Future Is Promising for Cancer Immunotherapy

Immunotherapy may be the key to transforming cancer from a death sentence to a chronic condition. Some progress has already been made; checkpoint blockade has changed the prognosis for 10 usually lethal tumor types, including stage IV melanoma.

“If we can combine data in the patient medical record, immunoprofile with tumor genomics, pathology, and imaging, we should be able to predict the optimal treatment for all of our cancer patients and treat them successfully,” said Laurie H. Glimcher, MD, President and CEO of the Dana-Farber Cancer Institute in Boston. “I think we can get there in 3 to 5 years.”

Dr. Glimcher drew a guarded but hopeful picture during the Thomas B. Ferguson Lecture, Cancer Immunotherapy: The End of the Beginning. The immune system has long been a backwater in oncology research. That changed when immunotherapy produced a Nobel prize in 2018 for James P. Allison, PhD, of MD Anderson Cancer Center in Houston, and Tasuku Honjo, MD, PhD, of Kyoto University in Japan.

Their discoveries led to checkpoint inhibitors, blocking receptors that prevent T cells from attacking tumor cells. Checkpoint blockade is the most successful immunotherapy, but is successful in only 20% of patients. The next step is to expand both the robustness and duration of response, as well as the types of cancers amenable to immunotherapy.

Adaptive T cell therapy, or CAR-T, inserts a chimeric antigen receptor (CAR) into T cells that have been removed from the patient. The CAR is primed to attack specific surface antigens in the patient’s own cancer. The activated T cells are expanded and reinjected into the patient. CAR-T can be very successful. It also can be highly toxic and is enormously expensive. The next steps are to develop off-the-shelf allogenic products and find other mechanisms to bind T cells to the tumor.

Clark Papers Highlight Top STS National Database Studies

Data from the STS National Database have been part of numerous research studies over the years that have advanced quality and patient safety in cardiothoracic surgery. Three of these studies, selected as the best among the many submitted for the 2019 Annual Meeting, were designated as this year’s Richard E. Clark Memorial Papers.

The papers will be featured during specialty-specific scientific sessions on Monday and Tuesday.

TAVR USE INCREASES IN HIGHER-RISK PATIENTS WITH DEGENERATED BIOPROSTHESSES

FDA approval of valve-in-valve transcatheter aortic valve replacement (TAVR) in 2015 raised a provocative possibility: Cardiac surgeons could stratify patients with degenerated bioprostheses by age and surgical risk, recommending younger and lower-risk patients for surgical aortic valve replacement (SAVR) and older and higher-risk patients for less invasive TAVR procedures.

A new analysis of the STS Adult Cardiac Surgery Database (ACSD) has shown that possibility became a reality very quickly. “The robustness of the data is arresting,” said Ankur Kaira, MD, of Case Western Reserve University School of Medicine and the Harrington Heart & Vascular Institute, both in Cleveland. “The data show a trend for a decrease in reoperative SAVR in the same year valve-in-valve TAVR was approved by the FDA. At least among surgeons and interventional cardiologists participating in the STS National Database, the new technology immediately moved into real-life clinical scenarios where sicker and older patients could suddenly be considered for the less invasive TAVR.”

see FEUGUSON, page 6

see CLARK PAPERS, page 6
Cardiogenic shock: The unresolved clinical challenge

IAB therapy—reliable, convenient and cost effective without the added risk

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AI Touches Cardiothoracic Surgery

Artificial Intelligence (AI) already exists in medicine. AI systems can read chest radiographs faster, cheaper, and—by some accounts—at least as accurately as skilled radiologists, according to Thomas M. Krummel, MD, of Stanford University in California. With approximately 18 robotic surgical devices in development, AI is almost certainly coming to cardiothoracic surgery.

“Ai is already here in a big way,” said Dr. Krummel. “Early stage medical technology may very well have intelligent components, and we will see robotic autonomy in surgery.”

Dr. Krummel explored the growth of AI in medicine during Saturday’s Tech-Con keynote address: Artificial Intelligence—Hope, Hype or Horror for Medical Tech. The reality, he said, is that AI contains elements of all three.

The hope is that AI can augment cardiothoracic and other surgeons to improve outcomes and reduce overall costs. The hype is that AI will replace surgeons and other skilled practitioners. The horror is that AI will out-evolve and replace humans.

How AI evolves in cardiothoracic surgery depends very much on how cardiothoracic surgeons approach, develop, and accept the technology, Dr. Krummel said. The most important barrier is simply understanding what AI is and what it is not, he added.

It is not a droid, some sort of Star Wars R2-D2, or even an artificial being. AI is nothing more than a series of algorithms: very explicit instructions designed to achieve a specific end. Explicit instructions are not a program. A perfect guide in an imperfect world filled with unpredictable events, as designers of self-driving cars have discovered in the past few months.

Algorithms can follow instructions to perfection, but instructions are not enough. Instructions must be interpreted, even for something as simple as washing hair. Most shampoo bottles carry simple instructions: lather, rinse, repeat. Without some sort of check, AI would repeat the cycle endlessly and never stop shampooing.

Another barrier is the sudden emergence of AI. However, AI is nothing new. It grew out of code-breaking algorithms designed by Alan Turing and his cryptographic team during World War II. The idea of developing and applying algorithms to solve broader problems emerged from a 1956 Dartmouth project as the thesis that anything humans can imagine can be turned into an algorithm and put to use.

It took half a century for computing technology to begin to catch up with the concept of AI, creating intelligent devices that can use knowledge to learn, to reason, to make useful decisions, and prove their value.

“Components matter more than we can imagine,” Dr. Krummel said. “By next year, 80% of adults worldwide will be walking around with a smart phone—a super computer—in their pockets. That has a huge impact on the development and deployment of AI.”

Companies like Amazon, Netflix, and Spotify can already predict our preferences in shopping, movies, and music more precisely than most of us can, he noted. MasterCard and VISA can accurately identify potential fraud.

In 2018, IDx became the first medical device approved by the Food and Drug Administration to diagnose diabetic retinopathy. Face2Gene uses facial recognition to diagnose autism among younger patients. A perfect guide in an imperfect world filled with unpredictable events.

More immediately, expect practical, cost-effective AI assistance in three areas: AI-assisted robotic surgery, AI-assisted administrative and office workflow, and image interpretation.

Also in development are AI-assisted surgical assessment tools that could be used by practices, hospitals, payers, and credentialing bodies to evaluate surgical competence.

“AI is already here in a big way,” said Dr. Krummel. “We have the kind of nuanced intelligence that machines lack, at least to date. We’d better buckle up and get into the technology.”

Thomas M. Krummel, MD

AI is moving more deeply into medicine than most physicians realize, he added. The Veterans Administration is using Deepmind, developed by Google’s artificial intelligence lab, to predict and prevent kidney disease. IBM’s Watson missed expectations in diagnosing cancer, largely because AI requires that answers be known in order to follow rules to find them. As more is learned about cancer diagnosis, expect AI-based diagnosis to improve.

More immediately, expect practical, cost-effective AI assistance in three areas: AI-assisted robotic surgery, AI-assisted administrative and office workflow, and image interpretation.

“AI touches cardiothoracic surgery in the first few years after completing a cardiothoracic surgery residency can be challenging. Newly established surgeons need to figure out how to build up a clinical practice, manage a wide variety of competing responsibilities, launch their research careers, and more.

A new session on Monday aims to help by reviewing challenges and solutions for cardiothoracic surgeons in their first 7 years of practice.

“First is a critical time in one’s career, and it can be difficult to access information on navigating challenges outside of the operating room.”

Vinay Badhwar, MD

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

Monday
7:15 a.m. – 9:15 a.m.
Room 31AB

Get Tips on Excelling Early in Your Career

This is often a critical time in one’s career, and it can be difficult to access information on navigating challenges outside of the operating room.”

Vinay Badhwar, MD

Take Advantage of Practice Resources on STS.org

Want more information on navigating the early years of practice? Visit sts.org/career-development for detailed answers to frequently asked questions and several blog posts on finding a first job, teaching as an early career surgeon, and other important topics.
Plenary Session Unveils New Approaches to Familiar Problems

Expanding the pool of donors for neonatal heart transplantation and using adjuvant therapy for node-positive esophageal cancer have the potential to improve patient outcomes, according to two studies that will be presented at today’s plenary session.

In addition to these abstracts, a late-breaking study on platelet transfusion during the rewarming phase of cardiopulmonary bypass in neonates will also be presented. The three papers will be followed by the highly anticipated Presidential Address from Keith S. Naunheim, MD.

Research Confirms Promising Results for Adjuvant Therapy

A retrospective cohort study across nine institutions and more than 1,000 patients has found that adjuvant treatment following surgery for esophageal cancer is associated with a 24% reduction in mortality. Median survival for patients who received adjuvant therapy following resection was 2.6 years, compared to 2.3 years for patients who did not receive adjuvant therapy.

“We know the optimal treatment is neoadjuvant chemotherapy or chemoradiation therapy followed by surgical resection if you have locally or regionally advanced cancer and you are a good operative candidate,” said Tara Semenkovich, MD, MPH, of the Washington University School of Medicine in St. Louis. “It is well established that patients who have residual positive lymph nodes following resection have a worse prognosis, but there was controversy regarding what to do about it.”

An earlier study at Washington University showed promising results for adjuvant therapy, but the cohort was only about 100 patients. A similarly small study from another institution found no benefit from adjuvant therapy. Population studies using the National Cancer Database suggested potential benefit, but the conclusion was clouded by possible selection bias.

“We wanted to show that babies who receive heart transplants do very well in the long run,” said John Mohan, MD, of Loma Linda University School of Medicine in California. “If we can find ways to enlarge the organ pool, we could increase the applicability of transplantation and make a dramatic improvement in these babies’ lives.”

The dilemma of how to treat newborns with congenital heart defects has more to do with logistics than clinical issues. Heart transplantation has long been recognized as preferable to palliative reconstructive surgery, with a 5-year survival of 80%-85% following heart transplantation compared to 58%-76% for staged palliation. But the organ pool of neonatal hearts is so small that most potential candidates are never placed on the transplantation list.

The advent of infant car seats dramatically reduced the number of newborns suffering fatal head trauma, and the decline of sudden infant death syndrome resulting from putting infants to sleep on their backs virtually eliminated the other major pool of newborn hearts that was available in the 1980s and 1990s.

But there are at least two other pools of potential donors, Dr. Mohan said. One is the 600 to 700 babies born annually in the United States with anencephaly, who inevitably die. Policies regarding the determination of brain death in these infants are not uniform, and the issue is fraught with ethical questions.

A second potential pool is donation after circulatory determination of death (DCD). Transplants using DCD organs are currently less successful than transplantation of organs retrieved following brain death.

“If we can find a way to make donation after cardiac death more usable, that would increase the pool of organ donors,” Dr. Mohan said. “We should seriously consider both these options if we want to increase the number of donor organs available for newborn heart transplantation.”

“This is the largest and most detailed cohort of esophageal cancer patients receiving adjuvant treatment that has ever been assembled to look specifically at this question. Our study makes a much stronger argument for providing adjuvant chemotherapy to patients who can tolerate it and can help guide clinical decision-making.”

TARA SEMENKOVICH, MD, MPH

Visit STS in the Exhibit Hall

Stop by the STS booth (#601) and hear about the latest the Society has to offer. You can learn more about member benefits, advocacy efforts (including STS-PAC), upcoming in-person educational courses on robotic surgery and thoracic endovascular aortic repair, recently released e-learning modules, the STS Research Center, and opportunities to participate in the STS National Database. You also can donate to The Thoracic Surgery Foundation, the Society’s charitable arm, and get advice from The Annals of Thoracic Surgery staff on manuscript submissions, accessing Annals CME activities, and creating visual abstracts.

Additionally, STS members can update their contact information and pay membership dues. Non-members can fill out an application to begin taking advantage of the many benefits of STS membership.
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At the same time, the in-hospital mortality rate for children with Down syndrome decreased from 21% during the first era (2001-2008) to 6% during the second era (2009-2016).

“No one ever wants to refuse surgery to a child,” said Lauren A. Sarno, MD, of the Brody School of Medicine at East Carolina University in Greenville, NC. “If you find factors that are strong indicators of good Fontan outcomes such as minimal atrioventricular valve regurgitation, a normal pulmonary vascular system, and not a lot of other cardiac comorbidities, these patients can undergo the procedure. If we see a child who could possibly have a successful outcome, then I would recommend him/her for Fontan.”

EARLY STAGE LUNG CANCER SURVIVAL IS EQUAL FOR LOBECTOMY AND SEGMENTECTOMY

An analysis of the STS General Thoracic Surgery Database (GTSD) has found that survival rates are similar for both lobectomy and segmentectomy when treating stage 1A lung cancer. Lobectomy has long been the standard treatment for these patients. But a growing number of surgeons have urged consideration of segmentectomy in order to spare lung tissue and lower complication rates.

“You will never get criticized for doing a lobectomy,” said Mark Onaitis, MD, of the University of California, San Diego. “But there has been considerable controversy regarding the most appropriate way to treat early stage disease. We now have a definitive answer, at least for STS National Database surgeons, that there is no difference in long-term survival for lobectomy versus segmentectomy.”

Because the research was limited to the Medicare population, it is unknown whether the results are applicable to patients under the age of 65. Dr. Onaitis said future research will compare the costs of the two operations in this study group.
Heart Team Decision-Making Adds Value

The speakers in this session will draw from the latest research to identify decision-making challenges in mitral valve disease, aortic valve disease, and coronary artery disease. A hot discussion topic will be the recently published COAPT trial, which showed that transcatheter mitral valve approximation in combination with guideline-directed medical therapy was superior to guideline-directed medical therapy alone for patients with symptomatic heart failure with grades 3 to 4+ mitral valve regurgitation. These findings have important implications for management decisions in practice.

Speakers will also talk about transcatheter approaches to valve replacement, which have become the first-line treatment in many situations. All-cause mortality and risk of stroke are similar for transcatheter and surgical procedures, but the risks of adverse events are distinct.

In addition, the debate over whether percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) surgery is preferred for coronary revascularization will be highlighted. Several studies have sought to determine the factors affecting mortality and morbidity for each procedure, and recent research has indicated that the type of disease (multivessel or left main), coronary anatomy, and diabetes status are important factors to consider in decision-making regarding PCI or CABG.

Heart team discussions of specific cases related to each of these topics will help attendees gain a greater understanding of the best approaches for their own patients.

“Presenting both the European and North American perspectives will help us realize that even though we all view ourselves as modern, state-of-the-art thoracic surgery specialists, there are cultural differences that impact how lung and esophageal cancers are treated.”

Michael J. Weyant, MD

Regional Perspectives Influence Treatment Options for Lung, Esophageal Cancers

Thourani, MD

Options for Lung, Esophageal Cancers

Regional Perspectives Influence Treatment Options for Lung, Esophageal Cancers

The complex process of determining cancer stages requires accurate decision-making within the context of an interdisciplinary team. But standard general thoracic and esophageal diagnosis and treatment practices can vary due to a lack of uniformity between European and US practice guidelines.

Mediastinal staging for clinical stage I non–small-cell lung cancer (NSCLC) is one example. Survival of all NSCLC patients is disappointing, with a 5-year survival of 18%. Accurate staging is crucial because it determines the choice of treatment and prognosis.

“There’s a debate between European and North American surgeons about how extensive the staging should be,” said Michael J. Weyant, MD, of the University of Colorado in Aurora.

Those differences will be highlighted during Monday morning’s collaborative session from STS and the European Society of Thoracic Surgeons. Dr. Weyant and Gilbert Massard, MD, PhD, of the Centre Hospitalier in Strasbourg, France, will co-moderate the session that will feature experts from Belgium and the United States describing and debating best practices.

Michael J. Weyant, MD

Clinical Scenarios: The Heart Team

The speakers in this session will draw from the latest research to identify decision-making challenges in mitral valve disease, aortic valve disease, and coronary artery disease. A hot discussion topic will be the recently published COAPT trial, which showed that transcatheter mitral valve approximation in combination with guideline-directed medical therapy was superior to guideline-directed medical therapy alone for patients with symptomatic heart failure with grades 3 to 4+ mitral valve regurgitation. These findings have important implications for management decisions in practice.

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Vinod H. Thourani, MD

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A&E Medical® reinvents expectorations by offering surgeons a comprehensive portfolio, including the Titritum® SCP Sternal Cable Plate system, the MYO-Wire® sternum wires, the DoubleWire™ high strength sternum closure system, and the A&E Medical sternal cable system. Ultrathin mono, bi- and quad polylactic wires, rotating surgical punches, and patient connecting cables round out the portfolio.

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A leading provider of innovative, minimally invasive medical devices used by professional healthcare providers for vascular access, surgery, peripheral vascular disease and oncology. AngioDynamics’ diverse product lines include vascular closure systems, vascular stent grafts, and other surgical specialty products. More information is available at www.AngioDynamics.com.

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Astute Medical, the manufacturer of the Navycheck® Test, is dedicated to improving the diagnosis of high-risk medical conditions and diseases through the identification and validation of protein biomarkers to serve as the basis for novel diagnostic tests. Our focus is community and hospital-acquired acute conditions that require rapid diagnosis/risk assessment such as acute kidney injury and sepsis.

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Auris Health 825
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With the Monarch™ Platform, Auris™ offers physicians revolutionary robotic endoscopic technology. The Monarch Platform is designed to enable physicians to diagnose, and then treat and remove lung nodules that are too difficult—or not even visible—by any other way. It is designed to be used in hospital operating rooms with disposable catheters/outfits optimized for bronchoscopy procedures.

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BFW is a worldwide technological leader in surgical simulation and head-end video imaging. Experience the foremost innovations in bright, portable OR quality head lights, HD HARRIOTT® LED light source - unmatched intense illumination for headlights and imaging devices, and state-of-the-art Pharo HD™ Coaxial Headlight/Video Imaging System.

Biomed Simulation, Inc 1143
San Diego, CA
Biomed Simulation, Inc. supplies PUPET SIMULATORS for surgical and critical care applications. Biomed’s flagship simulator, “Califa”, connects directly to an HLM or ECMO machine providing realistic patient responses. Its programmability and integration with a wide range of monitors allow the delivery of consistent, robust clinical scenarios.

Biom’up USA, Inc 926
New York, NY
Biom’up, in a specialist in collagen-based absorbable medical devices for biosurgery, is developing a new generation hemostatic product composed of patient-protected biopolymers. With broad expertise in tissue engineering, Biom’up is creating innovative and clinically proven products that are used in many surgical specialties such as cardiothoracic and vascular specialties.

BioScience Science & Engineering 1009
Austin, TX
BioScience 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 Amplatzer Device is designed to simplify and standardize aortic valve repair for patients undergoing surgery for aortic insufficiency or root aneurysm.

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As the exclusive distributor for NOVATECH® in the US, Boston Medical Products offers an extensive range of TRACHEODRAIN® DUMON™ stents, TONI™ stent applicators and most recently, STERILTAC™ Sterile Talc.

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Boston Scientific transforms lives through innovative solutions that improve the health of patients around the world. As a global medical technology leader for 35 years, we advance science for life by providing a broad range of performance solutions that address unmet patient needs and reduce the cost of health care.

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Centese 1319
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Centese is the producer of Thoraguard™, a new surgical drainage system developed to address the needs of cardiothoracic surgeons and their patients.

CHF Solutions 1100
Eden Prairie, MN
CHF Solutions is focused on improving the quality of life for patients suffering from heart failure and related fluid overload conditions through commercial expansion of The Aquadex FlexFlow® System. The Aquadex FlexFlow System is safe, effective, and clinically proven to reduce fluid overload. The device reduces excess sodium and fluid for patients who have failed diuretic therapy.

Chinese Medical Association 840
Beijing, China
The Chinese Medical Association (CMA) is a nonprofit national academic organization in China. It is an important social force in the development of medical science and technology and a linkage between the government and the medical professionals.

ClearFlow 1332
Anaheim, CA
ClearFlow’s Mission – Support Best Practices is our Guiding Principles to prevent chest tube occlusions. ClearFlow’s PleuraFlow ACT System is the only 510K cleared device indicated for the removal of retained blood and the proactive maintenance of chest tube patency after cardiac surgery resulting in improved patient outcomes and lower healthcare costs.

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CryoLife 825
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CT Assist 604
Philippi, WV
CT Assist is a health care staffing agency for cardiothoracic surgeons, cardiothoracic surgery advanced practitioners, perfusionists and nurses that deliver care in the CVOR, ICU, and floor. CT Assist provides workforce solutions including recruiting and locum tenens. We are a nationwide provider of cardiothoracic practitioners.

CTNet 600
Chicago, IL
CTNet (www.ctnet.org), headquartered in Chicago, Illinois, USA, is the leading international source of online resources related to cardiothoracic surgery, as well as the major hub of the international online community of cardiothoracic surgeons and allied health professionals. CTNet’s mission is to “connect the global cardiothoracic community.”

CV Staff Solutions 831
Colorado Springs, CO

Designs for Vision 900
Bohemia, NY
Just See™ with Designs for Vision’s lightweight custom-made surgical Telescopes - available with Nike® frames. See It Even Better™ with the L.E.D. Daylite® or Twin Beam®, L.E.D. Daylite® providing the brightest and safest unfettered illumination. Introducing the L.E.D. Daylite Nano Cam HD document procedure and HD video from your prospective.

EMB 541
Tokyo, Japan
Biomedical spin-out venture company from Japan, EMB provides original beating heart simulator and quantitative assessment system for OPCAB and vascular anastomosis world-wide. EMB assessment is based on rapid CFD technology and validated silicone vascular and tissue models.

EchoPixel 328
Statia Clara, CA

The information listed here is accurate as of December 18, 2018. The information for these products and services was provided by the manufacturer, and inclusion in this publication should not be construed as a product endorsement by STS.
Edwards Lifesciences

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

Elsevier

Elsevier is the proud publisher of The Annals of Thoracic Surgery

Essential VR

Essential VR is a cloud-based training platform for surgical simulation and virtual reality.

European Association for Cardio-Thoracic Surgery

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

European Society of Thoracic Surgeons

The largest international general thoracic surgery organization with over 1600 members from 77 countries. 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.

Evah, Inc

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

Excelsior Surgical

Excelsior Surgical Instruments, Inc. is the leader in fine surgical instrument designs that have focused on Cardiovascular Surgery for over 30 years. We feature Minimally Invasive Valve Replacement sets, winning New Design awards for unmatched Abtra® Exposure of the left Atrium. Excelsior Surgical Instruments specialize in Cardiovascular procedures.

General Thoracic Surgical Council

The General Thoracic Surgical Council (GTSC), formerly known as the NCTC, is not-for-profit organization representing more than 325 general thoracic surgeons worldwide who are dedicated to excellence in patient care and the best possible outcomes for surgical procedures of the lung, mediastinum, esophagus, chest wall by providing the highest quality patient care through education, research, and clinical experience.

Genese BioMedical

Genese BioMedical, Inc. provides unique devices for cardiac surgery including annuloplasty bands/rings for mitral and tricuspid repair, sternal/thoracic valve retractor, instruments for MICS aortic, TAVI and robotic surgeons as well as coronary graft markers and myocardial needles. Genese BioMedical Inc. Denver, CO USA www.geneseobiomedical.com

Genting

Genting is a leading global provider of innovative solutions for operating rooms, intensive care units, hospital wards, sterilization departments and all other healthcare companies. Based on first-hand experience and close partnerships, Genting offers innovative and ergonomic solutions that improve the daily life for people, today and tomorrow.

Gore & Associates

Flagstaff, AZ

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

Hackensack Meridian Health

Hackensack Meridian Health is a leading not-for-profit health-care network in New Jersey providing a complete range of medical services, innovative research, and life-enhancing care. Our Network has a national model for changing and simplifying health care delivery through partnerships with innovative companies and focus on quality and safety.

Healthcare Provider

Fort Lauderdale, FL

Hayes Healthcare is a healthcare staffing agency providing award-winning solutions to physicians, advanced practitioners, and hospitals. Our dedicated service to service and laser-focused process to detail routinely create positive match outcomes.

HCA Healthcare

Brentwood, TN

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

Heart Hospital Baylor Plano, The

The Heart Hospital Baylor Plano (THBP) is a cardiovascular specialty hospital in North Texas that opened in 2007. Over the past 10 years, our quality outcomes and guest satisfaction scores have garnered recognition and accolades from international giants in the healthcare field for their HeartHospital@baylor.com to learn more.

Heart Valve Society

Beverly, MA

The Heart Valve Society (HVS) “The Heart Team In Action” Save the date for HVS 2019 and join over 400 medial professional and 80 plus suppliers and partners on October 26-27, 2019 in Stites, Spain Whether you are a cardiologist, surgeon, researcher or another member of the crucial valve disease treatment team the HVS welcomes you to become a part of something very unique. Membership is available online.

Hospital Information Services for Jehovah’s Witnesses (United States) 928 Walkill, NY

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

Huntsville Hospital

Health System

Huntsville, AL

Heart Center at Huntsville Hospital has an Opening for a Thoracic Surgeon! There are currently 6 cardiothoracic surgeons in our group and we are seeking a Thoracic Surgeon to join the thoracic surgery volume of a retiring surgeon. We currently perform over 850 cardiac surgical cases and approximately 50 thoracic surgical cases each year. Contact Suzanne l.e.cho@hshs.org or 256-262-9639

International Society for Minimally Invasive Cardiothoracic Surgery

750 Beverly, MA

For Cardiothoracic Surgery professionals. Elsevier empowers better healthcare solutions that improve everyday life for people, today and tomorrow.

Intuitive Surgical

Sunnyvale, CA

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

JACE Medical

Webster, FL

JACE Medical is the leader in speed and efficiency with rigid sternal closure applied by robotic assistance. JACE Medical’s Low Profile (Low Profile) JACE offers the broadest portfolio on the market providing the thinnest plates and strongest screws for primary, specialty, and reconstruction procedures. For more information, please visit us at Booth #540 and www.jacedmed.com.

Johnson & Johnson Medical Devices Companies

New Brunswick, NJ

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

Karp Surgical

Cleveland, OH

Karp Surgical is a custom design shop which designs surgical instruments and implants, manufactures them, and sells as well as distributes domestically and internationally. Karp’s exclusive products are: The Cosgrove Hegar Needle, Strip T’s surgical organizer, and countless surgical devices FDA approved with several pending approval.

Karl Storz Endoscopy

El Segundo, CA

KARL STORZ combines high-quality optics and ergonomic design for a range of surgical products for thoracic surgery. The VITOM® 3D system provides a revolutionary solution for visualization of microsurgical and open surgical interventions. And, our ENDOCAMÉLON® Technology allows for a wide range of 0° to 120° viewing directions without changing telescopes.

Kinamed, Inc

Camarillo, CA

Visit Kinamed’s booth to view the technology of the SuperCable®, Polymer iso-Elast® Clamping System, which solutions for multilevel wire, cable and wire systems. SuperCable provides a dual strand footprint which reduces cut-through. It elastically absorbs load & maintains compression, delivering pole clamp minimizes palpability, and the polymer cable allows for quick re-entry.

KLS Martin

Jacksonville, FL

KLS Martin is a company dedicated to providing innovative medical devices and professional healthcare solutions.

LifeNet Health

Virginia Beach, VA

LifeNet Health helps save lives, restore health, and give hope to thousands of patients each year.

LivaNova

Arvada, CO

LivaNova helps empower doctors and hospitals to make surgery less invasive than an open approach.

LocumTenens.com

Alpharetta, GA

Since 1995, LocumTenens.com has been a leader in placing physicians and advanced practice professionals in short-staffed healthcare facilities.

LoupeCam

Scottsdale, AZ

LoupeCam®, Instruments and Company

LOUPECAM®<br />Scottsdale, AZ

LocumTenens.com also provides innovative HD Cameras for your locations and lighted microscopes in software solutions for Windows, Mac and Mobile Solutions. Recording HD videos has never been easier with CreoView® software, much more intuitive than ever. Please visit us @loupecam.com

LSI Solutions

917

LSI SOLUTIONS® is a medical device company dedicated to advancing minimally invasive technology through research, development, and manufacturing of minimally invasive surgical systems. Our products represent the culmination of a unique patient. Our technology challenges human illness. Our mission is to lead the world in medical product innovation.
2019 EXHIBITOR MAP

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

STS Booth (#601)
Hear about the latest the Society has to offer, including member benefits, advocacy efforts, educational courses, e-learning modules, the STS Research Center, and the STS National Database.

Learning Lab Theater
Exhibiting companies and others will present talks and demonstrations. See page 13 for a list of presentations.

STS Exhibit Hall Hours
Monday 9:00 a.m. – 4:30 p.m. | Tuesday 9:00 a.m. – 1:30 p.m.

STS Booth (#601)

We Hear You.
Innovation through collaboration.

Stop by our booth to see our innovations.
The Thoracic Surgery Foundation, the Society’s cutting-edge research being conducted via the thoracic part of the human body. We produce Thoracic Surgery solutions, and “Healthcare”, engineering and manufacturing highly innovative medical vacuum technology solutions.

Medistim 431
Plymouth, MN

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

Medtronic 624
Minneapolis, MN

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

MedSpert North America 1133
Edmond, OK

MedSpert North America, LLC is a producer of medical devices (implants and instruments) specialized on all kinds of procedures in the thoracic part of the human body. We produce StraTox for three different indications (deformity, reconstruction after tumor resection as well as trauma and StaCos for two indications (trauma and reconstruction).

Microsurgery Instruments, Inc 1003
Bellaire, TX

Microsurgery Instruments is one of the leading suppliers of surgical instruments and loupes. Our instruments include: titanium scissors, needle holders, and debakey forceps. Our instruments include: titanium scissors, needle holders, and debakey forceps. Our instruments include: titanium scissors, needle holders, and debakey forceps. Our instruments include: titanium scissors, needle holders, and debakey forceps. Our instruments include: titanium scissors, needle holders, and debakey forceps. Our instruments include: titanium scissors, needle holders, and debakey forceps.
Terumo will display the VirtuoSaph® Plus Endoscopic Vessel Harvesting System, Beating Heart and Surgical Stabilization products, Terumo® Perfusion Products, and new data management solutions. Terumo Aortic will display the most comprehensive portfolio of products in the aortic space - providing solutions that meet the global needs of clinicians.

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

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

Veran Medical Technologies
St. Louis, MO
Veran is a privately held medical device company headquartered in St. Louis, MO. The company’s main focus is assisting physicians in the early diagnosis and treatment of lung cancer. Veran has developed and commercialized an FDA cleared, next generation electromagnetic navigation platform called the SPiN Thoracic Navigation System, which includes both endobronchial and transthoracic approaches.

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Experience Visual Innovation
Elevate your surgical procedures with these advanced Olympus solutions:

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

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

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

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

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

Western Thoracic Surgical Association
Beverly, MA
The Western Thoracic Surgical Association is an organization of cardiothoracic surgeons from 13 western states and 4 western provinces of Canada, whose one-of-a-kind meeting combines first rate scientific papers along with family-oriented activities. Please join us June 26-28, 2019 at Squaw Creek at Lake Tahoe in Olympic Valley, California.

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

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

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

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

ZipperBelt
Dallas, TX

Search Continues for Optimal Approach for Type A Aortic Dissections

The continuing evolution and improvement of procedures to repair type A aortic dissections is leaving cardiothoracic surgeons with more questions than firm answers as they plan what is typically an emergency repair. “We now have several different reconstructive options for type A dissections, and we’re trying to figure out the optimal choice on both sides of the Atlantic,” said STS Past President Joseph E. Bavaria, MD, of the Hospital of the University of Pennsylvania in Philadelphia. “European surgeons have had access to some devices we don’t have in the United States because of differences in approval processes, but the decision-making process is the same for all of us.”

A session organized by STS and the European Association for Cardio-Thoracic Surgery will help cardiothoracic surgeons learn the best approaches to repairing type A dissections regardless of where they practice. The session will be moderated by Dr. Bavaria and EACTS President Ruggero De Paulis, MD, of the European Hospital in Rome. Presenters from the United States and Europe will address four key questions:

- Does the total arch procedure have a place in today’s surgical armamentarium?
- Under what circumstances should a total arch with frozen elephant trunk be used?
- Is it appropriate to change the index procedure at the aortic arch based on the development of branched arch thoracic endovascular aortic repair (TEVAR) grafts? “Advancing technology has brought us to an inflection point,” Dr. Bavaria said. “We have a standard approach, and we have the real possibility that the standard isn’t good enough any longer given today’s devices and procedures.”
- Where does the now-classic hemiarch procedure fit into current treatment algorithms?
- Does the total arch procedure have a place in today’s surgical armamentarium?
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- Where does the now-classic hemiarch procedure fit into current treatment algorithms?

Learning Opportunities in the Exhibit Hall

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

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

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

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

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

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

This list is accurate as of January 27, 2019.
Born to stand out.

At Terumo Aortic, we understand that no two aortas are alike. We are 100% focused on the aorta, from the arch to the iliacs. With a comprehensive surgical, endovascular and hybrid portfolio* of individualised and off-the-shelf solutions, we help you address your patients’ unique challenges — so no patient is left behind.

Visit us at STS, booth number 1125, January 27-29 in San Diego, to learn how we are delivering individualised solutions for every segment of every aorta.

* Hybrid portfolio does not currently include custom configurations
Photo Gallery
The STS 55th Annual Meeting got off to a great start this weekend. On Saturday, Tech-Con previewed the latest technology in development. On Sunday, attendees gained hands-on experience at STS University, symposia were held on a wide variety of topics, and the Exhibit Hall opened.
‘Shark Tank’ Takes Aim at Unmet Surgical Needs

The cardiothoracic device market has grown dramatically in recent years, but unmet needs persist. Four physician-inventors aiming to tap the burgeoning market pitched their cutting-edge devices during “Shark Tank,” part of the Tech-Con Joint Session: The Future of Cardiothoracic Surgery.

Syed T. Raza, MD, of Columbia University Medical Center in New York, opened the pitch session with a stapler to create rapid and leakproof aortic anastomoses in patients with acute Type A aortic dissections. Conventional hand-sewn anastomoses are prone to bleeding.

Dr. Raza’s solution is a round stapler that joins native vessel and graft with two rows of 30 staples. The stapler can be handheld or fitted to a robotic arm.

Grayson H. Wheatley, MD, of TriStar Centennial Medical Center in Nashville, and Daniela Molena, MD, of Memorial Sloan Kettering Cancer Center in New York, were the sharks assessing the pitches. Dr. Wheatley said that he liked the novel idea. So did the audience, with 61% voting to fund development.

Jeffrey R. Gohean, MSME, of Windmill Cardiovascular Systems in Austin, TX, pitched a two-piston toroidal pulsatile flow VAD. The gentle pulsatile flow exerts low shear force, resulting in minimal blood trauma and platelet activation, which are responsible for the high rates of adverse events seen with conventional continuous-flow VADs. Preclinical trials show acute and long-term benefits and no thrombus formation without anticoagulation therapy.

Dr. Molena praised the novel approach while 78% of the audience voted to fund the project.

Usman Ahmad, MD, of the Cleveland Clinic, pitched ThoraStim, an implantable neurostimulator for pain management following cardiac surgery. The ThoraStim electrode is implanted along the intercostal nerve and protrudes slightly above the skin. Once the need for pain control has passed, the device is removed as easily as a chest tube.

Dr. Wheatley found the concept appealing, but said that human trial data are needed. The audience agreed, with 57% voting to fund the venture.

Faiz Y. Bhora, MD, of Mount Sinai Hospital in New York, pitched Tracheomend, a 3D printed artificial trachea. The printed trachea scaffold is wrapped in a biologic membrane impregnated with a “secret sauce” of homing molecules to attract epithelial and stem cells, which implant and grow to create a biologically competent trachea.

An intriguing idea, Dr. Molena suggested, but not ready for prime time. The audience agreed, with 57% voting to not fund the venture.
More and more often, cardiac and vascular surgeons are seeing the same patients and dealing with similar challenges, making a collaborative approach essential to optimizing outcomes.

“Cardiac surgeons and vascular surgeons have very different training and tools in their armamentariums,” said Keith B. Allen, MD, of St. Luke’s Mid America Heart Institute in Kansas City, MO. “It’s important for both types of specialists to expand their horizons and understand what strategies the other uses.”

Dr. Allen will co-moderate today’s session planned by STS and the Society for Vascular Surgery, which will outline common areas where surgeons should approach patient care collaboratively, considering all options at their disposal.

One example is vascular access. The use of transcatheter procedures has increased with expanding indications for endovascular devices. The size of some of these devices adds to the challenge of vascular access.

“The devices are getting smaller, but cardiac surgeons must be creative and think outside the box when femoral access is not available,” Dr. Allen said. “There is a continued need for alternate options for individuals with inadequate iliofemoral vessels.”

Historically, alternate options have included transapical and direct aortic approaches, but Dr. Allen noted that these choices have lost ground to minimally invasive strategies. He recommends that both cardiac and vascular surgeons have a working knowledge of less invasive approaches such as carotid, transcaval, axillary, and subclavian access.

Pulmonary embolism (PE) is another area in which the perspectives of both specialties are necessary. Acute PE is the third-leading cause of cardiovascular death in the United States, with an estimated 100,000 deaths each year. Among the challenges of PE are that it is often difficult to diagnose, clinical trial data are inadequate for evidence-based recommendations, and guidelines offer different risk stratification classifications.

Many clinicians need a greater understanding of guidelines for management of PE, Dr. Allen noted, and many institutions have yet to establish a PE team.

“In some institutions, care is provided in a piecemeal manner. There is no team or plan, or clinicians do not understand the distinctions among submassive, massive, and minor PE,” said Dr. Allen. “Clinicians should know how to diagnose different types of PE and understand the potential therapies—catheter-based procedures, surgery, and medical therapy. The most important point is to have a team and implement it.”

This session will outline how to organize a PE team, triage according to type of PE, and select appropriate therapy in individual cases.

KEITH B. ALLEN, MD

"Cardiac surgeons and vascular surgeons have very different training and tools in their armamentariums. It’s important for both types of specialists to expand their horizons and understand what strategies the other uses."

Keith B. Allen, MD
QUESTION OF THE DAY

What have you learned that you can take back home with you?

DEON VIGILANCE, MBA, MD
Philadelphia, PA

HESHAM SHAKEY, MD
Cairo, Egypt

AHMED EL-KERDANY, MD
Cairo, Egypt

“In the morning, I attended the session on congenital heart about how to deal with the patient in different scenarios. That will be helpful as soon as I return.”

“In the critical care symposium, they were discussing management of cardiac arrest in post open heart. They all agreed that early reopening of the sternum is the best method. There also was a lot of talk about the alternatives to heparin, using other drugs, which will be very useful.”

“In the morning, I attended the session on congenital heart about how to deal with the patient in different scenarios. That will be helpful as soon as I return.”

STAY CONNECTED

TODAY’S TOP TWEETS #STS2019

Admittedly, the #STS2019 @STS_CTSurgery conference bags are the best I’ve ever had/seen so far. Thrilled to be here, starting off with half a day of #ACHD. #globalcardiacsurgery

@DVervoort94

Opioid epidemic is a national emergency - creative minds like @UsmanAhmadMD from @CleClinicMD are developing better ways to treat pain like this novel neuromodulation system placed robotically for post Cardiothoracic surgery pain presented today at #STS2019

@EricRoselliMD

#STS2019 The meeting app is awesome!! No need to carry paper around.

@DHollingsMD

Great Bronchoscopy session co-sponsored by CHEST @accpchest and STS at STS annual meeting in San Diego #STS2019. Loved the lively discussion on lung cancer staging and role of #EBUS vs. Mediastinoscopy. Wonderful partnership between thoracic surgery and pulmonary

@Int_Pulmonology

Dr. @BrentKeeling on early career development: 1. Plan 2. Establish your reputation 3. You are a leader, act like it 4. Conduct yourself accordingly 5. Take on responsibilities 6. Be careful 7. Know the rules and follow them #sts2019 #tssmn @STS_CTSurgery #ctcareers

@JessicaLuc1

Tech-Con ✔ Honored to learn from brilliant innovators who are constantly thinking outside of the box and creating the future of our field #sts2019 @tomcnguyen

@thestephnguyen2
Crescent™
Jugular Dual Lumen Catheter

The Crescent catheter is the first FDA-cleared, jugular dual lumen long-term ECMO catheter. It allows for more accurate placement with just one cannulation site, delivers enhanced flow dynamics, and helps maintain optimal flow once placed.

Available for sale in the United States only

Stop by our booth to see the Crescent catheter in all five sizes.

*Bench and animal data on file at MC3 (200769), 21 CFR8870.4100
medtronic.com/Crescent

IMPORTANT SAFETY INFORMATION
Care and caution should be taken to avoid damage to vessels and cardiac tissue during cannulation or other cardiac surgery procedures. For listing of indications, contraindications, precautions, warnings, and potential adverse events, please refer to the Instructions for Use.

Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.

Crescent™ Jugular Dual Lumen Catheter is manufactured by MC3, Inc. and exclusively distributed by Medtronic.

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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.

Join us at Booth 511


Explore by scanning the QR code or visit getinge.com/cabg