

The Society of Thoracic Surgeons

55TH ANNUAL MEETING

Program, Registration,
and Housing

Register
today at [sts.org/
annualmeeting](http://sts.org/annualmeeting)



**San Diego Convention Center
San Diego, California**

January 27-29, 2019



**The Society
of Thoracic
Surgeons**



YOU'RE INVITED

Please join me and more than 2,100 of our colleagues from around the world as we gather January 27–29 in San Diego, California, for the STS 55th Annual Meeting.

The first time the Society held its annual meeting in San Diego was 1969; most recently, we've been meeting in California's "beach city" every 4 years because attendees really love San Diego's spectacular coastline, sophisticated dining options, and near-perfect weather.

You'll have ample time to explore the city before and after the meeting because we've rearranged the schedule to provide you with an array of scientific abstract presentations, distinguished lectures, debates, technical videos, and hands-on sessions over a 3-day period, rather than the previous 4 days.

As part of the new schedule, a standalone Coding Workshop will be held Friday and Saturday, and Tech-Con will be held Saturday. The Annual Meeting will kick off on Sunday morning with STS University followed by an opening plenary session, featuring the J. Maxwell Chamberlain Memorial Papers and the Thomas B. Ferguson Lecture by Laurie H. Glimcher, MD, President and CEO of the Dana-Farber Cancer Institute in Boston. Following the lecture, you can attend the Opening Reception in the Exhibit Hall and my President's Reception at the historic Hotel del Coronado.

You won't want to miss any part of the meeting, especially my Presidential Address on Monday morning and the C. Walton Lillehei Lecture on Tuesday morning by Eric Topol, MD, a cardiologist and geneticist specializing in the use of artificial intelligence, "deep"



data, and smart technology for individualized treatment approaches. Both Monday and Tuesday also will feature an interesting selection of sessions that will appeal to every discipline and every member of the cardiothoracic surgery team.

Although the meeting schedule will be more compact, you won't miss a thing because access to the STS 55th Annual Meeting Online will be included with registration—a bonus that will let you review all the outstanding educational content from your home or office throughout the next year.

Please make plans now to join your colleagues this January. In this *Program, Registration, and Housing* brochure, you'll find a program outline, course descriptions, and agendas to help you plan your schedule. You'll also find registration instructions and information on travel and housing accommodations.

I look forward to seeing you in San Diego!

Keith S. Naunheim, MD

President, The Society of Thoracic Surgeons

WHAT'S NEW

- New STS University courses include robotic lobectomy, video-assisted sleeve lobectomy, and percutaneous transseptal access for transcatheter mitral valve repair/replacement.
- A new session will explore the challenges faced by cardiothoracic surgeons early in their careers and provide solutions so that they can be successful.
- New results from the recent STS/WTS Sexual Harassment and Gender Bias Survey will be highlighted in a session on unconscious bias organized by Women in Thoracic Surgery.

Arrive early
to attend the STS
Coding Workshop
and/or Tech-Con
2019 (see page 41).



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THE SOCIETY OF THORACIC SURGEONS EDUCATION DISCLOSURE POLICY

As a sponsor of continuing medical education accredited by the Accreditation Council for Continuing Medical Education (ACCME), The Society of Thoracic Surgeons requires that any individual who is in a position to control the content of an educational activity must disclose all relationships with commercial interests (including known relationships of his or her immediate family, department, and partners). The ACCME defines a commercial interest as "any entity producing, marketing, reselling, or distributing health care goods or services consumed by, or used on, patients. The ACCME does not consider providers of clinical service directly to patients to be commercial interests." The question of whether a disclosed conflict situation could represent undue influence on the educational activity by a commercial interest or whether the disclosed information is sufficient to consider an abstract, presentation, or other educational enduring material to represent potentially biased information must be resolved prior to an individual's involvement in STS educational programming.

Required disclosures include (1) a financial interest of any amount (e.g., through ownership of stock, stock options, or bonds) (2) the receipt of any amount of cash, goods or services within the current 12-month period (e.g., through research grants, employment, consulting fees, royalties, travel, or gifts) or (3) a nonremunerative position of influence (e.g., as officer, director, trustee or public spokesperson). EXCLUDED from this disclosure requirement are blind trusts or other passive investments such as mutual funds. In the case of a financial or other relationship disclosure, the company, product/service, and specific nature of the relationship must be noted. Disclosure is mandatory for any person involved in the planning, management, presentation, and/or evaluation of STS educational activities.

Failure to disclose all relationships with commercial interests disqualifies the individual from being a planning committee member, a teacher, or an author of educational materials, and this individual cannot have any responsibility for the development, management, presentation, or evaluation of STS educational activities. This requirement is intended neither to imply any impropriety of such relationships nor to prejudice any individual planner, presenter or author. It is merely to identify such relationships through full disclosure,

and to allow STS to assess and resolve potential influences on the educational activity prior to the planning and implementation of an educational activity. If no relationships with commercial interests exist, the individual must indicate this on the disclosure form.

Additionally, the fact that the presentation, paper, or other educational product describes (a) the use of a device, product, or drug that is not FDA approved or (b) an off-label use of an approved device, product, or drug must also be disclosed. This requirement has been adopted in response to FDA policy and case law involving medical societies, and is not intended to prohibit or inhibit independent presentation or discussion regarding the uses of devices, products, and drugs as described in (a) or (b) above.

For live presentations, all disclosures must be stated orally and on a slide at the beginning of the presentation and will be noted in published material related to the activity. Slides, handouts, and other materials utilized as part of an educational activity cannot contain any advertising, trade names or a product group message. Speakers are required to disclose that they have nothing to disclose if this is the case.

Amended by the STS Executive Committee: April 11, 2012

Continuing Medical Education Credit

The Society of Thoracic Surgeons is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

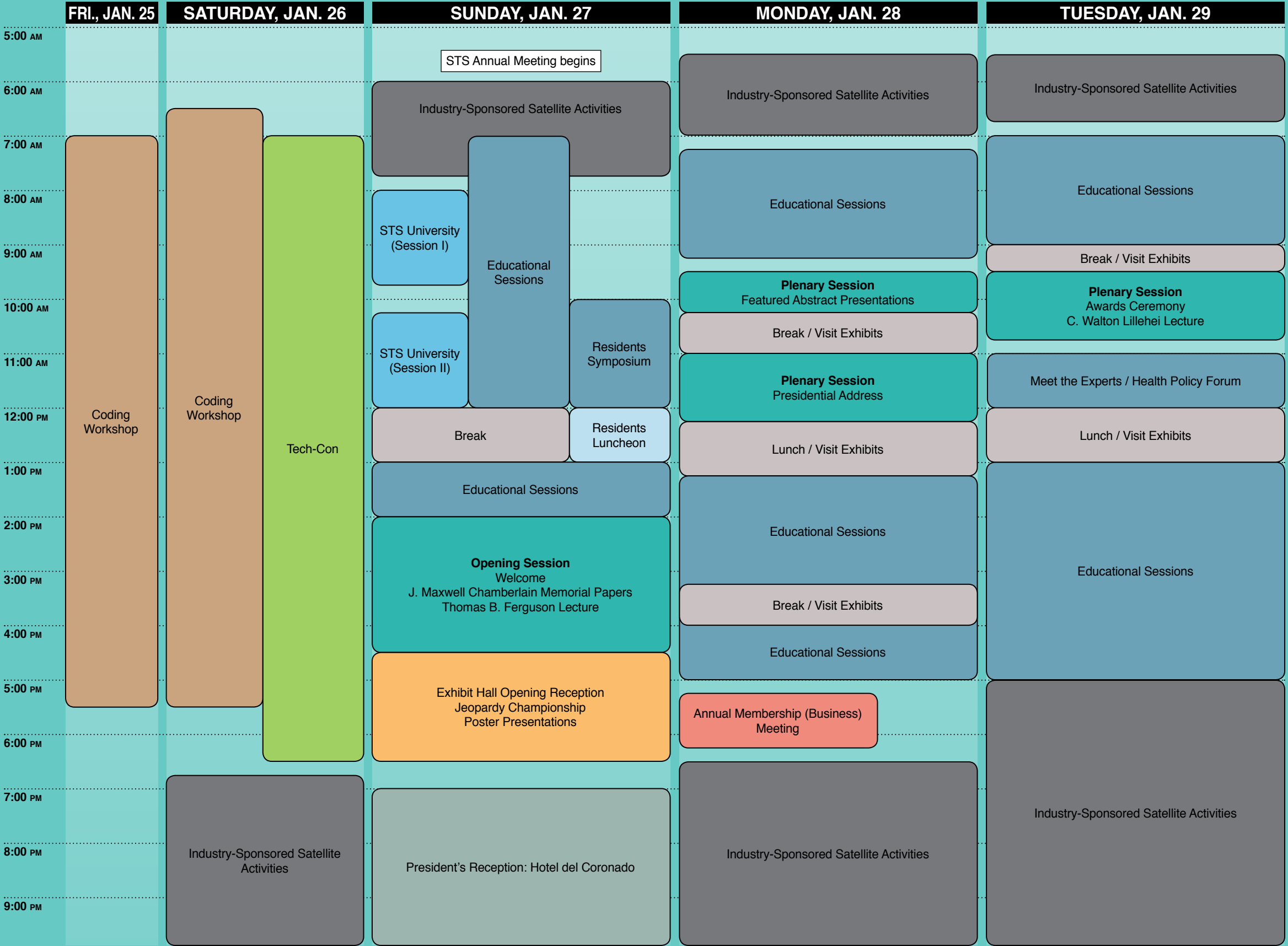
STS 55th Annual Meeting: The Society of Thoracic Surgeons designates this live activity for a maximum of 23.25 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



STS is currently seeking approval to provide perfusion credit.

SCHEDULE AT A GLANCE

Exhibit Hall Hours
Sunday, 4:30 PM – 6:30 PM
Monday, 9:00 AM – 4:30 PM
Tuesday, 9:00 AM – 1:30 PM



Schedule subject to change

STS Annual Meeting ends

PROGRAM OUTLINE

Friday, January 25

3:00 PM – 6:00 PM

Registration

Saturday, January 26

STS TECH-CON 2019

7:00 AM – 5:00 PM

Registration

7:00 AM – 6:30 PM

Tech-Con Exhibits

7:00 AM – 8:00 AM

BREAKFAST—Visit Tech-Con Exhibits

8:00 AM – 9:30 AM

Tech-Con Adult Cardiac Track I: New Technologies in Ischemic, Heart Failure, and Atrial Fibrillation Surgery

Tech-Con General Thoracic Track I: New Technologies in Lung and Chest Wall Surgery

9:30 AM – 10:15 AM

BREAK—Visit Tech-Con Exhibits

10:15 AM – 12:00 PM

Tech-Con Adult Cardiac Track II: New Technologies in Aortic and Structural Heart Disease

Tech-Con General Thoracic Track II: New Technologies in Esophageal Surgery

12:00 PM – 1:00 PM

LUNCH—Visit Tech-Con Exhibits

1:00 PM – 5:00 PM

Tech-Con Joint Session: The Future of Cardiothoracic Surgery Is Here

2:30 PM – 3:00 PM

BREAK—Visit Tech-Con Exhibits

5:00 PM – 6:30 PM

Tech-Con Reception

Sunday, January 27

STS ANNUAL MEETING

7:00 AM – 6:30 PM

Registration

7:00 AM – 12:00 PM

The Multidisciplinary Team: How We Do It

8:00 AM – 9:45 AM

 STS University (Session I)

8:00 AM – 12:00 PM

Adult Congenital Heart Disease Symposium: Planning for the Future—Aortic Arch Anomalies and the Failing Fontan

CHEST @ STS: Interventional Bronchoscopy

Critical Care Symposium: Cutting-Edge Strategies for Cardiothoracic Critical Care Emergencies and Evolving Technologies

Practice Management Summit

SCA @ STS: Integrating Perioperative Echocardiography in Cardiac Surgical Clinical Decision-Making for Challenging Cases

10:00 AM – 12:00 PM

Residents Symposium: Transitioning From Residency to a Successful Practice

10:15 AM – 12:00 PM

 STS University (Session II)

12:00 PM – 1:00 PM

Lunch

Residents Luncheon

1:00 PM – 2:00 PM

Ethics Debate: Bespoke Babies—Genome Editing in Cystic Fibrosis Embryos

How to Write a Great Review: Essential Components of Outstanding Peer Reviews

Key Contacts: Advocates for Cardiothoracic Surgery

Research Using the STS National Database

STS/CATS/CSCS: Innovative Techniques in Thoracic Surgery

Unconscious Bias (organized by Women in Thoracic Surgery)

2:10 PM – 4:30 PM

Opening Session

2:10 PM – 2:30 PM

Welcome

2:30 PM – 3:30 PM

J. Maxwell Chamberlain Memorial Papers

3:30 PM – 4:30 PM

Thomas B. Ferguson Lecture: Laurie H. Glimcher

4:30 PM – 6:30 PM

Opening Reception in STS Exhibit Hall

4:45 PM – 5:55 PM

Jeopardy Championship

5:30 PM – 6:30 PM

2019 The Thoracic Surgery Foundation Awards Announcement and VIP Reception (by invitation only)

5:30 PM – 6:30 PM

Poster Presentations

7:00 PM – 10:00 PM

 President's Reception: Hotel del Coronado

 Indicates that a ticket is required to attend.



Monday, January 28

6:30 AM – 5:00 PM

Registration

9:00 AM – 4:30 PM

Exhibit Hall

7:15 AM – 9:15 AM

Career Navigation and Development: Hot Topics to Enhance Your First 7 Years of Practice

Congenital: Pediatric Congenital I

EACTS @ STS: Which Arch Operation Should I Do? Decision-Making During Type A Dissection Repair

ESTS @ STS: Controversial Issues in General Thoracic Surgery—Perspectives From Europe and North America

STS/ISHLT Joint Symposium

8:15 AM – 9:15 AM

Basic Science Research: Adult Cardiac

Basic Science Research: General Thoracic

Diversity and Inclusion in Cardiothoracic Surgery: What Is the Real Value?

9:30 AM – 12:15 PM

Plenary Session

9:30 AM – 10:15 AM

Featured Abstract Presentations

10:15 AM – 11:00 AM

BREAK—Visit Exhibits and Scientific Posters

11:00 AM – 11:10 AM

Introduction of the President: Robert S. D. Higgins

11:10 AM – 12:15 PM

Presidential Address: Keith S. Naunheim

12:15 PM – 1:15 PM

BREAK—Visit Exhibits and Scientific Posters

1:15 PM – 3:15 PM

Adult Cardiac: Aorta I

Adult Cardiac: Ischemic

Congenital: Pediatric Congenital II

General Thoracic: Lung Cancer I

General Thoracic: Lung Transplantation

SVS @ STS: Sharing Common Ground for Cardiovascular Problems

1:15 PM – 5:00 PM

Clinical Scenarios: The Heart Team

3:15 PM – 4:00 PM

BREAK—Visit Exhibits and Scientific Posters

4:00 PM – 5:00 PM

Adult Cardiac: Arrhythmia/Atrial Fibrillation

Adult Cardiac: Contemporary Practices in Surgical Therapy for Advanced Heart Failure

Cardiothoracic Surgery Education

Congenital: Adult Congenital

Critical Care Research

Next-Generation General Thoracic Surgery

Quality Improvement in Cardiothoracic Surgery

5:15 PM – 6:15 PM

Business Meeting (STS Members Only)

6:30 PM – 7:30 PM

STS-PAC Reception

Open to 2019 STS-PAC contributors

Tuesday, January 29

6:30 AM – 1:00 PM

Registration

9:00 AM – 1:30 PM

Exhibit Hall

7:00 AM – 9:00 AM

Adult Cardiac: General

Adult Cardiac: Mitral and Tricuspid Valves

Congenital: Pediatric Congenital III

General Thoracic: Lung Cancer II

General Thoracic: Mediastinal/Pulmonary

Pain Management

9:00 AM – 9:30 AM

BREAK—Visit Exhibits and Scientific Posters

9:30 AM – 10:45 AM

Plenary Session

9:30 AM – 9:45 AM

Award Presentations

9:45 AM – 10:45 AM

C. Walton Lillehei Lecture: Eric Topol

11:00 AM – 12:00 PM

Meet the Experts Sessions

Health Policy Forum

12:00 PM – 1:00 PM

BREAK—Visit Exhibits and Scientific Posters

1:00 PM – 3:00 PM

Adult Cardiac: Aorta II

Adult Cardiac: Aortic Valve/Novel Technologies

Advanced Therapies for End-Stage Cardiopulmonary Disease

General Thoracic: Esophageal

1:00 PM – 5:00 PM

How-To Video Session: Technical Tips to Avoid Pitfalls and Simplify Congenital and Pediatric Cardiac Surgery Procedures

How-To Video Session: General Thoracic

“My Tube” Adult Cardiac How-To Video Session

Patient Safety Symposium: Innovation and Safety in the Digital Era—From EHRs to Cybersecurity

SATURDAY

JANUARY 26 | TECH-CON 2019

7:00 AM — 5:00 PM

Registration

7:00 AM — 6:30 PM

Tech-Con Exhibits

7:00 AM — 8:00 AM

BREAKFAST—Visit Tech-Con Exhibits

8:00 AM — 9:30 AM

Adult Cardiac Track I: New Technologies in Ischemic, Heart Failure, and Atrial Fibrillation Surgery

MODERATORS: *Husam H. Balkhy, Chicago, IL, Mark S. Slaughter, Louisville, KY, and John M. Stulak, Rochester, MN*

Atrial Fibrillation

- 8:00 AM Minimally Invasive Left Atrial Appendage Closure Through the Transverse Sinus: Why and How I Do It
Niv Ad, Morgantown, WV
- 8:08 AM Sophisticated Mapping in the OR During Surgical Ablation: How to Do It With or Without Your Electrophysiologist
Gianluigi Bisleri, Kingston, Canada
- 8:16 AM Panel Discussion

Heart Failure

- 8:22 AM High-Risk Cardiac Surgery Using Temporary Circulatory Support: How I Do It
Edward G. Soltesz, Cleveland, OH
- 8:30 AM Smartphone App to Facilitate Donor Organ Harvesting
Robert W. Emery, Minneapolis, MN
- 8:38 AM Is Subvalvular Repair Worthwhile in Severe Ischemic Mitral Regurgitation?
Masashi Komeda, Daito, Japan
- 8:46 AM Panel Discussion

Ischemia

- 8:56 AM Noninvasive Imaging for Coronary Bypass: What's New in Anatomic and Functional Evaluation of Coronary Artery Disease
Matthew Budoff, Torrance, CA
- 9:04 AM Advanced Hybrid Coronary Revascularization: Are Two Internal Mammary Artery Grafts Better Than One?
Husam H. Balkhy, Chicago, IL
- 9:12 AM Arterial Grafts: Lessons Learned From Arterial and Radial
David P. Taggart, Oxford, United Kingdom
- 9:20 AM Panel Discussion

8:00 AM — 9:30 AM

General Thoracic Track I: New Technologies in Lung and Chest Wall Surgery

MODERATORS: *Lisa M. Brown, Sacramento, CA, and Linda W. Martin, Charlottesville, VA*

- 8:00 AM A Novel Wireless Surgical Marker for Small Lung Lesions
Yojiro Yutaka, Kyoto, Japan
- 8:12 AM First Use of the ArtiSential Suite of Articulated Instruments in Video-Assisted Thoracoscopic Surgery
Joel Dunning, Middlesbrough, United Kingdom
- 8:24 AM Update on Robotic Bronchoplasty Techniques
Lana Y. Schumacher, Pittsburgh, PA
- 8:36 AM Novel Applications of Titanium Mesh in Thoracic Surgery
Anthony D. Cassano, Richmond, VA
- 8:48 AM State-of-the-Art in Chest Wall and Diaphragm Reconstruction: Current Materials and Techniques
Reza J. Mehran, Houston, TX
- 9:00 AM A Novel Approach to Patient Engagement
Alden M. Parsons, Raleigh, NC
- 9:12 AM Targeted Lung Denervation to Treat Chronic Obstructive Pulmonary Disease
Malcolm M. DeCamp, Madison, WI

9:30 AM — 10:15 AM

BREAK—Visit Tech-Con Exhibits

10:15 AM — 12:00 PM

Adult Cardiac Track II: New Technologies in Aortic and Structural Heart Disease

MODERATORS: *Gilbert H. Tang, New York, NY, and Tsuyoshi Kaneko, Boston, MA*

- 10:15 AM Aortic Valve Repair Technology and Devices: Where Are We Going?
Y. Joseph Woo, Stanford, CA
- 10:23 AM PHASTER: Proximal Hybrid Aortic Stent Graft for Extended Repair
Eric E. Roselli, Cleveland, OH
- 10:31 AM Branched Endografts for the Aortic Arch
Ourania A. Preventza, Houston, TX
- 10:39 AM Panel Discussion
- 10:49 AM Minimally Invasive Transcatheter Aortic Valve Replacement in Mitral Annular Calcification: Pearls and Pitfalls
Tom C. Nguyen, Houston, TX
- 10:57 AM Transapical Mitral Replacement With Anterior Leaflet Splitting: A Novel Technique to Avoid Left Ventricular Outflow Tract Obstruction
Richard Lee, Augusta, GA
- 11:05 AM Update on New Transcatheter Mitral Replacement Devices
Michael J. Reardon, Houston, TX
- 11:13 AM Panel Discussion
- 11:23 AM A New Sutureless Device to Repair Mitral Chords
Thierry P. Carrel, Bern, Switzerland
- 11:31 AM First-in-Man Implantation of a Novel Balloon-Adjustable Mitral Ring
Martin Andreas, Vienna, Austria
- 11:39 AM Tricuspid Extracellular Matrix Cylinder Valves in Endocarditis: Earliest Steps to In-Human Valve Generation
Marc W. Gerdisch, Indianapolis, IN
- 11:47 AM Panel Discussion

10:15 AM – 12:00 PM

General Thoracic Track II: New Technologies in Esophageal Surgery

MODERATORS: Andrew C. Chang, Ann Arbor, MI, and Siva Raja, Cleveland, OH

- 10:15 AM Tissue-Engineered Esophagus
Dennis A. Wigle, Rochester, MN
- 10:27 AM POP and STER: Endoscopic Pyloromyotomy and Submucosal Tumor Resection
Brian E. Louie, Seattle, WA
- 10:39 AM FLIP for LINX: EndoFLIP for Antireflux Surgery
Min P. Kim, Houston, TX
- 10:51 AM Panel Discussion
- 11:06 AM Atrial Septal Defect Closure Device for Tracheoesophageal Fistula Repair
Daniel P. Raymond, Cleveland, OH
- 11:18 AM Subxiphoid Approach to Mediastinal Tumor Resection
Takashi Suda, Aichi, Japan
- 11:30 AM EndoVAC for Esophageal Leak
Wayne L. Hofstetter, Houston, TX
- 11:42 AM Panel Discussion

12:00 PM – 1:00 PM

LUNCH—Visit Tech-Con Exhibits



1:00 PM – 5:00 PM

Joint Session: The Future of Cardiothoracic Surgery Is Here

MODERATORS: Melanie A. Edwards, St Louis, MO, and Tom C. Nguyen, Houston, TX

- 1:00 PM Keynote Address: Artificial Intelligence—Hype or Hope for Med Tech?
Thomas M. Krummel, Stanford, CA
- 1:30 PM 2018 Year in Review: Summary of New Technologies and Major Research
Adult Cardiac: Vinod H. Thourani, Washington, DC
General Thoracic: Todd L. Demmy, Buffalo, NY
Congenital: Carlos M. Mery, Austin, TX
- 1:51 PM A Call for Change: Maintaining the Future of Our Field
Tom C. Nguyen, Houston, TX
- 1:56 PM The Kinder, Gentler 4th Era of Heart Surgery
Jude S. Sauer, Pittsford, NY
- 2:04 PM Planning for Future Reoperation: Choosing the Valve for the Present
Keith B. Allen, Kansas City, MO
- 2:12 PM Radiomics and Lung Cancer Detection/Modeling: Is This the Holy Grail?
Shanda H. Blackmon, Rochester, MN
- 2:20 PM Panel Discussion

2:30 PM – 3:00 PM

BREAK—Visit Tech-Con Exhibits

Debates

MODERATORS: Bradley G. Leshnower, Atlanta, GA, and Virginia R. Little, Boston, MA

- 3:00 PM **DEBATE:** Coronary Revascularization Should Be Performed Only by Dedicated Coronary Artery Bypass Grafting Surgeons
Pro: John D. Puskas, New York, NY
Con: Gorav Ailawadi, Charlottesville, VA
- 3:30 PM **DEBATE:** Peroral Endoscopic Myotomy Should Replace Laparoscopic Heller Myotomy
Pro: Siva Raja, Cleveland, OH
Con: Christopher W. Seder, Chicago, IL

“Shark Tank”

MODERATORS: Joseph Lamelas, Houston, TX, Daniela Molena, New York, NY, and Grayson H. Wheatley, Nashville, TN

- 4:00 PM Past “Shark Tank” Presenters: Where Are They Now? What Have We Learned?
Juan P. Umana, Bogota, Colombia
- 4:10 PM Rapid and Leakproof Aortic Anastomosis Stapler
Syed T. Raza, New York, NY
- 4:20 PM Toroidal Valveless Pulsatile-Flow Ventricular Assist Device
Richard W. Smalling, Houston, TX
- 4:30 PM Neurostimulation for Pain Management After Cardiac Surgery
Usman Ahmad, Cleveland, OH
- 4:40 PM Tracheomend
Faiz Bhora, New York, NY
- 4:50 PM Discussion

5:00 PM – 6:30 PM

RECEPTION—Visit Tech-Con Exhibits

7:00 AM – 6:30 PM

Registration

7:00 AM – 12:00 PM

The Multidisciplinary Team: How We Do It

This session will provide an opportunity for Advanced Practice Providers (APPs) and other health care professionals to gain knowledge that will help them improve the care of cardiothoracic surgery patients. Topics will include multidisciplinary care delivery models, goal-directed perfusion, management of hemorrhage, and enhanced recovery protocols. Every member of the cardiothoracic surgery team, including nurses, physician assistants, perfusionists, and others involved in patient care improvement, will benefit from participating in this session.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Discuss recent innovations in cardiothoracic surgical management that improve patient care
- Identify important areas of clinical research that impact the cardiothoracic surgery patient
- Develop strategies for implementing care improvements locally
- Describe various approaches to cardiothoracic service line APP training and staffing models
- Identify opportunities and strategies that support a “culture of safety” in the multidisciplinary team

MODERATORS: *Jill R. Engel, Durham, NC, and Stefano Schena, Baltimore, MD*

7:00 AM	Introduction
7:05 AM	Critical Care Training Model: The Mid-Level Team at Johns Hopkins <i>Emily Stewart, Baltimore, MD</i>
7:30 AM	Cardiothoracic Surgery Service Line APP Training/Coverage Model: Duke University <i>Jill R. Engel, Durham, NC</i>
7:55 AM	Managing Goal-Directed Perfusion <i>George Justison, Denver, CO</i>
8:20 AM	Managing Hemorrhage: Balancing Products and Factors in 2019 <i>Daryl Kor, Rochester, MN</i>
8:45 AM	Break
9:00 AM	Early Recovery for Isolated Coronary Artery Bypass Grafting Surgery: Initiating an On-Table Extubation Program and Reducing Postoperative Length of Stay <i>J. Parmet¹, S. Furukawa², D. Berkowitz³, B. Lucca¹, K. Schmanek¹, A. V. Rodrigo¹, K. Gelineau¹, K. Hilliard², B. M. Blanchard³, P. Colonna-Romano³</i> <i>¹Society Hill Anesthesia Consultants, Philadelphia, PA, ²University of Pennsylvania, Philadelphia, ³Pennsylvania Hospital, Philadelphia</i>
9:10 AM	Interprofessional Simulation in Cardiothoracic Surgery Improves Team Confidence <i>H. L. Merritt-Genore, R. Zavala, T. Brakke, A. Adams</i> <i>University of Nebraska Medical Center, Omaha</i>
9:20 AM	Impact of an Advanced Nurse Practitioner Ultrasound Service in the Postoperative Cardiac Surgery Patient <i>T. Bartley¹, H. Maseyk², L. Bardsley², O. SanchezRey², J. Johnston², R. Kong³, N. Hutchinson²</i> <i>¹Queen Elizabeth Hospital University Trust, Birmingham, United Kingdom, ²Royal Sussex County Hospital, Brighton, United Kingdom, ³National Health Service, Brighton, United Kingdom</i>
9:30 AM	Toolkit for Implementing Enhanced Recovery After Surgery (ERAS) <i>S. Jill Ley, Greenbrae, CA</i>
9:50 AM	ERAS: Cardiac Model <i>Michael Grant, Mount Airy, MD</i>

10:10 AM	ERAS: Thoracic Model – Anesthesia Impact <i>Elizabeth Herrera, Houston, TX</i>
10:30 AM	Break
10:45 AM	An Implementation Science Approach to Redesigning Handoffs After Cardiothoracic Surgery <i>T. R. Geoffrion, I. Lynch, E. Tsai, W. Hsu, A. Timmons, E. Phelps, P. E. Greilich</i> <i>The University of Texas Southwestern Medical Center, Dallas</i>
10:55 AM	Autologous Blood Donation Leads to Better Outcomes in Cardiac Surgery <i>E. Zimmermann, D. V. Avgerinos¹, R. Zhu², T. Ogami²</i> <i>¹Weill Cornell Medical Center, New York, NY, ²NewYork-Presbyterian/Queens, Flushing, NY</i>
11:05 AM	Postoperative Complications After Transcatheter Aortic Valve Replacement and Impact on Resource Utilization: Does Experience Matter? <i>A. K. Okoh¹, B. Haik¹, C. Chen¹, M. Cohen¹, M. J. Russo²</i> <i>¹Newark Beth Israel Medical Center, NJ, ²RWJBarnabas Health, Newark, NJ</i>
11:15 AM	Building a Culture of Safety Within a Heart Center: What's In It for Me? <i>Brittany A. Zwischenberger, Durham, NC</i>
11:40 AM	Closing Remarks

8:00 AM – 9:45 AM

STS University (Session I)

STS University courses feature only hands-on learning. No didactic lectures will be given during the activity, so attendees are encouraged to access the lectures online before Sunday morning at sts.org/stsuniversity.

Course 1: Essentials of TAVR

COURSE DIRECTORS: *Isaac George, New York, NY, and George L. Zorn, Kansas City, KS*

Proficiency in transcatheter aortic valve replacement (TAVR) requires the acquisition of multiple endovascular principles and techniques. This course will introduce attendees to balloon-expandable and self-expanding TAVR platforms, as well as the various sheaths, guidewires, and catheters relevant to TAVR. Basics of alternative TAVR access will be discussed, as will the operations of various delivery systems.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the decision-making process for choosing a TAVR access point (transfemoral, direct aortic, subclavian artery, and transapical)
- State the salient differences in the deployment of balloon-expanded vs self-expanded devices
- Describe the various types of sheaths and guidewires used during the TAVR procedure and understand reasons for their use
- Explain the procedural technique for valve deployment from start to finish in both native aortic stenosis and valve-in-valve TAVR

Course 2: TEVAR and Aortic Arch Debranching Procedures

COURSE DIRECTORS: *Nimesh Desai, Philadelphia, PA, and Ourania A. Preventza, Houston, TX*

This course will review basic catheter and wire skills for thoracic endovascular aortic repair (TEVAR). Participants will have hands-on experience with thoracic stent grafts and intravascular ultrasound (IVUS), as well as using vascular plugs for the brachial or femoral approach. Surgical techniques for zone 0-2 aortic arch debranching procedures will be discussed.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Identify the most common catheters and wires for TEVAR
- Describe the deployment of commercially available stent grafts
- Explain the use of IVUS and vascular plugs for subclavian artery occlusion
- Describe the surgical techniques used in aortic arch debranching

Course 3: Mitral Valve Repair

COURSE DIRECTORS: *Pavan Atluri, Philadelphia, PA, and Evelio Rodriguez, Nashville, TN*

In this course, participants will be able to practice different mitral valve repair strategies for both anterior and posterior leaflet pathologies. These will include leaflet resection and non-resection techniques, commissural repair strategies, and different chordal approaches. In addition, different surgical therapies for secondary mitral regurgitation, including ring selection, leaflet extension techniques, and mitral valve replacement, will be reviewed.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe different leaflet resection and non-resection approaches, in addition to different chordal techniques required for successful mitral valve repair
- Identify advance repair techniques for both primary and secondary mitral regurgitation
- Demonstrate proper mitral valve replacement techniques

Course 4: Valve-Sparing Aortic Root Replacement – Reimplantation

COURSE DIRECTORS: *Michael P. Fischbein, Stanford, CA, and Bo Yang, Ann Arbor, MI*

This course will provide interactive, hands-on instruction of the surgical techniques and critical steps necessary for performing a successful valve-sparing aortic root replacement (VSRR) – reimplantation technique.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the anatomy of the aortic root
- Outline the key components to maintain a competent aortic valve
- Summarize the technical steps necessary for a successful VSRR
- List different methods in choosing a graft size
- Discuss aortic valve leaflet repair

Course 5: Aortic Root Enlargement Procedures and Aortic Valve Leaflet Reconstruction

COURSE DIRECTORS: *S. Adil Husain, San Antonio, TX, and Joseph W. Turek, Durham, NC*

This course will review two specialized subareas of technical expertise required to perform complex aortic root surgery. Participants will learn the anatomic approaches and surgical techniques employed in performing aortic root enlarging procedures, as well as aortic valve leaflet reconstructive techniques and the importance of providing annular stabilization in the context of a repaired aortic valve. Surgical strategies for root enlargement will include Nicks, Manouagian, and Ross Konno. Surgical

techniques involving aortic valve leaflet reconstruction will include primary simple cusp plication techniques, patch augmentation technique, Gore-Tex free margin shortening technique, and orienting the repaired bicuspid aortic valve into its aortic neoroot.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Identify the anatomy and appropriate surgical landmarks in the left ventricular outflow tract and aortic valve apparatus
- Describe the incision sites and overall surgical techniques for a variety of root enlargement strategies
- Discuss surgical pitfalls associated with each strategy and mechanisms by which to delineate options based upon patient and anatomic substrate
- Describe how to set up and expose the aortic root for primary valve repair and identify the risk factors for repair failure based on the anatomy of the aortic valve
- Recall the different aortic annular stabilization techniques and recognize the impact of each technique on valve repair – subcommissural annuloplasty, external aortic ring, and root reimplantation
- Identify different bicuspid aortic valve types and explain the implications for valve repair and the choice of annular stabilization
- Demonstrate how to implant a type I bicuspid aortic valve in the context of its neoroot and explain what the different bicuspid subtypes mean for orienting the repaired valve when performing a root reimplantation

Course 6: VATS Lobectomy

COURSE DIRECTORS: *DuyKhanh P. Ceppa, Indianapolis, IN, and Jeremiah Martin, Portsmouth, OH*

This course will review the indications, patient selection, technical steps, and recent advances for performance of lobectomy using video-assisted thoracoscopic surgery (VATS). Participants will be able to perform a VATS left upper lobectomy on porcine heart-lung blocks.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the indications and steps to perform VATS
- Discuss potential pitfalls and strategies for intraoperative troubleshooting to successfully achieve minimally invasive lobectomy
- Identify instruments and other technologies available to perform minimally invasive lobectomy

Course 7: Advanced Open Esophageal and Tracheal Procedures

COURSE DIRECTORS: *Christopher R. Morse, Boston, MA, and Jonathan Nesbitt, Nashville, TN*

This course will provide hands-on training for several esophageal anastomosis techniques, as well as airway anastomosis and repair. These advanced operative techniques are not frequently utilized in most general thoracic surgery practices, but competence in these techniques is important. Participants will be introduced to several techniques for airway and esophageal reconstruction with emphasis on the different technical aspects ("pearls") of the anastomosis from content experts.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Perform different types of esophageal anastomoses, including hand-sewn and hybrid hand-sewn/stapled
- Recognize the technical pitfalls associated with various complex airway resection and anastomoses
- Identify the key steps of tracheobronchoplasty

Course 8: Complex Chest Wall Issues for the Thoracic Surgeon: Reconstruction After Tumor Resection, Pectus Deformities, and Rib Fractures

COURSE DIRECTORS: Staci Beamer, Phoenix, AZ, and Dawn E. Jaroszewski, Phoenix, AZ

In this hands-on course, participants will learn the various techniques for reconstruction of large chest wall defects after resection. Other highlights of the course include stabilization of rib and sternal fractures using the most current reconstruction systems and minimally invasive repair of adult pectus excavatum defects. At the end of this course, participants should be able to independently design and perform reconstruction of the chest wall for various indications.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Perform rigid and semi-rigid reconstruction of chest wall defects after resection, including the ribs and sternum
- Demonstrate how to stabilize single and multiple rib fractures using rib fixation devices
- Use sternal fixation devices to stabilize the sternum
- Perform minimally invasive repair of adult pectus excavatum defects

Course 9: Minimally Invasive Aortic and Mitral Surgery

COURSE DIRECTORS: Tom C. Nguyen, Houston, TX, and Juan P. Umana, Bogota, Colombia

Cardiothoracic surgeons face an increased demand to adopt minimally invasive valve techniques. Unfortunately, acquiring this skillset can be difficult in real-world practice. The objective of this course is to provide hands-on experience with the newest techniques in minimally invasive aortic and mitral valve surgeries. Participants will work in alternating pairs at each station to learn critical exposure and cannulation techniques for minimally invasive aortic (right anterior thoracotomy and hemisternotomy) and mitral (lateral thoracotomy) valve surgeries. Participants will then have an opportunity to perform aortic and mitral valve repair/replacement using simulators under both direct vision and via thoracoscopic guidance. For aortic valve replacements, participants will gain exposure to sutureless and rapid-deployment technologies. At the conclusion of the course, a handout will be distributed with a list of key instruments for minimally invasive valve surgery and suggested steps for building a minimally invasive valve program.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Explain exposure (right anterior thoracotomy, hemisternotomy, and lateral thoracotomy), cannulation, and cardioprotection techniques for minimally invasive valve surgery
- Identify key operative steps for successful minimally invasive aortic and mitral valve surgeries, including sutureless and rapid deployment technologies
- Describe the indications and contraindications for minimally invasive valve surgery

Course 10: Peroral Endoscopic Myotomy (POEM) Skills

COURSE DIRECTORS: Ralph W. Aye, Seattle, WA, and Inderpal S. Sarkaria, Pittsburgh, PA

This is a practical, hands-on course for learning peroral endoscopic myotomy (POEM) using an explant model. Participants will learn how to plan landmarks for the procedure, access the submucosal space and create a long submucosal tunnel extending through the gastroesophageal junction, perform myotomy, and close the mucosotomy. The standard tools and electrothermy instruments for performing the procedure will be explored in detail.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Determine the proper landmarks for beginning and completing the procedure
- Create a submucosal tunnel
- Perform an endoscopic myotomy within the tunnel
- Close the mucosotomy

NEW! Course 11: Robotic Lobectomy

COURSE DIRECTORS: Edward Y. Chan, Houston, TX, Lana Y. Schumacher, Pittsburgh, PA, and Kazuhiro Yasufuku, Toronto, Canada

This course will provide cardiothoracic surgeons of all experience levels with a detailed overview of the critical elements needed to successfully perform a lobectomy using a da Vinci Xi robot. Participants will gain hands-on experience with the technical skills, robotic instrumentation, port placement, anatomic exposure, and surgical techniques of a robotic lobectomy.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Explain the different components of the robotic surgical platform
- Describe the fundamental skills on the robotic console
- State the basic technical skills necessary to perform robotic thoracic surgery
- Outline the critical steps for performing a robotic lobectomy

NEW! Course 12: VATS Sleeve Lobectomy

COURSE DIRECTORS: Thomas A. D'Amico, Durham, NC, and Todd L. Demmy, Buffalo, NY

This course will review the indications, patient selection, instrumentation, and technical steps for the performance of bronchial and arterial sleeve lobectomy using video-assisted thoracoscopic surgery (VATS).

Learning Objectives

Upon completion of this activity, participants should be able to:

- Identify indications and contraindications for bronchial and arterial left upper lobe (LUL) sleeve lobectomy
- Identify key operative steps in obtaining exposure for LUL sleeve lobectomy
- Successfully complete thoracoscopic suture closures/anastomosis of secondary airway (either bronchoplasty or sleeve resection) and arterial sleeve in a tissue simulator
- Discuss tools and supplies that enhance VATS bronchial and arterial reconstruction

NEW! Course 13: Percutaneous Transseptal Access, Transcatheter Mitral Valve Repair, and Mitral Valve-in-Valve Replacement

COURSE DIRECTORS: *Tsuyoshi Kaneko, Boston, MA, and Gilbert H. Tang, New York, NY*

Transcatheter and surgical mitral valve therapies are emerging as complementary options for treating mitral valve disease, and cardiothoracic surgeons are best positioned to offer their patients both options. As we've learned from transcatheter aortic valve replacement, the transvenous access/transseptal approach to transcatheter mitral valve repair/replacement will, in time, predominate over the transapical approach. With the emergence of more transseptal transcatheter mitral valve repair and replacement devices, surgeons must acquire this skillset quickly to stay relevant in a rapidly evolving field. This course will expose participants to this important skill and myriad emerging transcatheter mitral technologies.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Recognize the imaging modalities necessary for transseptal access
- Perform transseptal access with necessary guidance
- Explain the importance of transseptal access for cardiothoracic surgeons

8:00 AM – 12:00 PM

Adult Congenital Heart Disease Symposium: Planning for the Future—Aortic Arch Anomalies and the Failing Fontan

This session will highlight surgical techniques used in neonatal surgery that may help prevent late complications of the arterial switch operation and coarctation or arch repair, as well as how to deal with those complications, if they do occur. Case studies have been added to help guide both adult and pediatric heart surgeons, who often must choose between multiple open and endovascular treatment options for adult congenital patients with complex problems. In addition, an update on the latest advances in lymphodynamics and a debate over single vs multiorgan transplant for the failing Fontan will be included.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe open surgical options for repair of adult coarctation of the aorta
- Describe endovascular options for repair of adult coarctation and recurrent coarctation
- Explain techniques for preventing late complications of coarctation
- Identify techniques for preventing late complications of the arterial switch operation
- Discuss which patients are better candidates for multiorgan transplantation after single ventricle palliation

MODERATORS: *Joseph A. Dearani, Rochester, MN, Eric N. Feins, Boston, MA, Joshua L. Hermesen, Madison, WI, Robert D. B. Jaquiss, Dallas, TX, and Jennifer S. Nelson, Chapel Hill, NC*

- 8:00 AM **Arch Anomalies and Vascular Rings in the Adult: Open Approaches**
Alberto Pochettino, Rochester, MN
- 8:15 AM **Coarctation and Arch Anomalies in the Adult: Endovascular Approaches**
Gustavo S. Oderich, Rochester, MN
- 8:30 AM **Failing to Plan: Late Sequelae of Coarctation**
Thomas E. MacGillivray, Houston, TX
- 8:45 AM **Planning for the Future: Coarctation and Arch Anomalies in Children**
James S. Tweddell, Cincinnati, OH
- 9:00 AM **Coarctation Case Discussion**
- 9:20 AM **Failing to Plan: Late Sequelae of the Arterial Switch Operation**
Frank G. Scholl, Hollywood, FL

- 9:35 AM **Planning for the Future: Arterial Switch Operation**
Viktor Hraska, Milwaukee, WI
- 9:50 AM **Panel Discussion**
- 10:10 AM **Break**
- 10:20 AM **Failing Fontan: Liver Surveillance**
Christopher Francois, Madison, WI
- 10:40 AM **Failing Fontan: Heart/Liver Transplant Is Better**
Stephanie M. Fuller, Philadelphia, PA
- 10:52 AM **Failing Fontan: Heart-Only Transplant Is Better**
Charles B. Huddleston, St Louis, MO
- 11:04 AM **Lymphodynamics**
Vibeke E. Hjortdal, Aarhus, Denmark
- 11:24 AM **Transplant Case Discussion and Panel Discussion**

8:00 AM – 12:00 PM

CHEST @ STS: Interventional Bronchoscopy

Cardiothoracic surgeons are essential in diagnosing and treating lung nodules and lung cancer. New technologies such as endobronchial ultrasound (EBUS), navigational bronchoscopy, and cutting-edge endobronchial therapeutics have changed the approach to lung cancer staging. However, many cardiothoracic surgeons have had little exposure to these techniques, and additional training is needed. This session will explore the most advanced techniques and equipment use for interventional bronchoscopy.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Identify indications, yield, and complications of EBUS
- Recognize benefits and limitations of airway ablative modalities
- State the benefits and limitations of various airway stents

MODERATORS: *Momen M. Wahidi, Durham, NC, and Richard I. Whyte, Boston, MA*

- 8:00 AM **Introduction**
- 8:10 AM **EBUS-Guided Transbronchial Needle Aspiration of Mediastinal and Hilar Lymph Nodes**
Momen M. Wahidi, Durham, NC
- 8:30 AM **Peripheral Bronchoscopy: Navigational Bronchoscopy and Radial EBUS**
Alex Chen, St Louis, MO
- 8:50 AM **EBUS Case Scenarios**
- 9:20 AM **Panel Discussion**
- 9:45 AM **Break**
- 10:00 AM **Therapeutic Bronchoscopy**
Moishe A. Liberman, Montreal, Canada
- 10:20 AM **Management of Massive Hemoptysis—Endoscopic and Surgical Management**
Daniel P. McCarthy, Seattle, WA
- 10:40 AM **Marking Peripheral Targets for Video-Assisted Thoracoscopic Resection: Percutaneous and Bronchoscopic Approaches**
Kazuhiro Yasufuku, Toronto, Canada
- 11:00 AM **Subglottic Stenosis: Endoscopic Management**
Alex Chee, Boston, MA
- 11:20 AM **Subglottic Stenosis: Surgical Management**
Sudish C. Murthy, Cleveland, OH
- 11:40 AM **Panel Discussion**

8:00 AM – 12:00 PM

Critical Care Symposium: Cutting-Edge Strategies for Cardiothoracic Critical Care Emergencies and Evolving Technologies

Critical care emergencies in the cardiothoracic intensive care unit (ICU) pose unique challenges. Understanding these emergencies and their immediate interventions with state-of-the-art pharmacologic and mechanical therapeutic options is essential to the management of an increasingly complex cardiothoracic population. This symposium will address how to optimize patient outcomes and innovative approaches to handling emergencies. Topics will include extracorporeal cardiopulmonary resuscitation (E-CPR), post-cardiotomy extracorporeal membrane oxygenation (ECMO), urgent respiratory deterioration requiring sophisticated ventilator modes or veno-veno (VV) ECMO, anticoagulation treatment/monitoring strategies, pulmonary embolic events, hemodynamic collapse, and the potential role of early re sternotomy.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Identify management protocols for veno-arterial ECMO and E-CPR for optimal patient outcomes
- Delineate innovative management strategies and tactics in respiratory emergencies—advanced ventilatory management modes vs VV ECMO
- Delineate novel anticoagulation management protocols
- Identify and manage perioperative hemodynamic emergencies and the potential role of early re sternotomy

MODERATORS: *Rakesh C. Arora, Winnipeg, Canada, Subhasis Chatterjee, Houston, TX, Michael S. Firstenberg, Aurora, CO, Rita C. Milewski, Philadelphia, PA, and Glenn J. R. Whitman, Baltimore, MD*

8:00 AM Introduction

Cardiac Arrest and E-CPR

8:05 AM Indications, Contraindications, and Outcomes for E-CPR
Jonathan W. Haft, Ann Arbor, MI

8:35 AM Case Presentation With Audience Participation
Erik Osborne, Norfolk, VA

Respiratory Emergencies—Acute Respiratory Distress Syndrome (ARDS) and Pulmonary Embolus

9:00 AM Current Therapy for ARDS: Ventilator Modes vs VV ECMO—What Is the Evidence?
Cara Agerstrand, New York, NY

9:20 AM Panel Discussion

9:30 AM Appropriate Therapy for Pulmonary Embolus: When to Do What
Subhasis Chatterjee, Houston, TX

9:50 AM Panel Discussion

10:00 AM Break

Anticoagulation Dilemmas in the ICU

10:15 AM Heparin-Induced Thrombocytopenia Diagnosis and Management
Rizwan Manji, Winnipeg, Canada

10:35 AM Non-Vitamin K Antagonist Oral Anticoagulant Reversal: Review of Strategies
Jerrold Levy, Atlanta, GA

10:55 AM Optimal Monitoring for the Bleeding Patient—Diagnostic and Therapeutic Use of PTT/TEG/Xa Tests and How to Interpret
Glenn J. R. Whitman, Baltimore, MD

Hemodynamic Emergencies—Post-Cardiotomy Arrest

11:15 AM Evidence for Early Emergency Re sternotomy for the Management of Post-Cardiac Surgery Arrest
Joel Dunning, Middlesbrough, United Kingdom

11:30 AM Implementation of Early Emergency Re sternotomy Protocols for the Management of Post-Cardiac Surgery Arrest
Rosemary Timmerman, Anchorage, AK

11:45 AM Panel Discussion

8:00 AM – 12:00 PM

Practice Management Summit

Cardiothoracic surgeons are faced with myriad complex clinical and non-clinical organizational issues. For many in our specialty, understanding one's value and being appropriately rewarded remains a challenge. The Practice Management Summit's expert speakers will help address the cardiothoracic surgeon's organizational value proposition. Speakers will address the US health care delivery model's evolution and its impact upon the specialty. Additionally, the concepts of fair market value, relative value units (RVUs), the quality scorecard, and how to best negotiate with employers will be critically discussed by industry leaders.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Negotiate a contract from a position of strength
- Explain the value proposition as it pertains to individual practice types
- Discuss the direction of health care and cardiothoracic surgery
- Leverage the cardiovascular service line structure to promote value
- Identify the dangers associated with variability in health care delivery

MODERATORS: *Frank L. Fazzalari, Rochester, MI, and Paul S. Levy, Jonesboro, AR*

8:00 AM Introduction

8:10 AM Restructuring Your Organization to Align With the New Realities in Health Care
Nathan Kaufman, San Diego, CA

8:30 AM Contemplating Private Practice vs Institutional Employment: Local Environment and Timing Is Everything
Kevin D. Accola, Orlando, FL

8:50 AM Updates From the STS Council on Health Policy and Relationships
Alan M. Speir, Falls Church, VA

9:10 AM Panel Discussion

9:40 AM Break

10:10 AM Annual Update in Economic Survey Data, Trends, and Use
Michael N. Heaton, Indianapolis, IN

10:30 AM Work RVU Employment Models—Professional Help Required!
Michael G. Moront, Toledo, OH

10:50 AM Partnering for Excellence in Today's Health Care Environment: HCA Healthcare's Cardiovascular Service Line 2019 Update
Steven V. Manoukian, Nashville, TN

11:10 AM Compensation Agreements: Landmines and Lifesavers
Mark S. Kopson, Bloomfield Hills, MI

11:30 AM Panel Discussion

8:00 AM – 12:00 PM

SCA @ STS: Integrating Perioperative Echocardiography in Cardiac Surgical Clinical Decision-Making for Challenging Cases

This session will address recent advances in the field of echocardiography, including continuously evolving technology for the treatment of valvular disease and new evidence regarding the appropriateness of already established procedures. New evidence regarding catheter-based procedures for mitral valve regurgitation and aortic valve stenosis (such as the MITRA-FR, COAPT, and SOLVE-TAVI trials) will be reviewed using a case-based format. Also, recent publications on the role of echocardiography in hypertrophic cardiomyopathy will be highlighted.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the utility of echo anatomy and intraoperative echocardiographic analysis in surgical decision-making in open and percutaneous procedures
- Discuss the integration of echocardiographic measurements with new clinical evidence in certain patient populations as described in new clinical data
- Apply echocardiographic findings to case studies

MODERATORS: Jennifer S. Lawton, Baltimore, MD, and Alina Nicoara, Durham, NC

8:00 AM Introduction

Session I

8:10 AM Case I: Transcatheter Aortic Valve Replacement

MaryBeth Brady, Baltimore, MD

8:30 AM Panel Discussion

8:50 AM Case II: Complex Mitral Valve Repair for Degenerative Mitral Valve Disease

Georges Desjardins, Park City, UT

9:10 AM Panel Discussion

9:30 AM Case III: Management of Tricuspid Regurgitation in a Patient Undergoing Ventricular Assist Device Placement

Jacob T. Gutsche, Philadelphia, PA

9:50 AM Panel Discussion

10:10 AM Break

Session II

10:30 AM Case IV: Structural Heart Disease—Mitral Valve

Charles B. Nyman, Boston, MA

10:50 AM Panel Discussion

11:10 AM Case V: Challenges During Surgery for Hypertrophic Cardiomyopathy

Alina Nicoara, Durham, NC

11:30 AM Panel Discussion

11:50 AM Wrap-Up

10:00 AM – 12:00 PM

Residents Symposium: Transitioning From Residency to a Successful Practice

This symposium is designed to provide cardiothoracic surgery residents with practical information regarding the transition from being a trainee to a practicing surgeon. The first session will examine various practice settings, including both community and academic environments. There also will be talks on the job search process and negotiating a contract. The second session will address transitioning into practice, early career development, and achieving personal financial security, as well as a successful work-life balance. Each session will be followed by small group table discussions led by experienced surgeons and a larger group discussion with the speakers.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Recognize the key steps needed for a successful job search
- Explain the differences between practicing in an academic environment, community hospital practice, and private practice
- Describe how to successfully negotiate a contract
- Identify the benchmarks for building clinical programs and early career development
- Describe the key steps in achieving personal financial security
- Identify methods for optimizing work-life balance as part of overall career planning

MODERATOR: Craig J. Baker, Los Angeles, CA

10:00 AM Introductory Remarks

Faiz Bhora, New York, NY, and Edward P. Chen, Atlanta, GA

Session I: Finding a Job

10:05 AM What's Great About Working in a Private Practice or Hospital Employee Environment

Asad A. Shah, Newport Beach, CA

10:15 AM What's Great About Working in an Academic Environment

Mara B. Antonoff, Houston, TX

10:25 AM Key Steps to Finding a Job

Rishindra M. Reddy, Ann Arbor, MI

10:35 AM Negotiating a Contract: Academic and Private Practice

Faiz Bhora, New York, NY

10:45 AM Discussion

Session II: Transition to Practice

11:00 AM Building a Successful Clinical Practice and Being an Effective Leader

Edward P. Chen, Atlanta, GA

11:10 AM Early Career Development and Getting Involved in Your Profession

W. Brent Keeling, Atlanta, GA

11:20 AM Achieving Personal Financial Security: Tips and Secrets

Frederick Y. Chen, Boston, MA

11:30 AM Achieving a Successful Work-Life Balance

Armin Kiankhooy, Charlottesville, VA

11:40 AM Discussion

10:15 AM – 12:00 PM

STU University (Session II)

The courses from Session I will be repeated, offering attendees the chance to participate in more than one. See pages 9-12 for course descriptions.

12:00 PM – 1:00 PM

Lunch**Residents Luncheon**

1:00 PM – 2:00 PM

Ethics Debate: Bespoke Babies—Genome Editing in Cystic Fibrosis Embryos

Genome editing is on the threshold of clinical use, and there still are many unsettled questions as to its proper use and the underlying ethics. The Ethics Debate will consider a patient who has had a double lung transplant for cystic fibrosis and wants to have children who are free of his disease. In order to achieve this, he wants the genomes of any future embryos edited to replace a mutated cystic fibrosis gene, CTFR, with a normal gene. The presenters are experts in this field who have conflicting views of the proper use of genome editing tools such as CRISPR-Cas9.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe how various genome editing tools can be used to prevent or treat cardiothoracic diseases
- Discuss the ethical implications of genetically altering somatic cells vs germline cells
- Provide rudimentary advice to their patients about the uses of genome editing in their families, before referral to genetic counselors

MODERATOR: *Thomas A. D'Amico, Durham, NC*

1:00 PM Introduction

1:05 PM **Cystic Fibrosis Genes Should Be Replaced With Normal Genes in Cystic Fibrosis Embryos**
Kyle Brothers, Louisville, KY

1:20 PM **Cystic Fibrosis Genes Should Not Be Manipulated**
Fyodor Urnov, Seattle, WA

1:35 PM Rebuttal

1:45 PM Q&A

1:00 PM – 2:00 PM

How to Write a Great Review: Essential Components of Outstanding Peer Reviews

Consumers of medical literature expect peer-reviewed publications to be accurate, meaningful, and have high impact. Meeting this expectation requires a thorough and critical evaluation of submitted manuscripts through the peer-review process. An effective peer-review system will facilitate informed clinical practice changes that will enhance value-based care for patients and iteratively educate the entire field of cardiothoracic surgery. While this session is geared toward junior faculty and early career researchers, physicians and research personnel at all stages of their careers will gain contemporary perspectives on the process.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the peer-review process and identify its importance to academic faculty
- Recognize the key elements of scientific manuscripts and identify the necessary components to include in a review of each element

- Identify basic scientific study designs and the statistical methods that are appropriate for each
- Identify the process for responding to reviewer comments and describe effective techniques that will improve the chances of publication for a revised paper

MODERATOR: *G. Alexander Patterson, St Louis, MO*

1:00 PM Introduction

1:05 PM **Why Surgeons Should Care About Peer Review**
Elizabeth A. David, Pasadena, CA

1:15 PM **Key Elements of Scientific Manuscripts**
Lisa M. Brown, Sacramento, CA

1:25 PM **Basic Study Design and Statistical Methods**
Katie S. Nason, Springfield, MA

1:35 PM **Responding to Reviewer Comments and Preparing Revisions**
Tara B. Karamlou, Phoenix, AZ

1:45 PM Q&A

1:00 PM – 2:00 PM

Key Contacts: Advocates for Cardiothoracic Surgery

One way that cardiothoracic surgeons can have a direct impact on US federal policy affecting the specialty is by participating in the STS Key Contact program, which offers grassroots advocacy opportunities. This session will explain how the program works and outline the Society's current advocacy priorities. In addition, Key Contacts will answer questions about their experience and role-play a meeting with a member of Congress, the Key Contact of the Year and other awards will be announced, and attendees will be able to socialize and network.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe how to meet or speak with their members of Congress
- Discuss the Society's legislative priorities
- Explain how to utilize their peer Key Contacts as resources
- Identify the different types of advocacy opportunities available to them through the Key Contact program

MODERATORS: *Nicholas Beek, Washington, DC, and Madeleine Stirling, Washington, DC*

1:00 PM **Panel Discussion: On the Front Lines of STS Advocacy**
John H. Calhoun, San Antonio, TX, J. Michael DiMaio, Dallas, TX, and Alykhan S. Nagji, Kansas City, KS

1:20 PM **Mock Congressional Meetings**
Natalie S. Lui, Stanford, CA, and Amir A. Sarkeshik, Sacramento, CA

1:35 PM **Advocacy Priorities**
Jess L. Thompson III, Oklahoma City, OK

1:45 PM Awards and Networking

1:00 PM – 2:00 PM

Research Using the STS National Database

The STS National Database is a valuable tool for both quality improvement and research, and research utilizing the Database has grown exponentially in recent years. Still, many researchers may not be familiar with the different methods available for performing such research via the STS Research Center. This session will cover several Database-related research programs, including the Access and Publications (A&P) Research Program and the Participant User File (PUF) Research Program. In addition, speakers will discuss opportunities to pursue funded research using STS National Database data.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Distinguish between the different STS National Database research opportunities offered through the STS Research Center
- Explain the rules, processes, and expectations for the research programs
- Identify good practices for preparing a competitive proposal
- Explain how to access STS Research Center resources and staff assistance

MODERATOR: *Felix G. Fernandez, Decatur, GA*

- 1:00 PM **Introduction to STS Research**
Felix G. Fernandez, Decatur, GA
- 1:05 PM **PUF Research Program: Policies and Procedures**
Kevin W. Lobdell, Charlotte, NC
- 1:13 PM **PUF Research Program: Early Experience**
Robert H. Habib, Chicago, IL
- 1:21 PM **Investigator Experience With the PUF Research Program**
Bradley S. Taylor, Baltimore, MD
- 1:28 PM **A&P Research Program**
Jeffrey P. Jacobs, St Petersburg, FL
- 1:36 PM **Funded Research Program**
Matthew L. Williams, Philadelphia, PA
- 1:45 PM **Q&A**

1:00 PM – 2:00 PM

STS/CATS/SCSCS: Innovative Techniques in Thoracic Surgery

Trends in the utilization of minimally invasive surgical techniques (video-assisted thoracoscopic and robotic) for anatomic pulmonary resection will be reviewed in this session with a focus on the benefits over open approaches and variation between robotic and non-robotic platforms. The challenges to adopting robotic approaches from an implementation and cost perspective also will be discussed. In addition, the session will focus on emerging technologies for advanced endobronchial interventions, both diagnostic and therapeutic, and will review the emergence of novel systems such as robotic three-dimensional bronchoscopy.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Explain the status of and trends in minimally invasive techniques for pulmonary resection
- Describe the potential benefits and pitfalls of adopting/implementing minimally invasive approaches
- Recall the advanced endobronchial platforms (robotic)
- Recognize the diagnostic and therapeutic potential of innovative endobronchial systems

MODERATORS: *Bernard J. Park, New York, NY, and Kazuhiro Yasufuku, Toronto, Canada*

- 1:00 PM **Minimally Invasive Pulmonary Resection: Status and Trends in the United States**
David C. Rice, Houston, TX

- 1:10 PM **Minimally Invasive Pulmonary Resection: Status and Trends in Canada**
Wael C. Hanna, Hamilton, Canada

- 1:20 PM **Discussion**

- 1:30 PM **Innovations in Diagnostic Bronchoscopy**
Katarzyna Czarnecka, Toronto, Canada

- 1:40 PM **Innovations in Therapeutic Bronchoscopy**
Shanda H. Blackmon, Rochester, MN

- 1:50 PM **Discussion**

1:00 PM – 2:00 PM

Unconscious Bias

Unconscious bias is a rarely recognized phenomenon that can have unintended influence on interactions among cardiothoracic surgeons at all levels of training, particularly as it pertains to gender, race, and ethnicity. This session, organized by Women in Thoracic Surgery, will address the need to recognize and define unconscious and implicit bias in our actions and provide tools to avoid the negative influence it may have on our actions and interactions with others.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Define unconscious bias
- Define implicit bias
- Recognize bias within themselves
- Describe how their personal bias could impact others
- Identify ways to avoid unconscious bias in everyday practice

MODERATOR: *Valerie A. Williams, Cincinnati, OH*

- 1:00 PM **Introduction**
Valerie A. Williams, Cincinnati, OH
- 1:05 PM **Unconscious Bias: What Is It?**
Jessica S. Donington, Chicago, IL
- 1:13 PM **Gender Bias**
DuyKhanh P. Ceppa, Indianapolis, IN
- 1:21 PM **Unconscious Bias: Race**
Jane Yanagawa, Los Angeles, CA
- 1:29 PM **Overcoming Bias in Surgery: The Role of Mentorship and Sponsorship**
Robert S. D. Higgins, Baltimore, MD
- 1:37 PM **Panel Discussion**

2:10 PM – 4:30 PM

Opening Session

MODERATORS: Keith S. Naunheim, St Louis, MO, and Joseph F. Sabik III, Cleveland, OH

2:10 PM Welcome

2:30 PM **ABSTRACT:** J. Maxwell Chamberlain Memorial Paper for Adult Cardiac Surgery: Relationship Between Hospital Surgical Aortic Valve Replacement Volume and Transcatheter Aortic Valve Replacement Outcomes

S. A. Hirji¹, E. P. McCarthy², D. Kim¹, S. McGurk¹, J. I. Ejiofor¹, S. H. Kiehm¹, F. Ramirez-Del Val¹, A. A. Kolkailah¹, N. Berry¹, M. P. Pelletier¹, P. Shah¹, P. T. O'Gara¹, T. K. Kaneko¹

¹Brigham and Women's Hospital, Boston, MA, ²Institute of Aging Research, Hebrew SeniorLife, Beth Israel Deaconess Medical Center, Boston, MA

DISCUSSANT: Joseph E. Bavaria, Philadelphia, PA

2:50 PM **ABSTRACT:** J. Maxwell Chamberlain Memorial Paper for General Thoracic Surgery: Thoracic Surgery Regionalization Within an Integrated Health Care System Improves Outcomes From Major Pulmonary Resections for Lung Cancer

S. Ely¹, S. Jiang², J. B. Velotta², T. C. Tung³

¹University of California San Francisco East Bay Surgery, Oakland, CA

²Kaiser Permanente, Oakland, CA, ³Kaiser Permanente, San Ramon, CA

DISCUSSANT: David Tom Cooke, Sacramento, CA

3:10 PM **ABSTRACT:** J. Maxwell Chamberlain Memorial Paper for Congenital Heart Surgery: Late Survival and Patient-Perceived Functional Health Status of the Congenital Heart Surgeons' Society Transposition of the Great Arteries Cohort

P. J. Devlin¹, A. Jegatheeswaran¹, W. G. Williams¹, E. H. Blackstone², W. M. Decamp³, L. M. Lambert⁴, K. A. Mussatto⁵, C. Prospero⁶, I. Bondarenko⁷, B. W. McCrindle¹

¹The Hospital for Sick Children, Toronto, Canada, ²Cleveland Clinic, OH, ³The Congenital Heart Institute at Arnold Palmer Hospital, Orlando, FL, ⁴University of Utah, Salt Lake City, ⁵Children's Hospital of Wisconsin, Milwaukee, ⁶Nemours Cardiac Center, Alfred I. duPont Hospital for Children, Wilmington, DE, ⁷Children's Hospital of Michigan, Detroit

DISCUSSANT: John J. Lamberti, Palo Alto, CA

3:30 PM **Thomas B. Ferguson Lecture: Cancer Immunotherapy: The End of the Beginning**
Laurie H. Glimcher, Boston, MA

4:30 PM – 6:30 PM

Opening Reception in STS Exhibit Hall

4:45 PM – 5:55 PM

Jeopardy Championship

5:30 PM – 6:30 PM

2019 The Thoracic Surgery Foundation Awards Announcement and VIP Reception (by invitation only)

5:30 PM – 6:30 PM

Poster Presentations

All posters will now be electronic. Several monitors will be available in the Exhibit Hall for attendees to view the posters.

7:00 PM – 10:00 PM

President's Reception: Hotel del Coronado

Join your colleagues for the STS President's Reception at the celebrated Hotel del Coronado on Sunday evening, January 27. Set on picturesque Coronado Island, just off the San Diego coastline, this National Historic Landmark hotel was built in 1888 and has been a popular destination for visiting celebrities, presidents, and dignitaries.

The reception will be held in the Crown Room, an elegant space with a 33-foot domed ceiling made from Oregon sugar pine and crown-shaped chandeliers designed by L. Frank Baum, author of *The Wonderful Wizard of Oz*. Several notable events have been held in the Crown Room, including a celebration for Charles Lindbergh following his solo transatlantic flight. The resort also served as the backdrop for movies, including "Some Like It Hot," starring Marilyn Monroe, Tony Curtis, and Jack Lemmon.

Don't miss this opportunity to enjoy dinner, drinks, and conversation in a historic setting.



6:30 AM – 5:00 PM

Registration

9:00 AM – 4:30 PM

Exhibit Hall

7:15 AM – 9:15 AM

NEW! Career Navigation and Development: Hot Topics to Enhance Your First 7 Years of Practice

Through lectures and robust discussion on hot topics, this session will review the challenges faced by cardiothoracic surgeons early in their careers and provide solutions so that they can be successful. Attendees also will learn how to become a volunteer leader in their medical specialty society.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the essential elements of contract negotiation
- Explain how to apply social media to their practice
- Describe how to find a mentor and develop a valuable relationship
- Outline how to develop a niche in their practice while attaining work-life balance

MODERATORS: *Melanie A. Edwards, Ypsilanti, MI, and Richard Lee, Augusta, GA*

7:15 AM **Introduction**

Melanie A. Edwards, Ypsilanti, MI

7:25 AM **Negotiating and Renegotiating Your Contract**

Frank L. Fazzalari, Rochester, MI

7:35 AM **Is the Trifecta Really Possible? Clinical Practice, Research/Education, and a Life**

Joanna Chikwe, New York, NY

7:45 AM **The Value of Great Mentorship: How to Find a Mentor and How to Be a Mentee**

David D. Odell, Chicago, IL

7:55 AM **How to Use Social Media to Engage Your Colleagues and Your Patients**

Mara B. Antonoff, Houston, TX

8:05 AM **Leadership in The Society of Thoracic Surgeons: How to Excel**

Robert S. D. Higgins, Baltimore, MD

8:15 AM **Hot Topics Free-for-All**

PRIMARY MODERATORS: *Mara B. Antonoff, Houston, TX, and Vinay Badhwar, Morgantown, WV*

FLOOR MODERATORS: *Melanie A. Edwards, Ypsilanti, MI, Damien J. LaPar, New York, NY, and Gabriel Loor, Minneapolis, MN*

PANELISTS: *Shanda H. Blackmon, Rochester, MN, Robert J. Cerfolio, Birmingham, AL, Nimesh Desai, Philadelphia, PA, Tom C. Nguyen, Houston, TX, Vinod H. Thourani, Washington, DC, and Thomas K. Varghese Jr, Salt Lake City, UT*

Discussion Topics:

- How Does My Health System Value My Contributions?
- Should I Stay or Should I Go? Dealing With a Difficult Job
- Developing a Niche and Building Your Practice
- What to Do When You Are in Over Your Head
- Academic, Private, or Employed—and How to Excel Anywhere
- Pathways to Health System or Hospital Leadership

7:15 AM – 9:15 AM

Congenital: Pediatric Congenital I

MODERATORS: *Carl L. Backer, Chicago, IL, and Stephanie M. Fuller, Philadelphia, PA*

7:15 AM **ABSTRACT:** Richard E. Clark Memorial Paper for Congenital Heart Surgery: Outcomes of Fontan Operation With and Without Down Syndrome From the STS Congenital Heart Surgery Database

L. A. Sarno¹, H. L. Walters², D. Kobayashi²

¹East Carolina University, Greenville, NC, ²Children's Hospital of Michigan, Detroit

DISCUSSANT: *Takeshi Furukawa, Tokyo, Japan*

7:30 AM **ABSTRACT:** Complex Transposition Repair: Up to 30 Years of Follow-Up

F. A. Kari¹, H. Bohnens², B. O. Bierbach³, E. A. Bacha⁴, B. Stiller², U. Bauer⁵

¹NewYork-Presbyterian Morgan Stanley Children's Hospital, Columbia University Medical Center, NY, ²University of Freiburg, Germany, ³German Pediatric Heart Center, Sankt Augustin, ⁴NewYork-Presbyterian/Columbia University Medical Center, NY, ⁵German National Quality Assurance for Congenital Heart Disease, Berlin

7:45 AM **ABSTRACT:** Mitral Valve Replacement in Children With a 15 mm Mechanical Valve

K. R. Kanter¹, C. L. Backer², M. B. Mitchell³, J. M. Chen⁴, B. E. Kogon⁵, J. M. Hammel⁶, J. Jagers⁷, C. D. Fraser⁸

¹Emory University School of Medicine, Atlanta, GA, ²Ann & Robert H. Lurie Children's Hospital of Chicago, IL, ³Children's Hospital of Colorado Heart Institute, Aurora, ⁴Children's Hospital of Philadelphia, PA, ⁵University of Mississippi Medical Center, Jackson, ⁶Children's Hospital & Medical Center, Omaha, NE, ⁷University of Colorado, Children's Hospital Colorado, Aurora, ⁸UT Health Austin, TX

8:00 AM **ABSTRACT:** Surgical Aortic Valvuloplasty vs Balloon Aortic Dilation for Congenital Aortic Stenosis: Do Outcome Disparities Remain?

A. J. Clark, J. W. Brown, J. Herrmann, M. D. Rodefeld, M. H. Hoyer, M. W. Turrentine

Indiana University School of Medicine, Indianapolis

8:15 AM **Infant Valve Intervention**

John W. Moore, San Diego, CA

8:30 AM **ABSTRACT:** National Practice Patterns and Early Outcomes of Aortic Valve Replacement in Children and Teens: An Analysis of the STS Congenital Heart Surgery Database

J. S. Nelson¹, T. M. Maul¹, P. D. Wearden¹, S. K. Pasquali², J. C. Romano³

¹Nemours Children's Hospital, Orlando, FL, ²University of Michigan, Ann Arbor, ³Michigan Congenital Heart Center, Ann Arbor

8:45 AM **ABSTRACT:** Definitive Repair of Neonatal Complete Atrioventricular Canal Defects in the Modern Surgical Era

D. J. LaPar¹, M. Chavez², M. J. Borisuk², S. M. Emani², A. K. Kaza², P. J. del Nido², K. G. Friedman², C. W. Baird²

¹NewYork-Presbyterian Morgan Stanley Children's Hospital, Columbia University Medical Center, NY, ²Boston Children's Hospital, MA

9:00 AM **ABSTRACT:** Risk Factors for Reintervention After Isolated Subaortic Membrane Resection

Z. M. Binsalamah¹, Z. A. Spigel¹, C. Ibarra², I. Adachi², C. M. Mery³, M. Imamura¹, J. S. Heinle², C. D. Fraser⁴

¹Baylor College of Medicine, Houston, TX, ²Texas Children's Hospital, Houston, ³The University of Texas Dell Medical School/Dell Children's Hospital, Austin, ⁴UT Health Austin, TX

7:15 AM – 9:15 AM

EACTS @ STS: Which Arch Operation Should I Do? Decision-Making During Type A Dissection Repair

In this session presented by STS and the European Association for Cardio-Thoracic Surgery, international experts will examine alternatives to the standard classic repair for DeBakey type I aortic dissection and discuss the outcomes of innovative extended arch repair techniques, including the distal aortic frozen elephant trunk, novel branched arch endografts, and valve retention root reconstructive surgery. Technical considerations, conduct of operations, surgical decision-making, and the most up-to-date data will be presented.

Learning Objectives

Upon completion of this activity, participants should be able to:

- State when it is appropriate to modify the classic proximal reconstructive repair for DeBakey type I dissection with extended arch repair techniques based on available outcomes data
- Describe the nuances and different applications for novel branched arch endograft devices and frozen elephant trunk in patients with DeBakey type I aortic dissection

MODERATORS: *Joseph E. Bavaria, Philadelphia, PA, and Ruggero P. De Paulis, Rome, Italy*

7:15 AM **Options and Dilemmas at the Arch in Type A Repair: Present and Future Considerations**

Joseph E. Bavaria, Philadelphia, PA, and Ruggero P. De Paulis, Rome, Italy

7:30 AM **The Open Distal/Hemiarch Operation for Type A: Is the Gold Standard Keeping Up? Yes!**

Steven L. Lansman, Valhalla, NY

7:45 AM **ABSTRACT: Endovascular Repair of the Thoracic and Thoracoabdominal Aorta Following the Frozen Elephant Trunk Procedure**

*M. Haensig, D. Branzan, H. Staab, S. Steiner, D. Scheinert, A. Schmidt
University of Leipzig, Germany*

7:53 AM **Frozen Elephant Trunk Operation: A New Standard for Acute Type A Dissection**

Davide Pacini, Bologna, Italy

8:08 AM **A New Operation Based on the Availability of New Technology: The Elegance of the Zone 2 (or 1) Arch With Sequential Single-Branched Thoracic Endovascular Aortic Repair**

Nimesh Desai, Philadelphia, PA

8:23 AM **ABSTRACT: Single-Stage Management of Dynamic Malperfusion Utilizing a Novel Arch Remodeling Hybrid Graft**

*S. J. Bozso⁶, M. W. Chu¹, I. El-Hamamsy², M. Ouzounian³, J. Kempfert⁴, A. Shahriari⁵, J. Nagendran⁶, M. C. Moon⁶
¹Western University, London Health Sciences Center, Canada, ²Montreal Heart Institute, Canada, ³University of Toronto, Canada, ⁴Deutsches Herzzentrum Berlin, Germany, ⁵Ascyrus Medical LLC, Boca Raton, FL, ⁶University of Alberta, Edmonton, Canada*

8:31 AM **Multi-Branched Arch Endograft Solutions as Adjuncts to the Type A Repair: Will This Technology Keep the Index Operation Simple?**

Bartosz Rylski, Freiburg, Germany

8:46 AM **ABSTRACT: Impact of Supra-Aortic and Thoracoabdominal Intimal Tear on Aortic Dilation and Reintervention After Surgical Repair in Acute Type I Aortic Dissection**

*W. Heo¹, S. Song¹, S. Lee¹, T. Kim¹, J. Lee¹, K. Yoo¹, B. Cho²
¹Gangnam Severance Hospital, Seoul, South Korea, ²Korea Heart Foundation, Seoul*

8:54 AM **Discussion**

7:15 AM – 9:15 AM

ESTS @ STS: Controversial Issues in General Thoracic Surgery—Perspectives From Europe and North America

This session will provide current perspectives from Europe and North America on a variety of controversial issues in general thoracic surgery. Experts from both continents will discuss topics such as invasive staging in early stage lung cancer, multimodal approaches to the treatment of stage IIIA/IIA2 lung cancer, and the use of induction therapy in patients with T2N0 esophageal cancer.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Explain how to obtain a critical appraisal of the indications for invasive staging in early stage lung cancer
- Describe the latest insights in the continuing debate on multimodality treatment for stage IIIA/IIA2 non-small-cell lung cancer (NSCLC)
- Discuss the advantages and disadvantages of induction therapy in selected groups of patients with T2N0 esophageal cancer

MODERATORS: *Gilbert Massard, Strasbourg, France, and Michael J. Weyant, Aurora, CO*

7:15 AM **Mediastinal Staging for Clinical Stage I NSCLC: The European Perspective**

Herbert Decaluwe, Leuven, Belgium

7:30 AM **Mediastinal Staging for Clinical Stage I NSCLC: The North American Perspective**

M. Blair Marshall, Washington, DC

7:45 AM **Panel Discussion**

7:55 AM **Stage IIIA/IIA2—Selection of Candidates for Surgery After Induction Therapy: The European Perspective**

David Waller, Leicester, United Kingdom

8:10 AM **Stage IIIA/IIA2—Selection of Candidates for Surgery After Induction Therapy: The North American Perspective**

Thomas A. D'Amico, Durham, NC

8:25 AM **Panel Discussion**

8:35 AM **Role of Induction Therapy for T2N0 Esophageal Cancer: The European Perspective**

Georges Decker, Luxembourg City, Luxembourg

8:50 AM **Role of Induction Therapy for T2N0 Esophageal Cancer: The North American Perspective**

Philip A. Linden, Cleveland, OH

9:05 AM **Panel Discussion**

7:15 AM – 9:15 AM

STS/ISHLT Joint Symposium: The Evolution of Mechanical Circulatory Support—International Perspectives and Universal Challenges

Ventricular assist devices (VADs) are rapidly evolving, with new technology launched annually, but the introduction and diffusion of this new technology varies across the globe. This session will address how VADs are utilized in European and Asian populations and will highlight the latest innovations in univentricular and biventricular support.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe utilization trends of VADs in Singapore, Germany, and the United Kingdom
- Explain the role of VADs in complex congenital heart disease
- Describe the opportunities present in current VAD technology and summarize developments in next-generation mechanical circulatory support technology
- Outline current and future biventricular support applications and determine when they are indicated

MODERATOR: Mary E. Keebler, Nashville, TN

- 7:15 AM VADs in Geographies of Constrained Organ Donation: Perspective From Singapore
Sivathasan Cumaraswamy, Singapore, Singapore
- 7:30 AM VADs in Geographies of Constrained Financial Resources: Perspective From the United Kingdom
Stephan Schueler, Newcastle upon Tyne, United Kingdom
- 7:45 AM VADs in Geographies With Rapidly Changing Transplant Waiting Times: Perspective From Germany
Evgenij V. Potapov, Berlin, Germany
- 8:00 AM Panel Discussion
- 8:15 AM Mechanically Assisted Circulation in Patients With Complex Congenital Heart Disease
Angela Lorts, Cincinnati, OH
- 8:30 AM Innovations in Assisted Circulation for the Coming Decade
Pramod Bonde, New Haven, CT
- 8:45 AM Insights for Mechanically Supporting Biventricular Failure
Daniel G. Tang, Richmond, VA
- 9:00 AM Panel Discussion

8:15 AM – 9:15 AM

Basic Science Research: Adult Cardiac

MODERATORS: T. Brett Reece, Aurora, CO, and Prashanth Vallabhajosyula, Philadelphia, PA

- 8:15 AM **ABSTRACT:** Combined Use of a Selective Factor XII Inhibitor With a Polycarboxybetaine Surface Coating Generates Potent Artificial Lung Anticoagulation Without Bleeding
N. Naito¹, R. Ukita², N. Carleton², K. Bouloubassis², K. E. Cook²
¹Massachusetts General Hospital, Boston, ²Carnegie Mellon University, Pittsburgh, PA
- 8:30 AM **ABSTRACT:** Valve Interstitial Cell-Specific Cyclooxygenase 1 Is Associated With Calcification of Native and Bioprosthetic Aortic Valves: Molecular Profiling and Functional Analysis of Valve Interstitial Cells
T. Sakaue¹, M. Hamaguchi¹, F. Shikata², J. Aono¹, K. Nakashiro¹, H. Izutani¹
¹Ehime University Graduate School of Medicine, Toon, Japan, ²Lady Cilento Children's Hospital, South Brisbane, Australia
- 8:45 AM **ABSTRACT:** Wall Stress Distribution in Bicuspid Aortic Valve Associated Ascending Thoracic Aortic Aneurysms
A. O. Gomez¹, Z. Wang¹, Y. Xuan¹, A. D. Wisneski², E. S. Meike³, M. Hope¹, J. Guccione¹, L. Ge³, E. E. Tseng²
¹University of California, San Francisco, ²University of California, San Francisco Medical Center and San Francisco VA Medical Center, ³San Francisco VA Medical Center, CA
- 9:00 AM **ABSTRACT:** Delayed Mitochondrial Transplantation by Intracoronary Injection for Myocardial Salvage After Ischemia Reperfusion Injury
D. Blitzer¹, A. Guariento², B. Shin², K. Moskowitsova², G. Ramirez-Barbieri², A. Orfani², P. J. del Nido², J. D. McCully²
¹Columbia University Medical Center, New York, NY, ²Boston Children's Hospital, MA

8:15 AM – 9:15 AM

Basic Science Research: General Thoracic

MODERATORS: Min P. Kim, Houston, TX, and Jane Yanagawa, Los Angeles, CA

- 8:15 AM **ABSTRACT:** Intratumoral LKB1/STK11 Expression Correlates With Immune Cell Infiltration and Oncologic Outcomes Following Resection of Lung Adenocarcinoma
K. G. Mitchell, E. R. Parra, D. B. Nelson, E. Corsini, J. Zhang, A. A. Vaporciyan, W. L. Hofstetter, R. J. Mehran, S. G. Swisher, D. C. Rice, B. Sepesi, G. L. Walsh, M. C. Behrens, N. Kalhor, A. Weissferdt, C. Moran, F. Skoulidis, I. I. Wistuba, J. Fujimoto, J. A. Roth, M. B. Antonoff
The University of Texas MD Anderson Cancer Center, Houston

- 8:27 AM **ABSTRACT:** A Multimodal Nanoagent for Intraoperative Image-Guided Sentinel Lymph Node Mapping in Lung Cancer
H. Ujiie², H. H. Chan¹, A. Gregor², H. Hu², T. Kato², T. Kinoshita², Y. Motooka², T. Inage², T. K. Waddell³, S. Keshavjee², K. Yasufuku²
¹TECHNA Institute, University Health Network, Toronto, Canada, ²Toronto General Hospital, Canada, ³University Health Network, Toronto, Canada

- 8:39 AM **ABSTRACT:** The TumorCBC: In-Silico Flow Cytometry to Understand Lung Cancer Data and Predict Survival
V. Kurbatov², A. Balayev¹, A. Saffarzadeh², J. Blasberg², D. J. Boffa², J. M. Lu², S. A. Khan²
¹University of Toronto, Canada, ²Yale University, New Haven, CT

- 8:51 AM **ABSTRACT:** Immune Regulatory Markers of Lepidic-Pattern Adenocarcinomas Presenting as Ground Glass Opacities
D. B. Nelson, K. G. Mitchell, J. Wang, J. Fujimoto, M. C. Behrens, X. Zheng, J. Zhang, B. Sepesi, A. A. Vaporciyan, W. L. Hofstetter, R. J. Mehran, D. C. Rice, G. L. Walsh, S. G. Swisher, C. Moran, N. Kalhor, A. Weissferdt, I. I. Wistuba, J. A. Roth, M. B. Antonoff
The University of Texas MD Anderson Cancer Center, Houston

- 9:03 AM **ABSTRACT:** Outcomes of Basiliximab Administration Before and After Allograft Reperfusion in Lung Transplantation
J. P. Costello, A. E. Rodrigues, W. Jeske, J. P. Schwartz, D. F. Dilling, J. M. Walenga, M. Bakhos, W. T. Vigneswaran
Loyola University Medical Center, Maywood, IL

8:15 AM – 9:15 AM

Diversity and Inclusion in Cardiothoracic Surgery: What Is the Real Value?

Attendees of this session, organized by the STS Task Force on Diversity and Inclusion, will learn how diversity and inclusion can be valuable to their practices, service lines, training efforts, and relationships in the communities they serve. Speakers will address strategies to diversify faculty and/or surgical staff to optimally reflect the practice community and tips for including diverse trainees and junior surgeons in leadership and research.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Define diversity as it relates to the health care workforce and the care of diverse patient populations
- Define inclusion as it relates to the health care workforce, health care leadership, and the care of diverse patient populations
- Define underrepresented minority (URM)
- Discuss how a diverse cardiothoracic surgery workforce can improve patient outcomes through increasing cultural competency and mitigating implicit provider bias
- Explain how the inclusion of URM trainees, junior faculty, and staff helps increase the URM pipeline to the clinical workforce

MODERATOR: David Tom Cooke, Sacramento, CA

- 8:15 AM Introduction
- 8:20 AM Diversity and Inclusion in Cardiothoracic Surgery: What Is the Real Value?
Joan Reede, Boston, MA
- 9:05 AM Q&A

9:30 AM – 12:15 PM

Plenary Session

MODERATORS: Keith S. Naunheim, St Louis, MO, and Joseph F. Sabik III, Cleveland, OH

9:30 AM Abstract Presentation

9:45 AM **ABSTRACT:** Adjuvant Treatment for Node-Positive Esophageal Cancer After Induction Therapy and Surgery Improves Survival: A Multisite StudyT. Semenkovich¹, M. P. Subramanian¹, W. L. Hofstetter², S. D. Cassivi³, B. M. Stiles⁴, A. C. Chang⁵, G. E. Darling⁶, S. R. Broderick⁷, F. G. Fernandez⁹, V. R. Litle⁸, V. Puri¹, B. Kozower¹, B. F. Meyers¹¹Washington University in St Louis, MO, ²The University of Texas MD Anderson Cancer Center, Houston, ³Mayo Clinic, Rochester, MN, ⁴Weill Cornell Medicine, New York, NY, ⁵University of Michigan Health System, Ann Arbor, ⁶University Health Network, Toronto, Canada, ⁷Johns Hopkins University, Baltimore, MD, ⁸Boston Medical Center, MA, ⁹Emory University, Decatur, GA10:00 AM **ABSTRACT:** Primary Transplantation for Congenital Heart Disease in the Neonatal Period: Long-Term Outcomes at a Single Institution

J. Mohan, A. Razzouk, M. Bock, R. Chinnock, T. Martens, L. Bailey

Loma Linda University Medical Center, CA

10:15 AM BREAK—Visit Exhibits and Scientific Posters

11:00 AM Introduction of the President

Robert S. D. Higgins, Baltimore, MD

11:10 AM Presidential Address

Keith S. Naunheim, St Louis, MO

12:15 PM – 1:15 PM

BREAK—Visit Exhibits and Scientific Posters

1:15 PM – 3:15 PM

Adult Cardiac: Aorta I

MODERATORS: Thomas G. Gleason, Pittsburgh, PA, and Wilson Y. Szeto, Philadelphia, PA

1:15 PM **ABSTRACT:** Impact of Cerebral Perfusion Strategy on Stroke and Mortality After Circulatory Arrest for Aortic Arch Surgery: An STS Adult Cardiac Surgery Database AnalysisJ. Chikwe¹, S. Itagaki¹, N. Toyoda¹, D. Chu², N. N. Egorova¹¹Icahn School of Medicine at Mount Sinai, New York, NY, ²University of Pittsburgh School of Medicine, PA1:30 PM **ABSTRACT:** National Study of Index Mortality, Readmission, and Costs for Thoracic Endovascular Aortic Repair With Chronic Kidney DiseaseY. Sanaïha¹, B. Kavianpour³, R. Jaman¹, R. Morchi², R. J. Shemin¹, P. Benharash¹¹University of California, Los Angeles, ²University of California, Irvine, ³Stony Brook University, NY1:45 PM **DEBATE:** The Diameter Threshold for Prophylactic Ascending Aortic Replacement Should Be Lowered

Yes: Edward P. Chen, Atlanta, GA

No: Anthony L. Estrera, Houston, TX

2:15 PM **ABSTRACT:** Volume-Outcome Relationships in Surgical and Endovascular Repair of Aortic DissectionA. A. Brescia¹, H. J. Patel, D. S. Likosky, T. Watt, X. Wu, R. J. Strobel, K. M. Kim, S. Fukuhara, G. Deeb, M. P. Thompson
University of Michigan, Ann Arbor

2:30 PM

ABSTRACT: Multicenter Analysis of Early Outcomes of Acute Type A Aortic Dissection: A Report From the Japan Registry of Aortic Dissection DatabaseY. Inoue¹, H. Matsuda¹, A. Omura¹, Y. Seike¹, K. Uehara¹, H. Sasaki¹, H. Ogino²¹National Cerebral and Cardiovascular Center, Suita, Japan, ²Tokyo Medical University, Japan

2:45 PM

ABSTRACT: Ascending Aortic Endovascular Repair Is Safe and Associated With Positive Remodeling in Prohibitive-Risk Patients With Ascending Aortic DiseaseM. Ghoreishi¹, J. Judy¹, A. Shah¹, C. Pasirja¹, J. Leibowitz¹, S. Toursavadkoshi¹, E. J. Lehr², B. S. Taylor¹¹University of Maryland, Baltimore, ²Swedish Heart and Vascular Institute, Seattle, WA

3:00 PM

Proximal and Aortic Arch Endografting: State-of-the-Art

Wilson Y. Szeto, Philadelphia, PA

1:15 PM – 3:15 PM

Adult Cardiac: Ischemic

MODERATORS: Joseph C. Cleveland Jr, Aurora, CO, and Ourania A. Preventza, Houston, TX

1:15 PM

ABSTRACT: Angiographic Outcome of Coronary Artery Bypass Grafts: An Analysis of 2236 ConduitsM. F. Gaudino¹, U. Benedetto², S. E. Fremes³, D. L. Hare⁴, P. A. Hayward⁵, M. N. Moscariello⁶, G. G. Nasso⁷, N. Moat⁸, K. Yoo⁹, G. N. Speziale⁷, J. D. Puskas¹⁰, L. N. Girardi¹, D. P. Taggart¹¹²¹Weill Cornell Medicine, New York, NY, ²University of Bristol, United Kingdom, ³Schulich Heart Center, Sunnybrook Health Sciences Center, Toronto, Canada, ⁴University of Melbourne, Australia, ⁵Austin Hospital, Melbourne, Australia, ⁶National Heart and Lung Institute, Imperial College London, United Kingdom, ⁷Anthea Hospital, Bari, Italy, ⁸Royal Brompton and Harefield Trust, London, United Kingdom, ⁹Severance Cardiovascular Hospital, Yonsei University College of Medicine, Seoul, South Korea, ¹⁰Mount Sinai St Luke's Hospital, New York, NY, ¹¹John Radcliffe Hospital, Oxford, United Kingdom

1:30 PM

ABSTRACT: Fate of Saphenous Vein Graft in Coronary Artery Bypass Grafting According to the Anastomosis Technique: Sequential vs Individual

S. Park, C. Chung, J. Kim, H. Kim

Asan Medical Center, Seoul, South Korea

1:45 PM

ABSTRACT: Bilateral Internal Thoracic Artery In Situ vs Y-Composite Grafting: 10-Year Angiographic Patency and Long-Term Clinical OutcomesS. Sohn, Y. Lee, J. Choi, H. Hwang, K. Kim
Seoul National University Hospital, South Korea

2:00 PM

Does Bypass Graft Configuration Matter?

David Glineur, Ottawa, Canada

2:15 PM

ABSTRACT: Does Utilization of the Bilateral Mammary Artery Increase Short-Term Risk in Uncontrolled Diabetic Patients? Results From the STS Adult Cardiac Surgery Database

T. Kazui, S. D. Lick, C. Hsu, D. A. Bull

University of Arizona, Tucson

2:30 PM

ABSTRACT: Outcomes Following Coronary Artery Bypass Grafting Surgery Between Insulin-Controlled Diabetics, Tablet-Controlled Diabetics, and Non-Diabetic Patients in a Propensity-Matched Analysis

Y. S. Haqzad

Sheffield Teaching Hospitals NHS Trust, Beverley, United Kingdom

2:45 PM

DEBATE: 65-Year-Old Patient With Insulin-Dependent Diabetes and Three-Vessel Coronary Artery Disease

Left Internal Mammary Artery and Saphenous Vein Graft: Frank W. Sellke, Providence, RI

Bilateral Internal Mammary Artery +/- Saphenous Vein Graft: Joseph F. Sabik III, Cleveland, OH

Left Internal Mammary Artery and Radial +/- Saphenous Vein Graft: Jennifer S. Lawton, Baltimore, MD

3:09 PM

Discussion

1:15 PM – 3:15 PM

Congenital: Pediatric Congenital II

MODERATORS: Meena Nathan, Boston, MA, and Christian Pizarro, Wilmington, DE

1:15 PM **ABSTRACT:** Ex-Utero Extracorporeal Support as a Model for Fetal Hypoxia and Brain Dysmaturity in Congenital Heart DiseaseP. E. McGovern¹, K. M. Lawrence², H. Baumgarten², A. C. Rossidis², A. Mejaddam², D. J. Licht², J. B. Grinspan², A. Schupper², J. Rychik², R. A. Didier², A. Vossough², W. H. Peranteau², M. Davey², A. Flake², J. W. Gaynor²¹Temple University Hospital, Philadelphia, PA, ²Children's Hospital of Philadelphia, PA1:30 PM **ABSTRACT:** Neurodevelopmental Delay Following Neonatal Biventricular Repair of Isolated Coarctation and Aortic Arch ObstructionB. V. Simon¹, M. F. Swartz¹, J. M. Orie², H. Adams¹, L. E. Seltzer¹, R. Angona¹, G. M. Alfieri¹¹University of Rochester, New York, ²University of Pittsburgh, PA1:45 PM **ABSTRACT:** Impact of Mesenchymal Stem/Stromal Cell Delivery Through Cardiopulmonary Bypass on Postnatal Neurogenesis in a Juvenile Porcine ModelT. Maeda¹, K. Sarkisli¹, C. Leonetti¹, N. Kapani², Z. Dhari¹, I. Al Haj¹, R. Ulrey¹, P. J. Hanley¹, R. A. Jonas¹, N. Ishibashi¹¹Children's National Health System, Washington, DC, ²George Washington University, Washington, DC2:00 PM **Connectome Talk**

Jane W. Newburger, Boston, MA

2:15 PM **ABSTRACT:** Cardiac Xenotransplant in Infants as a Bridge to Allotransplantation: Is It Possible?

C. A. Banks, H. Hara, D. K. Cooper, D. C. Mauchley, R. J. Dabal, S. Borasino, T. Yamamoto, D. C. Cleveland

University of Alabama, Birmingham

2:30 PM **ABSTRACT:** How Long Should You Be Bridging Your Pediatric Heart Transplant Candidates?

K. W. Riggs, F. Zafar, A. Lorts, C. Villa, R. Bryant III, D. L. Morales

Cincinnati Children's Hospital Medical Center, OH

2:45 PM **ABSTRACT:** Evolution of Single Ventricular Assist Device Support for Failing Bidirectional Glenn: Lessons Learned

K. Maeda, N. Teimour, V. Yarlagaadda, S. A. Hollander, M. Navaratnam, D. Rosenthal, J. C. Dykes, B. D. Kaufman, C. S. Almond, O. Reinhartz, J. Murray, S. Chen

Stanford University, Palo Alto, CA

3:00 PM **ABSTRACT:** Treatment of a Patient With Atrioventricular Discordance/Ventriculoarterial Concordance, Large Ventricular Septal Defect, and Situs Inversus: A Modern-Day Indication for the Senning ProcedureJ. Hermsen¹, U. Okorie², S. Srinivasan¹, P. Anagnostopoulos¹¹University of Wisconsin, Madison, ²The Marshfield Clinic, WI

1:15 PM – 3:15 PM

General Thoracic: Lung Cancer I

MODERATORS: Mara B. Antonoff, Houston, TX, and Sudish C. Murthy, Cleveland, OH

1:15 PM **ABSTRACT:** Clinicopathological and Immune Microenvironment Features Associated With High Tumor Mutational Burden and PD-L1 Expression in Resected Non-Small-Cell Lung Cancer
K. G. Mitchell¹, M. V. Negrao¹, E. R. Parra¹, J. Li¹, A. Reuben¹, A. A. Vaporciyan¹, S. G. Swisher¹, J. A. Roth¹, L. Lacerda¹, I. I. Wistuba¹, C. Bernatchez¹, C. L. Haymaker¹, A. Futreal¹, C. B. Chow¹, J. Zhang¹, H. T. Tran¹, M. E. Vasquez¹, E. Prado¹, J. Rodriguez-Canales², M. Celestino¹, A. Weissferdt¹, E. Roarty¹, T. Cascone¹, D. L. Gibbons¹, J. V. Heymach¹, J. Zhang¹, B. Sepesi¹¹The University of Texas MD Anderson Cancer Center, Houston,²MedImmune, Gaithersburg, MD1:30 PM **ABSTRACT:** Identification of High-Risk Patients for Recurrence in Pathological Stage I Lung Adenocarcinoma: Long-Term Follow-Up Data From JCOG0201Y. Tsutani¹, K. Suzuki², T. Koike³, M. Wakabayashi⁴, T. Mizutani⁴, K. Aokage⁵, H. Saji⁶, K. Nakagawa⁴, Y. Zenke⁴, K. Takamochi², H. Ito⁷, T. Aoki⁸, J. Okami⁹, H. Yoshioka¹⁰, M. Okada¹, H. Fukuda⁴, S. Watanabe⁴¹Hiroshima University, Japan, ²Juntendo University, Tokyo, Japan,³Niigata Seirou Hospital, Kitakababara, Japan, ⁴National Cancer Center Hospital, Tokyo, Japan, ⁵National Cancer Center Hospital East, Kashiwa, Japan, ⁶St Marianna University School of Medicine, Kawasaki, Japan, ⁷Kanagawa Cancer Center, Yokohama, Japan, ⁸Niigata Cancer Center Hospital, Japan, ⁹Osaka International Cancer Institute, Japan,¹⁰Kansai Medical University Hospital, Hirakata, Japan1:45 PM **ABSTRACT:** Is the Prognostic Significance of Visceral Pleural Invasion Equal in Patients With Pure-Solid or Part-Solid Lung Cancer?S. Okada¹, A. A. Hattori², T. Matsunaga², K. Takamochi², S. Oh², M. Inoue¹, K. Suzuki²¹Kyoto Prefectural University of Medicine, Japan, ²Juntendo University, Tokyo, Japan2:00 PM **DEBATE:** Do Clinical Trials Really Matter for Day-to-Day Practice?

Yes: Dennis A. Wigle, Rochester, MN

No: Varun Puri, St Louis, MO

2:30 PM **ABSTRACT:** Outcomes of Patients Discharged Home With a Chest Tube Following Anatomical Lung Resection: A Multicenter Cohort StudyF. Minervini¹, W. C. Hanna¹, A. Brunelli², F. Farrokhyar¹, T. Miyazaki², L. Bertolaccini³, M. Scarci⁴, M. Coret¹, K. Hughes¹, L. Schneider¹, Y. Lopez-Hernandez¹, J. Agzarian¹, C. J. Finley⁵, Y. Shargall¹¹McMaster University, Hamilton, Canada, ²St James's University Hospital, Leeds, United Kingdom, ³Maggiore Teaching Hospital, Bologna, Italy, ⁴San Gerardo Hospital, Monza, Italy, ⁵St Joseph's Healthcare Hamilton, Canada2:45 PM **ABSTRACT:** Primary Colorectal Cancer Mutations Predict Survival and Recurrence After Pulmonary Metastasectomy
E. Corsini, K. G. Mitchell, R. J. Mehran, D. C. Rice, B. Sepesi, G. L. Walsh, S. G. Swisher, J. A. Roth, W. L. Hofstetter, A. A. Vaporciyan, V. K. Morris, M. B. Antonoff

The University of Texas MD Anderson Cancer Center, Houston

3:00 PM **ABSTRACT:** Sublobar Resection of Ground Glass Nodules: Does Margin Matter?

S. W. Harrison, M. K. Hussein, M. Rahouma, B. E. Lee, B. M. Stiles, J. Port, N. K. Altorki

NewYork-Presbyterian Hospital, Weill Cornell Medical Center, NY

1:15 PM – 3:15 PM

General Thoracic: Lung TransplantationMODERATORS: *Usman Ahmad, Cleveland, OH, and Jasleen Kukreja, San Francisco, CA*

1:15 PM **ABSTRACT:** Defining the Optimal Timing of Extracorporeal Membrane Oxygenation as a Bridge to Lung Transplantation
H. Jalal¹, M. C. Henn¹, S. Lange¹, M. W. Canter¹, M. S. Damiano¹, T. C. Merritt¹, A. Abarbanell¹, P. Eghtesady²
¹Washington University in St Louis, MO, ²St Louis Children's Hospital, MO

1:30 PM **ABSTRACT:** Impact of the Opioid Epidemic on Lung Transplantation: An Analysis of Donor Characteristics, Recipient Outcomes, and Organ Discard
A. F. Ward¹, K. G. Phillips², N. K. Ranganath², J. Malas², B. E. Lonze², M. B. Lesko², N. Moazami¹, Z. N. Kon²
¹New York University, NY, ²NYU Langone Health, New York

1:45 PM **ABSTRACT:** Single and Double Lung Transplantation Have Equivalent Survival in Idiopathic Pulmonary Fibrosis Patients
N. K. Ranganath, J. Malas, K. G. Phillips, T. C. Geraci, K. Hisamoto, D. E. Smith, B. E. Lonze, Z. N. Kon
 NYU Langone Health, New York

2:00 PM **ABSTRACT:** Extracorporeal Membrane Oxygenation as a Bridge to Redo Lung Transplantation: A Contemporary Analysis of National Data
J. A. Hayanga¹, S. D. Holmes¹, H. K. Hayanga¹, J. H. Fugett¹, N. Shigemura², V. Badhwar¹, G. Abbas³
¹West Virginia University, Morgantown, ²Temple University Health System, Philadelphia, PA, ³West Virginia University Ruby Memorial Hospital, Morgantown

2:15 PM **ABSTRACT:** Outcomes of Declined Donors in Lung Transplant Recipients in the Current Era
A. L. Axtell, P. Moonsamy, S. Melnitchouk, G. Tolis, D. D'Alessandro, M. A. Villavicenci
 Massachusetts General Hospital, Boston

2:30 PM **ABSTRACT:** Failure to Rescue Is a Significant Contributor to Center-Level Differences in Mortality Following Lung Transplantation
A. A. Osho¹, M. M. Bishawi², M. S. Mulvihill³, A. L. Axtell⁵, S. A. Hirji⁴, P. J. Spencer⁵, D. D'Alessandro⁵, S. Melnitchouk⁵, M. G. Hartwig³, M. A. Villavicencio⁵
¹Harvard Medical School, Boston, MA, ²Duke University, Durham, NC, ³Duke University Medical Center, Durham, NC, ⁴Brigham and Women's Hospital, Boston, MA, ⁵Massachusetts General Hospital, Boston

2:45 PM **ABSTRACT:** Can Lungs From Donors With Low PaO₂/FiO₂ Ratio and High Body Mass Index Be Utilized for Transplantation With or Without Ex-Vivo Lung Perfusion?
T. Okamoto, M. M. Omara, A. Bribiesco, U. Ahmad, S. Unai, A. Zeeshan, D. R. Johnston, M. Tong, M. M. Budev, K. R. McCurry
 Cleveland Clinic, OH

3:00 PM **Role of Extracorporeal Membrane Oxygenation in Lung Transplantation**
Mani A. Daneshmand, Durham, NC

1:15 PM – 3:15 PM

SVS @ STS: Sharing Common Ground for Cardiovascular Problems

Many cardiac surgeons continue to incorporate the care of patients with vascular disease into their practices, while many vascular surgeons are now treating pathologies that previously were purely in the domain of cardiac surgeons. This session will offer topics relevant to both fields and provide the perspective of each.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Formulate a plan based on published data and expert recommendations for the management of massive and sub-massive pulmonary embolism
- Describe the current state of non-femoral access options for delivery of large endovascular devices

MODERATORS: *Keith B. Allen, Kansas City, MO, and Ali Azzizadeh, Los Angeles, CA*

1:15 PM **Alternate Non-Femoral Vascular Access for Large Endovascular Devices**
Keith B. Allen, Kansas City, MO

1:30 PM **Managing Vascular Access Complications**
Ross Millner, Chicago, IL

1:45 PM **Discussion**

1:55 PM **Innovative Devices: The Cardiac Surgeon's Perspective**
Grayson H. Wheatley, Nashville, TN

2:10 PM **Innovative Devices: The Vascular Surgeon's Perspective**
Ali Azzizadeh, Los Angeles, CA

2:25 PM **Discussion**

2:35 PM **The Pulmonary Embolism Team: The Cardiac Surgeon's Perspective**
Lishan Aklog, Purchase, NY

2:50 PM **The Pulmonary Embolism Team: The Vascular Surgeon's Perspective**
Rabih Chaer, Pittsburgh, PA

3:05 PM **Discussion**

1:15 PM – 5:00 PM

Clinical Scenarios: The Heart Team

This session will concentrate on a true collaborative “heart team” approach to treating complex issues facing the practicing physician or affiliate provider. Using a unique and innovative format highlighting adult cardiac disease processes, speakers will discuss the multidisciplinary approach to aortic valve disease, mitral valve disease, and coronary artery disease. Session components include invited technical videos, a critical review of the literature, case-based presentations describing difficult clinical scenarios, and an interactive panel discussion.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Discuss the controversies surrounding the management of tricuspid valve disease
- Describe the indications and contraindications for the treatment of mitral regurgitation
- Describe the construction and makeup of the multidisciplinary “heart team” and its influence in improving patient outcomes and fostering communication among specialties
- Explain the optimal management of patients with specific case scenarios who are evaluated for aortic stenosis, congestive heart failure, mitral regurgitation, and tricuspid regurgitation

1:15 PM **Introduction**

Vinod H. Thourani, Washington, DC

Mitral Valve Disease

MODERATORS: *Vinay Badhwar, Morgantown, WV, Michael J. Mack, Dallas, TX, and Patrick T. O’Gara, Boston, MA*

PANELISTS: *Ted Feldman, Evanston, IL, Raj Makkar, Los Angeles, CA, Robert L. Smith, Dallas, TX, Vinod H. Thourani, Washington, DC, and Y. Joseph Woo, Stanford, CA*

1:16 PM **Heart Team Discussion With Case Presentations: Patient With Low Ejection Fraction and Functional Mitral Regurgitation**
Y. Joseph Woo, Stanford, CA

1:34 PM **Heart Team Discussion With Case Presentations: Patient With Severe Mitral Annular Calcification**
Raj Makkar, Los Angeles, CA

1:52 PM **Treatment of Functional Mitral Regurgitation: How Do the COAPT Trial Results Change Our Management?**
Michael J. Mack, Dallas, TX

2:02 PM **Update on Surgical and Transcatheter Trials for Mitral Regurgitation**
Vinod H. Thourani, Washington, DC

2:14 PM **Heart Team Discussion With Case Presentations: How I Decide Between Transcatheter or Surgical Repair of Primary Degenerative Mitral Valve Repair**
Gorav Ailawadi, Charlottesville, VA

2:32 PM **Panel Discussion**

Aortic Valve and Aortic Disease

MODERATORS: *Joseph E. Bavaria, Philadelphia, PA, and Raj Makkar, Los Angeles, CA*

PANELISTS: *Tirone David, Toronto, Canada, Patrick T. O’Gara, Boston, MA, William M. Suh, Los Angeles, CA, Wilson Y. Szeto, Philadelphia, PA, and Vinod H. Thourani, Washington, DC*

2:42 PM **Heart Team Discussion With Case Presentations: Rationale for Transcatheter or Surgical Aortic Valve Replacement as the Initial Management for Aortic Stenosis in Patients Younger Than 60 Years of Age**
Wilson Y. Szeto, Philadelphia, PA

3:02 PM **Mechanical vs Bioprosthetic Aortic Valve Replacement in Patients Younger Than 60 Years of Age: Recommendations From a Cardiologist**
Patrick T. O’Gara, Boston, MA

3:12 PM **Is the Availability of New Aortic Devices Going to Change Our Index Operation for Type A Dissection?**
Joseph E. Bavaria, Philadelphia, PA

3:22 PM **Case Examples: Treatment of the Moderately Dilated Aortic Root in Tricuspid and Bicuspid Aortic Valve Stenosis—When to Replace the Root vs Just the Aortic Valve**
Tirone David, Toronto, Canada

3:32 PM **Heart Team Discussion With Case Presentations: Anatomical Considerations for Transcatheter and Surgical Aortic Valve Replacement in Low-Risk Patients**
Vinod H. Thourani, Washington, DC

3:50 PM **Discussion and Case Wrap-Up**

Coronary Artery Disease

MODERATORS: *John D. Puskas, New York, NY, and Morton J. Kern, Long Beach, CA*

PANELISTS: *Husam H. Balkhy, Chicago, IL, Ezequiel J. Molina, Chevy Chase, MD, Patrick T. O’Gara, Boston, MA, and William M. Suh, Los Angeles, CA*

4:00 PM **Update on ACC/AHA Guidelines for Coronary Artery Bypass Grafting (CABG): Essentials for the Practicing Cardiac Surgeon**
Patrick T. O’Gara, Boston, MA

4:10 PM **Indications and Techniques for Left Internal Mammary Artery to Diagonal to Left Anterior Descending Bridge Anastomoses**
John D. Puskas, New York, NY

4:20 PM **Heart Team Discussion With Case Presentations: Non-Diabetic Patient With Multivessel Coronary Artery Disease—When to Offer Hybrid Revascularization vs Percutaneous Coronary Intervention (PCI)**
Husam H. Balkhy, Chicago, IL

4:38 PM **Heart Team Discussion With Case Presentations: Deciding Between PCI or CABG in Patients With an Ejection Fraction Less Than 25%**
Ezequiel J. Molina, Chevy Chase, MD

4:56 PM **Discussion**

3:15 PM – 4:00 PM

BREAK—Visit Exhibits and Scientific Posters

4:00 PM – 5:00 PM

Adult Cardiac: Arrhythmia/Atrial Fibrillation

MODERATORS: Ralph J. Damiano, St Louis, MO, and Patrick M. McCarthy, Chicago, IL

4:00 PM **ABSTRACT:** Greater Number of New-Onset Atrial Fibrillation Events After Coronary Artery Bypass Grafting Increases Long-Term Mortality Independent of Total Event Duration
G. Filardo¹, B. D. Pollock¹, B. M. da Graca¹, T. Phan², G. Ailawadi³, V. H. Thourani⁴
¹Baylor Scott & White Health, Dallas, TX, ²University of Virginia, Charlottesville, ³MedStar Heart and Vascular Institute, Washington, DC

4:15 PM **ABSTRACT:** Impact of New-Onset Postoperative Atrial Fibrillation on 5-Year Clinical Outcomes and Cost
H. Almassi¹, R. B. Hawkins¹¹, A. W. Shroyer², B. Hattler³, J. A. Quin⁴, J. F. Collins⁵, M. M. Bishawi⁶, F. Bakaeen⁷, R. Ebrahimi⁸, F. L. Grover⁹, T. H. Wagner¹⁰
¹Medical College of Wisconsin, Milwaukee, ²Stony Brook University School of Medicine, NY, ³Rocky Mountain Regional VA Medical Center, Denver, CO, ⁴VA Boston Healthcare System, West Roxbury, MA, ⁵Cooperative Studies Program Coordinating Center, Perry Point, MD, ⁶Duke University, Durham, NC, ⁷Cleveland Clinic, OH, ⁸University of California, Los Angeles and VA Greater Los Angeles Health Care System, ⁹University of Colorado School of Medicine, Aurora, ¹⁰VA Palo Alto, Menlo Park, CA, ¹¹University of Virginia, Charlottesville

4:30 PM Prophylactic Maze and Left Atrial Appendage Ligation in Patients at High Risk for Atrial Fibrillation
Hartzell V. Schaff, Rochester, MN

4:45 PM Panel Discussion

4:00 PM – 5:00 PM

Adult Cardiac: Contemporary Practices in Surgical Therapy for Advanced Heart Failure

MODERATORS: Robert S. D. Higgins, Baltimore, MD, and John M. Stulak, Rochester, MN

4:00 PM **ABSTRACT:** Early Outcomes Following HeartMate 3 Left Ventricular Assist Device as a Bridge to Transplantation: An Observational, Open Cohort Study
A. Suarez-Pierre¹, C. Lui¹, X. Zhou, T. C. Crawford², C. D. Fraser¹, K. Giuliano¹, S. Hsu¹, R. S. Higgins¹, G. J. Whitman², C. W. Choi², A. Kilic²
¹Johns Hopkins University, Baltimore, MD, ²The Johns Hopkins Hospital, Baltimore, MD

4:15 PM **ABSTRACT:** A New Paradigm in Temporary Mechanical Circulatory Support: 100-Patient Experience With a Novel, Minimally Invasive, Temporary Left Ventricular Assist Device
J. S. Chung, D. Emerson, A. Akhmerov, D. Megna, M. V. Aguilon, C. Runyan, R. Cole, J. Moriguchi, D. Ramzy
Cedars-Sinai Medical Center, Los Angeles, CA

4:30 PM **ABSTRACT:** Heart Transplant Waiting List Implications of Increased Ventricular Assist Device Use as a Bridge to Transplantation: A National Analysis
J. J. Han, H. S. Elzayn, M. Helmers, A. M. Acker, W. L. Patrick, A. Iyengar, E. Y. Birati, P. Attluri
University of Pennsylvania, Philadelphia

4:45 PM Intermacs and the STS National Database: Latest Updates
Robert L. Kormos, Pittsburgh, PA, and Francis D. Pagani, Ann Arbor, MI

4:00 PM – 5:00 PM

Cardiothoracic Surgery Education

MODERATORS: Erin A. Gillaspie, Nashville, TN, and Rishindra M. Reddy, Ann Arbor, MI

4:00 PM **ABSTRACT:** The American Board of Thoracic Surgery 10-Year Maintenance of Certification Exam Improves and Validates Knowledge Acquisition

Y. L. Colson¹, J. B. Putnam², S. C. Yang³, J. I. Fann⁴, A. A. Vaporciyan⁵, J. A. Dearani⁶, D. R. Jones⁷, M. S. Allen⁶, B. F. Meyers⁸, C. D. Wright⁹, R. J. Shemin¹⁰, W. A. Baumgartner¹¹, D. A. Fullerton¹²

¹Brigham and Women's Hospital, Boston, MA, ²Baptist MD Anderson Cancer Center, Jacksonville, FL, ³Johns Hopkins University School of Medicine, Baltimore, MD, ⁴Stanford University Medical Center, CA, ⁵The University of Texas MD Anderson Cancer Center, Houston, ⁶Mayo Clinic, Rochester, MN, ⁷Memorial Sloan Kettering Cancer Center, New York, NY, ⁸Washington University in St Louis, MO, ⁹Massachusetts General Hospital, Boston, ¹⁰University of California, Los Angeles, ¹¹Johns Hopkins University, Baltimore, MD, ¹²University of Colorado School of Medicine, Aurora

4:12 PM **ABSTRACT:** Debunking the July Effect in Cardiac Surgery: A National Analysis of More Than 430,000 Procedures

R. Shah, S. A. Hirji, S. Goel, S. H. Kiehm, F. Yazdchi, T. K. Kaneko

Brigham and Women's Hospital, Boston, MA

4:24 PM **ABSTRACT:** Social Media Engagement Improves Dissemination of Cardiothoracic Surgery Scholarship: A Prospective Study

J. G. Luc¹⁰, M. A. Archer¹, R. C. Arora², E. M. Bender³, A. Blitz⁴, D. T. Cooke⁵, T. Nihici⁶, B. Kidane², M. Ouzounian⁷, T. K. Varghese⁸, M. B. Antonoff⁹

¹Vanderbilt University Medical Center, Nashville, TN, ²University of Manitoba, Winnipeg, Canada, ³Good Samaritan Regional Medical Center, Corvallis, OR, ⁴Pharr, TX, ⁵University of California, Davis Medical Center, Sacramento, ⁶Abertawe Bro Morgannwg University Morriston Hospital, Swansea, United Kingdom, ⁷University of Toronto, Canada, ⁸University of Utah School of Medicine, Salt Lake City, ⁹The University of Texas MD Anderson Cancer Center, Houston, ¹⁰University of British Columbia, Vancouver, Canada

4:36 PM **ABSTRACT:** Female Representation Among STS Authorship Positions Over Time: Has Academic Achievement Paralleled Changes in the Workforce?

J. K. Olive¹, O. Preventza¹, S. H. Blackmon², M. B. Antonoff³
¹Baylor College of Medicine, Houston, TX, ²Mayo Clinic, Rochester, MN, ³The University of Texas MD Anderson Cancer Center, Houston

4:48 PM **ABSTRACT:** Relationship Between Personality Factors and Match to Cardiothoracic Residency Training

F. Manetta¹, A. J. Kent², P. Yu¹, J. S. Kent¹

¹Zucker School of Medicine at Hofstra/Northwell, Manhasset, NY, ²Lenox Hill Hospital, New York, NY

4:00 PM – 5:00 PM

Congenital: Adult Congenital

MODERATORS: Charles B. Huddleston, St Louis, MO, and Ram Kumar Subramanyan, Los Angeles, CA

4:00 PM **ABSTRACT:** Adult Congenital Heart Disease: Current Early Expectations for Cardiac TransplantationK. W. Riggs, F. Zafar, Y. Radzi, P. Yu, D. L. Morales
Cincinnati Children's Hospital Medical Center, OH4:15 PM **ABSTRACT:** Transcatheter Unroofing of a Septal Course of Anomalous Aortic Origin of a Left Coronary Artery With Posterior Elongation of the Right Ventricular Outflow TractH. K. Najm, S. M. Hasan, M. Ahmad, R. D. Stewart,
D. S. Majdalany, G. B. Pettersson
Cleveland Clinic, OH4:30 PM **ABSTRACT:** Repair of Variant Unicuspid Aortic Valve Defect Using Geometric Ring AnnuloplastyM. Si¹, R. D. Hobbs¹, J. S. Rankin², V. Badhwar²,
J. C. Romano³, R. G. Ohye¹¹University of Michigan, Ann Arbor, ²West Virginia University, Morgantown, ³Michigan Congenital Heart Center, Ann Arbor4:45 PM **Natural History of Coronary Anomalies**

Julie Brothers, Philadelphia, PA

4:00 PM – 5:00 PM

Critical Care Research

MODERATORS: Thomas E. MacGillivray, Houston, TX, and Nathalie Roy, Boston, MA

4:00 PM **ABSTRACT:** Cardiac Intensive Care Unit Staffing Models: Open, Closed, Intensivists, Offsite Surgeons—Here Is the Lay of the LandR. C. Arora¹, S. Chatterjee², G. J. Whitman³¹University of Manitoba, Winnipeg, Canada, ²Baylor College of Medicine, Houston, TX, ³The Johns Hopkins Hospital, Baltimore, MD4:15 PM **ABSTRACT:** Association of Overnight Extubation With Outcomes for Post-Cardiac Surgery Patients in the Intensive Care UnitH. B. Gershengorn¹, H. Wunsch², M. Hua³, D. Small⁴,
J. E. Bavaria⁵, J. T. Gutsche⁵¹University of Miami Miller School of Medicine, FL, ²University of Toronto, Canada, ³Columbia University, New York, NY, ⁴Wharton School of the University of Pennsylvania, Philadelphia, ⁵Hospital of the University of Pennsylvania, Philadelphia4:30 PM **ABSTRACT:** Not Anticoagulating Patients Supported With Venoarterial Extracorporeal Membrane Oxygenation Decreases Complications, Blood Transfusions, and Heparin-Induced ThrombocytopeniaK. L. Wood¹, B. Ayers³, A. L. Melvin¹, S. Prasad², I. Gosev³¹University of Rochester, NY, ²Strong Memorial Hospital/University of Rochester, NY, ³University of Rochester Medical Center, NY4:45 PM **ABSTRACT:** Mitigating the Risk: Transfusion or Reoperation for Bleeding After Cardiac SurgeryC. Pasrija¹, M. Ghoreishi¹, G. J. Whitman², N. Ad³, D. E. Alejo²,
S. D. Holmes³, S. Schena², R. Salenger¹, M. Mazzeffi⁴,
C. E. Fonner⁵, B. S. Taylor⁴¹University of Maryland, Baltimore, ²The Johns Hopkins Hospital, Baltimore, MD, ³West Virginia University Heart and Vascular Institute, Morgantown, ⁴University of Maryland Medical Center, Baltimore, ⁵Virginia Cardiac Services Quality Initiative, Virginia Beach

4:00 PM – 5:00 PM

Next-Generation General Thoracic Surgery

MODERATORS: Lisa M. Brown, Sacramento, CA, and Michael J. Weyant, Aurora, CO

4:00 PM **CAR-T Cell Therapy in Thoracic Malignancies**

Prasad S. Adusumilli, New York, NY

4:15 PM **Intraoperative Localization Techniques**

Sunil Singhal, Philadelphia, PA

4:30 PM **Nanotechnology in Thoracic Surgery**

Gaetano Rocco, New York, NY

4:45 PM **Immunotherapy and Lung Cancer Surgery**

Boris Sepesi, Houston, TX

4:00 PM – 5:00 PM

Quality Improvement in Cardiothoracic Surgery

MODERATORS: TBD

4:00 PM **ABSTRACT:** Blood Utilization: A Tale of Two Metrics—Improvement and VariabilityX. Zhou³, C. E. Fonner¹, A. Suarez-Pierre³, C. Lui², D. E. Alejo³,
G. J. Whitman³, B. S. Taylor⁴, N. Ad⁵, R. Salenger⁶¹Virginia Cardiac Services Quality Initiative, Virginia Beach, ²Johns Hopkins University School of Medicine, Baltimore, MD, ³The Johns Hopkins Hospital, Baltimore, MD, ⁴University of Maryland Medical Center, Baltimore, ⁵West Virginia University Heart and Vascular Institute, Morgantown, ⁶University of Maryland, Baltimore4:12 PM **ABSTRACT:** Using Application-Based Technology to Improve Patient Engagement and Collect Patient-Reported Outcomes for Cardiac SurgeryY. Lamarche, P. Demers, C. Migneault, D. Bouchard,
M. Carrier, R. D. Cartier, I. El-Hamamsy, M. Pellerin,
L. P. Perrault

Montreal Heart Institute, Canada

4:24 PM **ABSTRACT:** Impact of Perioperative Prescriptions, Race, Sex, and Postoperative Complications on New Persistent Opioid Usage Among Medicare Beneficiaries After Cardiothoracic SurgeryA. A. Brescia¹, P. A. Lagisetty¹, H. Hu¹, M. J. Englesbe²,
C. M. Brummett¹, J. F. Waljee¹, K. H. Lagisetty²¹University of Michigan, Ann Arbor, ²Michigan Medicine, Ann Arbor4:36 PM **ABSTRACT:** Pain Management Strategies and Opioid Use by US Cardiothoracic Surgeons: Survey Results From the STS Task Force on the Opioid Crisis Intervention in Cardiothoracic SurgeryS. C. Yang¹, P. Atluri², N. J. Boden³, J. S. Donington⁴,
J. S. Ikonomidis⁵, K. H. Lagisetty⁶, D. C. Rice⁷,
D. E. Sengewald³, E. E. Tseng⁸, M. J. Weyant⁹,
C. Yohe Savage¹⁰¹Johns Hopkins University School of Medicine, Baltimore, MD, ²University of Pennsylvania, Philadelphia, ³The Society of Thoracic Surgeons, Chicago, IL, ⁴The University of Chicago, IL, ⁵The University of North Carolina at Chapel Hill, ⁶Michigan Medicine, Ann Arbor, ⁷The University of Texas MD Anderson Cancer Center, Houston, ⁸University of California, San Francisco Medical Center and San Francisco VA Medical Center, ⁹University of Colorado School of Medicine, Aurora, ¹⁰The Society of Thoracic Surgeons, Washington, DC4:48 PM **ABSTRACT:** What Drives Opioid Prescriptions Following Cardiac Surgery: Practice or Patient?K. A. Holst¹, J. A. Dearani¹, H. V. Schaff¹, K. T. Hanson¹,
C. A. Thiels¹, S. Pham², K. P. Landolfo², O. E. Pajaro³,
E. B. Habermann¹¹Mayo Clinic, Rochester, MN, ²Mayo Clinic, Jacksonville, FL, ³Mayo Clinic, Phoenix, AZ

5:15 PM – 6:15 PM

Business Meeting (STS Members Only)

6:30 PM – 7:30 PM

STS-PAC Reception

Open to 2019 contributors

TUESDAY

JANUARY 29 | STS ANNUAL MEETING

6:30 AM – 1:00 PM

Registration

9:00 AM – 1:30 PM

Exhibit Hall

7:00 AM – 9:00 AM

Adult Cardiac: General

MODERATORS: Faisal Bakaeen, Cleveland, OH, and T. Sloane Guy, New York, NY

7:00 AM

ABSTRACT: Effects of Frailty on Outcomes and 30-Day Readmissions Following Surgical Mitral Valve Replacement

A. Iyengar¹, N. J. Goel¹, J. J. Kelly², J. J. Han², C. Brown², F. N. Khurshan², Z. Chen³, N. Desai²

¹Hospital of the University of Pennsylvania, Philadelphia, ²University of Pennsylvania, Philadelphia, ³University Heart Center Freiburg, Germany

7:15 AM

ABSTRACT: Characterizing Risks Associated With Mitral Annular Calcification in Mitral Valve Replacement: An Analysis Utilizing the STS Adult Cardiac Surgery Database

T. K. Kaneko¹, S. A. Hirji¹, S. F. Aranki¹, S. McGurk¹, S. Body², M. Heydarpour¹, H. R. Mallidi¹, S. K. Singh¹, J. Rawn¹, M. P. Pelletier¹, P. S. Shekar¹

¹Brigham and Women's Hospital, Boston, MA, ²Beth Israel Deaconess Medical Center, Boston, MA

7:30 AM

ABSTRACT: Ultrasound-Guided Septal Myectomy Using High-Resolution Intracardiac Probe and Mitral Leaflet Height Reduction for Systolic Anterior Motion in Hypertrophic Obstructive Cardiomyopathy

H. Arai, K. Oishi, K. Oi, T. Mizuno, M. Yashima, H. Kuroki, T. Fujiwara, M. Takeshita, T. Kubo, Y. Okumura, J. Nabeshima

Tokyo Medical and Dental University, Japan

7:45 AM

ABSTRACT: Five Year Outcomes of Patients Treated With a Novel Thoracic Endograft for Blunt Thoracic Aortic Injury: The RESCUE Pivotal Trial

H. J. Patel¹, A. Azizzadeh², A. H. Matsumoto³, O. C. Velazquez⁴, J. Rovin⁵, J. V. Lombardi⁶, A. Khoynezhad⁷, Y. Dai⁸, R. A. White⁹

¹University of Michigan Medical Center, Ann Arbor, ²Cedars-Sinai Medical Center, Los Angeles, CA, ³University of Virginia Health System, Charlottesville, ⁴University of Miami Jackson Memorial Hospital, FL, ⁵Morton Plant Hospital, Clearwater, FL, ⁶Cooper Medical School of Rowan University, Camden, NJ, ⁷MemorialCare Long Beach Medical Center, CA, ⁸Medtronic, Santa Rosa, CA, ⁹MemorialCare Heart and Vascular Institute, Long Beach, CA

8:00 AM

Surgical Video: Pulmonary Embolectomy With Retrograde Pulmonary Perfusion for Saddle Pulmonary Embolus

Erik Beyer, Fort Lauderdale, FL

8:15 AM

ABSTRACT: Early Experience in Preclinical Orthotopic Cardiac Xenotransplantation

L. DiChiacchio¹, K. B. Deatrack¹, Z. N. Kon², D. J. Kaczorowski⁴, D. Ayares³, J. Bromberg⁴, B. P. Griffith¹, S. T. Bartlett⁴, M. M. Mohiuddin¹

¹University of Maryland, Baltimore, ²NYU Langone Health, New York, ³Revivicor, Blacksburg, VA, ⁴University of Maryland Medical Center, Baltimore

8:30 AM

ABSTRACT: Perioperative Pain Management and Opioid Use Patterns by US Adult Cardiac Surgeons: Survey Results From the STS Task Force on the Opioid Crisis Intervention in Cardiothoracic Surgery

S. C. Yang¹, P. Atluri², N. J. Boden³, J. S. Donington⁴, J. S. Ikonomidis⁵, D. C. Rice⁶, D. E. Sengewald³, E. E. Tseng⁷, M. J. Weyant⁸, C. Yohe Savage⁹

¹Johns Hopkins University School of Medicine, Baltimore, MD, ²University of Pennsylvania, Philadelphia, ³The Society of Thoracic Surgeons, Chicago, IL, ⁴The University of Chicago, IL, ⁵The University of North Carolina at Chapel Hill, ⁶The University of Texas MD Anderson Cancer Center, Houston, ⁷University of California, San Francisco Medical Center and San Francisco VA Medical Center, ⁸University of Colorado School of Medicine, Aurora, ⁹The Society of Thoracic Surgeons, Washington, DC

8:45 AM

ABSTRACT: Effect of the Time Interval Between Coronary Angiography and Coronary Artery Bypass Grafting Surgery on Postoperative Acute Kidney Injury: An Analysis of the STS Adult Cardiac Surgery Database

A. C. Guercio¹, M. P. Macris¹, S. Hebert², C. S. Bell³, C. C. Miller³, D. Molony³

¹Memorial Hermann, Houston, TX, ²Houston Methodist Hospital, TX, ³McGovern Medical School at UT Health, Houston, TX

7:00 AM – 9:00 AM

Adult Cardiac: Mitral/Tricuspid

MODERATORS: Richard Lee, Augusta, GA, and Tom C. Nguyen, Houston, TX

7:00 AM

ABSTRACT: Impact of Tricuspid Regurgitation With and Without Intervention During Surgical Aortic Valve Replacement

W. Z. Chancellor¹, J. H. Mehaffey¹, J. P. Beller¹, R. B. Hawkins¹, A. M. Speir², L. T. Yarboro¹, N. R. Teman¹, G. Ailawadi¹

¹University of Virginia, Charlottesville, ²Cardiac, Vascular & Thoracic Surgery Associates, Falls Church, VA

7:15 AM

ABSTRACT: Evolution of Tricuspid Regurgitation After Repair of Degenerative Mitral Regurgitation

A. Hage¹, F. Hage¹, N. Tzemos², M. W. Chu²

¹Western University, London, Canada, ²London Health Sciences Center, Canada

7:30 AM

ABSTRACT: Comparison of Mid-Term Survival and Recurrence of Tricuspid Regurgitation Following Tricuspid Valve Repair Ring Annuloplasty vs Suture Bicuspidization Annuloplasty: Implications on Transcatheter Technologies

S. A. Hirji, S. H. Kiehm, S. M. Landino, F. Yazdchi, S. McGurk, S. K. Singh, H. R. Mallidi, M. P. Pelletier, S. F. Aranki, P. S. Shekar, T. K. Kaneko

Brigham and Women's Hospital, Boston, MA

7:45 AM

What to Do With Tricuspid Regurgitation? Repair, Replace, or Leave Alone

Vinay Badhwar, Morgantown, WV

8:00 AM

ABSTRACT: Surgical Management and Outcomes of Infective Endocarditis Over 15 Years in a Single Institution

A. R. Stram¹, M. Kasten¹, L. R. Timsina¹, P. Hess², J. Everett²

¹Indiana University School of Medicine, Indianapolis, ²Indiana University Health, Indianapolis

8:15 AM

ABSTRACT: Degenerative Mitral Valve Repair Simplified: An Evolution to Universal Artificial Chordal Repair

C. Pasrija, D. H. Tran, M. Ghoreishi, E. D. Kotloff, D. Yim, J. Finkel, D. Na, S. Devlin, M. Y. Dawood, R. W. Quinn, B. P. Griffith, J. S. Gammie

University of Maryland School of Medicine, Baltimore

8:30 AM

DEBATE: Respect, Not Resect, in Mitral Valve Repair

Con: Patrick M. McCarthy, Chicago, IL

Pro: James S. Gammie, Stevenson, MD

7:00 AM – 9:00 AM

Congenital: Pediatric Congenital III

MODERATORS: James J. Gangemi, Charlottesville, VA, and James S. Tweddell, Cincinnati, OH

7:00 AM

ABSTRACT: Identification of Time-Dependent Risks of Hemodynamic States Following Stage 1 Norwood Palliation
G. M. Hoffman¹, J. P. Scott¹, N. S. Ghanayem², E. E. Stuth¹, M. E. Mitchell¹, R. K. Woods¹, V. Hraska¹, R. A. Niebler¹, R. Bertrand¹, K. A. Mussatto¹, J. S. Tweddell³

¹Children's Hospital and Medical College of Wisconsin, Milwaukee,²Baylor College of Medicine/Texas Children's Hospital, Houston,³Cincinnati Children's Hospital Medical Center, OH

7:15 AM

ABSTRACT: Unplanned Interstage Interventions Between Norwood Palliation and Superior Cavopulmonary Anastomosis: A Report From the National Pediatric Cardiology Quality Improvement Collaborative

D. A. Castellanos¹, E. C. Ocampo¹, A. Gooden², C. M. Mery³, A. M. Qureshi², J. S. Heinle², Y. Wang², G. D. Hill⁴, N. S. Ghanayem¹

¹Baylor College of Medicine/Texas Children's Hospital, Houston, ²Texas Children's Hospital, Houston, ³The University of Texas Dell Medical School/Dell Children's Hospital, Austin, ⁴Cincinnati Children's Hospital Medical Center, OH

7:30 AM

ABSTRACT: Pulmonary Atresia With Intact Ventricular Septum and Right Ventricle Dependent Coronary Circulation: Location of Coronary Obstruction Impacts Survival

Z. A. Spiegel¹, A. M. Qureshi², S. A. Morris², C. M. Mery³, S. Sexson-Tejtel², R. Zea-Vera¹, Z. M. Binsalamah¹, M. Imamura¹, J. S. Heinle², I. Adachi²

¹Baylor College of Medicine, Houston, TX, ²Texas Children's Hospital, Houston, ³The University of Texas Dell Medical School/Dell Children's Hospital, Austin

7:45 AM

ABSTRACT: Impact of Bilateral, Bidirectional Cavopulmonary Shunt on Outcomes Following Staged, Single Ventricle Palliation

M. Ono¹, M. Burri¹, B. Mayr¹, E. Beran¹, J. Cleuziou¹, A. Hager¹, R. Lange¹

¹German Heart Center Munich

8:00 AM

ABSTRACT: Long-Term Surgical Prognosis of Primary Supravalvular Aortic Stenosis Repair

F. Wu¹, A. Mondal², P. J. del Nido², K. Gauvreau², S. M. Emani², C. W. Baird², A. K. Kaza²

¹Taipei Veteran General Hospital, Taiwan, ²Boston Children's Hospital, MA

8:15 AM

ABSTRACT: Williams Syndrome: A 24-Year, Single-Institution Evaluation of Outcomes and Risk of Long-Term Reintervention

A. L. Zenilman¹, D. Blitzer¹, B. R. Anderson², D. M. Kalfa², P. J. Chai¹, E. A. Bacha¹, D. J. LaPar²

¹NewYork-Presbyterian/Columbia University Medical Center, NY,²NewYork-Presbyterian Morgan Stanley Children's Hospital, Columbia University Medical Center, NY

8:30 AM

ABSTRACT: Staging of Surgical Repairs in Children With Comorbid Long Segment Congenital Tracheal Stenosis and Congenital Cardiovascular Abnormalities

M. Ramaswamy¹, R. Varman¹, O. Fedevych¹, D. McIntyre¹, N. McIntosh¹, D. Roebuck¹, R. Hewitt¹, N. Muthialu¹

¹Great Ormond Street Hospital, London, United Kingdom

8:45 AM

ABSTRACT: Pediatric Tracheal Surgery: A 25-Year Review

C. L. Backer¹, E. H. Stephens¹, O. Eltayeb¹, M. C. Monge¹

¹Ann & Robert H. Lurie Children's Hospital of Chicago, IL

7:00 AM – 9:00 AM

General Thoracic: Lung Cancer II

MODERATORS: Natalie S. Lui, Stanford, CA, and Robert A. Meguid, Aurora, CO

7:00 AM

ABSTRACT: Cardiopulmonary Assessment Prior to Lung Resection: What Are Thoracic Surgeons Doing?

J. M. Clark¹, A. S. Marrufo¹, B. Kozower², D. J. Tancredi¹, M. Nuno¹, D. T. Cooke¹, B. H. Pollock¹, P. S. Romano¹, L. M. Brown¹

¹University of California, Davis, Sacramento, ²Washington University in St Louis, MO

7:15 AM

ABSTRACT: Richard E. Clark Memorial Paper for General Thoracic Surgery: Equivalent Survival Between Lobectomy and Segmentectomy for Lung Cancer: An Analysis of Elderly Clinical Stage IA Patients in the STS General Thoracic Surgery Database

M. Onaitis¹, A. P. Furnary², A. S. Kosinski³, L. Feng⁴, D. J. Boffa⁵, B. C. Tong⁶, P. A. Cowper⁴, J. P. Jacobs⁷, C. D. Wright⁸, R. H. Habib⁹, J. B. Putnam¹⁰, F. G. Fernandez¹¹

¹University of California, San Diego, La Jolla, ²Starr-Wood Cardiac Group of Portland, OR, ³Duke Clinical Research Institute, Durham, NC,⁴Duke University, Durham, NC, ⁵Yale University School of Medicine, New Haven, CT, ⁶Duke University Medical Center, Durham, NC, ⁷Johns Hopkins All Children's Hospital, St Petersburg, FL, ⁸Massachusetts General Hospital, Boston, ⁹The Society of Thoracic Surgeons, Chicago, IL, ¹⁰Baptist MD Anderson Cancer Center, Jacksonville, FL, ¹¹Emory University, Decatur, GA¹²University of California, San Diego, La Jolla, ¹³Starr-Wood Cardiac Group of Portland, OR, ¹⁴Duke Clinical Research Institute, Durham, NC, ¹⁵Duke University, Durham, NC, ¹⁶Yale University School of Medicine, New Haven, CT, ¹⁷Duke University Medical Center, Durham, NC, ¹⁸Johns Hopkins All Children's Hospital, St Petersburg, FL, ¹⁹Massachusetts General Hospital, Boston, ²⁰The Society of Thoracic Surgeons, Chicago, IL, ²¹Baptist MD Anderson Cancer Center, Jacksonville, FL, ²²Emory University, 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7:00 AM — 9:00 AM

General Thoracic: Mediastinal/Pulmonary

MODERATORS: James Huang, New York, NY, and Ikenna Okereke, Galveston, TX

7:00 AM **ABSTRACT:** Post-Intubation Tracheal Stenosis Management and Results
C. D. Wright¹, H. Ott¹, M. Lanuti¹, H. Gaissert¹, D. J. Mathisen¹, S. M. Li²

¹Massachusetts General Hospital, Boston, ²First Affiliated Hospital of Guangzhou Medical University, China

7:15 AM **ABSTRACT:** Newly Identified Lymph Nodes More Than Double the Chance of Recurrence and Death in Patients With Malignant Pleural Mesothelioma
J. Friedberg¹, C. B. Simone¹, M. Culligan¹, A. Barsky², M. E. Putt², K. Cengel²

¹University of Maryland, Baltimore, ²University of Pennsylvania, Philadelphia

7:30 AM **ABSTRACT:** Repeated Surgery for Multiple Recurrences of Thymoma: Is It Really the Best Treatment?

M. Chiappetta¹, E. Zanfrini¹, M. Mastromarino¹, D. Nachira², M. Congedo³, P. Filosso³, F. Guerrero³, M. Lucchi⁴, G. Di Tanna⁵, V. Aprile⁴, E. Meacci², S. Margaritora²

¹Università Cattolica del Sacro Cuore, Rome, Italy, ²Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, ³University of Torino, Italy, ⁴University of Pisa, Italy, ⁵University of Barcelona, Spain

7:45 AM **ABSTRACT:** Thymic Neuroendocrine Tumors vs Thymic Carcinoma: Demographics, Treatment, and Survival
A. Salami¹, C. T. Bakhos², L. R. Kaiser², R. V. Petrov², A. E. Abbas²

¹Albert Einstein Healthcare Network, Philadelphia, PA, ²Lewis Katz School of Medicine at Temple University, Philadelphia, PA

8:00 AM **ABSTRACT:** A Prospective Study of Postoperative Pain and Quality of Life Between Subxiphoid and Intercostal Video-Assisted Thoracoscopic Surgery: Mid-Term Results of NCT03331588

J. Chen

Shanghai Jiao Tong University, China

8:15 AM **ABSTRACT:** Acute Pain Management Following Thoracic Surgical Procedures: Results From the STS Task Force on the Opioid Crisis Intervention in Cardiothoracic Surgery
K. H. Lagisetty¹, P. Atluri², N. J. Boden³, J. S. Donington⁴, J. S. Ikonomidis⁵, D. C. Rice⁶, D. E. Sengewald³, E. E. Tseng⁷, M. J. Weyant⁸, C. Yohe Savage⁹, S. C. Yang¹⁰

¹University of Michigan, Ann Arbor, ²University of Pennsylvania, Philadelphia, ³The Society of Thoracic Surgeons, Chicago, IL, ⁴The University of Chicago, IL, ⁵The University of North Carolina at Chapel Hill, ⁶The University of Texas MD Anderson Cancer Center, Houston, ⁷University of California, San Francisco Medical Center and San Francisco VA Medical Center, ⁸University of Colorado School of Medicine, Aurora, ⁹The Society of Thoracic Surgeons, Washington, DC, ¹⁰Johns Hopkins University School of Medicine, Baltimore, MD

8:30 AM **ABSTRACT:** Primary Thoracic Soft Tissue Sarcomas: Impact of Radiation Therapy on Survival Following Surgical Resection in a Large Population Cohort

S. Rehmani¹, W. Raad², J. Weber³, S. Lazarev⁴, F. Bhora⁵

¹Mount Sinai St Luke's Hospital, New York, NY, ²Icahn School of Medicine at Mount Sinai/Mount Sinai Health System, New York, NY, ³Icahn School of Medicine at Mount Sinai, New York, NY, ⁴Mount Sinai Health System, New York, NY, ⁵Mount Sinai West, New York, NY

8:45 AM **Role of Frailty in Risk Assessment**
Mark K. Ferguson, Chicago, IL

7:00 AM — 9:00 AM

Pain Management

MODERATOR: Stephen C. Yang, Baltimore, MD

7:00 AM **STS Survey Review**
Stephen C. Yang, Baltimore, MD

7:20 AM **Government Policy and How It Affects Me**
Stephen J. Lahey, Farmington, CT

7:40 AM **Cardiac Enhanced Recovery After Surgery (ERAS): Best Practice Use of Multimodal Anesthesia**
Daniel T. Engelman, Longmeadow, MA

8:00 AM **Thoracic ERAS**
David C. Rice, Houston, TX

8:20 AM **Panel Discussion**

9:00 AM — 9:30 AM

BREAK — Visit Exhibits and Scientific Posters

9:30 AM — 10:45 AM

Plenary Session

MODERATORS: Keith S. Naunheim, St Louis, MO, and Joseph F. Sabik III, Cleveland, OH

9:30 AM **Award Presentations**

9:45 AM **C. Walton Lillehei Lecture: High-Performance Medicine: The Convergence of Artificial Intelligence and Health Care**
Eric Topol, La Jolla, CA

11:00 AM — 12:00 PM

Meet the Experts Sessions

11:00 AM — 12:00 PM

Health Policy Forum: Navigating the Merit-Based Incentive Payment System and Alternative Payment Models in 2019

This session will focus on recent changes to the Merit-Based Incentive Payment System (MIPS), which affects Medicare payments for cardiothoracic surgeons. MIPS assesses physicians in four categories—quality, resource use, participation in clinical practice improvement activities, and use of electronic health records. Attendees will learn what they are required to report and how they can achieve maximum scores in all four categories. In addition, Alternative Payment Models (APMs) and bundled payments for coronary artery bypass grafting (CABG) surgery will be discussed.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Outline the latest updates to MIPS
- Describe Medicare's drive to move physicians into APMs
- Explain the new bundled payment program, which includes CABG procedures
- Discuss the role that the STS National Database plays in these initiatives

MODERATOR: Courtney Yohe Savage, Washington, DC

11:00 AM **Introduction**
Stephen J. Lahey, Farmington, CT

11:05 AM **Cardiothoracic Surgery and Medicare's Push Toward Value-Based Payment**
Robert Jasak, Washington, DC

11:45 AM **Panel Discussion**

12:00 PM – 1:00 PM

BREAK—Visit Exhibits and Scientific Posters

1:00 PM – 3:00 PM

Adult Cardiac: Aorta II

MODERATORS: Bradley G. Leshnower, Atlanta, GA, and Himanshu J. Patel, Ann Arbor, MI

- 1:00 PM **ABSTRACT:** Near “Curative” Impact of Frozen Elephant Trunk on Type I Dissection Confined to the Thoracic Aorta in Marfan Syndrome
Y. Chen¹, W. Ma¹, A. Zhi², J. Zheng³, X. Pan³, Y. Liu³, J. Zhu³, L. Sun³
¹Beijing Anzhen Hospital, China, ²Fu Wai Hospital, Beijing, China, ³Beijing Anzhen Hospital, Capital Medical University, and Beijing Institute of Heart, Lung, and Blood Vessel Diseases, China
- 1:15 PM **ABSTRACT:** Extended Stent Graft Coverage Improves Distal Aortic Remodeling and Does Not Increase the Risk of Paralysis in Acute Complicated Type B Aortic Dissection
X. Lou, Y. Duwayri, W. Jordan, E. P. Chen, B. G. Leshnower
Emory University, Atlanta, GA
- 1:30 PM **ABSTRACT:** Impact of Secondary Aortic Interventions After Thoracic Endovascular Aortic Repair on Long-Term Survival
M. Alhussaini, G. J. Arnaoutakis, S. T. Scali, K. A. Giles, J. Fatima, E. I. Jeng, T. D. Martin, T. M. Beaver
University of Florida, Gainesville
- 1:45 PM **DEBATE:** Extended Total Arch Reconstruction Is the New Gold Standard for All Type I Dissection
No: Michael P. Fischbein, Stanford, CA
Yes: S. Chris Malaisrie, Chicago, IL
- 2:15 PM **ABSTRACT:** Impact of Re-Entry Tear on Proximal Descending Aorta After Open Repair of Non-Syndromic Acute Type I Aortic Dissection
J. Kim, S. Lee, S. Lee, Y. Youn, K. Yoo, H. Joo
Severance Cardiovascular Hospital, Yonsei University College of Medicine, Seoul, South Korea
- 2:30 PM **ABSTRACT:** Increasing Arch Repairs for Acute Type A Aortic Dissections—Are Outcomes Improving?
M. R. Helder¹, H. V. Schaff¹, C. N. Day¹, A. Pochettino¹, G. Bagameri¹, K. L. Greason¹, S. L. Lansman², L. N. Girardi³, C. B. Storlie¹, E. B. Habermann¹
¹Mayo Clinic, Rochester, MN, ²Westchester Medical Center, Valhalla, NY, ³Weill Cornell Medical Center, New York, NY
- 2:45 PM **ABSTRACT:** Is Dissection of Arch Branch Vessels Alone an Indication for Aggressive Arch Replacement in Acute Type A Aortic Dissection?
E. L. Norton¹, X. Wu², L. Farhat², K. M. Kim³, H. J. Patel², G. Deeb³, B. Yang²
¹Creighton University School of Medicine, Omaha, NE, ²University of Michigan Health System, Ann Arbor, ³University of Michigan, Ann Arbor

1:00 PM – 3:00 PM

Adult Cardiac: Aortic Valve/Novel Technologies

MODERATORS: Derek R. Brinster, New York, NY, and Ibrahim Sultan, Pittsburgh, PA

- 1:00 PM **ABSTRACT:** Richard E. Clark Memorial Paper for Adult Cardiac Surgery: Reoperative Surgical Aortic Valve Replacement for Bioprosthetic Failure: Insights From the STS Adult Cardiac Surgery Database
A. Kalra¹, S. Raza¹, M. Hussain², S. J. Delozier¹, S. V. Deo¹, S. Khera³, N. S. Kleiman⁴, M. J. Reardon⁵, D. Kolte⁶, T. Gupta⁷, R. Mustafa¹, D. L. Bhatt⁸, J. F. Sabik¹
¹University Hospitals Cleveland Medical Center, OH, ²Cleveland Scientific Consulting, OH, ³Columbia University Medical Center, New York, NY, ⁴Houston Methodist Hospital, TX, ⁵Houston Methodist DeBakey Heart & Vascular Center, TX, ⁶Massachusetts General Hospital, Boston, ⁷Montefiore Medical Center, Bronx, NY, ⁸Brigham and Women's Hospital, Newton, MA
DISCUSSANT: Robert A. Guyton, Atlanta, GA
- 1:15 PM **ABSTRACT:** Prosthetic Valve Removal Technique Using Ultrasonic Scalpel
H. Tsukui, S. Iwasa, K. Yamazaki
Hokkaido Cardiovascular Hospital, Sapporo, Japan
- 1:30 PM **ABSTRACT:** Impact of Aortic Atherosclerosis Burden on Outcomes in Patients Undergoing Surgical Aortic Valve Replacement: Results From the Cardiothoracic Surgical Trials Network Cerebral Embolic Protection Trial
A. Iribarne¹, S. Pan², J. N. McCullough¹, J. P. Mathew³, J. Hung⁴, P. D. Voisine⁵, P. T. O'Gara⁶, N. M. Sledz², A. Gelijns², W. C. Taddei-Peters⁷, S. R. Messe⁸, A. J. Moskowitz², M. A. Groh⁹, G. Giustino², J. R. Overbey², J. DiMaio¹⁰, P. K. Smith¹¹
¹Dartmouth-Hitchcock Medical Center, Lebanon, NH, ²Icahn School of Medicine at Mount Sinai, New York, NY, ³Duke University Medical Center, Durham, NC, ⁴Massachusetts General Hospital, Boston, ⁵Quebec Heart and Lung Institute, Canada, ⁶Brigham and Women's Hospital, Boston, MA, ⁷National Heart, Lung, and Blood Institute, Bethesda, MD, ⁸Perelman School of Medicine, University of Pennsylvania, Philadelphia, ⁹Mission Hospitals, Asheville, NC, ¹⁰Baylor Scott & White Health, Dallas, TX, ¹¹Duke University, Durham, NC
- 1:45 PM **ABSTRACT:** Has Market Competition Influenced the Utilization of Transcatheter Aortic Valve Replacement?
R. J. Strobel, A. A. Brescia, K. M. Kim, S. Fukuhara, X. Wu, D. S. Likosky, H. J. Patel, G. Deeb, M. P. Thompson
University of Michigan, Ann Arbor
- 2:00 PM **DEBATE:** 60-Year-Old Man With STS PROM 4.5% and Prior 19 mm Bioprosthetic Valve
Redo Aortic Valve/Root Replacement: Joseph S. Coselli, Houston, TX
Valve-in-Valve Transcatheter Aortic Valve Replacement: Keith B. Allen, Kansas City, MO
- 2:30 PM **ABSTRACT:** Repair of Aortic Valve Insufficiency With Associated Ascending Aortic Aneurysm Using Geometric Ring Annuloplasty
M. W. Gerdisch¹, J. S. Rankin², S. D. Weaver³, V. Badhwar²
¹Cardiac Surgery Associates, Indianapolis, IN, ²West Virginia University, Morgantown, ³Corazon Medical, Columbus, OH
- 2:45 PM **ABSTRACT:** Early vs Delayed Pacemaker Implantation for Heart Block Following Aortic Valve Replacement: A Cost-Effectiveness Analysis
J. P. Beller, Z. Tyerman, J. H. Mehaffey, R. B. Hawkins, E. J. Charles, L. T. Yarbboro, N. R. Teman, N. Mehta, T. N. Wanachek, G. Ailawadi
University of Virginia, Charlottesville

1:00 PM – 3:00 PM

Advanced Therapies for End-Stage Cardiopulmonary Disease

Cardiothoracic surgeons, cardiologists, intensivists, and allied health professionals who care for patients with advanced heart and lung failure will benefit from this session, which will focus on organ transplantation and donor-related issues. Speakers will discuss the financial considerations in organ procurement, ex-vivo organ preservation, the use of donors from cardiac death and those with hepatitis C, and the recent United Network for Organ Sharing heart allocation model, which was implemented in October 2018.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Describe the ideal diagnostic evaluation and optimization of heart donors
- Summarize the role of organ procurement organizations, their financial and organizational infrastructure, and how they impact clinical practice in thoracic organ procurement
- Explain the current and potential future application of ex-vivo organ preservation
- Describe potential future sources of donor thoracic organs such as those with hepatitis C and from donation after cardiac death
- Explain the new heart allocation model and describe the early impact at high- and low-volume centers

MODERATOR: *Jonathan W. Haft, Ann Arbor, MI*

- 1:00 PM **Heart Donor Diagnostic Testing and Optimization: Are We All on the Same Page?**
Hannah M. Copeland, Ridgeland, MS
- 1:15 PM **Discussion**
- 1:18 PM **Organ Procurement Agencies: Financial and Organizational Structure for Durable Success**
Jeffrey Orlowski, Oklahoma City, OK
- 1:43 PM **Discussion**
- 1:48 PM **Ex-Vivo Thoracic Organ Preservation: Current and Future Applications**
Marcelo Cypel, Toronto, Canada
- 2:03 PM **Discussion**
- 2:06 PM **Heart Donation After Cardiac Death Clinical Trial**
Jason W. Smith, Seattle, WA
- 2:21 PM **Discussion**
- 2:24 PM **Use of Hepatitis C Donors**
Ashish Shah, Nashville, TN
- 2:39 PM **Discussion**
- 2:42 PM **New Heart Allocation Model and Its Early Impact**
Jonathan W. Haft, Ann Arbor, MI
- 2:57 PM **Discussion**

1:00 PM – 3:00 PM

General Thoracic: Esophageal

MODERATORS: *Daniela Molena, New York, NY, and Katie S. Nason, Springfield, MA*

- 1:00 PM **ABSTRACT: Do the 2018 Leapfrog Group Minimal Hospital and Surgeon Volume Standards for Esophagectomy Reflect Better Outcomes?**
D. T. Cooke¹, H. Hashimi¹, C. L. David², L. M. Brown¹, G. H. Utter¹, M. Nuno¹
¹University of California, Davis Medical Center, Sacramento, ²University of Massachusetts, Amherst
- 1:15 PM **ABSTRACT: Delaying the Treatment of Achalasia Affects Long-Term Outcomes: Lessons From a Canadian Cohort Study of 1624 Patients**
E. Frechette¹, B. Allen², K. Bray Jenkyn², T. Maniere¹, R. A. Malthaner³, S. Z. Shariff²
¹University of Sherbrooke, Longueuil, Canada, ²Institute for Clinical Evaluative Sciences, London, Canada, ³London Health Sciences Center, Canada
- 1:30 PM **ABSTRACT: Understanding Failure-to-Rescue After Esophagectomy in the United States**
Z. M. Abdelsattar, E. B. Habermann, S. H. Blackmon
Mayo Clinic, Rochester, MN
- 1:45 PM **ABSTRACT: Mortality After Esophagectomy: An Analysis of Complications and Their Association With Mortality in the STS National Database**
P. A. Linden¹, C. W. Towe¹, T. J. Watson², D. E. Low³, S. D. Cassivi⁴, M. V. Grau-Sepulveda⁵, J. D. Mitchell⁶, Y. Y. Perry¹
¹University Hospitals Cleveland Medical Center, OH, ²MedStar Washington, DC, ³Virginia Mason Medical Center, Seattle, WA, ⁴Mayo Clinic, Rochester, MN, ⁵Duke Clinical Research Institute, Durham, NC, ⁶University of Colorado Denver, Aurora
- 2:00 PM **ABSTRACT: Impact of Goal-Directed Fluid Therapy on Minimally Invasive Esophagectomy: A Randomized, Controlled Clinical Trial**
X. Chen, Y. Shen, L. Tan
Zhongshan Hospital, Shanghai, China
- 2:15 PM **ABSTRACT: Causes, Risk Factors, and Costs Associated With 30-Day Readmissions Following Esophagectomy: An Analysis of the Nationwide Readmission Database**
N. J. Goel¹, A. Iyengar¹, J. J. Kelly², C. D. Mavroudis², C. W. Lancaster¹, N. N. Williams¹, D. Dempsey¹, J. C. Kucharczuk²
¹Hospital of the University of Pennsylvania, Philadelphia, ²University of Pennsylvania, Philadelphia
- 2:30 PM **DEBATE: Is Post-Esophagectomy Cancer Survivorship Surveillance Necessary?**
Yes: *Wayne L. Hofstetter, Houston, TX*
No: *Andrew C. Chang, Ann Arbor, MI*

1:00 PM – 5:00 PM

How-To Video Session: Technical Tips to Avoid Pitfalls and Simplify Congenital and Pediatric Cardiac Surgery Procedures

This session will prepare congenital and pediatric cardiac surgeons to better master challenging operative scenarios such as complex atrioventricular valve disease and complex biventricular repairs. Attendees also will be exposed to emerging technologies and unique approaches to help them better surgically manage heart failure, mechanical support, and cardiac transplantation. Experts will share their experiences as they mastered these complex operative interventions.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Detail the technical aspects of complex operations performed in congenital and pediatric cardiac surgery
- Discuss pitfalls of critical steps in complex congenital and pediatric cardiac surgery
- Identify novel surgical approaches to make congenital and pediatric cardiac operations safer and more reproducible
- Describe the technical nuances for operative interventions that they may not commonly see in clinical practice

MODERATORS: S. Adil Husain, Salt Lake City, UT, and James D. St. Louis, Kansas City, MO

Session I: Repair of Complete Atrioventricular Septal Defect (ASD)

- 1:00 PM Two-Patch Technique
William I. Douglas, Kansas City, MO
- 1:10 PM Modified Single-Patch Technique
Osama Eltayeb, Chicago, IL
- 1:20 PM Repair of ASDs/Tetralogy of Fallot
E. Dean McKenzie, Atlanta, GA
- 1:30 PM Panel Discussion

Session II: Coronary Implantation Techniques in Complex Congenital Heart Defects

- 1:50 PM Anomalous Aortic Origin of the Coronary Artery
James Jagers, Aurora, CO
- 2:00 PM Anomalous Left Coronary Artery Off the Pulmonary Artery
Ali Dodge-Khatami, Jackson, MS
- 2:10 PM Transposition of Great Vessels With a Single Coronary Artery
Victor O. Morell, Pittsburgh, PA
- 2:20 PM Panel Discussion
- 2:45 PM Break

Session III: Cardiac Transplantation and Mechanical Circulatory Support

- 3:15 PM Anticoagulation Strategies in Patients With Ventricular Assist Devices
Lindsay May, Salt Lake City, UT
- 3:25 PM Mechanical Assist Devices in the Functional Single Ventricle Anatomy
David L. Morales, Cincinnati, OH
- 3:35 PM Complex Transplantation in Functional Single Ventricle Anatomy
Kirk R. Kanter, Atlanta, GA
- 3:45 PM Panel Discussion

Session IV: Complex Neonatal Repair

- 4:05 PM Complete Repair of Dextro-Transposition of the Great Arteries With Severe Arch Obstruction and Ventricular Septal Defect
James S. Tweddell, Cincinnati, OH
- 4:15 PM Primary Sutureless Repair of Total Anomalous Pulmonary Venous Connection
Christopher A. Caldarone, Toronto, Canada

- 4:25 PM Technical Variations With the Modified Norwood Procedure
Jennifer C. Romano, Ann Arbor, MI

- 4:35 PM Panel Discussion

1:00 PM – 5:00 PM

How-To Video Session: General Thoracic

This session will focus on the technical strategies to incorporate minimally invasive techniques such as video-assisted thoracoscopic surgery (VATS) and robotics for the performance of increasingly complicated general thoracic procedures, namely segmentectomy, esophagectomy, and thymectomy. Technical strategies and avoidance of pitfalls will be highlighted.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Explain how to perform a segmentectomy
- Describe the segmental anatomy of the lung
- Describe how to approach thymectomy/thymoma with minimally invasive techniques
- Identify minimally invasive options in the management of large thymomas
- Demonstrate how to perform a minimally invasive/robotic esophagectomy
- Recognize how to avoid pitfalls in esophagectomy

- 1:00 PM Introduction

Esophageal

MODERATORS: Virginia R. Little, Boston, MA, and M. Blair Marshall, Washington, DC

- 1:05 PM Strategies in the Management of Celiac Nodal Disease Following Neoadjuvant Treatment
Gail E. Darling, Toronto, Canada
- 1:15 PM Avoiding Pitfalls During Robotic Esophagostomy
Kemp H. Kernstine, Dallas, TX
- 1:25 PM Creating the Optimal Conduit
Philip A. Linden, Cleveland, OH
- 1:35 PM Avoiding Anastomotic Leaks
M. Blair Marshall, Washington, DC
- 1:45 PM Discussion
- 2:10 PM Break

Segments

MODERATORS: Linda W. Martin, Charlottesville, VA, and Betty C. Tong, Durham, NC

- 2:20 PM Anatomy/Segment Nomenclature (Boyden System)
Linda W. Martin, Charlottesville, VA
- 2:30 PM When to Abandon the Segment for Lobectomy
Jessica S. Donington, Chicago, IL
- 2:40 PM Tips and Tricks for Identifying Nodules, Bronchial, and Vascular Anatomy During Minimally Invasive Segmentectomy
Shanda H. Blackmon, Rochester, MN
- 2:50 PM Tips and Tricks for the Less Common, More Difficult Segmentectomies—Basilar, Right Upper Lobe, and Lingual-Sparing Left Upper Lobe Segmentectomies (Robotic and/or VATS)
David C. Rice, Houston, TX
- 3:00 PM Unusual Anatomy/Anatomic Variants and How to Handle Them During Minimally Invasive Segmentectomy
Thomas A. D'Amico, Durham, NC
- 3:10 PM Discussion

Mediastinum

MODERATORS: James Huang, New York, NY, and Robert E. Merritt, Columbus, OH

- 3:45 PM **Thoracoscopic Thymectomy for Non-Thymomatous Myasthenia Gravis**
Joshua R. Sonett, New York, NY
- 3:55 PM **Robotic-Assisted Thymectomy for Non-Thymomatous Myasthenia Gravis**
Inderpal S. Sarkaria, Pittsburgh, PA
- 4:05 PM **Thoracoscopic Excision of a Large Thymoma**
Michael J. Weyant, Aurora, CO
- 4:19 PM **Robotic-Assisted Excision of a Large Thymoma**
Valerie W. Rusch, New York, NY
- 4:31 PM **Discussion**

1:00 PM – 5:00 PM

“My Tube” Adult Cardiac How-To Video Session

This session will provide technical tips that attendees can immediately implement in their practices. Videos featuring common cases in heart failure surgery, coronary disease, valvular disease, and aortic/great vessel disease will be presented with a focus on new technologies and alternative approaches.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Explain the technical aspects of complex operations commonly performed in adult cardiac surgery, with specific emphasis in the fields of structural heart disease, coronary arterial disease, aortic pathology, and heart failure
- Discuss the pitfalls of critical steps in complex cardiac surgery
- Identify novel tricks to make cardiac operations easier, safer, and more reproducible

MODERATORS: Gorav Ailawadi, Charlottesville, VA, and Ahmet Kilic, Baltimore, MD

- 1:00 PM **MitraClip**
Kendra J. Grubb, Atlanta, GA
- 1:12 PM **Transapical NeoChord for Mitral Valve Repair**
James S. Gammie, Stevenson, MD
- 1:24 PM **Transseptal Mitral/Tricuspid Valve Repair With or Without Atrial Fibrillation Surgery**
Richard Lee, St Louis, MO
- 1:36 PM **Sutureless Aortic Valve Replacement**
Wilson Y. Szeto, Philadelphia, PA
- 1:48 PM **Transapical Myectomy**
Hartzell V. Schaff, Rochester, MN
- 2:00 PM **Aortic Valve Repair for Aortic Insufficiency**
Kenton J. Zehr, Baltimore, MD
- 2:12 PM **Ventricular Septal Defect Repair**
Y. Joseph Woo, Stanford, CA
- 2:24 PM **Total Arterial Revascularization**
Joseph F. Sabik III, Cleveland, OH
- 2:36 PM **Completely Robotic Coronary Artery Bypass Grafting**
Johannes Bonatti, Abu Dhabi, United Arab Emirates
- 2:48 PM **Break**
- 3:00 PM **Emerging Endovascular Approaches for Aortic Arch Repair**
Ali Khoynzad, Long Beach, CA
- 3:12 PM **Failed Homograft: Aortic Root Replacement**
Leora T. Yarboro, Charlottesville, VA
- 3:24 PM **Managing Descending Thoracic Aneurysm After Previous Dissection**
Joseph S. Coselli, Houston, TX
- 3:36 PM **Commando/Hemi-Commando for Infective Endocarditis**
Jose L. Navia, Cleveland, OH

- 3:48 PM **Aortic Root Enlargement**
Juan A. Crestanello, Rochester, MN
- 4:00 PM **Addressing Malperfusion First in Type A Dissections**
Himanshu J. Patel, Ann Arbor, MI
- 4:12 PM **Durable Right Ventricular Assist Device Implantation**
Carmelo A. Milano, Durham, NC
- 4:24 PM **Extracorporeal Membrane Oxygenation With Left Ventricle Venting Strategies**
Bryan A. Whitson, Columbus, OH
- 4:36 PM **Axillary Intraaortic Balloon Pump**
Val Jeevanandam, Chicago, IL
- 4:48 PM **Minimally Invasive HeartMate III**
Igor Gosev, Rochester, NY

1:00 PM – 5:00 PM

Patient Safety Symposium: Innovation and Safety in the Digital Era—From EHRs to Cybersecurity

When building a “culture of safety,” one often thinks of the leadership and organizational aspects (eg, teamwork training, blame-free environment, medication errors, and root cause analysis). But digital innovations such as electronic health records (EHRs) and cybersecurity are having a growing impact on patient safety. EHRs have generated challenges for providers, specifically in regard to the user interface and availability of performance metrics. Also relevant is hospital cybersecurity as it relates to patient privacy and medical equipment/device security. Cardiothoracic surgeons and all those working in the field need to better understand the current state and future of telehealth in the health care spectrum.

Learning Objectives

Upon completion of this activity, participants should be able to:

- Explain the effect of EHRs on patient safety, performance metrics, and health care delivery
- Discuss the current status and future of cybersecurity, patient privacy, and safety in health care
- Describe the effectiveness and limitations of telehealth/telemedicine now and in the future

MODERATORS: Steven D. Harrington, Clinton Township, MI, and Garrett L. Walsh, Houston, TX

- 1:00 PM **Introduction**
- 1:10 PM **Technological Innovation and Medicine: Where Are We Going?**
Anthony Chang, Orange, CA
- 1:45 PM **Cybersecurity or Cyber-Insecurity**
John Frenzel, Houston, TX
- 2:20 PM **Performance Metrics: Do They Help or Hurt?**
Jeffrey B. Rich, Cleveland, OH
- 2:55 PM **Break**
- 3:10 PM **Electronic Health Records: The Good and the Bad**
J. Michael DiMaio, Dallas, TX
- 3:45 PM **Telehealth in Surgery: Now and the Future**
Kevin W. Lobdell, Charlotte, NC
- 4:20 PM **Panel Discussion**

SCIENTIFIC POSTERS

ADULT CARDIAC SURGERY

Long-Term Outcomes of Porcine vs Bovine Pericardial Mitral Valve Replacements: 17-Year Follow-Up of 940 Implantations

T. J. Beute, Michigan State University, Grand Rapids

Minimally Invasive Bicuspid Aortic Valve Repair Using Geometric Ring Annuloplasty

V. Badhwar, West Virginia University, Morgantown

Role of Anti-Inflammatory Medications in Preventing Postoperative Atrial Fibrillation

T. Watt, University of Michigan Health System, Ann Arbor

Incidence, Resource Utilization, and Predictors of 30-Day Readmission Following Surgical Aortic Valve Replacement: Insights From the Nationwide Readmission Database 2010-2015

H. Houry, University of California, Los Angeles

Abrupt Increase in Structural Valve Degeneration of a First-Generation Aortic Valve Bioprosthesis

S. Fukuhara, University of Michigan Frankel Cardiovascular Center, Ann Arbor

Influence of Age on Longevity of a Stentless Bioprosthesis Valve

B. Yang, University of Michigan/Michigan Medicine, Ann Arbor

Long-Term Outcomes of Postoperative Renal Failure Following Aortic Valve Surgery in North America

M. Caceres

Novel Oral Anticoagulants vs Warfarin Following Bioprosthetic Aortic Valve Replacement

E. D. Krebs, University of Virginia, Charlottesville

Open Thoracoabdominal Aortic Aneurysm Repair in Patients With Genetically Triggered Aortic Disease: A Report From the GenTAC Registry

W. C. Frankel, Baylor College of Medicine, Houston, TX

Impact of Concomitant Coronary Artery Bypass Grafting With Aortic Valve Replacement on 30-Day Hospital Readmissions: An Analysis of More Than 114,000 Procedures

R. Shah

Direct Intramyocardial Bone Marrow Stromal/Stem Cell Therapy in Patients Undergoing Surgical Revascularization for Ischemic Heart Disease

J. Chan

Constitutive Expression of HIF-1 α Augments the Therapeutic Potential of Cardiosphere-Derived Cells

P. Saha, University of Maryland, Baltimore

Left Ventricular Remodeling After Mini-Mitral Repair: Does the Complexity of Mitral Disease Matter?

A. Hage, Western University, London, Canada

Fate of Pericardial Patches in Tricuspid and Bicuspid Aortic Cusp Repair

I. Karliova, Saarland University Medical Center, Homburg, Germany

Left Ventricular Pseudoaneurysm of the Heart Base

J. A. Crestanello, Mayo Clinic, Rochester, MN

Predictive Utility of a Novel Machine Learning Algorithm in Estimating Operative Mortality After Adult Cardiac Surgery

A. Kilic, University of Pittsburgh Medical Center, PA

A Century of Heparin

C. Ong, Johns Hopkins University, Baltimore, MD

Effect of Preoperative Pulmonary Hypertension on Clinical Outcomes in Patients With Rheumatic Mitral Stenosis After Mitral Valve Replacement

D. Kim, Severance Cardiovascular Hospital, Yonsei University College of Medicine, Seoul, South Korea

Surgical Management of Invasive Double Valve Endocarditis Involving the Interventricular Fibrous Body

J. L. Navia, Cleveland Clinic, OH

Pulmonary Valve Function Late After Ross Procedure in 443 Adult Patients

T. Fricke, The Royal Children's Hospital, Richmond, Australia

Should Transcatheter Aortic Valve Replacement After Prior Coronary Artery Bypass Grafting Be the New Standard of Care?

S. M. Hasan, Cleveland Clinic, OH

Impact of Hospital and Surgeon Procedural Volume on Outcomes After Aortic Root Replacement in the Medicare Population

C. Brown, Hospital of the University of Pennsylvania, Philadelphia

Survival Following Septal Myectomy for Obstructive Hypertrophic Cardiomyopathy: What Causes Late Mortality?

A. Nguyen, Mayo Clinic, Rochester, MN

First-in-Man Trial of a Novel, Balloon-Adjustable Mitral Annuloplasty Ring

M. Andreas, Medical University of Vienna, Austria

Safety of del Nido Cardioplegia in Complex Adult Cardiac Surgery: A Propensity-Weighted Analysis

J. Schwarz, Emory University, Atlanta, GA

STS Overall Composite Scores: A Better Measure of High-Quality Cardiac Surgery

J. Coughlin, Rush University Medical Center, Chicago, IL

Impact of Intraoperative Dobutamine Stress Echocardiography on Surgical Planning and Outcomes of Septal Myectomy

A. M. Bonanno, Oregon Health & Science University, Portland

Long-Term Performance of Fresh Autologous Pericardium for Mitral Valve Leaflet Repair

R. W. Quinn, University of Maryland, Baltimore

Native Coronary Disease Progression Post-Coronary Artery Bypass Grafting

H. Jabagi, Ottawa Heart Institute, Canada

Unilateral vs Bilateral Antegrade Cerebral Perfusion in Hemiarch to Total Arch Replacement in Acute Type A Aortic Dissection: 16 Years of Experience

B. Yang, University of Michigan/Michigan Medicine, Ann Arbor



Residual Leaflet Excision for Severe Leaflet Elongation in Obstructive Hypertrophic Cardiomyopathy

H. B. Schubmehl, NYU Langone Medical Center, New York

Preoperative Left Ventricular Strain Predicts Left Ventricular Dysfunction After Mitral Surgery for Degenerative Mitral Regurgitation

O. N. Kisilitsina, Northwestern University, Chicago, IL

Current Evidence Does Not Support the National Quality Forum-Endorsed Quality Measures Requiring Administration of Beta-Blockers Within 24 Hours Prior to Isolated Coronary Artery Bypass Grafting

G. Filardo, Baylor Scott & White Health, Dallas, TX

Impact of Socioeconomic Status in Patients Undergoing Transcatheter Aortic Valve Replacement: A Statewide Analysis

C. Ong, Johns Hopkins University School of Medicine, Baltimore, MD

Implications of Methicillin-Resistant Staphylococcus aureus Carrier Status on Cardiac Surgical Outcomes: A Nationwide Perspective

K. C. Dewan, Cleveland Clinic, OH

Causes, Risk Factors, and Costs Associated With 30-Day Readmissions Following Mitral Valve Repair and Replacement

N. J. Goel, Hospital of the University of Pennsylvania, Philadelphia

Incidence, Mortality, and Resource Utilization of Deep Venous Thrombosis and Pulmonary Embolism in Cardiac Surgical Patients: Insights From the National Inpatient Sample 2005-2015

H. Khoury, University of California, Los Angeles

Long-Term Outcomes of Diabetic Patients Following Coronary Artery Bypass Grafting Surgery: 12-Year Data

U. Imran Hamid, Barts Health NHS Trust, London, United Kingdom

Early Results of Partial Zone 2 Arch Replacement With Staged Single-Branch Thoracic Endovascular Aortic Repair Completion in Acute DeBakey I Dissection With Arch Tear: A Pioneer Series

N. Desai, University of Pennsylvania, Philadelphia

Temporal Trend and Patient Characteristics in Surgery for Endocarditis Associated With Illicit Drug Use: A Report From the Multicenter Surgical Endocarditis Collaborative

S. Bin Mahmood, Yale University, New Haven, CT

Durability of Mitral Valve Bioprostheses: A Meta-analysis of Long-Term Follow-Up Studies

P. Malvindi, Santa Maria Hospital, Bari, Italy

Del Nido Cardioplegia in Adult Coronary Surgery: A Propensity-Matched Analysis of 863 Patients

A. B. Schutz, Baylor College of Medicine, Houston, TX

Preoperative MELD Score Is a Powerful Predictor of Early Outcomes Following Isolated Coronary Artery Bypass Grafting

J. Edelman, MedStar Washington Hospital Center, DC

Thoracic Endovascular Aortic Repair Trends and Outcomes in More Than 27,000 Medicare Patients for Descending Thoracic Aneurysms

Z. Chen, University Heart Center Freiburg, Germany

Decellularization of Bovine Pericardium Reduces the Human Xenoreactive Immune Response

S. J. Bozso, University of Alberta, Edmonton, Canada

Impact of Lesion Localization on the Durability of Mitral Valve Repair in Patients With Infective Endocarditis

T. Miura, Nagasaki University Hospital, Japan

Bicuspid Aortic Valve Repair Using Geometric Ring Annuloplasty: 2-Year Clinical Trial Results

J. S. Rankin, West Virginia University, Morgantown

Rapid Implantation and Right Anterior Minithoracotomy Approach for Surgical Aortic Valve Replacement in Elderly Patients

G. Tamagnini, Istituto Clinico San Rocco, Gruppo San Donato, Ome, Italy

Impact of Three Different Suture Techniques for Aortic Valve Replacement on Prosthesis-Patient Mismatch and Hemodynamic Remodeling

K. Hyohyun, Severance Cardiovascular Hospital, Seoul, South Korea

Direct True Lumen Cannulation ("Samurai" Cannulation) for Acute Stanford Type A Aortic Dissection

T. Kitamura, Kitasato University School of Medicine, Sagami, Japan

Instabilities in Aortic Length After Thoracic Endovascular Aortic Repair and Reoperation: 12 Years of Follow-Up Imaging

P. Moeller, University of Pennsylvania Medical School, Philadelphia

CARDIOTHORACIC SURGERY EDUCATION

Twitter Activity Enhances the Research Citation Index for Academic Cardiothoracic Surgeons

M. Coret, McMaster University, Hamilton, Canada

Sexual Harassment and Cardiothoracic Surgery: #UsToo?

D. P. Ceppa, Indiana University-Purdue University Indianapolis

Role of Mock Oral Examinations in Cardiothoracic Surgery Training

E. Corsini, The University of Texas MD Anderson Cancer Center, Houston

Impact of Sex on Confidence and Perception of Training in Cardiothoracic Surgery

J. G. Luc, University of British Columbia, Vancouver, Canada

A High-Fidelity, Tissue-Based Simulation for Cardiac Transplantation

H. H. Wilson, The University of North Carolina at Chapel Hill

Analyzing the Content of Integrated Cardiothoracic Surgery Residency Program Websites: What Are Applicants Seeing?

K. Abdelrahman, The University of Texas at Austin

Surgeon as Programmer: Overcoming Obstacles to the Use of Modern Internet Technology for Cardiothoracic Surgery

E. M. Bender, Good Samaritan Regional Medical Center, Corvallis, OR

Thoracic Surgery Social Media Network (#TSSMN) Trainee Group Collaborating to Optimize Training Opportunities: A Pilot Study

T. Nihici, ABMU Morriston Hospital, Swansea, United Kingdom

Role of Esophagogastroduodenoscopy Simulation in General Surgery Residency Education

M. Li, Boston University School of Medicine, MA



CONGENITAL HEART SURGERY

VAMP Trial: Use of Arginine Vasopressin in Early Postoperative Management After Completion Fontan

A. Bigelow, Cincinnati Children's Hospital Medical Center, OH

Evolution of a Multi-Tiered Approach to Pulmonary Valve Replacement in Patients With Right Ventricular Outflow Tract Dysfunction

M. Ruzmetov, Joe DiMaggio Children's Hospital, Hollywood, FL

Pondering High-Risk Pediatric Heart Donors: Can We Use More?

K. W. Riggs, Cincinnati Children's Hospital Medical Center, OH

Impact of Phrenic Nerve Palsy on Late Fontan Circulation

M. Komori, National Cerebral and Cardiovascular Center, Suita, Japan

More Than 25 Years of Experience With the Ross Procedure in Children: A Single-Center Experience

E. Martin, Stanford Children's Health, Lucile Packard Children's Hospital, CA

Impact of Gestational Age on Surgical Outcomes in Patients With Functional Single Ventricles

W. Lee, Asan Medical Center, University of Ulsan College of Medicine, Seoul, South Korea

Low Wall Shear Stress Proximal to Myocardial Bridge Is Associated With Presence of Plaque Formation

M. Khan, Stanford University, CA

Can Right Atrial Volume Dilatation Become an Indication for Pulmonary Valve Replacement in Patients With Repaired Tetralogy of Fallot?

T. Kido

Twenty-Year Experience With Truncus Arteriosus Repair: Changes in Risk Factors in the Current Era

Y. Kang, Seoul National University Hospital, South Korea

Does the Right Ventricle in Pulmonary Atresia With an Intact Ventricular Septum Handle Pulmonary Regurgitation Differently Than in Pulmonary Atresia With Ventricular Septal Defect?

D. N. Mallios, University of Southern California, Keck School of Medicine, Los Angeles

Late Neoaortic Valve Regurgitation Long After Arterial Switch Operation

N. Yuki, Tokyo Women's Medical University, Heart Institute, Japan

Evaluating the Utility of Biomarkers to Improve Prediction of 1-Year Readmission or Mortality After Pediatric Congenital Heart Surgery

D. M. Parker, The Dartmouth Institute, Lebanon, NH

Long Interval Period Between Bilateral Pulmonary Artery Banding and Second-Stage Operation Seems to Be Associated With Better Surgical Results

T. Miyamoto, Gunma Children's Medical Center, Sagami-hara, Japan

Contemporary Mid-Term Outcomes in Pediatric Patients Undergoing Vascular Ring Repair

Z. M. Binsalamah, Baylor College of Medicine, Houston, TX

Beyond 30 Days: An Analysis of Unplanned Readmissions During the First Year Following Congenital Heart Surgery

E. Lushaj, University of Wisconsin, Madison

Tracheal Resection With Innominate Artery Transposition in Morquio Syndrome

M. R. Helder, Mayo Clinic, Rochester, MN

Surgical Strategies for Neonates and Young Infants With Pulmonary Atresia and Ventricular Septal Defect: Staged Repair vs Primary Repair

S. Kang, Asan Medical Center, Seoul, South Korea

Rescue Cardiac Surgeries After Pediatric Interventional Catheterization: A 10-Year Retrospective Study

Y. M. Menaissy, Cairo University, Giza, Egypt

CRITICAL CARE

Experience With Centrifugal Pump-Based Biventricular Assist Device for Pediatric Heart Failure Patients

J. Lim, Seoul National University, South Korea

Platelet Nadir Following Cardiopulmonary Bypass Is Independently Associated With Postoperative Mortality, Infection, Acute Kidney Injury, and Prolonged Intensive Care Unit Stay

B. Griffin, University of Colorado, Aurora

Are We Feeding Extracorporeal Membrane Oxygenation Patients? A Prospective, Observational Study

M. F. Hunt, Johns Hopkins University School of Medicine, Mt Pleasant, SC

Upper Extremity Deep Vein Thrombosis Following Cardiac Surgery

J. Hsu, Johns Hopkins University School of Medicine, Baltimore, MD

Feasibility and Safety of Systemic Anticoagulation-Free Veno-Venous Extracorporeal Membrane Oxygenation in Adult Respiratory Failure Patients

C. Kurihara, Northwestern University, Chicago, IL

Effect of Patient Obesity on Extracorporeal Membrane Oxygenation Outcomes and Ventilator Dependency

H. L. Merritt-Genore, University of Nebraska Medical Center, Omaha

Ten-Year Trends in Traumatic Cardiac Injury and Outcomes: A Trauma Registry Analysis

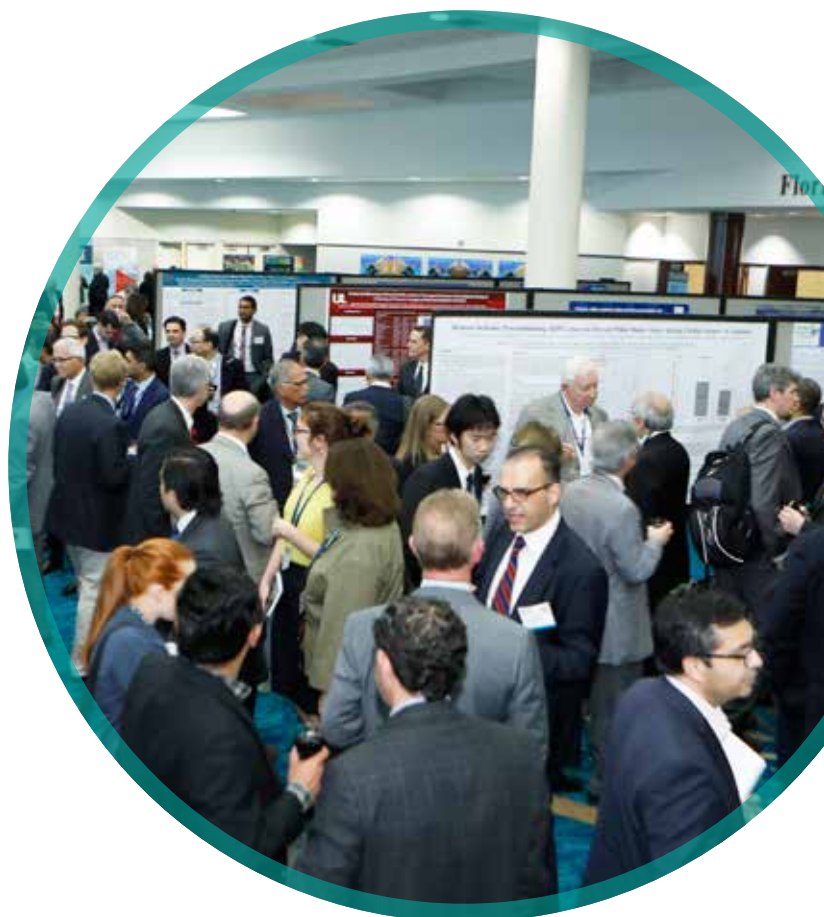
H. Tran, University of Oklahoma, Tulsa

Does Early Postoperative Echocardiography Lead to Clinically Significant Interventions?

E. Camacho, Mayo Clinic, Rochester, MN

MELD-XI Is Predictive of Mortality in Extracorporeal Membrane Oxygenation

B. Ayers, University of Rochester Medical Center, NY



GENERAL THORACIC SURGERY

Plasma Exosome Count Is Correlated With Grade of Lung Cancer Stages: Comparison Between Pulmonary Vein vs Peripheral Vein

H. Kim, Korea University Guro Hospital, Seoul, South Korea

Composite Formulation of Fibrin Glue and Poly(lactic-co-glycolic acid) Microparticles for Sustained Delivery of Local Anesthetics

H. Kim, Korea University Guro Hospital, Seoul, South Korea

A New Possible TNM-M Factor: Cluster-Circulating Tumor Cells in Surgical Cases of Lung Cancer

N. Sawabata, Nara Medical University, Kashihara, Japan

Quantitative Volumetric Computed Tomography Histogram Approach to Prediction of Lymph Node Metastasis in a Patient With Clinical Stage I Non-Small-Cell Lung Cancer

Y. Shimada, Tokyo Medical University, Japan

Incidence, Management, and Outcomes of Intraoperative Catastrophes During Robotic Anatomical Pulmonary Resection

C. Cao, NYU Langone Health, New York

Postoperative Opioid Consumption in Thoracic Surgery Patients: How Much Is Actually Used?

K. A. Holst, Mayo Clinic, Rochester, MN

Staple Line Thickening After Sublobar Resection: Reaction or Recurrence?

B. M. Stiles, Weill Cornell Medicine, New York, NY

Clinical/Pathologic-Based Prognostic Indices Incorporating Growth Pattern-Based Grading of Stage IA/IB Lung Adenocarcinoma

D. M. Ferrari-Light, New York University School of Medicine, New York

Latest National Trends After Robotic-Assisted, Video-Assisted, and Open Lobectomy: A Propensity-Matched Comparative Analysis

W. Raad, Icahn School of Medicine at Mount Sinai, New York, NY

A Tumor-Specific Staging System for Neuroendocrine Tumors of the Lung Needs to Incorporate Histological Grade: An Analysis of the National Cancer Database

A. Jackson, Swedish Cancer Institute, Seattle, WA

Clinical and Pathologic Correlation in Surgically Resectable Non-Small-Cell Lung Cancer

S. M. Stokes, University of Utah, Salt Lake City

Optimal Surgical Timing After Neoadjuvant Therapy for Non-Small-Cell Lung Cancer

J. D. Rice, University of Louisville, KY

STS Composite Score Rating for Pulmonary Resection for Lung Cancer

S. R. Broderick, Johns Hopkins University, Baltimore, MD

Effect of Socioeconomic Status on Treatment and Mortality in Patients With Non-Small-Cell Lung Cancer

P. Ebner, University of Southern California, Los Angeles

End-Stage Renal Disease After Lung Transplantation: An 11-Year National Cohort Study

M. Kosztowski, Johns Hopkins, Baltimore, MD

Prior and Perioperative Revascularization Does Not Affect Survival in Lung Transplant Patients

J. Kanaparthi, Temple University, Philadelphia, PA

Influence of Sarcopenia and Nutrition on Lung Transplant Candidates: Short- and Long-Term Outcomes

A. L. Halpern, University of Colorado Denver

Resection of Subglottic and Cervical Tracheal Stenoses With Laryngeal Mask Airway Ventilation: Long-Term Surgical Results

M. Qiabi, Victoria Hospital, London Health Sciences Center, Western University, Canada

Primary Thoracic Neurogenic Tumors: Clinical, Pathological, and Long-Term Outcomes

D. Galetta, European Institute of Oncology, Milan, Italy

Esophageal Cancer Patient Outcomes After Neoadjuvant Chemoradiotherapy and Subsequent Esophagectomy According to Pathologic Tumor Regression Grade

Y. Kim, Asan Medical Center, Seoul, South Korea

Extended Lymphadenectomy Is Associated With Significant Improvement in Survival After Preoperative Chemoradiation for Esophageal Cancer: An Analysis of the National Cancer Database

M. K. Hussein, Weill Cornell Medical College, New York, NY

High Volume Predicts Guideline-Concordant Care for Stage III Esophageal Cancer

A. Adhia, Northwestern University, Chicago, IL

Patient-Reported Symptoms for Esophageal Cancer Patients Undergoing Curative-Intent Treatment

V. Gupta, University of Toronto, Canada

Video-Assisted Thoracoscopic Pneumonectomy to Treat Complications of Unilateral Congenital Pulmonary Venous Stenosis in an Adult

M. J. Weyant, University of Colorado School of Medicine, Aurora

En-Bloc Thymectomy With Aortic Arch Reconstruction Under Circulatory Arrest for Invasive Malignant Thymoma

J. E. Marcano, Texas Heart Institute/Baylor College of Medicine, Houston

Traumatic Pneumonectomy and Management of Severely Contaminated Pleural Space

K. A. Freeman, University of Florida, Gainesville

QUALITY

Do Regional Consortia Improve Quality in Cardiac Surgery? 30-Year Experience of the Northern New England Cardiovascular Disease Study Group

A. Iribarne, Dartmouth-Hitchcock Medical Center, Lebanon, NH

Value in the Quality Collaborative: Lung Cancer Resection Spending by Hospital STS General Thoracic Surgery Database Participation

P. W. Carrott, University of Michigan Health System, Ann Arbor

Outcomes of Nonelective Coronary Artery Bypass Grafting Performed on Weekends

J. P. Beller, University of Virginia, Charlottesville

One-Year Patient-Reported Outcomes Are Adversely Affected by Postoperative Complications

J. H. Mehaffey, University of Virginia, Charlottesville

Postoperative Management of Endocarditis: Cost-Effective Strategies for the Opioid Crisis

Z. Tyerman, University of Virginia, Charlottesville

Improving Operating Room Turnover Time in a New York City Academic Hospital via Lean Methodology

D. M. Ferrari-Light, NYU Langone Health, New York

Predictors of Increased Costs Following Index Adult Cardiac Operations: Insights From a Statewide Publicly Reported Registry

E. Aranda-Michel, University of Pittsburgh Medical Center, PA

Index vs Non-Index Readmission After Cardiac Surgery: Where Do Patients Go to Be Readmitted? Implications on Mortality, Complications, and Costs of Care

S. A. Hirji, Brigham and Women's Hospital, Boston, MA

What Influences Patient Satisfaction After Cardiac Surgery?

A Prospective Analysis of Predictors of Patient Hospital Experience

S. W. Trooboff, Dartmouth-Hitchcock Medical Center, Lebanon, NH

REGISTRATION

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Hotel Reservation Deadline January 3, 2019
Standard Registration Deadline January 24, 2019

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Contact Experient, the Society's official registration partner.

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International callers: 00-1-847-996-5829

Email: sts@experient-inc.com



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Registration is open to everyone with an interest in cardiothoracic surgery. Please note that STS members are NOT automatically registered for the Annual Meeting.

STS Surgeon Members: STS Active, International, and Senior Members

STS Associate Member Physicians (Non-CT Surgeons):

STS member physicians with an interest in cardiothoracic surgery who are not eligible to become Active, International, Candidate, or Pre-Candidate Members

STS Associate Member Non-Physicians: STS members who are PhD research scientists, physician assistants, perfusionists, nurses, nurse practitioners, practice administrators, data managers, and others with an interest in cardiothoracic surgery

STS Pre-Candidate and Candidate Members: *Pre-Candidate:*

Medical students and general surgery residents who are STS members. *Candidate:* Cardiothoracic surgery residents/fellows/trainees who are STS members

Non-Member Physicians: Non-member cardiothoracic surgeons and other physicians with an interest in cardiothoracic surgery

Non-Member Non-Physicians: Non-member PhD research scientists, physician assistants, perfusionists, nurses, nurse practitioners, practice administrators, data managers, and others with an interest in cardiothoracic surgery

Non-Member Residents, Fellows, and Medical Students:

In order to register for the STS 55th Annual Meeting, non-member general surgery residents and cardiothoracic surgery residents/fellows must complete a registration certification form during the online registration process. Non-member medical students must upload a copy of their current student identification card to the registration website.

SEPARATE REGISTRATIONS

*Tech-Con 2019 and the STS 55th Annual Meeting require **separate** registrations.*

TECH-CON Saturday, Jan. 26	ANNUAL MEETING Sunday, Jan. 27 – Tuesday, Jan. 29
Registration includes access to: • Tech-Con educational sessions • Tech-Con exhibits	Registration includes access to: • Annual Meeting educational sessions • Annual Meeting Exhibit Hall and Opening Reception • 2019 Annual Meeting Online

Separate ticket purchases are required for:

- STS University courses (Sunday, January 27)
- President's Reception (Sunday, January 27)

CANCELATION POLICY

All registration cancellation requests must be made in writing and emailed to meetings@sts.org by January 18, 2019. Requests for refunds will not be honored if submitted after that date. A processing fee of \$100 will be charged for all cancellations.

BECOME AN STS MEMBER – SAVE ON REGISTRATION!

If you are not an STS member, you can gain numerous benefits and savings by becoming an STS member before you register for the Annual Meeting.

Applications for **Associate, Candidate, or Pre-Candidate Membership** must be submitted by *Monday, January 7, 2019*, to allow time for processing. Those approved for membership will receive reduced registration rates for the STS 55th Annual Meeting and Tech-Con.

That's not all...

STS membership also includes:

- Complimentary subscriptions to the Society's prestigious peer-reviewed journal, *The Annals of Thoracic Surgery*, and STS newsletters
- Deep discounts on educational activities, special symposia, and online learning
- Eligibility for discounted STS National Database participation fees
- Opportunities to participate on STS governance bodies that help develop and implement programs to advance the interests of the specialty
- Networking with the largest group of cardiothoracic surgeons worldwide

For membership information and a link to the online application, visit sts.org/membership or contact Sarah Foreman, Senior Coordinator, Member Services, at sforeman@sts.org.

PRICING

	STS MEMBERS			NON-MEMBERS		
	Member Surgeons and Physicians	Associate Member Non-Physicians	Candidate and Pre-Candidate Members	Non-Member Physicians	Non-Member Non-Physicians	Non-Member Residents, Fellows, and Medical Students
STS 55TH ANNUAL MEETING (INCLUDES ANNUAL MEETING ONLINE)						
Early Bird (through November 19)	\$400	\$175	\$0	\$1,025	\$400	\$175
Standard (November 20 – January 24)	\$500	\$275	\$0	\$1,150	\$550	\$275
Onsite (January 25 – January 29)	\$600	\$375	\$0	\$1,250	\$650	\$375
TECH-CON 2019						
Early Bird (through November 19)	\$400	\$400	\$0	\$625	\$625	\$0
Standard (November 20 – January 24)	\$500	\$500	\$0	\$725	\$725	\$0
Onsite (January 25 – January 29)	\$600	\$600	\$0	\$825	\$825	\$0
TICKETED EVENTS (MUST BE REGISTERED FOR THE STS ANNUAL MEETING)						
President's Reception	\$125	\$125	\$125	\$125	\$125	\$125
STS University Course (each)	\$175	\$175	\$175	\$175	\$175	\$175



TICKETED EVENTS

STS UNIVERSITY

Sunday, January 27

8:00 AM – 9:45 AM (Session I)

10:15 AM – 12:00 PM (Session II)

Don't wait until you arrive in San Diego to reserve your spot at STS University, a popular series of hands-on learning activities. When you're registering for the meeting online, make sure to choose the STS University courses that you'd like to attend so that you get your first choices—courses sell out!

Please note: STS U courses will now be held on **Sunday morning, January 27**, rather than on Wednesday morning, so that busy professionals can get back to their practices.

Each course will exclusively feature hands-on experience in a wet lab or on a simulator—no didactic lectures will be given during the sessions. See pages 9-12 for a description of the courses available, and sign up today!



PRESIDENT'S RECEPTION

Sunday, January 27

7:00 PM – 10:00 PM

Join your colleagues for the STS President's Reception at the celebrated Hotel del Coronado on Sunday evening, January 27. Set on picturesque Coronado Island, just off the San Diego coastline, this National Historic Landmark hotel was built in 1888 and has been a popular destination for visiting celebrities, presidents, and dignitaries.

The reception will be held in the Crown Room, an elegant space with a 33-foot domed ceiling made from Oregon sugar pine and crown-shaped chandeliers designed by L. Frank Baum, author of *The Wonderful Wizard of Oz*. Several notable events have been held in the Crown Room, including a celebration for Charles Lindbergh following his solo transatlantic flight. The resort also served as the backdrop for movies, including "Some Like It Hot," starring Marilyn Monroe, Tony Curtis, and Jack Lemmon.

Don't miss this opportunity to enjoy dinner, drinks, and conversation in a historic setting. Purchase a ticket when registering for the meeting at sts.org/annualmeeting.

ARRIVE EARLY

TECH-CON

Saturday, January 26

Stay ahead of the curve when it comes to cutting-edge developments in cardiothoracic surgery by attending Tech-Con, which will be held immediately prior to the Annual Meeting on Saturday, January 26. The 2019 program will feature technologies anticipated to be available in the next 1-3 years, as well as innovative, off-label, and outside-the-box techniques that address complex problems.

The adult cardiac sessions will explore advancements in ischemic disease, heart failure, atrial fibrillation surgery, and aortic and structural heart disease. Attendees at the general thoracic sessions can expect to learn about evolutions in lung and chest wall surgeries, as well as esophageal surgery.

An expanded general session will feature a keynote lecture on the role of artificial intelligence in medical technology. Two exciting debates will consider whether coronary revascularization should be performed only by dedicated coronary artery bypass grafting surgeons and whether peroral endoscopic myotomy should replace laparoscopic Heller myotomy.

The day will conclude with the popular *Shark Tank* presentations, in which inventors pitch their ideas to a panel of experts and the audience. Devices on deck for discussion include a leakproof aortic anastomosis stapler and a valveless pulsatile-flow ventricular assist device. See pages 7-8 for detailed agendas.

Don't miss this opportunity to see what's coming down the pipeline. Tech-Con registration is separate from Annual Meeting registration, so make sure to register for both.



CODING WORKSHOP

Friday, January 25 – Saturday, January 26

Make your Annual Meeting plans early so that you and your team can attend the STS Coding Workshop, which will be held on Friday, January 25, and Saturday, January 26, at the Marriott Marquis San Diego Marina.

Cardiothoracic surgery coders, surgeons, and other billing professionals will learn about the latest coding and reimbursement updates affecting their practices. Sessions will cover new and revised codes specific to cardiothoracic surgery, with concentrations in adult cardiac surgery, congenital heart surgery, general thoracic surgery, and vascular surgery.

The program also will focus on reimbursement issues affecting the specialty as a whole, including global services, modifiers, bundling, evaluation and management (E/M) coding, and alternative payment models. The workshop will conclude with a special session on the physician's role in documentation and reimbursement.

See the full agenda and register yourself and/or your billing manager at sts.org/codingworkshop.



HOUSING

MEETING LOCATION

All educational programming for the STS 55th Annual Meeting and Tech-Con 2019 will take place at the San Diego Convention Center.

San Diego Convention Center

111 W. Harbor Dr.
San Diego, CA 92101
619-525-5000
visitsandiego.com

STS HOTELS

The Society has negotiated with local San Diego hotels to offer exclusive discounted rates to STS Annual Meeting attendees. Making your reservation through the official STS room blocks helps the Society continue to leverage the best possible pricing for its members.

You must register for the Annual Meeting before you can reserve your housing. You can do both at sts.org/annualmeeting. The deadline to receive discounted room rates is Thursday, January 3, 2019.

The Society has engaged Experient as the only approved Official Registration and Housing Provider for the STS Annual Meeting. Please be wary of any other companies ostensibly offering registration and/or housing assistance for the STS Annual Meeting. Such companies typically imply that they are working with STS, but in reality are unauthorized. Please contact the Meetings & Conventions Department at meetings@sts.org if you are contacted by anyone other than Experient.

Questions?

Contact Experient, the Society's official housing partner.



Toll free: 800-424-5249

International callers:

00-1-847-996-5829

Email: sts@experient-inc.com



SAVE BY BOOKING THROUGH STS*

	STS room rate (per night)	Online travel site	Savings
1 Hilton San Diego Bayfront 1 Park Blvd., San Diego, CA 92101	\$271	\$315	14%
2 Omni San Diego Hotel 675 L St., San Diego, CA 92101	\$289	\$349	17%
3 Marriott Marquis San Diego Marina 333 W. Harbor Dr., San Diego, CA 92101	\$299 city view \$319 bay view	\$419 bay view	24%

*Savings based on single-night rate comparison as of November 13, 2018.

TRAVEL INFORMATION

AIR TRAVEL

The San Diego International Airport (SAN) is conveniently located approximately 3 miles from the San Diego Convention Center and all official STS hotels.

GROUND TRANSPORTATION

Car Rental

STS has negotiated special car rental rates from Hertz. Reservations may be placed at hertz.com or by calling 800-654-2240 from within the United States and Canada; from international locations, call 00-1-405-749-4434. To receive the discounted STS rate, reference convention number (CV#) 04XS0007 when making your reservation. Parking at the San Diego Convention Center ranges from \$15 to \$35 per day.

Taxis/Ride Shares

To hail a taxi upon arrival at SAN, follow the signs leading to the Transportation Plazas across from Terminals 1 and 2. A customer service representative will place you in the first available taxi. The approximate one-way cost to the hotels or convention center is \$20.

Uber, Lyft, and other ride share companies also pick up in the Transportation Plazas. Follow signage to the designated pickup lanes.

Shuttle Service / Private Car

Airport shuttle and private car services are available through SuperShuttle. Shuttle service can be accessed from the Transportation Plazas and costs approximately \$8 per person from SAN to the official STS hotels. Private car service is approximately \$40 one way. For reservations, call 800-9-SHUTTLE (800-974-8885) or visit supershuttle.com.

For International Attendees

ACT NOW TO OBTAIN YOUR VISA

If you plan to attend the STS Annual Meeting, advance planning is critical! Attendees from outside the United States may need to apply for a visa at the American embassy, consulate, or other visa-issuing office in their country of origin. Please begin your visa application process as soon as possible. Learn more at travel.state.gov.

If you need a personalized letter of invitation, visit sts.org/annualmeeting and complete the Letter of Invitation Request Form. Once you have submitted the form, STS will email a personalized letter of invitation to you within 1 business week. Please note: STS cannot promise that you or your colleagues will receive a visa, nor can it change the decision of any governmental agency should your application be denied.

ABOUT SAN DIEGO AND THE UNITED STATES

Even for the seasoned traveler, a trip may require some advance planning. Learn more about essential information, helpful travel tips, and answers to common questions at these websites:

sandiego.org (San Diego Tourism Authority)
visitsandiego.com (San Diego Convention Center)
san.org (San Diego International Airport)
travel.state.gov (US State Department)
cbp.gov (Customs and Border Protection)
dhs.gov/how-do-i/visit-united-states (Department of Homeland Security)



ANNUAL MEETING TASK FORCES AND ABSTRACT REVIEWERS



I would like to thank the members of the Annual Meeting Task Forces and all abstract reviewers who volunteered their time, energy, and expertise in developing the STS 55th Annual Meeting program.

– Richard Lee, Chair, Workforce on Annual Meeting

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