

STS Congenital Heart Surgery Database Summary of Changes Between Versions 2.30 and 2.50

The following is a brief description of changes in the STS Congenital Data Specifications between versions 2.30 and 2.50. Please note that this is not intended to be a complete list of all of the changes, but a highlight of the most significant changes. For a complete list of changes, please see the full Data Specification document.

The following fields will be deleted:

ShortName	Description
UniqueID	Unique identifying number (hospital three-letter code plus hospital number).
Race	Patient's race.

The following fields will be added:

ShortName	FieldName
HospID	Hospital Identifier
Intubate	Endotracheal Intubation was Performed
ProcLoc	Procedure Location
OREntryT	Time Patient Entered the OR
SISStartT	Skin Incision Start Time
CnsltAttndID	Consultant Attending Identifier
SurgeonID	Surgeon Identifier
AsstSurgeonID	Assisting Surgeon Identifier
ResidentID	Resident Surgeon Identifier
XClampTmNC	Cross Clamp Time - No CPB
SISStopT	Time of Skin Closure
ReIntubate	Re-Intubated After Initial Postoperative Extubation
FinExtubDT	Final Extubation Date and Time
ORExitT	Time Patient Exited the OR
MultiDay	Procedure Extended Through Midnight
Readmit30	Readmission Within 30 Days
ReadmitDt	Readmission Date
ReadmitRsn	Primary Readmission Reason
Premature	Premature Birth
GestAgeWeeks	Gestational Age In Weeks
RaceCaucasian	Patient's race includes Caucasina
RaceBlack	Patient's race includes Black
RaceHispanic	Patient's race includes Hispanic
RaceAsian	Patient's race includes Asian
RaceNativeAm	Patient's race includes Native American

ShortName	FieldName
RaceOther	Patient's race includes any other race
FundDiagnosis	Fundamental Diagnosis

The following fields will be changed (Note, changes to the fields “Risk Factor”, “Diagnosis”, “Procedure” and “Complication” are described later in this document):

ShortName	FieldName	ChangeFrom230
IntubateDT	Intubation Date and Time	1. Changed Parent Field to "Endotracheal Intubation was Performed" = "Yes"
CPBTm	Cardiopulmonary Bypass Time	1. Changed ValidData from 0 - 1400 to 1 - 999.
XClampTm	Cross Clamp Time	1. Changed ParentField to "Operation Type" = "CPB"
ExtubateDT	Initial Extubation Date and Time	1. Changed ParentField to "Endotracheal Intubation was Performed" = "Yes".
ExtubInOR	Extubated In The Operating Room	1. Changed ParentField to "Endotracheal Intubation was Performed" = "Yes".
Mt30Stat	Mortality - 30-Day Status	1. Changed ValidData from "1 - 2" to "1 - 3". 2. Changed HarvestCoding - Added option "3 = Unknown"

The following tables describe the changes to the acceptable values for the “Risk Factor”, “Diagnosis”, “Procedure” and “Complication” fields in the STS Congenital database. They compare the values as they existed in the old 2.30 version with the suggested new values for version 2.50 along with a notation of the type of change being made (if any).

Please note that many changes were made to the values for these fields to fix their spelling, punctuation and capitalization. The more minor of these changes are not noted here. It is highly recommended that developers replace ALL existing values in their software with these updated values. The Data Specifications are made available to developers in an Access database format to make this process easier.

Risk Factors:

HarvestCode	2.30 Value	New (2006) Value	Change description
10	None	None	
20	Preoperative mechanical circulatory support (IABP, VAD, ECMO, or CPS)	Preoperative mechanical circulatory support (IABP, VAD, ECMO, or CPS)	
30	Preoperative complete AV block	Preoperative complete AV block	
40	Preoperative arrhythmia	Preoperative arrhythmia	
50	Preoperative shock		Deleted option
51		Preoperative shock - Persistent	New option
52		Preoperative shock - Resolved	New option
60	Preoperative acidosis	Preoperative acidosis	
70	Preoperative pulmonary hypertension crises (PA pressure > systemic pressure)		Deleted option
73		Preoperative pulmonary hypertension risk (PA pressure >= systemic/systolic arterial pressure) - Data source = ECHO	New option
77		Preoperative pulmonary hypertension risk (PA pressure >= systemic/systolic arterial pressure) - Data source = CATH	New option
80	Preoperative mechanical ventilatory support	Preoperative mechanical ventilatory support	
90	Preoperative tracheostomy	Preoperative tracheostomy	
100	Preoperative renal failure (creatinine >2)	Preoperative renal failure (creatinine >2)	
110	Preoperative renal failure requiring dialysis	Preoperative renal failure requiring dialysis	
120	Preoperative bleeding disorder	Preoperative bleeding disorder	
130	Preoperative endocarditis	Preoperative endocarditis	
140	Preoperative septicemia	Preoperative septicemia	
150	Preoperative neurological deficit	Preoperative neurological deficit	
160	Preoperative seizures	Preoperative seizures	

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Other preoperative risk factor

Other preoperative risk factor

Diagnosis:

HarvestCode	2.30 Value	New (2006) Value	Change description
10	PFO	PFO	
20	ASD, secundum	ASD, Secundum	
30	ASD, sinus venosus	ASD, Sinus venosus	
40	ASD, coronary sinus	ASD, Coronary sinus	
50	ASD, common atrium (single atrium)	ASD, Common atrium (single atrium)	
60	ASD, NOS		Deleted option
70	VSD, single		Deleted option
71		VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular)	New option
73		VSD, Type 2 (Perimembranous) (Paramembranous) (Conoventricular)	New option
75		VSD, Type 3 (Inlet) (AV canal type)	New option
77		VSD, Type 4 (Muscular)	New option
79		VSD, Type: Gerbode type (LV-RA communication)	New option
80	VSD, multiple	VSD, Multiple	
90	VSD, NOS		Deleted option
92		VSD + Aortic arch hypoplasia	New option
94		VSD + Coarctation of aorta	New option
100	AVC (AVSD), complete CAVSD	AVC (AVSD), Complete CAVSD	
110	AVC (AVSD), intermediate (transitional)	AVC (AVSD), Intermediate (transitional)	
120	AVC (AVSD), partial (incomplete) (PAVSD) (ASD, primum)	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum)	
130	AVC (AVSD), NOS		Deleted option
140	AP window (aortopulmonary window)	AP window (aortopulmonary window)	
150	Pulmonary artery origin from ascending aorta (hemitruncus)	Pulmonary artery origin from ascending aorta (hemitruncus)	
160	Truncus arteriosus	Truncus arteriosus	
170	Truncal valve insufficiency	Truncal valve insufficiency	
180	Partial anomalous pulmonary venous connection (PAPVC)	Partial anomalous pulmonary venous connection (PAPVC)	
190	Partial anomalous pulmonary venous connection (PAPVC), scimitar	Partial anomalous pulmonary venous connection (PAPVC), scimitar	
200	Total anomalous pulmonary venous connection (TAPVC), type 1 (supracardiac)	Total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac)	
210	Total anomalous pulmonary venous connection (TAPVC), type 2 (cardiac)	Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)	
220	Total anomalous pulmonary venous connection (TAPVC), type 3 (infracardiac)	Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)	

230	Total anomalous pulmonary venous connection (TAPVC), type 4 (mixed)	Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)	
240	Total anomalous pulmonary venous connection (TAPVC), NOS		Deleted option
250	Cor triatriatum	Cor triatriatum	
260	Pulmonary venous stenosis	Pulmonary venous stenosis	
270	Systemic venous anomaly	Systemic venous anomaly	
280	Systemic venous obstruction	Systemic venous obstruction	
290	TOF	TOF	
300	TOF, AVC (AVSD)	TOF, AVC (AVSD)	
310	TOF, absent pulmonary valve	TOF, Absent pulmonary valve	
320	Pulmonary atresia	Pulmonary atresia	
330	Pulmonary atresia, IVS	Pulmonary atresia, IVS	
340	Pulmonary atresia, VSD (including TOF, PA)	Pulmonary atresia, VSD (Including TOF, PA)	
350	Pulmonary atresia, VSD-MAPCA (pseudotruncus)	Pulmonary atresia, VSD-MAPCA (pseudotruncus)	
360	MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)	MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)	
370	Ebstein's anomaly	Ebstein's anomaly	
380	Tricuspid regurgitation, non-Ebstein's related	Tricuspid regurgitation, non-Ebstein's related	
390	Tricuspid stenosis	Tricuspid stenosis	
400	Tricuspid regurgitation and tricuspid stenosis	Tricuspid regurgitation and tricuspid stenosis	
410	Tricuspid valve, other	Tricuspid valve, Other	
420	Pulmonary stenosis, valvar	Pulmonary stenosis, Valvar	
430	Pulmonary artery stenosis (hypoplasia), main (trunk)	Pulmonary artery stenosis (hypoplasia), Main (trunk)	
440	Pulmonary artery stenosis, branch, central	Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation)	Changed
450	Pulmonary artery stenosis, branch, peripheral (beyond the hilar bifurcation)	Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation)	Changed
460	Pulmonary artery stenosis, NOS		Deleted option
470	Pulmonary artery, discontinuous	Pulmonary artery, Discontinuous	
480	Pulmonary stenosis, NOS		Deleted option
490	Pulmonary stenosis, subvalvar	Pulmonary stenosis, Subvalvar	
500	DCRV	DCRV	
510	Pulmonary valve, other	Pulmonary valve, Other	
520	Conduit failure	Conduit failure	
530	Pulmonary insufficiency	Pulmonary insufficiency	
540	Pulmonary insufficiency and pulmonary stenosis	Pulmonary insufficiency and pulmonary stenosis	
550	Aortic stenosis, subvalvar	Aortic stenosis, Subvalvar	
560	Aortic stenosis, valvar	Aortic stenosis, Valvar	
570	Aortic stenosis, supravalvar	Aortic stenosis, Supravalvar	
580	Aortic stenosis, NOS		Deleted option
590	Aortic valve atresia	Aortic valve atresia	

600	Aortic insufficiency	Aortic insufficiency	
610	Aortic insufficiency and aortic stenosis	Aortic insufficiency and aortic stenosis	
620	Aortic valve, other	Aortic valve, Other	
630	Sinus of Valsalva aneurysm	Sinus of Valsalva aneurysm	
640	LV to aorta tunnel	LV to aorta tunnel	
650	Mitral stenosis, supralvalvar mitral ring	Mitral stenosis, Supralvalvar mitral ring	
660	Mitral stenosis, valvar	Mitral stenosis, Valvar	
670	Mitral stenosis, subvalvar	Mitral stenosis, Subvalvar	
680	Mitral stenosis, subvalvar, parachute	Mitral stenosis, Subvalvar, Parachute	
690	Mitral stenosis, NOS		Deleted option
695		Mitral stenosis	New option
700	Mitral regurgitation and mitral stenosis	Mitral regurgitation and mitral stenosis	
710	Mitral regurgitation	Mitral regurgitation	
720	Mitral valve, other	Mitral valve, Other	
730	Hypoplastic left heart syndrome (HLHS)	Hypoplastic left heart syndrome (HLHS)	
740	Cardiomyopathy	Cardiomyopathy	
750	Cardiomyopathy, end stage congenital heart disease	Cardiomyopathy, End-stage congenital heart disease	Changed
760	Pericardial effusion	Pericardial effusion	
770	Pericarditis	Pericarditis	
780	Pericardial disease, other	Pericardial disease, Other	
790	Single ventricle, DILV	Single ventricle, DILV	
800	Single ventricle, DIRV	Single ventricle, DIRV	
810	Single ventricle, mitral atresia	Single ventricle, Mitral atresia	
820	Single ventricle, tricuspid atresia	Single ventricle, Tricuspid atresia	
830	Single ventricle, unbalanced AV canal	Single ventricle, Unbalanced AV canal	
840	Single ventricle, heterotaxia syndrome	Single ventricle, Heterotaxia syndrome	
850	Single ventricle, other	Single ventricle, Other	
860	Single ventricle, NOS		Deleted option
870	Congenitally corrected TGA	Congenitally corrected TGA	
872		Congenitally corrected TGA, IVS	New option
874		Congenitally corrected TGA, IVS-LVOTO	New option
876		Congenitally corrected TGA, VSD	New option
878		Congenitally corrected TGA, VSD-LVOTO	New option
880	TGA, IVS	TGA, IVS	
890	TGA, IVS-LVOTO	TGA, IVS-LVOTO	
900	TGA, VSD	TGA, VSD	
910	TGA, VSD-LVOTO	TGA, VSD-LVOTO	
920	TGA, NOS		Deleted option
930	DORV, VSD type	DORV, VSD type	

940	DORV, TOF type	DORV, TOF type	
950	DORV, TGA type	DORV, TGA type	
960	DORV, remote VSD (uncommitted VSD)	DORV, Remote VSD (uncommitted VSD)	
970	DORV, NOS		Deleted option
975		DORV, IVS	New option
980	DOLV	DOLV	
990	Coarctation of aorta	Coarctation of aorta	
1000	Aortic arch hypoplasia	Aortic arch hypoplasia	
1010	Coronary artery anomaly, anomalous aortic origin	Coronary artery anomaly, Anomalous aortic origin	
1020	Coronary artery anomaly, anomalous pulmonary origin (includes ALCAPA)	Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)	
1030	Coronary artery anomaly, fistula	Coronary artery anomaly, Fistula	
1040	Coronary artery anomaly, aneurysm	Coronary artery anomaly, Aneurysm	
1050	Coronary artery anomaly, other	Coronary artery anomaly, Other	
1060	Coronary artery anomaly, NOS		Deleted option
1070	Interrupted aortic arch	Interrupted aortic arch	
1080	Patent ductus arteriosus	Patent ductus arteriosus	
1090	Vascular ring	Vascular ring	
1100	Pulmonary artery sling	Pulmonary artery sling	
1110	Aortic aneurysm (including pseudoaneurysm)	Aortic aneurysm (including pseudoaneurysm)	
1120	Aortic dissection	Aortic dissection	
1130	Lung disease, benign	Lung disease, Benign	
1140	Lung disease, malignant	Lung disease, Malignant	
1150	Pectus	Pectus	
1160	Tracheal stenosis	Tracheal stenosis	
1170	Tracheal disease, other	Airway disease	Changed
1180	Arrhythmia	Arrhythmia	
1185		Arrhythmia, Heart block	New option
1190	Arrhythmia, heart block, acquired	Arrhythmia, Heart block, Acquired	
1200	Arrhythmia, heart block, congenital	Arrhythmia, Heart block, Congenital	
1210	Arrhythmia, heart block, NOS		Deleted option
1220	Arrhythmia, pacemaker, indication for replacement	Arrhythmia, Pacemaker, Indication for replacement	
1230	Atrial isomerism, left	Atrial Isomerism, Left	
1240	Atrial isomerism, right	Atrial Isomerism, Right	
1250	Aneurysm, ventricular, right	Aneurysm, Ventricular, Right	
1260	Aneurysm, ventricular, left	Aneurysm, Ventricular, Left	
1270	Aneurysm, pulmonary artery	Aneurysm, Pulmonary artery	
1280	Aneurysm, other	Aneurysm, Other	
1290	Hypoplastic RV	Hypoplastic RV	
1300	Hypoplastic LV	Hypoplastic LV	
1310	Mediastinitis	Mediastinitis	
1320	Endocarditis	Endocarditis	
1325		Rheumatic heart disease	New option
1330	Prosthetic valve failure	Prosthetic valve failure	

1340	Myocardial infarction	Myocardial infarction	
1350	Cardiac tumor	Cardiac tumor	
1360	Pulmonary AV fistula	Pulmonary AV fistula	
1370	Pulmonary embolism	Pulmonary embolism	
1380	Pulmonary vascular obstructive disease, NOS		Deleted option
1385		Pulmonary vascular obstructive disease	New option
1390	Pulmonary vascular obstructive disease (Eisenmenger's)	Pulmonary vascular obstructive disease (Eisenmenger's)	
1400	Primary pulmonary hypertension	Primary pulmonary hypertension	
1410	Persistent fetal circulation	Persistent fetal circulation	
1420	Meconium aspiration	Meconium aspiration	
1430	Pleural disease, benign	Pleural disease, Benign	
1440	Pleural disease, malignant	Pleural disease, Malignant	
1450	Pneumothorax	Pneumothorax	
1460	Pleural effusion	Pleural effusion	
1470	Chylothorax	Chylothorax	
1480	Empyema	Empyema	
1490	Esophageal disease, benign	Esophageal disease, Benign	
1500	Esophageal disease, malignant	Esophageal disease, Malignant	
1505		Mediastinal disease	New option
1510	Mediastinal disease, benign	Mediastinal disease, Benign	
1520	Mediastinal disease, malignant	Mediastinal disease, Malignant	
1530	Mediastinal disease, NOS		Deleted option
1540	Diaphragm paralysis	Diaphragm paralysis	
1550	Diaphragm disease, other	Diaphragm disease, Other	
1560	Cardiac, other	Cardiac, Other	
1570	Thoracic and/or mediastinal, other	Thoracic and/or mediastinal, Other	
1580	Peripheral vascular, other	Peripheral vascular, Other	
1590		Status post transplant, Heart	New option
1600		Status post transplant, Lung	New option
1610		Status post transplant, Heart and lung	New option
7000	Normal heart	Normal heart	
7777	Miscellaneous, other	Miscellaneous, Other	Changed

Procedures:

HarvestCode	2.30 Value	New (2006) Value	Change description
10	PFO, primary closure	PFO, Primary closure	
20	ASD repair, primary closure	ASD repair, Primary closure	
30	ASD repair, patch	ASD repair, Patch	
40	ASD repair, device	ASD repair, Device	
50	ASD, common atrium (single atrium), septation	ASD, Common atrium (single atrium), Septation	
60	ASD creation/enlargement	ASD creation/enlargement	
70	ASD partial closure	ASD partial closure	
80	Atrial septal fenestration	Atrial septal fenestration	
85		Atrial fenestration closure	New option
90	ASD repair, NOS		Deleted option
100	VSD repair, primary closure	VSD repair, Primary closure	
110	VSD repair, patch	VSD repair, Patch	
120	VSD repair, device	VSD repair, Device	
130	VSD, multiple, repair	VSD, Multiple, Repair	
140	VSD creation/enlargement	VSD creation/enlargement	
150	Ventricular septal fenestration	Ventricular septal fenestration	
160	VSD repair, NOS		Deleted option
170	AVC (AVSD) repair, complete (CAVSD)	AVC (AVSD) repair, Complete (CAVSD)	
180	AVC (AVSD) repair, intermediate (transitional)	AVC (AVSD) repair, Intermediate (Transitional)	
190	AVC (AVSD) repair, partial (incomplete) (PAVSD)	AVC (AVSD) repair, Partial (Incomplete) (PAVSD)	
200	AVC (AVSD) repair, NOS		Deleted option
210	AP window repair	AP window repair	
220	Pulmonary artery origin from ascending aorta (hemitruncus) repair	Pulmonary artery origin from ascending aorta (hemitruncus) repair	
230	Truncus arteriosus repair	Truncus arteriosus repair	
240	Valvuloplasty, truncal valve	Valvuloplasty, Truncal valve	
250	Valve replacement, truncal	Valve replacement, Truncal valve	Changed option
260	PAPVC repair	PAPVC repair	
270	PAPVC, scimitar, repair	PAPVC, Scimitar, Repair	
280	TAPVC repair	TAPVC repair	
290	Cor triatriatum repair	Cor triatriatum repair	
300	Pulmonary venous stenosis repair	Pulmonary venous stenosis repair	
310	Atrial baffle procedure (non-Mustard, non-Senning)	Atrial baffle procedure (non-Mustard, non-Senning)	
320	Atrial baffle procedure, NOS		Deleted option
330	Anomalous systemic venous connection repair	Anomalous systemic venous connection repair	
340	Systemic venous stenosis repair	Systemic venous stenosis repair	
350	TOF repair, no ventriculotomy	TOF repair, No ventriculotomy	

360	TOF repair, ventriculotomy, nontransanular patch	TOF repair, Ventriculotomy, Nontransanular patch	
370	TOF repair, ventriculotomy, transanular patch	TOF repair, Ventriculotomy, Transanular patch	
380	TOF repair, RV-PA conduit	TOF repair, RV-PA conduit	
390	TOF, AVC (AVSD), repair	TOF - AVC (AVSD) repair	Changed option
400	TOF, absent pulmonary valve, repair	TOF - Absent pulmonary valve repair	Changed option
410	TOF repair, NOS		Deleted option
420	Pulmonary atresia-VSD (including TOF, PA), repair	Pulmonary atresia - VSD (including TOF, PA) repair	Changed option
430	Pulmonary atresia-VSD-MAPCA (pseudotruncus), repair	Pulmonary atresia - VSD - MAPCA (pseudotruncus) repair	Changed option
440	Unifocalization MAPCA(s)	Unifocalization MAPCA(s)	
450	Occlusion MAPCA(s)	Occlusion MAPCA(s)	
460	Valvuloplasty, tricuspid	Valvuloplasty, Tricuspid	
465		Ebstein's repair	New option
470	Valve replacement, tricuspid (TVR)	Valve replacement, Tricuspid (TVR)	
480	Valve closure, tricuspid (exclusion, univentricular approach)	Valve closure, Tricuspid (exclusion, univentricular approach)	
490	Valve excision, tricuspid (without replacement)	Valve excision, Tricuspid (without replacement)	
500	Valve surgery, other, tricuspid	Valve surgery, Other, Tricuspid	
510	RVOT procedure	RVOT procedure	
520	1 1/2 ventricular repair	1 1/2 ventricular repair	
530	PA, reconstruction (plasty), main (trunk)	PA, reconstruction (plasty), Main (trunk)	
540	PA, reconstruction (plasty), branch, central	PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation)	Changed option
550	PA, reconstruction (plasty), branch, peripheral (at or beyond the hilar bifurcation)	PA, reconstruction (plasty), Branch, Peripheral (at or beyond the hilar bifurcation)	
560	PA, reconstruction (plasty), NOS		Deleted option
570	DCRV repair	DCRV repair	
580	Conduit reoperation	Conduit reoperation	
590	Valvuloplasty, pulmonic	Valvuloplasty, Pulmonic	
600	Valve replacement, pulmonic (PVR)	Valve replacement, Pulmonic (PVR)	
610	Conduit, placement, RV to PA	Conduit placement, RV to PA	Changed option
620	Conduit, placement, LV to PA	Conduit placement, LV to PA	Changed option
630	Valve excision, pulmonary (without replacement)	Valve excision, Pulmonary (without replacement)	
640	Valve closure, semilunar	Valve closure, Semilunar	
650	Valve surgery, other, pulmonic	Valve surgery, Other, Pulmonic	
660	Valvuloplasty, aortic	Valvuloplasty, Aortic	
670	Valve replacement, aortic (AVR)	Valve replacement, Aortic (AVR)	
680	Valve replacement, aortic (AVR), mechanical	Valve replacement, Aortic (AVR), Mechanical	

690	Valve replacement, aortic (AVR), bioprosthetic	Valve replacement, Aortic (AVR), Bioprosthetic	
700	Valve replacement, aortic (AVR), homograft	Valve replacement, Aortic (AVR), Homograft	
710	Aortic root replacement		Deleted option
715		Aortic root replacement, Bioprosthetic	New option
720	Aortic root replacement, mechanical	Aortic root replacement, Mechanical	
730	Aortic root replacement, homograft	Aortic root replacement, Homograft	
735		Aortic root replacement, Valve sparing	New option
740	Ross procedure	Ross procedure	
750	Konno procedure	Konno procedure	
760	Ross-Konno procedure	Ross-Konno procedure	
770	Other annular enlargement procedure	Other annular enlargement procedure	
780	Aortic stenosis, subvalvar, repair	Aortic stenosis, Subvalvar, Repair	
790	Aortic stenosis, supra-valvar, repair	Aortic stenosis, Supra-valvar, Repair	
800	Valve surgery, other, aortic	Valve surgery, Other, Aortic	
810	Sinus of Valsalva, aneurysm repair	Sinus of Valsalva, Aneurysm repair	
820	LV to aorta tunnel repair	LV to aorta tunnel repair	
830	Valvuloplasty, mitral	Valvuloplasty, Mitral	
840	Mitral stenosis, supra-valvar mitral ring, repair	Mitral stenosis, Supra-valvar mitral ring repair	Changed option
850	Valve replacement, mitral (MVR)	Valve replacement, Mitral (MVR)	
860	Valve surgery, other, mitral	Valve surgery, Other, Mitral	
870	Norwood procedure	Norwood procedure	
880	HLHS biventricular repair	HLHS biventricular repair	
890	Transplant, heart	Transplant, Heart	
900	Transplant, heart and lung	Transplant, Heart and lung	
910	Partial left ventriculectomy (LV volume reduction surgery) (Batista)	Partial left ventriculectomy (LV volume reduction surgery) (Batista)	
920	Pericardial drainage procedure	Pericardial drainage procedure	
930	Pericardiectomy	Pericardiectomy	
940	Pericardial procedure, other	Pericardial procedure, Other	
950	Fontan, atrio-pulmonary connection	Fontan, Atrio-pulmonary connection	
960	Fontan, atrio-ventricular connection	Fontan, Atrio-ventricular connection	
970	Fontan, TCPC, lateral tunnel, fenestrated	Fontan, TCPC, Lateral tunnel, Fenestrated	
980	Fontan, TCPC, lateral tunnel, nonfenestrated	Fontan, TCPC, Lateral tunnel, Nonfenestrated	
990	Fontan, TCPC, lateral tunnel, NOS		Deleted option
1000	Fontan, TCPC, external conduit, fenestrated	Fontan, TCPC, External conduit, Fenestrated	
1010	Fontan, TCPC, external conduit, nonfenestrated	Fontan, TCPC, External conduit, Nonfenestrated	
1020	Fontan, TCPC, external conduit, NOS		Deleted option
1025		Fontan revision or conversion (Re-do Fontan)	New option
1030	Fontan, other	Fontan, Other	
1035		Ventricular septation	New option
1040	Fontan, NOS		Deleted option

1050	Congenitally corrected TGA repair, atrial switch and ASO (double switch)	Congenitally corrected TGA repair, Atrial switch and ASO (double switch)	
1060	Congenitally corrected TGA repair, atrial switch and Rastelli	Congenitally corrected TGA repair, Atrial switch and Rastelli	
1070	Congenitally corrected TGA repair, VSD closure	Congenitally corrected TGA repair, VSD closure	
1080	Congenitally corrected TGA repair, VSD closure and LV to PA conduit	Congenitally corrected TGA repair, VSD closure and LV to PA conduit	
1090	Congenitally corrected TGA repair, other	Congenitally corrected TGA repair, Other	
1100	Congenitally corrected TGA repair, NOS		Deleted option
1110	Arterial switch operation (ASO)	Arterial switch operation (ASO)	
1120	Arterial switch operation (ASO) and VSD repair	Arterial switch operation (ASO) and VSD repair	
1123		Arterial switch procedure + Aortic arch repair	New option
1125		Arterial switch procedure and VSD repair + Aortic arch repair	New option
1130	Senning	Senning	
1140	Mustard	Mustard	
1145		Atrial baffle procedure, Mustard or Senning revision	New option
1150	Rastelli	Rastelli	
1160	REV	REV	
1170	TGA, other procedures (Nikaidoh, Kawashima, LV-PA conduit, other)	TGA, Other procedures (Nikaido, Kawashima, LV-PA conduit, other)	Changed option
1180	DORV, intraventricular tunnel repair	DORV, Intraventricular tunnel repair	
1190	DORV repair, NOS		Deleted option
1200	DOLV repair	DOLV repair	
1210	Coarctation repair, end to end	Coarctation repair, End to end	
1220	Coarctation repair, end to end, extended	Coarctation repair, End to end, Extended	
1230	Coarctation repair, subclavian flap	Coarctation repair, Subclavian flap	
1240	Coarctation repair, patch aortoplasty	Coarctation repair, Patch aortoplasty	
1250	Coarctation repair, interposition graft	Coarctation repair, Interposition graft	
1260	Coarctation repair, other	Coarctation repair, Other	
1270	Coarctation repair, NOS		Deleted option
1275		Coarctation repair + VSD repair	New option
1280	Aortic arch repair	Aortic arch repair	
1285		Aortic arch repair + VSD repair	New option
1290	Coronary artery fistula ligation	Coronary artery fistula ligation	
1291	Anomalous origin of coronary artery repair	Anomalous origin of coronary artery from pulmonary artery repair	Changed option
1300	Coronary artery bypass	Coronary artery bypass	
1310	Coronary artery procedure, other	Coronary artery procedure, Other	
1320	Interrupted aortic arch repair	Interrupted aortic arch repair	
1330	PDA closure, surgical	PDA closure, Surgical	
1340	PDA closure, device	PDA closure, Device	

1350	PDA closure, NOS		Deleted option
1360	Vascular ring repair	Vascular ring repair	
1365		Aortopexy	New option
1370	Pulmonary artery sling repair	Pulmonary artery sling repair	
1380	Aortic aneurysm repair	Aortic aneurysm repair	
1390	Aortic dissection repair	Aortic dissection repair	
1400	Lung biopsy	Lung biopsy	
1410	Transplant, lung(s)	Transplant, lung(s)	
1420	Lung procedure, other	Lung procedure, Other	
1430	Pectus repair	Pectus repair	
1440	Tracheal procedure	Tracheal procedure	
1450	Pacemaker implantation, permanent	Pacemaker implantation, Permanent	
1460	Pacemaker procedure	Pacemaker procedure	
1470	ICD (AICD) implantation	ICD (AICD) implantation	
1480	ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure	ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure	Changed option
1490	Arrhythmia surgery-atrial, surgical ablation	Arrhythmia surgery - atrial, Surgical Ablation	Changed option
1500	Arrhythmia surgery-ventricular, surgical ablation	Arrhythmia surgery - ventricular, Surgical Ablation	Changed option
1510	Arrhythmia surgery, NOS		Deleted option
1520	ASD creation, balloon septostomy (BAS) (Rashkind)	ASD creation, Balloon septostomy (BAS) (Rashkind)	
1530	ASD creation, blade septostomy	ASD creation, Blade septostomy	
1540	Balloon dilation	Balloon dilation	
1550	Stent placement	Stent placement	
1560	Device closure	Device closure	
1570	RF ablation	RF ablation	
1580	Coil embolization	Coil embolization	
1590	Shunt, systemic to pulmonary, modified Blalock-Taussig shunt (MBTS)	Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)	
1600	Shunt, systemic to pulmonary, central (from aorta or to main pulmonary artery)	Shunt, Systemic to pulmonary, Central (from aorta or to main pulmonary artery)	
1610	Shunt, systemic to pulmonary, other	Shunt, Systemic to pulmonary, Other	
1620	Shunt, systemic to pulmonary, NOS		Deleted option
1630	Shunt, ligation and takedown	Shunt, Ligation and takedown	
1640	PA banding (PAB)	PA banding (PAB)	
1650	PA debanding	PA debanding	
1660	Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)	Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)	
1670	Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)	Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)	
1680	Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)	Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)	

1690	Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)	Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)	
1700	Hemifontan	Hemifontan	
1710	Palliation, other	Palliation, Other	
1720	Aneurysm, ventricular, right, repair	Aneurysm, Ventricular, Right, Repair	
1730	Aneurysm, ventricular, left, repair	Aneurysm, Ventricular, Left, Repair	
1740	Aneurysm, pulmonary artery, repair	Aneurysm, Pulmonary artery, Repair	
1750	Atrial baffle procedure, NOS		Deleted option
1760	Cardiac tumor resection	Cardiac tumor resection	
1770	Conduit placement, NOS		Deleted option
1772		Conduit placement, Other	New option
1774		Conduit placement, Ventricle to aorta	New option
1780	Pulmonary AV fistula repair/occlusion	Pulmonary AV fistula repair/occlusion	
1790	Ligation, pulmonary artery	Ligation, Pulmonary artery	
1800	Pulmonary embolectomy		Deleted option
1802		Pulmonary embolectomy, Acute pulmonary embolus	New option
1804		Pulmonary embolectomy, Chronic pulmonary embolus	New option
1810	Pleural drainage procedure	Pleural drainage procedure	
1820	Pleural procedure, other	Pleural procedure, Other	
1830	Ligation, thoracic duct	Ligation, Thoracic duct	
1840	Decortication	Decortication	
1850	Esophageal procedure	Esophageal procedure	
1860	Mediastinal procedure	Mediastinal procedure	
1870	Bronchoscopy	Bronchoscopy	
1880	Diaphragm plication	Diaphragm plication	
1890	Diaphragm procedure, other	Diaphragm procedure, Other	
1900	Intraaortic balloon pump (IABP) insertion	Intraaortic balloon pump (IABP) insertion	
1910	ECMO procedure	ECMO procedure	
1920	Right/left heart assist device procedure	Right/left heart assist device procedure	
1930	VATS (video-assisted thoracoscopic surgery)	VATS (video-assisted thoracoscopic surgery)	
1940	Minimally invasive procedure	Minimally invasive procedure	
1950	Bypass for noncardiac lesion	Bypass for noncardiac lesion	
1960	Delayed sternal closure	Delayed sternal closure	
1970	Mediastinal exploration	Mediastinal exploration	
1980	Sternotomy wound drainage	Sternotomy wound drainage	
1990	Thoracotomy, other	Thoracotomy, Other	
2000	Cardiotomy, other	Cardiotomy, Other	
2010	Cardiac procedure, other	Cardiac procedure, Other	
2020	Thoracic and/or mediastinal procedure, other	Thoracic and/or mediastinal procedure, Other	
2030	Peripheral vascular procedure, other	Peripheral vascular procedure, Other	
2040	Miscellaneous procedure, other	Miscellaneous procedure, Other	
2050	Organ procurement	Organ procurement	

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Other procedure

Other procedure

Complications:

HarvestCode	2.30 Value	New (2006) Value	Change description
10	None	None	
20	Reoperation during this admission (unplanned reoperation)	Reoperation during this admission (unplanned reoperation)	
30	Postoperative cardiac arrest	Postoperative cardiac arrest	
40	Postoperative mechanical circulatory support (IABP, VAD, ECMO, or CPS)	Postoperative mechanical circulatory support (IABP, VAD, ECMO, or CPS)	
50	Postoperative complete AV block requiring temporary pacemaker	Postoperative AV block requiring temporary pacemaker	
60	Postoperative complete AV block requiring permanent pacemaker	Postoperative AV block requiring permanent pacemaker	
70	Postoperative arrhythmia	Postoperative arrhythmia	
80	Postoperative low cardiac output	Postoperative low cardiac output	
90	Postoperative acidosis	Postoperative acidosis	
100	Sternum left open	Sternum left open	
110	Pericardial effusion requiring drainage	Pericardial effusion requiring drainage	
120	Systemic vein obstruction	Systemic vein obstruction	
130	Pulmonary vein obstruction	Pulmonary vein obstruction	
140	Postoperative pulmonary hypertension crises (PA pressure > systemic pressure)	Postoperative pulmonary hypertension	
150	Postoperative respiratory insufficiency requiring mechanical ventilatory support > 7 days	Postoperative respiratory insufficiency requiring mechanical ventilatory support > 7 days	
160	Postoperative respiratory insufficiency requiring reintubation	Postoperative respiratory insufficiency requiring reintubation	
170	Postoperative tracheostomy	Postoperative tracheostomy	
180	Pneumonia	Pneumonia	
190	Pneumothorax	Pneumothorax	
200	Pleural effusion requiring drainage	Pleural effusion requiring drainage	
210	Chylothorax	Chylothorax	
220	Acute renal failure requiring temporary dialysis	Acute renal failure requiring temporary dialysis	
230	Acute renal failure requiring permanent dialysis	Acute renal failure requiring permanent dialysis	
240	Bleeding requiring reoperation	Bleeding requiring reoperation	
250	Wound dehiscence	Wound dehiscence	
255		Sternal dehiscence	New option
260	Wound infection	Wound infection	
270	Mediastinitis	Mediastinitis	
280	Postoperative endocarditis	Postoperative endocarditis	
290	Postoperative septicemia	Postoperative septicemia	
300	Phrenic nerve injury/paralyzed diaphragm	Phrenic nerve injury/paralyzed diaphragm	

310	Recurrent laryngeal nerve injury/paralyzed vocal cord	Recurrent laryngeal nerve injury/paralyzed vocal cord	
320	Postoperative neurological deficit persisting at discharge	Postoperative neurological deficit persisting at discharge	
325		Postoperative neurological deficit - transient	New option
330	Postoperative new onset seizures	Postoperative new onset seizures	
340		Intraoperative death	New option
777	Other postoperative complication	Other postoperative complication	