aortic dissection repair.

What is the index procedure?

LV repair is required entry, but is not analyzed

Aortic dissection repair is required entry and is not analyzed

If you have 2 required entry cases and neither of them are analyzed, then choose the first required entry case.

LV repair is the index procedure

Scenarios: Index Procedure

Patient had a stand alone lead extraction procedure performed by a cardiac surgeon. The following day the patient had a TV Repair.
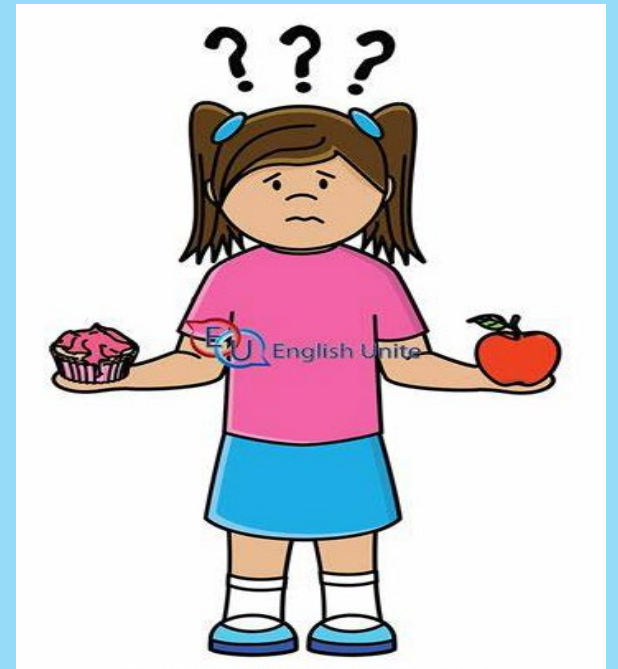
What is the index procedure?

Stand-alone lead extraction performed by CTS is required entry but is not analyzed.

TV Repair is required entry and is not analyzed, but there is a Risk Calculator for this procedure.

Note – if one of these 2 non-analyzed cases has a Risk Calculator and the other does not, then enter the case with a Risk Calculator.

TV Repair is the index procedure

Scenarios: Index Procedure

Patient has a stand-alone VAD placement. Later in the same episode of care, the patient has a heart transplant.

What is the index procedure?

Stand-alone VAD is optional to enter

Heart Transplant is optional to enter

If you have 2 optional entry cases such as stand-alone VAD and then heart transplant, the transplant is the index procedure in this episode of care
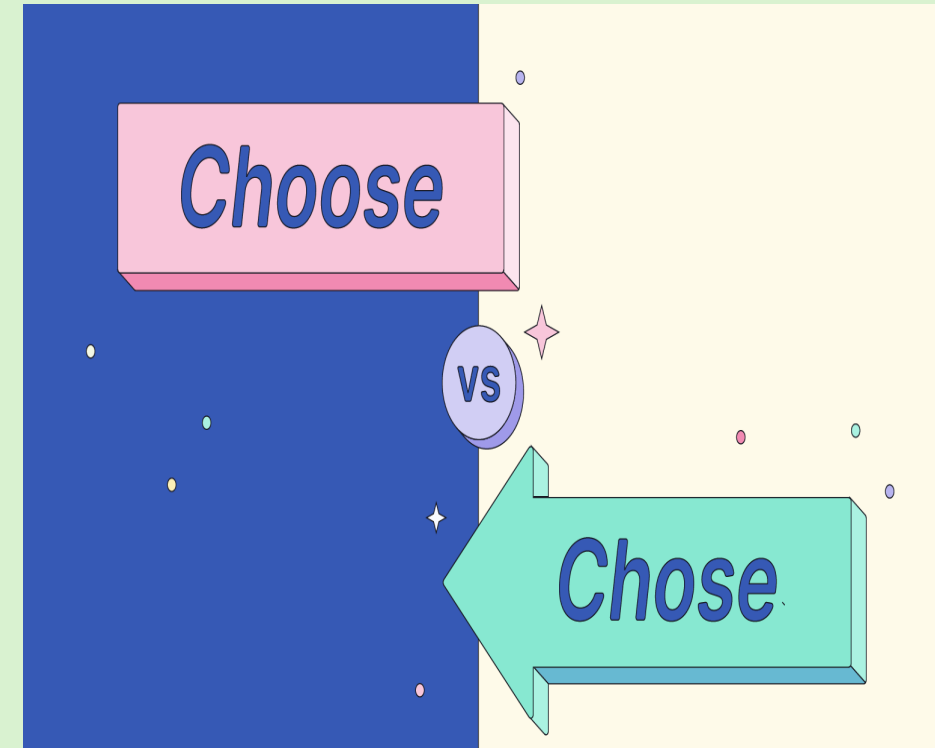
Scenarios: Index Procedure

TAVR was performed in the Cath Lab. Subsequently taken to the OR immediately following for an open repair of an LV perforation

What is the index procedure?

TAVR is optional to enter

LV repair is required entry

Always enter required entry cases over optional cases

LV repair is the index procedure

Link to Webinar on coding of TAVR gone bad -
https://www.sts.org/sites/default/files/Database%20Webinar%20Handouts/ACSD%20user%20group%2012152021.pdf

Transfers to a Higher Level of Care

- Patients that are transferred to another acute care hospital should be followed until the time of discharge from that facility. That will be the discharge date you enter in the database.

- Any patient that dies at another acute care hospital after transfer should be coded as a mortality in the database.

- Please gather as much of the post-op information as possible such as ICU hours, blood use, complications, etc. from the acute care facility that the patient was transferred to, as the patient is not technically discharged until they are discharged from acute care.

Transfers to a Higher Level of Care

What happens if I transfer my patient to a higher level of care and another required entry procedure is performed at the other hospital?

Transfers to a Higher Level of Care

Patient had CABG at my site on 5/15 and was transferred to another hospital on 5/30 and had an AVR performed.

If both sites participate in the ACSD:

- **CABG on 5/15 will be entered as the index procedure for your site. AVR at the OSH will be entered as a re-op valve for your site.**

- **AVR on 5/30 will be entered as the index procedure for this site at the OSH.**

- **Both sites will follow this patient until discharge from acute care.**

Transfers to a Higher Level of Care

Patient had CABG at my site on 5/15 and was transferred to another hospital on 5/30 and had an AVR performed. What happens if the patient dies during the AVR hospitalization?

- **CABG on 5/15 will be entered as the index procedure for your site. AVR at the OSH will be entered as a re-op valve for your site. Operative mortality will be coded as 'Yes' for your site.**

- **AVR on 5/30 will be entered as the index procedure for this site and Operative mortality will be coded as 'Yes' for this site.**

- **Mortality is counted at the procedure level, not the patient level, so this will be a CABG procedure mortality and a AVR procedure mortality.**

PROC ID Chart

The purpose of the PROC ID Chart is to define the operations that are *eligible for analysis* with the Risk Models and associated performance measures.

Each procedure that you add to an analyzed case may or may not affect isolation depending on the PROC ID Chart for the analyzed procedure.

Procedure ID Chart – Analyzed Cases

- Isolated CAB (ProcID=1)

- Isolated AVR (ProcID=2)

- Isolated MVR (ProcID=3)

- AVR + CAB (ProcID=4)

- MVR + CAB (ProcID=5)

- AVR + MVR (ProcID=6)

- MV Repair (ProcID=7)

- MV Repair + CAB (ProcID=8)

- AVR + MVRr (ProcID=9)

- CABG + AVR + MVRr (ProcID=10)

ProcID 6 is not risk adjusted and has no STAR Rating composite

ProcID 9 and ProcID 10 is risk adjusted and has no STAR Rating composite score. There are no volume thresholds.

The Multi-Procedure STAR Rating composite will include ProcID 9 and ProcID 10.

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ACC TVT Registry   Published Research   Public Reporting Toolkit

Industry Data Requests

Additional Resources - *Updated May 1, 2024*

- Data Specifications v4.20.2
- Software Specifications v4.20.2
- Itemized Changes from v4.20.1 to v4.20.2
- Change Summary v4.20.2
- Itemized Changes v4.20.2
- Procedure Identification Chart (ProcID) - Updated November 2024
- Risk Model Variable Chart
- Risk Model Endpoint Chart - Updated February 2021

Link to PROC ID Chart

- https://www.sts.org/sites/default/files/2024-11/ProcID%20ACSD%20V4_20_ProcID1to10_Final_11142024.pdf

Variable Short Name/Seq #	PART 1 (PROCID 1 through 4)			
	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)
OpCAB/2120	• Yes, planned • Yes, unplanned due to unsuspected disease or anatomy	• No • Yes, unplanned due to surgical complication • Missing	• No • Yes, unplanned due to surgical complication • Missing	• Yes, planned • Yes, unplanned due to unsuspected disease or anatomy
OpCAB	OpCAB in(3,5)	OpCab in (NULL, 2,4)	OpCab in (NULL, 2,4)	OpCAB in(3,5)
OpValve/2129	<Not used in this calculation>	• Yes	• Yes	• Yes
OpValve		Opvalve eq 1	Opvalve eq 1	Opvalve eq 1
VSAV/2131	• No • Yes, unplanned due to surgical complication • Missing	• Yes, planned • Yes, unplanned due to unsuspected disease or anatomy	• No • Yes, unplanned due to surgical complication • Missing	• Yes, planned • Yes, unplanned due to unsuspected disease or anatomy
VSAV	VSAV in (NULL, 2,4)	VSAV in (3,5)	VSAV in (NULL, 2,4)	VSAV in (3,5)
VSAVPr/3395	<Not used in this calculation>	Replacement	<Not used in this calculation>	Replacement
VSAVPr		VSAVPr eq 1		VSAVPr eq 1
VSMV/2133	• No • Yes, unplanned due to surgical complication • Missing	• No • Yes, unplanned due to surgical complication • Missing	• Yes, planned • Yes, unplanned due to unsuspected disease or anatomy	• No • Yes, unplanned due to surgical complication • Missing
VSMV	VSMV in (NULL, 2,4)	VSMV in (NULL, 2,4)	VSMV in (3,5)	VSMV in (NULL, 2,4)
VSMVPr/3500	<Not used in this calculation>	<Not used in this calculation>	• Replacement	<Not used in this calculation>
VSMVPr			VSMVPr eq 2	
OCarCongProc1/ 6515	• Missing • PFO, Primary closure • Anomalous origin of coronary artery from pulmonary artery repair • Anomalous aortic origin of coronary artery from aorta (AAOCA) repair	• Missing • PFO, Primary closure	• Missing • PFO, Primary closure • ASD repair, Primary closure • ASD repair, Patch	• Missing • PFO, Primary closure • Anomalous origin of coronary artery from pulmonary artery repair • Anomalous aortic origin of coronary artery from aorta (AAOCA) repair
OCarCongProc1	Ocarcongproc1 in (NULL,10,1291,1305)	Ocarcongproc1 in (NULL,10)	Ocarcongproc1 in (NULL,10,20,30)	Ocarcongproc1 in (NULL,10,1291,1305)

Page 1 with 4 PROC ID categories at the top.

The Gray lines are programming lingo and can be ignored. Focus on the white rows

solid   liquid   gas

identfy

Variable Short Name/Seq #	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)
VExp3/3985			• Yes, not during this procedure • No • Missing	
VExp3	VExp3 in (NULL, 3, 2)			
OCarLVA/4054			• No • Missing	
OCarLVA	OCarLVA in (NULL, 2)			
OCarAcqVSD/4131			• No • Missing	
OCarAcqVSD	OCarVSD in (NULL, 2)			
AortProc/2123			• No • Yes, unplanned due to surgical complication • Missing	
AortProc	Aortproc in (NULL, 2,4)			
EndovasProc/5066			• No • Missing	
EndovasProc	EndovasProc in (NULL, 2)			
OCarAFibLesLoc/4191	• Epicardial • None • Missing	• Epicardial • None • Missing	<Not used in this calculation>	• Epicardial • None • Missing
OCarAFibLesLoc	OCarAFibLesLoc not in(2,3)	OCarAFibLesLoc not in(2,3)		OCarAFibLesLoc not in(2,3)
OCardASDRep/4136	• No • Missing	• No • Missing	<Not used in this calculation>	• No • Missing
OCardASDRep	OCardASDRep in (NULL, 2)	OCardASDRep in (NULL, 2)		OCardASDRep in (NULL, 2)
OCarACD/4055	<Not used in this calculation>	<Not used in this calculation>	• None • Missing • Pacemaker	<Not used in this calculation>
OCarACD	OCarACD in (NULL, 1, 2)			
OCarACDLE/	• Yes, unplanned due to surgical complication			

On this slide you have procedures that effect all 4 categories and others that effect individual categories

Green Highlights changes from V 2.9 to 4.2

PROC ID Chart

PART 1 (PROCID 1 through 4)				
Variable Short Name/Seq #	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)
OCarACDLE/ 4065		• Yes, unplanned due to surgical complication • No • Missing		
OCarACDLE	OCarACDLE in (NULL, 2,4)			
OCarLasr/4110	\<Not used in this calculation\>	\<Not used in this calculation\>	• No • Missing	\<Not used in this calculation\>
OCarLasr			OCarLasr in (NULL, 2)	
OCPulThromDis/ 4052		• No • Missing		
OCPulThromDis	OCPulThromDis in (NULL, 1)			
OCarSubaStenResTy / 4051		• No • Missing • Not Documented		
OCarSubaStenResTy	OCarSubaStenResTy in (NULL, 5,7)			
OCarCrTx/4120		• No • Missing		
OCarCrTx	OCarCrTx in (NULL, 2)			
OCarTrma/4125		• No • Missing		
OCarTrma	OCarTrma in (NULL, 2)			
OCTumor/4115		• No • Missing		
OCTumor	OCTumor in (NULL, 1)			
OCarOthr/4135		• No • Missing		
OCarOthr	OCarOthr in (NULL, 2)			
VSTCV/3400		• No • Missing		
VSTCV	VSTCV in (NULL, 2)			
VSTCVMit/3610		• No • Missing		
VSTCVMit	VSTCVMit in (NULL, 2)			
VSTCVTri/3652		• No • Missing		

PROC ID Chart

- **Need Annotated DCF for Short Name and Seq Number**

- **Note not all seq numbers for procedures are on the PROC ID Chart. If it is not on the PROC ID Chart, then it does not affect isolation.**
  - **Example - Seq 4060 Lead Insertion is not included in PROC ID Chart**

- **If you code "No or Missing or Yes, unplanned due to surgical complication" case will stay isolated**

- **Ignore the Gray lines**

PROC ID Chart

- **SEQ 4191 A-fib Lesion location is used in the Isolated CAB, Isolated AVR, and Isolated CAB AVR calculation, however it is not used in any of the mitral valve calculations.**

	PART 1 (PROCID 1 through 4)			
Variable Short Name/Seq #	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)
OCarAFibLesLoc/ 4191	• Epicardial • None • Missing	• Epicardial • None • Missing	<Not used in this calculation>	• Epicardial • None • Missing

	PART 2 (PROCID 5 through 8)			
Variable Short Name	MVR + CAB** (ProcID=5)	AVR + MVR** (ProcID=6)	MV Repair** (ProcID=7)	MV Repair + CAB** (ProcID=8)
OCarAFibLesLoc/ 4191	<Not used in this calculation>	<Not used in this calculation>	<Not used in this calculation>	<Not used in this calculation>
OCarAFibLesLoc				

Variable Short Name	Part 3 (PROCID 9 through 10)	
	AVR + MVRr (ProcID=9)	CABG + AVR + MVRr (ProcID=10)
OCarAFibLesLoc/ 4191	<Not used in this calculation>	<Not used in this calculation>

PROC ID Chart

PART 1 (PROCID 1 through 4)				
Variable Short Name/Seq #	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)

PART 2 (PROCID 5 through 8)				
Variable Short Name	MVR + CAB** (ProcID=5)	AVR + MVR** (ProcID=6)	MV Repair** (ProcID=7)	MV Repair + CAB** (ProcID=8)

Part 3 (PROCID 9 through 10)		
Variable Short Name	AVR + MVRr (ProcID=9)	CABG + AVR + MVRr (ProcID=10)

AortProc/2123	• No • Yes, unplanned due to surgical complication • Missing

- **All aorta cases seq 2123 except unplanned due to surgical complication remove the case from isolation***
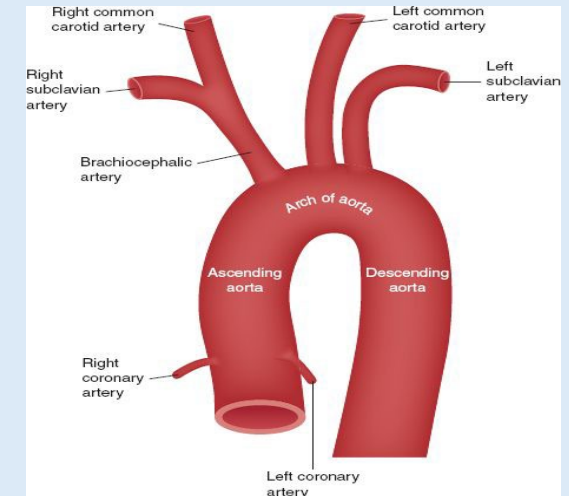
PROC ID Chart

For Mitral Cases

	PART 2 (PROCID 5 through 8)			
Variable Short Name	MVR + CAB** (ProcID=5)	AVR + MVR** (ProcID=6)	MV Repair** (ProcID=7)	MV Repair + CAB** (ProcID=8)
	Part 3 (PROCID 9 through 10)			
Variable Short Name	AVR + MVRr (ProcID=9)		CABG + AVR + MVRr (ProcID=10)	
Tricuspid Procedures: VSTV/2134 VSTrPr/3636 VSTrValvec/3683	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec

- **Tricuspid Procedure Performed (VSTrPr) "Missing or Repair" case will stay isolated.**
- **All tricuspid repairs do not affect isolation in mitral cases.**
- **Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies will affect case isolation for mitral cases if the procedure is planned or unplanned due to unsuspected anatomy.**

PROC ID Chart

PART 1 (PROCID 1 through 4)			
Variable Short Name/Seq #	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)

PART 2 (PROCID 5 through 8)			
Variable Short Name	MVR + CAB** (ProcID=5)	AVR + MVR** (ProcID=6)	MV Repair** (ProcID=7)	MV Repair + CAB** (ProcID=8)

Part 3 (PROCID 9 through 10)		
Variable Short Name	**AVR + MVRr (ProcID=9)**	**CABG + AVR + MVRr (ProcID=10)**
PrevVADExp/ 3825	• Yes, not during this procedure • No • Missing	
PrevVADExp	PrevVADExp in (NULL, 1,3)	
VADImpTmg/ 3845	• Pre-Operative (during same hospitalization and prior to OR trip for CV surgical procedure) • In conjunction with CV surgical procedure (same trip to the OR)- unplanned • Post-Operative (after surgical procedure during reoperation) • Missing	
VADImpTmg	VADImpTmg in (NULL, 1, 4, 5)	
VADImpTmg2/ 3900	• Pre-Operative (during same hospitalization and prior to OR trip for CV surgical procedure) • In conjunction with CV surgical procedure (same trip to the OR)- unplanned • Post-Operative (after surgical procedure during reoperation) • Missing	
VADImpTmg2	VADImpTmg2 in (NULL, 1, 4, 5)	
VADImpTmg3/ 3955	• Pre-Operative (during same hospitalization and prior to OR trip for CV surgical procedure) • In conjunction with CV surgical procedure (same trip to the OR)- unplanned • Post-Operative (after surgical procedure during reoperation) • Missing	
VADImpTmg3	VADImpTmg3 in (NULL, 1, 4, 5)	
VExp/3875	• Yes, not during this procedure • No • Missing	

For VAD placement- All Analyzed Procedures
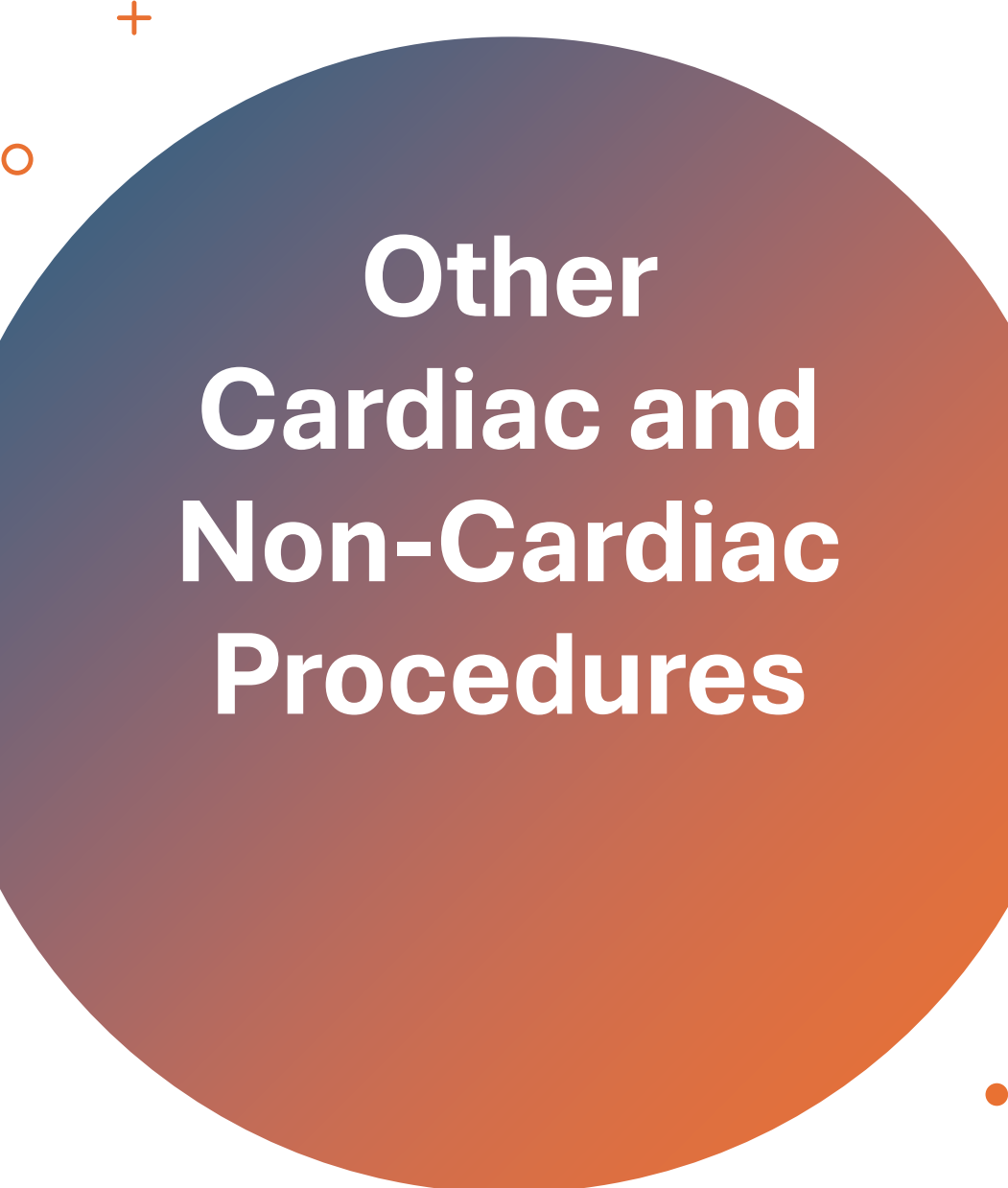
- If you code "Yes, not during this procedure, No, Missing, Pre-op during same stay, In conjunction with CV procedure unplanned or Post-op" case will stay isolated.

- An Impella of any sort is to be coded as a Temporary Assist Device in SEQ 3786. Do not code an Impella as a VAD.

- Temporary Assist Device and ECMO do not affect case isolation. Temporary Assist Device and ECMO timing are in the Risk Model

Other Cardiac and Non-Cardiac Procedures

The goal is to keep as many procedures as possible in the "isolated" category. Only code "yes" for procedures that high likelihood of negatively impacting a patient's outcome (survival, quality of life, ability to recover). Do not code minor procedures that do not add risk to the index procedure. Coding minor procedures in conjunction with a CABG or Valve removes the case from analysis in the isolated procedure categories.

Other Cardiac Procedures - Do not code minor procedures that do not add risk to the index procedure

Examples of Other Cardiac procedures that ARE NOT INCLUDED:

- Removal of ICD, Pacemaker, Loop Recorder
- Removal of a pericardial cyst
- Placement of pericardial drain
- Extensive lysis of adhesions
- ECMO, Impella or IABP insertions
- Exploration (look see) of valve, aorta, etc....without a procedure performed.
- Wrapping the dilated portion of the aorta to reinforce it does not constitute an "other or aorta" procedure when done in conjunction with an AVR.
- Pericardiectomy is coded as other cardiac procedure only when the pericardium is removed from the left phrenic nerve to the right phrenic nerve. A partial resection is not included as other cardiac procedure.
- MV replacement & left atrium clot evacuation. Do not capture the clot removal as other cardiac procedure since the left atrium is already open.

Other Non-Cardiac Procedures - Do not code minor procedures that do not add risk to the index procedure

Examples of Other Non - Cardiac procedures that ARE NOT INCLUDED:

- EGD with dilatation of his esophagus for stricture in order to pass the TEE probe
- Open reduction internally fixation of the sternum with sternal plating
- VP shunt was externalized or simply "moved aside"
- Plication of a redundant left hemi-diaphragm or plication of right hemidiaphragm
- Repair of severe pectus excavatum
- Planned pectoral muscle flap closure for index surgery
- Cystoscopy, dilatation, and placement of a foley prior to incision
- Lung Wedge Resection, Segmentectomy
- Needle Biopsy
- Reconstruction of flail chest and sternal fracture
- Drainage of pleural effusions
- Dental extractions despite the number performed

Scenario #1

Patient has an CABG/AVR and Subaortic Stenosis Resection which I have coded in Seq 4051. Is the CABG/AVR an isolated CABG/AVR or it is an CABG/AVR plus other procedure?

A. Isolated CABG/AVR
B. CABG/AVR plus Other

Answer CABG/AVR plus Other

- SEQ 4051 is coded as "Yes" removes case from isolation

Variable Short Name/Seq #	PART 1 (PROCID 1 through 4)			
	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR+CAB (ProcID=4)
OCPulThromDis/ 4052	• No • Missing			
OCPulThromDis	OCPulThromDis in (NULL, 1)			
OCarSubaStenResTy / 4051	• No • Missing • Not Documented			
OCarSubaStenResTy	OCarSubaStenResTy in (NULL, 5,7)			
OCarCrTx/4120	• No • Missing			
OCarCrTx	OCarCrTx in (NULL, 2)			
OCarTrma/4125	• No • Missing			

Scenario #2

Patient has an AVR with a Nick's annular enlargement which I have coded in Seq 3460. Is the AVR an isolated AVR or it is an AVR plus other procedure? I can't find Seq 3460 on the PROC ID chart.

A. Isolated AVR
B. AVR plus Other

Answer Isolated AVR

- **Seq 3460 is not included in the PROC ID Chart and does not affect case isolation**

Variable Short Name/Seq #	PART 1 (PROCID 1 through 4)			
	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)
OCTumor	OCTumor in (NULL, 1)			
OCarOthr/4135	• No • Missing			
OCarOthr	OCarOthr in (NULL, 2)			
VSTCV/3400	• No • Missing			
VSTCV	VSTCV in (NULL, 2)			
VSTCVMit/3610	• No • Missing			
VSTCVMit	VSTCVMit in (NULL, 2)			
VSTCVTri/3652	• No • Missing			

Scenario #3

Patient has an CABG with an unroofing of an Anomalous Coronary Artery which I have coded in Seq 6515. Is the CABG an isolated CABG or it is an CABG plus other procedure?

A. Isolated CABG
B. CABG plus Other

Answer Isolated CABG

- **Anomalous coronary artery is coded and does not affect case isolation**

Variable Short Name/Seq #	PART 1 (PROCID 1 through 4)			
	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR + CAB (ProcID=4)
VSMV	VSMV in (NULL, 2,4)	VSMV in (NULL, 2,4)	VSMV in (3,5)	VSMV in (NULL, 2,4)
VSMVPr/3500	<Not used in this calculation>	<Not used in this calculation>	• Replacement	<Not used in this calculation>
VSMVPr			VSMVPr eq 2	
OCarCongProc1/ 6515	• Missing • PFO, Primary closure • Anomalous origin of coronary artery from pulmonary artery repair • Anomalous aortic origin of coronary artery from aorta (AAOCA) repair	• Missing • PFO, Primary closure	• Missing • PFO, Primary closure • ASD repair, Primary closure • ASD repair, Patch	• Missing • PFO, Primary closure • Anomalous origin of coronary artery from pulmonary artery repair • Anomalous aortic origin of coronary artery from aorta (AAOCA) repair
OCarCongProc1	Ocarcongproc1 in (NULL,10,1291,1305)	Ocarcongproc1 in (NULL,10)	Ocarcongproc1 in (NULL,10,20,30)	Ocarcongproc1 in (NULL,10,1291,1305)

Scenario #4

Patient has an MVR with a TV Repair and a Septal Myomectomy which I have coded in Seq 3636 and Seq 4051. Is the MVR an isolated MVR or it is an MVR plus other procedure?

A. Isolated MVR
B. MVR plus Other

Answer MVR plus Other

- **TV Repair coded and does not affect case isolation in Mitral procedures, however also coded SEQ 4051 as "Yes" which will remove case from isolation**

Variable Short Name/Seq #	PART 1 (PROCID 1 through 4)			
	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR+CAB (ProcID=4)
Tricuspid Procedures: VSTV/2134 VSTrPr/3636 VSTrValvec/3683	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec	All tricuspid repairs are allowed. Tricuspid replacements or surgical prosthetic valve intervention – Not explant of valve or Valvectomies are only allowed if the tricuspid procedure was unplanned due to surgical complications. Must satisfy at least one of (1) or (2): 1. VSTrPr: • Repair • Missing AND VsTrValvec
OCarSubaStenResTy / 4051	• No • Missing • Not Documented			

Scenario #5

Patient has an CABG with a permanent pacemaker with LV lead placed and planned extraction of capped RA lead which I have coded in Seq 4055, Seq 4060 and Seq 4065. Is the CABG an isolated CABG or it is an CABG plus other procedure?

A. **Isolated CABG**
B. **CABG plus Other**

Answer CABG plus Other

- **Seq 4055 not used in calculation so does not affect case isolation.**
- **Seq 4060 not included in PROC ID, so it does not affect case isolation. Coded Seq 4065 as "Yes planned" this will remove the case from isolation.**

Variable Short Name/Seq #	PART 1 (PROCID 1 through 4)			
	Isolated CAB (ProcID=1)	Isolated AVR (ProcID=2)	Isolated MVR** (ProcID=3)	AVR+CAB (ProcID=4)
OCardASDRep	OCardASDRep in (NULL, 2)	OCardASDRep in (NULL, 2)		OCardASDRep in (NULL, 2)
OCarACD/ 4055	\<Not used in this calculation\>	\<Not used in this calculation\>	• None • Missing • Pacemaker	\<Not used in this calculation\>
OCarACDLE/ 4065	• Yes, unplanned due to surgical complication • No • Missing			
OCarACDLE	OCarACDLE in (NULL, 2,4)			
OCarLasr/4110	\<Not used in this calculation\>	\<Not used in this calculation\>	• No	\<Not used in this calculation\>

Scenario #6

Patient has an CABG/MVR with intracardiac Maze which I have coded in Seq 4191. Is the CABG/MVR an isolated CABG/MVR or it is an CABG/MVR plus other procedure?

A. Isolated CABG/MVR
B. CABG/MVR plus Other

Answer Isolated CABG/MVR

- **Seq 4191 not used in calculation, so it does not affect case isolation**

Variable Short Name	MVR + CAB** (ProcID=5)	AVR + MVR** (ProcID=6)	MV Repair** (ProcID=7)	MV Repair + CAB** (ProcID=8)
	PART 2 (PROCID 5 through 8)			
OCarAcqVSD	OCarAcqVSD in (NULL, 2)			
AortProc/2123	• No • Yes, unplanned due to surgical complication • Missing			
AortProc	Aortproc in (NULL, 2,4)			
EndovasProc/5066	• No • Missing			
EndovasProc	EndovasProc in (NULL, 2)			
OCarAFibLesLoc/ 4191	<Not used in this calculation>	<Not used in this calculation>	<Not used in this calculation>	<Not used in this calculation>
OCarAFibLesLoc				
OCarASDRep/ 4136	<Not used in this calculation>	<Not used in this calculation>	<Not used in this calculation>	<Not used in this calculation>

Scenario #7

Patient has an CABG. During the procedure, the RV is inadvertently lacerated, and the surgeon performs an RV repair. I coded Seq 2140 other cardiac other as unplanned due to surgical complication and then coded Seq 4135.

Why is my CABG showing up as CABG plus other since the RV repair was due to surgical complication? I thought if the other procedure was due to surgical complication, the CABG would stay isolated.

Answer Scenario #7

Patient has an CABG. During the procedure, the RV is inadvertently lacerated, and the surgeon performs an RV repair. I coded Seq 2140 other cardiac other as unplanned due to surgical complication and then coded Seq 4135. Why is my CABG showing up as CABG plus other since the RV repair was due to surgical complication? I thought if the other procedure was due to surgical complication, the CABG would stay isolated.

For Seq 4135 it does not matter if the procedure was performed for surgical complication or not. If you code 4135 as "Yes", the procedure will fall out of the isolated category.

Special instructions in Training Manual – see next slide

For ALL PROC ID 1-10

OCarOthr/4135		• No • Missing
OCarOthr		OCarOthr in (NULL, 2)
VSTCV/3400		• No • Missing
VSTCV		VSTCV in (NULL, 2)

Other Cardiac Other Seq 4135 Unplanned Due to Surgical Complication

- **For Seq 4135 it does not matter if the procedure was performed for surgical complication or not. If you code 4135 as "Yes", the procedure will fall out of the isolated category.**

- **STS wants the procedure to stay in the isolated category since it was a surgical complication.**

- **If the other procedure that was performed is not listed as an option in Section M, do NOT code Other Cardiac Other Seq 4135.**

- **Please answer "No" to all choices in Section M. If other Cardiac Other SEQ 4135 is coded as "No or Missing" it will stay in the isolated category.**

M. Other Cardiac Procedures

(If Other Cardiac Procedure, Except Afib = Yes ↓) See Proc ID Table to determine whether these procedures impact isolate procedure categories

Subaortic Stenosis Resection: ☐ Muscle ☐ Membrane ☐ Other ☐ Not Documented ☒ No
OCarSubaStenResTy (4051)

Pulmonary Thromboembolectomy ☐ Acute ☐ Chronic ☒ No
OCPulThromDis (4052)

Myocardial Stem Cell Therapy: ☐ Yes ☒ No   LV Aneurysm Repair: ☐ Yes ☒ No
OCarStemCell (4053)   OCarLVA (4054)

Arrhythmia Device: ☐ Pacemaker ☐ Pacemaker with CRT ☐ ICD ☐ ICD with CRT ☐ Implantable Recorder ☒ None
OCarACD (4055)

Lead Insertion: ☐ Yes ☒ No
OCarLeadInsert (4060)

Lead Extraction: ☐ Yes, planned ☐ Yes, unplanned due to surgical complication ☐ Yes, unplanned due to unsuspected disease or anatomy ☒ No
OCarACDLE (4065)

Transmyocardial revascularization (TMR): ☐ Yes ☒ No
OCarLasr (4110)

Tumor: ☐ Myxoma ☐ Fibroelastoma ☐ Other ☒ No
OCTumor (4115)

Transplant, Cardiac : ☐ Yes ☒ No
OCarCrTx (4120)

Trauma, Cardiac : ☐ Yes ☒ No
OCarTrma (4125)

Acquired VSD Repair: ☐ Yes ☒ No
OCarAcqVSD (4131)

Other Cardiac Procedure: ☐ Yes ☒ No
OCarOthr (4135)

ASD Repair ☐ Yes ☒ No (If Yes →)   ASD Repair Type: ☐ Congenital (secundum)   ☐ Acquired
OCardASDRep (4136)   OCardASDRepTyp (4137)

PFO Repair : ☐ Yes ☒ No
OCardPFORep (4138)

Data Manager Training Webinars

Session 1 – Tuesday Feb 25th at 12 pm CST – ACSD Educational Resources and Navigation of the STS Website (1.5 hr)

Session 2 – Tuesday March 4th at 12 pm CST - Overview of Data Specs, Software Specs, Risk Model Variables (2 hr)

Session 3 – Tuesday March 11th at 12 pm CST - Case Inclusion and Choosing the Index Procedure, PROC ID chart (1.5 hr)

Session 4 – **Thursday** March 20th at 12 pm CST - Harvesting your Data and the DQR report (1.5 hr)

Session 5 – Tuesday March 25th at 12 pm CST - National Report Overview and Process / Outcome Measures (1.5 hr)

Session 6 – Tuesday April 1st at 12 pm CST - Updating site forms, STS Helpdesk, and RedCap forms (1.5 hr)

Session 7 – Tuesday April 8th at 12 pm CST - IQVIA Reporting Overview (1.5 hr)
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Thank you for Your Time and Attention