



**The Society of Thoracic Surgeons**  
**Adult Cardiac Surgery Database V2.9**  
**Congenital Diagnoses And Procedures Lists**  
 June 19, 2016

**DIAGNOSIS**

<b>Septal Defects</b>	ASD	<input type="checkbox"/> 10=PFO <input type="checkbox"/> 20= ASD, Secundum <input type="checkbox"/> 30= ASD, Sinus venosus <input type="checkbox"/> 40= ASD, Coronary sinus <input type="checkbox"/> 50= ASD, Common atrium (single atrium) <input type="checkbox"/> 2150= ASD, Postoperative interatrial communication
	VSD	<input type="checkbox"/> 71= VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular) <input type="checkbox"/> 73= VSD, Type 2 (Perimembranous) (Paramembranous) (Conoventricular) <input type="checkbox"/> 75= VSD, Type 3 (Inlet) (AV canal type) <input type="checkbox"/> 77= VSD, Type 4 (Muscular) <input type="checkbox"/> 79= VSD, Type: Gerbode type (LV-RA communication) <input type="checkbox"/> 80= VSD, Multiple
	AV Canal	<input type="checkbox"/> 100= AVC (AVSD), Complete (CAVSD) <input type="checkbox"/> 110= AVC (AVSD), Intermediate (transitional) <input type="checkbox"/> 120= AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum)
	AP Window	<input type="checkbox"/> 140= AP window (aortopulmonary window) <input type="checkbox"/> 150= Pulmonary artery origin from ascending aorta (hemitruncus)
	Truncus Arteriosus	<input type="checkbox"/> 160= Truncus arteriosus <input type="checkbox"/> 170= Truncal valve insufficiency <input type="checkbox"/> 2470= Truncal valve stenosis <input type="checkbox"/> 2010= Truncus arteriosus + Interrupted aortic arch
<b>Pulmonary Venous Anomalies</b>	Partial Anomalous Pulmonary Venous Connection	<input type="checkbox"/> 180= Partial anomalous pulmonary venous connection (PAPVC) <input type="checkbox"/> 190= Partial anomalous pulmonary venous connection (PAPVC), scimitar
	Total Anomalous Pulmonary Venous Connection	<input type="checkbox"/> 200=Total anomalous pulmonary venous connection (TAPVC), Type1 (supracardiac) <input type="checkbox"/> 210=Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac) <input type="checkbox"/> 220=Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac) <input type="checkbox"/> 230=Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)
<b>Cor Triatriatum</b>		<input type="checkbox"/> 250=Cor triatriatum
<b>Pulmonary Venous Stenosis</b>		<input type="checkbox"/> 260=Pulmonary venous stenosis
<b>Systemic Venous Anomalies</b>	Anomalous Systemic Venous Connection	<input type="checkbox"/> 270=Systemic venous anomaly
	Systemic venous obstruction	<input type="checkbox"/> 280=Systemic venous obstruction
<b>Right Heart Lesions</b>	Tetralogy of Fallot	<input type="checkbox"/> 290=TOF <input type="checkbox"/> 2140=TOF, Pulmonary stenosis <input type="checkbox"/> 300=TOF, AVC (AVSD) <input type="checkbox"/> 310=TOF, Absent pulmonary valve
	Pulmonary Atresia	<input type="checkbox"/> 320=Pulmonary atresia <input type="checkbox"/> 330=Pulmonary atresia, IVS

		<input type="checkbox"/> 340=Pulmonary atresia, VSD (Including TOF, PA) <input type="checkbox"/> 350=Pulmonary atresia, VSD-MAPCA <input type="checkbox"/> 360=MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)
	Tricuspid Valve Disease and Ebstein's Anomaly	<input type="checkbox"/> 370=Ebstein's anomaly <input type="checkbox"/> 380=Tricuspid regurgitation, non-Ebstein's related <input type="checkbox"/> 390=Tricuspid stenosis <input type="checkbox"/> 400=Tricuspid regurgitation and tricuspid stenosis <input type="checkbox"/> 410=Tricuspid valve, Other
	RVOT Obstruction and/or Pulmonary Stenosis	<input type="checkbox"/> 420=Pulmonary stenosis, Valvar <input type="checkbox"/> 430=Pulmonary artery stenosis (hypoplasia), Main (trunk) <input type="checkbox"/> 440=Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation) <input type="checkbox"/> 450=Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation) <input type="checkbox"/> 470=Pulmonary artery, Discontinuous <input type="checkbox"/> 490=Pulmonary stenosis, Subvalvar <input type="checkbox"/> 500=DCRV
	Pulmonary Valve Disease	<input type="checkbox"/> 510=Pulmonary valve, Other <input type="checkbox"/> 530=Pulmonary insufficiency <input type="checkbox"/> 540=Pulmonary insufficiency and pulmonary stenosis
<b>Shunt failure</b>	Shunt failure	<input type="checkbox"/> 2130=Shunt Failure
<b>Conduit failure</b>	Conduit failure	<input type="checkbox"/> 520=Conduit failure
<b>Left Heart Lesions</b>	Aortic Valve Disease	<input type="checkbox"/> 550=Aortic stenosis, Subvalvar <input type="checkbox"/> 560=Aortic stenosis, Valvar <input type="checkbox"/> 570=Aortic stenosis, Supravalvar <input type="checkbox"/> 590=Aortic valve atresia <input type="checkbox"/> 600=Aortic insufficiency <input type="checkbox"/> 610=Aortic insufficiency and aortic stenosis <input type="checkbox"/> 620=Aortic valve, Other
	Sinus of Valsalva Fistula/Aneurysm	<input type="checkbox"/> 630=Sinus of Valsalva aneurysm
	LV to Aorta Tunnel	<input type="checkbox"/> 640=LV to aorta tunnel
	Mitral Valve Disease	<input type="checkbox"/> 650=Mitral stenosis, Supravalvar mitral ring <input type="checkbox"/> 660=Mitral stenosis, Valvar <input type="checkbox"/> 670=Mitral stenosis, Subvalvar <input type="checkbox"/> 680=Mitral stenosis, Subvalvar, Parachute <input type="checkbox"/> 695=Mitral stenosis <input type="checkbox"/> 700=Mitral regurgitation and mitral stenosis <input type="checkbox"/> 710=Mitral regurgitation <input type="checkbox"/> 720=Mitral valve, Other
	Hypoplastic Left Heart Syndrome	<input type="checkbox"/> 730=Hypoplastic left heart syndrome (HLHS)
	Shone's syndrome	<input type="checkbox"/> 2080=Shone's syndrome {CANNOT BE PRIMARY DIAGNOSIS}
	<b>Cardiomyopathy</b>	
<b>Pericardial Disease</b>		<input type="checkbox"/> 760=Pericardial effusion <input type="checkbox"/> 770=Pericarditis <input type="checkbox"/> 780=Pericardial disease, Other
<b>Single Ventricle</b>		<input type="checkbox"/> 790=Single ventricle, DILV <input type="checkbox"/> 800=Single ventricle, DIRV <input type="checkbox"/> 810=Single ventricle, Mitral atresia <input type="checkbox"/> 820=Single ventricle, Tricuspid atresia

		<input type="checkbox"/> 830=Single ventricle, Unbalanced AV canal <input type="checkbox"/> 840=Single ventricle, Heterotaxia syndrome <input type="checkbox"/> 850=Single ventricle, Other <input type="checkbox"/> 851=Single ventricle + Total anomalous pulmonary venous connection (TAPVC)
<b>Transposition of the Great Arteries</b>	Congenitally Corrected TGA	<input type="checkbox"/> 870=Congenitally corrected TGA <input type="checkbox"/> 872=Congenitally corrected TGA, IVS <input type="checkbox"/> 874=Congenitally corrected TGA, IVS-LVOTO <input type="checkbox"/> 876=Congenitally corrected TGA, VSD <input type="checkbox"/> 878=Congenitally corrected TGA, VSD-LVOTO
	Transposition of the Great Arteries	<input type="checkbox"/> 880=TGA, IVS <input type="checkbox"/> 890=TGA, IVS-LVOTO <input type="checkbox"/> 900=TGA, VSD <input type="checkbox"/> 910=TGA, VSD-LVOTO
<b>DORV</b>		<input type="checkbox"/> 930=DORV, VSD type <input type="checkbox"/> 940=DORV, TOF type <input type="checkbox"/> 950=DORV, TGA type <input type="checkbox"/> 960=DORV, Remote VSD (uncommitted VSD) <input type="checkbox"/> 2030=DORV + AVSD (AV Canal) <input type="checkbox"/> 975=DORV, IVS
<b>DOLV</b>		<input type="checkbox"/> 980=DOLV
<b>Thoracic Arteries and Veins</b>	Coarctation of Aorta and Aortic arch hypoplasia	<input type="checkbox"/> 990=Coarctation of aorta <input type="checkbox"/> 1000=Aortic arch hypoplasia <input type="checkbox"/> 92=VSD + Aortic arch hypoplasia <input type="checkbox"/> 94=VSD + Coarctation of aorta
	Coronary Artery Anomalies	<input type="checkbox"/> 1010=Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA) <input type="checkbox"/> 1020=Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA) <input type="checkbox"/> 1030=Coronary artery anomaly, Fistula <input type="checkbox"/> 1040=Coronary artery anomaly, Aneurysm <input type="checkbox"/> 2420=Coronary artery anomaly, Ostial atresia <input type="checkbox"/> 1050=Coronary artery anomaly, Other
	Interrupted Arch	<input type="checkbox"/> 1070=Interrupted aortic arch <input type="checkbox"/> 2020=Interrupted aortic arch + VSD <input type="checkbox"/> 2000=Interrupted aortic arch + AP window (aortopulmonary window)
	Patent Ductus Arteriosus	<input type="checkbox"/> 1080=Patent ductus arteriosus
	Vascular rings and Slings	<input type="checkbox"/> 1090=Vascular ring <input type="checkbox"/> 1100=Pulmonary artery sling
	Aortic Aneurysm	<input type="checkbox"/> 1110=Aortic aneurysm (including pseudoaneurysm)
	Aortic Dissection	<input type="checkbox"/> 1120=Aortic dissection
<b>Thoracic and Mediastinal Disease</b>	Lung Disease	<input type="checkbox"/> 1130=Lung disease, Benign <input type="checkbox"/> 1140=Lung disease, Malignant
	Tracheal	<input type="checkbox"/> 1160=Tracheal stenosis <input type="checkbox"/> 2430=Tracheomalacia <input type="checkbox"/> 1170=Airway disease
	Pleural Disease	<input type="checkbox"/> 1430=Pleural disease, Benign <input type="checkbox"/> 1440=Pleural disease, Malignant <input type="checkbox"/> 1450=Pneumothorax <input type="checkbox"/> 1460=Pleural effusion <input type="checkbox"/> 1470=Chylothorax

	<input type="checkbox"/> 1480=Empyema
Esophageal Disease	<input type="checkbox"/> 1490=Esophageal disease, Benign <input type="checkbox"/> 1500=Esophageal disease, Malignant
Mediastinal Disease	<input type="checkbox"/> 1505=Mediastinal disease <input type="checkbox"/> 1510=Mediastinal disease, Benign <input type="checkbox"/> 1520=Mediastinal disease, Malignant
Diaphragmatic Disease	<input type="checkbox"/> 1540=Diaphragm paralysis <input type="checkbox"/> 1550=Diaphragm disease, Other
Chest Wall	<input type="checkbox"/> 2160=Rib tumor, Benign <input type="checkbox"/> 2170=Rib tumor, Malignant <input type="checkbox"/> 2180=Rib tumor, Metastatic <input type="checkbox"/> 2190=Sternal tumor, Benign <input type="checkbox"/> 2200=Sternal tumor, Malignant <input type="checkbox"/> 2210=Sternal tumor, Metastatic
Pectus Excavatum, Carinatum	<input type="checkbox"/> 2220=Pectus carinatum <input type="checkbox"/> 2230=Pectus excavatum
Thoracic Outlet	<input type="checkbox"/> 2240=Thoracic outlet syndrome
<b>Electrophysiological</b>	<input type="checkbox"/> 1180=Arrhythmia <input type="checkbox"/> 2440=Arrhythmia, Atrial, Atrial fibrillation <input type="checkbox"/> 2450=Arrhythmia, Atrial, Atrial flutter <input type="checkbox"/> 2460=Arrhythmia, Atrial, Other <input type="checkbox"/> 2050=Arrhythmia, Junctional <input type="checkbox"/> 2060=Arrhythmia, Ventricular <input type="checkbox"/> 1185=Arrhythmia, Heart block <input type="checkbox"/> 1190=Arrhythmia, Heart block, Acquired <input type="checkbox"/> 1200=Arrhythmia, Heart block, Congenital <input type="checkbox"/> 1220=Arrhythmia, Pacemaker, Indication for replacement
<b>Miscellaneous, Other</b>	<input type="checkbox"/> 1230=Atrial Isomerism, Left {CANNOT BE PRIMARY DIAGNOSIS} <input type="checkbox"/> 1240=Atrial Isomerism, Right {CANNOT BE PRIMARY DIAGNOSIS} <input type="checkbox"/> 2090=Dextrocardia {CANNOT BE PRIMARY DIAGNOSIS} <input type="checkbox"/> 2100=Levocardia {CANNOT BE PRIMARY DIAGNOSIS} <input type="checkbox"/> 2110=Mesocardia {CANNOT BE PRIMARY DIAGNOSIS} <input type="checkbox"/> 2120=Situs inversus {CANNOT BE PRIMARY DIAGNOSIS} <input type="checkbox"/> 1250=Aneurysm, Ventricular, Right (including pseudoaneurysm) <input type="checkbox"/> 1260=Aneurysm, Ventricular, Left (including pseudoaneurysm) <input type="checkbox"/> 1270=Aneurysm, Pulmonary artery <input type="checkbox"/> 1280=Aneurysm, Other <input type="checkbox"/> 1290=Hypoplastic RV <input type="checkbox"/> 1300=Hypoplastic LV <input type="checkbox"/> 2070=Postoperative bleeding <input type="checkbox"/> 1310=Mediastinitis <input type="checkbox"/> 1320=Endocarditis <input type="checkbox"/> 1325=Rheumatic heart disease {CANNOT BE PRIMARY DIAGNOSIS} <input type="checkbox"/> 1330=Prosthetic valve failure <input type="checkbox"/> 1340=Myocardial infarction <input type="checkbox"/> 1350=Cardiac tumor

- 1360=Pulmonary AV fistula
- 1370=Pulmonary embolism
- 1385=Pulmonary vascular obstructive disease
- 1390=Pulmonary vascular obstructive disease (Eisenmenger's)
- 1400=Primary pulmonary hypertension
- 1410=Persistent fetal circulation
- 1420=Meconium aspiration
- 2250=Kawasaki Disease
- 1560=Cardiac, Other
- 1570=Thoracic and/or mediastinal, Other
- 1580=Peripheral vascular, Other
- 2260=Complication of cardiovascular catheterization procedure
- 2270=Complication of cardiovascular catheterization procedure, Device embolization
- 2280=Complication of cardiovascular catheterization procedure, Device malfunction
- 2290=Complication of cardiovascular catheterization procedure, Perforation
- 2300=Complication of interventional radiology procedure
- 2310=Complication of interventional radiology procedure, Device embolization
- 2320=Complication of interventional radiology procedure, Device malfunction
- 2330=Complication of interventional radiology procedure, Perforation
- 2340=Foreign body, Intracardiac foreign body
- 2350=Foreign body, Intravascular foreign body
- 2360=Open sternum with closed skin
- 2370=Open sternum with open skin (includes membrane placed to close skin)
- 2380=Retained sternal wire causing irritation
- 2390=Syncope
- 2400=Trauma, Blunt
- 2410=Trauma, Penetrating
- 7000=Normal heart
- 7777=Miscellaneous, Other

## PROCEDURES

Select **ALL** procedures that apply. (↓)      Circle the **ONE** PRIMARY procedure for this operation.

<b>Septal Defects</b>	<b>ASD</b>	<input type="checkbox"/> 10= PFO, Primary closure
		<input type="checkbox"/> 20= ASD repair, Primary closure
		<input type="checkbox"/> 30= ASD repair, Patch
		<input type="checkbox"/> 40= ASD repair, Device
		<input type="checkbox"/> 2110= ASD repair, Patch + PAPVC repair
		<input type="checkbox"/> 50= ASD, Common atrium (single atrium), Septation
		<input type="checkbox"/> 60= ASD creation/enlargement
		<input type="checkbox"/> 70= ASD partial closure
		<input type="checkbox"/> 80= Atrial septal fenestration
		<input type="checkbox"/> 85= Atrial fenestration closure
<b>VSD</b>	<input type="checkbox"/> 100= VSD repair, Primary closure	
	<input type="checkbox"/> 110= VSD repair, Patch	
	<input type="checkbox"/> 120= VSD repair, Device	
	<input type="checkbox"/> 130= VSD, Multiple, Repair	
	<input type="checkbox"/> 140= VSD creation/enlargement	
	<input type="checkbox"/> 150= Ventricular septal fenestration	
<b>AV Canal</b>	<input type="checkbox"/> 170= AVC (AVSD) repair, Complete (CAVSD)	
	<input type="checkbox"/> 180= AVC (AVSD) repair, Intermediate (Transitional)	

		<input type="checkbox"/> 190= AVC (AVSD) repair, Partial (Incomplete) (PAVSD) <input type="checkbox"/> 2300= Valvuloplasty, Common atrioventricular valve <input type="checkbox"/> 2250= Valvuloplasty converted to valve replacement in the same operation, Common atrioventricular valve <input type="checkbox"/> 2230= Valve replacement, Common atrioventricular valve
	AP Window	<input type="checkbox"/> 210= AP window repair <input type="checkbox"/> 220= Pulmonary artery origin from ascending aorta (hemitruncus) repair
	Truncus Arteriosus	<input type="checkbox"/> 230= Truncus arteriosus repair <input type="checkbox"/> 240= Valvuloplasty, Truncal valve <input type="checkbox"/> 2290= Valvuloplasty converted to valve replacement in the same operation, Truncal valve <input type="checkbox"/> 250= Valve replacement, Truncal valve <input type="checkbox"/> 2220= Truncus + Interrupted aortic arch repair (IAA) repair
<b>Pulmonary Venous Anomalies</b>	Partial Anomalous Pulmonary Venous Connection	<input type="checkbox"/> 260= PAPVC repair <input type="checkbox"/> 270= PAPVC, Scimitar, Repair <input type="checkbox"/> 2120= PAPVC repair, Baffle redirection to left atrium with systemic vein translocation (Warden) (SVC sewn to right atrial appendage)
	Total Anomalous Pulmonary Venous Connection	<input type="checkbox"/> 280= TAPVC repair <input type="checkbox"/> 2200= TAPVC repair + Shunt - systemic-to-pulmonary
<b>Cor Triatriatum</b>		<input type="checkbox"/> 290= Cor triatriatum repair
<b>Pulmonary Venous Stenosis</b>		<input type="checkbox"/> 300= Pulmonary venous stenosis repair
<b>Systemic Venous Anomalies</b>	Anomalous Systemic Venous Connection	<input type="checkbox"/> 310= Atrial baffle procedure (non-Mustard, non-Senning) <input type="checkbox"/> 330= Anomalous systemic venous connection repair
	Systemic venous obstruction	<input type="checkbox"/> 340= Systemic venous stenosis repair
<b>Right Heart Lesions</b>	Tetralogy of Fallot	<input type="checkbox"/> 350= TOF repair, No Ventriculotomy <input type="checkbox"/> 360= TOF repair, Ventriculotomy, Nontransanular patch <input type="checkbox"/> 370= TOF repair, Ventriculotomy, Transanular patch <input type="checkbox"/> 380= TOF repair, RV-PA conduit <input type="checkbox"/> 390= TOF - AVC (AVSD) repair <input type="checkbox"/> 400= TOF - Absent pulmonary valve repair
	Pulmonary Atresia/VSD	<input type="checkbox"/> 420= Pulmonary atresia - VSD (including TOF, PA) repair <input type="checkbox"/> 2700= Pulmonary atresia - VSD – MAPCA repair, Complete single stage repair (1 stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit]) <input type="checkbox"/> 2710= Pulmonary atresia - VSD – MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit]) <input type="checkbox"/> 2720= Pulmonary atresia - VSD – MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit]) <input type="checkbox"/> 2730= Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization (all usable MAPCA[s] are incorporated) <input type="checkbox"/> 2740= Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization (not all usable MAPCA[s] are incorporated) <input type="checkbox"/> 2750= Unifocalization MAPCA(s), Unilateral pulmonary unifocalization <input type="checkbox"/> 440= Unifocalization MAPCA(s) <input type="checkbox"/> 450= Occlusion of MAPCA(s)
	Tricuspid Valve Disease and Ebstein's Anomaly	<input type="checkbox"/> 460= Valvuloplasty, Tricuspid (do not use this code if tricuspid valve malfunction is secondary to Ebstein's anomaly. Use 465= Ebstein's repair) <input type="checkbox"/> 2280= Valvuloplasty converted to valve replacement in the same operation, Tricuspid <input type="checkbox"/> 465= Ebstein's repair <input type="checkbox"/> 470= Valve replacement, Tricuspid (TVR) <input type="checkbox"/> 480= Valve closure, Tricuspid (exclusion, univentricular approach) <input type="checkbox"/> 490= Valve excision, Tricuspid (without replacement) <input type="checkbox"/> 500= Valve surgery, Other, Tricuspid

	RVOT Obstruction, IVS Pulmonary Stenosis	<input type="checkbox"/> 510= RVOT procedure <input type="checkbox"/> 520= 1 1/2 ventricular repair <input type="checkbox"/> 530= PA, reconstruction (plasty), Main (trunk) <input type="checkbox"/> 540= PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) <input type="checkbox"/> 550= PA, reconstruction (plasty), Branch, Peripheral (at or beyond the hilar bifurcation) <input type="checkbox"/> 570= DCRV repair
	Pulmonary Valve Disease	<input type="checkbox"/> 590= Valvuloplasty, Pulmonic <input type="checkbox"/> 2270= Valvuloplasty converted to valve replacement in the same operation, Pulmonic <input type="checkbox"/> 600= Valve replacement, Pulmonic (PVR) <input type="checkbox"/> 630= Valve excision, Pulmonary (without replacement) <input type="checkbox"/> 640= Valve closure, Semilunar <input type="checkbox"/> 650= Valve surgery, Other, Pulmonic
<b>Conduit operations</b>	Conduit operations	<input type="checkbox"/> 610= Conduit placement, RV to PA <input type="checkbox"/> 620= Conduit placement, LV to PA <input type="checkbox"/> 1774= Conduit placement, Ventricle to aorta <input type="checkbox"/> 1772= Conduit placement, Other
	Conduit Stenosis / Insufficiency	<input type="checkbox"/> 580= Conduit reoperation
<b>Left Heart Lesions</b>	Aortic Valve Disease	<input type="checkbox"/> 660= Valvuloplasty, Aortic <input type="checkbox"/> 2240= Valvuloplasty converted to valve replacement in the same operation, Aortic <input type="checkbox"/> 2310= Valvuloplasty converted to valve replacement in the same operation, Aortic – with Ross procedure <input type="checkbox"/> 2320= Valvuloplasty converted to valve replacement in the same operation, Aortic – with Ross-Konno procedure <input type="checkbox"/> 670= Valve replacement, Aortic (AVR) <input type="checkbox"/> 680= Valve replacement, Aortic (AVR), Mechanical <input type="checkbox"/> 690= Valve replacement, Aortic (AVR), Bioprosthetic <input type="checkbox"/> 700= Valve replacement, Aortic (AVR), Homograft <input type="checkbox"/> 715= Aortic root replacement, Bioprosthetic <input type="checkbox"/> 720= Aortic root replacement, Mechanical <input type="checkbox"/> 730= Aortic root replacement, Homograft <input type="checkbox"/> 735= Aortic root replacement, Valve sparing <input type="checkbox"/> 740= Ross procedure <input type="checkbox"/> 750= Konno procedure <input type="checkbox"/> 760= Ross-Konno procedure <input type="checkbox"/> 770= Other annular enlargement procedure <input type="checkbox"/> 780= Aortic stenosis, Subvalvar, Repair <input type="checkbox"/> 2100= Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS <input type="checkbox"/> 790= Aortic stenosis, Supravalvar, Repair <input type="checkbox"/> 800= Valve surgery, Other, Aortic
	Sinus of Valsalva Aneurysm	<input type="checkbox"/> 810= Sinus of Valsalva, Aneurysm repair
	LV to Aorta Tunnel	<input type="checkbox"/> 820= LV to aorta tunnel repair
	Mitral Valve Disease	<input type="checkbox"/> 830= Valvuloplasty, Mitral <input type="checkbox"/> 2260= Valvuloplasty converted to valve replacement in the same operation, Mitral <input type="checkbox"/> 840= Mitral stenosis, Supravalvar mitral ring repair <input type="checkbox"/> 850= Valve replacement, Mitral (MVR) <input type="checkbox"/> 860= Valve surgery, Other, Mitral
		<input type="checkbox"/> 870= Norwood procedure <input type="checkbox"/> 880= HLHS biventricular repair

	Hypoplastic Left Heart and Related malformations	<input type="checkbox"/> 2755= Conduit insertion right ventricle to pulmonary artery + Intraventricular tunnel left ventricle to neo-aorta + arch reconstruction (Rastelli and Norwood type arch reconstruction) (Yasui)
<b>Hybrid</b>		<input type="checkbox"/> 2160= Hybrid Approach "Stage 1", Application of RPA & LPA bands <input type="checkbox"/> 2170= Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) <input type="checkbox"/> 2180= Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands <input type="checkbox"/> 2140= Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Aortic arch repair (Norwood [Stage 1] + Superior Cavopulmonary anastomosis(es) + PA Debanding) <input type="checkbox"/> 2150= Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair <input type="checkbox"/> 2760= Hybrid Approach, Transcardiac balloon dilatation <input type="checkbox"/> 2770= Hybrid Approach, Transcardiac transcatheter device placement
<b>Cardiomyopathy</b>		<input type="checkbox"/> 890= Transplant, Heart <input type="checkbox"/> 900= Transplant, Heart and lung <input type="checkbox"/> 910= Partial left ventriculectomy (LV volume reduction surgery) (Batista)
<b>Pericardial Disease</b>		<input type="checkbox"/> 920= Pericardial drainage procedure <input type="checkbox"/> 930= Pericardiectomy <input type="checkbox"/> 940= Pericardial procedure, Other
<b>Single Ventricle</b>		<input type="checkbox"/> 950= Fontan, Atrio-pulmonary connection <input type="checkbox"/> 960= Fontan, Atrio-ventricular connection <input type="checkbox"/> 970= Fontan, TCPC, Lateral tunnel, Fenestrated <input type="checkbox"/> 980= Fontan, TCPC, Lateral tunnel, Nonfenestrated <input type="checkbox"/> 1000= Fontan, TCPC, External conduit, Fenestrated <input type="checkbox"/> 1010= Fontan, TCPC, External conduit, Nonfenestrated <input type="checkbox"/> 2780= Fontan, TCPC, Intra/extracardiac conduit, Fenestrated <input type="checkbox"/> 2790= Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated <input type="checkbox"/> 3310 = Fontan, TCPC, External conduit, hepatic veins to pulmonary artery, Fenestrated <input type="checkbox"/> 3320 = Fontan, TCPC, External conduit, hepatic veins to pulmonary artery, Nonfenestrated <input type="checkbox"/> 1025= Fontan revision or conversion (Re-do Fontan) <input type="checkbox"/> 1030= Fontan, Other <input type="checkbox"/> 2340= Fontan + Atrioventricular valvuloplasty <input type="checkbox"/> 1035= Ventricular septation
<b>Transposition of the Great Arteries</b>	Congenitally Corrected TGA	<input type="checkbox"/> 1050=Congenitally corrected TGA repair, Atrial switch and ASO (double switch) <input type="checkbox"/> 1060= Congenitally corrected TGA repair, Atrial switch and Rastelli <input type="checkbox"/> 1070= Congenitally corrected TGA repair, VSD closure <input type="checkbox"/> 1080= Congenitally corrected TGA repair, VSD closure and LV to PA conduit <input type="checkbox"/> 1090= Congenitally corrected TGA repair, Other
	Transposition of the Great Arteries	<input type="checkbox"/> 1110= Arterial switch operation (ASO) <input type="checkbox"/> 1120= Arterial switch operation (ASO) and VSD repair <input type="checkbox"/> 1123= Arterial switch procedure + Aortic arch repair <input type="checkbox"/> 1125= Arterial switch procedure and VSD repair + Aortic arch repair <input type="checkbox"/> 1130= Senning <input type="checkbox"/> 1140= Mustard <input type="checkbox"/> 1145= Atrial baffle procedure, Mustard or Senning revision <input type="checkbox"/> 1150= Rastelli <input type="checkbox"/> 1160= REV <input type="checkbox"/> 2190= Aortic root translocation over left ventricle (Including Nikaidoh procedure) <input type="checkbox"/> 2210= TGA, Other procedures (Kawashima, LV-PA conduit, other)
<b>DORV</b>		<input type="checkbox"/> 1180= DORV, Intraventricular tunnel repair
<b>DOLV</b>		<input type="checkbox"/> 1200= DOLV repair



<b>Thoracic Arteries and Veins</b>	Coarctation of Aorta and Aortic arch hypoplasia	<input type="checkbox"/> 1210= Coarctation repair, End to end <input type="checkbox"/> 1220= Coarctation repair, End to end, Extended <input type="checkbox"/> 1230= Coarctation repair, Subclavian flap <input type="checkbox"/> 1240= Coarctation repair, Patch aortoplasty <input type="checkbox"/> 1250= Coarctation repair, Interposition graft <input type="checkbox"/> 1260= Coarctation repair, Other <input type="checkbox"/> 1275= Coarctation repair + VSD repair <input type="checkbox"/> 1280= Aortic arch repair <input type="checkbox"/> 1285= Aortic arch repair + VSD repair
	Coronary Artery Anomalies	<input type="checkbox"/> 1290= Coronary artery fistula ligation <input type="checkbox"/> 1291= Anomalous origin of coronary artery from pulmonary artery repair <input type="checkbox"/> 1300= Coronary artery bypass <input type="checkbox"/> 1305= Anomalous aortic origin of coronary artery (AAOCA) repair <input type="checkbox"/> 1310= Coronary artery procedure, Other
	Interrupted Arch	<input type="checkbox"/> 1320= Interrupted aortic arch repair
	Patent Ductus Arteriosus	<input type="checkbox"/> 1330= PDA closure, Surgical <input type="checkbox"/> 1340= PDA closure, Device
	Vascular Rings and Slings	<input type="checkbox"/> 1360= Vascular ring repair <input type="checkbox"/> 1365= Aortopexy <input type="checkbox"/> 1370= Pulmonary artery sling repair
	Aortic Aneurysm	<input type="checkbox"/> 1380= Aortic aneurysm repair
Aortic Dissection	<input type="checkbox"/> 1390= Aortic dissection repair	
<b>Thoracic and Mediastinal Disease</b>	Lung Disease	<input type="checkbox"/> 1400= Lung biopsy <input type="checkbox"/> 1410= Transplant, lung(s) <input type="checkbox"/> 1420= Lung procedure, Other
	Tracheal Stenosis	<input type="checkbox"/> 1440= Tracheal procedure
	Chest Wall	<input type="checkbox"/> 2800= Muscle flap, Trunk (i.e. intercostal, pectus, or serratus muscle) <input type="checkbox"/> 2810= Muscle flap, Trunk (i.e. latissimus dorsi) <input type="checkbox"/> 2820= Removal, Sternal wire <input type="checkbox"/> 2830= Rib excision, Complete <input type="checkbox"/> 2840= Rib excision, Partial <input type="checkbox"/> 2850= Sternal fracture, Open treatment <input type="checkbox"/> 2860= Sternal resection, Radical resection of the sternum <input type="checkbox"/> 2870= Sternal resection, Radical resection of the sternum with mediastinal lymphadenectomy <input type="checkbox"/> 2880= Tumor of chest wall, Excision including ribs <input type="checkbox"/> 2890= Tumor of chest wall, Excision including ribs, With reconstruction <input type="checkbox"/> 2900= Tumor of soft tissue of thorax, Excision of deep subfascial or intramuscular tumor <input type="checkbox"/> 2910= Tumor of soft tissue of thorax, Excision of subcutaneous tumor <input type="checkbox"/> 2920= Tumor of soft tissue of thorax, Radical resection
	Neck	<input type="checkbox"/> 2930= Hyoid myotomy and suspension <input type="checkbox"/> 2940= Muscle flap, Neck <input type="checkbox"/> 2950= Procedure on neck <input type="checkbox"/> 2960= Tumor of soft tissue of neck, Excision of deep subfascial or intramuscular tumor <input type="checkbox"/> 2970= Tumor of soft tissue of neck, Excision of subcutaneous tumor <input type="checkbox"/> 2980= Tumor of soft tissue of neck, Radical resection
	Pectus Excavatum, Carinatum	<input type="checkbox"/> 2990= Pectus bar removal <input type="checkbox"/> 3000= Pectus bar repositioning <input type="checkbox"/> 3010= Pectus repair, Minimally invasive repair (Nuss), With thoracoscopy

	<input type="checkbox"/> 3020= Pectus repair, Minimally invasive repair (Nuss), Without thoracoscopy <input type="checkbox"/> 3030= Pectus repair, Open repair
	<input type="checkbox"/> 3040= Division of scalenus anticus, With resection of a cervical rib <input type="checkbox"/> 3050= Division of scalenus anticus, Without resection of a cervical rib <input type="checkbox"/> 3060= Rib excision, Excision of a cervical rib <input type="checkbox"/> 3070= Rib excision, Excision of a cervical rib, With sympathectomy <input type="checkbox"/> 3080= Rib excision, Excision of first rib <input type="checkbox"/> 3090= Rib excision, Excision of first rib, With sympathectomy
	<input type="checkbox"/> 3100= Procedure on thorax
<b>Electrophysiological</b>	<input type="checkbox"/> 1450= Pacemaker implantation, Permanent <input type="checkbox"/> 1460= Pacemaker procedure <input type="checkbox"/> 2350= Explantation of pacing system <input type="checkbox"/> 1470= ICD (AICD) implantation <input type="checkbox"/> 1480= ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure <input type="checkbox"/> 1490= Arrhythmia surgery - atrial, Surgical Ablation <input type="checkbox"/> 1500= Arrhythmia surgery - ventricular, Surgical Ablation
<b>Interventional Cardiology Procedures</b>	<input type="checkbox"/> 2500= Cardiovascular catheterization procedure, Diagnostic <input type="checkbox"/> 2520= Cardiovascular catheterization procedure, Diagnostic, Angiographic data obtained <input type="checkbox"/> 2550= Cardiovascular catheterization procedure, Diagnostic, Electrophysiology alteration <input type="checkbox"/> 2540= Cardiovascular catheterization procedure, Diagnostic, Hemodynamic alteration <input type="checkbox"/> 2510= Cardiovascular catheterization procedure, Diagnostic, Hemodynamic data obtained <input type="checkbox"/> 2530= Cardiovascular catheterization procedure, Diagnostic, Transluminal test occlusion <input type="checkbox"/> 2410= Cardiovascular catheterization procedure, Therapeutic <input type="checkbox"/> 2670= Cardiovascular catheterization procedure, Therapeutic, Adjunctive therapy <input type="checkbox"/> 1540= Cardiovascular catheterization procedure, Therapeutic, Balloon dilation <input type="checkbox"/> 2590= Cardiovascular catheterization procedure, Therapeutic, Balloon valvotomy <input type="checkbox"/> 1580= Cardiovascular catheterization procedure, Therapeutic, Coil implantation <input type="checkbox"/> 1560= Cardiovascular catheterization procedure, Therapeutic, Device implantation <input type="checkbox"/> 3110= Cardiovascular catheterization procedure, Therapeutic, Device implantation attempted <input type="checkbox"/> 2690= Cardiovascular catheterization procedure, Therapeutic, Electrophysiological ablation <input type="checkbox"/> 3120= Cardiovascular catheterization procedure, Therapeutic, Intravascular foreign body removal <input type="checkbox"/> 2640= Cardiovascular catheterization procedure, Therapeutic, Perforation (establishing interchamber and/or intervessel communication) <input type="checkbox"/> 2580= Cardiovascular catheterization procedure, Therapeutic, Septostomy <input type="checkbox"/> 1550= Cardiovascular catheterization procedure, Therapeutic, Stent insertion <input type="checkbox"/> 2630= Cardiovascular catheterization procedure, Therapeutic, Stent re-dilation <input type="checkbox"/> 2650= Cardiovascular catheterization procedure, Therapeutic, Transcatheter Fontan completion <input type="checkbox"/> 2660= Cardiovascular catheterization procedure, Therapeutic, Transcatheter implantation of valve
<b>Palliative Procedures</b>	<input type="checkbox"/> 1590= Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS) <input type="checkbox"/> 1600= Shunt, Systemic to pulmonary, Central (shunt from aorta) <input type="checkbox"/> 3130= Shunt, Systemic to pulmonary, Central (shunt from aorta) Central shunt with an end-to-side connection between the transected main pulmonary artery and the side of the ascending aorta (i.e. Mee shunt) <input type="checkbox"/> 3230= Shunt, Systemic to pulmonary, Potts – Smith type (descending aorta to pulmonary artery) <input type="checkbox"/> 1610= Shunt, Systemic to pulmonary, Other <input type="checkbox"/> 1630= Shunt, Ligation and takedown <input type="checkbox"/> 2095= Shunt, Reoperation <input type="checkbox"/> 1640= PA banding (PAB)

	<ul style="list-style-type: none"> <li><input type="checkbox"/> 1650= PA debanding</li> <li><input type="checkbox"/> 3200= PA band adjustment</li> <li><input type="checkbox"/> 1660= Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)</li> <li><input type="checkbox"/> 1670= Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)</li> <li><input type="checkbox"/> 1680= Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)</li> <li><input type="checkbox"/> 1690= Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)</li> <li><input type="checkbox"/> 1700= HemiFontan</li> <li><input type="checkbox"/> 2330= Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty</li> <li><input type="checkbox"/> 2130= Superior Cavopulmonary anastomosis(es) + PA reconstruction</li> <li><input type="checkbox"/> 3300 = Takedown of superior cavopulmonary anastomosis</li> <li><input type="checkbox"/> 3140= Hepatic vein to azygous vein connection, Direct</li> <li><input type="checkbox"/> 3150= Hepatic vein to azygous vein connection, Interposition graft</li> <li><input type="checkbox"/> 3160= Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)</li> <li><input type="checkbox"/> 1710= Palliation, Other</li> </ul>
<p><b>Fetal Interventions</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 3240=Attempted fetal intervention, percutaneous trans-catheter directed at interatrial septum</li> <li><input type="checkbox"/> 3250=Attempted fetal intervention, percutaneous trans-catheter directed at aortic valve</li> <li><input type="checkbox"/> 3260=Attempted fetal intervention, percutaneous trans-catheter directed at pulmonic valve</li> <li><input type="checkbox"/> 3270=Attempted fetal intervention "open" (maternal laparotomy with hysterotomy), directed at interatrial septum</li> <li><input type="checkbox"/> 3280=Attempted fetal intervention "open" (maternal laparotomy with hysterotomy), directed at aortic valve</li> <li><input type="checkbox"/> 3290=Attempted fetal intervention "open" (maternal laparotomy with hysterotomy), directed at pulmonic valve</li> </ul>
<p><b>Mechanical Support</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2360= ECMO cannulation</li> <li><input type="checkbox"/> 2370= ECMO decannulation</li> <li><input type="checkbox"/> 1910= ECMO procedure</li> <li><input type="checkbox"/> 1900= Intraaortic balloon pump (IABP) insertion</li> <li><input type="checkbox"/> 1920= Right/left heart assist device procedure</li> <li><input type="checkbox"/> 2390= VAD explantation</li> <li><input type="checkbox"/> 2380= VAD implantation</li> <li><input type="checkbox"/> 3170= VAD change out</li> </ul>
<p><b>Anesthetic procedures</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2420= Echocardiography procedure, Sedated transesophageal echocardiogram</li> <li><input type="checkbox"/> 2430= Echocardiography procedure, Sedated transthoracic echocardiogram</li> <li><input type="checkbox"/> 2435= Non-cardiovascular, Non-thoracic procedure on cardiac patient with cardiac anesthesia</li> <li><input type="checkbox"/> 2440= Radiology procedure on cardiac patient, Cardiac Computerized Axial Tomography (CT Scan)</li> <li><input type="checkbox"/> 2450= Radiology procedure on cardiac patient, Cardiac Magnetic Resonance Imaging (MRI)</li> <li><input type="checkbox"/> 2460= Radiology procedure on cardiac patient, Diagnostic radiology</li> <li><input type="checkbox"/> 2470= Radiology procedure on cardiac patient, Non-Cardiac Computerized Tomography (CT) on cardiac patient</li> <li><input type="checkbox"/> 2480= Radiology procedure on cardiac patient, Non-cardiac Magnetic Resonance Imaging (MRI) on cardiac patient</li> <li><input type="checkbox"/> 2490= Radiology procedure on cardiac patient, Therapeutic radiology</li> </ul>

**Miscellaneous Procedures**

- 1720= Aneurysm, Ventricular, Right, Repair
- 1730= Aneurysm, Ventricular, Left, Repair
- 1740= Aneurysm, Pulmonary artery, Repair
- 1760= Cardiac tumor resection
- 1780= Pulmonary AV fistula repair/occlusion
- 1790= Ligation, Pulmonary artery
- 1802= Pulmonary embolectomy, Acute pulmonary embolus
- 1804= Pulmonary embolectomy, Chronic pulmonary embolus
- 1810= Pleural drainage procedure
- 1820= Pleural procedure, Other
- 1830= Ligation, Thoracic duct
- 1840= Decortication
- 1850= Esophageal procedure
- 1860= Mediastinal procedure
- 1870= Bronchoscopy
- 1880= Diaphragm plication
- 1890= Diaphragm procedure, Other
- 1930= VATS (video-assisted thoracoscopic surgery)
- 1940= Minimally invasive procedure
- 1950= Bypass for noncardiac lesion
- 1960= Delayed sternal closure
- 1970= Mediastinal exploration
- 1980= Sternotomy wound drainage
- 3180= Intravascular stent removal
- 3220= Removal of transcatheter delivered device from heart
- 3210= Removal of transcatheter delivered device from blood vessel
- 1990= Thoracotomy, Other
- 2000= Cardiotomy, Other
- 2010= Cardiac procedure, Other
- 2020= Thoracic and/or mediastinal procedure, Other
- 2030= Peripheral vascular procedure, Other
- 2040= Miscellaneous procedure, Other
- 2050= Organ procurement
- 7777= Other procedure

**Operation Canceled or Aborted**

Canceled operation  
Aborted operation

- 7800= Operation canceled before skin incision
- 7810= Operation aborted after skin incision