Anesthesia Quality Institute

Solving Definitional Issues at the Society of Thoracic Surgeons

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DISCLOSURES

None

Presentation Topics

1. Background information on the Society of Thoracic Surgeons registries:
   - Focus on the Adult Cardiac Surgery Database
2. Standardized Definitional System
3. STS Approaches to Clarify, Revise or Add New Data Definitions
   - Scheduled changes
   - Ad hoc changes
   - Examples

Question

- Why is the current

  ASA/AQI Quality & Reporting Executive discussing STS definitional issues?

  - Prior to position at ASA/AQI, STS Director of Quality for 3.5 years.

  DISCLAIMER:

  - *The views expressed in this presentation are solely my own and should not be attributed to any professional association or other organization regardless of any affiliation I may have with such entities.*

The STS National Databases

Considered the Crown Jewels of the Society

Established in 1989

- Comprised of 3 databases:
  - Adult Cardiac Surgery: 6 million cases
  - Congenital Heart Surgery: 373,000 cases
  - General Thoracic Surgery: 435,000 cases

STS National Database™
Using data to drive quality

Adult Cardiac Surgery Database (ACSD)

- Utilizes standardized conceptual definitions
- Overseen by a formal committee structure
- Data is entered into STS Certified Software by trained data abstractors (Data Managers)
- Hundreds of fields in a 17 page data collection form
- Approximately 2 hours for a Data Manager to enter one case

Standardized Definitional Process

- Standardized definitions should be:
  - Clinically fit-for-purpose
  - Convey the appropriate meaning for the field
  - Are described in colloquial language
  - Conform with national standards when possible
  - Are from reliable, prevailing, generally accepted sources – CDC, AORN, AHA, etc.

Conform with National Standards or Generally Accepted Sources

- Valve Replacement Unique Device Identifier (UDI)
  - FDA website is referenced

- Post-op Surgical Site Infection
  - Centers for Disease Control Prevention

- Previous MI
  - ACCF/AHA definitions referenced

ACSD 229 Page Training Manual

- Each data element includes:
  - Field name and number
  - Definition
  - Intent/Clarification
    - Often lengthy with a great deal of detail
  - All FAQ's associated with the field.

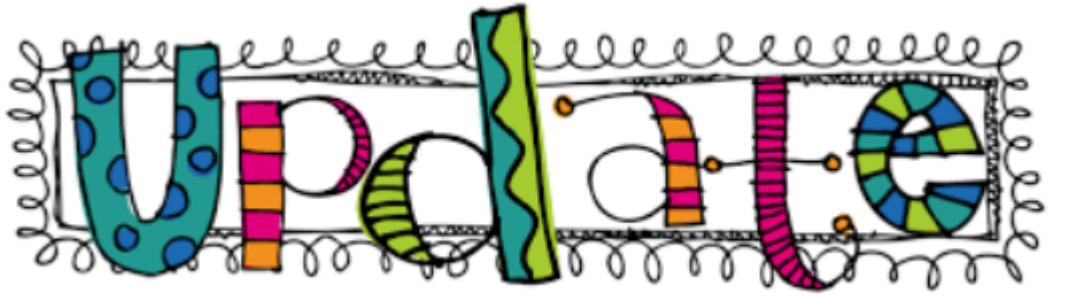
Introduction

This manual is intended to clarify field definition and intent. This document contains the most up to date instructions for v. 2.81 data abstraction. Do not refer to old manuals or other data definitions. Please review this document prior to submitting clinical questions. FAQs will be added to the document in red to provide additional examples and clarification. Please do not print this document since it will change frequently. Using the web version will ensure that you have the most up to date information. Occasionally there may be changes or important information that will be highlighted here and will be also included in STS Database Newsletters. Use the Ctrl + F function to search for a number or term of interest. Bookmarks have been added for December 2016 updates.

Approaches to Clarify, Revise or Add New Data Definitions to the ACSD

Two Approaches:

1. Planned Periodic Specification Updates



2. Ad hoc adjustments

ACSD Planned Specification Updates

- Data points added and definitions updated during scheduled specification updates:
  - Takes place once every three year
- Workgroup made up of technical experts:
  - Cardiac Surgeons actively involved in the ACSD
  - Seasoned Data Managers
  - STS Staff
  - Data Warehouse (Duke Clinical Research Institute)
    - Project Manager
    - IT Staff
    - Statisticians

Why is the Specification Update Every Three Years?

There is a need to maintain a large stable data set to develop risk adjustment models and support research.

- Low volume procedures
- Rare outcomes / adverse events

Example: AVR + CABG Procedures

- Performed much less frequently than solo CABG or AVR
- AVR + CABG composite score is a rolling 3 year time period.

Composite Measure Star Ratings for Public Reporting

Composite score based upon:

- Risk-adjusted mortality
- Risk-adjusted morbidity
  - Reoperation, Stroke, Kidney Failure, Sternal Infection, and Prolonged Ventilation.

- 97.5 percent probability that the performance of any specific provider is lower than average (one star) or higher than average (three star).

AVR+CABG Scores by Hospital

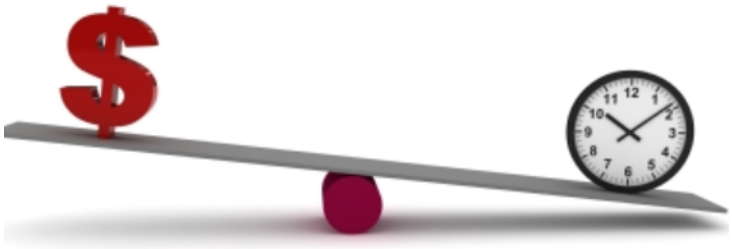
Based upon data from January 2013 – December 2015

Name	Overall Composite Score (?)	Absence of Operative Mortality (?)	Absence of Major Morbidity (?)
Baylor St. Luke's Medical Center *Houston, TX*	★★	★★	★★
Baystate Medical Center *Springfield, MA*	★★★	★★	★★★
Beaumont Health Dearborn *Dearborn, MI*	★★	★★	★★
Beaumont Health System - Royal Oak *Royal Oak, MI*	★★	★★	★

Three Year Specification Upgrade Continued

Second Reason – Its Time Consuming.

- 6 – 9 month process
- Workgroup meets
  - 1 face to face meeting
  - 10 – 12 conference calls

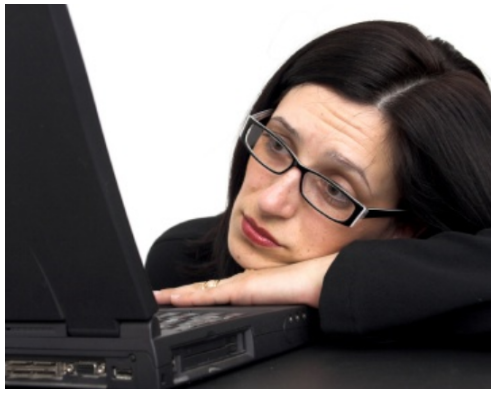


Third Reason – Its Expensive

- Data warehouse fees to map data elements between versions.

Fourth Reason – Change is Difficult

- Data Manager Education and Adjustment Period



Specification Upgrade Task Force Duties

- Comprehensive review of the standardized definitions:
  - Ensure compliance with standardized definitional system requirements
  - Determine if updates are needed due to changes in clinical practice
  - Anticipate upcoming research needs
- Evaluate Data Manager FAQ's for an indicator of:
  - How well the definitions convey the appropriate meaning for the field
  - If the definition describes the data point in colloquial language

Frequent Questions: Data Element #4870 Post-Op-Renal-Renal Failure

Version 2.73: Acute renal failure or worsening renal function resulting in ONE OR BOTH of the following:

- Increase of serum creatinine to > 2.0 AND 2x most recent preoperative creatinine level and/or
- A new requirement for dialysis postoperatively.

Version 2.8 Definition changed to

- Increase in serum creatinine level X 3.0, or serum creatinine level ≥4 mg/dL with at least a 0.5 mg/dl rise , or decrease in GFR by 75%; UO <0.3 mL/kg/h for 24 hours, or anuria for 12 hours and/or
- A new requirement for dialysis postoperatively

Source: RIFLE classification system

Record of Truth

Percent of Stenosis in Vessels

- If multiple sources are available, select surgeon's documentation degree of stenosis. This is the degree of stenosis (s)he used to develop the operative plan.

Diffusing Capacity of the Lung for Carbon Monoxide (DLCO) Predicted

- Which value should be used, DLCOuncorrected, DLCOcorrected, DLCO/VA?

01/2017: *Following discussion with pulmonary specialists and surgeon leadership, use DLCOunc. If more than one value for DLCOunc is available, choose the lowest value.*

Ad Hoc Changes:
Data Managers Play a Key Role

According to a 2016 Survey Data Managers are:

- 73% Nurses
- 20% Other clinical staff
- 21% Full time abstractors
- 47% Divide their time between abstracting and QI activities
- Take their work very seriously
- Serve as the boots on the ground

Data Managers Highly Trained

STS offers an annual 2.5 day Data Manager training session

- 500+ Data Manager attendees
- Review new data elements
- Review data elements that have resulted in frequent questions
- Case scenarios: clarification of intent and proper coding

Ad Hoc Process

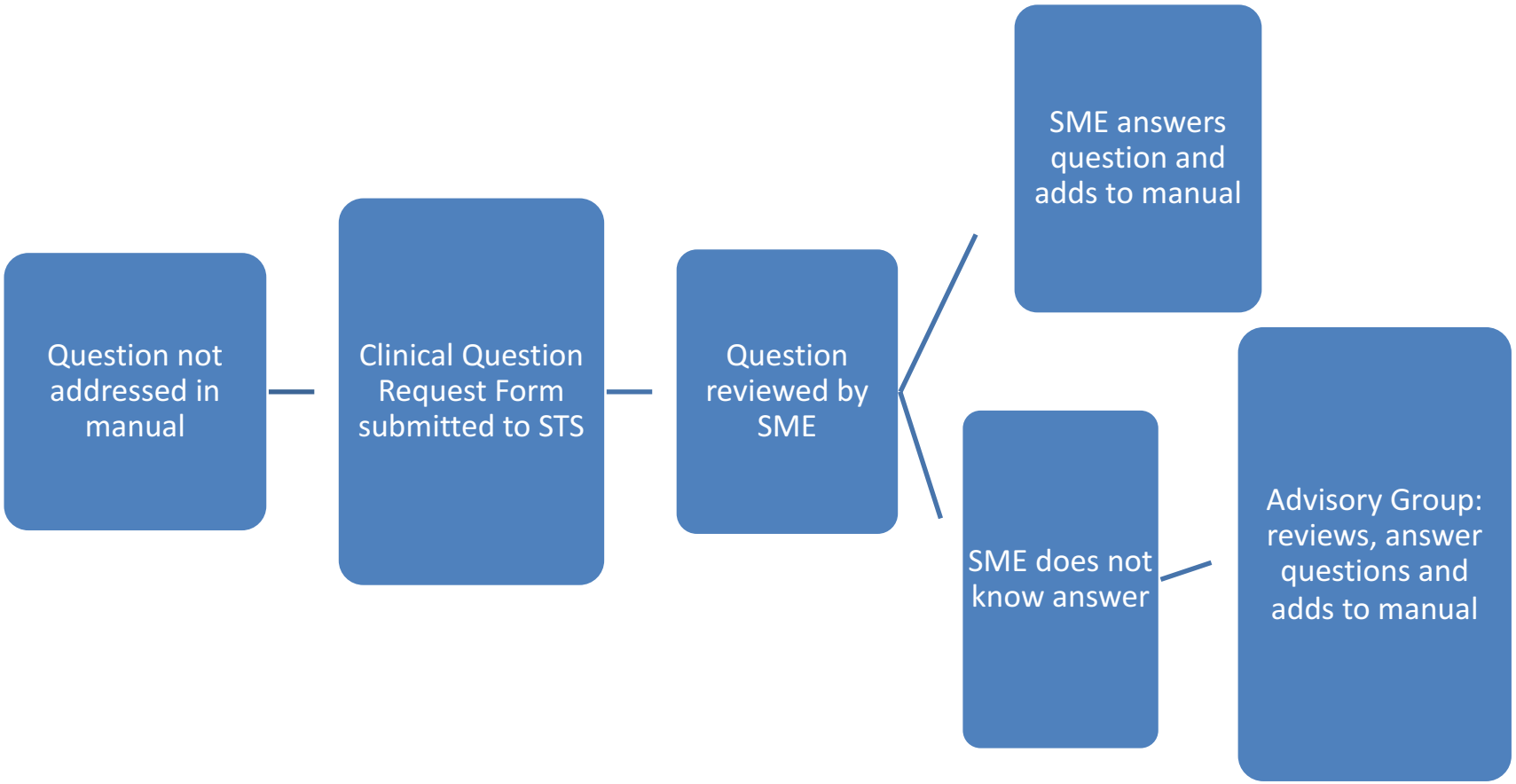
FAQ electronically sent to:

- Subject Matter Expert (seasoned Data Manager)
  - Contracted with STS to review FAQ's on a weekly basis
  - Answers FAQ and updates user manual

Ad Hoc Process for a New Topic

- Subject matter expert contacts the Technical Advisory Group:
  - Cardiac Surgeons actively involved in the ACSD
  - Data Managers
  - STS Staff
- Typically meet quarterly or as needed
- Decision made and training manual updated

Ad Hoc Process



Example of an Ad Hoc Clarification

Change in Practice

Data Element # 400: Tobacco Use

- Electronic cigarettes (Ecig) = "No" Electronic cigarettes are not considered tobacco products. (05/2015)

Data Element # 485: Liver Disease

- Patients with a history of Hepatitis C treated with medications may test negative, should liver disease be coded yes or no?
  - These patients should be coded as yes for liver disease.

Living Document With Frequent Clarifications

- FAQ 01/2017: Can valve data be obtained from MRI reports?
  - Answer: Yes, if the information is included in the MRI dictation it can be used to document valve disease.

- FAQ 01/2017: Can data that is 7 months old be used for patients being worked up for LVAD/Transplant?
  - Answer: No, information should be from studies done within 6 months of the procedure.

Challenges: Historical Data Points

- Clinical status of the patient prior to entering the operating room
  - Elective
  - Urgent
  - Emergent
  - Emergent Salvage

Intent/Clarification and FAQ's include 888 words

What are the definitions based upon?

Interesting STS Data Facts

- STS collects 8 different data points related to death
  - All cause mortality with in 30 days
  - Cause of death
  - Location of death
  - Method of verification of death

Fit for Purpose: Stroke Data Points

STS	AQI
Any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain that did not resolve within 24 hours. Type of stroke: • Hemorrhagic • Embolic • Undetermined	The sudden death of neurons in a localized area of brain due to inadequate blood flow as a result of emboli, thrombus, or hemorrhage that produces motor, sensory, or cognitive dysfunction (e.g. hemiplegia, hemiparesis, aphasia, sensory deficit, impaired memory) that persists for more than 24 hours.

Fit For Purpose: Gender

STS

Indicate the patient's sex at birth as either male or female.

Clarification: Patients who have undergone gender reassignment surgery maintain the risk associated with their chromosomal gender.

AQI

Sex recorded in the medical record.

Clarification: The data from most medical records may not permit distinguishing between a patient's sex and their current gender identity.

Fit For Purpose

STS: Post-op Cardiac Arrest

Acute cardiac arrest documented by one of the following:

- Ventricular fibrillation
- Rapid ventricular tachycardia with hemodynamic instability
- Asystole
- ICD shocks

4 data points related to "circulatory arrest"

AQI Cardiac Arrest

Unplanned cessation of the mechanical activity of the heart as confirmed by the absence of signs of effective circulation.

In Closing:
STS's Approach to Definitional Issues

- Utilizes a Standardized Definitional Process
- Definitional issues are overseen by a formal committee structure:
  - Workgroups with subject matter experts help determine definitions
  - Data Managers
    - Are well trained
    - Are encouraged to submit questions
    - Act as on the ground reality checks
- Questions are answered promptly and circulated widely.

Thank you!