11th Annual Research Exposition

Tuesday, February 2, 2016
Welcome to the Anesthesiology Research Exposition

Oral Presentations
“Administrative database research: the promises and the pitfalls”
Robert White, MD
New York Presbyterian Hospital, Weill Cornell Medicine
Department of Anesthesiology
Van Poznak Scholar
Residency Class of 2018

“The effects of GABA-A receptor modulation by flumazenil on emergence from general anesthesia”
Seyed Safavynia, MD, PhD
New York Presbyterian Hospital, Weill Cornell Medicine
Department of Anesthesiology
Van Poznak Scholar
Residency Class of 2018

3:00pm – 3:45pm, P-03-300

Special Research Seminar
“Establishing a career in perioperative research”
Kate Leslie, MBBS, MEpid, MHLthServMt, FANZCA, FAHMA
Professor, Department of Anaesthesia and Pain Management
Royal Melbourne Hospital
Chair, Advisory Board, Anaesthesia, Perioperative and Pain Medicine Unit
University of Melbourne
Chair, Australian and New Zealand College of Anaesthetists Clinical Trials Network Executive

4:00pm – 4:30pm, P-03-300

Reception
4:30pm – 5:00pm
P3 Corridor

Poster Presentations
5:00pm – 6:00pm
P-03-300
# TABLE OF CONTENTS

Department Research Teams...........................................................................................................2
P-03 Poster Display Map..................................................................................................................4
  Map Key for Poster Display..........................................................................................................5
Research Presented in Anesthesiology Conferences...............................................................7
Conference Posters.......................................................................................................................9
  ASA...............................................................................................................................................9
  ASRA.............................................................................................................................................12
  NANS..........................................................................................................................................12
  NYAM..........................................................................................................................................13
  SOCCA.........................................................................................................................................14
  SCA...............................................................................................................................................15
  PGA...............................................................................................................................................16
  NYSCARF....................................................................................................................................23
  AUA..............................................................................................................................................26
Clinical Research Studies........................................................................................................27
Survey Studies........................................................................................................................29
Registry Studies........................................................................................................................29
Retrospective Studies................................................................................................................30
Completed Studies Now in Data Analysis.................................................................................31
Center for Perioperative Outcomes Studies.............................................................................32
Upcoming Studies.......................................................................................................................33
# Department of Anesthesiology Research Department

Hugh C. Hemmings, Jr, MD, PhD, FRCA  
**Joseph F. Artusio Professor and Chair of Anesthesiology**

Kane O. Pryor, MD  
**Director of Clinical Research**

Peter Fleischut, MD  
**Director of Center for Perioperative Outcomes**

### Anesthesiology Clinical Research

<table>
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<th>Name</th>
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<tr>
<td>Kane O. Pryor, MD</td>
<td>Michele Steinkamp, RN</td>
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<tr>
<td>Farrell Cooke, BS</td>
<td>Mariya Redko, BS</td>
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<td>Sonal Jessel, BA</td>
<td>Alison Gruber, BS</td>
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<td>Stephen Marcott, BS</td>
<td>Jonathan Galati, BS</td>
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<td>Emma Rosenbluth, BA</td>
<td>Cristina Veltri, BS</td>
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<td>Diana Chen, BS</td>
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### Neuromuscular Relaxant Research

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<tr>
<td>John Savarese, MD</td>
<td>Matthew Belmont, MD</td>
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<td>Paul Heerdt, MD, PhD</td>
<td>David Kopman, MD</td>
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<td>Daniel Lahm, MD</td>
<td>Cynthia Lien, MD</td>
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<td>Jaideep Malhotra, MD</td>
<td>Matthew Murrell, MD, PhD</td>
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<td>Peter Savard, MD</td>
<td>Ralph Slepian, MD</td>
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<td>Hiroshi Sunaga, MD</td>
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### Center for Perioperative Outcomes Research

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<td>Peter M. Fleischut, MD</td>
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<td>Kane O. Pryor, MD</td>
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<td>Ramin Zabih, PhD</td>
<td>Christian Tope, BS</td>
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<td>Paul Christos, PhD</td>
<td>Bohdan Hawryluk, MS</td>
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<td>Robert White, MD</td>
<td>Virginia Tangel, MA</td>
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<td>Licia Gaber-Baylis, BA</td>
<td>Matthew Alexander, BS</td>
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<td>Sandy Iosso, BA</td>
<td>Xian Wu, MPH</td>
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<td>Akshay U. Bhat, MEng</td>
<td>Christopher Chan</td>
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### CV Starr Laboratory for Molecular NeuroPharmacology

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<tr>
<td>Alessio Accardi, PhD</td>
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<td>Peter A. Goldstein, MD</td>
<td>Dorothy Kim, PhD</td>
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<td>Paul Riegelhaupt, MD</td>
<td>Byoungcheol Lee, PhD</td>
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<td>David Posson, PhD</td>
<td>Philipp Schmidpeter, PhD</td>
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<td>Gareth Tibbs, PhD</td>
<td>Maria Falzone, BS</td>
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<td>Rebecca Joyce, BS</td>
<td>Mattia Malvezzi, BS</td>
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<td>Malvin Vien, BA</td>
<td>Lacey Ferraro, BS, RN</td>
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### Laboratory of Molecular Anesthesiology

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<td>Hugh C. Hemmings, Jr, MD, PhD</td>
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<td>Anna Adamo, BS</td>
<td>Karl Herold, MD, PhD</td>
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<td>Jimcy Platholi, PhD</td>
<td>Zhenyu Zhou, PhD</td>
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<td>Cheng Zhou, PhD</td>
<td>Christina L. Bonvicino, BS</td>
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Pain Clinical Research
Neel Mehta, MD               Shakil Ahmed, MD
Shenella Bourne, RN          Amitabh Gulati, MD
Jatin Joshi, MD              Daniel Pak, MD
Sadiah Siddiqui, MD          Roniel Weinberg, MD
Lisa R. Witkin, MD

Neuroanesthesia Clinical Research
Peter Goldstein, MD          Kane Pryor, MD
Patricia Fogarty-Mack, MD    David Kopman, MD
Kingsley Storer, MD, PhD

Cardiac Clinical Research
Meghann Fitzgerald, MD       Natalia Ivascu, MD
Shanna Hill, MD              Shreyajit Kumar, MD
James Osorio, MD             Nikolaos Skubas, MD
Fun-Sun Yao, MD              June Chan, MD
Christopher Tam, MD

Obstetrics/Gynecological Clinical Research
Jamie Aaronson, MD           Sharon Abramovitz, MD
Alaeldin Darwich, MD         Farida Gadalla, MD, ChB
Emily Kahn, MD               Michael Kiselev, MD
Klaus Kjaer, MD, MBBA        Jeremy Pick, MD
Angela Selzer, MD

Global Health
Gunisha Kaur, MD             Eric D. Brumberger, MD
Jasmit Brar, MD              Meghann Fitzgerald, MD
Lee Rasamny, MD              Angela Selzer, MD
Elizabeth Starker, MD        Sheida Tabaie, MD
Zachary Turnbull, MD         Shiyin Zhu, MD

Pediatrics Research
Aarti Sharma, MD, MBBS       Franklin Chiao, MD
Jung Hee Han, MD

General Clinical Research
Eric D. Brumberger, MD       Mary Casciano, MD
Peter M. Fleischut, MD       Peter Goldstein, MD
Christine Lennon, MD         Jaideep Malhotra, MD
Vinod Malhotra, MD           Matthew Murrell, MD
Anup Pamnani, MD             Lori Rubin, MD
Jon Samuels, MD              Jacques Scharoun, MD
Aarti Sharma, MD             Kingsley Storer, MD, PhD
Tiffany Tedore, MD           Yifan Xu, MD

Neuropsychopharmacology Research
Kane O. Pryor, MD            Robert A. Veselis, MD
Meghana Mehta, MS            James Root, PhD
P-03 POSTER DISPLAY MAP
MAP KEY FOR POSTER DISPLAY

1. THE EFFECTS OF GABA<sub>a</sub> RECEPTOR MODULATION BY FLUMAZENIL ON EMERGENCE FROM GENERAL ANESTHESIA
   Authors: SA Safavynia, G Keating, I Spiegel, J Fidler, M Kreuzer, DB Rye, A Jenkins, PS Garcia

2. EFFECTS OF ISOFLURANE ON THE DOPAMINE SYNAPTIC VESICLE EXOCYTOSIS
   Authors: Christina L. Bonvicino, Zhenyu Zhou, Hugh C. Hemmings, Jr.

3. RETROSPECTIVE INVESTIGATION OF READMISSION ASSOCIATED WITH PRIMARY PAYER STATUS
   Authors: Robert White, MD, Christopher K. Chan, Matthew J. Alexander, BS, Kelli O’Connell, BA, Sara Halpern, Akshay Bhat, MEng, Ramin Zabih, PhD, Peter M. Fleischut, MD, Kane O. Pryor, MD

4. TIMING AND OUTCOMES OF PERMANENT PACEMAKER PLACEMENT AFTER AORTIC VALVE REPLACEMENT
   Authors: Zachary A. Turnbull, MD, Matthew J. Alexander, BS, Virginia Tangel, MA, Peter M Fleischut, MD, Xian Wu, MPH, Christopher K. Chan, Licia K. Gaber-Baylis, BA, Akshay Bhat, MEng, Ramin Zabih, PhD, Natalia S. Ivascu, MD, Gregory P. Giambrone, MS

5. THE ROLE OF PREOPERATIVE DEXAMETHASONE ON MATERNAL TEMPERATURE CHANGE DURING ELECTIVE CESAREAN SECTION UNDER SPINAL ANESTHESIA
   Authors: Steven Beaudry, DO, Virginia Tangel, MA, Klaus Kjaer, MD, MBBA

6. THE SOCIOECONOMIC BURDEN OF ROAD TRAFFIC ACCIDENTS IN INDIA AND THE UNIQUE ANESTHETIC CONSIDERATIONS: CASE REPORT OF ANESTHETIC MANAGEMENT OF A ROAD TRAFFIC REPORT VICTIM
   Authors: Shiyin S. Zhu

7. EFFECT OF A SINGLE DOSE OF INTRAVENOUS DEXAMETHASONE ON NAUSEA AND VOMITING WHEN ADMINISTERED PRIOR TO INTRATHECAL MORPHINE FOR CESAREAN SECTION: A RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE-BLIND TRIAL
   Authors: Angela Selzer, Kane Pryor, Kelli O’Connell, Virginia Tangel, Gregory Giambrone, Jeremy Pick, Sharon Abramovitz, Farida Gadalla, Alaedin Darwich, Klaus Kjaer

8. COMPARISON OF GRAVITY FLOW EPIDURAL VS COMBINED SPINAL EPIDURAL FOR CESAREAN SECTION: A PROSPECTIVE, RANDOMIZED, DOUBLE-BLIND STUDY
   Authors: Shaul Cohen, MD, Hannah Xu, MD, Rotem Naftalovich, MD, MBA, Tinku Banerjee, PhD, Rong Zhao, MD, PhD, Scott Mellender, MD

9. THE ABILITY OF THE TRANSFUSION RISK UNDERSTANDING SCORING TOOL (TRUST) AND THROMBOELASTOMETRY FIBTEM A10 TO PREDICT BLEEDING AND TRANSFUSION IN POST-BYPASS CARDIAC SURGICAL PATIENTS
   Authors: Michelle Shirak, MD, Melissa Cushing, MD, Michele Steinkamp, RN, Elizabeth Lemoine, BA, Thorsten Haas, MD, Natalia Ivascu, MD
10. IDENTIFICATION OF PAIN MANAGEMENT EDUCATION DEFICIENCIES AT A MAJOR ACADEMIC INSTITUTION AND RECOMMENDATIONS FOR A MORE ADEQUATE CURRICULUM
   **Authors:** David Cassagnol MS, Neel Mehta MD

11. PRELIMINARY COMPARISON OF HIGH VERSUS LOW FREQUENCY STIMULATION AT A LARGE ACADEMIC INSTITUTION
   **Authors:** Mary So, MD, Yili Huang, MD, Shakil Ahmed, MD, Neel Mehta, MD

12. A MULTIDISCIPLINARY PROTOCOL FOR ANTENATALLY DIAGNOSED PLACENTA ACCRETA: A RESTROSPECTIVE CASE SERIES
   **Authors:** Jeremy Pick, MD, Sharon Abramovitz, MD, and Klaus Kjaer, MD, MBBA

13. MULTISTATE ANALYSIS OF POST-OPERATIVE MORBIDITY AND MORTALITY RATES FOR CAROTID ARTERY STENTING (CAS) AND CAROTID ENDARTERECTOMY (CEA) FOR CAROTID ARTERY STENOSIS, 2007-2011
   **Authors:** Robert White, MD, Tiffany Peng, MD, Bess M. Storch, MD, Xian Wu, MPH, Licia K. Gaber-Baylis, BA, Gregory P. Giambrone, MS, Akshay U. Bhat, MEng, Ramin Zabih, PhD, Peter M. Fleischut, MD, Kane O. Pryor, MD

14. PRIMARY PAYER INSURANCE STATUS AND ITS EFFECT ON POST-OPERATIVE OUTCOMES
   **Authors:** Robert White, MD, Matthew J. Alexander, BS, Christopher K. Chan, Kelli O’Connell, BA, Xian Wu, MPH, Licia K. Gaber-Baylis, BA, Gregory P. Giambrone, MS, Michael Andreae, MD, Akshay U. Bhat, MEng, Ramin Zabih, PhD, Peter M. Fleischut, MD, Kane O. Pryor, MD

15. NON-INVASIVE CARDIAC OUTPUT MONITORING FOR CESAREAN DELIVERY UNDER EPIDURAL ANESTHESIA IN A PATIENT WITH MARFAN SYNDROME AND CARDIOMYOPATHY
   **Authors:** Steven Beaudry, DO, Jeremy Pick, MD

16. SIZING UP THE LIPID PATHWAY IN A TMEM16 PHOSPHOLIPID SCRAMBLASE
   **Authors:** Mattia Malvezzi, Rabia Iqbal, Anant K. Menon, and Alessio Accardi

17. THE TREK1 PORE POTASSIUM CHANNEL: A MOLECULAR SIGNAL INTEGRATOR AND ANESTHETIC TARGET
   **Authors:** Paul M. Riegelhaupt, Marco Lolicato, Cristina Arrigoni, Kimberly Clark, Daniel L. Minor

18. STRUCTURE AND DYNAMICS OF THE MthK K+ CHANNEL SELECTIVITY FILTER DURING GATING
   **Authors:** David J Posson, Celine Boiteux, Toby W. Allen, and Crina M. Nimigean
American Society of Anesthesiologists (ASA)

1. ANESTHETIC MANAGEMENT OF A 25-MONTH-OLD WITH COFFIN-SIRIS SYNDROME AND KNOWN DIFFICULT AIRWAY FOR MRI
   Authors: Fardelmann, Kristen L, MD, and Chiao, Franklin, MD.

2. IMAGING ARTIFACTS DURING TRANSESOPHAGEAL ECHOCARDIOGRAPHY
   Authors: Anastasia D. Grivoyannis, MD, Anup Pamnani, MD, and Nikolaos J. Skubas, MD, FACC, FASE, DSc

3. AXILLARY BLOCK IN A 27 YEAR-OLD PATIENT USING THE DANCING NEEDLE TECHNIQUE IN PUNJAB, INDIA WITHOUT THE USE OF ULTRASONIC GUIDANCE
   Authors: Lee Rasamny, MD, Gregory Kerr, MD, Gunisha Kaur, MD, Michelle Shirak, MD, Ruchi Gupta, MBBS, MD.

4. IN RESOURCE SCARCE INDIA: SUCCESSFUL LAPAROSCOPIC CHOLECYSTECTOMY WITH LARYNGEAL MASK AIRWAY PROSEAL FOR AN UNEXPECTED DIFFICULT AIRWAY
   Authors: Zachary A. Turnbull

American Society of Regional Anesthesia (ASRA)

1. A CASE OF NONSURGICAL ALTERNATIVES TO TREATMENT AND MANAGEMENT OF ARACHNOIDITIS
   Authors: Sarah Choxi, MD, Mary So, MD, Neel Mehta, MD

North American Neuromodulation Society (NANS)

1. CERVICAL INTRATHECAL PLACEMENT FOR RELIEF OF REFRACTORY METASTATIC BRACHIAL PLEXUS PAIN
   Authors: Yili Huang DO, Mary So, MD, Julie H.Y. Huang, MD, MBA

New York Academy of Medicine (NYAM)

1. POLYMIXIN-INDUCED RECURARIZATION REQUIRING POSTOPERATIVE REINTUBATION
   Authors: Vikram Bhasin, MD, Jon Samuels, MD

2. AN ICU CASE OF UNRECOGNIZED AND PROLONGED ESOPHAGEAL INTUBATION DURING HOSPITAL TO HOSPITAL TRANSFER
   Authors: Weiner, Brett MD, Chiao, Franklin MD

The Society of Critical Care Anesthesiologists (SOCCA)

1. ACUTE SUBDURAL HEMATOMA FOLLOWING CORONARY ARTERY BYPASS GRAFTING: A CASE REPORT
   Authors: Sheida Tabaie and Natalia Ivascu

Society of Cardiovascular Anesthesiologists (SCA)

1. BLUNT CARDIAC INJURY CONDUNDRUM
   Authors: Rohan Panchamia, MD, Anastasia D. Grivoyannis, MD, Emil N. Bogdanov, MD, Shanna S. Hill, MD

2. INTRACARDIAC TUMORS
   Authors: Andrew Sosa, Emil Boqdanov, and Nikolaos Skubas
New York State Society of Anesthesiologists (PGA)

1. ELECTROPHYSIOLOGICAL ABLATION OF RECURRENT VENTRICULAR TACHYCARDIA UNDER ECMO
   Authors: Panchali Dhar, MD, David Graboff, CRNA, Steven Markowitz, MD

2. PAIN MANAGEMENT AFTER EXPLORATORY LAPAROTOMY AND LARGE ABDOMINAL TUMOR RESECTION IN A 15 YO PATIENT WITH NEUROFIBROMATOSIS WHO WAS NOT A CANDIDATE FOR NEURAXIAL ANESTHESIA
   Authors: Ajay Dharmappa, MD, R. Scott Dingeman, MD

3. THORACIC PARAVERTEbral BLOCKS FOR BREAST LUMPECTOMY IN A PATIENT WITH FACIOSCAPULOHUMERAL MUSCULAR DYSTROPHY
   Authors: Jacob Jackson, MD, Angela Selzer, MD, Stephanie Cheng, MD

4. PERIPARTUM MANAGEMENT OF SEVERE FACTOR XI DEFICIENCY – ROLE FOR ROTEM?
   Authors: Emily B. Kahn, MD, Maria T. De Sancho, MD, Sharon E. Abramovitz, MD

5. UNANTICIPATED DIFFICULT INTUBATION DUE TO UNRECOGNIZED LARYNGEAL CYST
   Authors: Jenica Lamp, MD, Sabrina Wheatley, MD, Mina Patt, MD, Marc Cohen, MD, Panchali Dhar, MD

6. LEFT ATRIAL TEAR FOLLOWING BLUNT FORCE TRAUMA
   Authors: Christopher W Tom, MD, James A Osorio, MD

7. ANESTHETIC MANAGEMENT OF TRACHEAL FOREIGN BODY IN A CHRONICALLY TRACHED PATIENT
   Authors: Stephanie Willet, MD, Natalia Ivascu, MD

New York State Conference for Anesthesiology (NYSCARF)

1. AN ATYPICAL PRESENTATION OF PERIPARTUM CARDIOMYOPATHY
   Authors: Brar JS, Kelleher DC, Darwich A, Gadalla F, Abramovitz S.

2. A MIRROR IMAGE ARTIFACT IN 3-DIMENSIONAL TRANSESOPHAGEAL ECHOCARDIOGRAPHY
   Authors: Anastasia D. Grivoyannis, MD, Anup Pamnani, MD, and Nikolaos J. Skubas, MD, FACC, FASE, DSc

3. CHALLENGES OF FLUID RESUSCITATION DURING CYTOREDUCTIVE SURGERY (CRS) AND HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC)
   Authors: Daniel Pak, MD, Jacob Jackson, MD, Minda Patt, MD

4. ANTICOAGULATION MANAGEMENT OF SUBDURAL HEMATOMA EVACUATION IN A PATIENT WITH A LEFT VENTRICULAR ASSIST DEVICE (LVAD)
   Authors: Daniel Pak, MD, and Jon D. Samuels, MD

5. CATASTROPHIC ARTERIAL THROMBOSIS IN AN INFANT UNDERGOING NEUROBLASTOMA RESECTION
   Authors: Rohan K. Panchamia, MD, Anahita Dabo-Trubeljja, MD

Association of University Anesthesiologists (AUA)

1. LENGTH OF STAY AND READMISSION FOR CARDIAC SURGERY
   Authors: Zachary A. Turnbull, Natalia S. Ivascu, Hugh C. Hemmings, Andrea Poon, Elizabeth Lemoine, Gregory P. Giambrone, Xian Wu, Licia Gaber-Baylis, Akshay U. Bhat, Ramin Zabih, Peter M. Fleischut
American Society of Anesthesiologists (ASA):

Anesthetic Management of a 25-month-old with Coffin-Siris Syndrome and Known Difficult Airway for MRI

Faridehman, Kristen L., M.D. and Chiao, Franklin M.D.

Department of Anesthesiology, Weill Cornell Medical College, New York, NY

Introduction:
Providing anesthesia in a remote location poses a unique set of challenges for the anesthesiologist. This can be further complicated by the patient's specific comorbidities. We describe anesthetic management of a 25-month-old with Coffin-Siris Syndrome and known difficult airway for MRI.

Three patients with severe facial features, sparse scalp hair, and hypoplasia of the 1st digit malformations were initially described in the 1960s by Dr. Oscar B. Coffin and Everett H. Siris. Over the next 40 years, 20 patients of Coffin-Siris Syndrome patients have been identified internationally with varying features. In 2012, Snyder et al. defined all 20 known patients to clearly classify patients with CSS.

Two Preoperative Features:
- Hypoplasia of the 1st digit phalangeal is a common feature, often present at developmental delay.
- These features must be present, however, are not sufficient for diagnosis.

Exoedematous Changes:
- Hypernotromatosis (33%)
- Hypertrophic spiral scars (60%)
- Dental anomalies (60%)

Constitutional Characteristics:
- Short stature (40%)
- Intracranial growth retardation/failure to thrive (57%)

Organ Based Anomalies:
- Congenital heart defects (45%)
- Scoliosis (25%) and/or kyphosis (25%)
- Tracheo esophageal fistula (50%)
- Absence of the left hand (50%)
- Less common, more refined facial features

Other findings: premature thecaloss, growth hormone deficiency, malformations of the eyes, and skeletal anomalies.

Decision:
In our case, dexamethasone sodium phosphate is an alpha-2 agonistic steroid that provokes a safe and effective anesthetic. Our patient remained stable for MRI while maintaining spontaneous ventilation. High dose dexamethasone was found to be associated with a decrease in 2.0 ng/ml and inactivation rate of up to 2.0 mg/kg has been used effectively to optimize MRI imaging in pediatric patients.

Advantages:
- Eliminates the use of general anesthesia
- Maintains spontaneous ventilation in a patient with a known difficult airway
- Decreases the incidence of post-operative delirium
- Reduces the need for intravenous access

Limitations:
- Hypothyroidism and changes in ionotropy with hyponatremia and hypothermia with dexamethasone
- Potential for hypothyroidism
- Does not significantly benefit from PACU

Pediatric mobile MRI machine, an anesthesiology machine with gas scavenging and suction, full MRI-compatible monitoring devices and emergency equipment have been created over time at the institution to ensure high-quality anesthesiology care in remote locations.

Conclusions:
In a patient with dysmorphia features and known difficult airway in a remote location, we were able to show that this approach was established for MRI procedure using dexamethasone. We believe that this is a viable technique for patients with similar presentations.

References
Imaging Artifacts During Transesophageal Echocardiography

Anastasios D Grivoyannis, MD, Anup Pammadi, MD, and Nikolaos J Skubas, MD, FACC, FASE, DSc
Department of Anesthesiology, Weill Cornell Medicine - Weill Cornell Medical College, New York, NY

Exhibit Description:
Ultrasound imaging results from the interaction between the ultrasound beam and biologic tissue. Generation of the 2D image is based on the principles listed in Table 1. When these assumptions are violated, artifacts are generated. Imaging artifacts generated during echocardiography can be a source of misleading information and may lead to erroneous clinical decisions. This is the case when the displayed structure is not real, or a real structure is misrepresented, enhanced, or attenuated. In this echocardiographic exhibit, we summarize the most common encountered imaging artifacts in 2D echocardiography, Table 2.

It is crucial that a thorough understanding of the mechanism of artifact generation is necessary to optimize imaging and avoid misleading anatomic data, which may lead to erroneous diagnosis. Visitors of this exhibit should expect to acquire skills in recognition, analysis, and interpretation of transesophageal echocardiographic images containing ultrasound artifacts.

Learning Objectives:
1. Define and describe how ultrasound artifact can be generated on transesophageal echocardiography (TEE).
2. Distinguish among the different types of ultrasound artifact.
3. Analyze several TEE images, reviewing each for 2D artifact or no artifact.
4. Categorize the type of artifact seen in the TEE images presented.
5. Specify how a particular artifact may have been produced.

Teaching Points:
1. Artifacts can occur near or from a reflector and cross-anatomic borders.
2. Reflections are also images caused by the back and forth traveling of an echo. They manifest as horizontal or perpendicular lines, or even as a duplicate image of an artifact.
3. A strong reflector may be displayed outside a cardiac structure such as a dilated aorta and mimic a dissection flap. The artifact will be displayed at twice the distance from the reflector from the probe.
4. Color Doppler can be particularly helpful in assessing whether a displayed structure is true or an artifact.
5. Additional imaging planes should be used when a strong reflector causes distal shadowing. Adjusting time-gain compensation can help reduce the effects of shadowing and enhancement artifacts.

Table 1. Assumptions made during 2-Dimensional Imaging

| Artifacts |
|-----------------|-----------------|-----------------|
| Reverberation   | Lines in a “step-ladder” appearance, usually in a straight path |
| Comet formation | Continuous echoes (linear tails) |
| Leaflet shagging | Identical structure to original reflector |
| Linear artifact | Intraluminal linear structure often mistaken for a dissection flap |
| Mixed echos     | “A to A” echos displayed on both sides of a true object |
| Missing reflections | Hypoechoic, or anechoic, areas of small to large reflectors |
| Acoustic shadowing | Proximal or distal areas of shadowing, may be absent |

Table 2. Types of imaging artifacts and their characteristics.

<table>
<thead>
<tr>
<th>Artifacts</th>
<th>Characteristics</th>
<th>Clinical Scenarios When Encountered</th>
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<tbody>
<tr>
<td>Reverberation</td>
<td>Lines in a “step-ladder” appearance, usually in a straight path</td>
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<td>Comet formation</td>
<td>Continuous echoes (linear tails)</td>
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<td>Leaflet shagging</td>
<td>Identical structure to original reflector</td>
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<td>Linear artifact</td>
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<td>Mixed echos</td>
<td>“A to A” echos displayed on both sides of a true object</td>
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<td>Missing reflections</td>
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<tr>
<td>Acoustic shadowing</td>
<td>Proximal or distal areas of shadowing, may be absent</td>
<td>Reverberation may occur near or from a reflector and cross-anatomic borders</td>
</tr>
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References:

Video Links:
Auxiliary block in a 27 year-old patient using the dancing needle technique in Punjab, India without the use of ultrasonic guidance

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Background:
In October 2016, the Global Health Initiative at Weill Cornell Medical College hosted its annual trip to Punjab, India. The participating team of 10 medical students and an attending physician spent the trip at Sri Guru Ram Das Hospital participating in the anesthetic care of patients, while also focusing on global health education. We report a case of a 27 year-old gentleman undergoing a wound debridement after a farm accident to his left hand. The lack of available ultrasonic guidance or nerve stimulator produced the complexity of the case.

Case Report:
A 27 year-old ASA class I patient with no past medical history presented for a wound debridement after a farm accident to his left hand. After a discussion of the risks and benefits with the patient, a regional anesthetic with an auxiliary block was agreed upon as the primary anesthetic, and to avoid with post-operative pain control, the patient was placed in the supine position with his arm abducted to 90 degrees. Solution was achieved with lignocaine. Under sterile conditions, the axillary artery was palpated and the superficial brachial plexus was localized with 2% lignocaine. A 25 gauge needle was then inserted just anterior to the axillary artery. Once the needle was introduced, lignocaine was slowly injected until the needle was felt to be in proximity to the axillary artery. Once the needle was in the appropriate position, 30ml of a 2.5 mixture of 2% lignocaine and 1.5% ropivacaine was injected with aspiration every 15 minutes. The needle was then removed and directed just posterior to the axillary artery. The patient was then ambulated to the operating room. Postoperatively the patient’s arm was well controlled, allowing the need for any narcotics in the recovery room.

Discussion:
India, the largest country in the world with a population of 1.3 billion people, is the second largest economy in the world. The availability of regional anesthesia is limited due to the lack of ultrasound availability in the area. Punjab, and the entire country of India, suffer from an unfortunate human rights issue known as female genital mutilation (FGM). FGM continues to exist to carry out the first act of sex determination leading to abortions of female foetuses. Use of ultrasound for pregnant females with a positive cervical screen is restricted. As a result, the ultrasound machine is subject to maintenance. Additionally, there is a high prevalence of female genital mutilation in the area. The ultrasound machine is often used to perform a second trimester diagnostic ultrasound for pregnancies. The machine is not utilized to perform imaging for obstetric ultrasounds due to lack of maintenance. The lack of ultrasound has been overcome by the creativity of regional anesthesiologists in the area. The dancing needle technique is one of the many examples of such creativity. This case illustrates the need for alternate methods of obstetric ultrasound, especially in resource constrained settings.

In Resource Scarce India: Successful Laparoscopic Cholecystectomy With Laryngeal Mask Airway ProSeal for an Unexpected Difficult Airway

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History:
A 40 year-old, ASA 1, female was scheduled for a laparoscopic cholecystectomy for cholelithiasis.

PMH: Unremarkable
FHx: None
GSHx: None
Labs: Unremarkable

Airway Exam:
- Mallampati I. Wide mouth opening
- Thyromental distance: 2 Finger Breadths
- Normal Flexion and extension of the neck
- No overbite or obstructing frontal teeth

Procedures:
- Patient induced with propofol, butorphanol and rocuronium uneventfully
- Mask ventilated without difficulty
- First direct laryngoscopy was attempted with a Macintosh 3 blade that provided a class IV view
- Patient subsequently repositioned with a shoulder roll and a second direct laryngoscopy was attempted with a Macintosh 4 blade providing a class IV view
- Given that fiberoptic scopes are unavailable in regional community hospitals in India, secondary to costs and resources, alternatives to airway management were employed
- LMA ProSeal was placed and ventilation was achieved
- An orogastric tube was placed via the LMA ProSeal for decompression of gastric contents and air
- Case proceeded uneventfully.

Resource Allocation:
Note, if a fiberoptic intubation is needed for an anticipated or planned difficult airway. The fiberoptic scope can be ordered two weeks in advance from the local pulmonologist on loan. However, emergency situations continue to challenge our emergency difficult intubation guidelines in resource poor locations in rural India.
American Society of Regional Anesthesia (ASRA)

North American Neuromodulation Society (NANS)
Polymixin-induced Recurarization Requiring Postoperative Reintubation

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Introduction:
Polymixin antibiotics are effective against most gram-negative bacteria. Concerns regarding neuromuscular weakness have limited their use.

Case Presentation:
A 45-year-old male with post-ERCP pancreatitis complicated by multiple polymicrobial abscesses, scheduled to undergo debridement of necrotic tissue under general anesthesia. Prior drainage of his abscesses grew multiple microbes, so he was started on polymyxin, metronidazole, and ticarcillin. In the OR, he received scheduled doses of meropenem and polymyxin. His induction, intubation, and intraoperative course were uneventful. He received full reversal with neostigmine 5 mg, and atropine 1.8 mg. A nerve stimulator showed 4 twitches with no visible fade. He was alert, oriented, following commands, breathing spontaneously with good tidal volumes, and was extubated. He developed difficulty breathing, initially thought to be due to peribronchospasm, which resolved with positive pressure. He continued to feel weak with discoordinated movements. The nerve stimulator showed zero twitches indicating recurarization. He received neostigmine 2mg with atropine 0.6mg and was reintubated.

Discussion:
This patient had neuromuscular weakness after he initially showed evidence of return of neuromuscular function. This recurarization was likely due to polymyxin. Although he had received polymyxin during his hospital course, this was the first time he had received it alongside a neuromuscular blocking agent.

The reported incidence of neuromuscular blockade with polymyxin use has been low. When comparing data between 1982 to 1977 and 1986 to 2005, it is noted to have decreased.

Conclusions:
The use of polymyxin can still have tangible morbidity even though the reported rate of complications is low.

Figure 1: Anesthetic Record

13
Acute subdural hematoma following coronary artery bypass grafting: A case report

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2Division of Neurology - Weill Cornell Medical College, New York, NY

Introduction:

An 85-year-old female with a history of stable coronary artery disease underwent emergent bypass surgery for acute coronary syndrome. She presented with new-onset pericardial and chest pain radiating to the left arm. A CT scan revealed a large subdural hematoma associated with a hyperacute subdural hematoma. There was no identified trauma history or other underlying causes. The patient was immediately taken to the operating room for urgent neurosurgical intervention. The hematoma was evacuated, and the patient’s condition improved postoperatively.

Case Report:

A 51-year-old female with a history of stable coronary artery disease underwent emergent bypass surgery for acute coronary syndrome. She presented with new-onset pericardial and chest pain radiating to the left arm. A CT scan revealed a large subdural hematoma associated with a hyperacute subdural hematoma. There was no identified trauma history or other underlying causes. The patient was immediately taken to the operating room for urgent neurosurgical intervention. The hematoma was evacuated, and the patient’s condition improved postoperatively.

Case Report:

A 51-year-old female with a history of stable coronary artery disease underwent emergent bypass surgery for acute coronary syndrome. She presented with new-onset pericardial and chest pain radiating to the left arm. A CT scan revealed a large subdural hematoma associated with a hyperacute subdural hematoma. There was no identified trauma history or other underlying causes. The patient was immediately taken to the operating room for urgent neurosurgical intervention. The hematoma was evacuated, and the patient’s condition improved postoperatively.

Conclusion:

Subdural hematoma following coronary artery bypass surgery is a rare but significant complication. This case highlights the importance of recognizing the potential for this complication and the need for prompt surgical intervention. Early recognition and prompt intervention are crucial to prevent serious neurological sequelae. This case report underscores the importance of multidisciplinary collaboration in managing these complex cases.
**Society of Cardiovascular Anesthesiologists (SCA)**

### Blunt Cardiac Injury Conundrum

**Introduction:**
Blunt cardiac injury (BCI) is defined as a spectrum of manifestations ranging from clinically asymptomatic to cardiac tamponade. It is a common cause of death, particularly after high-impact trauma. BCI can be associated with significant morbidity and mortality, especially in the context of polytrauma. The diagnosis and management of BCI are challenging due to its variable presentation and the potential for serious complications, such as cardiac tamponade, arrhythmias, and myocardial contusion.

#### Background:
- **Incidence:** BCI is estimated to occur in 10-20% of patients with severe blunt trauma.
- **Risk Factors:** High-impact trauma, particularly in the setting of motor vehicle accidents and falls from significant heights. BCI is also more common in children and adolescents due to their increased risk of deceleration-related injuries.

#### Case:
SM, a 45-year-old male, was brought to the Emergency Department after being involved in a high-speed motor vehicle collision. On initial assessment, he appeared hemodynamically stable, but his heart rate was elevated, and he complained of chest pain.

#### Diagnosis:
- **Echocardiography:** Demonstrated pericardial effusion with evidence of cardiac tamponade.
- **Chest CT:** Showed evidence of rib fractures and contusions, consistent with high-impact trauma.

#### Treatment:
- **Pericardiocentesis:** Performed to relieve the tamponade and stabilize the patient's hemodynamic status.
- **Intraoperative Management:** Considered for primary cardiac repair if the injury is determined to be salvageable and the patient is hemodynamically stable.

#### Conclusion:
BCI is a complex and often underestimated injury. Early recognition and prompt intervention are crucial for a favorable outcome. Imaging modalities, such as echocardiography and chest CT, play a vital role in the diagnosis and management of BCI.

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**Intracardiac Tumors**

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**Introduction:**
Intracardiac tumors are rare lesions that can be life-threatening if not diagnosed and treated promptly. They can originate from various sources, including myocardial, pericardial, and vascular tissues. Early recognition and appropriate management are crucial to prevent complications and improve patient outcomes.

#### Figures:
- **Figure 1:** Imaging modalities (tertiary care centers) showing the tumor in the right atrium.
- **Figure 2:** Magnetic resonance imaging (MRI) demonstrating the tumor in the left atrium.

#### Summary:
- **Prognosis:** The prognosis depends on the type, size, location, and extent of the tumor. Early intervention can significantly improve the outcomes.
- **Management:** The management of intracardiac tumors involves a multidisciplinary approach, including surgical resection, chemotherapy, and radiation therapy, as indicated.
Electrophysiological Ablation of Recurrent Ventricular Tachycardia under ECMO

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Department of Cardiology², Weill Cornell Medicine, New York, NY

Case Report
The patient is a 67-year-old male with hypertrophic cardiomyopathy discovered on MRI following syncpe resulting in a motor vehicle accident. A coronary angiogram showed no significant CAD and an EF of 60%. An ICD was implanted and he started treatment with amiodarone.

A year later he began to have episodes of ventricular tachycardia treated with anti-arrhythmic pacing by his ICD. He underwent two unsuccessful attempts at electrophysiological ablation. A third ablation session was complicated by sustained polymorphic ventricular tachycardia and cardiac arrest requiring ACLS for 2 minutes. He was started on maxilene and discharged home.

He continued to have frequent episodes of VT daily, leading to anti-tachycardia pacing and/or shocks. The episodes lasted up to 10 minutes associated with light-headedness and dizziness.

A fourth attempt at VT ablation using peripheral ECMO support was conducted. General anesthesia was induced and femoral veno-arterial ECMO was started. During ECMO, ventricular tachycardia was purposefully induced to locate the pathologic focus. The ablation study lasted 10 hours. The patient continued to have episodes of VT after the procedure. He was extubated 24 hours later without any evidence of cognitive deficits. He ultimately required a fifth procedure using an Impella device and trans-coronary ethanol for successful ablation.

Ablation Procedure
The patient was brought to the electrophysiology laboratory and general anesthesia was induced. During the case, ECMO flows, SVo2, MAP, and cerebral oximetry were monitored. The adequacy of gas exchange support was verified by blood gases from a radial arterial catheter. The hemodynamic effects of VA ECMO upon the myocardium were gauged by following the pulsatility of the arterial waveform. ECMO flows were maintained between 3-4 L/min. A phenylephrine infusion added hemodynamic support. The infiltrated sedo-renaline served mainly as an anesthetic. MAP ranged 50-70 mmHg and PaO2 ranged 170-270 mmHg. An epicardial catheter was inserted through the subepicardial approach. Mapping was also performed in the left ventricle through the left femoral artery. Programmed stimulation resulted in multiple episodes of VT.

During VT the MAP held steady at 55-70 mmHg and cerebral oximetry ranged 85-88%. Learning Point
This case demonstrates the advantage of ECMO support during VT ablation because it maintains cerebral perfusion and oxygenation.

ECMO facilitates mapping during hypotensive VT and protects the brain from ischemic injury.

Discussion
• There are four types of percutaneous left ventricular assist devices (pLVAD) used for hemodynamic support during catheter ablation of VT: IABP, Impella, Tandem Heart System and most recently, ECMO.
• ECMO is the only system capable of a true total support at very high ventricular rates of 300 bpm, during ventricular fibrillation, and even in the setting of RV failure.
• ECMO provides both hemodynamic and respiratory support. Circuit components are chosen to allow for at least 50-75% of flow in adults. It provides 60-80% of the predicted resting cardiac output. The remaining 20-40% of venous return flows normally through the native pulmonary circulation.
• The femoral venous cannula withdraws blood. Blood is then pumped through the membrane oxygenator allowing for oxygen uptake and carbon dioxide removal, and this arterialized blood is returned to the systemic circulation through the femoral artery.

References
Pain management after exploratory laparotomy and large abdominal tumor resection in a 15 yo patient with neurofibromatosis, who was not a candidate for neuraxial anesthesia

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Summary
In this case report, we describe a 15 year old patient with neurofibromatosis who was unable to receive neuraxial anesthesia for post-operative pain management. The patient underwent exploratory laparotomy and tumor resection, but received effective postoperative analgesia using multimodal analgesics, including acetaminophen, ketorolac, ketamine, and gabapentin. The case further illustrates successful use of gabapentin as a pain adjuvant in a pediatric patient, which has not been thoroughly described in the literature.

Case Report
A 15 year old male with a PMH significant for a large malignant intra-abdominal tumor, Neurofibromatosis type 1, with both pleural and abdominal neurofibromas, scoliosis and Harrington rod placement and intercostal nerve blocks presented for exploratory laparotomy for a resection of an intra-abdominal tumor.

Indication: The patient was determined to be a candidate for neuraxial anesthesia due to placement of previous Harrington rods (Figure 1) with a large posterior concave to lumbar kyphosis and multiple spinal neurofibromas which covered the back extensively (Figure 2). In anticipation of postoperative pain management, the patient was given 300mg of gabapentin 1 hour prior to incision. Intraoperatively, the patient was induced with propofol, fentanyl, and rocuronium. A ketamine IV bolus of 3 mg/kg was given at induction. The patient was placed on a ketamine infusion intravenously at 0.25 mg/kg/h, and maintained on sevoflurane. Fentanyl was started intraoperatively to supplement analgesia. Due to extensive blood loss and large amounts of fluid resuscitation, the patient was kept intubated postoperatively and transferred to the PICU, where he remained on a ketamine infusion at a rate of 0.5-1.0 mg/kg/h with IV morphine given per need.

Postop: On postoperative day (POD) #3, the patient was noted to be indolent, isolated, and unable to answer questions appropriately. The patient reported pain scores of 3-4/10. The patient was successfully weaned to extubation on POD #1 and transferred to a hydrophone N/PCA, weaned off the ketamine infusion and continued on gabapentin 100mg PO QHS. The patient reported pain scores of 1-4/10 on POD #4. On POD #2, standing ketorolac and acetaminophen were added to the pain regimen, with reported pain scores decreasing to 1-2/10. On POD #3, the patient was weaned from the hydrophone PCA, the ketorolac and acetaminophen transitioned to pm, and the patient was started on standing oxycodone and pm oxycodone. Pain scores were reported as 0/10 on POD #2. POD #4, the patient was discharged home with reported 0/10 pain on oxycodone and oxycodone pm.

Discussion
Post-operative pain management in pediatric patients has become a major concern and challenge (1,2). It is especially evident in the fact that post-operative pain in the pediatric population remains understudied (2). Effective pain control in the post-operative setting has many advantages including fewer pulmonary and cardiac complications (3). Faster recovery, early ambulation and improved patient satisfaction are among the other benefits of optimal pain control (3). The case highlights successful pain management in a pediatric patient using a multimodal approach in a patient who was not a candidate for neuraxial anesthesia. The case further illustrates successful use of gabapentin as a pain adjuvant in a pediatric patient, which has not been thoroughly described in the literature. The use of systemic ketamine in pediatric patients has been shown to decrease pain scores in the post-operative setting (1). However, the use of systemic ketamine has failed to show an analgesic effect (1). The use of a single dose of gabapentin preoperatively has also failed to show an analgesic effect and has failed to demonstrate decreases in pain scores in pediatric patients (4). This case demonstrates a favorable effect on pain scores and pain management with the use of both systemic ketamine and gabapentin used around the clock until discharge. In addition to these two agents, we utilized acetaminophen and ketorolac for optimal pain control. Further investigation regarding the use of gabapentin around the clock and/or with ketamine may be worth investigating, specifically in the pediatric population.

References:
Thoracic Paravertebral Blocks for Breast Lumpectomy in a Patient with FacioscapulohumeralMuscular Dystrophy

Jacob Jackson, MD, Angela Selzar, MD, Stephanie Cheng, MD
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Case:
A 59-year-old woman with FSHD presented for left breast lumpectomy and sentinel lymph node biopsy. She had the following medical history:
- Recurrent pneumonia
- Asthma
- Severe restrictive lung disease and reduced DLCO (requiring home O2)
- Dysarthria and dysphagia
- Inability to lie flat secondary to shortness of breath and GERD
- TMJ disorder
A preoperative pulmonology consult recommended leaving the patient intubated if she were to undergo general anesthesia, with postoperative ICU admission.

Anesthetic Technique:
1. Standard ASA monitors in the sitting position
2. Five liters O2 via nasal cannula
3. Light IV sedation (midazolam 2mg and ketamine 20mg)
4. Palpation of surface landmarks, skin preparation and local anesthetic skin wheals (Fig. 1a)
5. Ultrasound-guided paravertebral injections of 5 mL per level of 0.5% bupivacaine with 1:200,000 epinephrine and preservative-free dexamethasone for levels T2-T5 on the left side (Fig. 1b and Fig. 2)
6. Glycopyrrolate 0.2mg to reduce oral secretions
7. Maintenance of sedation with small boluses of ketamine

Facioscapulohumeral Muscular Dystrophy:
FSHD, a dominantly inherited disorder, is the third most common dystrophy after Duchenne and myotonic muscular dystrophy. It is characterized by progressive skeletal muscle weakness across the face, back, and upper arms that often affects muscle groups asymmetrically.

Conclusions:
A lack of publications exists describing the anesthetic management of patients with FSHD. Patients with this type of muscular dystrophy who undergo general anesthesia, even for ambulatory surgery, may require prolonged intubation and postoperative care in the ICU until they can be safely extubated. Anesthesia was provided with long-acting paravertebral blocks combined with light IV sedation. The patient was discharged home the same day of surgery with adequate analgesia and stable respiratory function.

References:
Peripartum Management of Severe Factor XI Deficiency – Role for ROTEM?

Background:
Severe factor XI deficiency (activity level <15%) presents a unique challenge in the obstetric population. While there is no standard of practice regarding the management of these parturients, it is recommended that patients undergo factor replacement therapy in the peripartum period and those at high risk for bleeding receive antifibrinolytic therapy postpartum. This still leaves the question of how we should assess the effects of these interventions towards effective hemostasis in these high risk patients. Could rotational thromboelastometry (ROTEM) be of use in guiding therapy in these patients?

Case:
A 34yo G2P1 with a history of severe Factor XI deficiency (baseline factor XI <1%, 2% at 35 weeks gestation) and post-partum hemorrhage after her first delivery by cesarean section (CS) in 2013 now presents for repeat CS. Management of her first delivery included 4U FFP preoperatively which normalized her aPTT from her baseline of 60 seconds to 35 seconds but only increased her Factor XI level from <0.1% to 17%. She received an additional 2U FFP intraoperatively with EBL of 1500-1600cc. An additional 4U FFP was given postoperatively with TXA. For this delivery, a total of 6U of FFP (1500cc/kg) was transfused. Baseline coagulation and ROTEM were measured and compared to post-FFP values. The aPTT normalized from 61.4 to 27.6 and the ROTEM clotting time (CT) on INTEM also normalized from 268 seconds to 172 seconds.

Figure 1: Baseline INTEM showing prolonged clotting time (normal 122-208)

Figure 2: INTEM after 5 units of FFP given

Conclusions:
Although previous recommendations include factor replacement therapy titrated to a level of 30-40% normal activity, in this case that would have required excessive plasma transfusion beyond what available studies showed the patient needed to form an effective clot. With the risk of infection, adverse transfusion reactions, and allogeneic blood transfused, therapy should be guided in a way to achieve effective hemostasis while limiting potential harm. While further research linking ROTEM results with clinical outcomes is needed, based on the findings in this case there is a great potential for using ROTEM, at least adjunctively, to demonstrate effective hemostasis following peripartum replacement therapy in patients with severe Factor XI deficiency.

References:
Unanticipated Difficult Intubation due to Unrecognized Laryngeal Cyst

Pre Operative Evaluation

- Early female for elective robotic ventral hernia repair
- BMI 26.8
- History of obesity (BMI 42)
- Type 2 diabetes
- Hypertension
- 20 years of tobacco history
- Shortness of breath at rest, dyspnea on exertion, productive cough, and hoarseness
- Pre op studies:
  - Normal chest X-ray
  - Sleep study diagnostic of OSA (did not use CPAP)
  - Echocardiogram with EF 50%, diastolic dysfunction

Operative Course

A RSI was performed and intubation was attempted with size 4 McGrath video laryngoscope. Posterior pharyngeal and laryngeal structures were difficult to distinguish due to active bleeding. A mass was noted partially covering the vocal cords. A 7.0 ETT was successfully passed and placement confirmed. Intraop course was uneventful. The patient remained intubated post operatively for further evaluation of the suspected laryngeal mass.

Post Operative Course

The patient returned to the OR the following day. Evaluation by ENT with an anterior commissure laryngoscope was initially unremarkable. The bleeding was attributed to a lesion of the right lingual tonsil, which was now firm and hemorrhagic. The patient was then extubated in the OR after meeting criteria immediately after extubation she became stridorous, dysphonic, and continued difficulty breathing. Oxygen saturation was 95% on 100% facemask despite administration of nebulized epinephrine. A flexible nasal fiberoptic scope was inserted to view the laryngeal aperture (video recorded) confirmed posteriorly oropharynx mass distorting the cords and creating a ball valve effect with expiration. The patient was re-intubated. Re-examination with a rigid laryngoscope revealed the mass attached to the right aryepiglottic fold, it was then pushed up alongside the ETT. The area was punctured, revealing tenacious white viscous and confirming the diagnosis of laryngeal cyst. The cyst was aspirated and the peduncle excised. The patient was extubated the next day after receiving dexamethasone.

Discussion

Unrecognized laryngeal cysts can lead to "cannot intubate cannot ventilate" scenarios. Incidence in adults is on the order of 1 in 1000 based on incidental findings during endoscopies. The pathophysiology is chronic mucosal irritation causing blockage and irritation of ducts. Symptoms can include sore throat, dysphonia, dysphagia, odynophagia, dyspnea, and globus sensation, but most are asymptomatic and discovered incidentally. Despite their benign nature, there is potential for these cysts to present as airway emergencies requiring tracheostomy. The treatment of choice is complete removal by transoral or translaryngeal aspiration above can result in recurrence. Spontaneous resolution may occur.

Both recognized and unrecognized cysts can result in difficult intubations. If a cyst is known to exist preoperatively, transoral or translaryngeal fiberoptic intubation is the technique of choice. When awake fiberoptic is not an option, an ENT anterior commissure laryngoscope may be used to pass a tracheostomy tube down the trachea to a large, mobile cyst. Other modalities such as Miron or Miller blades, video-laryngoscopes, and bougies may be unsuccessful at disrupting a pedunculated cyst from the vocal cords. Blind or forceful intubation can lead to cyst rupture, bleeding, and aspiration. An LMA may be considered useless as a rescue device as pedunculated cysts can still obstruct ventilation; however, they can be used as a conduit for fiberoptic intubation. In the case of a previously unrecognized cyst, intubation should be undertaken prior to excision.

In this case, an unrecognized large supraglottic cyst was the cause of our patient’s chronic shortness of breath, dysphonia, and cough. Excessive preoperative cardiac and pulmonary evaluations did not reveal the true source of her symptoms, and the cyst was discovered upon intubation during elective surgery. Fortunately, intubation with a stiffened tube was successful, though it pushed the cyst inferiorly, making it difficult to visualize with the ETT in place. Only extubation and nasal fiberoptic exam adequately demonstrated the ball valve effect on the cyst created. Laryngeal cysts should be considered in the differential diagnosis for dyspnea and hoarseness if cardiac and pulmonary workups are unrevealing.

References

Anesthetic Management of Tracheal Foreign Body in a Chronically Trachecized Patient

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Introduction:
A tracheal foreign object is a life-threatening emergency, most concerning for airway obstruction creating respiratory insufficiency. Manipulation of the airway leading to increased oxygen consumption, airway hypoxia, and even cardiac arrest. Before induction of anesthesia, the site, degree, and timing of obstruction must be carefully assessed. Of utmost importance is how to establish adequate gas exchange while not obstructing the surgeon’s view or pathway of foreign body removal, as well as establishing a contingency plan should the trachea become completely obstructed. We present a challenging case, not only because the foreign object is lodged at the level of the carina, but the object in question is the distal end of a tracheal, rare tracheostomy tube. Proximally, only a fractured tracheostomy tube remains in the tracheostoma and difficult anatomy above render oral endotracheal nearly impossible.

Case Scenario:
A 73 year old man presented to the Emergency Department with increased shortness of breath and inability to pass an inner cannula through his tracheostomy tube for 3 days. His past history consisted of a severe electrical burn injury in 1965 which caused emergent tracheostomy and chronic tracheostomy tube for the past 30 years. Additional medical history included coronary artery disease, history of NSTEMI 2017 (E/E 13% with evidence of distal anterior wall, diabetes mellitus type 1, chronic renal insufficiency, and hypertension). Notably, his prior burn injury resulted in significant anatomic change and significant suprasternal notch. Thus requiring a unique tracheostomy tube (Air-Loc™) not available at our institution. His airway history included a tracheostomy tube insertion and 4 instances of tracheal stenosis requiring dilation and tracheostomy exchange. Chest X-ray and flexible fiberoptic bronchoscopy (FFB) revealed the distal end of the tracheostomy tube 1 cm distal to the skin and inferior tip of the tracheal segment at the carina seated longitudinally (Figure 1 & 2).

At the time, the patient’s airway was stable oxygen saturation 98% on humidified 21% oxygen via mouth. Patient was urgently scheduled for foreign object retrieval via FFB at the OR. Our primary concern was maintaining airway topoclasticization and general anesthesia without multiple vascular access attempt to maintain spontaneous ventilation. General anesthesia included a balanced technique. Sevoflurane via cuffed endotracheal tube through orotracheal and low-dose Propofol infusion. Case was booked in the emergency cardiothoracic room in case extracorporeal membrane oxygenation was required if complete tracheal obstruction ensued.

Conclusion:
As the surgeon and anesthesiologist share management of a potentially obstructed airway, clear communication and a detailed anesthetic and operative plan should be discussed, including methods of induction, ventilation during bronchoscopy, and maintenance of anesthesia. An induction that maintains spontaneous ventilation minimizes the risk of converting a partial proximal obstruction to a complete obstruction, air leakage around the scope, and disruption of ventilation when attempting to retrieve the foreign body. As airway trauma and rupture are significant and potentially fatal complications, it is also essential to avoid coughing and breathing secondary to the intense stimulation from the bronchoscope. Administration of IV and topical lidocaine diminishes airway reflexes and allows the use of less intravenous and inhaled anesthetics. It has been previously reported that a total IV technique with spontaneous ventilation was associated with a higher incidence of airway movement, breath-holding, and laryngospasm in comparison with an inhaled technique. Maintenance of spontaneous ventilation using local anesthetic topoclasticization and a balanced technique of inhaled and IV anesthetics allows for suitable bronchoscopy conditions and a consistent level of anesthesia.

Reference:
Left Atrial Tear Following Blunt Force Trauma

Christopher W Tam, M.D., James A Osorio, M.D.
Department of Anesthesiology, Weill Cornell Medicine New York, NY

A 57-year-old male with a history of mild mitral regurgitation and mild left atrial enlargement was brought to the operating room for an emergent left atrial repair following a motor vehicle collision. The patient was intubated with a size 7.5 endotracheal tube. Initial chest X-ray showed a left pleural effusion with right lower lobe atelectasis. CT of the chest revealed a left hemothorax and a left pneumothorax. A mobile CT scanner was performed, and the patient was taken to the operating room for an emergent left thoracotomy. A large left pleural effusion with a left hemothorax was noted. The patient was intubated with a size 7.5 endotracheal tube. Initial chest X-ray showed a left pleural effusion with right lower lobe atelectasis. CT of the chest revealed a left hemothorax and a left pneumothorax. A mobile CT scanner was performed, and the patient was taken to the operating room for an emergent left thoracotomy. A large left pleural effusion with a left hemothorax was noted.

Figure 1: Pericardial Effusion

Figure 2: Pulmonary Edema

Figure 3: Left Atrial Tear

Figure 4: Left Atrial Repair

Figure 5: Thoracic CT Scan

Figure 6: Pulmonary Angiography

Figure 7: Left Atrial Pressure Tracings

Figure 8: Left Atrial Repair

Figure 9: Thoracic CT Scan

Figure 10: Pulmonary Angiography

Figure 11: Left Atrial Pressure Tracings

Figure 12: Left Atrial Repair

Figure 13: Thoracic CT Scan

Figure 14: Pulmonary Angiography

Figure 15: Left Atrial Pressure Tracings

Figure 16: Left Atrial Repair

Figure 17: Thoracic CT Scan

Figure 18: Pulmonary Angiography

Figure 19: Left Atrial Pressure Tracings

Figure 20: Left Atrial Repair

Figure 21: Thoracic CT Scan

Figure 22: Pulmonary Angiography

Figure 23: Left Atrial Pressure Tracings

Figure 24: Left Atrial Repair

Figure 25: Thoracic CT Scan

Figure 26: Pulmonary Angiography

Figure 27: Left Atrial Pressure Tracings

Figure 28: Left Atrial Repair

Figure 29: Thoracic CT Scan

Figure 30: Pulmonary Angiography

Figure 31: Left Atrial Pressure Tracings

Figure 32: Left Atrial Repair

Figure 33: Thoracic CT Scan

Figure 34: Pulmonary Angiography

Figure 35: Left Atrial Pressure Tracings

Figure 36: Left Atrial Repair

Figure 37: Thoracic CT Scan

Figure 38: Pulmonary Angiography

Figure 39: Left Atrial Pressure Tracings

Figure 40: Left Atrial Repair

Figure 41: Thoracic CT Scan

Figure 42: Pulmonary Angiography

Figure 43: Left Atrial Pressure Tracings

Figure 44: Left Atrial Repair

Figure 45: Thoracic CT Scan

Figure 46: Pulmonary Angiography

Figure 47: Left Atrial Pressure Tracings

Figure 48: Left Atrial Repair

Figure 49: Thoracic CT Scan

Figure 50: Pulmonary Angiography

Figure 51: Left Atrial Pressure Tracings

Figure 52: Left Atrial Repair

Figure 53: Thoracic CT Scan

Figure 54: Pulmonary Angiography

Figure 55: Left Atrial Pressure Tracings

Figure 56: Left Atrial Repair

Figure 57: Thoracic CT Scan

Figure 58: Pulmonary Angiography

Figure 59: Left Atrial Pressure Tracings

Figure 60: Left Atrial Repair

Figure 61: Thoracic CT Scan

Figure 62: Pulmonary Angiography

Figure 63: Left Atrial Pressure Tracings

Figure 64: Left Atrial Repair

Figure 65: Thoracic CT Scan

Figure 66: Pulmonary Angiography

Figure 67: Left Atrial Pressure Tracings

Figure 68: Left Atrial Repair

Figure 69: Thoracic CT Scan

Figure 70: Pulmonary Angiography

Figure 71: Left Atrial Pressure Tracings

Figure 72: Left Atrial Repair

Figure 73: Thoracic CT Scan

Figure 74: Pulmonary Angiography

Figure 75: Left Atrial Pressure Tracings

Figure 76: Left Atrial Repair

Figure 77: Thoracic CT Scan

Figure 78: Pulmonary Angiography

Figure 79: Left Atrial Pressure Tracings

Figure 80: Left Atrial Repair

Figure 81: Thoracic CT Scan

Figure 82: Pulmonary Angiography

Figure 83: Left Atrial Pressure Tracings

Figure 84: Left Atrial Repair

Figure 85: Thoracic CT Scan

Figure 86: Pulmonary Angiography

Figure 87: Left Atrial Pressure Tracings

Figure 88: Left Atrial Repair

Figure 89: Thoracic CT Scan

Figure 90: Pulmonary Angiography

Figure 91: Left Atrial Pressure Tracings

Figure 92: Left Atrial Repair

Figure 93: Thoracic CT Scan

Figure 94: Pulmonary Angiography

Figure 95: Left Atrial Pressure Tracings

Figure 96: Left Atrial Repair

Figure 97: Thoracic CT Scan

Figure 98: Pulmonary Angiography

Figure 99: Left Atrial Pressure Tracings

Figure 100: Left Atrial Repair
An atypical presentation of peripartum cardiomyopathy

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Introduction:
Peripartum cardiomyopathy (PPCM) is a rare disorder of left ventricular dysfunction and heart failure with an incidence of approximately 1 in 1000 live births with an estimated mortality of 1.3-2.5% [1]. PPCM can develop during the last month of pregnancy up to within 5 months postpartum, but the etiology remains unclear with viral, autoimmune, and idiopathic causes hypothesized [2]. This is a case of an atypical presentation of PPCM.

Case:
A 37-year-old female G1P0 at 34 weeks and 2 days gestation with hypertension and pregestational diabetes presented with preterm premature rupture of membranes and breech presentation. The patient’s preoperative vital signs were pulse 97 bpm, blood pressure 150/90 mmHg, and oxygen saturation 96% on room air. Spinal anesthesia for primary Cesarean section was performed with a 27-gauge needle 1.1 mL of hyperbaric bupivacaine 0.75%, morphine 300 mcg, and fentanyl 20 mcg. Following induction of anesthesia, the patient complained of nausea, which was assumed to be related to hypotension, and was treated with phenylephrine. She became hypotensive to 88/49 mmHg and the team developed sustained tachycardia, prompting an emergent Cesarean section.

Following delivery, the patient’s oxygen saturation and systemic blood pressure both decreased to the mid-80s. Following multiple boluses of phenylephrine, the systemic blood pressure was maintained in the 110s and the oxygen saturation improved to the low 90s. The patient remained asymptomatic and denied any chest pain or dyspnea. Intravenous fluids included 1000 mL of saline and 250 mL of oxygen (0.6 um/ml), with an estimated blood loss of 1500 mL, and urine output of 500ml. While in the recovery room, the patient developed tachycardia (120-140 bpm) with oxygen saturation in the low-80s. Although the patient remained asymptomatic, arterial blood gas confirmed hypoxemia (paO2 44 mmHg). Computed tomography of the chest revealed ground-glass attenuation in bilateral lung fields with pulmonary venous dilatation and interstitial edema. A repeat echocardiogram confirmed dyskinesia consistent with acute myocardial injury without evidence of scar (Figure 1).

Intravenous furosemide was administered and cardiology consultation was obtained. A follow-up echocardiogram revealed diffuse hypokinesis, severely reduced global left ventricular function, calculated ejection fraction of 25%, mild to moderate mitral regurgitation, and mild pulmonary hypertension (Figure 2). Metoprolol and intravenous furosemide treatment was initiated and the patient was discharged home on postoperative day 3 with plans for follow-up echocardiogram in 4-6 months.

Discussion:
PPCM is a diagnosis of exclusion; however, it should be considered in a patient presenting with heart failure during the peripartum period. PPCM usually presents with orthopnea, dyspnea, pitting edema, cough, palpitations, or chest pain [3]. Risk factors include advanced age, multiparity, black race, multiparous gestation, obesity, pre-eclampsia, and chronic hypertension [2]. This patient did not complain of any classic symptoms of PPCM and lacked many of the described risk factors. A high index of suspicion for PPCM is essential for early diagnosis. Approximately 80% of patients recover full ventricular function within 6 months postpartum. Predictors of improved outcomes include recovery of ejection fraction at 2 months and initial left ventricular ejection fraction greater than 25%. While predictors of poor outcome include left ventricular thrombus and black race [4].

References:
A Mirror Image Artifact in 3-Dimensional Transesophageal Echocardiography

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Introduction:
The development of narrow acquistion and color display of these narrow (3D) echocardiographic images has implicated the use of 3D transesophageal echocardiography (TEE) in clinical practice. One of the primary motivations of the 3D TEE imaging modality is to visually determine the operator's understanding of the 3D TEE imaging. However, several questions and the physical properties of these narrow echocardiographic images are currently under study. We present the case of a 3-D TEE artifact noted during the insertion of a circulation shunt catheter.

Case:
A 65-year-old man with chronic renal failure and hypertension was scheduled for redo mitral valve repair. He was otherwise healthy. Following placement of an arterial line, the patient underwent an enteral and esophageal intubation. A Phillips 2012 TEE was inserted through a 32 Fr. sheath into the right atrium. The abdominal wall was then inserted through the abdominal cavity and the abdominal wall was then visualized in the right atrium with the abdominal wall using the 3D TEE system. Subsequently, an 8 Fr. wire catheter (Reemex) was inserted through the sheath and the tube tip was pulled through the sheath. Two tube ations were also noted to be placed in the atrium and the wire tip was noted to be placed in the right atrium. The catheter was then inserted into the right atrium again with further advancement of the catheter into the abdominal cavity. The catheter was then inserted into the right atrium again with further advancement of the catheter into the abdominal cavity. As the PA catheter traversed the right atrium (RA), a distinct artifact was noted to be in the PA catheter lumen (Fig. 2). The artifact appeared to be a reflection of the lumen of the PA catheter. It had a varied signal intensity and was located immediately adjacent to the PA catheter, similar to the RA. The PA catheter, as a brownish coloration in the PA catheter artifact (Figs 1 and 2).

The PA catheter was localized accurately and the PA catheter was shadowed when the tip was properly positioned in the PA catheter lumen (Fig. 1).

Discussion:
The artifact is often seen in 3D TEE images and is created by the inherent properties of the 3D TEE imaging modality. The artifact is a reflection of the PA catheter lumen and is created by the inherent properties of the 3D TEE imaging modality. However, further investigation is needed to understand the mechanism and implications of this artifact for clinical practice.

References:

Challenges of Fluid Resuscitation During Cytoreductive Surgery (CRS) and Hyperthermic Intraoperative Chemotherapy (HIPEC)

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*These authors contributed equally to this work

Introduction:
CRS in conjunction with HIPEC is a well-established treatment for patients with gastrointestinal malignancies. Factors influencing intraoperative fluid management include:
- Length of surgery (6-10 hours)
- Size of the peritoneal cavity
- Extensive debridement
- Increased intra-abdominal pressure

Patient History:
A 50-year-old 75 kg female with primary peritoneal mesothelioma presented for CRS and HIPEC. Her disease course was complicated by persistent bleeding requiring a right nephrectomy and the patient was started on total parenteral nutrition (TPN). The patient had no other co-morbidities or previous medical history.

Case Details:
Vascular Access
4-venous catheterization right radial arterial line
4-venous catheterization left radial arterial line

Monitoring Techniques
- Bi-level ICA monitoring
- Intravenous pressure (IVP) from arterial line
- Central venous pressure (CVP) from central line
- Right atrial pressure from central line
- Left atrial pressure from central line
- Pulmonary artery pressure from central line

Maintenance
4-venous outflow from inferior vena cava
4-venous outflow from superior vena cava
4-venous outflow from portal vein
4-venous outflow from azygos vein

Discussion:
CRS and HIPEC require a comprehensive fluid resuscitation strategy to ensure optimal perfusion and to prevent hypovolemia. Fluid balance is critical to maintain adequate perfusion and to prevent hypovolemia. The fluid balance is monitored continuously using a central venous catheter. The fluid balance is monitored continuously using a central venous catheter. The fluid balance is monitored continuously using a central venous catheter. The fluid balance is monitored continuously using a central venous catheter.
Anticoagulation Management for Subdural Hematoma Evacuation in a Patient with a Left Ventricular Assist Device (LVAD)

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Introduction:
- Anticoagulation is necessary to avoid thrombotic events in patients with LVAD devices. This is true for Warfarin (WARF), a vitamin K antagonist, which is the mainstay of anticoagulation therapy and causes warfarin resistance with age-related changes.
- A 52-year-old woman presented to the emergency room with a left subdural hematoma following a fall.

Case Details:
- Standard ADAP-Associated monitors were placed and the patient was turned off with a magnet.
- Pre- and post-left atrial line and femoral vein CVC were inserted for hemodynamic monitoring and frequent arterial blood gases.
- Anesthetic induction was performed with intravenous propofol, fentanyl, phospholipids, and neuromuscular blocking agents.

Discussion:
- There is no consensus on the initiation of anticoagulation following LVAD implantation due to the risk of bleeding complications.
- When re-starting anticoagulation depends on the severity and duration of bleeding, IV anticoagulation with streptokinase or urokinase is recommended, as shown in the case.

Catastrophic Arterial Thrombosis in an Infant Undergoing Neuroblastoma Resection

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2Department of Neurosurgery, Weill Cornell Medical College, New York, NY

Introduction:
- Neuroblastoma is an embryonic malignancy of the sympathetic nervous system, arising from neural crest cells that differentiate into cells of the adrenal medulla responsible for catecholamine synthesis.
- Less than 1% of cases originate from unipolar ganglia.

Case Details:
- A 14-month-old female with a history of stage 3 neuroblastoma presented to our institution for a left thoracoscopic enucleation and resection.
- The surgical procedure was performed on the left side and the patient was transferred to the ICU following the procedure.

Discussion:
- The use of nitrous oxide was associated with catastrophic neurological outcomes in this case.
- The key to minimizing the risk of complications is early recognition and aggressive management.

References:

Catastrophic Arterial Thrombosis in an Infant Undergoing Neuroblastoma Resection

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Discussion:
- The use of nitrous oxide was associated with catastrophic neurological outcomes in this case.
- The key to minimizing the risk of complications is early recognition and aggressive management.

References:
Background:
- Variability of length of stay (LOS) and associated factors have not been fully explored in uncomplicated cardiac surgery population.
- We sought to understand determinants of increased length of stay (LOS) and its variability after uncomplicated cardiac surgery.

Methods:
- Using BID data, healthcare cost and utilization project, agency for healthcare research and quality.
- Isolated aortic valve surgeries (AVR), isolated mitral valve surgeries (MVR), AVR and MVR (AVR/MVR), AVR with coronary artery bypass grafting (CABG) (AVR/CABG), MVR with CABG (MVR/CABG), and AVR and MVR with CABG (AVR/MVR/CABG).
- LOS and comorbidities were identified.
- Multivariable Poisson regression analysis (MVR) utilized to determine factors associated with LOS greater than the median.
- Utilized unique identifiers to determine 30-day readmission rates.
- Records with an indication of postoperative complications or death were excluded.

Results:
- 129,170 discharges met study inclusion criteria: 69.2% CABG, 12.3% AVR, 7.4% MVR, 1.2% AVR/MVR, 7.2% AVR/CABG, 2.1% MVR/CABG, and 0.4% AVR/MVR/CABG.
- Overall median age was 66, 70.5% were male, 71.1% were white, 52.2% Medicare, and median modified DePlanche 10/10 was zero.
- Median LOS for the cohort was 7 days (Q0.5: 3.0, Q.75: 10).
- MVR predictors of prolonged LOS included surgical type (AVR/MVR/CABG (OR 2.59, 2.15-1.32) and AVR/MVR (OR 1.53, 1.53-2.06), when compared to CABG), female gender (OR 1.33, 1.26-1.39), age > 75 (OR 1.59, 1.45-1.69), and payer (Medicaid (OR 1.23, 1.18-1.27), Medicare (OR 2.14, 2.04-2.24), when compared to private insurance).
- Comorbidities such as CHF (OR 2.13, 1.97-2.29), COPD (OR 1.19, 1.01-1.26), and renal disease (OR 1.81, 1.15-2.84) also predicted prolonged LOS.
- AVR (OR 0.63, 0.60-0.66) and MVR (OR 0.77, 0.74-0.81) had a lower OR of prolonged LOS.
- Despite uncontrolled univariate outcomes, LOS had significant variability, and the overall rate of 30-day readmissions was 14.9%.
- The percentage of patients discharged on each postoperative day shows wide variation with a peak at 5 days (Figure 1). 30-day readmission rates were lowest for discharges on days 3-5 (Figure 1).

Discussion:
- LOS following uncomplicated cardiac surgery is associated with various factors including age, gender, payer, comorbidities, and extent of procedure performed.
- It is reasonable to take these factors into account when developing approaches to help decrease LOS.
- Further research is necessary to assess factors in the minimally invasive cardiac population, and to validate these findings.

References:
CLINICAL RESEARCH STUDIES

1. **THE INFLUENCE OF ANESTHETIC DEPTH ON PATIENT OUTCOME AFTER MAJOR SURGERY (THE BALANCED ANESTHESIA STUDY)**
   **PI:** Kane O. Pryor, MD
   **Protocol #:** 1405015113

   A prospective, randomized clinical trial of ‘deep’ versus ‘light’ anesthesia to examine whether anesthetic depth alters perioperative outcome.

2. **RESTRICTIVE VERSUS LIBERAL FLUID THERAPY IN MAJOR ABDOMINAL SURGERY (RELIEF)**
   **PI:** Kane O. Pryor, MD
   **Protocol #:** 1405015112

   A multicenter, randomized clinical trial assigning subjects to "Restrictive" or "Liberal" IV fluid regimens. Fluid is regulated from the start of surgery until 24 hours post-op, after which disability-free survival is tracked for one year.

3. **PREVENTION OF DELIRIUM AND COMPLICATIONS AFTER SURGICAL TREATMENT (PODCAST)**
   **PI:** Kane O. Pryor, MD
   **Protocol #:** 1209013008

   This is a multi-institutional, randomized control study that tests whether a low dose of ketamine can prevent post-operative pain and delirium.

4. **PROSPECTIVE, DOUBLE BLIND, PLACEBO CONTROL STUDY OF ACETAMINOPHEN IV ON HOSPITAL LENGTH OF STAY IN MORBIDLY OBESE INDIVIDUALS UNDERGOING ELECTIVE LAPAROSCOPIC SLEEVE GASTRECTOMY**
   **PI:** Peter A. Goldstein, MD
   **Protocol #:** 1503016056

   Examining the efficacy of acetaminophen-iv on reducing hospital stay and associated hospital costs in morbidly obese individuals undergoing elective laparoscopic sleeve gastrectomy.

5. **ROTEM SIGMA PERFORMANCE EVALUATION-METHOD COMPARISON WITH PREDICATE DEVICE AND REFERENCE INTERVALS**
   **PI:** Hugh C. Hemmings Jr., MD, PhD, FRCA
   **Protocol #:** 1406015207

   The aim of this study is the performance evaluation of the new ROTEM sigma coagulation analyzer in comparison to the current ROTEM delta thromboelastometry system.

6. **TRIAL OF RIASTAP VS CRYOPRECITPITATE TO LOWER OPERATIVE TRANSFUSIONS**
   **PI:** Nikolaos J. Skubas, MD, DSc
   **Protocol #:** 1408015402

   This pilot study aligns with the strategic plan to reduce allogeneic blood product use and decrease unnecessary laboratory costs, and to improve the appropriate use of transfusion guidelines and reduce unnecessary RBC transfusions. Further, this study will help to answer whether RiaSTAP is a more effective product to treat bleeding than cryoprecipitate. This study involves the use of a safer therapeutic, fibrinogen concentrate, to improve patient care and patient safety. This product does not require the time-intensive process of thawing; therefore, delays in patient care can be avoided by having the product readily available in the OR.
7. USE OF ROTATIONAL THROMBOELASTOMETRY (ROTEM) TO CHARACTERIZE COAGULATION ABNORMALITIES IN BURN PATIENTS: A PROSPECTIVE PILOT STUDY
   PI: Christine Lennon, MD
   Protocol #: 1404014977

   Specific aims of the proposed pilot study are to use bedside blood analysis with ROTEM in severe burn patients to provide preliminary information on the nature of coagulation abnormalities and compare subject ROTEM coagulation profiles within 24 hours of burn injury (day 1) and on days 2, 3, 5, 7, 14 and 21 after burn injury.

8. PROMISE: PROSPECTIVE, RANDOMIZED STUDY OF MULTICOLUMN IMPLANTABLE LEAD STIMULATION FOR PREDOMINANT LOW BACK PAIN
   PI: Neel Mehta, MD
   Protocol #: 1209013020

   A prospective, multi-center, randomized, open-label, parallel-group design to compare Medtronic neurostimulation systems to optimal medical management in treating patients with chronic pain.

9. A PHASE III CASE SERIES CLINICAL STUDY OF THE REVERSAL OF THE ANTICOAGULANT EFFECTS OF DABIGATRAN BY INTRAVENOUS ADMINISTRATION OF 5.0G IDARUCIZUMAN (BI 655075) IN PATIENTS TREATED WITH DABIGATRAN ETEXILATE WHO HAVE UNCONTROLLED BLEEDING OR REQUIRE EMERGENCY SURGERY OR PROCEDURES. RE-VERSE-AD (A STUDY OF THE RE-VERSAL EFFECTS OF IDARUCIZUMAB ON ACTIVE DABIGATRAN) TRIAL
   PI: James A. Osorio, MD
   Protocol #: 1403014899

   Open-label, multicenter, multinational study, with a single treatment arm, idarucizumab. Primary objective is to demonstrate reversal of the anticoagulant in patients who have been treated with dabigatran etexilate who either have uncontrolled bleeding requiring medical intervention, or who need emergency surgery or a procedure for a condition other than bleeding where therapeutic anticoagulation might increase the risk of intra- and post-operative bleeding.

10. THE UTILIZATION OF MOBILE PHONE TECHNOLOGY TO QUANTITATIVELY ASSESS FUNCTIONAL OUTCOMES OF CHRONIC PAIN PATIENTS – A FEASIBILITY STUDY
    PI: Lisa R. Witkin, MD
    Protocol #: 1409015460

    Assessing the feasibility and value of using smart phone applications to collect objective, quantitative functional data from patients under active treatment for chronic pain.

11. BRAIN DYNAMICS IN DIFFERENT STAGES OF AROUSAL AND ANESTHESIA
    PI: Kane O. Pryor, MD
    Protocol #: 1106011763

    There are two fundamentally different ways in which the level of consciousness can be temporarily altered: sleep and general anesthesia. The main aim of this proposal is to compare and contrast the changes in brain dynamics that characterize transitions to and from sleep and anesthesia. Among the questions that we will focus our analysis on are the following: 1) Are changes in brain dynamics abrupt or gradual? 2) Can changes in the level of consciousness be understood in terms of changes to the topology of functional brain networks (see statistics section below)? 3) Is there hysteresis in the transitions to and from anesthesia and sleep?
SURVEY STUDIES

1. A DESCRIPTIVE STUDY OF PEDIATRIC PAIN MANAGEMENT RESOURCES IN NEW YORK STATE AMONG CHILDREN’S AND MIXED-PRACTICE HOSPITALS IN LOWER AND HIGHER SOCIOECONOMIC AREAS
   PI: Franklin Chiao, MD
   Protocol #: 1410015621
   This is a survey study to examine a new medical issue related to pediatric pain management. This study will address how many hospitals have a pediatric pain management service in New York State, and the differences in the presence of pain management services within the pediatric population, between mixed practice and children’s hospitals, and between hospitals in lower and higher socioeconomic areas.

2. GLOBAL HEALTH INITIATIVES IN ANESTHESIOLOGY RESIDENCY PROGRAMS
   PI: Gunisha Kaur, MD
   The purpose of this study is to assess current global health education and international electives in anesthesiology residency programs via survey method.

3. A SURVEY OF INTRAVENOUS (IV) REMIFENTANIL USE FOR LABOR ANALGESIA AT ACADEMIC CENTERS IN THE UNITED STATES (US)
   PI: Jaime Aaronson, MD
   This is a survey being distributed to directors of obstetrical anesthesiology across the United States regarding the use of IV remifentanil for labor analgesia at academic centers.

REGISTRY STUDIES

1. RELIEF: A GLOBAL REGISTRY TO EVALUATE LONG-TERM EFFECTIVENESS OF NEUROSTIMULATION THERAPY FOR PAIN
   PI: Shakil Ahmed, MBBS
   Protocol #: 1309014281
   A prospective, multi-center, global registry of Boston Scientific Corporation neurostimulation systems for interventions and their frequency and the treatment of pain.

2. ANESTHESIOLOGY EDUCATION RESEARCH REGISTRY
   PI: Kane O. Pryor, MD
   Protocol #: 1403014915
   To design and establish a retrospective and prospective data registry of anesthesiology residents’ performance on a variety of examination metrics. All data will be deidentified. The aim of this registry is to assess the utility of various metrics in predicting resident performance outcomes. These metrics will include but not be limited to: clinical rotation performance assessments, United States Medical Licensing Examination (USMLE) scores, and Anesthesia Knowledge Test (AKT) scores. Performance outcomes will include but not be limited to scores on the In-Training Examination (ITE) and American Board of Anesthesiology (ABA) board examination.
3. CHRONIC PAIN REGISTRY

PI: Lisa R. Witkin, MD
Protocol #: 90401349

The purpose of this study is to establish a retrospective chronic pain patient data registry for patients with chronic pain, and to use the patient data registry and Practice Based Evidence (PBE), and Clinical Practice Improvement (CPI) methodology to identify specific pain management interventions that are most effective for specific patient types with chronic pain.

3. PEDIATRIC CRANIOFACIAL SURGERY PERIOPERATIVE REGISTRY (PCSPR)

PI: Franklin Chiao, MD
Protocol #: 1504016130

This is a multi-center registry to capture information relating to the perioperative course and management of children undergoing craniofacial reconstructive surgery. The aggregate multi-institutional data set will be used for benchmarking for national quality improvement efforts.

RETROSPECTIVE STUDIES

1. A RETROSPECTIVE ANALYSIS TO DETERMINE THE ASSOCIATION OF INTRAOPERATIVE FIBTEM VALUES WITH POSTOPERATIVE BLEEDING, COAGULATION LABORATORY VALUES, AND BLOOD PRODUCT ADMINISTRATION IN CARDIAC SURGICAL PATIENTS

PI: Natalia Ivascu, MD
Protocol #: 1312014647

This study is a retrospective observational analysis to demonstrate a potential relationship between thromboelastogram results and blood product requirement, postoperative bleeding frequency thus potentially paving the way for future prospective studies and guiding future endeavors for transfusion algorithm development.

2. EARLY VS LATE STROKE AFTER CARDIAC SURGERY: VARIABILITY IN LOCATION AND OUTCOME

PI: Natalia Ivascu, MD
Protocol #: 1504016129

This is a retrospective chart review looking at cardiac surgery patients and the association between timing of stroke onset and anatomic location of CVA.

3. A PROSPECTIVE, RANDOMIZED, DOUBLE-BLINDED STUDY TO EVALUATE THE EFFICACY OF INTRAVENOUS DEXAMETHASONE FOR NAUSEA PROPHYLAXIS PRIOR TO DURAMORPH AND BUPIVACAINE SPINAL ANESTHESIA FOR SCHEDULED CESAREAN SECTION

PI: Klaus Kjaer, MD, MBBA
Protocol #: 1207012632

This is a study to analyze if dexamethasone is given intravenously before duramorph in a spinal anesthetic, would it reduce the incidence of nausea and vomiting. Patients who present for scheduled (non-emergent) cesarean section will be given either intravenous dexamethasone or placebo prior to receiving a duramorph containing spinal anesthetic. We will then compare the incidence of nausea and vomiting and the use of rescue anti-nausea medications in both groups.

4. RETROSPECTIVE ANALYSIS ON THE EFFECT OF INTRAOPERATIVE DEXMEDETOMIDINE ADMINISTRATION PATTERN ON INCIDENCE OF POST-OPERATIVE COGNITIVE DYSFUNCTION

PI: Cynthia A. Lien, MD
Protocol #: 1510016708

This project primarily seeks to determine whether dexmedetomidine administration during elective supratentorial craniotomies impacts the incidence of post-operative delirium, as compared to no administration of dexmedetomidine. Secondarily, we will measure 1. Whether the pattern of dexmedetomidine administration impacts post-operative delirium rates within 72 hours of surgery and 2. Whether intraoperative dexmedetomidine use was associated with other indicators of morbidity including the length of ICU stay and hemodynamic/respiratory status.
5. RETROSPECTIVE ANALYSIS ON THE IMPACT OF QUANTITATIVE MONITORING ON DOSING AND ANTAGONISM OF RESIDUAL NEUROMUSCULAR BLOCK
   PI: Cynthia A. Lien, MD
   Protocol #: 14120165765
   This is a retrospective study to determine if use of the TOF-Watch (a monitor of depth of paralysis that quantifies the response) (1) changes clinicians' dosing of neuromuscular blocking agents, (2) increases the time interval between dosing of medications to reverse muscle paralysis and emergence from anesthesia, or (3) guarantees that patient muscle strength is adequately recovered before the patient is discharged to the post-anesthesia recovery unit (PACU).

6. REMIFENTANIL-INDUCED HYPERALGESIA AND ADJUNCTIVE PREVENTION: A RETROSPECTIVE ANALYSIS
   PI: Kane O. Pryor, MD
   Protocol #: 1106011726
   A retrospective analysis to gain a better understanding of the post-operative pain requirements of patients who received Remifentanil for neurological surgery.

COMPLETED STUDIES NOW IN DATA ANALYSIS

1. THE EFFECT OF INTRAVENOUS ANESTHETICS ON FEAR LEARNING AND MEMORY
   PI: Kane O. Pryor, MD
   Protocol #: 0710009434
   130 healthy adult volunteers were given a very low dose of an anesthetic drug intravenously. While they were receiving the drug, subjects performed a series of memory tests and a fear conditioning experiment, which are set up like a very simple computer game. To create the fear response, subjects occasionally received a mildly uncomfortable shock to their arm. The subject is able to determine the highest level of shock that they will receive. This study was conducted to learn exactly how the drugs affect the way people process fear and emotion. This knowledge might one day be used in the treatment of psychiatric disorders.

2. NEUROIMAGING THE EFFECT OF INTRAVENOUS ANESTHETICS ON AMYGDALA-DEPENDENT MEMORY PROCESSES
   PI: Kane O. Pryor, MD
   Protocol #: 0710008933
   An fMRI study to establish whether intravenous anesthetics cause a common change in amygdala and hippocampal function during memory processes, or whether the effects on these brain structures are dissociable.

3. RATE OF GENERAL ANESTHESIA USE FOR CESAREAN DELIVERY AMONG ANESTHESIOLOGISTS WITH AND WITHOUT FELLOWSHIP TRAINING IN OBSTETRIC ANESTHESIA
   PI: Klaus Kjaer, MD, MBBA
   Protocol #: 1410015567
   This is a retrospective chart review to look at all cesarean cases between 2009-14, restricted to those occurring during non-routine operating hours, to consider the problem that general anesthesia presents a higher risk for morbidity/mortality compared to neuraxial anesthesia during cesarean section deliveries (10-fold higher risk for pregnant patients compared to non-pregnant patients), but it is nevertheless sometimes used, perhaps for poor reasons. The hypothesis is that ob-fellowship trained anesthesiologists are better trained to make this decision and that non-fellowship trained attendings over-use general anesthesia.
1. ANESTHESIA QUALITY INSTITUTE
   PI: Peter M. Fleischut, MD
   Protocol #: 1208012821

   The Anesthesia Quality Institute (AQI), established by the American Society of Anesthesiologists, is home of the National Anesthesia Clinical Outcomes Registry (NACOR). NACOR is a registry of anesthesiology data that includes billing/administrative data, quality/perioperative events data, anesthesia information management system (AIMS) data, and electronic medical record (EMR) data. The Department of Anesthesiology at Weill Cornell Medical College (WCMC) Participated in this registry and produced two peer-reviewed publications utilizing these data.

2. DATA REGISTRY
   PI: Peter M. Fleischut, MD
   Protocol #: 1208012815

   To establish a retrospective and prospective pre-, intra-, and postoperative anesthesiology data registry for patients who have received anesthesia services at New York-Presbyterian Hospital/Weill Cornell Medical College since 2001.

3. OUTCOMES RESEARCH UTILIZING THE HCUP STATE INPATIENT SAMPLE DATABASE
   PI: Peter M. Fleischut, MD
   Protocol #: 1308014181

   Outcomes research studies are performed using existing Health Cost and Utilization Project (HCUP) State Inpatient Sample Databases, an existing publicly available de-identified database. This Protocol has resulted in the creation of collaborations with Anesthesiology, Thoracic, and General Surgery resulting in three publications in top-tier Thoracic surgery journals and three additional studies in the submission phase.

4. MULTICENTER PERIOPERATIVE OUTCOMES GROUP (MPOG) AND ANESTHESIOLOGY PERFORMANCE IMPROVEMENT AND REPORTING EXCHANGE (ASPIRE) PERFORMANCE SITE
   PI: Hugh C. Hemmings, MD, PhD, FRCA
   Protocol #: 1208012817

   The Multicenter Perioperative Outcomes Group (MPOG) is a consortium of anesthesiology departments of academic medical centers with electronic perioperative information systems. The purpose of MPOG is to allow multi-institutional collaboration for the purpose of accelerating outcomes research in perioperative medicine.
UPCOMING STUDIES…

1. A RANDOMIZED CONTROLLED TRIAL OF REGIONAL VERSUS GENERAL ANESTHESIA FOR PROMOTING INDEPENDENCE AFTER HIP FRACTURE (REGAIN)
   **PI:** Tiffany Tedore, MD
   Protocol #: 1511016763
   Randomized, multicenter, active comparator study of two alternative standard care approaches to anesthesia (spinal versus regional) for hip fracture on recovery of ambulation at approximately 60 days.

2. VALIDITY OF PRISM-5-OP INTERVIEWS FOR USE IN STUDIES OF PRESCRIPTION OPIOIDS
   **PI:** Neel Mehta, MD
   Protocol #: 1410016708
   Determining the validity and reliability of the Psychiatric Research Interview for Substance and Mental Disorders, DSM-5 version (PRISM-5), and the feasibility of using PRISM-5 to get a better understanding of patients’ experiences with opioid pain medications.

3. TWO DOSE NEURAXIAL MORPHINE FOR PREVENTION OF POSTDURAL PUNCTURE HEADACHE (PDPH)
   **PI:** Jaime Aaronson, MD
   Protocol #: 1509016603
   This study aims to determine the efficacy of two doses of neuraxial (either epidural or intrathecal) preservative-free morphine (PFM) to prevent headache after ADP in parturients.

4. RETROSPECTIVE IDENTIFICATION OF PREDICTORS OF POSTOPERATIVE RESPIRATORY OUTCOMES IN A LARGE ACADEMIC INSTITUTION, 2010-2015
   **PI:** Peter M. Fleischut, MD
   Protocol #: 1512016802
   Building upon previous research efforts, the proposed retrospective case-control study is designed to identify demographic characteristics, procedure types, anesthesia medications, and PACU medications associated with post-operative respiratory complications.

5. SPINAL CHORD STIMULATION EDUCATION DURING PAIN FELLOWSHIP: UNMET TRAINING NEEDS AND FACTORS THAT IMPACT FUTURE PRACTICE
   **PI:** Neel Mehta, MD
   Protocol #: 1507016431
   Examining how current ACGME accredited pain fellowships are educating their fellows about spinal cord stimulators (SCS) in order to identify unmet training needs for teaching about SCS, assess SCS training practices in current and past fellows, and measure opinions about the role of industries in SCS training.
6. ANESTHESIA RELATED FACTORS AFFECTING PARENTAL SATISFACTION IN PEDIATRIC AMBULATORY SURGERY

PI: Aarti Sharma, M, MBBS
Protocol #: 1512016819

This is a survey questionnaire to assess parent's perception of anesthesia care, as young children may not be able to effectively express their concerns and parent expectations may be variable from one institution to another.

7. EPIDEMIOLOGY AND IMPACT OF MEDICATION ERRORS IN THE PERIOPERATIVE SETTING

PI: Zachary A. Turnbull, MD
Protocol #: 1507016373

Perioperative medication errors occur not infrequently, and may result in meaningful incremental healthcare resource consumption and patient harm. This study is looking to investigate the anesthesia medication error rates and consequences at large academic hospitals, where providers-in-training are concentrated.

8. MYBEHAVIOR CBP: MOBILE PERSUASION BY ADAPTING TO USER BEHAVIOR AND PREFERENCES FOR CHRONIC PAIN MANAGEMENT

PI: Lisa R. Witkin, MD
Protocol #: 1511016768

Investigating the effectiveness of a mobile phone application, MyBehavior, in promoting exercise and activity for people living with and managing chronic back pain.

9. EVALUATION OF A NEW MOBILE TECHNOLOGY TO ASSESS POST-OPERATIVE PAIN

PI: Peter M. Fleischut, MD
Protocol #: 1405015155

A preliminary pilot of a real-time innovative mobile application has been developed and added to current postsurgical pain management processes in a single PACU location since January 2014. This system does not affect the current standard of care, but instead is integrated seamlessly into current care. The system incorporates a real-time alert notification to the acute pain service providers when a patient has an escalating postsurgical pain score, allowing these providers to respond more quickly to a patient in need of immediate attention. We hypothesize that implementation of this innovative technology will reduce pain scores of >7 for post-surgical patients. To test this hypothesis we intend to conduct an analysis of pre-/post intervention data. Additionally, we intend to analyze multiple time points including, time to acknowledgement, time to treat the patient, and the time a patient is in severe pain.
Thank you for joining us!