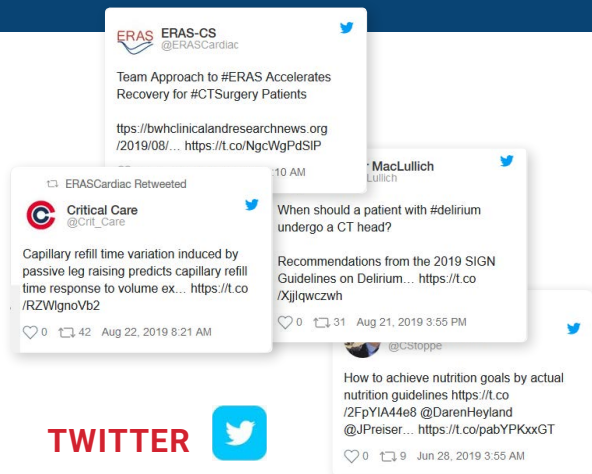


VIDEO DISCUSSION

ERAS[®]-Cardiac at STS

Daniel Engelman of Baystate Medical Center in Springfield, Massachusetts, USA, moderates a discussion on enhanced recovery after surgery (ERAS) for cardiac surgery. Filmed at the 2019 STS Annual Meeting in San Diego, California, the full interview is archived at www.jtcvs.org

[>> WATCH VIDEO](#)



TWITTER



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Follow us and join the conversation at ERAScardiac.org

ERAS IN ACTION

PRE-OP ANEMIA MANAGEMENT AND HEMOGLOBIN OPTIMIZATION

Anemia in cardiac surgery is associated with poor outcomes.¹ Perioperative blood transfusions have increased risks of infection, thrombotic events, and mortality.^{2,3} Perioperative blood management programs have been successful in reducing blood utilization and healthcare costs.⁴ Various circumstances that are unique to cardiac surgery can make it difficult to establish a perfect process for anemia management—differing

degrees of patient urgency, volume of surgeon workload, and emergent interruptions can result in varying time-durations to surgery. For our process, we attempted to find the earliest and most consistent point of contact within the patient pathway in order to maximize identification and length of available treatment time.

Assessment at 'Decision-to-Treat':
At our facility, the Cardiovascular Surgery Referral Office is the first point-of-
[>> continued on page 2](#)

MORE INSIDE

- **Anemia:** Patient Blood Management
- **Nursing:** ERAS Programs for Cardiac Surgery and Nurse Anesthetist Education
- **Complications:** Hospital Acquired Pressure Injury in Cardiac Surgery Patients
- Meetings Calendar
- Get Involved

IN THE NEWS

NEWS LINKS TO ERASCARDIAC.ORG

August 8, 2019

WakeMed Health & Hospitals prepares patients before heart surgery to improve outcomes.

June 11, 2019

New Guidelines Provide First-Ever Blueprint for Enhancing Recovery After Cardiac Surgery

June 9, 2019

Television Interview: WGBY57 Connecting Point : "ERAS Cardiac Treatment Prevents Posts-Op Deaths"

PRE-OP ANEMIA MANAGEMENT AND HEMOGLOBIN OPTIMIZATION

Rebecca Rock, RN, Program Coordinator, Patient Blood Management Program

Alexander J. Gregory, MD FRCPC, Enhanced Recovery After Cardiac Surgery, Calgary Team Leader

Douglas Seal, MD FRCPC, Medical Director, Cardiac Surgery Patient Blood Management Program

Alberta Health Services & Libin Cardiovascular Institute of Alberta, Calgary, Alberta, Canada

>> continued from page 1

contact for patients when they enter the surgical pathway. Nurse navigators within the office are responsible for assigning the

or untreated iron deficiency. The PBM nurse also consults and collaborates with indicated medical sub-specialties (e.g. nephrology or hematology) and

perioperative course of the patients is then evaluated through a quality improvement initiative, which includes audit, outcome measurements, and analysis of cost-effectiveness.

WE ATTEMPTED TO FIND THE EARLIEST AND MOST CONSISTENT POINT OF CONTACT WITHIN THE PATIENT PATHWAY IN ORDER TO MAXIMIZE IDENTIFICATION AND LENGTH OF AVAILABLE TREATMENT TIME.

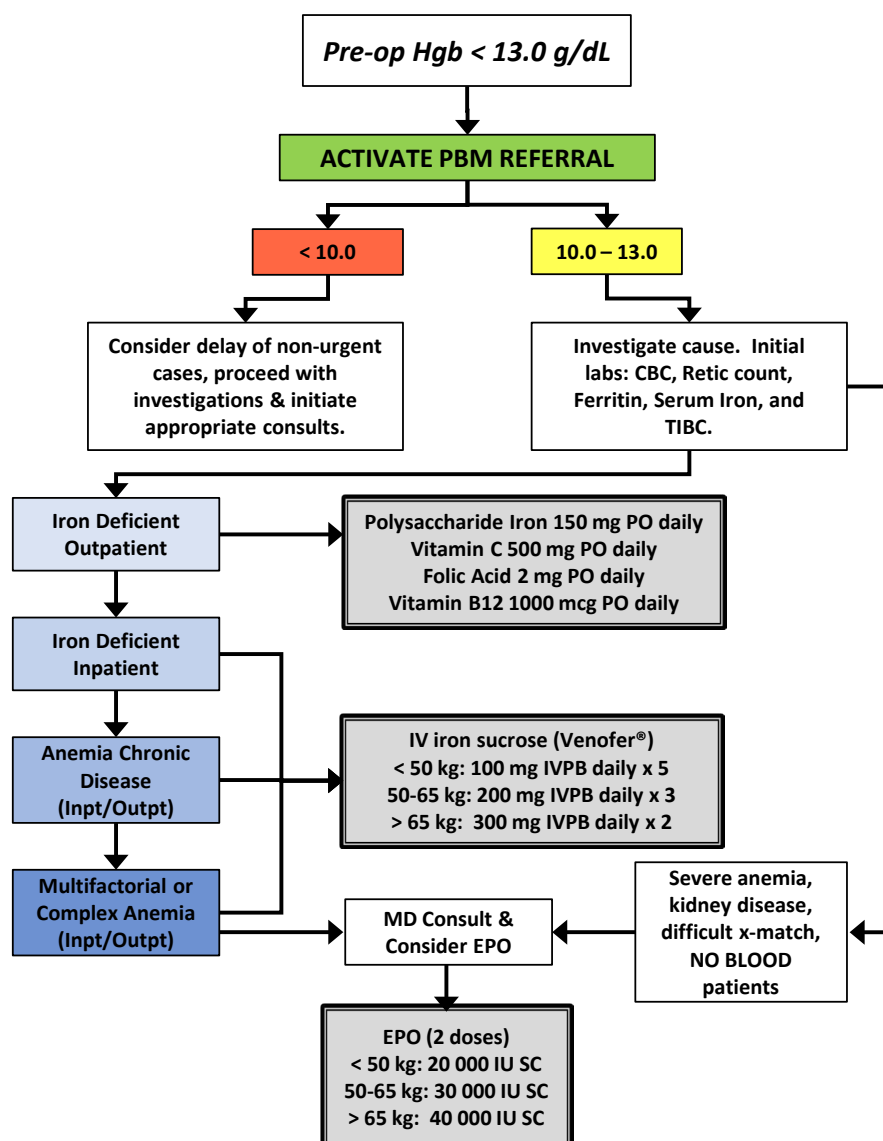
patient to the surgeon and coordinating the process. The Nurse navigators are the ideal personnel to perform quick identification of “patients-at-risk” and trigger the Anemia Management referral, even before the patient was assigned to a surgeon.

Referral at Hemoglobin ‘trigger’: Nurse navigators screen charts for most recent lab results. Regardless of gender, patients with Hemoglobin concentration of less than 13.0 g/dL are referred to the Patient Blood Management (PBM) Program nurse. Additional at-risk criteria include patients who decline transfusion in their care.

‘Algorithmic’ approach to treatment: The PBM nurse receives the patient referrals and utilizing a ‘toolkit’ of resources, they perform more detailed anemia assessment. The treatment care plan is developed based on cause/degree of anemia and patient location/status. The use of iron therapy (PO and IV) and erythropoietin-stimulating agents (ESA) are shown to reduce the risk of RBC transfusion in patients undergoing cardiac surgery.^{5,6,7} For example, urgent in-patients awaiting surgery are triaged to receive intravenous (IV) iron or ESAs, whereas if time allows, treatment for non or semi-urgent patients waiting at home may include oral supplementation only. We exclude certain patients from consideration for ESA therapy, such as uncontrolled hypertension, excessive thrombosis risk, active malignancy,

maintains communication with the cardiothoracic surgeon’s office. Our PBM workflow is summarized in Figure 1. The

1. Miceli A. J Cardiothorac Surg 2014; 9:137 [doi: 10.1186/1749-8090-9-137].
2. Johnson DJ. Anesthesiology 2016; 124:387–395 [doi: 10.1097/ALN.0000000000000945].
3. Vlot E. BMC Anesthes 2019; 19:65 [doi: 10.1186/s12871-019-0738-2].
4. Frank SM. Anesthesiology 2017 Nov; 127(5):754-764 [doi: 10.1097/ALN.0000000000001851].
5. Munoz M. Anaesthesia 2017; 72:233-47 [doi: 10.1111/anae.13773].
6. Cho B. Anesth Analg 2019; 128(5):981-992 [doi: 10.1213/ANE.0000000000004005].
7. Kei T. Can J Anaesth 2019; Jun;66(6):716-731 [doi: 10.1007/s12630-019-01351-6].



COMPLICATIONS:**HOSPITAL ACQUIRED PRESSURE INJURY IN CARDIAC SURGERY PATIENTS**

Charles M. Geller, MD, FACS, FACC, FACP, Upland, PA

Hospital acquired pressure injury (HAPI) is a common and costly complication during hospitalization. (Image 1) Cardiac surgery patients are at particular risk with a reported incidence as high as 29.5%.⁽¹⁾ Patients who develop HAPI suffer from associated consequences including pain, infection,

important factors that render patients prone to HAPI development.

Multiple studies have examined intrinsic and extrinsic factors associated with HAPI evolution. Commonly cited risk factors include age, nutritional status, weight, acuity of illness, immobility, temperature, mois-

**BECAUSE OF THE BURDEN HAPI PLAYS
ON BOTH PATIENTS AND HEALTHCARE
ORGANIZATIONS, PREVENTION IS CRITICAL.**

disability, and emotional distress. Additionally, the direct costs related to treating HAPI are significant including increased length of stay.

The Centers for Medicare & Medicaid Services has included stage III and IV HAPI as “never events” which adversely impact reimbursement for the treating facility. Because of the burden HAPI plays on both patients and healthcare organizations, prevention is critical. The first step in such prevention is the identification of the most

important factors that render patients prone to HAPI development. Multiple studies have examined intrinsic and extrinsic factors associated with HAPI evolution. Commonly cited risk factors include age, nutritional status, weight, acuity of illness, immobility, temperature, moisture, intraoperative hemodynamic status, length of procedure, proper use of positioning devices, and comorbid conditions including diabetes mellitus and peripheral vascular disease.⁽²⁾ The main physical risk factors are pressure mediated by compressive and shearing forces as well as tissue tolerance. Risk assessment is the first step for prevention, however, the most widely used Braden scale has low predictive validity and other scales investigated within a cardiac surgery population were not satisfactory.⁽³⁾ The relatively high incidence of

HAPI among cardiac surgery patients suggests that typical prevention methods are insufficient for this population.

A limited number of studies have investigated the utilization of prophylactic placement of silicone foam dressings to prevent HAPI in cardiac surgery patients. (Image 2) These dressings allow for the redistribution of pressure over a larger area, translation of shear forces beyond the immediate region, reduction of friction, and maintenance of a balanced microclimate. In conjunction with a comprehensive skin care program, this simple and low cost intervention has been associated with a marked reduction in the incidence of HAPI. Application of silicone foam dressings can result in significant cost savings, length of stay reduction, plus improved patient, family and staff satisfaction.

1. Feuchtinger J, Halfens RJ, Dassen T. Pressure ulcer risk factors in cardiac surgery: a review of the research literature. *Heart Lung*. 2005;34:375-385.

2. Rao A, Preston A, Strauss R, Stamm R, Zalman, D. Risk factors associated with pressure ulcer formation in critically ill cardiac surgery patients. *J Wound Ostomy Continence Nurs*. 2016;43(3):242-247.

3. Chello C, Lusini M, Schiliro D, Greco SM, Barbato R, Nenna A. Pressure Ulcers in cardiac surgery: few clinical studies, difficult risk assessment, and profound clinical implications. *Int Wound J*. 2019;16:9-12.

NURSING:**ERAS PROGRAMS FOR CARDIAC SURGERY AND NURSE ANESTHETIST EDUCATION**

Kendall MacDonald BSN, RN, SRNA, CCRN, University of Pennsylvania DNP-NA 2021

Multidisciplinary involvement is the hallmark of successful ERAS programs. Integrative participation in educating Student Registered Nurse Anesthetists (SRNAs) allows for better understanding of each part of the cardiac surgery ERAS process, ultimately producing a more well-rounded clinician upon program completion. Pennsylvania Hospital's Cardiac Anesthesia Department, in conjunction with the Cardiac Surgery Team, has embraced this thinking and provides a novel experience for anesthesia trainees involved in care of the cardiac surgery patient.

Certified Registered Nurse Anesthetists (CRNAs) are a vital part of the team providing care to the cardiac surgery patient in the operating room. Many cardiac programs throughout the United States employ CRNAs in a care team model with physician

anesthesiologists to deliver anesthetic care. Education on ERAS for cardiac surgery should start during training. “Beginning Jan. 1, 2022, all students matriculating into an accredited program must be enrolled in a doctoral program” (AANA, 2019). With the change from a two-year master's anesthesia education program to a three-year doctoral program, opportunities for further specialized experiences like this can be cultivated. Allowing SRNAs to train in facilities where cardiac ERAS programs are implemented can help to disseminate cutting edge, evidenced based practice to a future generation of CRNAs interested in cardiac anesthesia.

Exposure to ERAS in the cardiac surgery population during training can make the transition to practice easier for the new

CRNA than for those trained in institutions using traditional methods of cardiac anesthetic management. Early buy-in to ERAS techniques during the education process can help shape the way individuals practice for the entirety of their career. Accredited CRNA programs should seek out partnership opportunities with cardiac centers of excellence and include the fundamentals of ERAS for cardiac surgery in their education curriculum for cardiac anesthesia.

Yang, L., Kaye, A. D., Venakatesh, A. G., Green, M. S., Asgarian, C. D., Luedi, M. M., & Liu, H. (2017). Enhanced recovery after cardiac surgery: An update on clinical implications. *International anesthesiology clinics*, 55(4), 148-162.

(2019, August 8). CRNA Fact Sheet. Retrieved from <https://www.aana.com/membership/become-a-crna/crna-fact-sheet>



>> VIDEO

Filmed at the 2019 STS Annual Meeting in San Diego, California, Daniel Engelman of Baystate Medical Center in Springfield, Massachusetts, USA, moderates a discussion on enhanced recovery after surgery (ERAS) for cardiac surgery.

>> [Watch the full interview CTSNet](#)



Some of the Executive Board Members at AATS in Toronto Spring 2019

UPCOMING MEETINGS:

Sept 26-28th, Baltimore

[16th Annual STS Multidisciplinary Cardiovascular and Thoracic Critical Care Conference, MD](#)

Critical Care and ERAS focused

Oct 3-5th, Lisbon, Portugal

[33rd European Association for Cardio-thoracic Surgery \(EACTS\)](#)

ERAS Cardiac Session

Oct 19-23rd, Orlando, Florida

[American Society of Anesthesiologists \(ASA\)](#)

ERAS Cardiac Session

November 15-17, Baltimore, MD

[National Architecture of High Value Health Care Conference](#)

ERAS workshop

November 14-16, New Orleans, LA

[3rd Annual ERAS USA Congress](#)

ERAS Cardiac participation

Jan 25-28th, New Orleans, LA

[56th STS Annual Meeting](#)

ERAS Cardiac sessions

April 18-22nd, West Palm Beach, Florida

[42nd Annual Meeting Society of Cardiovascular Anesthesiologists \(SCA\)](#)

ERAS Cardiac Workshop and Session

April 25-28, NY, NY

[100th AATS Annual Meeting](#)

ERAS Cardiac sessions

RECENT PRESENTATIONS:

Review our presentations on our website

>> erascardiac.org

REVIEW

CTSNet: "Enhanced Recovery After Cardiac Surgery Part II: Intraoperative and Postoperative."

Daniel Engelman MD, Rakesh Arora MD, Michael Grant MD, Kevin Lobdell MD, and Louis Perrault MD

June 9, 2019

REVIEW

CTSNet: "Enhanced Recovery After Cardiac Surgery Part I: Background and Preoperative Recommendations."

Daniel Engelman MD, Rakesh Arora MD, Edward Boyle MD, and Kevin Lobdell MD.

May 29, 2019

REVIEW

CTSNet: ERAS Guidelines for Perioperative Care in Cardiac Surgery
Daniel Engelman MD, Louis Perrault MD, Marc Gerdisch MD, Michael Grant MD, and Judson Williams MD.

July 24, 2019

OUTCOMES

Evidenced or Entrenched

Kevin Lobdell

December 12, 2018

OUTCOMES

Reducing ICU Hospital Re-admissions after Cardiac Surgery

Dan Engelman

December 10, 2018

REVIEW

Fast Track Cardiac Surgery Revisited and Enhanced

Richard Engelman

December 12, 2018

IMPLEMENTATION

Implementing an ERACS Program

Seenu Reddy

December 12, 2018

TARGETS

Modern Chest Tube Strategies to Reduce Complications and Costs

Louis Perrault

December 12, 2018

TARGETS

Options for Sternal Closure and Prevention of Wound Infection

Marc Gerdisch

December 12, 2018

TARGETS

Multimodal Approaches to Reduce Postoperative AKI

John Kellum

December 12, 2018

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Montreal Heart, Montreal Quebec, Canada

Jill Engel, RN
Cardiac Nursing
Duke University Medical Center
Durham, North Carolina, USA

Nick Fletcher, MBBS, FRCA, FFICM
Cardiac Anesthesia
St. Georges University of London
London SW17 ORE, UK

Bram Geller, MD
Critical Care, Cardiology
Penn Medicine Clinical Care
Philadelphia, PA, USA

Kamrouz Ghadimi, MD
Cardiac Anesthesia
Duke University School of Medicine
Durham, North Carolina, USA

Hilary P. Grocott, MD, FRCPC, FASE
Cardiac Anesthesia
University of Manitoba, Winnipeg, Canada

Jacob T Gutsche, MD, FASE, FCCM
Cardiovascular Critical Care
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Philadelphia, PA, USA

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Lausanne, Switzerland

Gudrun Kunst, MD PhD, FRCA, FFICM
Cardiac Anesthesia
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Cardiac Anesthesia
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OUR MISSION

The mission of the ERAS® Cardiac Society is to develop protocols to improve recovery through research, education, audit and implementation of evidence-based practice.

Who we are

ERAS® stands for Enhanced Recovery after Surgery, and we improve surgical care and recovery through research, education, audit, and implementation of evidence-based practices. In early 2017, a group of cardiac surgeons, anesthesiologists, and intensivists first met to establish the Enhanced Recovery After Cardiac Surgery (ERACS®) Society to achieve these goals for patients undergoing heart surgery. This initial organization's work led to the publication of the first-ever expert consensus recommendations for a cardiac surgical enhanced recovery protocol. We have since joined with the ERAS® Society and have established an organization of multinational experts representing all aspects of healthcare delivery. ERAS® Cardiac is a non-profit organization with the mission to develop evidence-based expert consensus statements promoting best practice recovery practices. The goal is to provide hospitals with better guidance for developing local protocols that are part of a continuous quality improvement process for better patient care, and reduce postoperative complications and costs after heart surgery.

ERAS® Society

The ERAS® Society is an international organization with enhanced recovery guidelines for several surgical sub-specialties. Beginning as the ERAS® Study Group in 2001, team leaders Professor Ken Fearon (University of Edinburgh) and Professor Olle Ljungqvist (Karolinska Institutet) spearheaded the developments made in multimodal surgical care. The ERAS® Study Group soon discovered that there were a variety of local traditions in practice, as well as an inconsistent application of evidence-based best practices. This prompted the group to examine the process of change from tradition to best-practice. Since its inception, the ERAS® Society has expanded to include several subspecialties, emphasized the benefits of standardized best-practices across the continuum of the perioperative period, highlighted the importance of data-driven self-evaluation, and promoted the improvement of patient care.

Our Organizational Structure

Our ERAS® Cardiac Society is made up of experts from around the world, including participation from all members of the healthcare team. Our members strive to implement enhanced recovery principals at their local institutions while advancing improved patient care internationally through collaboration, education, and dissemination of up-to-date knowledge regarding optimal perioperative care. Our organization is divided into an Executive Board, Advisory Board, and a pool of Subject Matter Experts.



Corporate financial support will be used to promote the mission of the ERAS® Cardiac Society. We are committed to standardizing best practice surrounding the preoperative and perioperative care of cardiac surgical patients through expert consensus, review of the literature and open communication. This unrestricted support does not represent the ERAS® Cardiac Society's support or agreement to promote any pharmaceutical, device, or technology related to the sponsors.

For more information and to become a sponsor please contact: V. Seenu Reddy, MD, MBA, Director of Sponsor Relations, ERAS® Cardiac Society
email: vsreddymd@gmail.com

FOR MORE INFORMATION:



To learn more about our organization, including our board members and upcoming meetings:

WWW.ERASCARDIAC.ORG



Cheryl Crisafi MSN, RN, CNL Cherylerasc@gmail.com
Nurse Coordinator ERAS® Cardiac Society

Donna Frankel donnaerasc@gmail.com
Office Manager ERAS® Cardiac Society

V. Seenu Reddy, MD, MBA vsreddymd@gmail.com
Director of Sponsor Relations ERAS® Cardiac Society