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Society of Thoracic Surgeons

Congenital Heart Surgery Database Monthly Webinar

January 16, 2024

Agenda

- Welcome and Introduction
- STS Update
- STS Data Manager Education (Chasity Wellnitz and Leslie Wacker, CHSD Consultants)
- Q&A

STS Updates

- January Training Manual is posted
- Fall 2023 Harvest Analysis complete and reports posted
  - Report related questions should be directed to stsdb_helpdesk@sts.org
  - Analyses Overview posted on STS Website (Dated **Aug 10 2023**)
  - Harvest Composite Quality Ratings Summary to be post by COB today
- CHSD Public Reporting
  - Next update is scheduled to take place in late Q1 2024 and will include results from the Fall 23 analysis.
  - If you have **not previously consented** to publicly report your data, the next submission deadline is Friday, February 2nd.
- Spring 24 Harvest is underway
  - Surgery dates 1/1/2020 – 12/31/2023

2024 Harvest Schedule

Term	Harvest Submission Window Close	Opt-Out Date	Includes Procedures Performed Through:	Report Posting
Spring 2024	3/22/2024	3/26/2024	12/31/2023	Summer 2024
Fall 2024	9/27/2024	10/1/2024	6/30/2024	Winter 2024

Data Submission Open is continuous for all harvest terms. Data Submission Close occurs at 11:59 p.m. Eastern on the date listed.

2024 AQO: A Data Managers Meeting

- Join us in Music City: Nashville, Tennessee
- September 10 - 13

6.23.2 Data Manager Education

January 16, 2024

Discussion Topics

Definition Review

- Prior op count
- CPB time on MCS
- Operative mortality
- Blood products
- Unplanned cardiac reop

Analysis Report Interpretation

Prior Operation Count Change – *Why?*

- Prior sternotomy procedure risk not adequately captured in current count

  e.g., patients undergoing heart transplant who were previously implanted with a VAD

Prior Operation Count Change – *What?*

Number of Prior Cardiac Operations

Prior procedure (2380) VAD implantation where the:

- Optype is VAD
- Incision type is any but other

Prior procedure (2360) ECMO cannulation where the:

- Optype is ECMO
- Incision type is any but other

Prior Operation Count Change – *TM Update*

Number of Prior Cardiac Operations

Indicate the number of surgical procedures performed prior to this procedure based on the criteria below:

- Any prior surgery with OpType (1) CPB Cardiovascular
- Any prior surgery with OpType (2) No CPB Cardiovascular
- Any prior surgery where the procedure is (2380) VAD, Implant *if and only if* the OpType is (6) VAD with CPB or (7) VAD without CPB *and* the Incision Type (IncisionTypeMulti) is *not* (6) Other
- Any prior surgery where the procedure is (2360) ECMO cannulation *if and only if* the OpType is (3) ECMO *and* the Incision Type (IncisionTypeMulti) is *not* (6) Other

Prior Operation Count Change – *What?*

Number of Prior CPB Cardiac Operations

Procedure (2380) VAD implantation where the:

- Optype is VAD with CPB

Prior Operation Count Change – *TM Update*

Number of Prior CPB Cardiac Operations

Indicate the number of surgical procedures performed prior to this procedure based on the criteria below:

- Any prior surgery with OpType (1) CPB Cardiovascular
- Any prior surgery with OpType (6) VAD with CPB

Prior Operation Count Change - *Logistics*

- Operations on or after January 01, 2024

  Do not go back and recode previous operations

- Must have documentation to count a procedure
  - e.g., ECMO cannulation documented via median sternotomy

CPB Time While on ECMO/VAD

Clarification to (SeqNo 2060) CPB Time – *same as V3.41*

Scenario where the ECMO/VAD circuit is providing CPB support (optype CPB Cardiovascular):

- Enter the perfusion fields as completely as possible
- If unknown/not applicable, leave blank
- CPB time is the length of the procedure: Skin Incision Start Time (SeqNo 1835) to Time of Skin Closure (SeqNo 1965) *(will be added to the TM)*

Postop Event Coding

Existing Training Manual

Assign the applicable postoperative events to (1) the index operation as that is where all events will be assigned upon analysis or (2) the operation that is most closely associated with the event.

No change in where to assign postoperative events between versions 3.41 and 6.23.2

Operative Death - Revisited

Existing Training Manual -

Unchanged between versions 3.41 and 6.23.2

Operative Mortality includes: (1) all deaths, regardless of cause, occurring during the hospitalization in which the operation was performed, even if after 30 days (including patients transferred to other acute care facilities); and (2) all deaths, regardless of cause, occurring after discharge from the hospital, but before the end of the thirtieth postoperative day.

Intent/Clarification:

This field should be completed accurately for all procedures performed (index and non-index) including all operation types regardless of whether the case will be analyzed or included in a specific analysis table.

Blood Product Administration

Captured in multiple sections of the database:

- Operative section: all patients
- Postoperative section: ≥18-years of age only
- Anesthesia section: if participating

Each section collects blood products differently – also different between V3.41 and 6.23.2

Operative Section: *All Patients*

Blood and Blood Related Products (Including CPB Blood Prime Units)		
Autologous Transfusion: ☐ Yes ☐ No		
Transfusion of Non-Autologous Blood Products During or After Procedure: ☐ Yes ☐ No		
	(If Yes →)	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR: ☐ Yes ☐ No
		Transfusion of Blood Products within 24 hours post procedure: ☐ Yes ☐ No
		Transfusion of Blood Products after 24 hours post procedure: ☐ Yes ☐ No

DCF

Existing Training Manual

Intent/Clarification:

Indicate if the patient received any non-autologous (not self-donated) blood products during or after this procedure. This includes products administered during the cardiopulmonary bypass (CPB) circuit blood prime.

Includes non-autologous blood products administered any time after this procedure, regardless of the timeframe.

Complete this field for each operative case separately.

Postoperative Section: ≥ *18-years*

(4690) Blood Prod (products used postoperatively y/n)

If yes ⟶ number of units administered specific products

Training Manual

Intent/Clarification:

If the patient did not expire in the OR and is age ≥ 18 years, indicate if any blood products were transfused any time after OR exit time. Do not include blood products started in the OR.

Please note, answer this field on *the index* operation only, not the initial operation. Code (2) No for non-index operations (updated Sept-23).

Anesthesia Section: *all patients if participating*

Parent field to blood products from Operative Section:

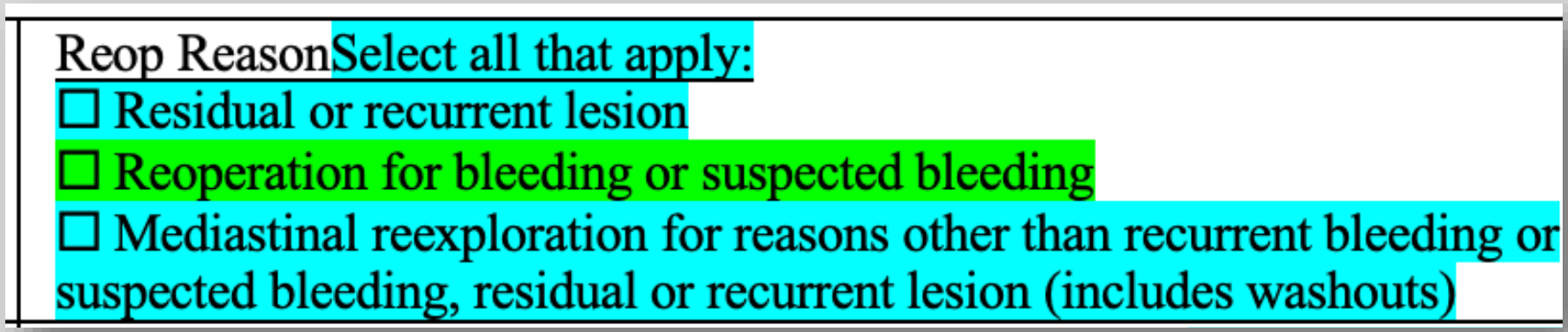
- (2350) Transfusion of Non-Autologous Blood Products Initiated Before leaving OR
- (2355) Transfusion of Non-Autologous Blood Products Within 24 Hours Post-Procedure

If yes – enter amounts (ml) of each specific product

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Unplanned Cardiac Reoperation Reason

SeqNo 4755: Postoperative Event – Reoperation Reason


Reop ReasonSelect all that apply:
☐ Residual or recurrent lesion
☐ Reoperation for bleeding or suspected bleeding
☐ Mediastinal reexploration for reasons other than recurrent bleeding or suspected bleeding, residual or recurrent lesion (includes washouts)

While the header states mediastinal exploration for reason other than…the intent/clarification states…

Unplanned Cardiac Reoperation Reason

SeqNo 4755: Postoperative Event – Reoperation Reason

Mediastinal reexploration for reasons other than recurrent bleeding or suspected bleeding, residual or recurrent lesion (includes washouts)	Unplanned cardiac reoperation (an operation with operation type CPB Cardiovascular or No CPB Cardiovascular) for any reason other than recurrent bleeding or suspected bleeding, residual/recurrent lesions. Includes mediastinal explorations, mediastinal washouts, and sternal reopening when not done for bleeding or suspected bleeding.

In Summary

Prior operation count changes start with surgery dates on or after 01/01/24

Submit an FAQ when unsure

Find documentation of incision type – do not assume!

Discussion Topics

Definition Review

- Prior op count
- CPB time on MCS
- Operative mortality
- Blood products
- Unplanned cardiac reop

Analysis Report Interpretation

CHSD Analysis Overview

Congenital Heart Surgery Database

The STS Congenital Heart Surgery Database is currently operating under version 6.23.2.

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Adult Cardiac Surgery Database

General Thoracic Surgery Database

Congenital Heart Surgery Database

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Version 6.23.2

Effective July 1, 2023

Training Manual - *Updated as of January 2024*

- Training Manual
- FAQ Summary

Data Collection Forms (DCFs)

- Annotated Data Collection Form (PDF)
- Annotated Data Collection Form (WORD)

**To view annotation in Word document DCF versions, select File — Options — Display — Hidden Text — Print Hidden Text, and then click OK. If you need further assistance, please contact your IT Department or do an internet search for your specific version of Office on ways to view hidden text.*

Additional Resources

- Data Specifications
- Itemized Changes from 3.41 to 6.23.2
- Summary Checklist of Changes from 3.41 to 6.23.2
- Software Specifications
- CHSD Analyses Overview
- Appendix C: STAT Categories (WORD)
- Appendix C: STAT Categories (EXCEL)

Version 3.41

Version 3.3

CHSD Analysis Overview

Additional Resources

- Data Specifications
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- Summary Checklist of Changes from 3.41 to 6.23.2
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- CHSD Analyses Overview
- Appendix C: STAT Categories (WORD)
- Appendix C: STAT Categories (EXCEL)

> Version 3.41

> Version 3.3

CHSD Analysis Overview

- General Overview
- Rules for Identifying Episodes of Care
- Rules for Assigning Index Operations
- Determination of Primary Diagnosis and Primary Procedure
- Fields Used for Mortality Calculation
- Determination of Case Eligibility for Inclusion in Mortality Analysis
- Operative Mortality Status at the Level of Episode of Care
- Method of Mortality Calculation
- Risk Adjusted & Analytical Reports
- Benchmark Operations: Mortality & Postoperative LOS (Table 18)
- Required Primary Diagnosis and Procedure Lists for Inclusion in Lesion-Specific Reporting
- Risk Adjusted Outcomes: Overview
- CHSD Risk Model Specifications
- Interpretation of Adjusted Mortality Results
- Congenital Cardiac Anesthesia
- Combination Procedure Codes

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DATA ANALYSES OF THE SOCIETY OF THORACIC SURGEONS GENERAL CONGENITAL HEART SURGERY DATABASE

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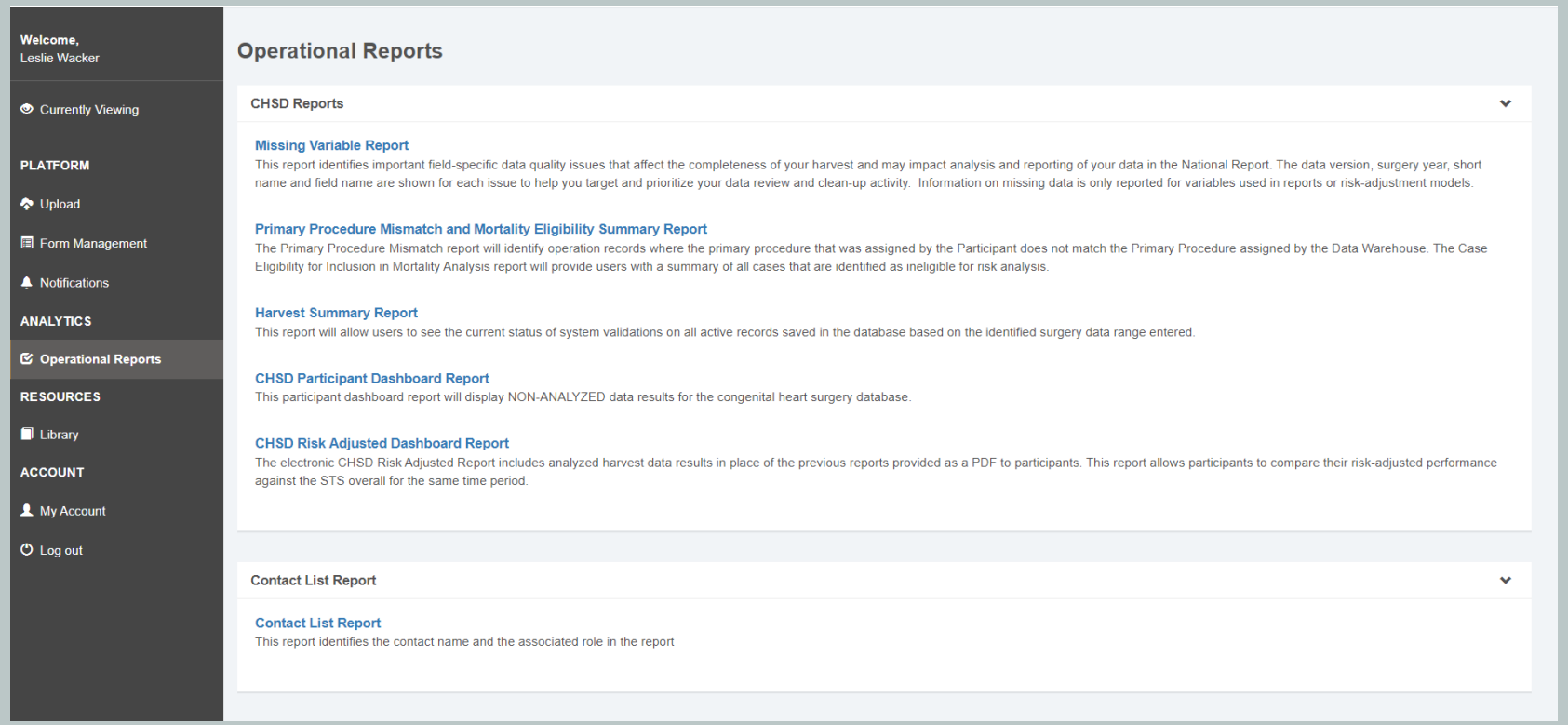
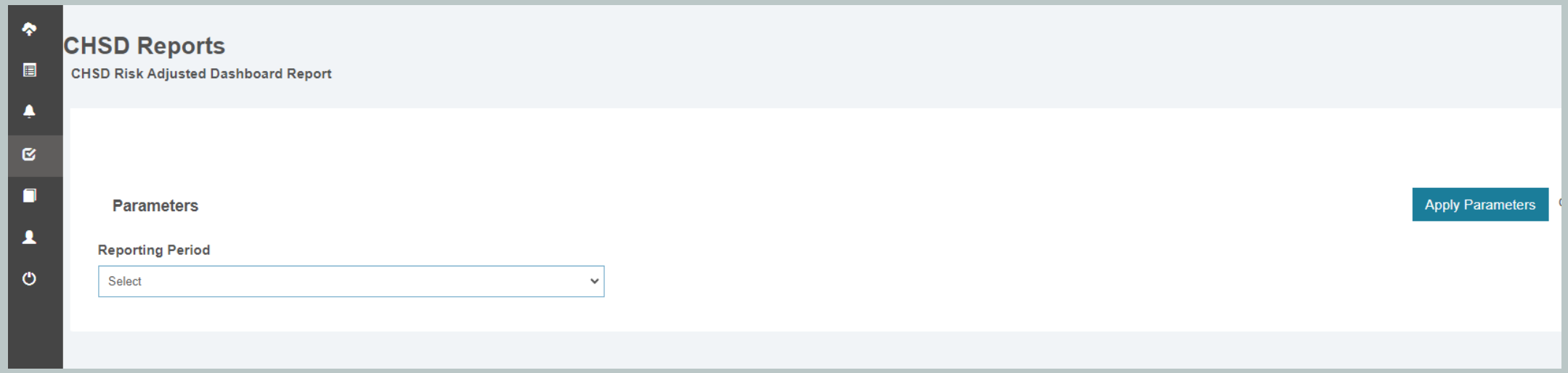
Analytic Report Interpretation

- IQVIA Platform → Operational Reports → **CHSD Risk Adjusted Dashboard Report**



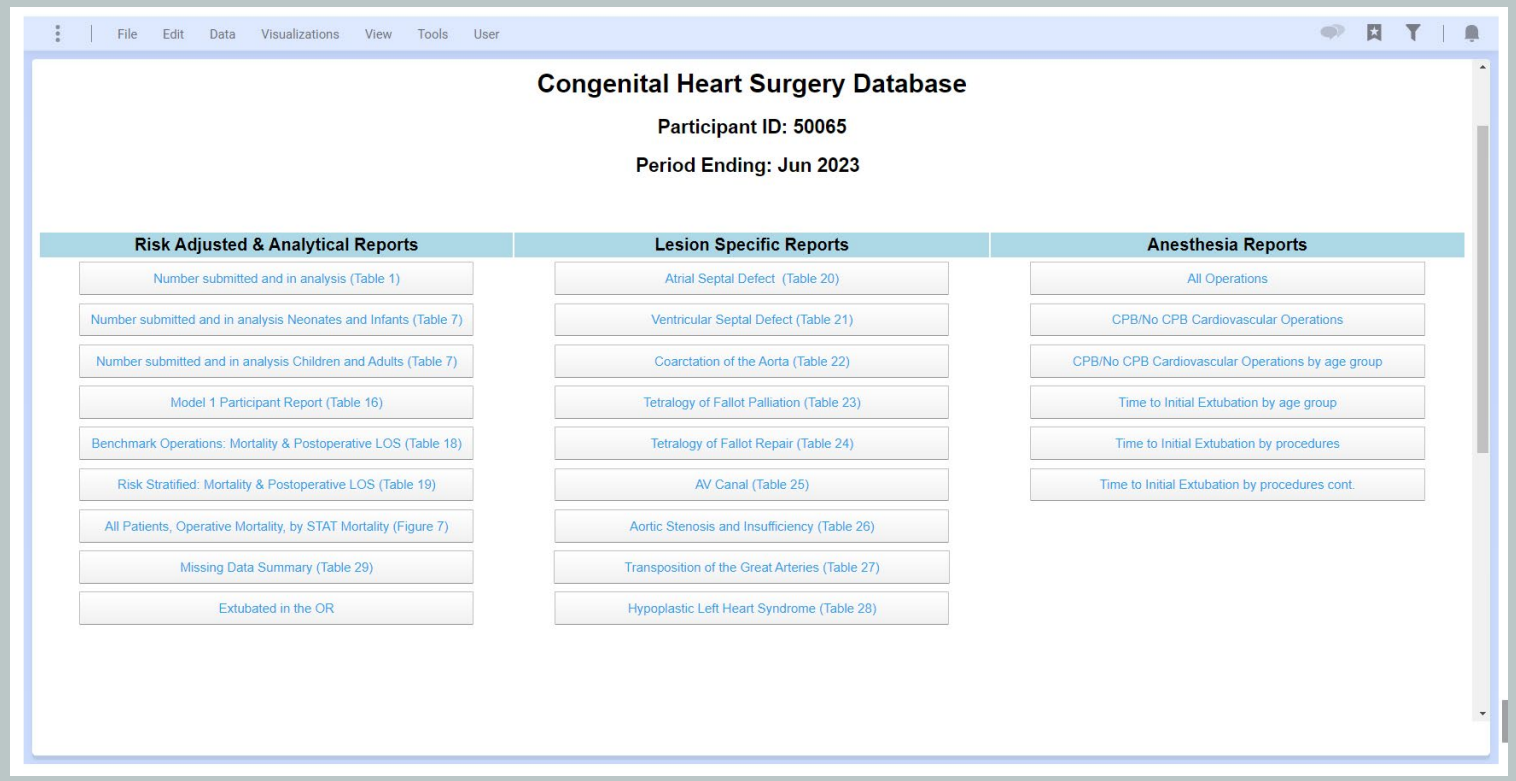
Analytic Report Interpretation

- Select Reporting Period
- Apply Parameters



Analytic Report Interpretation

- NOT ALL are “Risk Adjusted”



Analytic Report Interpretation

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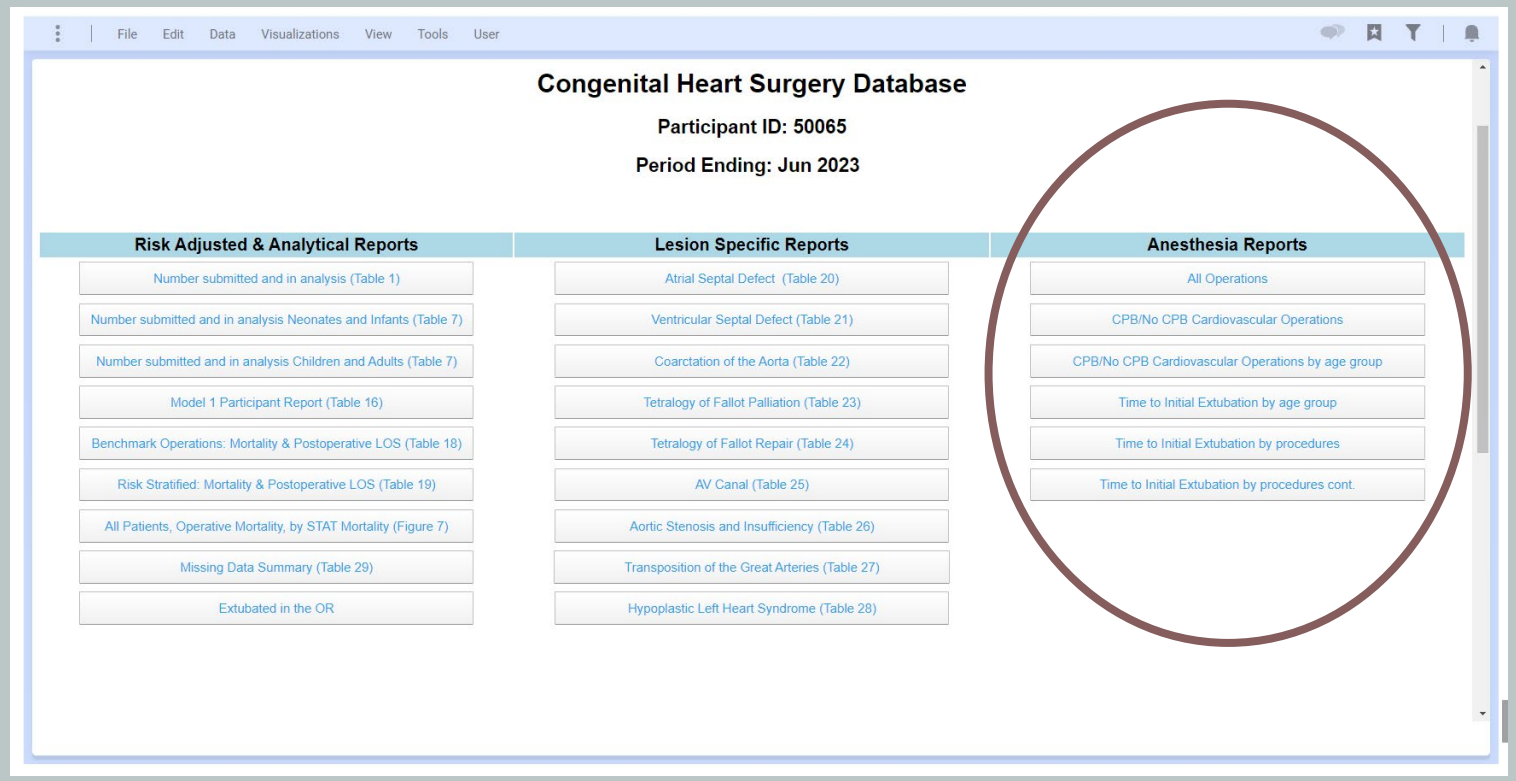

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Congenital Heart Surgery Database

Participant ID: 50065

Period Ending: Jun 2023

Risk Adjusted & Analytical Reports	Lesion Specific Reports	Anesthesia Reports
Number submitted and in analysis (Table 1)	Atrial Septal Defect (Table 20)	All Operations
Number submitted and in analysis Neonates and Infants (Table 7)	Ventricular Septal Defect (Table 21)	CPB/No CPB Cardiovascular Operations
Number submitted and in analysis Children and Adults (Table 7)	Coarctation of the Aorta (Table 22)	CPB/No CPB Cardiovascular Operations by age group
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All Patients, Operative Mortality, by STAT Mortality (Figure 7)	Aortic Stenosis and Insufficiency (Table 26)	
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	Calculation
Number of Operations /Patients	Operations Submitted
	Operations in Analysis
	Patients in Analysis
Operative Mortality	Number of Mortalities
	Number Eligible
	Mortality Percent
	Mortality 95% CI
STAT Mortality Category 1	Number of Mortalities
	Number Eligible
	Mortality Percent
	Mortality 95% CI
STAT Mortality Category 2	Number of Mortalities
	Number Eligible
	Mortality Percent
	Mortality 95% CI

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	Mortality 95% CI
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	Mortality Percent
	Mortality 95% CI

General Overview

Rules for Identifying Episodes of Care

Rules for Assigning Index Operations

Determination of Primary Diagnosis and Primary Procedure

Fields Used for Mortality Calculation

Determination of Case Eligibility for Inclusion in Mortality Analysis

Operative Mortality Status at the Level of Episode of Care

Method of Mortality Calculation

Risk Adjusted & Analytical Reports

Benchmark Operations: Mortality & Postoperative LOS (Table 18)

Required Primary Diagnosis and Procedure Lists for Inclusion in Lesion-Specific Reporting

Risk Adjusted Outcomes: Overview

CHSD Risk Model Specifications

Interpretation of Adjusted Mortality Results

Congenital Cardiac Anesthesia

Combination Procedure Codes

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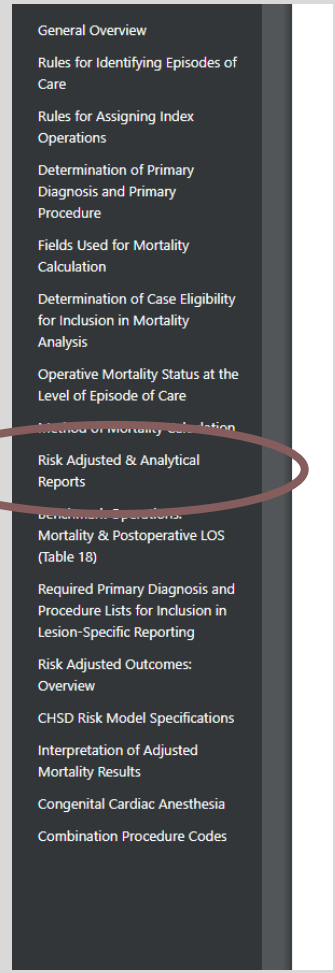

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Risk Adjusted & Analytical Reports

Number Submitted and in analysis (Table 1)

Please refer to the CHSD Risk Adjusted Calculation spreadsheet within the IQVIA Library for technical details

Operations are classified into various sections based upon the logic below:

Section	Category	Inclusion
Number of Operations/Patients	Operations Submitted	All operations submitted with a surgical date within the analytic time period
	Operations in Analysis	All operations submitted with a surgical date within the analytic time period with the Operation Type CPB, CardioVascular or No CPB, CardioVascular and an assigned gender of male or female
	Patients in Analysis	All index operations submitted with a surgical date within the analytic time period with the Operation Type CPB, CardioVascular or No CPB, CardioVascular and an assigned gender of male or female
Operative Mortality, STAT Mortality Categories (1-5)	Number of Mortalities	Count of all index operations submitted with a surgical date within the analytic time period with the Operation Type CPB, CardioVascular or No CPB, CardioVascular and an assigned gender of male or female AND designated as an operative mortality
	Number Eligible	Count of all index operations submitted with a surgical date within the analytic time period with the Operation Type CPB, CardioVascular or No CPB, CardioVascular and an assigned gender of male or female AND whose operative mortality data is not null
	Mortality Percent	Number of mortalities / number eligible
	Mortality 95% CI	Calculated 95% Confidence Interval

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Congenital Heart Surgery Database

Participant ID: 50065

Period Ending: Jun 2023

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Number Submitted & In Analysis, Operative Mortality, and Comple

	Calculation	Participant			
		Neonates		Infants	
		Jul 19 - Jun 23	Jul 22 - Jun 23	Jul 19 - Jun 23	Jul 22 - Jun 23
Number of Operations/Patients	Operations Submitted				
	Operations in Analysis				
	Patients in Analysis				
Operative Mortality	Number of Mortalities				
	Number Eligible				
	Mortality Percent				
	Mortality 95% CI				

Number Submitted & In Analysis, Operative Mortality, and Comple

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		Neonates		Infants	
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Number Submitted and in analysis Neonates, Infants, Children, and Adults (Table 7)

Please refer to the CHSD Risk Adjusted Calculation spreadsheet within the IQVIA Library for technical details

Operations are classified into various sections as described under Table 1, and further stratified by age group:

- Neonates (Age in Days = 0 - 30)

- Infants (Age in Days = 31 - 365)
- Children (Age in Days = 366 - 6,574)
- Adults (Age in Days >=6,575)

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Congenital Heart Surgery Database

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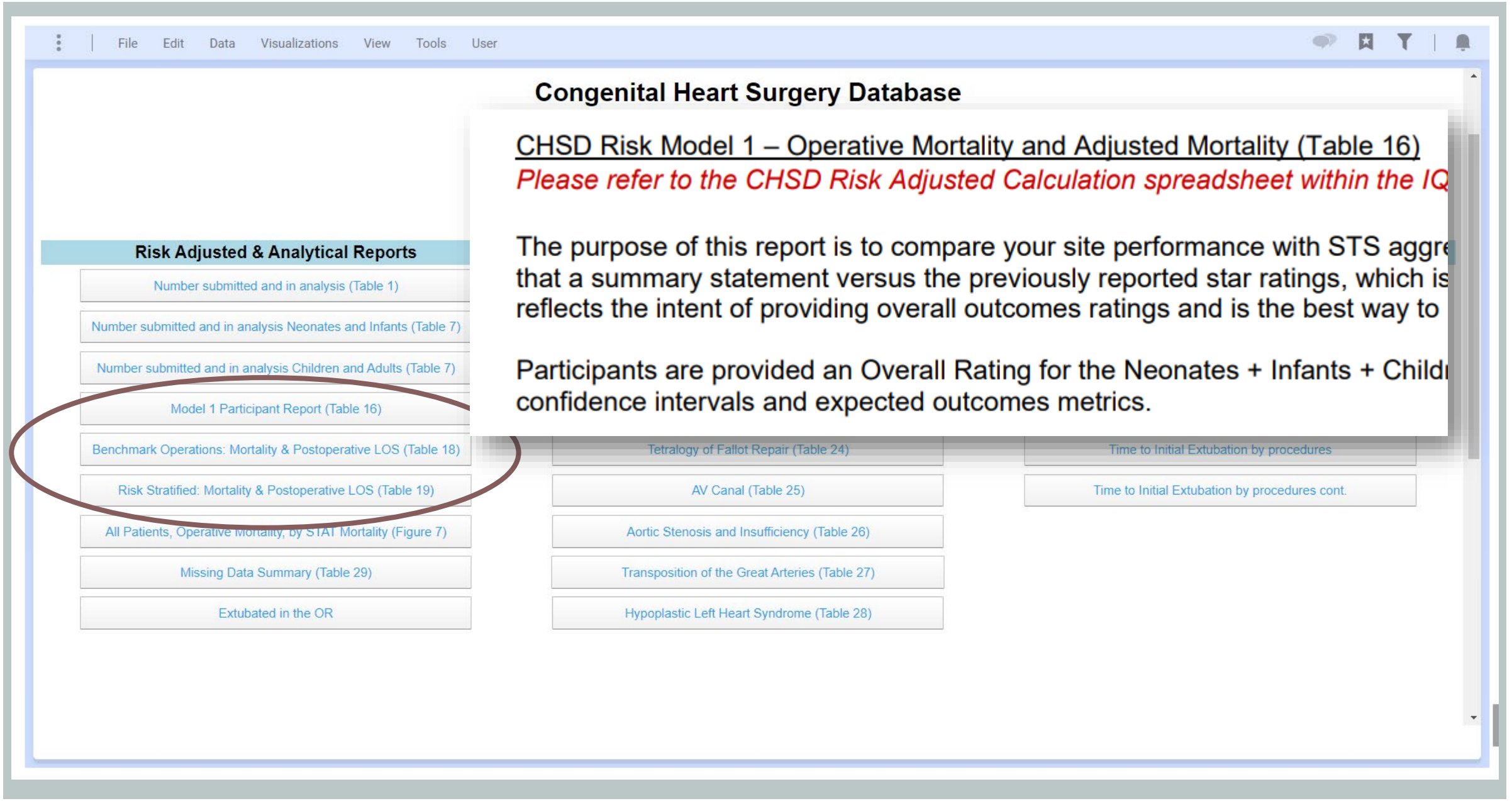
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Tools
User
Congenital Heart Surgery Database
CHSD Risk Model 1 – Operative Mortality and Adjusted Mortality (Table 16)
Please refer to the CHSD Risk Adjusted Calculation spreadsheet within the IQ
The purpose of this report is to compare your site performance with STS aggre
that a summary statement versus the previously reported star ratings, which is
reflects the intent of providing overall outcomes ratings and is the best way to
Participants are provided an Overall Rating for the Neonates + Infants + Childr
confidence intervals and expected outcomes metrics.
Risk Adjusted & Analytical Reports
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Transposition of the Great Arteries (Table 27)
Hypoplastic Left Heart Syndrome (Table 28)
Time to Initial Extubation by procedures
Time to Initial Extubation by procedures cont.

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Congenital Heart Surgery Database

Risk Adjusted & Analytical Reports

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- Extubated in the OR

Benchmark Operations: Mortality & Postoperative LOS (Table 18)

Please refer to the CHSD Risk Adjusted Calculation spreadsheet within the IQ

Operations are classified into the various benchmark operation groups accordi
operation.

Note: PLOS is set to missing if >364 days from surgery date

Procedure Type	Abbreviation	STS-CHSDB Primary Procedure Code
1. VSD repair	VSD	110 = VSD repair, Patch 5001 = VSD repair, Patch + ASD repair,
2. TOF repair	TOF	350 = TOF repair, No ventriculotomy 360 = TOF repair, Ventriculotomy, Nontr

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Congenital Heart Surgery Database

Risk Adjusted & Analytical Reports

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Benchmark Operations: Mortality & Postoperative LOS (Table 18)

Please refer to the CHSD Risk Adjusted Calculation spreadsheet within the IQ

Available starting with version 3.41

Risk Stratified: Mortality & Postoperative LOS (Table 19)

Please refer to the CHSD Risk Adjusted Calculation spreadsheet within the IQ

Operations are classified by STAT Mortality Category and further analyzed.

Note: PLOS is set to missing if >364 days from surgery date

		5001 = VSD repair, Patch + ASD repair,
2. TOF repair	TOF	350 = TOF repair, No ventriculotomy 360 = TOF repair, Ventriculotomy, Nontr

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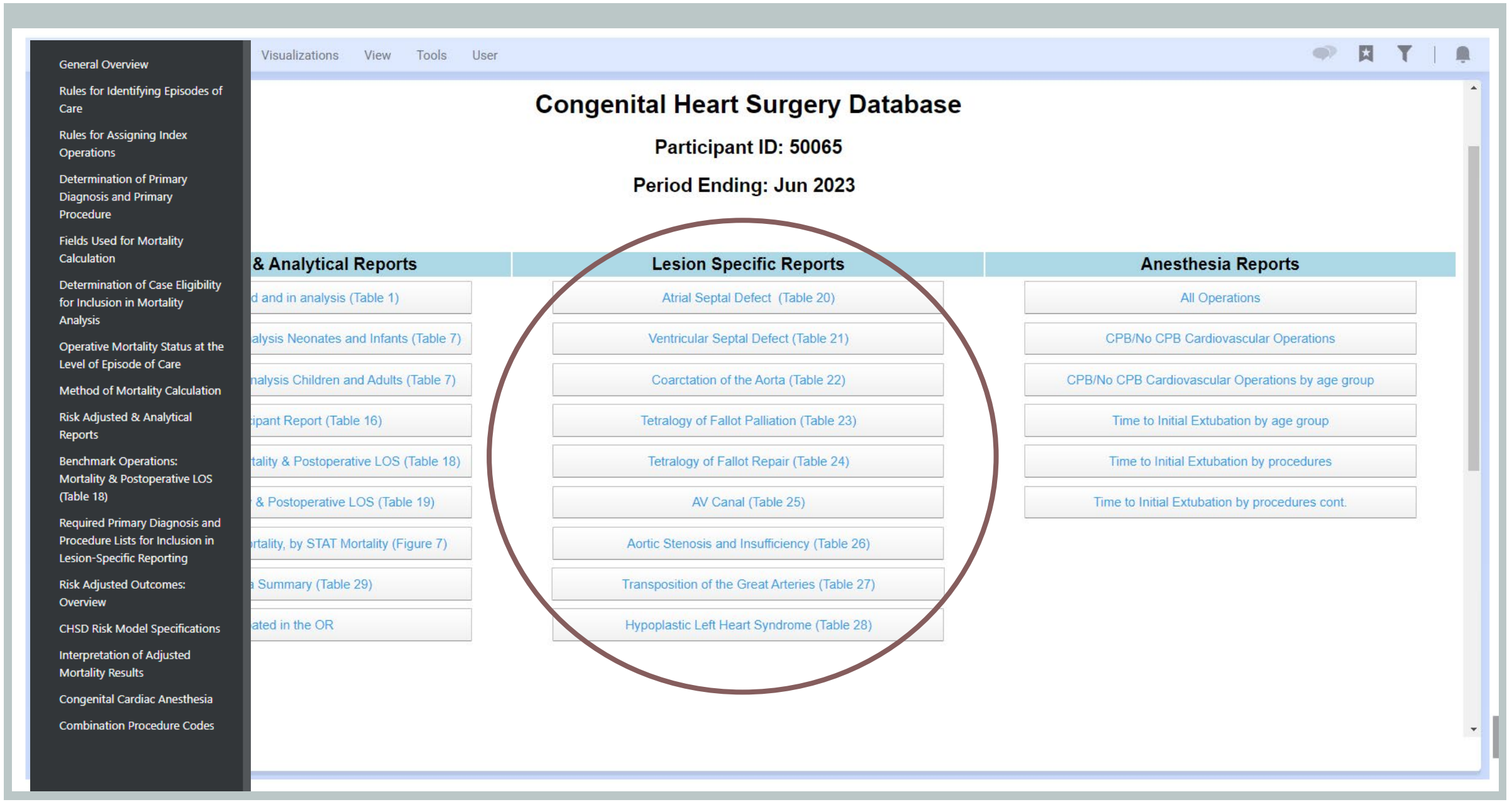
Congenital Heart Surgery Database

Participant ID: 50065

Period Ending: Jun 2023

Risk Adjusted & Analytical Reports	Lesion Specific Reports	Anesthesia Reports
Number submitted and in analysis (Table 1)	Atrial Septal Defect (Table 20)	All Operations
Number submitted and in analysis Neonates and Infants (Table 7)	Ventricular Septal Defect (Table 21)	CPB/No CPB Cardiovascular Operations
Number submitted and in analysis Children and Adults (Table 7)	Coarctation of the Aorta (Table 22)	CPB/No CPB Cardiovascular Operations by age group
Model 1 Participant Report (Table 16)	Tetralogy of Fallot Palliation (Table 23)	Time to Initial Extubation by age group
Benchmark Operations: Mortality & Postoperative LOS (Table 18)	Tetralogy of Fallot Repair (Table 24)	Time to Initial Extubation by procedures
Risk Stratified: Mortality & Postoperative LOS (Table 19)	AV Canal (Table 25)	Time to Initial Extubation by procedures cont.
All Patients, Operative Mortality, by STAT Mortality (Figure 7)	Aortic Stenosis and Insufficiency (Table 26)	
Missing Data Summary (Table 29)	Transposition of the Great Arteries (Table 27)	
Extubated in the OR	Hypoplastic Left Heart Syndrome (Table 28)	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Fields Used for Mortality Calculation
Determination of Case Eligibility for Inclusion in Mortality Analysis
Operative Mortality Status at the Level of Episode of Care
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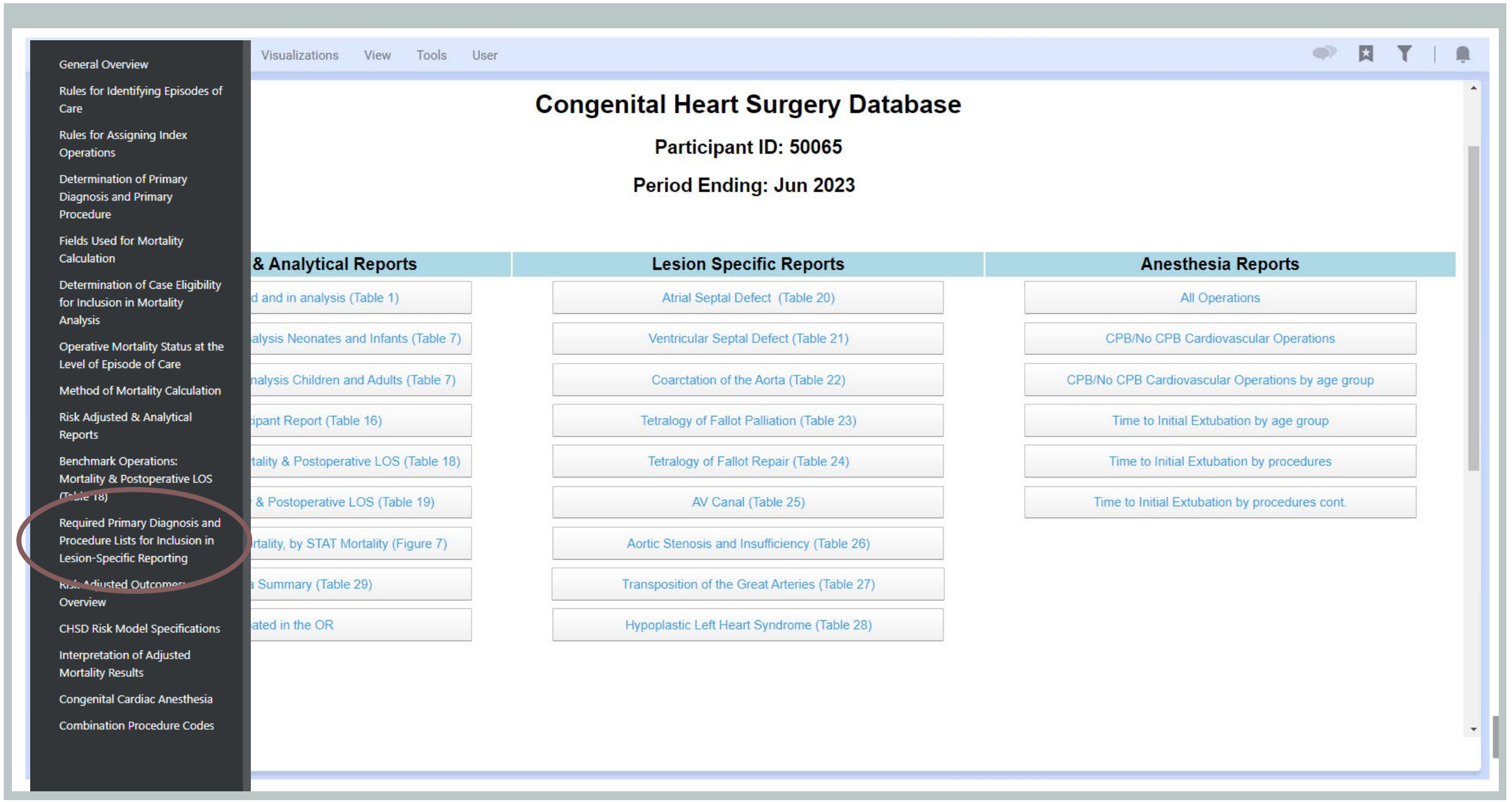
CPB/No CPB Cardiovascular Operations
CPB/No CPB Cardiovascular Operations by age group
Time to Initial Extubation by age group
Time to Initial Extubation by procedures
Time to Initial Extubation by procedures cont.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Lesion Specific Reports (Tables 20 - 28)

Please refer to the CHSD Risk Adjusted Calculation spreadsheet within the IQVIA Library for technical details

Specific inclusionary and exclusionary criteria must be met for operations to be included in each of the nine lesion specific tables of the report. For a procedure to be included in a given table, the primary diagnosis ***and*** primary procedure of the

index operation must have both come from the allowable list. These criteria were designed to identify populations that are analytically comparable across Participants but note ***only specific procedure/diagnosis combinations may be reported***.

Required Primary Diagnosis and Procedure Lists for Inclusion in Lesion-Specific Reporting

Lesion	Primary Diagnosis	Primary Procedure
Atrial Septal Defect (ASD)	20 - ASD, Secundum	10 - PFO, Primary closure
	30 - ASD, Sinus venosus	20 - ASD repair, Primary closure
	40 - ASD, Coronary sinus	5007 – ASD repair, Primary closure + PAPVC repair
	50 - ASD, Common atrium (single atrium)	30 - ASD repair, Patch
	10 - PFO (Patent foramen ovale)	40 - ASD repair, Device
		2110 - ASD repair, Patch + PAPVC repair
		50 - ASD, Common atrium (single atrium), Septation

General Overview
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		2110 - ASD repair, Patch + PAPVC repair
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- General Overview
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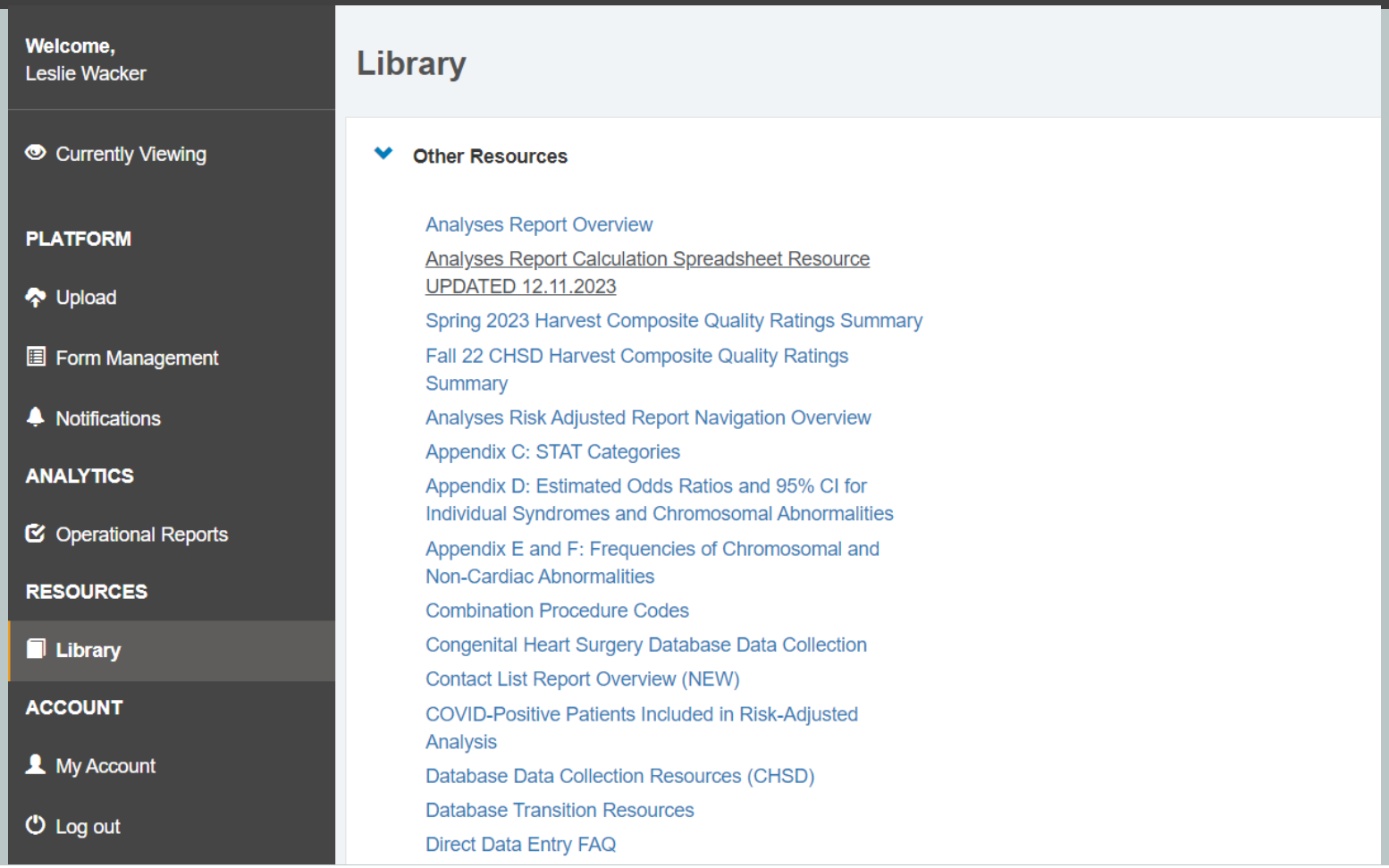
		2110 - ASD repair, Patch + PAPVC repair
		50 - ASD, Common atrium (single atrium), Septation

Analytic Report Interpretation



Report Definitions:						
NOTE: gender(1,2) is not applicable from Fall Harvest 2023						
Category	Calculation Name	Calculation				
Number of Operations/Patients	Operations Submitted	all Operations				
Number of Operations/Patients	Operations in Analysis	ioptype = 1 or ioptype = 2 and Include = 1 and mortdata = 1 and gender in (1,2)				
Number of Operations/Patients	Patients in Analysis	ioptype = 1 or ioptype = 2 and PrimaryOp = 1 and include = 1 and mortdata = 1 and gender in (1,2)				
Operative Mortality	Number of Mortalities	ioptype = 1 or ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and				
Operative Mortality	Number Eligible	ioptype = 1 or ioptype = 2 and PrimaryOp = 1 and Opmort is not null and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2)				
STAT Mortality	STAT Mortality Category	ioptype = 1 or ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and STATMortLevel = x and Include = 1 and mortdata = 1 and gender in (1,2)				
Operative Mortality	Mortality Rate	(Number of Mortalities/Number Eligible)				

					Category:	Yearly		
STS/Participant/Both	Category	Calculation Name	Variables		Jul 2016 - Jun 2017	Jul 2017 - Jun 2018	Jun 2018 - Jun	
Both	Number of Operations/Patients	Operations Submitted	all Operations		calculate for both	calculate for both	calculate for	
Both	Number of Operations/Patients	Operations in Analysis	ioptype = 1, ioptype = 2 and Include = 1 and mortdata = 1 and gender in (1,2)		STS and Participant	STS and Participant	STS and Partic	
Both	Number of Operations/Patients	Patients in Analysis	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and include = 1 and mortdata = 1 and gender in (1,2)		Jul 2016 - Jun 2017	Jul 2017 - Jun 2018	Jun 2018 - Jun	
Both	Operative Mortality	Number of Mortalities	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2)					
Both	Operative Mortality	Number Eligible	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort is not null and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2)					
Both	Operative Mortality	Mortality Percent	Number of Mortalities/Number Eligible					
Both	Operative Mortality	Mortality (95% CI)	95% CI (calculation performed in spotfire)					
Both	STAT Mortality Category 1	Number of Mortalities	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel = 1					
Both	STAT Mortality Category 1	Number Eligible	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort is not null and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel =					
Both	STAT Mortality Category 1	Mortality Percent	Number of Mortalities/Number Eligible					
Both	STAT Mortality Category 1	Mortality (95% CI)	95% CI (calculation performed in spotfire)					
Both	STAT Mortality Category 2	Number of Mortalities	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel = 2					
Both	STAT Mortality Category 2	Number Eligible	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort is not null and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel =					
Both	STAT Mortality Category 2	Mortality Percent	Number of Mortalities/Number Eligible					
Both	STAT Mortality Category 2	Mortality (95% CI)	95% CI (calculation performed in spotfire)					
Both	STAT Mortality Category 3	Number of Mortalities	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel = 3					
Both	STAT Mortality Category 3	Number Eligible	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort is not null and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel =					
Both	STAT Mortality Category 3	Mortality Percent	Number of Mortalities/Number Eligible					
Both	STAT Mortality Category 3	Mortality (95% CI)	95% CI (calculation performed in spotfire)					
Both	STAT Mortality Category 4	Number of Mortalities	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel = 4					
Both	STAT Mortality Category 4	Number Eligible	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort is not null and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel =					
Both	STAT Mortality Category 4	Mortality Percent	Number of Mortalities/Number Eligible					
Both	STAT Mortality Category 4	Mortality (95% CI)	95% CI (calculation performed in spotfire)					
Both	STAT Mortality Category 5	Number of Mortalities	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort = 1 and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel = 5					
Both	STAT Mortality Category 5	Number Eligible	ioptype = 1, ioptype = 2 and PrimaryOp = 1 and Opmort is not null and MortExclude = 0 and Include = 1 and mortdata = 1 and gender in (1,2) and STATMortLevel =					
Both	STAT Mortality Category 5	Mortality Percent	Number of Mortalities/Number Eligible					
Both	STAT Mortality Category 5	Mortality (95% CI)	95% CI (calculation performed in spotfire)					

Note:

Percentage and non-percentage values

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Congenital Heart Surgery Database

Participant ID: 50065

Period Ending: Jun 2023

Risk Adjusted & Analytical Reports	Lesion Specific Reports	Anesthesia Reports
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Extubated in the OR	Hypoplastic Left Heart Syndrome (Table 28)	

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Number Submitted And In Analysis, Operative Mortality, and Complexity Information, Last 4 Years (Table 1)
Participant: 50065
STS Period Ending Jun 2023

Patient ID	Operation ID	Surgery Date	Category	Participant Primary	STS Primary	STAT Mortality Category	Repor
			Operative Mortality	1380-Aortic aneur…	1380-Aortic aneurysm repair	STAT Mortality Category 1	Numbe
			Operative Mortality	1280-Aortic arch r…	1280-Aortic arch repair	STAT Mortality Category 3	Numbe
			Operative Mortality	30-ASD repair, Pat…	30-ASD repair, Patch	STAT Mortality Category 1	Numbe
			Operative Mortality	1110-Arterial switc…	1110-Arterial switch operation (ASO)	STAT Mortality Category 2	Numbe
			Operative Mortality	580-Conduit reope…	580-Conduit reoperation	STAT Mortality Category 1	Numbe
			Operative Mortality	465-Ebstein's repair	465-Ebstein's repair	STAT Mortality Category 2	Numbe
			Operative Mortality	1590-Shunt, Syste…	5000-(1590+1330) Shunt, Systemic to pulmonary, Modified Blalo…	STAT Mortality Category 4	Numbe
			Operative Mortality	30-ASD repair, Pat…	30-ASD repair, Patch	STAT Mortality Category 1	Numbe
			Operative Mortality	2110-ASD Repair, …	2110-ASD Repair, Patch + PAPCV Repair	STAT Mortality Category 1	Numbe
			Operative Mortality	1360-Vascular ring…	1360-Vascular ring repair	STAT Mortality Category 1	Numbe
			Operative Mortality	830-Valvuloplasty, …	830-Valvuloplasty, Mitral or Systemic Atrioventricular Valve	STAT Mortality Category 2	Numbe
			Operative Mortality	230-Truncus arteri…	230-Truncus arteriosus repair	STAT Mortality Category 4	Numbe
			Operative Mortality	1330-PDA closure,…	1330-PDA closure, Surgical	STAT Mortality Category 2	Numbe
			Operative Mortality	2130-Superior Ca…	2130-Superior Cavopulmonary anastomosis(es) + PA reconstruc…	STAT Mortality Category 2	Numbe
			Operative Mortality	735-Aortic root rep…	735-Aortic root replacement, Valve sparing	STAT Mortality Category 1	Numbe
			Operative Mortality	110-VSD repair, P…	110-VSD repair, Patch	STAT Mortality Category 1	Numbe
			Operative Mortality	390-TOF - AVC (A…	390-TOF - AVC (AVSD) repair	STAT Mortality Category 4	Numbe
			Operative Mortality	2100-Aortic stenos…	2100-Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS	STAT Mortality Category 1	Numbe
			Operative Mortality	350-TOF repair, N…	350-TOF repair, No ventriculotomy	STAT Mortality Category 1	Numbe
			Operative Mortality	1450-Pacemaker i…	1450-Pacemaker implantation, Permanent	STAT Mortality Category 1	Numbe
			Operative Mortality	350-TOF repair, N…	350-TOF repair, No ventriculotomy	STAT Mortality Category 1	Numbe
			Operative Mortality	1280-Aortic arch r…	1280-Aortic arch repair	STAT Mortality Category 3	Numbe
			Operative Mortality	735-Aortic root rep…	735-Aortic root replacement, Valve sparing	STAT Mortality Category 1	Numbe
			Operative Mortality	890-Transplant, H…	890-Transplant, Heart	STAT Mortality Category 3	Numbe
			Operative Mortality	420-Pulmonary atr…	420-Pulmonary atresia - VSD (including TOF, PA) repair	STAT Mortality Category 2	Numbe
			Operative Mortality	660-Valvuloplasty, …	660-Valvuloplasty, Aortic/Neo-Aortic	STAT Mortality Category 1	Numbe
			Operative Mortality	190-AVC (AVSD) r…	190-AVC (AVSD) repair, Partial (Incomplete) (PAVSD)	STAT Mortality Category 1	Numbe
			Operative Mortality	580-Conduit reope…	580-Conduit reoperation	STAT Mortality Category 1	Numbe
			Operative Mortality	1380-Aortic aneur…	1380-Aortic aneurysm repair	STAT Mortality Category 1	Numbe

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Number Submitted And In Analysis, Operative Mortality, and Complexity Information, Last 4 Years (Table 1)

Participant: 50065

STS Period Ending Jun 2023

Patient ID	Operation ID	Surgery Date	Category	Participant Primary	STS Primary	STAT Mortality Category	Repor
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			Operative Mortality	1280-Aortic arch r…	1280-Aortic arch repair	STAT Mortality Category 3	Numbe
			Operative Mortality	30-ASD repair, Pat…	30-ASD repair, Patch	STAT Mortality Category 1	Numbe
			Operative Mortality	1110-Arterial switc…	1110-Arterial switch operation (ASO)	STAT Mortality Category 2	Numbe
			Operative Mortality	580-Conduit reope…	580-Conduit reoperation	STAT Mortality Category 1	Numbe
			Operative Mortality	465-Ebstein's repair	465-Ebstein's repair	STAT Mortality Category 2	Numbe
			Operative Mortality	1590-Shunt, Syste…	5000-(1590+1330) Shunt, Systemic to pulmonary, Modified Blalo…	STAT Mortality Category 4	Numbe
			Operative Mortality	30-ASD repair, Pat…	30-ASD repair, Patch	STAT Mortality Category 1	Numbe
			Operative Mortality	2110-ASD Repair, …	2110-ASD Repair, Patch + PAPCV Repair	STAT Mortality Category 1	Numbe
			Operative Mortality	1360-Vascular ring…	1360-Vascular ring repair	STAT Mortality Category 1	Numbe
			Operative Mortality	830-Valvuloplasty, …	830-Valvuloplasty, Mitral or Systemic Atrioventricular Valve	STAT Mortality Category 2	Numbe
			Operative Mortality	230-Truncus arteri…	230-Truncus arteriosus repair	STAT Mortality Category 4	Numbe
			Operative Mortality	1330-PDA closure,…	1330-PDA closure, Surgical	STAT Mortality Category 2	Numbe
			Operative Mortality	2130-Superior Ca…	2130-Superior Cavopulmonary anastomosis(es) + PA reconstruc…	STAT Mortality Category 2	Numbe
			Operative Mortality	735-Aortic root rep…	735-Aortic root replacement, Valve sparing	STAT Mortality Category 1	Numbe
			Operative Mortality	110-VSD repair, P…	110-VSD repair, Patch	STAT Mortality Category 1	Numbe
			Operative Mortality	390-TOF - AVC (A…	390-TOF - AVC (AVSD) repair	STAT Mortality Category 4	Numbe
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			Operative Mortality	1110-Arterial switc…	1110-Arterial switch operation (ASO)	STAT Mortality Category 2	Numbe
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			Operative Mortality	2110-ASD Repair, …	2110-ASD Repair, Patch + PAPCV Repair	STAT Mortality Category 1	Numbe
			Operative Mortality	1360-Vascular ring…	1360-Vascular ring repair	STAT Mortality Category 1	Numbe
			Operative Mortality	830-Valvuloplasty, …	830-Valvuloplasty, Mitral or Systemic Atrioventricular Valve	STAT Mortality Category 2	Numbe
			Operative Mortality	230-Truncus arteri…	230-Truncus arteriosus repair	STAT Mortality Category 4	Numbe
			Operative Mortality	1330-PDA closure,…	1330-PDA closure, Surgical	STAT Mortality Category 2	Numbe
			Operative Mortality	2130-Superior Ca…	2130-Superior Cavopulmonary anastomosis(es) + PA reconstruc…	STAT Mortality Category 2	Numbe
			Operative Mortality	735-Aortic root rep…	735-Aortic root replacement, Valve sparing	STAT Mortality Category 1	Numbe
			Operative Mortality	110-VSD repair, P…	110-VSD repair, Patch	STAT Mortality Category 1	Numbe
			Operative Mortality	390-TOF - AVC (A…	390-TOF - AVC (AVSD) repair	STAT Mortality Category 4	Numbe
			Operative Mortality	2100-Aortic stenos…	2100-Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS	STAT Mortality Category 1	Numbe
			Operative Mortality	350-TOF repair, N…	350-TOF repair, No ventriculotomy	STAT Mortality Category 1	Numbe
			Operative Mortality	1450-Pacemaker i…	1450-Pacemaker implantation, Permanent	STAT Mortality Category 1	Numbe
			Operative Mortality	350-TOF repair, N…	350-TOF repair, No ventriculotomy	STAT Mortality Category 1	Numbe
			Operative Mortality	1280-Aortic arch r…	1280-Aortic arch repair	STAT Mortality Category 3	Numbe
			Operative Mortality	735-Aortic root rep…	735-Aortic root replacement, Valve sparing	STAT Mortality Category 1	Numbe
			Operative Mortality	890-Transplant, H…	890-Transplant, Heart	STAT Mortality Category 3	Numbe
			Operative Mortality	420-Pulmonary atr…	420-Pulmonary atresia - VSD (including TOF, PA) repair	STAT Mortality Category 2	Numbe
			Operative Mortality	660-Valvuloplasty, …	660-Valvuloplasty, Aortic/Neo-Aortic	STAT Mortality Category 1	Numbe
			Operative Mortality	190-AVC (AVSD) r…	190-AVC (AVSD) repair, Partial (Incomplete) (PAVSD)	STAT Mortality Category 1	Numbe
			Operative Mortality	580-Conduit reope…	580-Conduit reoperation	STAT Mortality Category 1	Numbe
			Operative Mortality	1380-Aortic aneur…	1380-Aortic aneurysm repair	STAT Mortality Category 1	Numbe

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DATA ANALYSES OF THE SOCIETY OF THORACIC SURGEONS GENERAL CONGENITAL HEART SURGERY DATABASE

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Determination of the Primary Procedure of an Operation and Classification of Multiple-Procedure Operations

The guiding principle for determining the primary procedure for a given operation is to select the procedure with the highest STAT Mortality Score.

Some procedures will be mapped to available combination procedures. **The individual procedures that make up the combination procedures will not be removed but will remain as secondary procedures. These individual procedures that make up the combination procedures will not be considered for primary procedure determination.** For a list of the combination procedure codes, please refer to the STS Website.

If there is a tie for highest STAT Mortality Score:

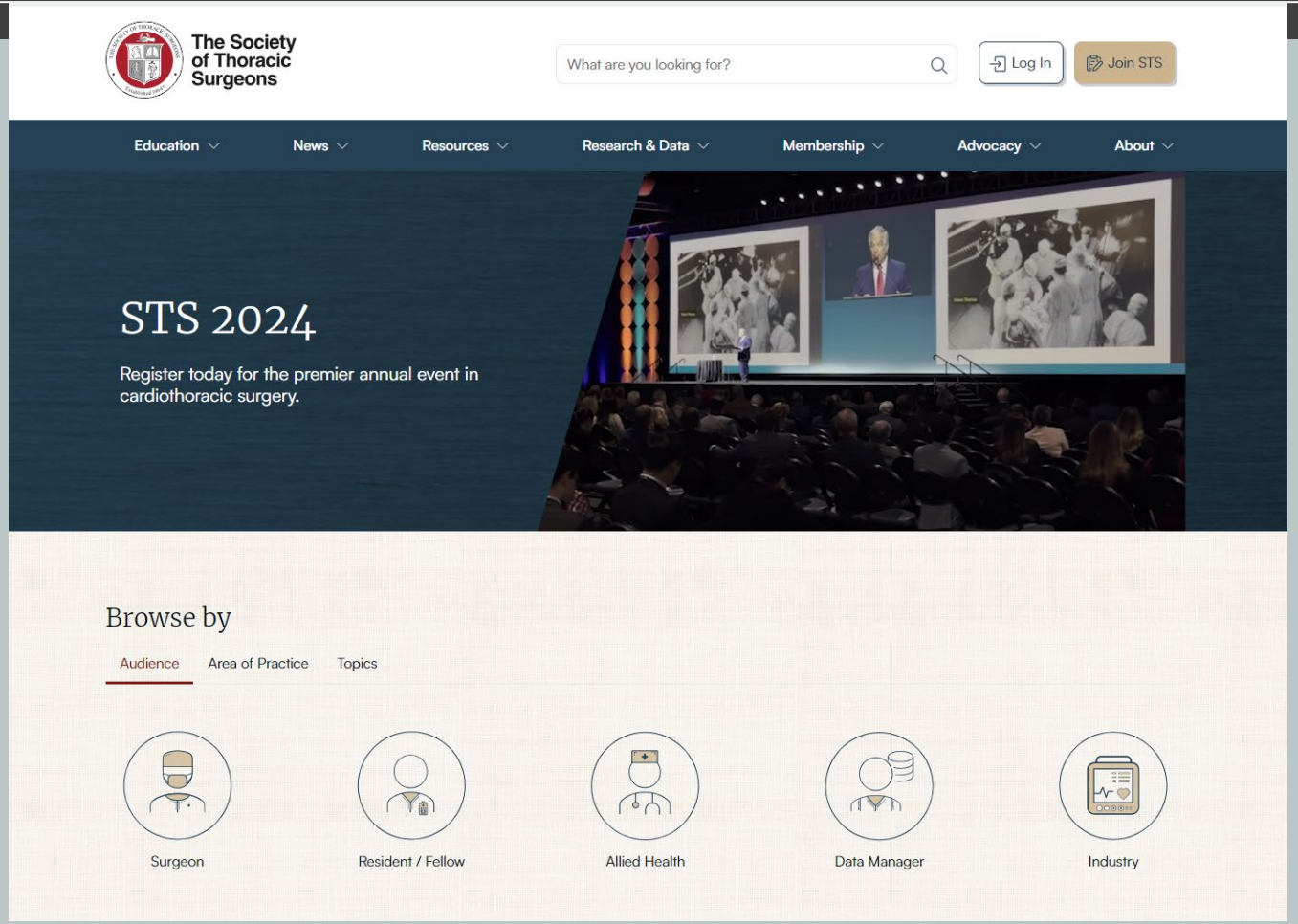
a. The procedure indicated as the primary by the participant will become the primary procedure.
b. If no procedure was selected as primary by the participant; the first procedure appearing in the procedures dataset will be selected as the primary procedure (this may, or may not, be the first procedure entered by the participant).

EXCEPTIONS TO THE ABOVE-STATED RULE:

1. **PROCEDURE Specific Factor Rule**
If a multiple procedure operation includes any of the following procedures (which are the procedures listed on the Data Collection Form in the section titled "PROCEDURE SPECIFIC FACTORS", exclusive of the VSD repair procedures), then that procedure will be designated as the primary procedure of the operation. In the event that two procedures from the list below are included in the same operative event, the procedure with the highest STAT Mortality Score will be designated as the primary procedure of that operation:

- 390 = TOF - AVC (AVSD) repair

Analysis Overview - *Resources*



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- Contact and Support
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- How-To Videos
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Congenital Heart Surgery Database

The CHSD data collection forms and training manual require a participant login. (*If you need assistance with your login credentials, contact STS Member services.*)

Access Data Collection Resources

> Sample Data Analysis Reports

> CHSD Harvest Deadlines

CHSD Webinars

CHSD Monthly Webinar

January 16 at 1 p.m. ET • 12 p.m. CT

Call In: 888-475-4499 or 312-626-6799
Webinar ID: 394 740 549
International Dial-in Numbers

Join Webinar

CHSD User Group Call

February at 1 p.m. ET • 12 p.m. CT

Call In: 888-475-4499 or 312-626-6799
Webinar ID: 576 785 195
International Dial-in Numbers

Join Webinar

Most Recent CHSD Webinar

View Webinar Recording

View Slides - CHSD Monthly Webinar - November 21, 2023

View Slides - CHSD User Group Call - November 7, 2023

View Slides - CHSD Monthly Webinar - October 17, 2023

View Slides - CHSD User Group Call - September 5, 2023

View Past CHSD Webinars

Analysis Overview - *Resources*

- Previous Webinars – Report tips and tricks
  - CHSD User Group Call - February 7, 2023
  - https://www.youtube.com/watch?v=hvs6Va2RyiU&list=PL1hqaVNnwZpU9gSLbaoGYALtwONjz6ASO&index=16
  - CHSD Monthly Webinar – February 21, 2023
  - https://www.youtube.com/watch?v=I-vwdjCrR9M&list=PL1hqaVNnwZpU9gSLbaoGYALtwONjz6ASO&index=15

Analysis Overview - *Resources*

- STS Website:
  - CHSD Analysis Overview
  - Appendix C
  - Training Manual
  - Past Webinars

- IQVIA Library
  - Calculation Spreadsheet

Open Discussion

Please use the Q&A Function.

We will answer as many questions as possible.

We encourage your feedback and want to hear from you!

Upcoming CHSD Webinars

User Group Call

- 2/6/24 @ 12pmCT

Monthly Webinar

- 2/20/24 @ 12pmCT

Contact Information

Leigh Ann Jones, STS National Database Manager, Congenital and General Thoracic	Tech Support Analysis Report/Data Submission Questions	Database Operational Questions
• Ljones@sts.org	• STSDB_helpdesk@sts.org	• STSDB@sts.org

Congenital STS Database Consultants

- Leslie Wacker lwacker@sts.org
- Chasity Wellnitz cwellnitz@sts.org

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