

STS – CCAS Database: On Our Way (or Down the Rabbit Hole of Data)

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The Congenital Cardiac
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Disclaimer Slide

- I am not associated with any commercial vendors, ventures or products associated with the creation or maintenance of the STS Congenital Heart Database or the CCAS and do not receive funds from any commercial vendors, the STS or the CCAS for my work.
- I have no known conflicts of interest to disclose in relationship to this talk.

Background

- Joint Project between the Society of Thoracic Surgeons CHD and the Congenital Cardiac Anesthesia Society (CCAS)
- Anesthesia-related complications are relatively rare events and congenital cardiac surgery is a relatively rare procedure so the only way to contemporaneously and accurately capture anesthesia-related data is through a multi-site model.
- Patients with congenital heart disease have up to 85x greater likelihood of having an adverse event intraoperatively than non-cardiac patients, regardless of the procedure being performed.

THE SOCIETY OF THORACIC SURGEONS &
CONGENITAL CARDIAC ANESTHESIA SOCIETY



Duke Clinical Research Institute
DUKE UNIVERSITY MEDICAL CENTER



Produced July 2011, Period Ending 12/31/2010

Participation

- Data start date of January 1, 2010
- Current fee schedule: \$3300 per year, regardless of number of anesthesia providers or cases. This does not include any expenses associated with vendor fees and is in addition to any fees paid by the congenital heart surgeons.
- Cases input into database may include not only cardiac surgical cases, but any procedures in which congenital cardiac anesthesiologists are involved: Cath Lab, Diagnostic and Interventional Radiology, General OR, ICU, etc.

Results

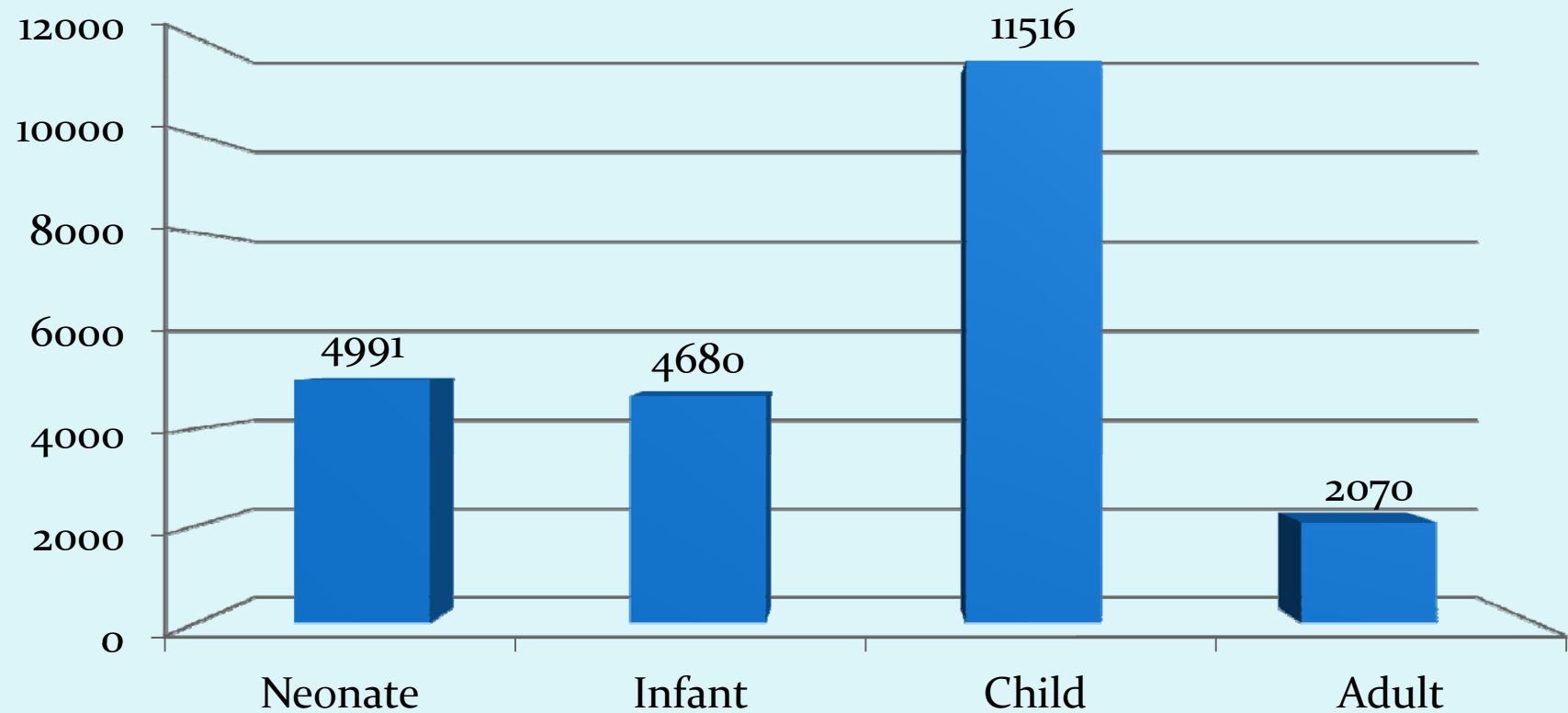
- As of the Fall 2012 Data Harvest (Jan 1, 2010 – June 30, 2012)
 - Total Participants – 31 centers (29 of which submitted some data)
 - Widely spread geographically in the US
 - Wide variation in practice size/volume

Case Types

- Total of 27,826 anesthesia cases submitted
 - CV Surgical - 18,216 (65.5%)
 - CPB - 13,196
 - No CPB - 4,283
 - Support Devices (VAD, ECMO w/o CPB) - 737
 - Cardiology - 4,304 (15.5%)
 - Diagnostic - 678
 - Interventional - 2,252
 - Electrophysiology Studies/Tx - 1,374
 - Other (Thoracic, Minor, NCNT) - 5,306 (19.1%)

Age of Patients Submitted

Age at Procedure Date



STS – EACTS Mortality/Complexity Categories (STAT Score) for CV Surgical Cases

Case Complexity



Overall Adverse/Unexpected Events

- None/Missing – 27,284 (98.1%)
- Any Event – 542 (1.9%)
 - Airway – Total 338 (1.2% of total, 62% of events)
 - Dental - 4
 - Unexpected Respiratory Arrest – 13
 - Unexpected Difficult Intubation – 89 (0.3%)
 - Stridor – 39 (0.1%)
 - Unplanned Extubation – 17 (0.1%)
 - Airway injury – 14 (0.1%)

Overall Adverse/Unexpected Events

- Vascular Injury/Line Related – 203 (0.7%, 37% of events)
 - Arrhythmia requiring Tx with CVL – 8
 - Myocardial Injury with CVL – 0
 - Vascular Injury w CVL (Bleeding) – 22 (0.1%)
 - Vascular Access Issues (unable to obtain desired access within one hour of induction) – 111 (0.4%)
 - Hematoma – 11
 - Inadvertent Arterial Puncture – 50 (0.2%)
 - Intravenous/Intra-arterial Air Embolus - 1
- Regional Anesthesia-Related – 1 bleeding @ site

Overall Adverse/Unexpected Events

- Drug-Related Events – 68 (0.2%, 12.5% of events)
 - Anaphylaxis/Anaphylactoid Reaction - 23 (0.1%)
 - Medication Administration (Wrong Drug) – 14 (0.1%)
 - Medication Dosage – 9
 - Suspected Malignant Hyperthermia – 0
 - Protamine Reaction req Tx – 22 (0.1%)
- Cardiac Arrest Unrelated to Surgery – 52 (0.2%)
 - *(compared to Odegard et al: 11/5213 (0.2%))*

Overall Adverse/Unexpected Events

- TEE – Related – 55 (10.1% of events)
 - Esophageal Bleeding/Rupture – 10
 - Extubation – 9
 - Airway Compromise w TEE – 36 (0.1%)
- Patient Transfer Events – 5
- Neurologic Injury – positioning-related - 12

Pre-Operative Medications (Surgical Cases Only)

- Anticoagulants – 1,392 (8.0%)
- Antiarrhythmics – 368 (2.1%)
- Prostaglandin – 1,555 (10.7%)
- Cardiac Medications
 - IV Inotropes – 1,532 (8.8%)
 - IV Systemic Vasodilators – 166 (0.9%)
 - IV Systemic Vasoconstrictors – 155 (0.9%)
 - IV Pulmonary Vasodilators – 12 (0.1%)

Neurologic Monitoring (Surgical Cases Only)

- Yes - 11,556 (66.1%)
- Of those monitored there is an analysis problem with this in that it allowed single-choice only, where multi-modal monitoring is used frequently:
 - NIRS - 10,785 (93.3%)
 - TCD - 7 (0.1%)
 - BIS - 720 (6.2%)
 - Other - 10 (0.1%) – other forms of EEG?

Changes for 2013

- New data specifications effective July 1, 2013
- New drug classifications
- Changes in neuro-monitoring
- Clarification of blood transfusions
- New anti-fibrinolytic and pro-coagulant sections
- Expanded complications listing

Contact Information

- The collection of anesthesia fields will be associated with a number of questions. I am always available by email to answer any questions:

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