

STS MEETING BULLETIN

SATURDAY-SUNDAY | JAN. 26-27, 2019

THE SOCIETY OF THORACIC SURGEONS
55th ANNUAL MEETING
SAN DIEGO, CA | sts.org

SATURDAY

7:00 a.m. – 5:00 p.m.

Registration
Hall F Lobby

7:00 a.m. – 6:30 p.m.

Tech-Con Exhibits
Ballroom 20 Foyer

7:00 a.m. – 8:00 a.m.

Tech-Con Breakfast
Ballroom 20 Foyer

8:00 a.m. – 9:30 a.m.

Tech-Con Adult Cardiac Track I
Ballroom 20ABC

Tech-Con General Thoracic Track I
Room 33

10:15 a.m. – 12:00 p.m.

Tech-Con Adult Cardiac Track II
Ballroom 20ABC

Tech-Con General Thoracic Track II
Room 33

12:00 p.m. – 1:00 p.m.

Tech-Con Lunch
Ballroom 20D

1:00 p.m. – 5:00 p.m.

Tech-Con Joint Session
Ballroom 20ABC

5:00 p.m. – 6:30 p.m.

Tech-Con Reception
Ballroom 20 Foyer

SUNDAY

7:00 a.m. – 6:30 p.m.

Registration
Hall F Lobby

7:00 a.m. – 12:00 p.m.

The Multidisciplinary Team: How We Do It
Room 30E

8:00 a.m. – 9:45 a.m.

STS University (Session I)
Hall H

8:00 a.m. – 12:00 p.m.

Adult Congenital Heart Disease Symposium:
Planning for the Future—Aortic Arch
Anomalies and the Failing Fontan
Room 31AB

CHEST @ STS: Interventional Bronchoscopy
Room 30ABCD

Critical Care Symposium: Cutting-Edge
Strategies for Cardiothoracic Critical Care
Emergencies and Evolving Technologies
Room 32

Practice Management Summit
Room 31C

SCA @ STS: Integrating Perioperative
Echocardiography in Cardiac Surgical Clinical
Decision-Making for Challenging Cases
Room 33

10:00 a.m. – 12:00 p.m.

Residents Symposium: Transitioning From
Residency to a Successful Practice
Room 25

see **SCHEDULE**, page 18

Welcome to STS 2019

I am thrilled that you've joined us in San Diego for the Society's 55th Annual Meeting, and I hope you are ready for a meeting that is packed with interactive learning, thought-provoking lectures, hands-on sessions, an abundance of networking opportunities, and a chance to view the latest products and services in the specialty.

We have reconfigured the traditional meeting schedule to provide you with all the experiences that you've come to expect, while also decreasing the days you're away from the office and your patients.

The 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. I'll give my Presidential Address on Monday morning, and Tuesday's schedule will include the C. Walton Lillehei Lecture.

KEYNOTE LECTURES

I am very pleased to welcome two outstanding keynote speakers this year. For the Ferguson Lecture, Laurie H. Glimcher, MD, President and CEO of the Dana-Farber Cancer Institute in Boston, will discuss advances in cancer

immunotherapy. The Lillehei lecturer will be Eric Topol, MD, Director and Founder of the Scripps Research Translational Institute in La Jolla, California. His talk, "High-Performance Medicine: The Convergence of Artificial Intelligence and Health Care," will review the progress made toward AI integration into health care, where things are heading, and potential liabilities and obstacles.

INTERNATIONAL EXPERTISE

Over the next few days, we will be spending a lot of time with our cardiothoracic surgery colleagues from across the globe, sharing a unique camaraderie and discussing our experiences. In addition, the Society has planned a number of exciting joint sessions with international medical societies that I hope you will find intriguing and rewarding.

A Sunday session by STS, the Canadian Association of Thoracic Surgeons, and the Canadian Society of Cardiac Surgeons will review trends in the utilization of minimally invasive surgical techniques for anatomic pulmonary resection, including both video-assisted thoracoscopic and robotic surgery.

On Monday, the Society will team up with the European Association for Cardio-



Keith S. Naunheim, MD

Thoracic Surgery in a session that will focus on alternatives to the standard classic repair for DeBakey type I aortic dissection. Experts will 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. At the same time, STS will join the European Society of

see **ANNUAL MEETING**, page 18

Should Genome Editing Be Used on Embryos to Prevent Disease?

Editing genes in human embryos, even for research, has always been controversial. Although the scientific community has grappled over the ethics of gene modification, the technology for it has exploded with the invention of CRISPR, a genetic engineering tool that makes gene editing easier and more precise.

This advance in technology has placed genome editing on the threshold of clinical use, but there still are many unsettled questions as to its proper utilization and the underlying ethics. For example, should it be used to manipulate DNA in embryos and replace mutated genes that cause genetic diseases?

This is the question that experts will address during the Ethics Debate on Sunday afternoon, when they consider a patient who

has cystic fibrosis and wants to have children who are free of the disease.

"This case focuses on cystic fibrosis, but I think that the discussion will go beyond just the specific disease component," said Thomas A. D'Amico, MD, of Duke University Medical Center in Durham, NC, who will moderate the debate. "The technology of gene editing, with CRISPR becoming available, revolutionizes the management of diseases that have many components, several of which have relevancy to cardiothoracic surgeons."

Kyle Brothers, MD, of the University of Louisville in Kentucky, will argue that cystic fibrosis genes should be replaced with normal genes in affected embryos, while Fyodor



Thomas A. D'Amico, MD

Urnov, PhD, of the Altius Institute for Biomedical Sciences in Seattle, will argue that cystic fibrosis genes should not be manipulated.

"Often, the Ethics Debate participants are cardiothoracic surgeons, but in this case, we were lucky enough to draw in experts from outside the field who are outstanding scientists and have strong track records on this topic," said Dr. D'Amico.

The relevant benefits of gene editing include the ability to edit somatic cell mutations, so that if you had a specific disease with a specific mutation, it could potentially be changed with this technology. The debate will revolve around the ethics of how far to go and whether to perform germline editing, as well.

see **ETHICS DEBATE**, page 18

Exhibit Hall Opening Reception
Sunday, 4:30 p.m. – 6:30 p.m.
Halls EFG, First Floor

"Most people would agree that gene editing will play a role in controlling diseases and improving health. The questions are: How far do we take it, and what are the ethical boundaries?"

THOMAS A. D'AMICO, MD

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

Sunday

1:00 p.m. – 2:00 p.m.

Room 33



2.5 million EVH procedures
23 years of experience
11 generations of products
1 passion

Partnering great technology with great talent.

For over two decades, your commitment to endoscopic vessel harvesting (EVH) has produced more than two and a half million procedures. Through eleven generations, our complete family of Vasoview products have helped create sustainable, reproducible and long-term patient outcomes¹⁻⁵.

1. Ouzounian M et al. *Ann Thorac Surg.* 2010;89:403-408. 2. Ad N et al. *J Cardiovasc Surg.* 2011;52:739-748.
3. Dacey LJ et al. *Circulation.* 2011;123:147-153. 4. Grant SW et al. *Heart.* 2012;98:60-64. 5. Williams JB et al. *JAMA.* 2012;308:475-484.



Join us at Booth 511

For more information go to
getinge.com/us/education/evh/

GETINGE 

STS Staff Welcomes You to San Diego

On behalf of the Society's staff, I join STS President Keith Naunheim in welcoming you to The Society of Thoracic Surgeons 55th Annual Meeting and Exhibition in San Diego, California. As in the past, the Annual Meeting will provide you with a wide range of educational, networking, and social offerings.

Because there is so much to experience between Saturday and Tuesday, the *STS Meeting Bulletin* will help you keep track of what's happening and provide up-to-date information about new sessions, meeting room locations, exhibitor descriptions, and much more.

And please watch for the Monday and Tuesday editions of the *Bulletin*; they will be placed in bins throughout the convention center. Check the front page left-hand column in each issue for a quick summary and update of the day's activities.

The *Bulletin* also provides a handy

If you are not already an STS member, please stop by the STS booth and learn about the many membership benefits we have to offer.



Rob Wynbrandt

reference to the Exhibit Hall, which is an important component of the meeting experience. The Exhibit Hall is a great place to learn about new and improved technology and products, and it offers the perfect opportunity to see and meet with colleagues and friends. Surveys from past meetings show that the majority of attendees make a point of visiting with the exhibitors at least three times over the course of the meeting. The STS Exhibit Hall opens its doors at 4:30 p.m. on Sunday, with a reception that runs through 6:30 p.m. Snacks and refreshments will be served throughout the Exhibit Hall, and we will be featuring both the Jeopardy Competition and the Poster Presentations in the Hall then – something for everybody.

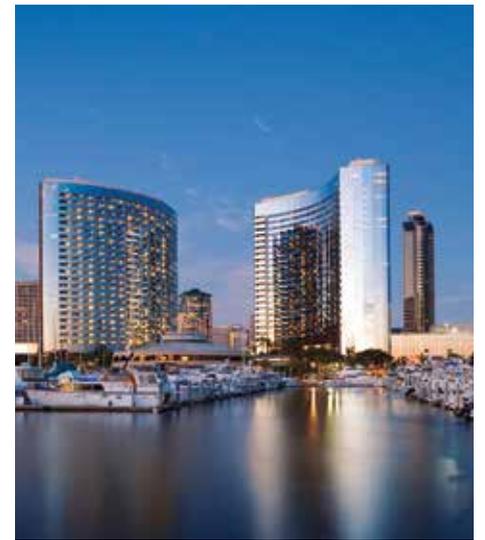
While you're there, I hope you will stop by the STS booth (#601). Staff members will be there, eager to talk with you about—and provide updates on—all things STS. Ask about the latest updates for the STS National Database, our public reporting initiatives, exciting developments from the STS Research Center, upcoming live educational programs on robotic surgery and thoracic endovascular aortic repair, and several recently released e-learning modules.

You also will want to take a moment and talk with the STS Government Relations staff, who can update you on the Society's many efforts on Capitol Hill. From coding and reimbursement issues to the future of health

care reform legislation in the new Congress, STS continues to champion the specialty in Washington. Stop by and learn more. There's a lot going on—and you'll want to understand the implications for your practice.

If you are not already an STS member, please stop by the STS booth and learn about the many membership benefits we have to offer, including a complimentary subscription to *The Annals of Thoracic Surgery*. Those attendees who are not cardiothoracic surgeons—i.e., other physicians, CT surgery and general surgery residents, medical students, and all allied health care professionals—should especially note that our rolling admission process for Candidate, Pre-Candidate, and Associate Membership allows for the prompt disposition of their STS membership applications, typically within a week or two, so that they can start enjoying the benefits of STS membership almost immediately. CT surgeon applications for Active and International Membership also are reviewed and approved by our Board of Directors three times per year, and those applications received by March 25 will be eligible for consideration when the Board next meets on May 5. Even if you already are an STS member, please pick up a membership application for a colleague; you will be helping both your colleague and your Society.

All the scientific sessions at this 55th Annual Meeting, including the symposia, meet the experts sessions, hands-on sessions, and invited talks, create a vast array of educational opportunities—more than any one person



could ever attend onsite. Fortunately, the STS 55th Annual Meeting Online is included with your Annual Meeting registration. This online product will allow you to catch those sessions you couldn't attend—and review all the sessions you did attend—in the comfort of your home or office throughout the year ahead.

In closing, please know that all of us on the staff are here to serve you. Look for the distinctive gold STAFF ribbon on our name badges, and please don't hesitate to let us know if there's anything we can do to help.

Thank you for attending, and enjoy the meeting! ■

Rob Wynbrandt

STS Executive Director & General Counsel

Unconscious Biases Negatively Impact Relationships With Colleagues, Patients

Everyone has biases. But with increased awareness, you can “train” yourself out of bias and make informed decisions based on actual data. A session organized by Women in Thoracic Surgery (WTS) will provide attendees with the tools they need to do just that.

“Our biases can affect the recruitment and retention of surgeons in our field, our relationships with our colleagues, and our relationships with our patients—typically in a negative fashion,” said DuyKhanh P. Ceppa, MD, from the Indiana University School of Medicine in Indianapolis, who helped plan the session. “We must foster a more inclusive environment in order to thrive.”

She explained that biases in cardiothoracic surgery tend to impact women and minorities in particular.

“How many times have we been turned down by a patient for a more senior, male partner? How many times have we lost future referrals due to a known complication from surgery when a male colleague would not have suffered the same backlash?” asked

Dr. Ceppa, adding that the published literature has noted similar trends as a result of biases based on race and age.

She said that particularly concerning is the fact that although medical school classes have consisted of about 50% women for the last 15-20 years, fewer than 10% of board-certified cardiothoracic surgeons are women. Last spring, STS and WTS collaborated on a survey assessing the prevalence of sexual harassment and gender bias in the specialty; more than 800 cardiothoracic surgeons responded, and the survey results will be presented during the session.

Unconscious Bias

Sunday

1:00 p.m. – 2:00 p.m.

Room 30ABCD

“Without giving too much away, the survey results confirm that the discipline of cardiothoracic surgery is a ‘chilly’ one toward women,” Dr. Ceppa said. “We need more women, as well as men who are cognizant of our field's implicit biases, in leadership roles to fully address and correct this issue.”

The session also will include information on how mentors and sponsors can play key roles in breaking down biases that exist in the specialty.

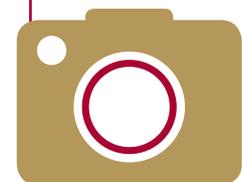
“We hope that attendees will come out of the session with a greater awareness of their own biases and an understanding that they can overcome their biases with deliberate practice,” Dr. Ceppa said. ■

“We need more women, as well as men who are cognizant of our field's implicit biases, in leadership roles to fully address and correct this issue.”

DUYKHANH P. CEPPE, MD

Photography and Recording Policy

Photography and recording of Tech-Con 2019 sessions are strictly prohibited, except by authorized personnel. Recording of STS 55th Annual Meeting sessions is strictly prohibited, except by authorized personnel. ■



Free Wi-Fi Available

Complimentary wireless internet is available in the common areas and meeting rooms of the convention center for all Annual Meeting attendees. To connect, select **STS2019** from the available networks. Launch a web browser and follow the instructions, entering password **ctsurgery** when prompted; the password is case sensitive. ■



Learning Opportunities in the Exhibit Hall

Exhibiting companies and others will present talks and demonstrations in the Learning Lab Theater, located in the Exhibit Hall.

SUNDAY

4:45 p.m. – 5:30 p.m.
STS Jeopardy Championship

MONDAY

10:30 a.m. – 11:00 a.m.
AngioDynamics
AngioVac in the Right Heart: A Physician's Perspective

12:30 p.m. – 1:00 p.m.
Philips
Early Experience with Cone Beam CT-Guided Endobronchial Microwave Ablation for Inoperable Lung Cancer

3:30 p.m. – 4:00 p.m.
Medtronic
It's Time to Make a Lateral Move: Less-Invasive HVAD Implantation

TUESDAY

9:00 a.m. – 9:30 a.m.
Johnson & Johnson Medical Devices Companies
How Will Emerging Technologies in Lung Intervention and Evidence Change Your Practice?

12:15 p.m. – 12:45 p.m.
Philips
Same-Day Diagnosis and Treatment with iVATS in the Hybrid OR

This list is accurate as of January 7, 2019.



The Society of Thoracic Surgeons

STS MEETING BULLETIN
JANUARY 26–29, 2019

THE OFFICIAL NEWSPAPER OF THE STS 55TH ANNUAL MEETING

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Learn How Surgeons Can Succeed in a Changing Health Care Landscape

Despite many years of clinical training, most cardiothoracic surgeons aren't provided with sufficient education in a key area of career development—optimizing their value to their organizations.

Speakers at Sunday's Practice Management Summit will seek to close that knowledge gap, helping attendees understand their value and obtain appropriate compensation.

"We certainly don't get this education in our training, so we're ill-prepared when starting our careers," said Frank L. Fazzalari, MD, MBA, Chair of the Workforce on Practice Management. "The landscape is evolving very quickly, so cardiothoracic surgeons must adapt."

A major change in the employment environment over the last few years has been the increasing number of surgeons employed by hospitals rather than private practices. During the Summit, attendees will learn how to weigh factors in their local areas when making decisions regarding their employment arrangements.

The US government also has made

a number of recent changes that impact reimbursement for cardiothoracic surgical procedures. The Summit will provide an overview of STS efforts to advocate for regulations and programs that fairly compensate surgeons for their work.

EXPANDING ROLES

With a greater push for health care quality over quantity, how do surgeons continue demonstrating their value to the hospital administration?

"The work Relative Value Unit model does not value the presence of a cardiothoracic surgeon on a hospital staff," said Workforce member Paul S. Levy, MD, MBA, of NEA Baptist Memorial Hospital in Jonesboro, AR. "Compensational value has to be shown in other ways."

One option is to take a more active role in hospital administration—a path that is especially suitable for surgeons, given their leadership in the operating room. Of course, that means knowing how to negotiate a contract with suitable compensation for these efforts.

"Surgeons may not have a lot of experience

with contract negotiation," Dr. Fazzalari said. "It can be difficult to know whether you should accept what you're offered or walk away."

Attendees will hear from a health care attorney on the potential landmines to avoid and important components to address.

ANSWERING THE TOUGH QUESTIONS

An important component to this Summit is giving surgeons an opportunity to ask the questions that they may not feel comfortable asking in the workplace, including questions about salary.

"We'll provide hard numbers regarding what you can expect in compensation," said Dr. Levy. "We'll also share what employers look for when recruiting. The Summit will help you best position yourself for success." ■

Practice Management Summit

Sunday

8:00 a.m. – 12:00 p.m.

Room 31C

Access the STS National Database for Research

The STS National Database is a valuable tool for quality improvement, and the Society offers investigators various options for using data from the Database for research projects.

Database participants can submit novel, well-conceived, and hypothesis-driven proposals to

the STS Research Center through its Access & Publications Research Program. Submissions are accepted twice a year for the Adult Cardiac Surgery Database, General Thoracic Surgery Database, Congenital Heart Surgery Database, and Internacs Database. Proposals are approved on a competitive basis for STS-funded analyses performed at a designated STS National Database analytic center.

Another option is the STS Participant User File (PUF) Research Program, which was designed primarily as an affordable option for investigators to pose research questions, quickly obtain quality national-scale de-identified data, analyze these data themselves given appropriate biostatistics

resources, receive feedback, and develop their efforts into abstracts and manuscripts.

During a session on Sunday afternoon, speakers will explain the differences between the programs, cover the ins and outs of submitting data requests, and offer tips on developing a hypothesis, specific aims, and a research plan. Attendees also will hear an investigator's experience with the PUF Program.

This is a must-attend session for anyone wishing to fully understand and utilize the various research options based on data available in the STS National Database. Residents are especially encouraged to learn about the possibilities as they embark upon their research careers. ■

Research Using the STS National Database

Sunday

1:00 p.m. – 2:00 p.m.

Room 31C

Ferguson Lecturer to Discuss Cancer Immunotherapy

The first of the exciting keynote lectures at the STS Annual Meeting—the Thomas B. Ferguson Lecture on Sunday

afternoon—will feature Laurie H. Glimcher, MD, who has made seminal discoveries in cancer immunology research, particularly in the fields of transcriptional regulation, lymphocyte differentiation, immunology, and osteobiology. She is President and CEO of the Dana-Farber Cancer Institute, Principal Investigator and Director of the Dana-Farber/Harvard Cancer Center in Boston, and the Richard and



Laurie H. Glimcher, MD

Susan Smith Professor of Medicine at Harvard Medical School. Her address is titled "Cancer Immunotherapy: The End of the Beginning."

Dr. Glimcher will discuss the history and current state of cancer therapy and present active areas of innovation such as cancer genomics, immunotherapy, epigenetics, and approaches to combination therapy. She also will provide her vision for the long-term future of cancer treatment and prevention, including efforts for earlier detection of minimal residual disease and relapse by measuring circulating tumor DNA and using machine

learning/artificial intelligence.

The Ferguson lecture recognizes Thomas B. Ferguson, MD, a former editor of *The Annals of Thoracic Surgery* and one of the few individuals to serve as President of both STS and the American Association for Thoracic Surgery. ■

Thomas B. Ferguson Lecture: Cancer Immunotherapy: The End of the Beginning

Sunday

3:30 p.m. – 4:30 p.m.

Ballroom 20

VATS, Robotics in Greater Demand

Video-assisted thoracoscopic surgery (VATS) is the most common approach to thoracic surgery in specialized centers, but robotics is rapidly being adopted.

“Robotic thoracic procedures are exploding in popularity, representing the largest growing category within robotic surgery in the United States,” said Bernard J. Park, MD, of Memorial Sloan Kettering Cancer Center in New York.



Bernard J. Park, MD

Trends in the use of minimally invasive surgical (MIS) techniques such as VATS and robotics for thoracic surgery will be reviewed Sunday during a collaborative session organized by STS, the Canadian Association

of Thoracic Surgeons, and the Canadian Society of Cardiac Surgeons, with a focus on the benefits over open approaches and variation between robotic and non-robotic platforms.

“There is a growing interest by both patients and practitioners to offer MIS approaches, when appropriate, for a wide range of general thoracic procedures, as these strategies can reduce surgical trauma and enhance recovery while maintaining quality outcomes,” said Dr. Park, who is co-moderating the session.

“Cardiothoracic surgeons need to be aware of what is coming and be ready for adopting these technologies into their practice.”

KAZUHIRO YASUFUKU, MD, PHD

“It is the duty of thoracic surgical leadership worldwide to develop the appropriate data-driven approaches.”

The session will review the use of MIS approaches for anatomic lung resection, including utilization across different types of practices and for different types of procedures (segmentectomy, lobectomy, and pneumonectomy).

The session also will explore the challenges that come with adopting this type of technology, including the additional cost for robotic surgery, said co-moderator Kazuhiro Yasufuku, MD, PhD, of the University of Toronto.

“There’s not only the cost of purchasing the robot, but also the instruments and the maintenance fee,” Dr. Yasufuku said. “The other issue may be hesitation for surgeons to adopt this new technology. The learning curve is steep compared to VATS.”

Dr. Park added that availability remains a challenge, with many practitioners either working in hospitals that lack a system or

where there isn’t availability for thoracic surgery. He also pointed to credentialing, training, and oversight (proctoring) as other barriers to adopting robotics.

But the benefits of robotics and VATS are worth the effort, according to Dr. Yasufuku, who said that both methods are less invasive for patients, resulting in less pain. Both offer shorter hospital stays, fewer complications, and less bleeding with the same oncological outcomes.

“Cardiothoracic surgeons need to be aware of what is coming and be ready for adopting these technologies into their practice,” Dr. Yasufuku said. ■

STS/CATS/CSCS: Innovative Techniques in Thoracic Surgery

Sunday

1:00 p.m. – 2:00 p.m.

Room 31AB

CT Surgery Residents Prepare for Jeopardy Title

Cardiothoracic surgery residents from Europe and North America will face off Sunday evening in the ultimate cognitive challenge—the STS Cardiothoracic Surgery Jeopardy Championship.

Qualifying competitions were held at the European Association for Cardio-Thoracic Surgery Annual Meeting in October 2018 and the Southern Thoracic Surgical Association Annual Meeting in November 2018.

European winners Pedro Magro, MD and Paulo Oliveira, MD, from Hospital Santa Cruz in Lisbon, Portugal, will compete against North American winners Bartholomew Simon, MD and Amber Melvin, MD, from the University of Rochester in New York, on Sunday from 4:45 p.m. to 5:30 p.m. in the Exhibit Hall Learning Lab Theater. ■

Improve Your Chances of Publication

The peer-review process is a critical step in the production of high-quality scientific journals, such as *The Annals of Thoracic Surgery*. An effective peer-review system facilitates informed clinical practice changes that will enhance value-based care for patients and iteratively educate the entire field of cardiothoracic surgery.

Reviewers and authors both face

challenges, however. Reviewer challenges include finding key elements in a manuscript and knowing what to consider in each manuscript component, while authors sometimes struggle with responding to reviewer comments and preparing revisions in a manner that will improve the chances of publication.

In a session led by *Annals* Editor G. Alexander Patterson, MD, FRCS(C), experienced reviewers and authors will provide insights on why surgeons should care about the peer-review process, key elements of scientific manuscripts, basic study design and statistical methods, and making revisions.

Although the session is geared toward junior faculty and early career researchers, physicians and researchers at any stage in their careers will glean useful perspectives. ■

The Annals Academy: How to Write a Great Review—Essential Components of Outstanding Peer Reviews

Sunday

1:00 p.m. – 2:00 p.m.

Room 30E



Explore an Iconic Destination at the President’s Reception

Join your colleagues for the STS President’s Reception at the celebrated Hotel del Coronado on Sunday evening. 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. Check at Registration for availability; tickets are \$125. ■

Chamberlain Papers Will Be Presented at Sunday Plenary

Transcatheter aortic valve replacement (TAVR) outcomes, the influence of regionalization on outcomes after pulmonary resection, and long-term survival differences between arterial and atrial switch procedures are the focuses of this year's prestigious J. Maxwell Chamberlain Memorial Papers. These papers will be presented during the new Sunday opening plenary session.

SAVR VOLUME MAY PREDICT TAVR OUTCOMES

Hospital surgical aortic valve replacement (SAVR) volume alone appears to be an independent predictor of mid-term TAVR outcomes—specifically, the lower a hospital's SAVR volume, the higher the mortality after TAVR.



Sameer A. Hirji, MD

"We found that unadjusted and adjusted mortality at 30 days and 90 days after TAVR were much higher in low-volume SAVR centers versus high-volume SAVR centers," said Sameer A. Hirji,

MD, of Brigham and Women's Hospital in Boston. Dr. Hirji will present the Chamberlain Paper for Adult Cardiac Surgery. Low-volume was defined as centers performing 10-99 SAVR cases a year; high-volume was defined as centers performing at least 200 SAVR cases a year.

There has been a significant paradigm shift in the management of patients with symptomatic aortic stenosis and, correspondingly, a remarkable growth in the utilization of TAVR technologies. This is in part due to accumulating operator experience, innovations in valve design and technology, and improvements in patient selection, Dr. Hirji said.

As a result, the Centers for Medicare & Medicaid Services (CMS) is re-examining its national coverage determination (NCD) for TAVR, which was released in 2012. This past July, STS was among the four medical specialty societies that provided information on minimum procedure volume requirements during a Medicare Evidence Development and Coverage Advisory Committee meeting. CMS is expected to unveil its updated TAVR NCD later this year.

"Our study provides useful data that will help inform physicians, patients, and CMS policymakers as we all seek to further improve patient mortality and morbidity following TAVR," added Tsuyoshi Kaneko, MD, also of Brigham and Women's Hospital, who was senior principal investigator of the study.

THORACIC SURGERY REGIONALIZATION IMPROVES OUTCOMES

Not only is it possible to boost regionalization in US health care systems, but doing so can make a measurable, positive difference in patient outcomes following major pulmonary resection, according to the Chamberlain Paper for General Thoracic Surgery.

The current literature on the volume-outcome relationship in major pulmonary resection for lung cancer is mixed and



"We found that unadjusted and adjusted mortality at 30 days and 90 days after TAVR were much higher in low-volume SAVR centers versus high-volume SAVR centers."

SAMEER A. HIRJI, MD

inconclusive. Additionally, many of the existing studies are based on data following centralization within national, single-payer systems, according to lead author Sora Ely, MD, of the University of California San Francisco East Bay Surgery Program in Oakland.



Sora Ely, MD

"We needed to examine whether similar changes to increase regionalization

were possible in US systems and whether the improvement in results could be reproduced," Dr. Ely said.

The researchers found that regionalization:

- More than tripled annual site volume and nearly doubled surgeon volume
- Dramatically increased video-assisted thoracoscopic surgery (VATS) utilization and decreased intensive care unit utilization
- Improved outcomes, with significant reductions in length of stay and complication rates

While the average VATS lobectomy operative time significantly decreased, average open lobectomy operative time significantly increased.

"Although this finding initially surprised us, we believe that these changes together

represent a maximization of safe VATS utilization, such that only the most difficult cases were performed using the open approach," said Dr. Ely. "Our study's regionalization process may be used as a model for implementation in other health care networks."

ARTERIAL SWITCH TRUMPS ATRIAL SWITCH FOR LONG-TERM SURVIVAL

Patients with transposition of the great arteries (TGA) who underwent either Mustard or Senning atrial switch repairs have a higher risk of premature death after 30 years than TGA patients treated with the Jatene arterial switch procedure.

The Chamberlain Paper for Congenital Heart Surgery presents findings from the Congenital Heart Surgeon's Society (CHSS) TGA patient cohort, which was assembled during a unique period (1985-1989) when there was equipoise between the traditional Mustard and Senning atrial switch procedures and the newer Jatene arterial switch procedure.

Today, the Jatene arterial switch procedure is the preferred surgery for TGA, but many adults who were treated with one of the atrial switch procedures are still alive.

"In addition to analyzing the long-term survival of these patients, we assessed patients' perceptions of their own functional health status—which was similar across all domains,"

said lead author Paul J. Devlin, MD, of The Hospital for Sick Children in Toronto, Canada.

To support important longitudinal studies such as this one, Dr. Devlin encouraged surgeons and cardiologists to follow-up with TGA-repaired patients and ensure that they are periodically meeting with an adult congenital heart disease specialist.

"It is important to closely monitor patients who have undergone one of the atrial switch procedures and reassess them for any changes in health status," said Dr. Devlin. "Increasing surveillance of adults who have undergone TGA repair, especially

the atrial switch patients, will ensure that they receive the care necessary to help alleviate their risk for premature death long after their initial repair."

The Chamberlain Papers are considered by the Workforce on



Paul J. Devlin, MD

Annual Meeting Program Task Force to be among the best scientific abstracts submitted for the meeting. They honor the scientific contributions of Dr. Chamberlain, a renowned cardiothoracic surgeon who chaired the steering committee tasked with creating The Society of Thoracic Surgeons. ■

J. Maxwell Chamberlain Memorial Papers

Sunday

2:30 p.m. – 3:30 p.m.

Ballroom 20

COR-KNOT[®]

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*Titanium suture fastening technologies includes all COR-KNOT and Ti-KNOT product lines.

2019 ANNUAL MEETING EXHIBITORS

- A&E Medical 817**
Farmingdale, NJ
 A&E Medical® reinvents expectations by offering surgeons a comprehensive portfolio, including the Tritium® SCP Sternal Cable Plate system, the MYO/Wire II sternum wires, the DoubleWire high strength sternal closure system, and the A&E Medical sternal cable system. Ultrathin mono, bi and quad polar pacing wires, rotating surgical punches, and patient connecting cables rounds out the portfolio.
- Abbott 412**
Santa Clara, CA
 At Abbott, we're committed to helping people live their best life through the power of health. For more than 125 years, we've brought new technologies to the world—in nutrition, diagnostics, medical devices and branded generic pharmaceuticals—that create more possibilities for more people at all stages of life.
- Abbott Nutrition 306**
Columbus, OH
 Abbott is one of the world's leading authorities in science-based nutrition for all stages of life. As your nutrition partner, we invite you to explore our Ensure Surgery Products, part of your patients' recovery. Stop by our booth to sample our exciting products!
- Abiomed, Inc 725**
Danvers, MA
 Based in Danvers, Massachusetts, Abiomed, Inc. is a leading provider of medical devices that provide circulatory support. Our products are designed to enable the heart to rest by improving blood flow and/or performing the pumping of the heart. For additional information, please visit: www.abiomed.com.
- Acute Innovations 1009**
Hillsboro, OR
 ACUTE Innovations® commits to providing innovative solutions for challenging thoracic procedures. Our portfolio offers solutions for sternum closure, rib fracture stabilization and reconstructions of the chest wall. ACUTE Innovations' products include AcuTie® II Sternal Closure System, BioBridge® Resorbable Chest Wall Stabilization Plate, and the RibLoc® U Plus Chest Wall Plating System.
- Admedus 424**
Minneapolis, MN
www.admedus.com ADMEDUS, is a global healthcare company, dedicated to bringing innovative medical technologies to market. CardioCel® and CardioCel Neo are biomaterial scaffolds, made with ADAPT® Technology, for superior biocompatibility and unparalleled calcium resistance. Admedus' new 3D-shaped portfolio, CardioCel 3D, provides unique solutions for cardiac reconstructions.
- AI Care LLC 302**
Playa del Rey, CA
- All in Store LLC 329**
Las Vegas, NV
- American Association for Thoracic Surgery 647**
Beverly, MA
 Founded in 1917, the American Association for Thoracic Surgery is dedicated to excellence in research, education, and innovation in cardiothoracic surgery and has become an international professional organization of more than 1325 of the world's foremost cardiothoracic surgeons. www.aats.org
- AngioDynamics 1142**
Latham, NY
 A leading provider of innovative, minimally invasive medical devices used by professional healthcare providers for vascular access, surgery, peripheral vascular disease and oncology. AngioDynamics' diverse product lines include market-leading fluid management systems, angiographic products, thrombolytic products and venous products. More information is available at www.AngioDynamics.com.
- Army Physician Outreach Team 1315**
Culver City, CA
- Astute Medical 1008**
San Diego, CA
 Astute Medical, manufacturer of the NephroCheck Test®, is dedicated to improving the diagnosis of high-risk medical conditions and diseases through the identification and validation of protein biomarkers to serve as the basis for novel diagnostic tests. Our focus is community and hospital-acquired acute conditions that require rapid diagnosis/risk assessment such as acute kidney injury and sepsis.
- Atlas Medical USA 843**
Tustin, CA
 Atlas Medical is pleased to introduce the latest in cardiac insufflation technology. The TEMED Gas Diffuser requires significantly less CO₂ to de-air the cardiac cavity. Reduced bypass times and fewer micro-emboli associated with CO₂ diffusers can now be achieved without the increased risk of patient acidosis.
- AtriCure, Inc 401**
Mason, OH
 AtriCure provides innovative technologies for the treatment of Afib and related conditions. The Isolator® Synergy™ Ablation System is FDA approved for the treatment of persistent Afib. AtriCure's AtriClip Left Atrial Appendage (LAA) Exclusion System products are the most widely sold LAA management devices worldwide, with more than 150,000 implanted.
- Auris Health 825**
Redwood City, CA
 With the Monarch™ Platform, Auris™ offers physicians revolutionary robotic endoscopic technology. The Monarch Platform is designed to enable physicians to diagnose, and eventually treat hard-to-reach lung nodules with greater precision than ever before. It is designed to be used in hospital operating rooms or endoscopy suites outfitted for bronchoscopy procedures.
- Aziyo 904**
Silver Spring, MD
 ProxiCor for Pericardial Closure and Cardiac Tissue Repair is an extracellular matrix (ECM) used in various cardiac and vascular surgery applications. It remodels over time into healthy, vascularized tissue. The products have been used in over 1,000 hospitals and implanted in 165,000 cardiovascular applications.
- Baylis Medical 1001**
Mississauga, Canada
 Baylis Medical is a world leader in the development and commercialization of high-performance cardiology devices that help physicians deliver life-changing therapies to patients. Headquartered in Canada, and with offices world-wide, our clinical solutions have been Improving the Lives of People Around the World for over 30 years. For more information, visit www.baylismedical.com.
- BD 739**
Franklin Lakes, NJ
 BD is a global medical technology company advancing health by improving discovery, diagnostics and care delivery. Our innovative product portfolio, leadership and partnerships help make a difference for global healthcare.
- Berlin Heart, Inc 911**
The Woodlands, TX
 Berlin Heart, the only company worldwide, that develops, manufactures and distributes VADs for patients of every age and body size. EXCOR® Pediatric provides medium to long-term circulatory support specifically for infants and children awaiting heart transplants. EXCOR Pediatric is approved for use in the USA under HDE regulations by FDA.
- BFW, Inc 410**
Louisville, KY
 BFW is a worldwide technological leader in surgical illumination and headlight video imaging. Experience the foremost innovations in bright, portable OR quality LED headlights, our Hatteras™ LED light source - unmatched intense illumination for headlights and instrumentation, and state-of-the-art Pharos HD™ Coaxial Headlight/Video Imaging System.
- Biomed Simulation, Inc 1143**
San Diego, CA
 Biomed Simulation, Inc. supplies PATIENT SIMULATORS for surgical and critical care applications. Biomed's flagship simulator, "Califia", connects directly to an HLM or ECMO machine providing realistic patient responses. Its programmability and integration with a wide range of monitors allow the delivery of consistent, robust clinical scenarios
- Biom'up USA, Inc 926**
New York, NY
 Founded in 2005, Biom'up, a specialist in collagen-based absorbable medical devices for biosurgery, is developing a new generation hemostatic product composed of patent-protected biopolymers. With broad expertise in biomaterials, Biom'up is creating innovative and clinically proven products that are used in many surgical specialties such as cardiothoracic and general surgeries. Biom'up is committed to the design, development, and delivery of novel, high-performing solutions that make life easier for surgeons and better for patients.
- BioStable Science & Engineering 1000**
Austin, TX
 BioStable Science & Engineering is developing and commercializing proprietary valve repair technologies that provide an alternative to valve replacement for aortic valve disease. The company's HAART Aortic Annuloplasty Devices are designed to simplify and standardize aortic valve repair for patients undergoing surgery for aortic insufficiency or root aneurysm.
- Bon Secours Mercy Health 1040**
Cincinnati, OH
- Boston Medical Products, Inc 841**
Shrewsbury, MA
 As the exclusive distributor for NOVATECH® in the US, Boston Medical Products offers an extensive range of TRACHEOBRONXANETM DUMON™ stents, TONN™ stent applicators and most recently, STERITALC® Sterile Talc.
- Boston Scientific 940**
Minneapolis, MN
 Boston Scientific transforms lives through innovative solutions that improve the health of patients around the world. As a global medical technology leader for 35 years, we advance science for life by providing a broad range of performance solutions that address unmet patient needs and reduce the cost of health care.
- Cardio Renal Society of America 1202**
Phoenix, AZ
- Centese 1319**
Omaha, NE
 Centese is the producer of Thoraguard™. A new surgical drainage system developed to meet the needs of cardiothoracic surgeons and their patients.
- CHF Solutions 1100**
Eden Prairie, MN
 CHF Solutions is focused on improving the quality of life for patients suffering from heart failure and related fluid overload conditions through the commercial expansion of The Aquadex FlexFlow® System. The Aquadex FlexFlow System is a safe, effective, and clinically proven therapy for removing excess sodium and fluid for patients who have failed diuretic therapy.
- Chinese Medical Association 840**
Beijing, China
 The Chinese Medical Association (CMA) is a nonprofit national academic organization in China. It is an important social force in the development of medical science and technology and a linkage between the government and the medical professionals.
- ClearFlow 1332**
Anaheim, CA
 ClearFlow's Mission – Support Best Practices and develop Guidelines to prevent chest tube occlusions. ClearFlow's PleuraFlow ACT System is the only 510K cleared device indicated for the removal of retained blood and the proactive maintenance of chest tube patency after cardiac surgery resulting in improved patient outcomes and lower healthcare costs.
- ConMed 1435**
Greenwood Village, CO
- ConnectMe Solutions 438**
Las Vegas, NV
- CorMatrix 939**
Roswell, GA
 CorMatrix Cardiovascular, Inc. is a cardiovascular regenerative medical device company. We are focused on regenerative patient solutions, addressing clinical challenges in the heart failure and structural heart/cardiac valve markets.
- CryoLife 925**
Kennesaw, GA
 CryoLife is a leader in the manufacturing and distribution of medical devices focused on aortic repair; devices include implantable tissue, mechanical heart valves, surgical adhesive, and a comprehensive portfolio of customized surgical and endovascular stents and grafts. CryoLife markets products in over 90 countries. For a complete product listing visit: www.cryolife.com.
- CT Assist 604**
Philippi, WV
 CT Assist is a health care staffing agency for cardiothoracic surgeons, cardiothoracic surgery advanced practitioners, perfusionists and nurses that deliver care in the CVOR, CVICU, and floor. CT Assist provides workforce management solutions including recruiting and locum tenens. We are a nationwide provider cardiothoracic practitioners.
- CTSNet 600**
Chicago, IL
 CTSNet (www.ctsnet.org), headquartered in Chicago, Illinois, USA, is the leading international source of online resources related to cardiothoracic surgery, as well as the major hub of the international online community of cardiothoracic surgeons and allied health care professionals. CTSNet's mission is to "connect the global cardiothoracic community."
- CV Staff Solutions 831**
Colorado Springs, CO
- Designs for Vision 900**
Bohemia, NY
 Just See It™ with Designs for Vision's lightweight custom-made surgical Telescopes - available with Nike® frames. See It Even Better™ with the L.E.D. Daylite® or Twin Beam®, L.E.D. Daylite® providing the brightest and safest un-tethered illumination. Introducing the L.E.D. Daylite® Nano Cam HD document procedure and HD video from your prospective.
- EBM 541**
Tokyo, Japan
 Biomedical spin-out venture company from Japan. EBM provides original beating heart simulator and quantitative assessment system for OPCAB and vascular anastomosis world wide. Skill assessment is based on rapid CFD technology and validated silicone vascular model.
- EchoPixel 328**
Santa Clara, CA

The information listed here is accurate as of January 4, 2019. The information for these products and services was provided by the manufacturers, and inclusion in this publication should not be construed as a product endorsement by STS.

TECH-CON EXHIBITOR NEW EXHIBITOR MEETING BULLETIN ADVERTISER

Edwards Lifesciences 613

Irvine, CA
Edwards Lifesciences, based in Irvine, Calif., is the global leader in patient-focused medical innovations for structural heart disease. Driven by a passion to help patients, the company collaborates with the world's leading clinicians to address unmet healthcare needs. For more information, visit www.Edwards.com or @EdwardsLifesci.

Elsevier 903

Philadelphia, PA
Elsevier is the proud publisher of *The Annals of Thoracic Surgery* and a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals. Elsevier empowers better decision making and the delivery of better care. www.elsevier.com

Essential 901

Durham, NC
Essential Pharmaceuticals, LLC is a specialty pharmaceutical company devoted to the development and sales of pharmaceutical products including Custodiol® HTK organ preservation solution. Originally developed for cardiac surgery, Custodiol® HTK offers advantages in heart & abdominal transplant. Histidine acts as a highly effective buffer within the solution.

Etiometry, Inc 827

Boston, MA
Etiometry's FDA cleared predictive analytics software helps clinicians make informed critical care decisions. The patient monitoring software transforms overwhelming data into actionable information for improved care quality and decreased cost. A recent multicenter study linked its use with a 25% decrease in LOS. Please stop by booth #827.

European Association for Cardio-Thoracic Surgery 746

Windsor, United Kingdom
EACTS is the largest European Association devoted to the practice of Cardio-thoracic surgery. The main objective of the Association is to advance education in the field of cardiothoracic surgery and to promote, for the public benefit, research into cardiovascular and thoracic physiology and therapy and to correlate and disseminate the useful results thereof.

European Society of Thoracic Surgeons 653

Exeter, United Kingdom
The largest international general thoracic surgery organization with over 1600 members from all continents. The society's mission is to improve quality in the specialty, from clinical and surgical management of patients to education, training, and credentialing of thoracic surgeons worldwide. 27th European Conference on General Thoracic Surgery, 9 – 12 June 2019, Dublin, Ireland. www.estso.org

Evaheart, Inc 1039

Houston, TX
Evaheart Inc. is a medical device company based in the Houston Texas Medical Center that is bringing the Left Ventricular Assist System known as EVAHEART®2 through clinical trials, regulatory approval, and eventual commercial distribution for the treatment of severe heart failure in patients. Under an FDA IDE, a clinical trial for a Bridge-to-Transplant indication is currently ongoing in the US.

Excell 1334

Las Vegas, NV

Fehling Surgical 517

Acworth, GA
Fehling Surgical Instruments, Inc. is the leader in fine crafted surgical instrumentation that has focused on Cardiovascular Surgery for over 30 years. We feature Minimally Invasive Valve Sets including NEW Retractor designs for unmatched Atrial Exposure of the left Atrium. Our CERAMO and Superplast Instruments specialize in Cardiovascular procedures (Needleholders, Forceps, Clamps and MICS).

General Thoracic Surgical Club 838

Minneapolis, MN
Founded in 1988, the General Thoracic Surgical Club is a not-for-profit organization representing more than 325 general thoracic surgeons worldwide who are dedicated to ensuring the best possible outcomes for surgical procedures of the lung, mediastinum, esophagus, and chest wall by providing the highest quality patient care through education, research, and clinical experience.

Genesee BioMedical 1037

Denver, CO
Design Beyond Standard. Genesee BioMedical, Inc. provides unique devices for cardiac surgery including annuloplasty bands/rings for mitral and tricuspid repair, sternal/thoracic valve retractors, instruments for MICS aortic, TAVI and robotic surgeries as well as coronary graft markers and myocardial needles. Genesee BioMedical, Inc. Denver, CO USA www.geneseebiomedical.com

Getinge 511

Wayne, NJ
Getinge is a leading global provider of innovative solutions for operating rooms, intensive-care units, hospital wards, sterilization departments and for life science companies and institutions. Based on first-hand experience and close partnerships, Getinge offers innovative healthcare solutions that improve every-day life for people, today and tomorrow.

Gore & Associates 641

Flagstaff, AZ
Gore Medical Products Division engineers devices that treat a range of cardiovascular and other health conditions. With more than 40 million medical devices implanted over the course of more than 40 years, Gore builds on its legacy of improving patient outcomes through research, education and quality initiatives. Gore is joined in service with clinicians to improve lives.

Hackensack Meridian Health 1012

Wall, NJ
Hackensack Meridian Health is a leading not-for-profit health care network in New Jersey offering a complete range of medical services, innovative research, and life-enhancing care aiming to serve as a national model for changing and simplifying health care delivery through partnerships with innovative companies and focusing on quality and safety.

Hayes Healthcare 1002

Fort Lauderdale, FL
Hayes Healthcare is a healthcare staffing agency that provides award-winning services to physicians, advanced practitioners, and hospitals. Our dedication to service and laser-focused attention to detail routinely create positive match outcomes.

HCA 1109

Brentwood, TN
HCA owns and operates over 170 hospitals across the United States, which makes us one of the nation's leading providers of healthcare services. We believe exceptional patient outcomes only come through a dedicated community of care, placing our physicians at the forefront.

Heart Hospital Baylor Plano, The 217

Plano, TX
The Heart Hospital Baylor Plano (THHBP) is a cardiovascular specialty hospital in North Texas that opened in 2007. Over the past 10 years, our quality outcomes and guest satisfaction scores have garnered recognition, praise and accolades from international giants in the health care field. Visit TheHeartHospitalBaylor.com to learn more.

Heart Valve Society 752

Beverly, MA
The Heart Valve Society (HVS) "The Heart Team In Action" Save the date for HVS 2019 and join over 400 medial professional and 80 plus industry partners on 11-13 April 2019 in Sitges, Spain! Whether you are a cardiologist, surgeon, researcher or another member of the crucial valve disease treatment team the HVS

welcomes you to become a part of something very unique. Membership is available online.

Hospital Information Services for Jehovah's Witnesses (United States) 928

Walkkill, NY
Hospital Information Services for Jehovah's Witnesses - United States is part of an international network that includes 1700 Hospital Liaison Committees in over 110 countries. They are made up of community-based ministers who knowledgeably interact with physicians and hospital personnel to present and share information on nonblood medical management of Jehovah's Witness patients.

Huntsville Hospital Health System 1010

Huntsville, AL
Heart Center at Huntsville Hospital has an Opening for a Thoracic Surgeon! There are currently 6 cardiothoracic surgeons in our group and we are seeking a Thoracic Surgeon to assume the thoracic surgery volume of a retiring surgeon. We currently perform over 850 cardiac surgical cases and approximately 500 thoracic surgical cases each year. Contact Suzanne.lecroix@hhsys.org or 256-265-9639

International Society for Minimally Invasive Cardiothoracic Surgery 750

Beverly, MA
ISMICS: Innovation, Technologies, and Techniques in Cardiothoracic and Cardiovascular/Vascular Surgery

Interpace Diagnostics 909

Parsippany, NJ
Interpace Diagnostics is a public molecular diagnostics company providing specialty molecular tests focused primarily on Thyroid, Esophageal, Pancreatic, and Lung Cancer. The Company's most recently launched product is MVPdx for Lung Cancer, which differentiates local recurrence of cancer versus formation of new primary tumors. Interpace also offers ThyGenX, ThyraMIR, PancaGEN, and BarreGEN.

Intuitive Surgical 1325

Sunnyvale, CA
At Intuitive®, innovating for minimally invasive care is the passion that drives us. Our robotic-assisted da Vinci® Surgical System helps empower doctors and hospitals to make surgery less invasive than an open approach.

JACE Medical 540

Warsaw, IN
JACE Medical is the leader in speed and efficiency with rigid sternal closure applied both pre-sternotomy (Grand Pre®) and post-sternotomy (Low Profile). JACE offers the broadest portfolio on the market providing the thinnest plates and strongest screws for primary, specialty, and reconstruction procedures. For more information, please visit us at Booth 540 and www.jacemed.com.

Johnson & Johnson Medical Devices Companies 1015

New Brunswick, NJ
As the world's most comprehensive medical devices business, we are building on a century of experience, merging science and technology, to shape the future of health and benefit even more people around the world. With our unparalleled breadth, depth and reach across surgery to include Ethicon, NeuWave-Microwave Ablation, DePuy Synthes, we're working to profoundly change the way care is delivered.

Kapp Surgical 536

Cleveland, OH
Kapp Surgical is a custom design shop which designs surgical instruments and implants, manufactures them, and sells as well as distributes domestically and internationally. Kapp's exclusive products are: The Cosgrove Heart Retractor, Strip T's surgical organizer, and countless surgical devices all FDA approved with several pending approval.

Karl Storz Endoscopy 1034

El Segundo, CA
KARL STORZ combines high-quality optics and precision instrumentation for a range of surgical products for thoracic surgery. The VITOM® 3D system provides a revolutionary solution for visualization of microsurgical and open surgical interventions. And, our ENDOCAMELEON® Telescope allows surgeons to adjust viewing directions from 0° to 120° without changing telescopes.

Kinamed, Inc 1005

Camarillo, CA
Visit Kinamed's booth to view a demonstration of the SuperCable®, Polymer Iso-Elastic™ Sternal Closure system, which solves limitations of metal cable, wire and plating systems. SuperCable provides a dual strand footprint which reduces cut-through. It elastically absorbs load & maintains compression. The low profile clasp minimizes palpability, and the polymer cable allows for quick re-entry.

KLS Martin 233

Jacksonville, FL
KLS Martin is a company dedicated to providing innovative medical devices and power systems for craniomaxillofacial surgery. The company began with surgical instrument production in Tuttlingen, Germany in 1896 and continued with miniplate production in 1975. KLS Martin has advanced the capabilities of distraction osteogenesis and revolutionized resorbable fixation with the SonicWeld Rx system.

L&I Med Group 1239

Las Vegas, NV

Laser Engineering/Heart Laser2 1140

Nashville, TN

LifeNet Health 910

Virginia Beach, VA
LifeNet Health helps save lives, restore health, and give hope to thousands of patients each year. We are the world's most trusted provider of transplant solutions, from organ procurement to new innovations in bio-implant technologies and cellular therapies—a leader in the field of regenerative medicine, while always honoring the donors and healthcare professionals that allow the healing process.

LivaNova 1217

Arvada, CO
Sorin Group is a world leader in the treatment of cardiovascular disease. Our innovative product portfolio includes aortic and mitral valve replacement and repair, perfusion equipment, cannula and MICS instruments. For more information visit our web site at www.sorin.com.

LocumTenens.com 1041

Alpharetta, GA
Since 1995, LocumTenens.com has been a leader in placing physicians and advanced practice professionals in short-staffed healthcare facilities. LocumTenens.com also operates the largest job board in the industry, providing access to thousands of jobs, in all medical specialties, for free.

LoupeCam Instruments & Company 326

Scottsdale, AZ
LoupeCam®, Instruments and Company provides innovative HD Cameras for your loupes and lights, cross platform software solutions for Windows, Mac and Mobile Solutions. Recording HD videos has never been so easy! New and Creative instruments, more intuitive than ever. Please visit us @loupecam.com

LSI Solutions 917

Victor, NY
LSI SOLUTIONS® is a medical device company dedicated to advancing minimally invasive therapeutics through research, development, and manufacturing of minimally invasive surgical instruments. Our customer is ultimately a patient. Our technology challenges human illness. Our mission is to lead the world in medical product innovation.

2019 EXHIBITOR MAP

Career Fair
Meet face-to-face with employers at the STS/CTSNet Career Fair. Recruiters will be available to talk about career opportunities; see a list of participating companies on page 11.

Learning Lab Theater
Exhibiting companies and others will present talks and demonstrations. See page 4 for a list of presentations. Don't miss the Jeopardy Championship at 4:45 p.m. on Sunday!



STS Exhibit Hall Hours

Sunday 4:30 p.m. – 6:30 p.m. | Monday 9:00 a.m. – 4:30 p.m. | Tuesday 9:00 a.m. – 1:30 p.m.

WE HEAR YOU.



Innovation through collaboration.

Stop by our booth to see our innovations.

Medtronic

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TECH-CON EXHIBITOR NEW EXHIBITOR MEETING BULLETIN ADVERTISER

M Clinic LLC 1041
Las Vegas, NV

Med Alliance Solutions 425
Sycamore, IL
ISO 13485 certified medical device distributor committed to providing high quality specialty devices for cardiothoracic surgery worldwide. Exclusive US distributor of French instruments manufacturer Delacroix-Chevalier and operational partner of Michigan based Surge Cardiovascular for open heart surgical products.

Med Care Pharmaceuticals 309
Beverly Hills, CA

Medela AG 1233
McHenry, IL
Medela concentrates on two business units: "Human Milk", with basic research recognised globally and leading in the development and manufacture of breastfeeding products and solutions, and "Healthcare", engineering and manufacturing highly innovative medical vacuum technology solutions.

Medistim 431
Plymouth, MN
Medistim is the market leader in intraoperative ultrasonic guidance and quality assessment focused on improving surgical outcomes. With the MiraQ™ platform, Medistim offers the unique combination of transit time flow measurement (TTFM) and high-frequency ultrasound imaging. This technology enables surgeons to execute necessary corrections while the patient is still in the operating room.

Medtronic 624
Minneapolis, MN
As a global leader in medical technology, services and solutions, Medtronic improves the lives and health of millions of people each year. We use our deep clinical, therapeutic and economic expertise to address the complex challenges faced by healthcare systems today. Let's take healthcare Further, Together. Learn more at Medtronic.com.

MedXpert North America 1133
Edmond, OK
MedXpert North America, LLC is a producer of medical devices (implants and instruments) specialized on all kind of procedures in the thoracic part of the human body. We produce StraTos for three different indications (deformity, reconstruction after tumor resection as well as trauma) and StraCos for two indications (trauma and reconstruction).

Microsurgery Instruments, Inc 1003
Bellaire, TX
Microsurgery Instruments is one of the leading suppliers of surgical instruments and loupes. Our instruments include: titanium scissors, needle holders, and debakey forceps. Our Super-Cut scissors are the sharpest in the market, and our newly designed surgical loupes offer up to 130mm field of view, and up to 11x magnification.

MY Bio 937
Las Vegas, NV

Nadia International 606
Austin, TX
Educational/Surgical bronze sculptures for the Thoracic Surgeon. Museum quality limited editions are created by the world famous sculptor, Ronadro' who has over 7500 surgeons in 77 countries collecting his fine works of art.

Nova Biomedical 836
Waltham, MA

NZG Expo Services 908
San Diego, CA

Olympus America, Inc 616
Center Valley, PA
Olympus Medical Systems Group develops solutions for healthcare professionals that help improve clinical outcomes, reduce overall costs and enhance quality of life for their patients. By enabling less invasive procedures, innovative diagnostic and therapeutic endoscopy, and early stage lung cancer evaluation and

treatments, Olympus is transforming the future of healthcare.

Otto Trading Inc 1200
Santa Ana, CA

Owensboro Health Regional Hospital 902
Owensboro, KY

Paragonix Technologies, Inc 924
Braintree, MA
Paragonix SherpaPak™ Cardiac Transport System (CTS) safeguards hearts during the journey from donor to patient. Our device incorporates clinically proven / medically trusted cold preservation techniques in a novel suspension system to provide unprecedented physical and thermal protection. Paragonix SherpaPak™ CTS is the only commercially available FDA cleared medical device for heart transportation.

Peters Surgical 835
Plymouth, MA
Vitalitec Geister will be displaying all our products, highlighting our Peters CV Suture, Enclose II Anastomosis Assist Device, Cygnet Flexible Clamps, Intrack Atraumatic Temporary Clamps and Inserts and Geister ValveGate and ValveGate PRO line

Philips 1240, 1242
Best, Netherlands
At Philips, we partner with our customers to transform the delivery of healthcare and enable better care at lower cost. Building on our long heritage in Interventional Oncology, we introduced Lung suite to enable definitive diagnosis of (early stage) lung cancer and minimal invasive thoracic treatment in the same room.

Pinnacle Biologics 1141
Chicago, IL
Pinnacle Biologics delivers photodynamic therapy (PDT) to patients through its line of products. By administering an FDA approved biopharmaceutical drug that is selectively retained in tumors and activated by an FDA approved laser light, PDT can eradicate tumor cells. The two primary uses for Pinnacle's drug include the treatment of esophageal cancer and of non-small cell cancer (NSCLC).

Posthorax, Inc 930
Clearwater, FL
Posthorax is a company that seeks to enhance heart-surgery patient's recovery from start to finish by providing our sternum support vest. We 12 have clinical trials with more than 10,000 patients included, proving the effectiveness of our sternum support vest.

Presbyterian Healthcare Services 1042
Albuquerque, NM

Provider Solutions + Development (aka Providence SJH) 1101
Seattle, WA
Founded within Providence St. Joseph Health, Provider Solutions + Development is a clinical career navigation organization. We've helped thousands of physicians and providers achieve their practice potential. Our growing network of health system partners offers diverse practice opportunities across the nation.

Qualiteam s.r.l. 1335
Chiaverano, Italy
Qualiteam designs products to improve postoperative recovery. Our dual-function sternum and breast supports are unlike any other. They comfortably protect the internal closure from the outside day and night and effectively assist the healing sternum to decrease sternal infections, pain and pulmonary complications which ultimately decreases health care costs.

Quest Medical, Inc 333
Allen, TX
Quest Medical, Inc. is a medical device manufacturer and worldwide distributor specializing in protecting the heart during cardiac surgery with the Quest MPS 2® and Microplegia. Quest also offers a unique variety of aortic punches, safety valves, vascular loops,

and an anesthesia line designed for optimum cardiovascular surgery.

R&D Surgical USA, Inc 1139
Austin, TX
R&D Surgical USA / Xenosys USA serve the cardiac, thoracic, and vascular community with innovative products - portable next-generation LED surgical headlight offering freedom and convenience at less than 1oz weight. - a full range of custom surgical loupes giving an unbeatable field of vision, and depth of focus, all while being light and comfortable. - Xenosys wireless HD surgical camera system

Regional Data Managers: STS National Database 1317
Ann Arbor, MI
The Regional Data Manager exhibit provides opportunities for Surgeons to interact with Data Managers from around the country who are actively involved with STS Regional Database efforts and collaborative STS groups. Come learn about regional activities and initiatives!

Ronin Surgical 829
Los Angeles, CA
Ronin Surgical: makers of the X5 Surgical Headlight System. The wireless X5 is the lightest, brightest, longest-running operating room surgical headlight on the market. Schedule your free trial or reserve your mission trip loaner today at +1.415.226.9414 or Contact@RoninSurgical.com. Ronin Surgical – Designed Without Compromise. www.RoninSurgical.com

Royal Caviar 325
Las Vegas, NV

Rultract/Pemco, Inc 505
Cleveland, OH
Rultract Skyhook retractor provides gentle, uniform lift allowing maximum exposure for IMA dissection, re-do hearts, xiphoid entry, subxiphoid pericardial procedures, minimally invasive procedures, parasternal procedures, Pectus, LVAD Extraction, and others. Pemco Inc. is the only authorized service center and OEM for Rultract. Ensure that your Rultract is serviced every 12-18 months by Pemco.

Saphena Medical 1043
West Bridgewater, MA
The Venapax® Endoscopic Vessel Harvesting System allows for accurate vein dissection and branch ligation all built into a single device. Venapax offers a gentle harvesting approach without the need to excessively manipulate the target vessel. Well-engineered bipolar cautery combined with proprietary electrodes optimized specifically for EVH produces high burst strength, minimal thermal spread and long branch lengths.

Scanlan International 801
St. Paul, MN
Highest quality surgical products designed and manufactured by the Scanlan family since 1921. Over 3000 titanium&stainless steel surgical instruments including SCANLAN®Super Cut™ &Premier™Scissors, SCANLAN®Legacy Needle Holders & Forceps, Memory Dilators/ Probes, New VATS SCANLAN® Dennis Rib Cutter & Rocco Nodule Clamps. SCANLAN® Single-Use Products.

Sherwood Group 1204
Brooklyn, NY

Society of Thoracic Surgeons, The 601
Chicago, IL
STS represents more than 7,400 surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. At the booth, learn about member benefits, advocacy efforts (including STS-PAC), opportunities to participate in the STS National Database and publicly report outcomes, and cutting-edge research being conducted via the STS Research Center. You also can donate to The Thoracic Surgery Foundation, the Society's charitable arm, and get advice from *The Annals of Thoracic Surgery* staff on submitting your manuscript.

Sontec Instruments 501
Centennial, CO

Sontec offers headlamps and loupes and the most comprehensive selection of exceptional hand held surgical instruments available to the discriminating surgeon. There is no substitute for quality, expertise and individualized service. Sontec's vast array awaits your consideration at our booth.

Staff Care 1235
Dallas, TX

Staff Care is an AMN Healthcare company that provides locum tenens recruitment and staffing services. We match physicians, as well as other healthcare professionals, including dentists, CRNAs, nurse practitioners and physician assistants, with all types of medical facilities and healthcare organizations.

Summit International Medical Technologies 1238
Franklin, MA

Summit introduces the SternaSafe Uni, a new 2-way sternal support operating system. Easy to handle, comfortable sternum support brace suitable for every patient. Better Support, Faster Recovery, More Comfort. Also Introducing the SternaBra for female sternal support.

SurgiTel/General Scientific Corp 301
Ann Arbor, MI

SurgiTel is the manufacturer of premium loupes and headlamps sold around the world from their headquarters in Ann Arbor, Michigan. Holding a variety of patents SurgiTel is always on the forefront of Vision and Ergonomics.

SynCardia Systems, LLC 737
Tucson, AZ

The SynCardia temporary Total Artificial Heart (TAH-t) is the world's only FDA, Health Canada and CE approved Total Artificial Heart. It is approved as a bridge to transplant for patients dying from end-stage biventricular failure. Visit our booth for updates on the 50cc TAH-t and destination therapy.

Talis Clinical 1103
Streetsboro, OH

Talis Clinical was formed to meet the higher purpose of supporting safe patient care and positively impact clinicians and providers. Our ACG-Perfusion™ PIMS technology was

Meet With Top Employers

The STS/CTSNet Career Fair gives attendees the chance to meet face-to-face with employers. Recruiters will be available to talk with potential candidates about career opportunities. The Career Fair will be held in the Exhibit Hall.

Sunday 4:30 p.m. – 6:30 p.m.
Monday 9:00 a.m. – 4:30 p.m.
Tuesday 9:00 a.m. – 1:30 p.m.

Atrium Health – Booth #650
Carle Health System – Booth #549
Emory Healthcare – Booth #547
Memorial Healthcare System – Booth #550
Munson Healthcare – Booth #544
Sanford Health – Booth #648
Sparrow Health System – Booth #551
St. Bernards Medical Center – Booth #546
St. Elizabeth Healthcare – Booth #646
STS/CTSNet Career Center – Booth #644
Tenet Healthcare – Booth #545
TriHealth – Booth #548

Note: This list of employers is accurate as of January 7, 2019.

TECH-CON EXHIBITOR NEW EXHIBITOR MEETING BULLETIN ADVERTISER

developed for the #1 Cardiac Hospital in the world to advance the standard of cardiac care.

Terumo **1125**
Ann Arbor, MI
 Terumo will display the VirtuoSaph® Plus Endoscopic Vessel Harvesting System, Beating Heart and Surgical Stabilization products, Terumo® Perfusion Products, and new data management solutions. Terumo Aortic will display the most comprehensive portfolio of products in the aortic space - providing solutions that meet the global needs of clinicians.

Thompson Surgical **411**
Traverse City, MI
 Thompson Surgical is a leader in exposure and the original manufacturer of the table-mounted Thompson Retractor. Cardiovascular surgeons will benefit from the Thompson Bolling Retractor. The Bolling Retractor provides extremely low profile, stable, and Uncompromised Exposure of the heart structures for valve procedures. "Set it and forget it." - Steven Bolling, MD

Trasonic **941**
Ithaca, NY
 Trasonic is the original inventor and innovator of transit-time flow measurement

devices for CABG surgery, CHD Repair, CPB and ECMO cases. For over 33 years, Transonic flow measurement systems have been used to advance physiologic understanding as well as to provide surgeons with peace of mind that their anastomoses are patent prior to closure.

Veran Medical Technologies **1213**
St. Louis, MO
 Veran is a privately held medical device company headquartered in St. Louis, MO. The company's main focus is assisting physicians in the early diagnosis and treatment of lung cancer. Veran has developed and commercialized an FDA cleared, next

generation electromagnetic navigation platform called the SPiN Thoracic Navigation System, which includes both endobronchial and transthoracic approaches.

Vitalcor, Inc **811**
Westmont, IL
 Vitalcor, Inc. is a supplier of medical devices used primarily in Cardio-Thoracic Surgery. Since 1975, Vitalcor has provided products that take input from teaching and practicing surgeons to make their practice easier. We pride ourselves on offering quality products and providing exceptional customer service.

Weatherby Healthcare **1104**
Fort Lauderdale, FL
 Since 1995, Weatherby Healthcare has established itself as an expert in locum tenens staffing for physicians, physician assistants, and nurse practitioners. The company employs nearly 600 employees committed to filling locum tenens assignments in large-scale healthcare networks, hospitals, and clinics nationwide. Learn more at weatherbyhealthcare.com.

WebMD and Vitals.com **428**
El Segundo, CA
 WebMD and Vitals.com comprise the #1 online source for finding doctors. The directories generate 14M monthly visits. Providers utilize Enhanced Profiles to earn top search results and competitive placement.

Western Thoracic Surgical Association **748**
Beverly, MA
 The Western Thoracic Surgical Association is an organization of cardiothoracic surgeons from 13 western states and 4 western provinces of Canada, whose one-of-a-kind meeting combines first rate scientific papers along with family-oriented activities. Please join us June 26-29, 2019 at Squaw Creek at Lake Tahoe in Olympic Valley, California.

Wexler Surgical, Inc **400**
Houston, TX
 Wexler Surgical designs and manufactures a variety of titanium and stainless steel specialty surgical instruments and products for Cardiac, Vascular, Thoracic, and Micro Surgery. Come see our VATS/MICS instruments and ask about our Optimus Series. Visit us online at www.wexlersurgical.com for more information about our products and services or email us at sales@wexlersurgical.com

Wolters Kluwer **300**
Philadelphia, PA
 Wolters Kluwer Health is a leading global provider of information and point of care solutions for the healthcare industry. Our solutions are designed to help professionals build clinical competency and improve practice so that healthcare organizations can succeed in value-based care delivery models. Product solutions include Lippincott, Ovid®, and UpToDate®

Zimmer Biomet Thoracic **731**
Jacksonville, FL
 Founded in 1927 and headquartered in Warsaw, Indiana, Zimmer Biomet is a global leader in musculoskeletal healthcare. We design, manufacture and market a comprehensive portfolio of innovative Thoracic products and treatment solutions for surgeons and patients including, the RibFix™ Blu Thoracic Fixation System and the SternaLock® Blu Primary Closure System.

ZipLine Medical, Inc **1241**
Campbell, CA
 ZipLine Medical offers surgical (Zip Surgical Skin Closure) and chronic (PreLoc Wound Closure) solutions based on proven, non-invasive force distribution technology. Published clinical studies have demonstrated superior clinical and economic benefits vs. standard of care, including shorter procedure time, fewer wound-related complications and readmissions, and fewer post-operative provider visits.

ZipperBelt **324**
Dallas, TX



INNOVATING Thoracic Surgery

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- VISERA 4K UHD
- ORBEYE Video Microscope
- Advanced Surgical Energy



VISERA 4K UHD



ORBEYE



THUNDERBEAT

Visit Olympus Booth 616
The Society of Thoracic Surgeons 55th Annual Meeting



Become an Advocate for CT Surgery

STS Key Contacts are the lifeblood of the Society's advocacy efforts. Key Contacts meet with their elected officials in Washington, provide facility tours at home, and do much more to advocate for legislative and regulatory issues that affect cardiothoracic surgeons and their patients.

Many surgeons, however, may not know how to get started or may feel unprepared for these meetings. During the Key Contacts: Advocates for Cardiothoracic Surgery session, experienced Key Contacts will share their stories from the front lines of STS advocacy, as well as provide tips and role-play a meeting with a member of Congress—showing how to make things go well and explaining what to do if they don't. Speakers also will review the Society's advocacy priorities, focusing especially on health care issues that will face the new Congress. With so much at stake, the voices of cardiothoracic surgeons need to be heard. Make time to learn how you can contribute. ■

Key Contacts: Advocates for Cardiothoracic Surgery

Sunday

1:00 p.m. – 2:00 p.m.

Room 32

Enhance Your Meeting Experience With STS University

STS University, a popular series of hands-on learning activities, will take place during two sessions on Sunday morning. Several courses still have space available, so check at Registration if you'd like to add one or more to your schedule. Each course is \$175.

These courses exclusively feature hands-on experience in a wet lab or on a simulator—no didactic lectures will be given during the sessions. You can view the lectures in advance at sts.org/stsuniversity.

Course 1: Essentials of TAVR

Course 2: TEVAR and Aortic Arch Debranching Procedures

Course 3: Mitral Valve Repair

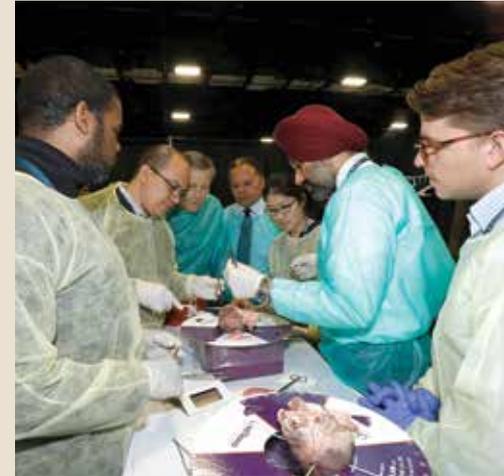
Course 4: Valve-Sparing Aortic Root Replacement – Reimplantation

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

Course 6: VATS Lobectomy

Course 7: Advanced Open Esophageal and Tracheal Procedures

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



Rib Fractures

Course 9: Minimally Invasive Aortic and Mitral Surgery

Course 10: Peroral Endoscopic Myotomy (POEM) Skills

Course 11: Robotic Lobectomy

Course 12: VATS Sleeve Lobectomy

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

ctsurgerypatients.org

Share it with your patients today!



The Patient Guide to Heart, Lung, and Esophageal Surgery is a trustworthy resource, reviewed by STS members, to share with your patients and their families. This website uses layman's terms to explain symptoms, diagnoses, treatment options, and recovery through text, pictures, animation, and videos.

Available in English and Spanish



MARK YOUR Calendars!

STS Future Courses & Meetings

Workshop on Robotic Cardiac Surgery
March 29-30, 2019
Atlanta, Georgia

TEVAR Symposium
April 4-5, 2019
Chicago, Illinois

Workshop on Robotic Thoracic Surgery
May 16-18, 2019
Atlanta, Georgia

Advances in Quality & Outcomes: A Data Managers Meeting
October 23-25, 2019
New Orleans, Louisiana

Tech-Con 2020
January 25, 2020
New Orleans, Louisiana

56th Annual Meeting
January 26-28, 2020
New Orleans, Louisiana

STS Co-Sponsored Courses

2019 Multidisciplinary Thoracic Cancers Symposium
March 14-16, 2019
San Diego, California

First Intercontinental Multi-Society Symposium on Lung Cancer
May 18, 2019
Belo Horizonte, Brazil

Learn more at sts.org/meetings.

Staying Current Helps Drive Decisions During Critical Care Emergencies

As technology and patient acuity expand, cardiothoracic surgeons and their teams must understand how to use the latest pharmacologic and mechanical therapies for emergencies in the critical care setting.

Sunday's Critical Care Symposium will provide attendees with methods and evidence-based protocols for the innovative management of multiple urgent scenarios.

"We'll focus on major issues that cardiothoracic surgeons have to deal with on an almost-daily basis," said co-moderator Michael S. Firstenberg, MD, of The Medical Center of Aurora, CO. "Attendees will go home with a better understanding of the current literature, thinking, and science behind critical care challenges and of how to apply



Michael S. Firstenberg, MD

this new knowledge in their own decision-making."

Among the emergencies presented will be unexpected cardiac arrest, for which outcomes have been poor. "Extracorporeal membrane oxygenation (ECMO) is an option for patients with cardiac arrest that is refractory to resuscitative measures, and recent changes in its use call for a discussion of the indications and contraindications for extracorporeal cardiopulmonary resuscitation (ECPR), as well as the identification of management protocols for venoarterial ECMO and ECPR," said co-moderator Rita C. Milewski, MD, PhD, of the Hospital of the University of Pennsylvania in Philadelphia. Speakers will explore resuscitation of patients with difficult arterial and venous access sites for cannulation, strategies for left ventricular venting, and recovery versus transition to another platform.

Additionally, respiratory emergencies with hemodynamic compromise often arise in the critical care setting and require cardiothoracic intervention and management. Recent studies, including the EOLIA trial, suggest that use of ECMO in certain subpopulations may offer clinical benefit to patients with acute respiratory distress syndrome (ARDS) that does not respond to conventional care. "A review of the data from these studies, as well as new guidelines, will provide attendees with an overview of evidence-based therapy for ARDS," said Dr. Milewski.

Another respiratory emergency, pulmonary embolism, has multiple therapeutic options available, including thrombolytic therapy, catheter-based interventions, and surgical embolectomy. "Pulmonary embolism can be encountered in a number of clinical situations, and the spectrum of local capability and clinical urgency guides the management," said co-moderator Subhasis Chatterjee, MD, of Texas Heart Institute at CHI Baylor St. Luke's Medical Center in Houston.

More and more patients are taking anticoagulants, and an increasing number of anticoagulant agents are now available. Many physicians are uncertain of how to treat patients taking non-vitamin K oral

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

Sunday
8:00 a.m. – 12:00 p.m.
Room 32

anticoagulants (NOACs), especially in the critical setting. Reversal of NOACs is another challenge, and new guidelines about managing bleeding patients who take anticoagulants recently were published.

"Cardiothoracic surgeons should understand how to deal with the consequences of these drugs and use technology for monitoring and testing," said Dr. Firstenberg. "Attendees will learn how to take a leadership role in managing anticoagulation dilemmas."

Attendees will have an opportunity to discuss management conundrums at their own institutions.

"We're pulled into these challenging situations whether we practice at academic hospitals or community hospitals," said Dr. Firstenberg. "Major decisions are difficult regardless of where we practice." ■

"We're pulled into these challenging situations whether we practice at academic hospitals or community hospitals. Major decisions are difficult regardless of where we practice."

MICHAEL S. FIRSTENBERG, MD

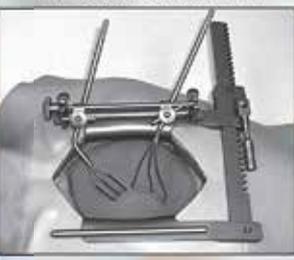
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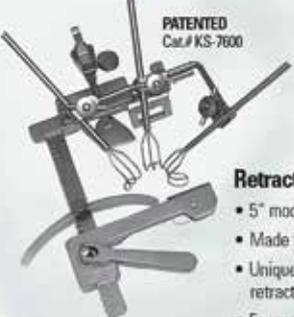
Gillinov™ Heart Retractor
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Gillinov™/Maze Self Retaining Retractor Blades
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McCarthy Mini-Sternotomy Retractor with Universal Lift
PATENTED Cat.# KS-7600



Universal Lift

- Provides greater surgical exposure
- Easy attachment to sternal retractor arm on patient's left side
- Lifts left side of patient's sternum 1" to 2"

Retractor

- 5" modified chest spreader
- Made from surgical stainless steel
- Unique malleable blades allow better retraction and surgical exposure
- For proximal or distal mini-sternotomy procedures



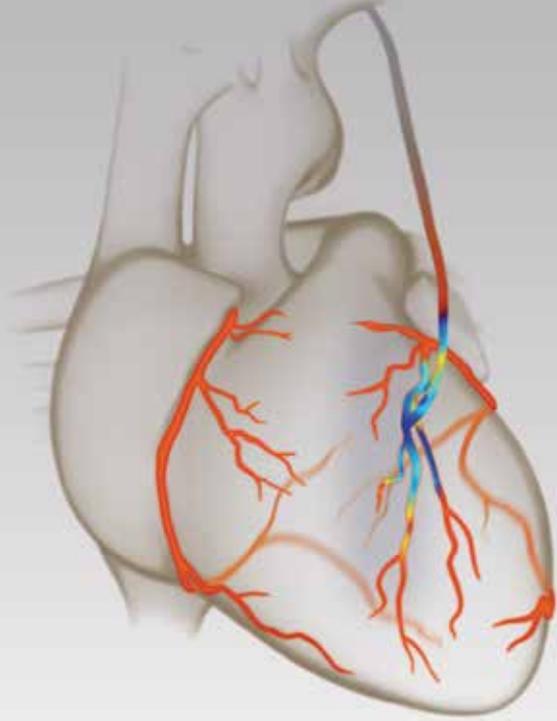

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STS Annual Meeting



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MEDSTIM

The Multidisciplinary Team: Collaborating to Improve Outcomes

A multidisciplinary team is key to improving clinical outcomes, reducing the length and cost of hospital stays, and enhancing communication among health care providers. As the movement toward collaborative care gains momentum, nonphysician health care providers are playing increasingly important roles on the cardiothoracic surgery team.

Among them are advanced practice providers (APPs), who can help enhance the quality and efficiency of health care delivery, especially as treatment options expand, care becomes more complex, and patient acuity levels increase. As a result, it is crucial to train APPs so that they understand evidence-based care guidelines and are capable of autonomously providing advanced care in different settings.

Models of care and training for cardiothoracic surgery APPs at Duke University in Durham, NC, and Johns Hopkins University in Baltimore will be

shared at Sunday morning's multidisciplinary team session.

"Attendees will learn about innovations and trends in institutions with significant experience, and they can then implement those concepts back home," said co-moderator Stefano Schena, MD, PhD, of Johns Hopkins.

"At Duke University Hospital, APPs enhance care across the spectrum, including preoperative, OR, ICU, and step-down unit settings. As a result, we've had to create unique approaches to onboarding, precepting, and orientation of these crucial team members," said co-moderator Jill Engel, DNP, ACNP, of Duke University Health System.

IMPLEMENTING ERAS PROTOCOLS

Another relatively new trend in the care of cardiothoracic surgery patients involves enhanced recovery after surgery (ERAS) protocols, which are multimodal, evidence-based, perioperative care plans. The cardiac surgery ERAS protocol includes evidence-based consensus on 23 recommendations, and the thoracic surgery protocol includes 18 such recommendations.

Although these protocols are relatively new, studies have already shown that they significantly reduce length of stay, duration of mechanical ventilation, postoperative complications, and costs. However, putting



Jill Engel, DNP, ACNP



Jill Ley, RN, MS

an ERAS protocol into practice can be challenging.

"Implementing ERAS requires essential clinical experts, electronic health record analysts, and task-driven planning tools to effectively redesign workflows, beginning in the physician's office," said Jill Ley, RN, MS, of California Pacific Medical Center in San Francisco.

Ley and other speakers with ERAS experience will share work plans, milestone documents, provider engagement strategies, targeted patient education literature, and other tools that have proven successful in integrating ERAS into the organizational cultures at their institutions.

In addition to these invited lectures, scientific abstracts on interprofessional simulation, early recovery for coronary artery bypass grafting surgery, autologous blood donation, and other multidisciplinary topics are part of the program. ■

The Multidisciplinary Team: How We Do It

Sunday

7:00 a.m. – 12:00 p.m.

Room 30E

How to Live Tweet From the STS Annual Meeting

Using Twitter for communication and information dissemination at major medical conferences such as the STS 55th Annual Meeting allows for real-time international conversations, critical appraisal, and networking. Discourse via Twitter broadens the discussion venue for scholarly activity by engaging those attending a meeting, as well as those who are unable to attend. Best of all, these conversations often continue even after the meeting adjourns.

This live tweeting how-to guide will help you maximize your conference experience and expand the reach of the exciting science presented at the meeting.

GET YOUR ACCOUNT READY

Make sure that your Twitter profile is public so that anyone attending the STS Annual Meeting can see your tweets. If it's private, only those who you have approved to follow you will see your tweets. Also make sure that you are following individuals in the cardiothoracic surgery community, as well as organizations such as STS (@STS_CTSurgery).

ENCOURAGE DISCUSSION OF YOUR WORK

If you're presenting at the meeting,

tweet about your talk in advance to build anticipation. You also can schedule tweets to be sent out during your presentation using a third-party app. You may want to include your Twitter handle and your institution's handle on your slides, as well as the conference hashtag (#STS2019). Assume by default that data are no longer private once presented.

START SHARING YOUR MEETING EXPERIENCE

You can highlight sessions that you're looking forward to attending or share something interesting that you heard during a presentation. Construct your tweets carefully to have the highest impact. Essential components include:

Hashtags – Using the meeting hashtag, #STS2019, ensures that anyone who is following the meeting feed will see your tweet. Your tweets also could appear in the STS Meetings app or here in the *STS Meeting Bulletin*. Additional hashtags that may be relevant are shown in the accompanying table.

Speaker tags – If you're tweeting about a specific presentation, tag the speaker and their institution by typing @ in front of their usernames. This will notify the speaker that you've tweeted about their presentation; they may retweet, reply to, or like your tweet.

Quotes – Differentiate your personal views from those of the speakers by using quotations.

Additional resources – Make your tweet more interactive by linking to relevant studies mentioned in the presentation or including a photo of key slides. (Note that taking photos of slides during Tech-Con 2019 is not permitted.)

In addition to tweeting your own thoughts, you can interact with other Annual Meeting attendees by responding to their posts.

FOLLOW APPROPRIATE TWITTER ETIQUETTE

It's important not to disturb your fellow meeting attendees while you're tweeting. Turn down your phone brightness and volume, and do not obstruct the view of other attendees. In addition, respect intellectual property if requested by the presenter. And keep in mind that while controversy is acceptable, don't attack someone who may hold different views than you do. Keep your conversation civil. ■

This article was adapted from a story published in the Winter 2019 edition of STS News by Jessica G.Y. Luc, MD (@JessicaLuc1) and Mara B. Antonoff, MD (@maraantonoff).

Join the Conversation Online!

Follow STS on social media to stay on top of Annual Meeting news, and share your meeting experience using the hashtag #STS2019. Your posts could be featured in the *STS Meeting Bulletin*!



Get a Handle on Your Tweets

Using the meeting hashtag, #STS2019, helps to ensure that anyone who is following the meeting feed will see your tweet.

KEY STS HANDLES

The Society of Thoracic Surgeons
@STS_CTSurgery

The Annals of Thoracic Surgery
@annalsthorsurg

STS Advocacy
@STS_Advocacy

STS Career Resources
@CTSurgCareers

The Thoracic Surgery Foundation
@CTSurgeryFdn

KEY HASHTAGS

#STS2019 STS Annual Meeting 2019

#CTCareers Cardiothoracic surgery careers

#CTSurgery Cardiothoracic surgery

#CVICU Cardiovascular intensive care unit

#ERAS Enhanced recovery after surgery

#Radialfirst Radial artery first

#LCSM Lung cancer social media

#FOAMed Free open access medical education

#meded Medical education

#SoMe4Surgery Social media for surgery

#TSSMN Thoracic Surgery Social Media Network

Need a Professional Headshot?

Visit the STS Booth and be ready to strike a pose!

Have a professional headshot taken for business or personal use, compliments of the Society, in the Exhibit Hall next to STS Booth #601:

Sunday • 4:30 p.m. – 6:30 p.m.
Monday • 9:00 a.m. – 4:30 p.m.
Tuesday • 9:00 a.m. – 1:30 p.m.

Photographs will be taken on a first-come, first-served basis. You will be emailed a link to download your high-resolution photograph following the Annual Meeting.

DOWNLOAD NOW

STS Meetings App

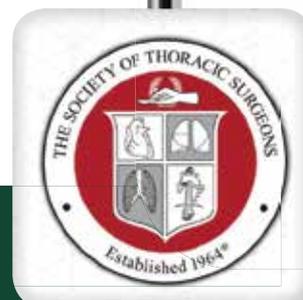
Features include:

- Full meeting program with abstracts, session locations, and speakers
- Customizable itinerary
- CME Credit/Evaluation link
- Exhibitor listing with floorplan
- Important meeting alerts and updates
- Compatible with iOS and Android mobile devices



2019-STS-app

Scan the QR code at left, or visit sts.org/mobileapp from the browser on your mobile device.



The 2019 meetings app is supported by Medtronic.

Claim Continuing Medical Education Credit

The STS 55th Annual Meeting utilizes an entirely electronic evaluation and CME/Perfusion CEU credit claim process. Both physicians and perfusionists can use this system to claim credit, complete evaluations, and print CME/Perfusion CEU certificates. Certificates of Attendance

also are available for other attendees and international physicians not wishing to claim CME/Perfusion CEU credit. Attendees will not be able to evaluate and claim CME/Perfusion CEU credit for ticketed sessions unless they have registered for those sessions. *Please note that CME credit is not available for the Residents Symposium, Residents Luncheon, or Tech-Con 2019.*

Attendees can complete evaluations by clicking on the Credit/Evaluation button on the STS Meetings mobile app, going to sts.org/2019evaluation, or visiting computer stations located on the upper level near Ballroom 20 and on the lower level near Registration. In order to make this process more convenient for attendees, the meeting evaluations will be available through Friday, February 15.

Attendees can log in to the website with the following information:

- Username:** 6-digit STS member ID number printed on their meeting badge
- Password:** First initial and last name



Industry-Sponsored Satellite Activities

Satellite activities are programs offered by industry and held in conjunction with the STS 55th Annual Meeting. They are not developed or sponsored by STS.

SATURDAY

6:45 p.m. – 9:30 p.m.
Johnson & Johnson Medical Devices Companies
Hands-On Anastomosis Training with Simulators
 Marriott Marquis San Diego Marina – Grand Ballroom 10
 333 W. Harbor Dr.

6:30 p.m. – 8:30 p.m.
HCA Healthcare
Cardiothoracic Surgery Mixer
 Water Grill, 615 J St.

6:30 p.m. – 9:00 p.m.
Medtronic
Valiant Navion Dinner: The Next Generation in TEVAR
 Marriott Marquis San Diego Marina – Grand Ballroom 10
 333 W. Harbor Dr.

MONDAY

5:30 a.m. – 7:00 a.m.
CHF Solutions
Aqualex FlexFlow System – A Simple Approach to Ultrafiltration in the Management of Fluid-Overloaded Cardiac Surgery Patients
 Marriott Marquis San Diego Marina – Grand Ballroom 1
 333 W. Harbor Dr.

6:30 p.m. – 10:00 p.m.
Zimmer Biomet CMF & Thoracic
Improving Outcomes and Reducing Complications in Cardiac Surgery
 Morton's The Steakhouse, 285 J St.

This list is accurate as of January 7, 2019.

THANK YOU!

The Society of Thoracic Surgeons gratefully acknowledges the following companies for providing educational grants for the STS 55th Annual Meeting.

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 Boston Scientific Corporation
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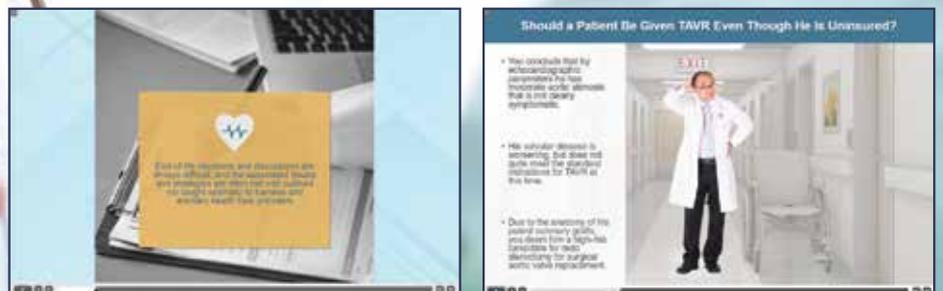
This list is accurate as of January 7, 2019.



Satisfy CME requirements in specific topic areas with STS Clinical Care E-Learning Modules

Designed for cardiothoracic surgeons and their teams.

sts.org/clinicalcaremodules



Breaking Bad News • Cultural Competencies • Ethics • Shared Decision-Making

SCHEDULE

continued from page 1

10:15 a.m. – 12:00 p.m.
STS University (Session II)
Hall H

12:00 p.m. – 1:00 p.m.
Residents Luncheon
Room 29

1:00 p.m. – 2:00 p.m.
Ethics Debate: Bespoke Babies—Genome Editing in Cystic Fibrosis Embryos
Room 33

Key Contacts: Advocates for Cardiothoracic Surgery
Room 32

Research Using the STS National Database
Room 31C

STS/CATS/CSCS: Innovative Techniques in Thoracic Surgery
Room 31AB

The Annals Academy: How to Write a Great Review—Essential Components of Outstanding Peer Reviews
Room 30E

Unconscious Bias (organized by Women in Thoracic Surgery)
Room 30ABCD

2:10 p.m. – 2:30 p.m.
Opening Session Welcome
Ballroom 20

2:30 p.m. – 3:30 p.m.
J. Maxwell Chamberlain Memorial Papers
Ballroom 20

3:30 p.m. – 4:30 p.m.
Thomas B. Ferguson Lecture: Laurie H. Glimcher
Ballroom 20

4:30 p.m. – 6:30 p.m.
Opening Reception in STS Exhibit Hall
Halls EFG

4:45 p.m. – 5:30 p.m.
Jeopardy Championship
Halls EFG

5:30 p.m. – 6:30 p.m.
Poster Presentations
Halls EFG

5:30 p.m. – 6:30 p.m.
2019 The Thoracic Surgery Foundation Awards Announcement and VIP Reception (by invitation only)
Marriott Marquis San Diego Marina, Grand Ballroom 4

7:00 p.m. – 10:00 p.m.
President's Reception (ticket required)
Crown Room, Hotel del Coronado

Neonatal Surgical Techniques Influence Outcomes

Thanks to major medical and surgical advances, 85%-90% of patients with congenital heart defects now survive into adulthood. Congenital and adult cardiac surgeons are learning more

about long-term sequelae and how neonatal and childhood repairs can set up patients for long-term success or failure.

“The details of the surgical technique during the primary repair of a congenital heart defect have big implications for a patient’s quality of life, even decades later,” said Jennifer S. Nelson, MD, MS, of Nemours Children’s Hospital in Orlando.

During the Adult Congenital Heart Disease Symposium, pediatric and adult cardiac surgeons from around the world will share successful techniques and methods that can optimize patient outcomes.



Jennifer S. Nelson, MD, MS

Surgeons who treat aortic arch anomalies often must choose between multiple open and endovascular treatment options, and speakers will discuss the pros and cons of each.

“As we learn more about late

complications, we can look back to try and determine which operative strategies we might employ or change,” said Dr. Nelson, who will co-moderate the session.

Another highlight of the session will be an update on chylothorax treatment.

“Chylothorax is one of the biggest nuisance problems we encounter,” Dr. Nelson said. As

a result, lymphodynamics is of increasing interest to congenital surgeons. One of the world’s experts in lymphodynamics will discuss new information about which patients should be considered for the treatment.

This session also will include a review of

liver imaging recommendations for Fontan patients, and experts will debate whether a heart/liver transplant or heart-only transplant is better for failing Fontan patients.

“The number of young adult Fontan patients has grown tremendously, and the issue of single versus multi-organ transplant has become more important. This session will be extremely valuable in helping congenital surgeons plan for the future,” Dr. Nelson added. ■

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

Sunday

8:00 a.m. – 12:00 p.m.

Room 31AB

ANNUAL MEETING

continued from page 1

Thoracic Surgeons to explore controversial issues in general thoracic surgery, including invasive staging in early stage lung cancer, multimodal approaches for the treatment of stage IIIAN2 lung cancer, and the use of induction therapy in patients with T2N0 esophageal cancer.

Also on Monday, STS and the International Society for Heart and Lung Transplantation will hold a symposium looking at how ventricular assist devices are utilized in European and Asian populations, as well as the latest innovations in univentricular and biventricular support.

In addition to the collaborative sessions with international organizations highlighted above, the program also features special presentations with the American College of Chest Physicians, the Society of Cardiovascular Anesthesiology, and the Society for Vascular Surgery.

HOT TOPICS IN THE FIELD

Chaired by Richard Lee, MD, the Workforce on Annual Meeting and its related task forces worked hard to help ensure that each day of the meeting includes hot topics and information that you can put into practice as soon as you return home.

Among them is a session on Monday that will look at diversity and inclusion in cardiothoracic surgery. Joan Reede, MD, MPH, MBA, Dean for Diversity and Community Partnership at Harvard Medical School in Boston, will discuss the value of diversity and inclusion for your practice, service line, and community relationships. A session organized by Women in Thoracic Surgery on Sunday also will examine the issue of inclusion in the specialty, specifically through the lens of how our unconscious biases can affect the recruitment and retention of surgeons in our field, as well as our relationships with colleagues and patients.

Additionally, several abstracts and invited lectures highlight pain management strategies,

including enhanced recovery after surgery protocols and opioid prescribing patterns by cardiothoracic surgeons. Our specialty needs to face the opioid issue head on so that we can get ahead of the problem and help prevent further tragedies, so please attend these important presentations.

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Your most valuable resource at the meeting this year is the STS Meetings app; printed programs are no longer provided. With the app, you can save favorite sessions/presentations to your custom itinerary, read scientific abstracts, and more. If you haven’t done so already, download it now by searching for “STS Meetings” in the Apple iOS App Store or Google Play Store. You also can scan the QR code on page 16 of this newspaper.

On behalf of the Society’s leadership, thank you for being here. ■

Keith S. Naunheim, MD
STS President

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Several categories of membership are offered to include anyone with an interest



in cardiothoracic surgery. If you are not already a member, please stop by the STS booth (#601) in the Exhibit Hall to talk with staff and pick up an application; you also can apply online at sts.org/membership. If

you are a member and know someone who has not yet joined, pick up an application for them! By encouraging membership in STS, you’ll help your colleagues, the Society, and the specialty. ■

ETHICS DEBATE

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“The drawback, ethically, would be that we shouldn’t genetically manufacture human beings. That’s on ethically shaky ground. But most people would agree that gene editing will play a role in controlling diseases and improving health. The questions are: How far do we take it, and what are the ethical boundaries?” asked Dr. D’Amico.

This is the type of debate that cardiothoracic surgeons won’t hear in any other forum, Dr. D’Amico added.

“This is totally unique. No other courses will cover this in terms of the medical education that is involved. It’s an important CME opportunity about a topic that is cutting-edge and state-of-the-art,” he said. “I think it’s going to be one of the best debates we’ve ever had.” ■

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UC201907225 EN 01/2019

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1. *European Heart Journal*, Volume 34, Issue 37, 1 October 2013, Pages 2862–2872, <https://academic.oup.com/eurheartj/article/34/37/2862/503604>.

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