



STS MEETING BULLETIN

THE SOCIETY OF THORACIC SURGEONS
53RD ANNUAL MEETING
HOUSTON, TEXAS | sts.org

SATURDAY

7:00 a.m. – 6:00 p.m.

Registration
Room 360 Lobby

7:00 a.m. – 6:30 p.m.

Tech-Con Exhibits
Grand Ballroom Foyer

7:00 a.m. – 8:00 a.m.

Tech-Con Breakfast
Grand Ballroom Foyer

8:00 a.m. – 9:30 a.m.

Tech-Con Adult Cardiac Track I
Grand Ballroom AB

Tech-Con General Thoracic Track I
Room 310ABC

10:15 a.m. – 12:00 p.m.

Tech-Con Adult Cardiac Track II
Grand Ballroom AB

Tech-Con General Thoracic Track II
Room 310ABC

1:00 p.m. – 2:45 p.m.

Tech-Con Adult Cardiac Track III
Grand Ballroom AB

Tech-Con General Thoracic Track III
Room 310ABC

3:15 p.m. – 5:00 p.m.

Tech-Con Joint Session
Grand Ballroom AB

5:00 p.m. – 6:30 p.m.

Tech-Con Reception
Grand Ballroom Foyer

SUNDAY

7:00 a.m. – 6:30 p.m.

Registration
Room 360 Lobby

7:00 a.m. – 8:00 a.m.

Heater-Cooler-Induced Infections: Practices, Protocols, and Mitigation Strategies
Room 310ABC

8:00 a.m. – 12:00 p.m.

Adult Congenital Heart Disease Symposium: Evaluating Approaches to the Aortic Valve and End-Stage Problems in Young Adults—What Pediatric and Adult Cardiac Surgeons Can Learn From Each Other
Room 350DEF

Practice Management Summit: Working In an Employment Model Environment
Room 360A

STS/AATS Critical Care Symposium: Challenges in the Management of Mechanical Cardiopulmonary Support in the Cardiothoracic Intensive Care Unit
Room 351DEF

see **SCHEDULE**, page 4

SATURDAY-SUNDAY | JAN. 21-22, 2017

The STS 53rd Annual Meeting Begins

Welcome to the STS 53rd Annual Meeting! I'm thrilled to welcome you to Houston for this preeminent educational event in cardiothoracic surgery.

The STS Workforce on Annual Meeting has put together an outstanding program that will provide you with knowledge and skills that you can take back home and put to use right away. Over the next 5 days, you'll experience thought-provoking lectures from renowned faculty and guests, exciting hands-on learning, an abundance of networking opportunities, and a chance to view the latest products and services in the specialty.

The STS Annual Meeting is the epicenter of cardiothoracic surgery and will be packed with interactive learning on hot topics. We'll also explore practice management, work-life balance, and quality improvement issues that impact STS members on a daily basis.

After an extremely positive response in

2016, STS/AATS Tech-Con 2017 is again focusing on cutting-edge technologies and new developments in cardiothoracic surgery. (See related article on page 4.) A highlight on Saturday will be the *Shark Tank* session, in which entrepreneurs pitch their innovative cardiothoracic surgery products to the audience, as well as a panel of experts in medical device development.

A number of sessions will feature perspectives from international experts. A Monday session from STS, the Canadian Association of Thoracic Surgeons, and the Canadian Society of Cardiac Surgeons will focus on implementing quality improvement by describing how surgeons and institutions perceive their practice versus true data-based performance. Also on Monday, experts from around the world will examine the quality versus access debate in cardiothoracic surgical care, including regionalization, building sustainable cardiothoracic surgery



Joseph E. Bavaria, MD

programs, and humanitarian crises, at the International Symposium.

STS and the European Association for Cardio-Thoracic Surgery will host a session on the various treatment strategies and

see **ANNUAL MEETING**, page 6

Uncover Tips for Adult Cardiac, General Thoracic Surgery



The how-to video sessions will help STS Annual Meeting attendees hone their techniques in several procedures.

Two exciting how-to video sessions on Sunday will provide attendees with specific strategies for success and pitfalls to avoid related to adult cardiac and general thoracic surgical procedures.

ADULT CARDIAC SURGERY

In this session, 30 presentations will focus on six adult cardiac surgery areas—coronary artery bypass grafting (CABG) surgery, mitral valve surgery, atrial fibrillation, aortic valve surgery, thoracic aortic surgery, and heart failure. The presentations cover routine to more complex procedures that appeal to both private practice and academic surgeons.

One section of the program was developed in response to recent investigations showing

surgical ablation of atrial fibrillation during mitral valve surgery is effective. The atrial fibrillation section also will cover how to perform a Maze procedure, along with how to employ newer techniques in a minimally invasive fashion.

By adding a section on heart failure and weaning catastrophes, co-moderator Gorav Ailawadi, MD sought to give surgeons approaches for dealing with challenging high-risk patients.

"We want to help the audience get the patient out of the operating room and provide other options," said Dr. Ailawadi, of the University of Virginia Health System in Charlottesville.

In particular, presenters will offer guidance on how to perform techniques that should be

part of any busy surgeon's armamentarium: weaning from a subclavian intra-aortic balloon pump, the Impella 5.0, a temporary left ventricular assist device (LVAD), and a right VAD. This section also will cover elective LVAD insertion, the minimally invasive HeartWare VAD, and pulmonary thromboendarterectomy for treatment of acute pulmonary embolism.

Presenters in the CABG section will

see **HOW-TO TIPS**, page 17

Exhibit Hall Opening Reception
Sunday, 4:30 p.m. – 6:30 p.m.
Exhibit Hall A3

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CT Surgery Residents Prepare to Win Jeopardy Title

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

Qualifying competitions were held in October 2016 at the European Association for Cardio-Thoracic Surgery Annual Meeting and in November 2016 at the Southern Thoracic Surgical Association Annual Meeting.

EACTS winners Tamashis Mukherjee, MD and Aayush Poddar, MD from G. Kuppuswamy Naidu Memorial Hospital in Coimbatore, India, will compete against STSA winners Greg Bittle, MD and Eric Krause, MD from the University of Maryland in Baltimore from 4:30 p.m. to 5:40 p.m. on Sunday in the Exhibit Hall Learning Lab Theater. ■

STS Staff Welcomes You to Houston

On behalf of the Society's staff, I join STS President Joe Bavaria in welcoming you to The Society of Thoracic Surgeons 53rd Annual Meeting and Exhibition in Houston, Texas. 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 Wednesday, this *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.

Watch for the Monday and Tuesday/Wednesday editions of the *Bulletin*; the newspapers will be placed in bins throughout the George R. Brown Convention Center during the Annual Meeting. 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 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.

While you're there, I hope you will stop by the STS booth (#533). Staff members will



Rob Wynbrandt

be there, eager to talk with you about—and provide updates on—all things STS. Be sure to ask about plans to upgrade and expand the STS National Database, our public reporting initiatives, exciting developments from the STS Research Center—including the new PUF Research Program—and upcoming educational programs, such as the STS ECMO Symposium and the Symposium on Robotic Mitral Valve Repair, both scheduled for this coming March.

You also will want to take a moment and talk with the STS Government Relations staff, who can bring you up to date on the Society's many efforts on Capitol Hill. From coding and reimbursement issues to the future of health care reform legislation and regulation in the new Administration, STS continues to champion the specialty in Washington. Stop by and learn more. There's a lot going on, perhaps

STS membership applications, typically within a week or two, so that they can start enjoying the benefits of STS membership almost immediately. And under the Bylaws changes adopted by the membership last year in Phoenix, we are also acting more promptly on CT surgeon applications for Active and International Membership: three times per year instead of once! Even if you already are an STS member, please pick up a membership packet to take home to a colleague; you will be helping both your colleague and your Society.

All the scientific sessions at this 53rd Annual Meeting, including the symposia, early riser sessions, breakout 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 53rd Annual Meeting

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.

more than ever this coming year—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

Online is included free with your Annual Meeting registration. This online product will allow you to catch those sessions you weren't able to 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 green 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

SCHEDULE

continued from page 1

STS/SCA: Integrating Perioperative Echocardiography Into Cardiac Surgical Clinical Decision Making

Room 330AB

10:00 a.m. – 4:30 p.m.

“How To” Video Session: Technical Tricks and Pitfalls to Simplify Cardiac Surgery Procedures

Room 320ABC

1:00 p.m. – 4:00 p.m.

Residents Symposium: Transitioning From Residency to a Successful Practice

Room 370BC

1:00 p.m. – 4:30 p.m.

Resuscitation of Patients Who Arrest After Cardiac Surgery

Room 360BC

Surgical Symposium: Congenital Cardiac Surgery Mélange

Room 350DEF

Surgical Symposium: “How To” Video Session: Tips and Tricks in General Thoracic Surgery

Room 351DEF

2:00 p.m. – 6:30 p.m.

Scientific Posters

Hall B3

2:30 p.m. – 4:30 p.m.

Multidisciplinary Response to Emergencies: Strategies for Team Members

Room 360A

4:30 p.m. – 6:30 p.m.

Opening Reception in STS Exhibit Hall

Exhibit Hall A3

Preview Technology Before It's FDA Approved

STS/AATS Tech-Con 2017 will kick off Saturday morning with a focus on cutting-edge technologies and new developments in cardiothoracic surgery.

“There are a lot of things flying under the radar in terms of development, and you're not going to hear about them anywhere else,” said Tech-Con Task Force Co-Chair Mark F. Berry, MD. “Attending Tech-Con is the most efficient way for every cardiothoracic surgeon to know what their practice is going to look like in a couple of years.”

Two different tracks are planned for adult cardiac surgery and general thoracic surgery. The adult cardiac sessions will look at innovations in mitral valve disease and atrial fibrillation management, aortic valve disease and endovascular



Hear about new, cutting-edge technologies that will change your practice at Tech-Con 2017.

**STS/AATS
TECH-CON 2017**

Saturday

8:00 a.m. – 5:00 p.m.

**Grand Ballroom AB
and Room 310ABC**

techniques, and ventricular assist devices. The general thoracic sessions will discuss precision thoracic surgery, endoscopic and robotic techniques, and what health care looks like in the 21st century.

A highlight of the day will be the *Shark Tank* session on Saturday afternoon, during which entrepreneurs will pitch their innovative cardiothoracic surgery products to the audience, as well as a panel of experts in medical device development.

Continuing medical education credit will not be offered for Tech-Con programming. ■

Changes in Practice Models Require Adjustments

Changes in the regulation of health care and reimbursement are driving more cardiothoracic surgeons into practice models with new business strategies. Surgeons need to keep pace with changing trends as they increasingly join larger medical practices or hospitals in this new environment.

"Many cardiothoracic surgeons are no longer in independent private practices but are aligned with large health care systems. We still deal with the business aspects of delivering cardiothoracic surgery services and how to best deliver care for our patients, but the landscape has changed, and is continuing to change rapidly," said Frank L. Fazzalari, MD, MBA, Chair of the STS Workforce on Practice Management.

Changing from a fee-for-service model of reimbursement to a value-based one will be examined by cardiothoracic surgeons and non-surgeons involved in health



Frank L. Fazzalari, MD, MBA

care management in a series of Sunday presentations. Dr. Fazzalari, of the University of Michigan Health System in Ann Arbor, and Paul S. Levy, MD, MBA, of Northeast Arkansas Baptist Hospital and Clinic in Jonesboro, are co-moderators.

Many of the reimbursement changes are driven by the Centers for Medicare & Medicaid Services. Eight speakers will discuss these developments, their impact on practice, and how to address them in a session divided into two parts, with panel discussions at the end of each section.

"These changes are not well defined. A lot of this is new thinking, and it is untried," Dr. Fazzalari said of the evolving CMS regulations. "What we are trying to do in this Practice Management Summit is provide an educational program that helps practicing cardiothoracic surgeons deal with the changes."

The first speaker is Aaron Robinson, CEO of Community Hospitals with Health First in Melbourne, Fla., who will examine bundled care plans in "Defining Value in the Cardiovascular Service Line."

Michael N. Heaton, a health care business

consultant from Indianapolis, will discuss contract negotiations during "Recent Trends in Economic Surveys and Their Use in Contract Negotiations." The focus will be on employee models and professional service agreements, including compensation.

care attorney Mark Kopson, of Plunkett Cooney in Bloomfield Hills, Mich., will discuss "Experience in Dealing With Employed Physicians," with a focus on his background in contracting and employing physicians.

"The landscape has changed, and is changing rapidly."

FRANK L. FAZZALARI, MD, MBA

PRACTICE MANAGEMENT SUMMIT

Sunday

8:00 a.m. – 12:00 p.m.

Room 360A

Michael G. Moront, MD, of ProMedica Toledo Hospital in Ohio, will present

"Work Relative Value Unit Employment Models: A Bad Choice for Cardiothoracic Surgeons," looking at models used in some health systems to determine the productivity of surgeons.

Chair of the STS Standards and Ethics Committee Richard I. Whyte, MD, MBA, of Beth Israel Deaconess Medical Center in Boston, will present "Ethical Issues in an Employment Model."

In the second half of the session, health

Steven V. Manoukian, MD, of Nashville, will present "Partnering for Excellence in Today's Health Care Environment: Health Corporation of America's Cardiovascular Service Line" and review his experience working with hospital health systems.

Alan M. Speir, MD, of Cardiac, Vascular and Thoracic Surgery Associates in Falls Church, Va., will review legislative issues in "Update From the STS/AATS Workforce on Health Policy, Reform, and Advocacy." Dr. Speir is Chair of the Workforce.

The final speaker will be Steven F. Bolling, MD, also of the University of Michigan Health System, who will present "How to Take Your Idea From a Napkin to a Company." ■

Apply Today to Become an STS Member

As an attendee of the STS 53rd Annual Meeting, you are participating in the most exciting specialty in medicine. But if you are not yet an STS member, you may not be experiencing the profession to its fullest.

STS membership comes with a wide range of benefits, including subscriptions to *The Annals of Thoracic Surgery*, *STS News*, and personalized e-mail communications. Additionally, you'll receive reduced registration rates at future Annual Meetings and many other educational events throughout the year, as well as the potential for discounted participation fees in the STS National Database.

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 (#533) in the Exhibit Hall to talk with staff and pick up an application. 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. ■

Special Session to Examine Heater-Cooler-Induced Infections

Nontuberculous mycobacterium (NTM) forming in heater-cooler devices commonly used in operating rooms have been linked to deadly infections

that are difficult to detect and may not manifest themselves for years following surgery.

"This is considered by both the CDC and FDA as an emerging public health concern that has generated multiple medical alerts," said Keith B. Allen, MD, of St. Luke's Mid American Heart Institute and the University of Missouri-Kansas City.

Dr. Allen will present an abstract on these infections associated with the use of heater-cooler devices in patients who have undergone cardiothoracic surgeries. A panel discussion featuring cardiothoracic surgeons and infectious disease experts also is part of the Sunday session.

Mycobacterium chimaera infections have been reported in at least six countries in North America and Europe. Of great concern is that the infections have a long latency period of up to 60 months, Dr. Allen said. Specific culturing techniques are required to detect NTM.



Keith B. Allen, MD

HEATER-COOLER-INDUCED INFECTIONS

Sunday

7:00 a.m. – 8:00 a.m.

Room 310ABC

"NTM is a ubiquitous organism that can contaminate these heater-cooler devices," he said. "Even though the devices do not come into direct contact with the patient's

blood or body fluids, they have the potential to aerosolize these bacteria into the surgical field, which then contaminate devices that are implanted into the patient or the surgical wound itself.

"What makes these infections so problematic is that they are difficult to grow.

If you have somebody who presents with fevers and you are doing normal cultures, you would never culture NTM. It can take up to 8 weeks to grow, so you have to be aware of the problem and have it be part of your differential to make the appropriate diagnosis."

Dr. Allen, lead author of the abstract, worked with other experts at the request of the FDA, which organized a Circulatory Device Panel meeting last summer to address the problem.

"This is a problem that is not going to go away," Dr. Allen said. "Patients can be exposed to this in an open heart operation, and they might not manifest symptoms for 3 years or more.

"We are looking at the tip of the iceberg. There probably have been a lot of patients who had issues that were never diagnosed because we were not aware of it as a problem. That's why this session is so important." ■



Contamination can be seen in the dark area of a heater-cooler device tube. Photo provided by Keith Allen, MD.

Learn What You Can Do

In November, STS and several other societies issued a joint statement to the worldwide cardiothoracic community offering resources and other information from government entities and health care providers. To learn more about the heater-cooler situation, go to sts.org/heater-cooler.

Session to Show Cutting-Edge Congenital Procedures

Earning cutting-edge approaches to treat congenital cardiac conditions can be a challenge. Increasingly, surgeons are using a variety of educational modes, including videos, interactive discussions of clinical scenarios, and lectures, to smooth out the learning curve.

"We have feedback from prior STS symposia on the educational approaches surgeons like the most and are using that to present innovative techniques that have had a bit of road testing," said Jonathan M. Chen, MD, co-moderator of a Sunday afternoon session that will feature those approaches in 12 presentations.



Sitaram M. Emani, MD will present a video demonstrating how to implant a Melody valve in infants.

The program contains three basic formats: complex case discussion, invited lecture, and short technique video. A variety of topics will be covered, including pulmonary vein stenosis, dilated cardiomyopathy, damaged heart valves, complex airway disease, and trisomy 13/18.

Fellows and junior faculty from different

centers will present the complex cases with at least three therapeutic options. The surgeon who performed the operation will then defend the chosen therapy and present the result.

"Experts will give their opinions about why they would choose one option or another," said Dr. Chen, of the University of Washington in Seattle. "It should have lively interaction because the cases chosen are intentionally controversial."

Following each discussion will be a lecture. First up will be "Should We Offer Operations to Patients With Trisomy 13 or 18?" by Aarti Bhat, MBBS, of Seattle Children's Hospital.

"These infants have a high mortality simply from their native disease, so there is a clinical conundrum as to whether one should even operate on these children," Dr. Chen said. "It is a big ethical problem we all face, but most of our clinical protocols are based on historical anecdotal impressions, which may or may not be true in the current era. Dr. Bhat will address both the ethical aspects and the hard data on survival."

Iki Adachi, MD will present "Pulmonary Artery Banding for Dilated Cardiomyopathy: North American Experience." Dr. Adachi, of Baylor College of Medicine in Houston, is a leader in the use of a pulmonary artery band to manage the condition.

"This simple operation has turned out to work quite successfully in selected cases. Interestingly, Dr. Adachi's first presentation of these data was at the congenital symposium 2 years ago as a complex case discussion.

Fast forward 2 years, and it is an innovative procedure with preliminary data worldwide from which we can all learn," Dr. Chen said.

Shigeyuki Ozaki, MD will discuss "Aortic Reconstruction With Autologous Pericardial 'Neo-Cusps,'" a procedure he has demonstrated at major children's hospitals. Dr. Ozaki is from Toho University Ohashi Hospital in Tokyo.

"With the Ozaki technique, a surgeon can replace the aortic valve with a valve created out of the patient's pericardium," Dr. Chen said. "It works quite well, and Dr. Ozaki has incredible data out to 8 years with remarkable rates of success."

By measuring the size of a patient's natural valve opening with templates created by Dr. Ozaki, surgeons can determine the size of the replacement valve.

Christopher A. Caldarone, MD, of the University of Toronto, will explain the science behind "What's New in the Management of Pulmonary Vein Stenosis." He helped lead the development of a commonly used stenosis procedure.

"More recently, the focus has been on the basic science behind the disease process, so his talk will be a mix of science and clinical applications," Dr. Chen said.

The first of four video presentations will be "Novel Use of Expandable Valves." Sitaram M. Emani, MD, of Boston Children's Hospital, will demonstrate Melody valve implantation in infants.

"It is a very technical video that focuses on

"We will explain innovative techniques that have had a bit of road testing."

JONATHAN M. CHEN, MD

the implant, specifically where to put the suture that anchors the device in the left ventricle. I look forward to this because it's a chance to ask the technique questions I always want to ask," Dr. Chen said.

Scott M. Bradley, MD, of the Medical University of South Carolina in Charleston, will present "Repair of Atrioventricular Valves in Single Ventricle Patients."

"These are children with one dominant valve that is often very distorted and abnormal, and it is a real challenge to repair them. The degree of success with such a repair can be the difference between successful single ventricle palliation and transplantation," Dr. Chen said.

Christopher E. Mascio, MD, of the Children's Hospital of Philadelphia, will show "Advanced HeartWare Techniques." "He will have tips and tricks on how you implant a ventricular assist device that was not made to be put into a child," Dr. Chen said.

Michael E. Mitchell, MD, of the Children's Hospital of Wisconsin in Milwaukee, will present "Aortopexy in Complex Airway Disease." "For people who are not used to seeing these techniques, it is going to be really interesting and helpful," Dr. Chen said.

Dr. Chen's co-moderators are Dr. Mascio and Glen S. Van Arsdel, MD, of the University of Toronto. ■

ANNUAL MEETING

continued from page 1

techniques for distal thoracic aortic dissection on Tuesday. Another Tuesday session, with the European Society of Thoracic Surgeons, will feature controversial issues in general thoracic surgery, including adjuvant treatment for thymic malignancies, donors for lung transplantation, the role of lung volume reduction surgery for emphysema, and the surgical management of spontaneous esophageal perforations.

In addition to collaborative sessions with international participants highlighted here, special presentations with the American College of Cardiology, the Society for Vascular Surgery, the Society of Cardiovascular Anesthesiology, and the American Association for Thoracic Surgery also are part of the program. And in light of recent findings tracing *Mycobacterium chimaera* infections to heater-cooler devices used in cardiac surgery, a special symposium has been added at 7:00 a.m. on Sunday to help attendees better understand the cause of these infections and develop measures to lower the risk of occurrence. (See related article on page 5.)

The Society reopened late-breaking abstract submissions for the 2017 meeting after a hiatus last year, and the response was incredible. We have so many outstanding

late-breaking abstracts to feature that two sessions have been added to the program—one on Monday morning and another on Tuesday afternoon. Don't miss the opportunity to hear about the latest, most innovative research in the field.

I am very pleased to welcome two outstanding guest speakers at the General Session on Tuesday morning. The Thomas B. Ferguson Lecture will be given by Ralph W. Muller, MA, the Chief Executive Officer of the University of Pennsylvania Health System. The C. Walton Lillehei lecturer will be Samer Nashef, MBChB, PhD, who co-developed the EuroSCORE risk-assessment system. Dr. Nashef, author of *The Naked Surgeon: The Power and Peril of Transparency in Medicine*, will provide his overview of quality initiatives and their unintended consequences.

You can read about these presentations and more in your *Program Guide* and *Abstract Book*—two publications that you will find invaluable for planning your schedule in Houston and also for reference when you're back home.

On behalf of the Society's leadership and the 53rd Annual Meeting Program Planning Committee, thank you for joining us here in Houston. Welcome to the meeting! ■

Joseph E. Bavaria, MD
STS President

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After the Annual Meeting, visit STS Facebook and Twitter pages for news, events, and CME credit opportunities.

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Edwards

Adult, Pediatric Surgeons Can Collaborate for Improved Outcomes

Advances in surgical options for aortic valve disease and failing Fontans are helping to change long-term treatment strategies for patients with congenital heart disease. Surgeons have the potential to improve outcomes for adult and pediatric heart patients by sharing lessons learned in their respective areas of expertise.

Management strategies and tips will be provided in a 4-hour symposium on Sunday. The first part of the session will focus on managing aortic valve and aortic root disease, while the second part will look at issues related

to transplantation and artificial hearts.

“The spirit of this session is to share ideas, collaborate, and focus on areas in cardiac surgery where pediatric cardiac surgeons and adult cardiac surgeons overlap,” said Jennifer S. Nelson, MD, symposium co-moderator and a congenital heart surgeon from Norfolk, Va.



Jennifer S. Nelson, MD

“We think that collaboration and sharing of ideas make us all better. This session asks you to step outside your comfort zone to see how it is done on the other side.”

Two presentations in the first part of the symposium will try to put in perspective two options for replacing aortic valves—transcatheter aortic valve replacement (TAVR) and a Ross procedure.

Vinod H. Thourani, MD, of Emory University in Atlanta, will discuss staging for TAVR. As aortic valve replacement has become more common in older patients, surgeons

have begun to think about how that affects the treatment of young adults.

“The younger aortic valve population may require TAVR in the future, so this talk is designed to shed some light on staging, which is setting up that valve for the next valve procedure if it is going to be percutaneous,” Dr. Nelson said.

Another option is a Ross procedure. Richard G. Ohye, MD, of the University of Michigan C.S. Mott Children’s Hospital in Ann Arbor, will present data from his institution and discuss his indications for performing the procedure.

“When do the benefits of a Ross procedure in an older child become outweighed by the risks?” Dr. Nelson asked. “At what age is a

mechanical valve or other prosthetic valve a better choice? We now have more long-term outcomes data on the durability of the Ross procedure.”

The session also will address when to determine if a valve-sparing procedure is not an option and long-term outcomes for repair of bicuspid aortic valves.

During the second half of the session, two presentations will focus on the long-term impact of living with single-ventricle physiology.

Steven J. Kindel, MD, from Children’s Hospital of Wisconsin in Milwaukee, will examine the timing of transplantation for a patient with a failing Fontan, as well as the role of temporary mechanical support as a bridge to transplantation. Kristine J. Guleserian, MD, of Miami Children’s Hospital, will discuss the challenges of transplantation in adult congenital patients who have been operated on several times.

“In the multiple redo situation, these can be very difficult cases. There often is a lot of reconstruction to be done,” Dr. Nelson said. “Dr. Guleserian will present video and photos to describe techniques and strategies not only for how you implant and reconstruct during the transplant, but also how you should harvest organs to make these reconstructions successful.”

Two personal case studies dealing with failing Fontans will be covered in another presentation by Carl L. Backer, MD, of Northwestern University School of Medicine in Chicago.

Two other surgeons will present tips for success on the cutting edge of mechanical support. Francisco A. Arabia, MD, MBA, of Cedars-Sinai Medical Center in Los Angeles, and J. William Gaynor, MD, of Children’s Hospital of Philadelphia, will discuss total artificial heart implantation and the use of artificial heart devices in patients with small body surface areas.

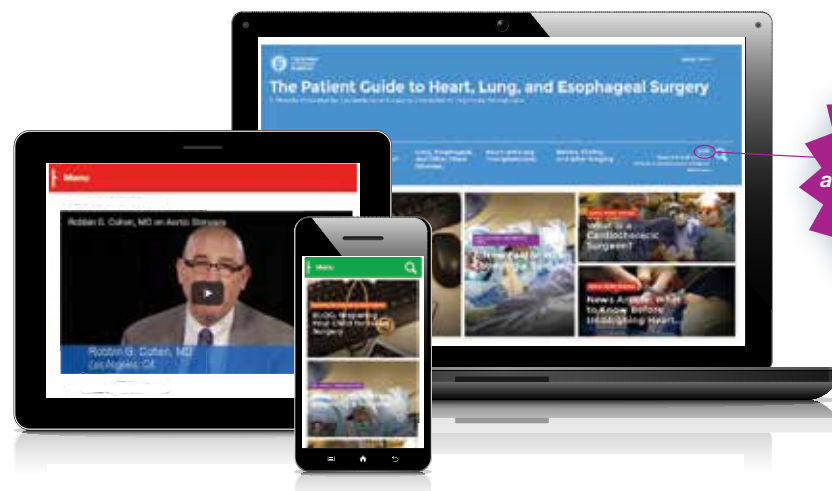
Dr. Nelson’s co-moderators are Joshua L. Hermesen, MD, of the University of Washington in Seattle, Robert B. Jaquiss, MD, of Duke University Medical Center in Durham, N.C., and Frank G. Scholl, MD, of Joe DiMaggio Children’s Hospital in Hollywood, Fla. ■

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All information has been reviewed by STS members and is divided into the following sections:

- Adult Heart Disease
- Pediatric and Congenital Heart Disease
- Lung, Esophageal, and Other Chest Diseases
- Heart and Lung Transplantation
- Before, During, and After Surgery

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- Do not inject **COSEAL** into vessels.
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1. Wallace DG, Cruise GM, Rhee WM, et al. A tissue sealant based on reactive multifunctional polyethylene glycol. *J Biomed.* 2001;58:545-555. 2. Hill A, Estridge TD, Maroney M, et al. Treatment of suture line bleeding with a novel synthetic surgical sealant in a canine iliac PTFE graft model. *J Biomed.* 2001;58:308-312. 3. COSEAL Surgical Sealant Instructions for Use.

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Session Delves Into Strategies for Cardiac Surgical Emergencies

Ensuring optimal patient safety and outcomes during cardiac surgical emergencies requires a multidisciplinary team-based approach. A special Sunday session will examine strategies for team members as they respond to these emergencies, in particular acute aortic dissection, initiation of extracorporeal membrane oxygenation (ECMO), and decompensation related to transcatheter aortic valve replacement (TAVR).

“There has been a renewed interest in the contributions we all make to ensure we recognize these situations. We no longer are seeing the ‘captain of the ship’ mentality as being effective,” said co-moderator Jill Ley, RN, MS, of California Pacific Medical Center in San Francisco. “We all are thinking about teamwork, communication, and how to break down barriers, so that we’re all practicing as efficiently as we possibly can. This means assuring that the right members of

the team are talking about how they can communicate effectively and bring everyone to the table as quickly as possible to manage these emergencies.”

Presenters will share the hallmark features that signal the need for



Jill Ley, RN, MS



Walter Merrill, MD

**MULTIDISCIPLINARY
RESPONSE TO
EMERGENCIES:
STRATEGIES FOR
TEAM MEMBERS**

Sunday

2:30 p.m. – 4:30 p.m.

Room 360A

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emergent intervention, provide evidence-based approaches, and discuss strategies for communication and collaboration during management of acute surgical emergencies.

“The common theme we’ll discuss is how we position ourselves to train for the recognition and management of these acute emergencies,” Ley said.

When patients in the ICU present with acute aortic dissections, a host of medical professions are called upon to act quickly, said Walter H. Merrill, MD, of Vanderbilt University School of Medicine in Nashville. Dr. Merrill is Chair of the STS Workforce on Associate Membership, which planned the session.

“This is not an elective procedure. It’s urgent and somewhat dangerous,” Dr. Merrill said. “A patient might be stable when he or she presents in the emergency room but quickly could become unstable and die because of cardiac tamponade. It’s important to focus on the teamwork involved. Proper evaluation, diagnosis, and getting the patient through the operation and recovery is key.”

“We all are thinking about teamwork, communication, and how to break down barriers, so that we’re all practicing as efficiently as we possibly can.”

JILL LEY, RN, MS

The same set of processes is vital for patients who experience cardiopulmonary compromise and warrant ECMO. Dr. Merrill noted that in the last 10 years, the use of ECMO has gone from being available at a few specialized centers to being performed at most hospitals.

“Putting a patient on ECMO doesn’t happen without a lot of planning. We want to look at best practices and raise everyone’s consciousness so they understand how to care for these patients,” Dr. Merrill said.

Although TAVR procedures are becoming more common, patients may develop heart failure due to acute aortic regurgitation and require intubation.

“Sometimes, a TAVR procedure must be converted to a surgical aortic valve replacement,” Dr. Merrill said. “One has to be prepared for everything. It’s not always simple and straightforward.” ■

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**Chest*. 2013;143(suppl 5):7S-37S

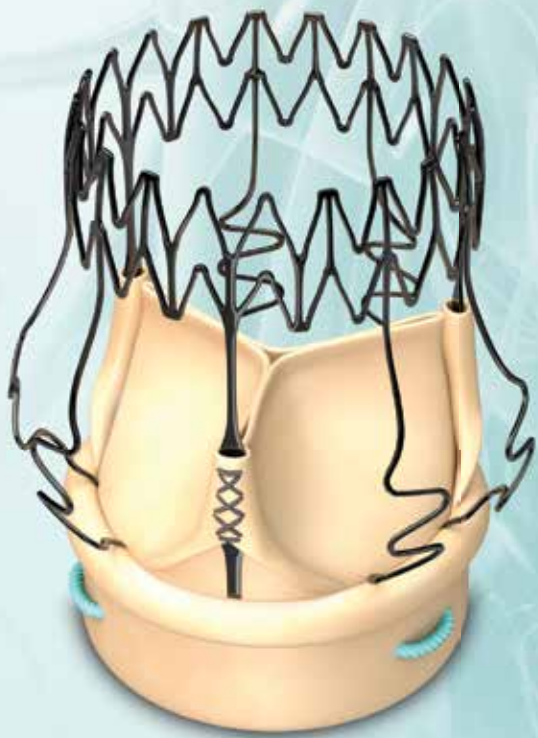
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Perfusion CEU credit for ticketed sessions unless they have registered for those sessions. *Please note that CME credit is not available for the Residents Symposium, Residents Luncheon, or STS/AATS Tech-Con 2017.*

Attendees can complete the overall meeting evaluations and all individual session evaluations onsite at CME Stations located near Registration, near Room 330, and in Hall B3. Certificate printing is available.

Attendees also can complete

evaluations and claim credit by visiting sts.org/2017evaluation or using the STS Annual Meeting Mobile App. In order to make this process more convenient for attendees, the meeting evaluations will be available online through Friday, February 10, 2017.

Attendees can log in to the website with the following information: **Username:** 6-digit member ID number located at the upper right-hand side of the meeting badge. **Password:** First initial and last name. ■

Free Wi-Fi Available

Complimentary wireless internet, supported by CryoLife, is available throughout the convention center for all attendees. To connect, select "STS_2017" from the available networks. Launch a web browser and follow the instructions to connect, entering password "OnXstepahead" when prompted; the password is case sensitive. ■

Learning Opportunities Available in the Exhibit Hall

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

SUNDAY

4:30 p.m. – 5:40 p.m.

STS Jeopardy Championship

MONDAY

12:45 p.m. – 1:15 p.m.

Medtronic: "Overcoming Challenges in VATS Lobectomy"

3:45 p.m. – 4:15 p.m.

Abbott: "Transcatheter Mitral Valve Repair"

TUESDAY

10:15 a.m. – 10:45 a.m.

Houston Methodist: "Hybrid CV Surgery Room of the Future"

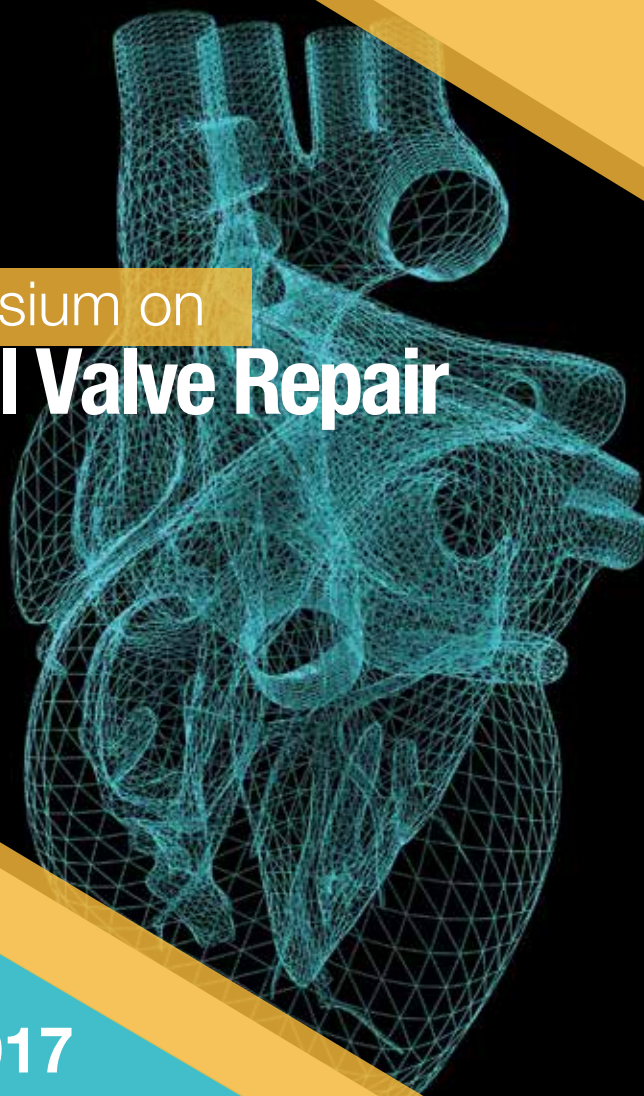
12:15 p.m. – 12:45 p.m.

Ethicon: "Practical Skills in Thoracic Surgery"



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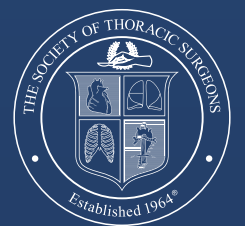


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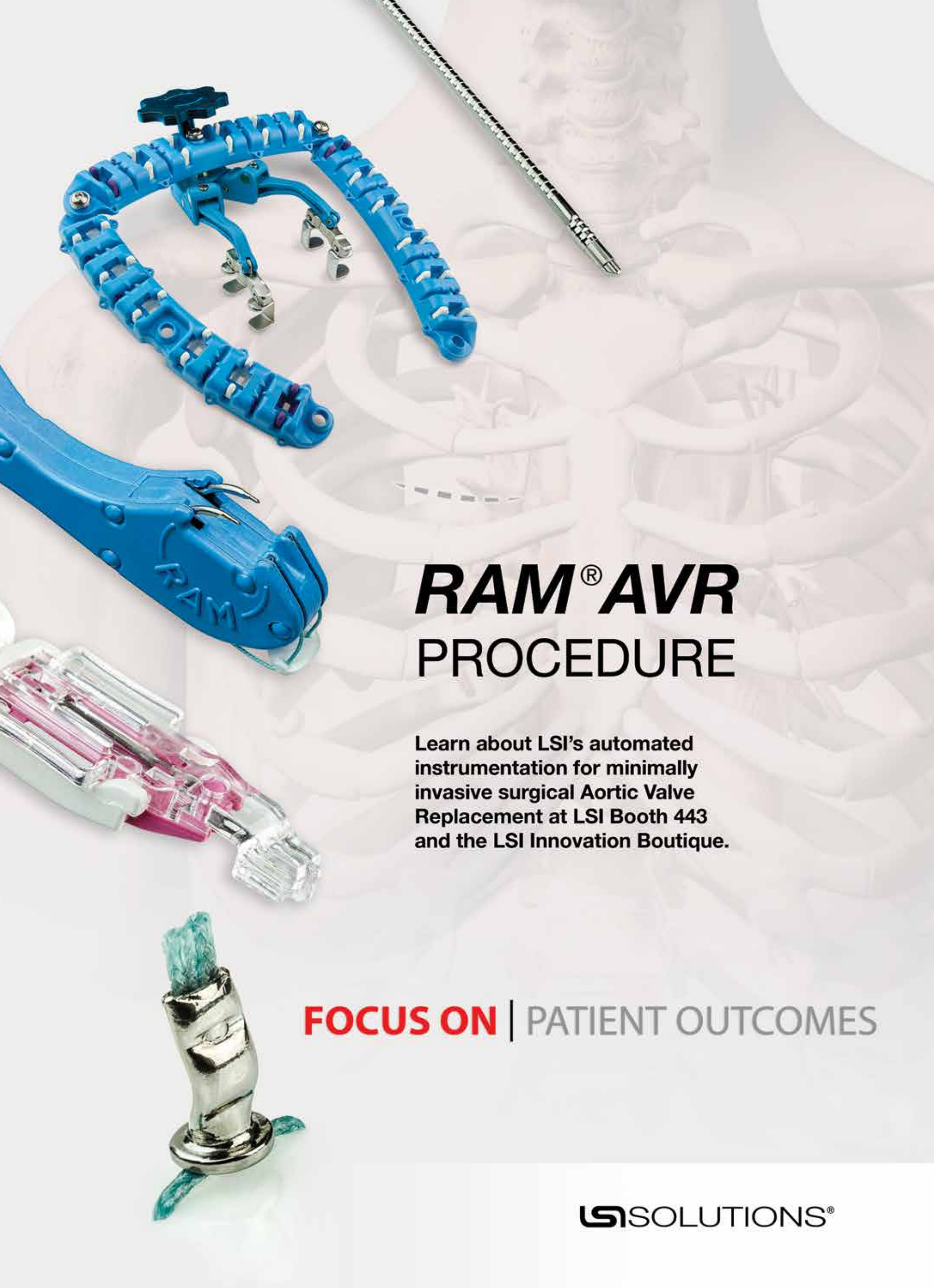
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always have the latest information at your fingertips. Access the app by searching for "STS 2017" in the Apple App or Google Play Stores or by scanning the QR code below with your smartphone. *The STS Annual Meeting Mobile App is supported by Medtronic through a branding opportunity.* ■



Hear About Hot Topics from Experts at Industry-Sponsored Satellite Activities

Satellite activities are programs offered by industry and held in conjunction with the STS 53rd Annual Meeting. They are not developed or sponsored by STS.

SATURDAY

AtriCure & MediaSphere Medical, LLC

7:00 p.m. – 9:00 p.m.

Surgical LAA Closure: Why, When, and How
Americas Ballroom D, Hilton Americas-Houston,
1600 Lamar St.

SUNDAY

JOMDD

7:00 p.m. – 10:00 p.m.

Latest Updates on the Ozaki Aortic Valve
Neo-Cuspidization Procedure
Americas Ballroom BC, Hilton Americas-Houston,
1600 Lamar St.

Medtronic

7:00 p.m. – 10:00 p.m.

Treating Your Patients With Heart Valve Disease
Room 343AB, Hilton Americas-Houston, 1600 Lamar St.

TUESDAY

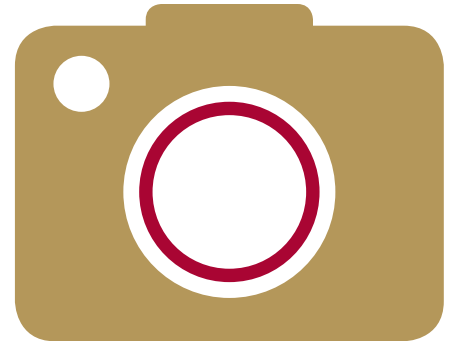
Baxter Healthcare

6:00 p.m. – 9:00 p.m.

The Role of Advanced Hemostats and Sealants
in Blood Management During Cardiovascular
Surgery: A Clinical Perspective
Houston Methodist Institute for Technology, Innovation &
Education, 6670 Bertner Ave., 5th Floor

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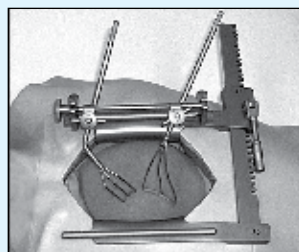
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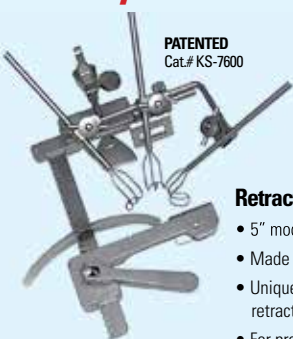
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Sunday	4:30 p.m. – 6:30 p.m.
Monday	9:00 a.m. – 4:30 p.m.
Tuesday	9:00 a.m. – 3:30 p.m.

CAREER FAIR EXHIBITORS

Abington Hospital – Jefferson Health	Table 1
Carolinas HealthCare System Medical Group	Table 3
The Christ Hospital Health Network	Table 7
Covenant Healthcare	Table 4
Memorial Healthcare System	Table 5
Our Lady of Lourdes Regional Medical Center	Table 9
Presbyterian Healthcare Services	Table 6
Southcoast Health	Table 8
Summa Health System	Table 2

As of January 6, 2017

MCS Advances Lead to ICU Management Challenges

The increased use of mechanical circulatory support (MCS) has extended the lives of thousands of cardiac patients, but it has created challenges in the form of lengthy and expensive stays in cardiac intensive care units. "These patients require a major utilization of resources—both hardware and human-ware. We thought it was time to specifically talk about how to care for them from an intensive care point of view," said Glenn J.R. Whitman, MD, Chair of the STS Workforce on Critical Care and co-moderator of a symposium that

use of extracorporeal membrane oxygenation (ECMO) is the focus of the first section. "Our aim is to refine our management of these patients in the intensive care unit because there are more patients with VADs being brought in," said co-moderator Vassyl A. Lonchyna, MD, adding that the speakers will share their device knowledge. "There are nuances to the approach to these patients that highly experienced surgeons, cardiologists, and intensivists can pass on to the audience." Among the topics discussed will be whether drugs or fluids should be used to control



Vassyl A. Lonchyna, MD



Kevin W. Lobdell, MD

"This is not about how to put in a ventricular assist device. Rather, it will address how to think about MCS patients."

GLENN J.R. WHITMAN, MD

will address overcoming the challenges. "This is not about how to put in a ventricular assist device (VAD). Rather, it will address how to think about MCS patients, so as to prevent or treat postoperative problems." The session is divided into three parts: managing patients on MCS, dealing with right ventricular dysfunction, and using a team approach. Each part will end with a discussion and examples of difficult cases. The latest advances in left ventricular assist devices, interpreting the hemodynamics of patients on these devices, and tailoring the

hemodynamics and which auxiliary actions should be taken when patients are on ECMO, said Dr. Lonchyna, from The University of Chicago, who is studying medical school curricula in Ukraine as part of the Fulbright Scholar program. Managing the right ventricle will be covered in three presentations that will focus on the interaction of the lungs with the right ventricle, noninvasive assessment using ultrasound and echocardiograms, and recognizing and treating right ventricle failure, said co-moderator Rakesh C. Arora, MD, PhD.

STS/AATS CRITICAL CARE SYMPOSIUM
Sunday
8:00 a.m. – 12:00 p.m.
Room 351DEF

"These patients are challenging, so trying to understand the physiology and the heart-lung interactions is key," said Dr. Arora, of the University of Manitoba in Winnipeg, Canada. "It is critical to identify important signs before you get into trouble with the failing right ventricle, and it involves the whole interdisciplinary team." That team-based approach will be highlighted in presentations about the roles of the intensivist and the surgeon, as well as using the "liberation bundle" to separate a patient from a ventilator through mobilization, and avoiding and treating delirium—all with the help of the patient's family, said co-moderator Kevin W. Lobdell, MD. "It is an inclusive, interactive process with the entire team—nurses, nurse practitioners, physician assistants, intensivists, and surgeons," said Dr. Lobdell, of Sanger Heart & Vascular Institute in Charlotte, N.C. "It is so complex that no one person has all the pieces to the puzzle." Aaron M. Cheng, MD, of the University of Washington Medical Center in Seattle, also is a co-moderator. ■

HOW-TO TIPS

continued from page 1

demonstrate no-touch aorta CABG, among other procedures. "We'll focus on how to handle some of the more challenging situations, such as when you have a completely occluded artery and you have to remove the plaque in order to do the bypass," Dr. Ailawadi said. With widespread adoption of mitral surgery by cardiothoracic surgeons, the mitral valve section will offer several talks, including transseptal exposure of the mitral valve during surgery and transcatheter puncture for the MitraClip procedure. Transcatheter aortic valve replacement is becoming more common, and the aortic valve surgery section will delve into how to handle some of the complications seen with the procedure, such as paravalvular leak with valve malposition and annular rupture. Another talk will highlight running sutures during aortic valve replacement. Planners also sought to touch on aortic surgery with four presentations, including one on homograft insertion for root abscess. "On an increasing basis, we are seeing more patients with aortic endocarditis, mitral valve endocarditis, and aortic root abscesses,"

said Workforce on Annual Meeting Chair and co-moderator of the session Wilson Y. Szeto, MD, of the University of Pennsylvania in Philadelphia. Dr. Szeto will describe the valve-sparing David procedure, which he said is being performed more commonly. Two other presenters will offer advice on endografting for chronic dissections with aneurysm and endografting in the setting of the hybrid procedure, which Dr. Szeto said has continued to improve due to innovation and creativity. GENERAL THORACIC SURGERY The technical tips and tricks session incorporated into the General Thoracic Surgical Symposium is tailored to help participants conduct more difficult operations and the challenging portions of operations in a safe and effective manner. "We selected areas that we think are challenging for surgeons, especially those who may not work every day in a subspecialty of our field. They also may be called on to do any of these procedures in a minimally invasive fashion, which is often more difficult, because patients have come to expect that," said Joseph B. Shrager, MD, Co-Chair of the Surgical Symposia Task Force.

Divided into four sections, the first will cover esophageal techniques. The anastomosis seems to be the Achilles heel of minimally invasive esophagectomy. Dr. Shrager pointed to two predominant minimally invasive techniques for esophagogastric anastomosis. One expert surgeon will therefore discuss the stapled, functional end-to-end, minimally invasive anastomosis, and another will describe his use of the OrVil EEA end-to-end anastomoser. Then the focus will move to the emerging use of ischemic preconditioning and SPY technology to create better blood flow in the gastric conduit. "Leaking from an esophageal anastomosis is a big problem that everyone is interested in trying to reduce," said Dr. Shrager, from Stanford University School of Medicine in California. Three talks in the second section cover difficult pulmonary cases, with how-to advice on post-induction dissections via thoracotomy or minimally invasive surgery. "This is useful for cases where there's been preoperative treatment and a lot of scarring due to preoperative chemotherapy or radiation," said Dr. Shrager. Speakers in the third section will share their expertise on intraoperative decision making for difficult germ cell tumors and tricks for



Wilson Y. Szeto, MD



Gorav Ailawadi, MD



Joseph B. Shrager, MD

"HOW TO" VIDEO SESSIONS
Sunday
TECHNICAL TRICKS AND PITFALLS TO SIMPLIFY CARDIAC SURGERY PROCEDURES
10:00 a.m. – 4:30 p.m.
Room 320ABC
TIPS AND TRICKS IN GENERAL THORACIC SURGERY
1:00 p.m. – 4:30 p.m.
Room 351DEF

minimally invasively removing large thymomas. "Decision making for mediastinal germ cell tumors is very complex," Dr. Shrager said. "It's always hard to know how aggressive we need to be to get out every little bit of these tumors, which often prove to have only benign elements after chemotherapy, but may involve major structures. Taking out every last fragment can substantially increase the scope of the surgery—but when is that okay?" "We'll also have probably the world's highest-volume robotic thymoma surgeon talking about how to remove larger thymomas safely without the risk of intraoperative spilling, which would be a disaster." Dr. Shrager will then describe his technique and results using a simplified method he has adopted to allow easy performance of diaphragm plication via video-assisted thoracic surgery. The fourth and final section will offer help on transitioning to minimally invasive approaches and understanding the learning curve. ■

2017 ANNUAL MEETING EXHIBITORS

The information listed here is accurate as of January 5, 2017. 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.

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A&E Medical's products include MYO/Wire® temporary pacing wires, MYO/Wire II sternum wires, MYO/Punch rotating surgical punch, MYO/Lead disposable patient cable, and DoubleWire high-strength sternal closure system.

Abbott 733

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Admedus, a global health care group, is working with renowned medical leaders to bring new medical technologies to market. CardioCel®, a cardiovascular scaffold, is the first of its ADAPT® tissue-engineered bioimplants and is being used by surgeons to repair simple and complex cardiac defects.

Aesculap 129

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American Association for Thoracic Surgery AF01 (Hall B3)

Beverly, MA
Founded in 1917, the American Association for Thoracic Surgery aims to promote scholarship, innovation, and leadership in thoracic and cardiovascular surgery. It has become an international professional organization of more than 1,350 of the world's foremost cardiothoracic surgeons. www.aats.org

American College of Chest Physicians AF06 (Hall B3)

Glenview, IL
The American College of Chest Physicians is the global leader in advancing best patient outcomes through innovative chest medicine education, clinical research, and team-based care. CHEST is the essential connection for its 19,000 members from around the world who provide patient care in pulmonary, critical care, and sleep medicine.

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AtriCure Inc 417

Mason, OH
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Bard Davol 235

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Baxter 1205

Deerfield, IL
Baxter's BioSurgery business unit offers a comprehensive line of biologic and synthetic products that advance surgical care. BioSurgery specializes in intraoperative wound and tissue management and aims to improve surgical practice. The portfolio comprises products for hemostasis, sealing, staple line reinforcement, soft tissue repair, and bone graft substitution.

Baylis Medical 344

Mississauga, Canada
Baylis Medical develops and markets high-technology medical devices used in the fields of interventional cardiology and interventional radiology. The company's vision is to develop and market innovative medical therapies while improving the lives of people around the world. Baylis has offices in Montreal, Toronto, Boston, and London.

Baylor Jack and Jane Hamilton Heart and Valve Hospital 1041

Dallas, TX
Baylor Heart and Vascular Services at Dallas combines the strength of Baylor University Medical Center at Dallas and Baylor Jack and Jane Hamilton Heart and Vascular Hospital, a joint ownership with physicians, and is nationally recognized for quality cardiac care, leading research, and clinical trials for new treatments and devices.

BD 147

San Diego, CA
BD is a global corporation helping clinicians and hospitals measurably improve patient care. The PleurX® Catheter System allows patients to manage symptoms associated with recurrent pleural effusions and malignant ascites at home, reducing length of stay and cost of care while improving quality of life. Visit BD at Booth 147 to learn more.

Berlin Heart Inc 243

The Woodlands, TX
Berlin Heart is the only company worldwide that develops, manufactures, and distributes ventricular assist devices 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 United States under Humanitarian Device Exemption regulations by the Food and Drug Administration.

BFW Inc 240

Louisville, KY
BFW is known as a worldwide technological leader in surgical illumination and headlight video imaging. Visit Booth 240 to experience the foremost innovations in portable LED headlights offering intense, clean, bright white light and the new Hatteras™ LED light source—unmatched intense fiber optic illumination for headlights and instrumentation.

BioStable Science & Engineering 819

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.

Biostage 1040

Hingham, MA
Biostage is developing bioengineered implants based on the company's Cellframe™ technology, which combines a proprietary biocompatible scaffold with a patient's own stem cells to create Cellspan™ implants. These first-of-their-kind implants are being developed to treat life-threatening conditions of the esophagus, bronchus, or trachea. For more information, visit www.biostage.com.

BLOXR Solutions 829

North Branch, NJ
Manufacturer of radiation protection cream and apparel. ULTRABLOX® X-Ray Attenuating Cream helps protect a clinician's hands during radiological procedures without affecting dexterity and tactile feel. XPF® radiation shields provide a lightweight, effective, machine-washable alternative to lead and like-lead aprons and apparel.

Bolton Medical 1211

Sunrise, FL
Bolton Medical is a subsidiary of the WerfenLife Company, a global company that manufactures and distributes medical diagnostic solutions and medical devices worldwide. Bolton's vision is to become the leading provider of endovascular solutions for aortic disease. Bolton develops, manufactures, and distributes innovative, high-quality products solely focused on the aorta.

Bovie Medical Corporation 838

Clearwater, FL
Bovie® Medical will be featuring J-Plasma®—the helium-based gas plasma technology that is transforming the way surgeries are performed. J-Plasma® works with precision and versatility across open and laparoscopic procedures. Bovie also will exhibit its complete line of electrosurgical products.

Cardiac Surgical Unit Advanced Life Support 726

Simpsonville, KY
Cardiac Surgical Unit Advanced Life Support (CSU-ALS) is the leading provider of CSU-ALS training in the US, Canada, and Mexico. It is the sole distributor of the CSU-ALS manikin. CSU-ALS can bring training to your hospital and team or your team members can attend national provider and trainer courses. Course completion results in CSU-ALS Certification are based on a 2-year renewal cycle.

CG Health Partners, LLC 741

Syracuse, NY
CG Health Partners provides strategy consulting and execution support exclusively to cardiothoracic and vascular surgery practices for successful hospital alignment. From academic employment to professional services agreements, its partners have the breadth and depth of experience to craft and negotiate the most favorable economic model for the surgeon.

Cook Medical 1026

Bloomington, IN
Founded in 1963, Cook Medical pioneered many of the medical devices now commonly used to perform minimally invasive medical procedures throughout the body. Today, the company integrates medical devices, drugs, and biologic grafts to enhance patient safety and improve clinical outcomes. Since its inception, Cook has operated as a family-held private corporation.

CorMatrix 335

Roswell, GA
CorMatrix® Cardiovascular markets its ECM® Bioscaffold devices for vascular repair, pericardial repair and reconstruction, cardiac tissue repair, and CanGaroo ECM Envelope for CIEDs. CorMatrix ECM Technology allows surgeons to restore the native anatomy of cardiac and vascular tissue in need of repair, serving as a superior alternative to synthetic or cross-linked materials.

CryoLife 705

Kennesaw, GA
CryoLife, Inc® is one of the world's leading contemporary medical device companies, providing preserved human cardiac and vascular tissues, surgical adhesives and sealants, prosthetic heart valves, cardiac lasers, and other medical devices. Since the company's inception in 1984, it is estimated that its products and tissues have helped more than 1 million patients worldwide.

CT Assist 935

Philippi, WV
CT Assist is a managed service provider of cost-effective cardiothoracic surgery advanced practitioners who deliver quality care. CT Assist provides workforce management solutions from long-term to locum tenens and vacation coverage. It is a physician assistant-owned nationwide employer of talented and experienced cardiothoracic PAs and nurse practitioners.

CTSNet 639

Chicago, IL
CTSNet (www.ctsnet.org) 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.

Delta Companies, The 1042

Dallas, TX
The Delta Companies offer permanent and temporary staffing solutions nationwide for physicians, physician extenders, therapy, and other allied health care professionals. Physician staffing services are represented by Delta Physician Placement and Delta Locum Tenens. All other allied health care staffing services are represented by Delta Healthcare Providers.

Designs for Vision 141

Ronkonkoma, 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®, providing the brightest and safest untethered illumination. Introducing the L.E.D. Daylite® Nano Cam HD—document the procedure with HD video from your perspective.

Dextera Surgical 132

Redwood City, CA

Domain Surgical 742

Salt Lake City, UT
Domain Surgical's FMX Ferromagnetic Surgical System is an advanced thermal energy surgical platform that uses ferromagnetic technology to cut, coagulate, and seal tissue. A variety of surgical tools have been designed to bring the unique clinical benefits of this technology to a broad array of surgical subspecialties.

EBM 506

Tokyo, Japan
EBM, a biomedical spin-out venture company from Japan, provides the original beating heart simulator and quantitative assessment system for off-pump coronary artery bypass grafting and vascular anastomosis worldwide. Skill assessment is based on rapid CFD technology and validated silicone vascular model.

NEW EXHIBITORS MEETING BULLETIN ADVERTISERS

 **Eclipse Loupes and Products** 927

Orchard Park, NY
Eclipse Loupes and Products offers the highest quality surgical loupes and lights at the lowest prices. All of its products come backed with an industry-leading lifetime warranty. Stop by and see for yourself why the company eclipses the competition.

 **Edwards Lifesciences** 503

Irvine, CA
Edwards Lifesciences is the global leader in the science of heart valves and hemodynamic monitoring. Driven by a passion to help patients, the company partners with clinicians to develop innovative technologies in the areas of structural heart disease and critical care monitoring, enabling them to save and enhance lives. Additional company information can be found at www.edwards.com.

Elsevier 920

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 Pharmaceuticals 928

Ewing, NJ
Supporting the preservation and growth of human systems. From the cell to the entire organ, the company looks to advance medical treatments and the research that creates new medical treatments. Originally developed for cardiac surgery, Custodiol®HTK offers superior convenience, water-like viscosity, and no need for additives or filters, which makes it a preferred solution for many transplant centers.

Ethicon US, LLC/DePuy Synthes 527

Cincinnati, OH
Ethicon US, LLC and DePuy Synthes bring to market a broad range of innovative surgical products, solutions, and technologies used to treat some of today's most prevalent medical issues, such as colorectal and thoracic conditions, spine and cardiovascular conditions, cancer, obesity, and other conditions requiring general surgery.

European Association for Cardio-Thoracic Surgery AF08 (Hall B3)

Windsor, United Kingdom
EACTS is the largest European association devoted to the practice of cardiothoracic 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. Visit Booth AF08 for more information.

European Society of Thoracic Surgeons AF07 (Hall B3)

Exeter, United Kingdom
ESTS is the largest international general thoracic surgery organization with more than 1,550 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. The 25th European Conference on General Thoracic Surgery will be held on 28-31 May 2017, in Innsbruck, Austria. www.ests.org

Fehling Surgical 340

Acworth, GA
Fehling Surgical Instruments, Inc is the leader in fine crafted surgical instrumentation that has focused on cardiovascular surgery for more than 30 years. The company features minimally invasive valve sets, including NEW retractor designs for unmatched atrial exposure of the left atrium. The CERAMO and Superplast instruments are designed specifically for cardiovascular procedures (needle holders, forceps, clamps, and MICS).


FUJIFILM Medical Systems USA, Inc 953

Wayne, NJ
Fujifilm Endoscopy is a market leader and progressive physician partner in improving patient outcomes through innovative endoscopic imaging technologies. The advanced endoscopic tools for


pulmonary and gastrointestinal physicians, such as the new SU-1 Ultrasonic Processor, touch millions of lives – a goal at the forefront of the company's mission.

General Cardiac Tech 112


San Jose, CA
The Heart Hugger Sternum Support Harness is a patient-operated support harness applied postoperatively to splint surgical wounds. Benefits include improved patient compliance, faster return to pre-morbid respiratory levels, fewer wound complications and better postoperative mobility. It is useful for open heart surgery, thoracotomy, fractured rib, and other chest trauma patients.

 **General Thoracic Surgical Club** 918

Zumbrota, 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** 847

Denver, CO
Design Beyond Standard. Genesee BioMedical, Inc provides unique devices for cardiac surgery, including annuloplasty for mitral and tricuspid repair, sternal/thoracic valve retractors, instruments for minimally invasive aortic, transcatheter aortic valve implantation, and robotic surgeries, coronary graft markers, suture guards, retraction clips, and myocardial needles. www.geneseebiomedical.com

 **Getinge Group** 515


Wayne, NJ
Getinge Group is a leading global provider of products and systems that contribute to quality enhancement and cost efficiency within health care and life sciences. The company operates under the three brands of ArjoHuntleigh, Getinge, and Maquet. It builds quality and safety into every system and enhances efficiency throughout the clinical pathway.

Gore & Associates 1201

Flagstaff, AZ
The Gore Medical Products Division has provided creative solutions to medical problems for three decades. More than 35 million Gore medical devices have been implanted worldwide. Products include vascular grafts, endovascular and interventional devices, surgical materials, and sutures for use in vascular, cardiac, and general surgery. For more information, visit www.goremedical.com.

GP Cosmetics 1027

Las Vegas, NV

 **Hackensack Meridian Health** 143

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.

HCA 827

Brentwood, TN
HCA owns and operates more than 160 health care facilities in 20 states with opportunities coast to coast. HCA was one of the nation's first hospital companies. It is committed to the care and improvement of human life. The company strives to deliver quality health care that meets the needs of the communities it serves.

Heart Hospital Baylor Plano, The 725

Plano, TX
The Heart Hospital Baylor Plano is a cardiovascular specialty hospital in North Texas that opened in 2007. In less than a decade, the hospital's 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 AF05 (Hall B3)

Beverly, MA
The Heart Valve Society (HVS) – “The Heart Team in Action.” HVS welcomes you to become a part of something unique. HVS offers all members of the heart valve community the opportunity to participate in its annual meetings, as well as volunteer, participate, and become active in its committees and working groups. Join the HVS! Learn more at www.heartvalvesociety.org.

HeartWare 941

Framingham, MA
HeartWare is dedicated to delivering safe, high-performing, and transformative therapies that enable patients with heart failure to get back to life. The HVAD® Pump is designed to be implanted in the pericardial space, avoiding the more invasive surgical procedures required with older LVAD technologies. The HVAD Pump is available commercially around the world.

  **Houston Methodist Hospital** 923

Houston, TX
Houston Methodist Hospital is one of the nation's largest hospitals, an academic medical center, and a center for visionary research. *U.S. News & World Report* recently named it one of only 20 hospitals on its prestigious Honor Roll. Building on a history of innovation, Houston Methodist continues to pioneer a better tomorrow through research, innovation, and breakthroughs today.

HRA Healthcare Research & Analytics 753

Parsippany, NJ
HRA Healthcare Research & Analytics is the market leader in conference-based health care research, with nearly 40 years of experience. HRA provides solutions supporting decision making/strategy development across health care channels. The company's portfolio encompasses quantitative/qualitative, custom, and syndicated services supporting pharmaceutical/biotech/medical device markets.

International Society for Minimally Invasive Cardiothoracic Surgery AF04 (Hall B3)

Beverly, MA
ISMICS: Innovation, Technologies, and Techniques in Cardiothoracic and Cardiovascular/Vascular Surgery. 2017 ISMICS Annual Scientific Meeting, 7-10 June 2017, Cavalieri Waldorf, Rome, Italy. www.ismics.org.

Intuitive Surgical 117

Sunnyvale, CA
Intuitive Surgical, Inc designs, manufactures, and distributes the da Vinci® Surgical System, technology designed to allow surgeons to perform many complex procedures minimally invasively.

IsoRay Medical 145

Richland, WA
Isoray Medical manufactures and distributes radiation therapy sources for direct implantation into cancer or surgical margins following resection of cancer. IsoRay markets cesium-131 based brachytherapy meshes and strands for resection line treatment following surgery for high-risk lung cancers, resulting in highly conformal adjuvant radiation therapy that spares critical thoracic structures.

JACE Medical 926


Winona Lake, IN
JACE Medical pioneered the world's first rigid sternal closure system applied pre-sternotomy: the Grand Pre®. JACE Medical is a company and culture committed to creating innovative, transformational technologies that facilitate optimal patient treatment, recovery, and future wellness. Visit Booth 926 and see how the company “thinks outside the paradox.” Get more information at JACEMED.com.

Japanese Organization for Medical Device Development, Inc 1023

Tokyo, Japan
JOMDD, Inc is engaged in the medical device incubation business, leveraging untapped Japan-origin technologies. The company is currently developing multiple medical device seeds with high potential and uniqueness. Its main product is the kit for the Ozaki AVNeo procedure that may shift the paradigm of treatment for aortic valve diseases. The single-use kit is now available in the US market.

Just Co, Ltd 346


Torrance, CA
Only a dedicated plating company can provide “the strongest diamond plating” technology. The company can designate the plated layer, which anchors the diamond base on purpose. Its technology is unique and popular to those in the medical field in need of microsurgery instruments and endoscope tips.

 **Kapp Surgical** 645


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

Karl Storz Endoscopy 747

El Segundo, CA
Karl Storz offers solutions for thoracic surgery, including slender, easily dismantled MediaFIT instruments that offer economic solutions for mediastinoscopy. The ENDOCAMELEON® Telescope allows surgeons to adjust viewing directions from 0° to 120° without changing telescopes. The IMAGE1 S™ Camera Architecture System provides brilliant, natural color rendition and innovative visualization capabilities

 **Kinamed Inc** 825

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 and maintains compression. The low-profile clasp minimizes palpability, and the polymer cable allows for quick re-entry.

 **KLS Martin** 833


Jacksonville, FL
KLS Martin, a responsive company, is focused on the development of innovative products for oral, plastic, and craniomaxillofacial surgery. New product developments in its titanium osteosynthesis plating systems allow these products to be used for rapid sternal fixation and reconstruction.

Koros USA, Inc 944

Moorpark, CA
Koros USA manufactures and distributes coronary artery bypass, aortic valve replacement, internal mammary artery, and mitral valve retractors, pediatric and adult sternum spreaders, rib spreaders, and titanium/stainless steel needle holders and forceps. High-demand state-of-the-art instruments include the Internal Mammary Artery Tower, SWIFT, and Pro-Retractors.

LifeNet Health 745

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

 **LivaNova** 317

Arvada, CO
LivaNova is a world leader in the treatment of cardiovascular disease. Its innovative product portfolio includes aortic and mitral valve replacement and repair, perfusion equipment, cannula, and minimally invasive cardiac surgery instruments. For more information, visit www.livanova.com.

LoupeCam 740

Scottsdale, AZ
LoupeCam® is the market leader in head-mounted HD surgical cameras and is the ONLY company offering cross platform (Mac, Windows, and soon Android) compatibility. The company offers five different magnification lenses to match all surgical points of view, along with a Bluetooth foot pedal, which allows for hands-free control of the camera.

2017 ANNUAL MEETING EXHIBITORS cont.

★ **LSI Solutions****443, 649****Victor, NY**

LSI Solutions® is celebrating its 10th year of clinical use and more than 3 million fasteners sold worldwide. COR-KNOT® is suture fastening technology you can trust. COR-KNOT® reduces cardiopulmonary bypass and cross clamp time, saving total operative time and improving patient outcomes. Visit www.lsisolutions.com.

📍 **Mallinckrodt Pharmaceuticals****244****Hampton, NJ**

Mallinckrodt is a global business that develops, manufactures, markets, and distributes specialty pharmaceutical and biopharmaceutical products and therapies, as well as nuclear imaging products. Mallinckrodt provides key products for hemostasis during surgery. Visit www.mallinckrodt.com.

Med Alliance Solutions**537****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.

Medela**625****McHenry, IL**

Medela provides medical vacuum technology solutions for advancement of patient care. Thopaz takes chest drainage therapy to a new level of care by regulating the applied pressure at the patient's chest while digitally monitoring critical therapy indicators. Thopaz Chest Drainage System is clinically proven to improve outcomes and streamline care.

Medistim**709****Plymouth, MN**

Medistim is the standard of care in the operating room. With the unique combination of transit time flow measurement and high-frequency ultrasound imaging guidance to help reduce and minimize the risk of negative postoperative outcomes, Medistim's quality assessment technology offers surgeons quantifiable validation and guidance during cardiovascular, vascular, transplantation, and neurosurgery.

★ **Medtronic****101****Minneapolis, MN**

As a global leader in medical technology, services, and solutions, Medtronic improves the lives and health of millions of people each year. The company uses its deep clinical, therapeutic, and economic expertise to address the complex challenges faced by health care systems today. Let's take health care Further, Together. Learn more at Medtronic.com.

Myriad Genetic Laboratories, Inc**343****Salt Lake City, UT**

Myriad Genetics is a leading molecular diagnostic company dedicated to making a difference in patients' lives through the discovery and commercialization of transformative tests to assess a person's risk of developing disease, guide treatment decisions, and assess risk of disease progression and recurrence.

Nadia International**724****Austin, TX**

Educational/surgical bronze sculptures for the thoracic surgeon. These museum-quality limited editions are created by the world famous sculptor Ronadró. More than 7,500 surgeons in 77 countries collect his fine works of art. Introducing MIRACLE OF LIFE II and IN GOD's Hand II at the 2017 meeting.

NeoChord, Inc**839****St. Louis Park, MN**

NeoChord is a medical technology company leading the advancement of minimally invasive, beating heart repair of degenerative mitral valve regurgitation. NeoChord received CE market clearance in December 2012 for the DS1000 system and has successfully treated more than 450 patients to date.

NeuWave Medical**1025****Madison, WI**

NeuWave Medical® is changing the future of lung ablation. The NeuWave Medical Intelligent Microwave Ablation System offers a minimally invasive, non-surgical procedure for lung lesions. The versatile probe portfolio includes 17 gauge probes specifically designed for precise and controlled ablations. The new Ablation Confirmation™ software offers the only integrated in-procedure confirmation.

Nova Innovations**728****Las Vegas, NV**★ **Olympus America Inc****930****Center Valley, PA**

Olympus is a precision technology leader in designing and delivering imaging solutions in health care, life science, and photography. Through its health care solutions, Olympus aims to improve procedural techniques and outcomes and enhance the quality of life for patients.

Ornim, Inc**242****Foxboro, MA**

Ornim specializes in research, development, and distribution of noninvasive patient monitors specializing in the field of tissue and cerebral blood flow. Its bedside product, c-FLOW™, is based on the patented UTLight™ technology designed

to provide physicians with unique monitoring solutions that are imperative to individualized and personalized patient care.

Oscor Inc**1035****Palm Harbor, FL**

Oscor is a leading provider of cardiac stimulation products and vascular access devices optimized for cardiothoracic surgery. Products include external pacemakers, temporary pacing leads, myocardial pacing wires, and a variety of pacing cables and accessories. Oscor is proud to present the newest in dual-chamber pacemaker and bipolar heartwire technology

📍 **OSF HealthCare****952****Peoria, IL**

OSF HealthCare, owned and operated by The Sisters of the Third Order of St. Francis, includes the OSF Healthcare System, which consists of 11 hospitals and medical centers and two colleges of nursing. OSF HealthCare operates facilities in Illinois and Michigan.

P & M Harmony**1043****Las Vegas, NV****Pinnacle Biologics****852****Chicago, IL**

Pinnacle Biologics identifies critical cancer therapies to provide life-changing outcomes for patients worldwide. Their portfolio of products supports photodynamic therapy, which can be used for the treatment of endobronchial non-small-cell lung cancer, esophageal cancer, and high-grade dysplasia in Barrett's esophagus.

📍 **Priority Heart****850****New York, NY**

The SternaSafe sternal brace is the next-generation alternative for postoperative

microcutter 5/80

The first and only 5mm stapler with 80° of articulation



Less Dissection. Easier Placement. Better Visibility.

Please visit Booth 132. www.dexterasurgical.com

Please refer to package inserts for indications, contraindications, warnings, precautions and instructions for use.

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dextera
SURGICAL INC.

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2017 ANNUAL MEETING EXHIBITORS cont.

NEW EXHIBITORS MEETING BULLETIN ADVERTISERS

Navigation System, which includes both endobronchial and transthoracic approaches.

Virginia Cardiac Services Quality Initiative (VCSQI) 943 Virginia Beach, VA

VCSQI is a nonprofit consortium of cardiac practices whose mission is to improve heart care quality, patient experience, and costs. VCSQI's clinical-financial database helps clinicians identify best practices and measure the impact of quality initiatives. Its Support and Alignment Network (SAN2.0) program focuses on preparing practices for the transition to advanced alternative payment models.

Vitalcor, Inc/Applied Fiberoptics 1203 Westmont, IL Vitalcor, Inc is a supplier of medical devices used

primarily in cardiothoracic surgery. Since 1975, Vitalcor has provided products that take input from teaching and practicing surgeons to make their practice easier. The company takes pride in offering quality products and providing exceptional customer service.

Vitalitec Geister 813 Plymouth, MA

Vitalitec Geister will be displaying all of its products, highlighting the Peters CV Suture, Enclose II Anastomosis Assist Device, Cygnet Flexible Clamps, Intrack Atraumatic Temporary Clamps and Inserts, and Geister ValveGate and ValveGate PRO line.

Wexler Surgical, Inc 329 Houston, TX Wexler Surgical designs and manufactures a

variety of titanium and stainless steel specialty surgical instruments and products for cardiac, vascular, thoracic, and microsurgery. Come see its VATS/MICS instruments and ask about the Optimus Series. Visit www.wexlersurgical.com for more information about products and services, or e-mail sales@wexlersurgical.com.

Wolters Kluwer 114 Phoenix, AZ

Xenosys USA 851 Austin, TX

Xenosys USA serves the cardiac, thoracic, and vascular community with innovative products, including portable next-generation LED surgical headlights offering freedom and convenience at less than 1 oz weight; a full range of custom surgical loupes giving an unbeatable field of

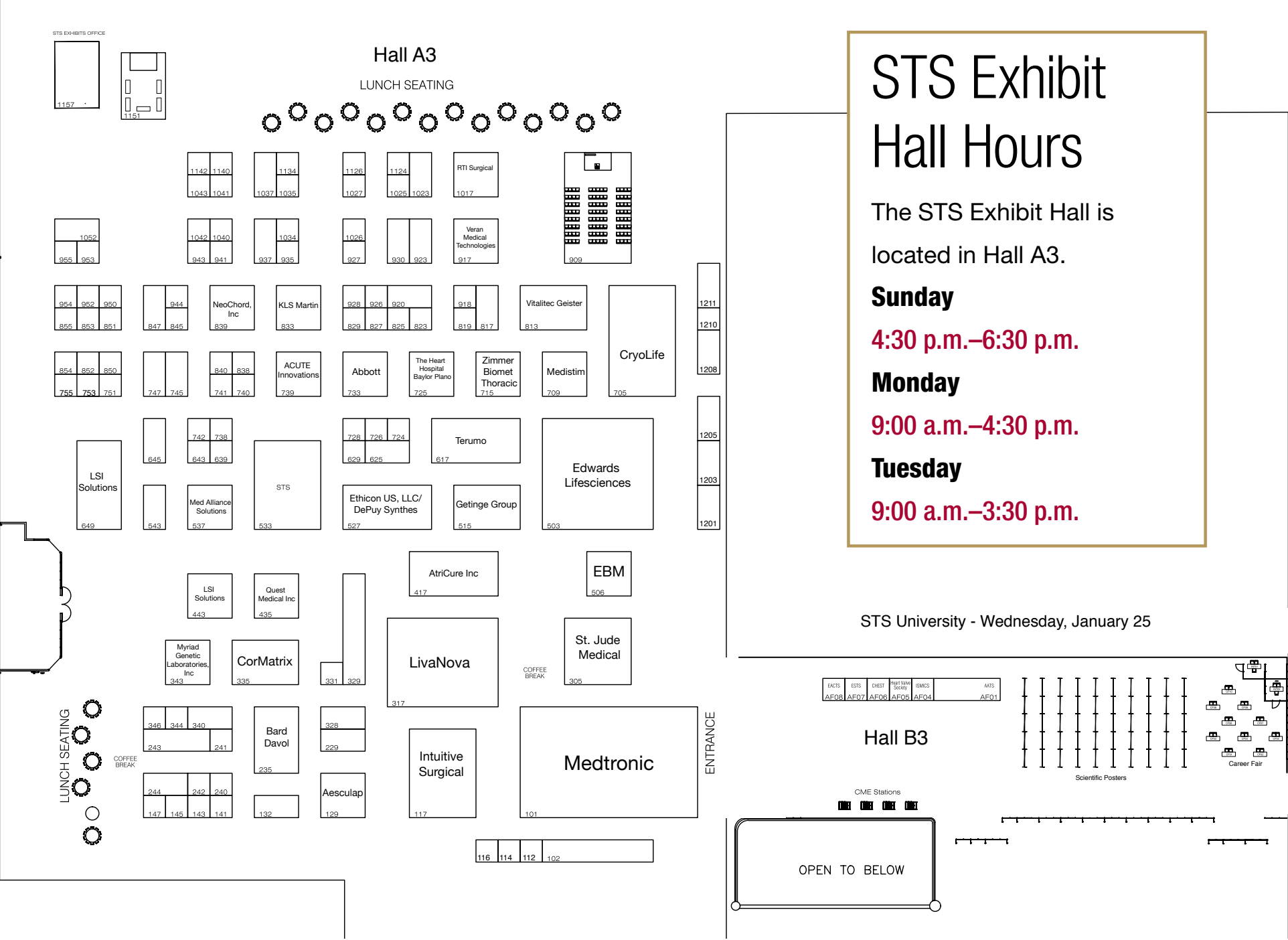
vision and depth of focus, all while being light and comfortable; and the Xenosys wireless HD surgical camera system.

Zimmer Biomet Thoracic 715 Jacksonville, FL

Founded in 1927, Zimmer Biomet is a global leader in musculoskeletal health care. The company designs, manufactures, and markets 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.

ZipperBelt.com 643 Dallas, TX

2017 EXHIBITOR MAP



STS Exhibit Hall Hours

The STS Exhibit Hall is located in Hall A3.

Sunday

4:30 p.m.–6:30 p.m.

Monday

9:00 a.m.–4:30 p.m.


Tuesday

9:00 a.m.–3:30 p.m.

STS University - Wednesday, January 25

HOUSTON
Methodist
DEBAKEY HEART & VASCULAR CENTER

VISIT US AT BOOTH #923



REMOVING HEART TUMORS THAT WERE ONCE UNREACHABLE. THAT'S THE DIFFERENCE BETWEEN PRACTICING MEDICINE AND LEADING IT.

At Houston Methodist, we're one of only a few hospitals in the world performing an advanced heart surgery to remove a cancerous heart tumor. Our expertise allows us to remove the heart with incredible precision in order to access hard-to-reach tumors, so that it's cancer free when placed back inside. By performing this surgery, we're providing options for patients who thought they had none.

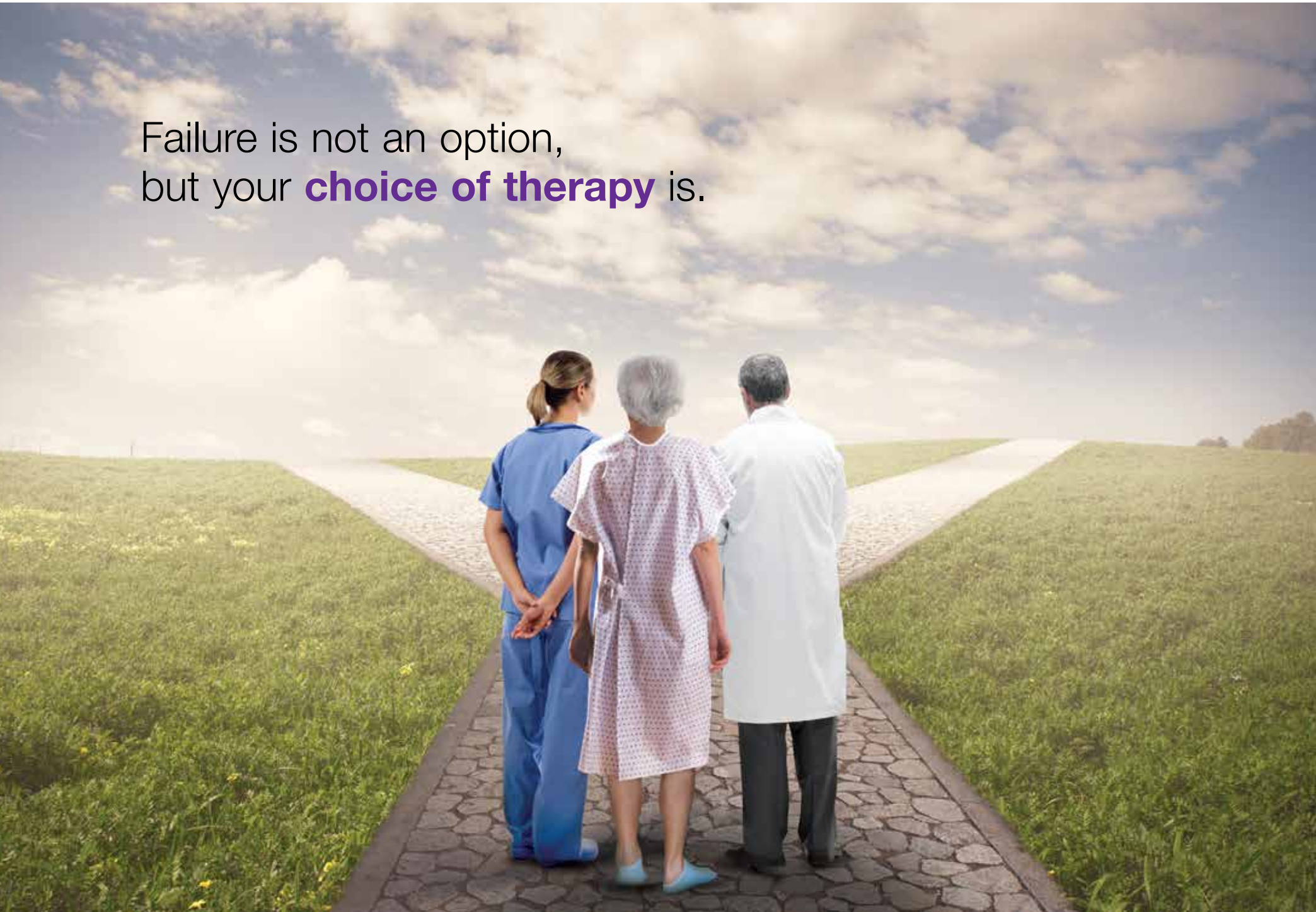
houstonmethodist.org/heart-physicians

Visit us at **booth #923** to see how 3D imaging is changing the way we approach patient care.

HOUSTON
Methodist[®]
DEBAKEY HEART &
VASCULAR CENTER



Failure is not an option,
but your **choice of therapy** is.



Powerful options from Getinge: from IABP to ECLS.

MAQUET
GETINGE GROUP

Whether your patients are facing the early stages of heart failure or a more serious cardiac situation, you can look to Getinge for a full range of effective, easy-to-use heart failure treatment options. Our CARDIOSAVE IABP technology helps patients whose hearts are beginning to fail while creating a critical window of time that enables clinicians to determine the best next steps if additional treatment is necessary. In more critical cases, our CARDIOHELP System combines hemodynamic stabilization with oxygenation to provide full cardiopulmonary support.

From the smallest to greatest of cardiac needs, you've got complete support in the Cath Lab with Getinge.

The CARDIOHELP System is for circulatory and/or pulmonary support for periods up to six hours.



CARDIOSAVE



CARDIOHELP