Sunday Program

7:00 a.m. – 6:30 p.m.
Registration
Hall B1 Lobby

7:45 a.m. – 9:45 a.m.
Failures, Successes, and Resilience in Research (organized by Women in Thoracic Surgery)
Room 229
Managing Esophageal Surgery Complications
Room 215
Multidisciplinary Care in Cardiac Surgery
Room 207
MyTube: Adult Cardiac Video and Expert Panel Session
Room 217
MyTube: Congenital Video and Expert Panel Session
Room 211
MyTube: Pushing the Limits of Minimally Invasive Thoracic Surgery and Avoiding Pitfalls
Room 208

7:00 a.m. – 6:30 p.m.
Utilizing the STS National Database in Your Daily Practice
Room 208

10:00 a.m. – 12:00 p.m.
Adult Cardiac Surgery SOS: How to Get Out of Tough Situations
Room 221
Congenital Cardiac Surgery SOS: How to Get Out of Tough Situations
Room 207
Residents Symposium: Transitioning from Training to Practice
Room 207
State-of-the-Art Management of Pulmonary Embolism
Room 208

STS/CATS: Surgery for Advanced Stage Cancer—When Is Out of Bounds Not Out of Bounds?
Room 216
STS/SCA: Cardiac and Thoracic Enhanced Recovery after Surgery
Room 220
The Atrium Academy: The Editor’s Pick—Top Papers and Why
Room 221
The Annals Academy: The Editor’s Pick—Top Papers and Why
Room 221

12:00 p.m. – 12:45 p.m.
Lunch—options available for purchase in Lobbies B & C
Residents Luncheon
Great Hall B

Don’t Miss the Exhibit Hall Opening Reception

The STS Exhibit Hall will open its doors this afternoon, and you’ll be able to learn about products and services offered by more than 120 companies and organizations. Food and refreshments will be available throughout the Hall.

Shark Tank Puts Best of New Ideas Front and Center at Tech-Con

Tech-Con’s popular Shark Tank presentations on Saturday featured four entrepreneurs pitching new devices designed to improve outcomes for cardiothoracic surgery.

M. Blair Marshall, MD, from Brigham and Women’s Hospital in Boston, and Steven Bolling, MD, from the University of Michigan Hospital in Ann Arbor, served as judges to provide feedback.

The first pitch—from George V. Letsou, MD, from Baylor College of Medicine in Houston—described a non-blood-contacting biventricular cardiac assist device for the treatment of acute heart failure syndrome. Heart failure affects approximately 1 million people, he said, with serious complications occurring in a substantial proportion of patients. Approximately 25% of people with heart failure need biventricular support.

“Better short-term support is needed for these patients,” said Dr. Letsou.

The cardiac assist device offers many benefits, including easy insertion and both active and passive compression. “The big difference is that the pericardium holds the device in place, so it can’t slip off the heart,” said Dr. Letsou, adding that the device expands the market for cardiac assist devices by $2 billion because it can be used for patients who are ineligible for existing devices.

Both Dr. Marshall and Dr. Bolling said the pitch was good, but Dr. Bolling added that it lacked information on how much investment funding was needed and a timeline for the backing.

A novel chest drainage unit was proposed by Jens Eckhardt, MD, from Odense University Hospital in Denmark, who noted that 15% of patients have recurrence of pneumothorax within 24 hours after removal of a chest tube. He described a chest drainage unit with an integrated CO₂ detector that can distinguish between a false and true air leak. “No chest drainage unit on the market...”
INSPIRED BY CARING

At LSI, we care about you, your patients, and your team. We believe in advancing surgery, improving outcomes, and reducing pain.

Prof. Dr. Med. Farhad Bakhtiary
Chief Physician at Helios Hospital, Siegburg-Bonn, Germany
STS University Participants Gain Hands-On Experience with Complex Procedures

STS University jumpstarted the 2020 Annual Meeting on Saturday by providing physicians of all experience levels with hands-on exposure to the latest techniques and technologies in cardiothoracic surgery. Ten courses were offered, including extracorporeal membrane oxygenation (ECMO) cannulation—a new addition this year.

“We had participants who were interested in starting their own ECMO program or in bringing their current program up to a new level,” said course director HelenMari Merritt-Genore, DO, from Nebraska Medicine in Omaha.

Participants rotated through four stations—venoarterial ECMO, venovenous ECMO, “Meet Your Pump,” and extracorporeal cardiopulmonary resuscitation—demonstrated by physicians from several different institutions, providing participants with a broad perspective. “It was great to see surgeons and intensivists discussing logistics and sharing ideas,” said Dr. Merritt-Genore.

The Aortic Root Enlargement Procedures and Aortic Valve Leaflet Reconstruction course provided practice with techniques for complex aortic root procedures. Anthony J. Rousou, MD, from Baystate Cardiac Surgery in Springfield, Massachusetts, said he knew of only one technique for aortic root enlargement before attending the course. Now, he is aware of new solutions for the common challenge of patient-prosthesis mismatch in root enlargement, as well as the advantages and disadvantages of each one.

The Robotic Lobectomy course included more stations than last year, allowing a greater number of participants to practice with robotic systems. Course director Lana Y. Schumacher, MD, from Massachusetts General Hospital in Boston, said that surgeons and residents found the course beneficial because it provided an introduction to techniques that can be challenging to master.

“The advantage of robotic-assisted procedures is visualization because it is 10 times greater [than direct visualization] and is in 3D,” she said. “The disadvantage is that there is no tactile feedback. Practice is important to avoid damaging tissue and other complications.”

see STS UNIVERSITY, page 14

Celebrate Mardi Gras at the President’s Reception

Experience the fun and flamboyance of New Orleans during Mardi Gras season by attending the President’s Reception tonight from 7:00 p.m. to 10:00 p.m. at Mardi Gras World. You’ll see where show-stopping parade floats are designed and assembled, learn about Mardi Gras traditions, and sample authentic cuisine while connecting with friends and colleagues. Visit Registration in the Hall B1 Lobby to see if space is still available for this unique reception; you must purchase a ticket to attend.

SCHEDULE
cont. from page 1
12:45 p.m. – 1:45 p.m. Ethics Debate: Should Opioid Addicts Have a Second Valve Replacement for Endocarditis?
Room 211
Meet the Experts: Lymphatic Intervention for Congenital Heart Surgery
Room 225
Mesothelioma: Still a Surgical Challenge?
Room 220
STS Advocacy: Supporting the Specialty and Your Patients
Room 215
Temporary Mechanical Support for Post-Cardiotomy Shock
Room 207
Vivien T. Thomas Symposium: STS and MOC: Diversity and Inclusion Efforts
Room 217
12:45 p.m. – 2:45 p.m.
<<< Evolving Impact: TAVR in Low-Risk Patients—Results of the PARTNER 3 Trials Room 208
2:00 p.m. – 3:00 p.m.
Adult Cardiac: Advanced Heart Failure
Room 217
Adult Cardiac: Arrhythmia/Atrial Fibrillation
Room 211
Congenital: Adult Congenital Heart Disease
Room 212
General Thoracic: Basic Science
Room 205
Meet the Experts: STS/ACS Thoracic Surgery Verification
Room 215
Using the STS National Database for Research
Room 229
What’s New in Esophageal Cancer
Room 220
3:15 p.m. – 4:30 p.m.
<<< Opening Session Great Hall A
3:15 p.m. – 3:30 p.m.
Welcome
3:30 p.m. – 4:30 p.m.
Vivien T. Thomas Lecture: Claire W. Vancy
4:30 p.m. – 6:30 p.m.
Opening Reception in STS Exhibit Hall
Hall B2
4:45 p.m. – 5:30 p.m.
Jeopardy Championship
5:30 p.m. – 6:30 p.m.
Poster Presentations
7:00 p.m. – 10:00 p.m.
President’s Reception: Mardi Gras World
You must purchase a separate ticket to attend this event. This session will be streamed live at sts.org/streamSTS2020.
For more than 40 years we have shared your goal of advancing coronary artery bypass graft (CABG) surgery, the standard of care for revascularization of patients with coronary artery disease. The CABG patient of today presents new challenges and has specific resource requirements, from pre-operative stabilization to intra-operative treatment and post-operative recovery. Explore how we can help you provide the best care for today’s CABG patient.

Failure to rescue after cardiac surgery, real-time molecular imaging of lung nodules, and the role of transcatheter aortic valve replacement (TAVR) in young and middle-aged adults are the focuses of this year’s prestigious J. Maxwell Chamberlain Memorial Papers, which will be presented during Monday’s plenary session.

**Mortality Rates after Cardiac Surgery Tied to a Hospital’s Ability to Rescue**

Mortality rates after cardiac surgery varied significantly across 90 hospitals, according to a study that analyzed data from the STS Adult Cardiac Surgery Database (ACSD) to evaluate the role of failure to rescue (FTR) in operative mortality.

“The variation in mortality rates after cardiac surgery is driven in large part by a hospital’s failure to rescue rate, rather than its complication rate,” said Donald S. Likosky, PhD, from the Institute for Healthcare Policy & Innovation at the University of Michigan in Ann Arbor. Dr. Likosky will present the Chamberlain Paper for Adult Cardiac Surgery.

The study drew from the results of six physician-lead quality improvement collaborative and is one of the largest experiences to date concerning FTR in the setting of coronary artery bypass grafting and/ or valve surgery.

“Our findings further establish the importance of identifying and disseminating optimal complication recovery approaches across cardiac surgical hospitals and practices,” Dr. Likosky said.

**New Molecular Imaging Technology May Improve NSCLC Surgical Outcomes**

Intravascular molecular imaging using a drug that targets folate receptors within cancer cells improved outcomes for 26% of patients undergoing pulmonary resection for non-small cell lung cancer (NSCLC).

Specific to adenocarcinoma, “this new technology involves an IV injection of OTL38, a drug that directly localizes to the tumor, and an imaging system specifically developed to target the wavelength for which the drug fluoresces,” said Inderpal S. Sarkaria, MD, from the UPMC Hillman Cancer Center in Pittsburgh. Dr. Sarkaria will present the Chamberlain Paper for General Thoracic Surgery.

Identifying nodules during thoracic surgery is becoming an increasing challenge in the era of minimally invasive surgery. “We no longer have the facility of our hands to palpate the lung and identify nodules,” Dr. Sarkaria said. In order to accurately stage patients and provide appropriate treatment, better technology is needed to identify nodules and occult cancers within the lung that aren’t seen in preoperative imaging or felt by palpation, he added.

“We’re emerging into an era of non-invasive technologies for localization of tumors, assessment of tumor margin, and better identification of occult cancers during minimally invasive operations using more imaging technologies,” Dr. Sarkaria said.

**Should TAVR Be Considered for Young and Middle-Aged Patients?**

The use of TAVR has become more widespread, yet it is still relatively uncommon in adult patients younger than 55 years old.

To understand contemporary national practice patterns of surgical aortic valve replacement (SAVR) and TAVR in young and middle-aged adults, researchers combined data available for adults age 18 to 54 years in the ACSD and the STS Congenital Heart Surgery Database.

“Approximately one-sixth of the young and middle-aged adults who undergo aortic valve replacement have congenital heart disease other than an isolated bicuspid aortic valve. In the growing group of adults with congenital heart disease, anatomical considerations could present challenges for current TAVR devices. However, because adults with congenital heart disease often require repeated valve interventions over a lifetime, it is our responsibility to explore new therapies that could help patients avoid sternotomies,” said Jennifer S. Nelson, MD, MS, from Nemours Children’s Hospital in Orlando, who will present the Chamberlain Paper for Congenital Heart Surgery.

“We were able to provide a description of SAVR/TAVR use and early outcomes,” Dr. Nelson said. “These data help us better understand the risks and complications associated with TAVR versus SAVR in this age group, but it is obvious that new collaborations between adult and congenital heart teams will be paramount.”

**New Solutions to Current Problems**

“Surgeons are natural innovators, but they have a unique skillset that must be addressed. Surgeons need customized training,” he said.

Educating surgeons in innovation offers many benefits such as accelerated development of research projects, new collaborations across institutions and with industry, novel funding mechanisms, and research portfolio diversity. Surgeons also are better able to evaluate new technologies for incorporation into practice. Dr. Cohen noted the top five sectors of innovation in cardiothoracic surgery: stem cell therapy, nanotechnology, 3D bioprinting, augmented reality imaging, and artificial intelligence and machine learning.

Many roles are available for surgeons with this training, including entrepreneur, start-up team founder, consultant, advisory board member, product tester, clinical trial investigator, and researcher-licensee.

Dr. Cohen also highlighted the value of starting training in innovation and entrepreneurship with medical students. “We asked ourselves, ‘What if we could more formally educate even our medical students to be leaders in innovation?’” Dr. Cohen said. “How much more they can accomplish as residents with these tools already under their belts.”

He described a pathway in medical school that includes education in design thinking, value propositions, delivering a compelling pitch, and adoption and reimbursement; mentored electives such as venture capitalism and business growth; and the development and presentation of a capstone.

Factors other than money should be considered when evaluating a return on investment, said Dr. Cohen. At the University of Michigan, the return on investment for the innovation and entrepreneurship pathway has been outstanding. Since 2016, 126 medical students have developed new solutions to current problems. The university has experienced a 300% increase in the number of MD/MBA candidates and a 100% increase in the number of female medical students pursuing the pathway. Medical students have won 11 regional or national pitch competitions, and eight start-up companies have been established with more than $18 million in follow-up funding. “Not bad for just 3 years,” said Dr. Cohen.
Training Doesn’t End after CT Surgery Residency Is Over

Today’s cardiothoracic surgery residents need to be lifelong learners with strong clinical, technical, and leadership skills if they are to succeed in an increasingly complex practice environment.

“We are being challenged by hospitals to lead better in the operating room and incorporate new technology and new clinical trial results into our daily practice. The days when you could just ‘operate’ after training are gone,” said Rishindra M. Reddy, MD, from the University of Michigan in Ann Arbor.

Monday’s Education Summit will provide residents with an opportunity to learn about the new challenges and demands that they can expect as cardiothoracic surgeons, as well as the valuable tools needed to navigate their futures.

“We’re aiming to give residents a bit of early preparation for their lives in 2030,” said Dr. Reddy, who will co-moderate the session with Amy Fiedler, MD, from the University of Wisconsin School of Medicine and Public Health in Madison.

Experts will provide tips for implementing new technology and techniques into practice. For example, Dr. Reddy said he anticipates that three to five new robotic systems will emerge in the next several years, forcing all surgeons to decide when—not if—to incorporate these new technologies into their practice.

In addition, several of the session’s non-clinical topics will be of immediate value to residents, including how to achieve financial security during residency and throughout their career, establishing leadership in the OR, and taking a long view of training—one that is often overlooked.

“I was told that 50%-75% of my operations in practice will be ones that I never did in training. I am now in my 11th year of practice, and this is 100% accurate,” Dr. Reddy said. “I never performed robotic surgery as a trainee, and now it encompasses more than half of my practice. Advanced endoscopy also soon will be added to my practice. We need to teach our residents and fellows to be lifelong learners who are not afraid of new ideas and new technology.”

Education Summit: Training Residents Today to Thrive in 2030
Monday
1:15 p.m. – 3:15 p.m.
Room 229

“We need to teach our residents and fellows to be lifelong learners who are not afraid of new ideas and new technology.”

Rishindra M. Reddy, MD

Leader Insight
Jennifer S. Lawton, MD
All cardiothoracic surgeons should be members of STS because it is really a big family. Everyone supports everyone else, and you feel part of a very large organization of colleagues with the same interests and same types of practices. There’s something for everyone.

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

STS National Database™
Get a demonstration at STS booth #101.
With ever-changing information emerging about the pathophysiology of bicuspid aortic valve (BAV), as well as the anatomy and physiology of the aortic root, it’s essential for cardiac surgeons to familiarize themselves with the latest, state-of-the-art BAV repair paradigms.

Approximately 0.5%–1.0% of the world’s population is afflicted with BAV. And the majority of patients who develop related disorders tend to be in the prime of their lives, as young as 45 years old.

“With so many patients needing intervention, we felt it was imperative to do a deep dive into bicuspid valve repair with aortic root aneurysm,” said STS Past President Joseph E. Bavaria, MD, from the Hospital of the University of Pennsylvania in Philadelphia. “This is an important tool in the armamentarium of surgeons across the globe.”

A Monday session, which was developed by STS and the European Association for Cardio-Thoracic Surgery, will include detailed videos and precise how-to guidelines that will prove beneficial for both new and experienced surgeons. The session will be moderated by Dr. Bavaria and Davide Pacini, MD, from St. Orsola-Malpighi Hospital in Bologna, Italy.

“Several experts from North America and Europe will cover updated anatomical classifications, new repair techniques, surgical indications, and mid- and long-term outcomes,” said Dr. Pacini.

He acknowledged that there are several schools of thought when it comes to BAV repair—some centers prefer symmetric reconstruction, while others use an asymmetrical approach—but emphasized that treatments should be customized for each patient.

BAV repair becomes even more complex when it is performed in the setting of a root aneurysm. “There are several methodologies with merit. We will review the technical and outcome differences between reimplantation and remodeling,” said Dr. Bavaria.

Stabilization of the annulus and preserving the mobility of the leaflet are hot topics for the BAV repair community. “I think we will hear more about the increasing importance of 4D MRI in assessing the aortic root’s fluid dynamic,” said Dr. Pacini.

Monday’s session also may generate a heated debate about the fundamental BAV question: repair or replace? Dr. Bavaria suggested that a good repair is always better than a replacement.

“Giving a 70-year-old a prosthetic valve is okay, but we don’t want to consign a 40-year-old to an early death with a new valve, if possible,” said Dr. Bavaria. “However, it’s also essential to know when not to repair.”

Dr. Pacini noted that a well-functioning prosthetic valve is always better than a badly repaired native aortic valve. “A good repair can be achieved if the leaflets are well preserved. The results will not be good if the leaflets are calcified or restricted,” he said.
Learning Opportunities in the Exhibit Hall

Exhibiting companies and others will present talks and demonstrations in the Learning Lab Theater, which is located at Booth #844.

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

Monday
12:30 p.m. – 1:00 p.m.
AngioVac and its Use in the Right Heart
Hosted by AngioDynamics
3:30 p.m. – 4:00 p.m.
The Clinical Benefits of a New Thoracic Energy Device – Before and After the LigaSure® Maryland Jaw Thoracic Sealer/Divider
Hosted by Medtronic

This list is accurate as of Jan. 25, 2020.

Industry Symposia

The following programs are offered by industry and held in conjunction with the STS 56th Annual Meeting. They are not developed or sponsored by STS.

Monday
6:30 p.m. – 10:00 p.m.
State-of-the-Art Surgical and Transcatheter Treatment of Mitral and Tricuspid Valve Diseases: Case-Based Discussions
Antoine’s Restaurant, 713 Saint Louis St.
Hosted by Abbott
6:30 p.m. – 8:00 p.m.
Optimizing the Diagnosis and Treatment of Atrial Fibrillation
Annarbor’s Restaurant, 813 Bermuda St.
Hosted by Medtronic and MedSphere Medical
6:30 p.m. – 8:00 p.m.
Monarch Robotic-Assisted Bronchoscopy: A Thoracic Surgery Perspective
Hilton New Orleans Riverside, Canal Room, 2 Paydirt St.
Hosted by AtriCure
6:30 p.m. – 8:30 p.m.
NEW PERSPECTIVES: Technology and Changing Perspective in Aortic Valve Replacement
Tommy’s Cuisine, 746 Tchoupitoulas St.
Hosted by CryoLife
6:30 p.m. – 8:00 p.m.
Lifetime Management of Aortic Valve Disease: How Should Shared Care Decision Making Change in 2020?
Antoine’s Restaurant, 713 Saint Louis St.
Hosted by Abbott
6:30 p.m. – 7:30 p.m.
Medtronic Reception
6:30 p.m. – 7:30 p.m.
Medtronic Display Reception
King’s Room, Brennan’s, 417 Royal St.
Hosted by Medtronic
7:30 p.m. – 10:00 p.m.
Medtronic Dinner and Panel Discussion
Pelican Club Restaurant and Bar, 322 Exchange Pl.
Hosted by Medtronic
6:30 p.m. – 9:30 p.m.
Expanding the Thoracic Surgeon’s Role in Managing Early Stage Lung Cancer through a Novel Diagnostic Perc 24/4, 424 Bourbon St.
Hosted by OncoCyste
6:30 p.m. – 8:00 p.m.
Enhancing Recovery and Reducing Complications in Cardiac Surgery
Annarbor’s Restaurant, 813 Bermuda St.
Hosted by Zimmer Biomet

This list is accurate as of Jan. 25, 2020.
Exhibit Hall Hours
Sunday, January 26: 4:30 p.m. – 6:30 p.m.
Monday, January 27: 9:00 a.m. – 4:30 p.m.
Tuesday, January 28: 9:00 a.m. – 1:30 p.m.

Jeopardy Competition
Residents from the University of Michigan and Deutsches Herzzentrum Berlin will compete to win the international Jeopardy Championship today at 4:45 p.m. in the Learning Lab Theater.

Don’t Miss...
Career Fair
Meet face-to-face with employers at the STS/CTSNet Career Fair. Recruiters will be available to talk about career opportunities.

E-Posters
Scientific posters are electronic this year, and several monitors are available for viewing.

STS Booth (#101)
Hear about the latest the Society has to offer, including member benefits, advocacy efforts, educational courses, the STS Research Center, and the next generation STS National Database.

Join the Conversation
@societyofthoracicsurgeons
@STS_CTSurgery
@thesocietyofthoracicsurgeons

#STS2020
Vivien Thomas Honored with Symposium, Keynote

“Vivien Thomas helped get our field off the ground in the 1940s, and his contributions went unrecognized for many years.”

Robert S.D. Higgins, MD, MSHA

His year’s Annual Meeting program includes a symposium and named lecture in honor of Vivien T. Thomas, a black surgical technician with only a high school education, who worked with Alfred Blalock, MD, and pioneered the anastomosis of the subclavian artery to the pulmonary artery, among other accomplishments.

“We’re proud to recognize a person of color who was not a physician, but who was responsible for training young surgeons to be great technicians,” said STS President Robert S.D. Higgins, MD, MSHA. “Vivien Thomas helped get our field off the ground in the 1940s, and his contributions went unrecognized for many years. We now have an opportunity to do so at a national forum.”

History was made in November 1944 when Dr. Blalock and other legendary surgeons, William Longmire, Denton Cooley, and Helen Tausig, performed the first “blue baby” operation on a frail 18-month-old with tetralogy of Fallot. The pulmonary-to-subclavian anastomosis procedure had been designed and steadfastly tested by Thomas, and he stood behind Dr. Blalock on a step stool guiding him through the procedure.

Despite his efforts, Thomas initially was not given credit for the Blalock-Taussig shunt when the procedure was first described in The Journal of the American Medical Association. His contributions were much more widely recognized years later with a 1989 article, “Something the Lord Made,” and subsequent movie of the same name.

In honor of Thomas and all of his contributions to medicine, including the many years he spent teaching residents in the training laboratories at Johns Hopkins, a Vivien T. Thomas Symposium will be held this morning to explore the importance of a diverse workforce, describe pipeline programs to support workforce diversity, and discuss available resources for promoting diversity and inclusion.

This afternoon, a Vivien T. Thomas Lecture will be given by Clyde W. Yancy, MD, vice dean for diversity and inclusion and chief of the Division of Cardiology at Northwestern University’s Feinberg School of Medicine in Chicago. He is also a past president of the American Heart Association.

Dr. Yancy’s talk, “The Saga of Vivien Thomas: Discrimination, Segregation, and Bias. It Could Happen Again,” will detail the destructive influence of implicit and explicit bias, identify solutions to overcome bias, and outline a path forward for improved health equity.

Train for the Worst to Make the Best of Risky Situations During Surgery

In the complex discipline of general thoracic surgery, the opportunity for catastrophic events has always been part of the job. But some believe “nightmare situations” are becoming even more common throughout the world.

“It doesn’t matter what country you’re operating in. During routine surgery, something unexpected will happen approximately 5% of the time,” said Shanda H. Blackmon, MD, MPH, from Mayo Clinic in Rochester, Minnesota. “During advanced surgery, complications are even more frequent.”

Several risk factors contribute to problems, according to Enrico Ruffini, MD, from the University of Torino in Italy. The proliferation of new techniques is one concern, as are the broad surgical indications for elderly patients who suffer from major comorbidities.

“These situations require experience, wisdom, technical skills, and, of course, a little bit of good luck,” he said.

At Monday’s joint session organized by STS and the European Society of Thoracic Surgeons, which Drs. Blackmon and Ruffini will co-moderate, world-renowned experts from the United States, Europe, and Asia will discuss when and how to perform complex salvage techniques, including:

• Extracorporeal membrane oxygenation and other novel oxygenation strategies
• An alternative conduit for complex esophageal reconstruction
• A novel tissue scaffold for repairing tracheoesophageal fistulas
• Integrated treatment for post-pneumonectomy complications
• Anatomic dissection after immunotherapy

Except for advanced oxygenation strategies, the procedures that will be described can be performed by any thoracic surgeon at a typical community hospital. Attendees will discover how to optimize nutrition, manage pain, minimize aspiration, prevent inadvertent injury of adjacent structures, and control blood loss.

Dr. Blackmon, known for videotaping all of her cases, believes simulation and practice are essential for success. She uses her in-depth videos to give transparent talks about managing interoperative events.

“Knowing how to get out of trouble in the operating room is very important,” she said. “Knowing how to prevent trouble is even more important.”

The practical, comprehensive information that will be presented at the STS/ESTS session should make attendees feel less intimidated about performing complex and aggressive surgeries at their home facilities.

“In the current climate of increased transparency, where everyone knows your outcomes, it’s tempting for some surgeons to avoid risky situations,” said Dr. Blackmon. “But I would challenge surgeons to recognize the potential for success. Salvage surgeries can go well if you train for the worst-case scenario and then work to prevent that from ever happening.”

STS/ESTS: Getting Out of Trouble—Rescue Surgery after Common Nightmare Situations

Monday 7:00 a.m. – 9:00 a.m. Room 208
SHARK TANK
continued from page 1

The leakage detector provides an easy read-out, and the degree of air leak is defined by color. “The quantification of the air leak can help the clinician decide the right time for removal of the chest tube,” said Dr. Eckardt. The cost of the unit is low, adding about $10 to the price of a traditional unit.

Dr. Bolling questioned the potential for a good return on investment because of the minimal increase in the cost compared with traditional chest drainage units and the overall low cost of these units.

Techniques for protectively cooling the brain while the heart is stopped during cardiac surgery were established decades ago, but these techniques have stayed in the operating room. Robert Schultz, MD, from the University of Calgary in Alberta, Canada, described a central venous catheter equipped with a balloon that can be used during cardiac arrest to provide deep and rapid cooling of the brain while maintaining normothermia in the body.

The device allows significantly faster brain cooling than can be accomplished by any existing technique and would help reduce the incidence of brain damage, said Dr. Schultz. The ultimate goal is to have the device available on ambulances, and he noted that there are plans to expand the market for the device to patients with ischemic stroke.

Dr. Marshall asked if the device could be used for patients with hemorrhagic stroke, and Dr. Schultz said that the device has not been tested in that patient population.

A mixed-reality application for improving visualization in thoracic surgery, known as ThoraLens, closed out the Shark Tank presentations. Mark F. Berry, MD, and Brooke Krajancich from Stanford University Medical Center in California, pitched the technology. Dr. Berry said that the number of small lung nodules is increasing with the advent of lung cancer screening, and additional invasive localization techniques are sometimes necessary, adding costs and risks for patients.

Krajancich, a PhD student in electrical engineering at Stanford School of Engineering, described the mixed-reality headset, based on Microsoft’s HoloLens, that allows physicians to see digital data such as patient information and computed tomography images displayed over a patient. The device allows the user to manipulate holograms by hand gestures and voice command, eliminating the need for interruptions in a surgical procedure to review patient data.

Dr. Marshall questioned the demand for the device, as she infrequently needs additional techniques for localizing small nodules. Dr. Berry countered that many physicians do not have the same level of expertise, and an audience member added that the device would offer outstanding education for residents and medical students.

SHARK TANK
continued from page 1

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Krajancich, a PhD student in electrical engineering at Stanford School of Engineering, described the mixed-reality headset, based on Microsoft’s HoloLens, that allows physicians to see digital data such as patient information and computed tomography images displayed over a patient. The device allows the user to manipulate holograms by hand gestures and voice command, eliminating the need for interruptions in a surgical procedure to review patient data.

Dr. Marshall questioned the demand for the device, as she infrequently needs additional techniques for localizing small nodules. Dr. Berry countered that many physicians do not have the same level of expertise, and an audience member added that the device would offer outstanding education for residents and medical students.

A growing body of evidence shows that many conditions being treated as sequelae of congenital cardiac problems such as protein-losing enteropathy (PLE) and plastic bronchitis may in fact be the result of altered lymphatic circulation that leads to these conditions formerly referred to as "mucosal derangements."

“We have been treating a lot of these disorders completely wrong,” said Jonathan M. Chen, MD, from the Cardiac Center at Children’s Hospital of Philadelphia, who will moderate today’s session on Lymphatic Intervention after Congenital Heart Surgery.

Lymphatic failure also may be a key dysfunction leading to fluid retention in adult heart failure and is implicated in complications associated with some cancers and cancer treatments. Catheter-based and surgical approaches to repair damaged lymph vessels can effectively treat such conditions.

“We’ve been largely focused on managing the symptoms—ascites, airway casts, fluid retention—without focusing on the root cause: lymphatic failure,” Dr. Chen said. “The basis of these disorders is primarily lymphatic dysfunction, not cardiac dysfunction. It is increasingly appearing that the lymphatic circulation is foundational to congenital heart disease and a surprising number of adult conditions we traditionally associate with cardiac morbidity.”

Research from the 1970s found that draining lymphatic fluid could improve the symptoms of heart failure, Dr. Chen said, but the technology of the era could not adequately image the central lymphatic system or reliably measure lymphatic flows. Lymphatic circulation largely was ignored until the 2010s. “My entry point was having pediatric and adult patients with severe fluid leaks and seeing a few older papers about lymph fluid playing a role in these patients, but there was nothing current to help,” Dr. Dori said. “We developed lymphatic imaging techniques and an understanding that lymphatic circulation is an entire organ system that we had not appreciated. We already are addressing lymphatic failure in the pediatric world and are moving in the same direction in the adult world, where the number of patients is so much greater.”

Meet the Experts: Lymphatic Intervention after Congenital Heart Surgery
Sunday 12:45 p.m. – 1:45 p.m.
Room 225

Lymphatic Failure Often Masquerades as Cardiac Failure in Children and Adults

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Pediatric cardiologists often see children with single ventricle circulation who live their entire lives with heart failure, added Yoav Dori, MD, PhD, from the Jill and Mark Fishman Center for Lymphatic Disorders at Children’s Hospital of Philadelphia, who will present at today’s session.

“Their heart function doesn’t necessarily change much over time, but the lymphatic circulation undergoes changes that lead to accumulation of fluid,” he said. “Adults with heart failure experience similar changes.”

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STS 2020 at a Glance
A simulator helped participants learn more about these potential errors.

In addition to the robotic systems for lobectomy, two different robotic bronchoscopy systems also were included in the course. Robotic bronchoscopy systems were approved by the US Food and Drug Administration within the past year, said course director Edward Y. Chan, MD, from Houston Methodist in Texas. “The two systems are from competing companies, so participants were able to learn about the features of each.”

At the always-popular Mitral Valve Repair course, participants practiced different repair strategies for both anterior and posterior leaflet pathologies. “I came to improve my techniques and broaden my experience,” said Rebecca Dignan, MD, from Liverpool Hospital in Sydney, Australia. “I was able to talk with other surgeons about their methods and learn about newer cords and rings.”

Other courses focused on VATS lobectomy, complex chest wall issues, transcatheter aortic valve replacement, valve-sparing aortic root replacement-reimplantation, minimally invasive aortic and mitral surgery, and transseptal puncture for surgeons.

**STU UNIVERSITY**

continued from page 3

**Great to teach #TAVR patient selection, planning, implantation & #technology at STS University #STS2020 in New Orleans this morning! Wonderful faculty colleagues and a diverse, engaged group of participants.**

@IbrahimSultanMD @DrIribarne @KendraGrubb @STS_CTsurgery

Moritz C. Wyler von Ballmoos, MD, PhD
@DrMoritzWvB

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**So excited to head off to New Orleans today for my very first @STS_CTsurgery Annual Meeting! #STS2020 Looking forward to learning lots, presenting my research, and meeting leaders within the field!**

Chi Chi Do-Nguyen
@ChiChiDoNguyen

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**The STS welcoming committee at the airport! Ready for a great convention about the latest and greatest about Cardiothoracic Surgery! #STS2020 @roberthiggins32 @STS_CTsurgery**

Hari B. Keshava
@hari_keshava

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**What is the most innovative thing you have learned today?**

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**Mathew Thomas, MBBS, MD**
Jacksonville, Florida

“A surgeon is working on an app that will be able to distinguish tracheobronchomalacia (TBM) from other diseases and conditions based on the sound of the cough. This is an important innovation because TBM requires a surgical fix, while other reasons for coughing do not.”

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**Claire Watkins, MD**
Stanford, California

“The aortic uncovered arch stent offers a way to improve aortic arch remodeling following dissection. We don’t have any other tool for this.”

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**Mark Suzuki, MD, MBA**
Augusta, Georgia

“The future of artificial intelligence (AI) just keeps advancing medically and surgically. Soon, someone will develop an AI program for smartphones that will be able to help accurately make diagnoses.”
FDA Accepts CryoLife® IND Application for Clinical Study of
Apixaban Anticoagulation Therapy in On-X® Aortic Heart Valve Patients

To learn more visit us at STS, booth #1013.
At Getinge, we believe that saving lives is the greatest job in the world. As your partner, we are by your side every step of the way, working together as one.

Visit us at STS booth 425

Discover our partnership opportunities, visit www.getinge.com/us/