

TAVR's Revolutionary Journey Continues to Reshape Cardiothoracic Surgery



With trends emerging and new data available, the time may have finally come to designate transcatheter aortic valve replacement (TAVR) as the preferred treatment for aortic stenosis in most patients.

Since the first valve implantation in 2002, TAVR's feasibility and effectiveness have consistently been substantiated by an accumulation of rigorous, evidence-based clinical experience. Simplification of the technique and improvements in valve design and delivery systems also have helped advance this rapidly evolving technology.

Data from the STS/American College of Cardiology (ACC) Transcatheter Valve Therapy (TVT) Registry™ confirm that the number of TAVR procedures performed annually in the US is more than double the number of isolated surgical AVR procedures performed to treat aortic stenosis. In 2012, when the technology was first approved by the US Food and Drug Administration (FDA), fewer than 5,000 TAVR procedures were

performed. Six years later, in 2018, more than 59,200 TAVR procedures were completed in the US, while an estimated 25,274 isolated SAVRs were performed.

This is an "amazing and dramatic development," according to Joseph E. Bavaria, MD, chair of the STS/ACC TVT Registry Steering Committee. At Penn Medicine in Philadelphia, where Dr. Bavaria is co-director of the Transcatheter Valve Program, between 400 and 500 TAVR procedures are performed each year.

"It is important that quality remains robust."

—Joseph E. Bavaria, MD

TAVR COULD BENEFIT LOW-RISK PATIENTS

First reserved only for inoperable patients or those at high surgical risk, TAVR has

since expanded to intermediate-risk patients. Next in line for TAVR are patients who are at lower risk for surgery, explained Dr. Bavaria. At the most recent ACC annual meeting, researchers presented two randomized TAVR trials—PARTNER 3 and EVOLUT—that confirmed the benefits of TAVR in

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Next Generation STS National Database Launches in 2020

A major transformation is under way to the STS National Database that will change the way that participants interact with the Database, monitor performance, and use the Database for quality improvement initiatives at their own institutions.

The Society will be using a new data warehouse, IQVIA, a leading global provider of advanced technology solutions. IQVIA's extensive track record in the health care arena, along with its transformative solutions, will provide Database participants with:

- Cloud-based technology
- Interactive dashboards
- Unique insights using real-time results
- Resource savings through streamlined data collection

The Duke Clinical Research Institute will remain an analytics center for the Database.

"We've been working tirelessly on this extremely important initiative for more than a year," said STS President Robert S.D. Higgins, MD, MSHA. "We listened to participant feedback and understood that we had a huge opportunity to modernize and optimize the Database. The Society has made a substantial financial commitment and is taking the necessary steps to roll out this next generation Database in early 2020."

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Pressure Makes Diamonds

Robert S.D. Higgins, MD, MSHA

My mother always said that we need to rise to the occasion when things seem challenging in our personal or professional life. Challenges met successfully enhance our ability to tackle the next big obstacle; she would say “pressure makes diamonds.”

I later found out that my mother was not the only prophetic person to use this analogy. General George Patton said the same thing in 1944 during WWII.

For our specialty, recent circumstances surrounding the public reporting of surgical outcomes have and will continue to create a beachhead and challenge our profession to rise to the occasion.

At a recent STS National Database brainstorming session, surgeon leaders emphasized the importance of participation. Since 1989, the STS National Database has been the premier clinical outcomes registry in cardiothoracic surgery, focusing on quality assessment and process improvement, with more than 90%-95% penetration within the adult cardiac and congenital programs in the US.

The four component registries that make up the Database have more than 7.9 million surgical records from more than 6,000 participating surgeons, anesthesiologists, and other physicians in 11 countries, making it the respected leader of clinical registries worldwide.

We take that role seriously, and we continue to **assess the foundations of appropriate risk-adjusted performance measurement while enhancing participant satisfaction, reducing data**

entry burden, and maximizing Database utilization and ease of use.

The beneficiaries of STS National Database participation are widespread and include STS members, hospitals, patients, health care organizations, and federal regulators (CMS and FDA), as well as medical device, pharmaceutical, biotechnology, and insurance companies. It's no surprise that recent high-profile articles critiquing congenital heart surgery programs reference the value of publicly reporting risk-adjusted outcomes using the Database.

But it's not just about measurement; it's about improvement. In my opinion, participation itself should not be the

only goal; quality assessment and process improvement also are extremely valuable tenets. We strongly encourage our members and their programs to use their participant data to internally evaluate team

performance and measure observed outcomes versus expected performance. Even though the risk-adjustment models are not perfect (they continually undergo upgrades and improvements), they give our profession the best means to measure and improve the morbidity and mortality associated with adult and congenital heart surgery. This has been the case with open heart surgery, as morbidity and mortality have been reduced significantly over the past 30 years!

It's not a perfect business. We understand and empathize with patients and families who have imperfect and complicated outcomes after open heart surgery. They deserve the best that our profession can

offer. Reporting outcomes in a transparent and understandable format offers them the best chance to make informed decisions for a successful procedure and outcome. We are hopeful that the data reported through the STS Public Reporting system are a value-add to patients and programs.

We recently modified our STS Public Reporting website to provide more accurate and clear delineations of how the star quality metrics are determined and to emphasize their value as internal, program-specific metrics for patients and professionals. The majority of adult and congenital heart programs (more than 90%) are ranked as two- or three-star programs. These reported outcomes allow patients, surgeons, and hospitals alike to determine their performance against industry norms.

Some cardiothoracic surgery programs don't meet their own expectations. But we are certain that these programs and others around the country will use their data to make improvements. At this moment in time where the pressure to meet or surpass expectations is greatest, our specialty will rise to the occasion, just as it has done over the past 30 years. By reviewing outcomes regularly and instituting better ways to take care of patients, we can continually enhance quality and potentially save lives.

As we respond to today's extraordinary challenges and pressures, quality assessment and improvement efforts led by The Society of Thoracic Surgeons will remain a “jewel” for modern health care in the years to come. ■

At this moment in time when the pressure to meet or surpass expectations is greatest, our specialty will rise to the occasion.

The Society's mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy.

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The concept of "fair market value" is a centerpiece in physician employment compensation agreements as mandated by federal law. In this edition of STS News, Dr. G. Randall Green explores the challenges associated with the real-world application of this construct.

Frank L. Fazzalari, MD, MBA, Chair, Workforce on Practice Management

The Systemic Misuse of Physician Compensation Survey Data

G. Randall Green, MD, JD, MBA

Division Chief of Cardiac Surgery, Upstate Medical University, Syracuse, NY

If physicians used clinical research the way that the health care industry uses physician compensation surveys, patient outcomes would be as unpredictable as practice valuations. Most market participants believe that compensation surveys establish a fair market value of physician compensation. Defining ranges of fair market value of physician compensation using these surveys, however, reveals a systemic misunderstanding of the data and leads to an indefensible valuation practice.

Compensation market research lacks the rigor of the STS National Database to be used with the same confidence for valuation purposes. Survey data are drawn from voluntary samples, and specialty sample sizes reported can be comparatively small. Many commercial studies also are biased toward large, multispecialty groups providing data. By using a single questionnaire for every specialty, current surveys fail to capture specialty-specific and even subspecialty-specific drivers of value in each of these very different businesses. In our own specialty, consider the significant differences between adult cardiac, pediatric cardiac, and general thoracic surgery. Such incomplete data collection ultimately limits comparability.

To use market research for physician compensation valuation, comparability of the survey data to the subject transaction is a threshold issue. Market participants routinely turn to physician productivity as the sole measure of comparability. Here, measures of productivity such as the much-derided wRVU percentile are used to identify a corresponding percentile of compensation. This practice assumes a relatedness between survey data tables and a linear correlation between productivity and compensation. Tim Smith of TS Healthcare Consulting, however, has shown using Medical Group Management Association data that productivity fails to account for as much as 60%-70% of physician compensation. Physician compensation follows a multifactor economic model, and survey instruments that fail to collect a comprehensive

dataset limit comparability. The lack of scholarship on the physician compensation data itself limits our understanding and, therefore, the utility of the surveys.

The importance of these studies should be clear to anyone in clinical practice. Although a few holdouts remain, the majority of STS members are now employed, leased, or in management positions and, therefore, have financial relationships with hospitals. The requirement that such relationships be at fair market value means that existing physician productivity and compensation market research will be used to establish levels of compensation. What may not be so clear to high-earning physicians is how survey data are used in regulatory compliance cases where hospitals and health systems are alleged to have paid above fair market value for physician services.

In two notable cases, Tuomey and Halifax, the compensation valuation expert for the Department of Justice took the position that fair market value should be based exclusively on physician compensation survey data. Due to the nature of participation in voluntary surveys, it is possible that high-earning physicians compose a very small proportion of the sample used to construct currently available compensation data. As such, those same physicians fail to establish the true market for their professional services with resulting increased compliance risk.

Although physicians cannot control how the data are used, the power to create a truly representative database of physician productivity and compensation lies with each one of us. As one of the first societies to collect our clinical data to improve clinical outcomes, perhaps it is time to lead once again by using our own practice data to serve our profession. ■

Note: STS will conduct its quinquennial practice survey this fall. More information about this important survey will be provided in the coming months.



First Impressions of an Impressive Specialty

Elaine Weiss, JD
CEO/Executive Director

For most people, April 15 means **IRS** (tax day). For me, April 15 meant **STS** (first day on the job as Executive Director).

Paying my taxes can be painful; joining STS has been joyful.

For more than 25 years, I've worked on health care issues and/or been in the professional association management world. Combining my passion for both into one STS executive director position has been energizing, exhilarating, and only occasionally exhausting.

Today more than ever, navigating the changing health care landscape while simultaneously ensuring that STS membership value remains strong, represents a significant challenge.

Luckily, I savor a good challenge. And, as it turns out, STS produces a wealth of products, programs, and services that constitute a strong arsenal of tools to tackle the multiple issues that cardiothoracic surgeons face such as:

- A daunting array of regulatory and reimbursement complexities
- Rapidly emerging techniques and technologies
- Evolving workplace and employment arrangements
- Persistent legal liability pressures and increased media scrutiny
- Greater emphasis on patient safety and quality improvement
- Increases in both physician burnout and retirements
- Maintaining a robust pipeline of diverse and talented young physicians

The professional challenges are clear. But in times of great challenge, the big question is whether STS is up to the task of facing these challenges and delivering for its members.

No surprise; I believe my response is that STS is perfectly poised to tackle the challenges of today and take on the issues of tomorrow.

First, STS physician leaders represent the titans of the specialty. The quality of our education through live programs, webinars, and podcasts involves cutting-edge issues and top-line experts. The clinical practice guidelines we develop, position statements we articulate, and mentoring we provide to the newest members of the specialty are powerful initiatives led by impressive professionals.

Our visibility in Washington continues to grow as we solidify relationships and interactions with key policy leaders on the Hill, CMS, and the FDA. And when it comes to the RUC—where the entire House of Medicine gathers and establishes the relative value of medical procedures to inform payment decisions—one of our own, cardiothoracic surgeon Peter Smith, leads the entire group.

(If this were the musical *Hamilton*, RUC meetings would definitely represent “the room where it happens.”)

Nowhere is the STS arsenal more effective in bolstering the profession and its individual members than through the STS National Database. But even a gold standard program can become tarnished if not adequately polished.

So, a rigorous process to deliver the next generation database is under way. This will not be “your father’s database” but our “STS National Database 2.0.” (See page 1.)

Here at STS, we’re fine-tuning our operations, enhancing technology, and reaching

out via social media to meet the changing needs of our members.

But at the end of the day, the value of an association for its members still remains the personal interaction with colleagues, mentors, leaders, and future leaders.

STS is perfectly poised to tackle the challenges of today and take on the issues of tomorrow.

In today’s world when virtually everything is virtual, I truly believe that the joy of coming together to interact with professional colleagues who share a passion and pursuit of excellence cannot be replaced.

Artificial intelligence may be the wave of the future for the practice of medicine, but associations and the role they play on behalf of their members remains based in the traditional yet powerful personal connections one makes throughout his or her career. From finding that first job to fine-tuning your skills to mentoring the next big name in the specialty, STS is “the room where it happens.”

So, on April 15 I began my new journey. I’m thrilled to embark on this adventure and help bolster the Society as it serves a specialty that I quickly have come to respect and now proudly represent.

I stand ready to do my part in partnership with our terrific surgeon leaders, led by STS President Robert Higgins. I am excited to work together with my impressive new STS colleagues.

The good news is that April 15 no longer reminds me of the dreaded tax day. It now represents my anniversary with STS. The bad news is that I was so excited to begin my new role that I ended up filing for a tax extension. ■

Member News



WOOD, LAHEY TO SERVE ON MEDCAC

The Centers for Medicare & Medicaid Services (CMS) has invited two STS surgeon leaders to join its Medicare Evidence Development & Coverage Advisory Committee (MEDCAC). Past President **Douglas E. Wood, MD, FRCSEd**, and Workforce on Health Policy, Reform, and Advocacy Chair **Stephen J. Lahey, MD**, began their MEDCAC service in June. The Committee was established to provide independent guidance and expert advice to CMS on specific clinical topics. Dr. Wood has been an STS member since 1995, and Dr. Lahey has been an STS member since 1991.



GUY HEADS TO PHILLY

T. Sloane Guy, MD, MBA, is the new director of minimally invasive and robotic cardiac surgery at Thomas Jefferson University Hospital in Philadelphia. Most recently, Dr. Guy was an associate professor of cardiothoracic surgery at Weill Cornell

Medicine/New York-Presbyterian Hospital in New York City. He has been an STS member since 2006.



BHORA LEADS TEAM AT HEALTH QUEST

Faiz Bhora, MD, is the new chief of thoracic surgery and associate program director of surgery at Health Quest Health System in New York City. Previously, he was chief of thoracic surgery at Mount Sinai West and Mount Sinai St. Luke's Hospitals in New York.

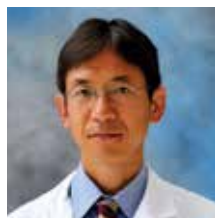
Dr. Bhora has been an STS member since 2005.



MASSARD TO LAUNCH NEW TRAINING PROGRAM

Longtime Université de Strasbourg professor **Gilbert Massard, MD**, has moved from France back to his birthplace of Luxembourg. The University of Luxembourg in Luxembourg City has hired Dr. Massard as professor and director of medical

education, tasked with creating a new bachelor in medicine program to launch in September 2020. He has been an STS member since 1996.



TAKAYAMA MOVES UP AT COLUMBIA

Hiroo Takayama, MD, PhD, has been promoted to director of the Cardiovascular Institute and co-director of the Aortic Center at Columbia University in New York. Dr. Takayama has risen through the ranks at Columbia, completing his thoracic surgery

residency and later directing the ECMO program there. He has been an STS member since 2011 and was the recipient of a 2017 Research Award from The Thoracic Surgery Foundation.



ZEHR NAMED EXECUTIVE DIRECTOR AT DMC

Kenton J. Zehr, MD, is the new executive director of Detroit Medical Center's Heart Hospital. He moves to Detroit from The Johns Hopkins Hospital in Baltimore, where he was an associate professor of surgery.

Dr. Zehr has been an STS member since 2003.



NAVIA DIRECTS CLEVELAND CLINIC CENTER

José Luis Navia, MD, has been appointed chairman of the Department of Cardiothoracic Surgery and director of the Cleveland Clinic's Heart and Vascular Center in Weston, Florida.

Dr. Navia previously was vice chairman for innovations at the Cleveland Clinic's Heart and Vascular Institute in Ohio, as well as a professor of cardiothoracic surgery at the Lerner College of Medicine at Case Western Reserve University. He has been an STS member since 2003.



LAUDITO APPOINTED MEDICAL DIRECTOR

Antonio Laudito, MD, is now medical director at The Heart Institute at Palmetto General Hospital in Hialeah, Florida. Most recently, he worked as a cardiothoracic surgery specialist at Ocala Heart Institute in Florida, Hilton Head Hospital in South

Carolina, and St. Joseph Hospital in Eureka, California. Dr. Laudito has been an STS member since 2002.



COHEN DIRECTS CONGENITAL PROGRAM

Gordon A. Cohen, MD, PhD, has been named director of Banner Children's Congenital Heart Program at Cardon Children's Medical Center in Mesa, Arizona. Dr. Cohen previously was the Julien Hoffman Professor and Endowed Chair of Cardiac

Surgery, vice chair of surgery, and surgical chief of pediatric surgery at the University of California San Francisco. He has been an STS member since 2004.



KISER IS NEW ST. CLAIR CHIEF

Andy C. Kiser, MD, MBA, has been named chief of cardiac surgery at St. Clair Hospital in Pittsburgh, Pennsylvania. Dr. Kiser previously was a distinguished professor and chief of the Division of Cardiac Surgery for the Brody School of Medicine at East Carolina

University in Greenville, North Carolina. He is the founder and CEO of the Advanced Cardiac Access Training Institute, also in Greenville. Dr. Kiser has been an STS member since 2003. ■

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TAVR's Revolutionary Journey Continues to Reshape Cardiothoracic Surgery

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the lowest-risk patients to date and are expected to pave the way for a new low-risk indication for TAVR technology.

"I anticipate that TAVR will be FDA approved for low-risk patients, and this will be an important advance as it will change the way aortic valve replacement is performed in 70% of all patients with aortic stenosis," said Dr. Bavaria.

In the PARTNER 3 study, researchers investigated the outcomes of 1,000 patients across 71 hospitals—half underwent traditional open heart surgery and the other half received TAVR. The data indicated a 46% reduction in death, stroke, and rehospitalization at 1 year for the TAVR group. In addition, postoperative or new-onset atrial fibrillation was reported in only 5% of TAVR patients, compared to approximately 40% of SAVR patients. It is important to note that the trial demonstrated outstanding results for open heart surgery, as well.

The EVOLUT study also supported TAVR as a safe alternative to traditional surgery. This research, which included 1,403 patients who randomly were assigned to undergo either TAVR (n=725) or SAVR (n=678), demonstrated that TAVR, when compared to open heart surgery for valve replacements, had a similar rate of disabling stroke or death at 2 years (5.3% versus 6.7%, respectively). Paired with the results of the PARTNER 3 trial, the EVOLUT findings suggest that low-risk patients do as well and maybe even better with TAVR than with SAVR after 2 years. Both the PARTNER 3 and EVOLUT studies were published in the *New England Journal of Medicine* (NEJM).

Also important to shaping the future of TAVR is the TVT Registry. Often referred to as a "national treasure," the Registry is an essential component in TAVR data collection. The list of published research using data from the TVT Registry continues to grow; very importantly, the research has provided essential information on new therapies and

identified outcomes in groups of patients not treated in randomized clinical trials (such as those with bicuspid aortic valves).

"One wonderful thing about the TVT Registry is that it includes all TAVR cases

throughout the entire United States," said Richard J. Shemin, MD, chief of cardiac surgery and the Robert and Kelly Day Professor of Surgery at UCLA Health and the David Geffen School of Medicine. "It's real-world

experience that continues to evolve and will help provide outcomes data as the patient populations and indications change. In addition, the data will allow hospitals and TAVR teams to compare themselves to other sites, ensuring high-quality results and appropriate indications for the procedure. I think this gives a lot of confidence to the people who will suffer from aortic valve disease and eventually need a TAVR."

THE VALUE OF VOLUME

Included in the Registry are approximately 610 participating TAVR sites, with 130 added just in the past 2 years. Dr. Bavaria explained that experts expect an increase to more than 850 sites within a few years. This growth is noteworthy, especially since the volume-outcome relationship debate is ongoing and was a hot topic considered by the Centers for Medicare & Medicaid Services (CMS) as it finalized a new TAVR national coverage determination (NCD). For the latest on the TAVR NCD, see page 15.

"With too many centers in the market, you work against the volume-outcome relationship, meaning that as cases get diluted over a lot of centers, each center does less TAVR volume," said S. Chris Malaisrie, MD, co-director of the Bicuspid Aortic Valve Clinic and Thoracic Aortic Surgery Program at Northwestern Medicine in Chicago. "It's been shown that the less you do, the worse the outcomes; the more you do, the better the outcomes."

A recent study published in *NEJM* supported a volume-outcome relationship. Dr. Bavaria and colleagues analyzed data from the TVT Registry, which included 113,662 TAVR procedures performed at 555 hospitals by 2,960 operators from 2015 to 2017. The investigators observed an inverse volume-mortality association, with mortality at 30 days higher and more variable at hospitals with a low procedural volume than at hospitals with higher volumes.

The new NCD relaxes volume requirements, especially for hospitals looking to start a TAVR program. At the same time, CMS is trying to find the right balance between ensuring quality of care and maintaining sufficient access to TAVR. Dr. Bavaria explained that STS and ACC will work with CMS to develop "proper and sophisticated" metrics that will help guide the transition from a pure volume metric to an outcomes metric. This will help centers better determine areas of deficiency and hone in on specific outcomes measures that may be difficult to identify in day-to-day practice.

"We want to help ensure, through the TVT Registry and with these new metrics, that low-volume sites are performing quality work. We also want to identify any sites—low or high volume—that are performing work that is below standard," said Dr. Bavaria. "It is important that quality remains robust."

FUTURE OF CT SURGERY

With more and more centers offering TAVR and an increased number of patients opting for this procedure over open heart surgery, what does the future of heart surgery look like? Dr. Malaisrie explained that surgeons will have to adopt a new skillset to include interventional and catheter-based procedures. In addition, the expansion of TAVR will affect how the next generation of cardiac surgeons are trained.

Dr. Bavaria agreed. "If you're a cardiothoracic surgeon and you're not involved with TAVR, your aortic valve treatment operations are going to decline. TAVR will be the mainstay treatment for aortic stenosis. Period." ■

Next Generation STS National Database Launches in 2020

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Among the most important changes for the Adult Cardiac Surgery Database (ACSD) will be a reduction in data fields by at least 30%.

“This reduction will save resources and make data abstraction far more manageable by removing minimally utilized fields and keeping those essential for quality improvement, risk assessment, and future analyses,” explained Vinay Badhwar, MD, chair of the STS Council on Quality, Research, and Patient Safety.

Participants in all component databases can continue working with their current software vendors, but they won't have to—unless they want to—after January 2020. Other improvements include new staging for the General Thoracic Surgery Database and STAT category and risk model updates for the Congenital Heart Surgery Database.

“There will be something for everyone, and we look forward to vigorous beta testing and showing you the results,” said Dr. Higgins. “This is an exciting time for the specialty!”

New dashboards will be demonstrated and additional information will be shared at the Advances in Quality & Outcomes: A Data

Managers Meeting, October 23-25 in New Orleans. For more information on the AQO Meeting, visit sts.org/aqo.

ADVANCED OUTCOMES AND RESEARCH CAPABILITIES ALSO ON HORIZON

In addition to the new and innovative registry platform that will be offered to Database participants, the Society also is taking steps to enhance outcomes reporting and make the Database more impactful.

STS is working on several initiatives that would supplement data available in the STS National Database with longitudinal death follow-up, cause-of-death, reoperation, and socioeconomic data. These changes will enable investigators to conduct research focused on long-term outcomes on a national scale, disparities, access to care, and cost-effectiveness.

“We are on the verge of integrating National Death Index data with the Database to transform it into a powerful multiyear follow-up registry,” said Dr. Badhwar. “It would be a game changer for the specialty.”

More information on all of these new projects will be available in the coming months. ■

REMINDER: ELECT TO RECEIVE SURGEON-SPECIFIC FEEDBACK

If you participate in the STS Adult Cardiac Surgery Database (ACSD), don't forget to take advantage of a new opportunity for self-assessment and quality improvement in cardiothoracic surgery—surgeon-specific outcomes reports. For those who affirmatively opt in, these feedback reports will be available beginning this fall and will include data on coronary artery bypass grafting (CABG), aortic valve replacement (AVR), CABG+AVR, mitral valve repair and replacement (MVRR), and CABG+MVRR for January 2016 through December 2018. If you would like to receive your surgeon-specific reports, visit sts.org/surgeonspecific to get started. ■

STS STRUCTURAL HEART SYMPOSIUM: *Mastery in Mitral Valve and Tricuspid Valve Therapies*

Aug. 23-24, 2019
Chicago, IL

sts.org/structuralheart



16th Annual Multidisciplinary Cardiovascular and Thoracic Critical Care Conference

Sept. 26-28, 2019
Baltimore, MD

sts.org/criticalcare



ADVANCES IN QUALITY & OUTCOMES: A Data Managers Meeting

October 23-25, 2019
New Orleans, Louisiana

sts.org/AQO

TSF Grants Boost Careers, Improve Patient Outcomes

For cardiothoracic surgeons establishing their research programs or pursuing advanced surgical training, grants from The Thoracic Surgery Foundation (TSF) can serve as stepping stones to bigger endeavors.

As the Society’s charitable arm, TSF provides funding for research, education, leadership courses, and surgical outreach missions and awarded \$951,500 in grants for 2019. Applications for 2020 grants open soon (see next page for more details).

Two previous grant recipients have found that the support provided by TSF has had a significant impact on their careers.

LUNG TRANSPLANT RESEARCH GRANT PAVES WAY FOR R01 STUDY

Bryan A. Whitson, MD, PhD, was awarded a \$3.4 million, 5-year R01 grant from the National Heart, Lung, and Blood Institute last year—thanks in part to data generated from the TSF Research Grant he received in 2015. Dr. Whitson is the director of the Section of



TSF Research Grant awardee Bryan A. Whitson, MD, PhD, received an R01 grant for his work with ex-vivo lung perfusion.

Thoracic Transplantation and Mechanical Circulatory Support at The Ohio State University Wexner Medical Center in Columbus.

His research focuses on utilizing ex-vivo lung perfusion (EVLP) to improve the quality of donor lungs and lower the risk of primary graft dysfunction (PGD) after transplant surgery.

While patients are continually added to the lung transplant waiting list, the number of available donor organs can’t keep up with demand. And once patients receive new lungs, severe PGD can occur in up to a third.

PGD is thought to be caused by ischemia/reperfusion injury; Dr. Whitson and his colleagues theorized that

using the protein MG53 during EVLP could help mitigate this injury by reversing damage to cell membranes.

With the funding from the TSF grant, the researchers identified the ideal dose of MG53 to be used during EVLP and tested its regenerative and protective functions in rat models.

“This financial support [from TSF] set the stage for my future research endeavors, allowed me to be promoted, and was absolutely critical to getting the R01 funding.”

—Bryan A. Whitson, MD, PhD

“Not only did the TSF grant provide the financial resources to develop the preliminary data needed for my R01 application, but it also provided external validation to the National Institutes of Health that the research question and methods had merit,” he said.

Over the course of the R01 grant, the researchers will use EVLP with MG53 to conduct lung transplants in porcine models, setting the stage for future clinical trials. They also will work to solidify an assessment signature that would identify lung injury more precisely than arterial blood gases. Dr. Whitson said his ultimate goal is for more patients to receive lung transplants and have better outcomes.

As TSF prepares to open submissions for its 2020 award cycle, Dr. Whitson advised applicants to be persistent and seek strong collaborations.

Honor Roll | TSF has provided funding to faculty from a wide variety of institutions. The following have received the most TSF funding since 1993.



- A University of Pittsburgh Medical Center
- B University of Pennsylvania
- C Washington University in St. Louis
- D University of California, San Francisco
- E Johns Hopkins Medical Center
- F University of Washington
- G University of California, Los Angeles
- H Stanford University
- I University of Virginia
- J University of Toronto

“TSF grants provide resources to advance the research and also bring recognition to the institution,” he explained. “This financial support set the stage for my future research endeavors, allowed me to be promoted, and was absolutely critical to getting the R01 funding.”

DAVIDSON FELLOWSHIP EXPANDS SKILLS IN MINIMALLY INVASIVE CARDIAC PROCEDURES

In addition to research awards, TSF currently offers five educational fellowships, including the Michael J. Davidson Fellowship, created in honor of the cardiothoracic surgeon who was killed in January 2015 at Brigham and Women’s Hospital in Boston.

Dr. Davidson was a strong advocate for a future that would meld the cardiac catheterization lab with the operating theater, and the fellowship is awarded to early career cardiothoracic surgeons who share his passion for less invasive heart surgeries.

2018 Davidson Fellowship awardee Moritz C. Wyler von Ballmoos, MD, PhD, MPH, has a deep interest in this area, having previously completed fellowships in robotics and minimally invasive cardiothoracic surgery.

“This is currently the most exciting and innovative domain of cardiac surgery in which to work,” he said. “I have a passion for treating valvular heart disease, and I find the science and technology that we can leverage to improve patient outcomes in this field stimulating.”

During his yearlong Davidson Fellowship at Houston Methodist DeBakey Heart & Vascular Center in Texas, Dr. Wyler

von Ballmoos implanted more than 350 transcatheter heart valves and performed more than 100 minimally invasive surgeries.

He spent substantial time in the cath lab and hybrid OR, improving his skills in utilizing transcatheter technology to treat various conditions, including valve disease, paravalvular leak closure, and aortic pathologies.

Dr. Wyler von Ballmoos also focused on minimally invasive cardiac surgery cases consisting mostly of mitral valve repair surgery, aortic valve replacement,

and coronary artery bypass grafting surgery. He developed expertise in imaging for structural heart interventions, including advanced

imaging technology (such as 3D image fusion) that also is useful for minimally invasive cardiac surgery.

“The time spent with thought leaders in the field has given me more breadth and depth in terms of my skillset and knowledge, allowing me to take better care of simple and complex cases alike,” Dr. Wyler von Ballmoos said.



Moritz C. Wyler von Ballmoos, MD, PhD, MPH, received the TSF Michael J. Davidson Fellowship to improve his skills in transcatheter therapies.

He encouraged other cardiothoracic surgeons to apply for the Davidson Fellowship and advance their knowledge in transcatheter techniques.

“As the Roman philosopher Seneca once said, ‘Fate leads the willing and drags along the reluctant.’ That is no different for the treatment of structural heart and aortic disease in the 21st century,” Dr. Wyler von Ballmoos said. “Surgeons who are not experts in transcatheter treatments of these disease processes miss out on the opportunity to be the one unbiased advocate offering the full therapeutic spectrum to patients.” ■

Apply Today for TSF Grants

Applications will open on July 15 for a number of awards, fellowships, and scholarships from TSF. Learn more at thoracicsurgeryfoundation.org/awards and submit your application by September 15, 2019. Contact TSF Executive Director Priscilla Kennedy at pkennedy@sts.org or 312-202-5868 with any questions.

STS Members Worry About Competition, Work-Life Balance

Practice arrangements are changing and professional challenges are becoming more intense for many STS members, according to the most recent member needs-assessment survey.

Approximately 800 members (12%) responded to the online survey, conducted in November and December 2018. Questions asked were similar to those from a 2012 member needs assessment and in a 2015 strategic planning survey.

Compared to 2012, a higher percentage of members now work in universities and hospitals (78% versus 66%), although this practice shift was more likely to occur among members within the United States.

Practice changes may be connected to an increasing percentage of members who identified “managing work-related pressures” such as workload and work-life balance as their top professional challenge. In 2018, 38% of members selected this challenge, compared to 33% in 2015. Other high-scoring concerns included staying up to date on clinical advances (29%), career progression (28%), and managing regulatory/administrative burdens (28%).

Differences among the disciplines included adult cardiac surgeons expressing greater uneasiness than colleagues about competition from other specialties and congenital heart surgeons displaying more worry about conducting and applying research.

“The results of this survey are important, and we are grateful to those members who participated,” said STS President Robert S.D. Higgins, MD, MSHA. “As a membership organization, we are developing a series of strategic planning sessions, and members’ concerns will be addressed during those meetings.”

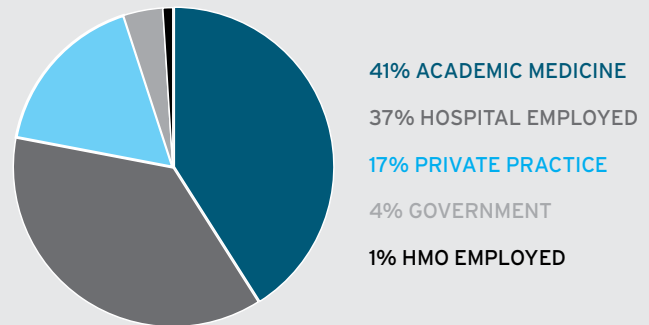
SATISFACTION WITH MEMBERSHIP, BENEFITS

More than three-quarters of members said that they were satisfied or extremely satisfied with their membership (78%), which is similar to the results in 2015 (79%).

The membership benefits valued by the majority were *The Annals of Thoracic Surgery* (89%), followed by live educational courses such as the STS Annual Meeting (73%), and the STS National Database (61%).

A majority of survey respondents (64%) said that they prefer to receive communications from STS by email. Among the types of information offered by the Society, a plurality chose clinical practice guidelines (38%) and clinical research (23%) as being most important.

STS MEMBERS BY PRACTICE ARRANGEMENT



The Society’s two general communications, *STS News* and *STS Weekly*, have been of increasing value to members. A majority of respondents (81% and 69%, respectively) listed these communications as useful or very useful in 2018, compared to 63% and 50%, respectively, in 2012.

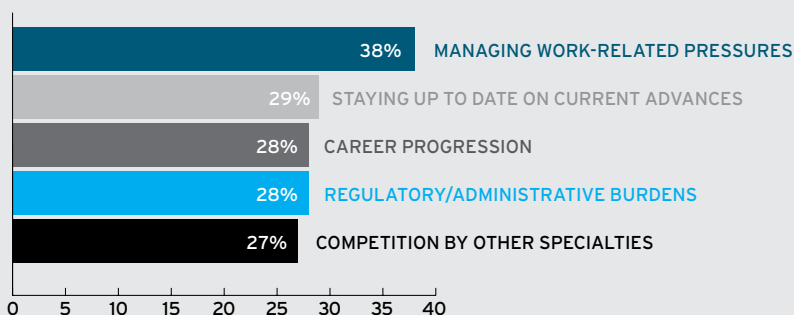
Among targeted communications, those that were perceived by the majority as being useful and very useful were *STS National Database News* (76%), the *Surgical Hot Topics* podcast (75%), and the roundtable video series (73%).

QUINQUENNIAL PRACTICE SURVEY

Later this year, the Society will open its important cardiothoracic surgery practice survey. The survey has been conducted approximately every 5 years since 1974 in order to obtain a better understanding of cardiothoracic surgery practice trends in the United States.

Although surveys offer a great opportunity for members to provide feedback to the Society, members should feel free to contact STS at any time during the year. If you have comments or concerns, contact Dr. Higgins via his STS email box at rhiggins@sts.org. ■

TOP 5 PROFESSIONAL CHALLENGES



CABG, Opioid Studies Make Headlines

The Society issued three press releases this past quarter highlighting important research on the benefits of coronary bypass grafting surgery (CABG) over percutaneous coronary intervention (PCI), how the opioid epidemic has led to an increase in donor hearts, and the institutions generating the most research through grants from The Thoracic Surgery Foundation (TSF). See pages 8-9 for more information on TSF grants.

A study published online in *The Annals of Thoracic Surgery* in May showed that CABG surgery had a significant mortality benefit over PCI in patients with multivessel disease. The research, by Suresh R. Mulukutla, MD, and colleagues from the University of Pittsburgh Medical Center in Pennsylvania, suggested that CABG should be considered in broader patient populations, not just in cases of patients with diabetes and left ventricular dysfunction, as is commonly practiced. Media outlets such

as MedPage Today, *Cardiovascular Business*, and the Cardiovascular Surgery Show on SiriusXM Doctor Radio covered the story.

An *Annals* study released in June highlighted the increase in hearts available for transplantation as a result of the opioid epidemic—and that these organs may be as suitable as any other hearts. The researchers, including senior author Nader Moazami, MD, from NYU Langone Health in New York, concluded that overdose status alone is not a valid reason to discard an otherwise viable donor heart. The study generated interest from *Physician's Weekly*, TCTMD, Yahoo News, and the Interventional Cardiology Show on SiriusXM Doctor Radio. ■

For more information on the Society's media relations efforts, visit sts.org/media or contact media@sts.org.

TEVAR SYMPOSIUM DRAWS PRAISE FOR INTERACTIVE DISCUSSION FORMAT

More than 100 people attended the Society's recent symposium on thoracic endovascular aortic repair (TEVAR) in Chicago. The conference was entirely case-based, allowing for robust discussions. "[It was] by far one of the most useful and educational conferences I've been to," according to one participant. Another said, "I particularly enjoyed how [the faculty] rotated amongst the different tables, allowing me to have constant personal interactions and ask them questions."

Participants also heard from industry representatives at a special breakfast that focused on the latest TEVAR research and technology developments. ■



EXPRESS YOUR INTEREST IN STS LEADERSHIP POSITIONS

All members are invited to participate in the Society's self-nomination process for standing committee and workforce appointments. Submissions will be accepted September 1-30; you will receive an email with further information on how to self-nominate.

A full list of the Society's standing committees and workforces can be found at sts.org/leadershipstructure. Leadership appointments are approved by the STS Executive Committee each year, usually during its December meeting. Positions for 2020-2021 will take effect immediately after the STS 56th Annual Meeting in New Orleans, January 25-28, 2020. The majority of open slots are for 3-year terms, renewable on a one-time basis. ■

If you have questions about the STS leadership structure or the self-nomination process, contact Adam Doty, MPP, Senior Manager, Governance and Membership, at adoty@sts.org.

STS Has Presence in China, Brazil, Ireland

Society leaders recently networked with colleagues during cardiothoracic surgery events in Asia, South America, and Europe. ■



1 Director-at-Large Shanda H. Blackmon, MD, MPH (second from left), represented the Society at the First Intercontinental Multisociety Symposium on Lung Cancer in Belo Horizonte, Brazil, as part of the XXI Congress of the Brazilian Society of Thoracic Surgery.

2 Past President Joseph E. Bavaria, MD (right), shown with Gilles Dreyfus, MD, an STS member from Paris, spoke at the Asian Academy of Heart Valve Diseases meeting in Jinan, China. Dr. Bavaria described important new insights and perspectives on transcatheter valve procedures from data in the STS/ACC TVT Registry™.

3 Chair of the STS Workforce on General Thoracic Surgery Michael J. Weyant, MD (right), and European Society of Thoracic Surgeons (ESTS) President Gilbert Massard, MD, led a joint ESTS/STS session at the 27th European Conference on General Thoracic Surgery in Dublin, Ireland. The session included presentations on video-assisted thoracoscopic surgery, robotic surgery, and simulation training.



Society's Offerings Showcased in Toronto

STS recently hosted a booth at the American Association for Thoracic Surgery Annual Meeting in Toronto. Visitors to the booth received updates on member benefits, educational courses and products, the STS National Database, advocacy efforts, and more.

The Society's charitable arm, The Thoracic Surgery Foundation (TSF), presented its 2019 awards during a reception at the meeting. See page 9 for details on 2020 TSF award applications. ■



Sarah Foreman, Senior Coordinator, Member Services, answered questions about the different STS membership categories and helped attendees submit their applications.



The 2019 TSF awardees received a combined \$951,500 in grant funding for research, education, and surgical volunteerism.

CONTRIBUTE TO LATIN AMERICA CONFERENCE AND STS ANNUAL MEETING

Share your research with an international community of cardiothoracic surgery professionals. Scientific abstract submissions and proposals are now being accepted for the STS/EACTS Latin America Cardiovascular Surgery Conference, November 22-24 in Cancun, Mexico, and the STS 56th Annual Meeting and Tech-Con, January 25-28, 2020, in New Orleans, Louisiana.

Latin America Conference

Abstracts may be submitted in any of the following categories: adult congenital heart disease, aorta and aortic disease, aortic root, aortic valve, atrial fibrillation, coronary artery disease, heart failure/ventricular assist devices, mitral valve, pediatric congenital heart disease, quality and outcomes initiatives, or tricuspid valve. Visit cardiovascularsurgeryconference.org/abstracts and submit your abstract by **Friday, August 2**.

Annual Meeting

Abstracts and surgical videos may be submitted in the areas of adult cardiac surgery, congenital heart surgery, general thoracic surgery, basic science research, critical care, quality improvement, geriatrics, and cardiothoracic surgery education. Visit sts.org/abstracts and submit your abstract by **Tuesday, August 13**.

Tech-Con

Submit proposals for short presentations on new cardiothoracic surgical technologies or innovative, off-label, or outside-the-box techniques that address complex problems. Accepted proposals will be presented during the Shark Tank session to a panel of experts and the audience. Visit sts.org/tech-con and submit your proposal by **Tuesday, August 13**. ■

Scholarships Foster the Next Generation of Cardiothoracic Surgeons

Help support the future of the specialty by encouraging general surgery residents and medical students interested in cardiothoracic surgery to apply for a 2020 STS Looking to the Future (LTF) Scholarship.

Scholarships include complimentary registration for the STS 56th Annual Meeting and Tech-Con 2020 in New Orleans, a 3-night stay at an STS-designated hotel, participation in exclusive events, an assigned mentor to help plan a schedule of educational programming and facilitate introductions, and reimbursement of up to \$500 in related travel expenses.

Previous LTF scholarship recipients report that participating in the program influenced their decision to train in cardiothoracic surgery.

“The opportunity to meet attendings from around the country and learn of their career paths and respective programs was invaluable,” said 2019 scholarship recipient Dana McCloskey, MD, a general surgery resident at Cooper University Hospital in Camden, New Jersey. “All were very supportive, welcoming, and willing to answer questions and offer guidance.”

If you know of a general surgery resident or medical student who may qualify for an LTF scholarship, encourage him or her to apply. You also can offer to write a letter of recommendation on the applicant’s behalf. ■

Application details will be available at sts.org/lfff in mid-August. For more information, contact Rachel Pebworth, Affiliate Manager, Awards and Operations, at rpebworth@sts.org.

Society Promotes Cardiothoracic Surgery at AMA Specialty Showcase

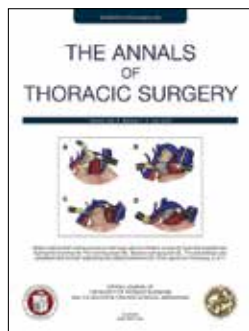
For medical students who are still determining their career paths, speaking with a cardiothoracic surgeon could be the spark they need to pursue training in the field.

To connect with these students and help spur interest in cardiothoracic surgery, David D. Odell, MD, MMSc, from Northwestern University in Chicago, represented STS at the American Medical Association Specialty Showcase and Clinical Skills Workshop in Chicago this June.

He answered questions about the procedures cardiothoracic surgeons perform, how the specialty differs from general surgery and cardiology, options for training pathways, and more. It was his fourth year participating in the Showcase.

Dr. Odell said that these types of events are especially important for students who do not have local access to cardiothoracic surgery mentors.

“I have seen several folks that I talked to at the Showcase come back as Looking to the Future Scholarship recipients and integrated residency applicants,” he said. “It’s wonderful to think that these conversations may have helped catalyze these students’ interest in a career in cardiothoracic surgery.” ■



THE ANNALS IMPACT FACTOR REACHES A RECORD HIGH

For a third consecutive year, the impact factor has increased for *The Annals of Thoracic Surgery* and is the highest in *Annals* history.

The impact factor, an important metric indicating a journal’s influence, measures the frequency with which the average article has been cited in a particular year. For 2018, *The Annals* impact factor was 3.919, as reported by Clarivate Analytics in its *Journal Citation Reports*.

Article topics that received the most citations last year include clinical practice guidelines on arterial conduits for coronary artery bypass grafting and surgical treatment of atrial fibrillation, as well as a risk adjustment model from the STS General Thoracic Surgery Database for predictors of major morbidity or mortality after resection for esophageal cancer.

A subscription to *The Annals* is a benefit of STS membership. To read the journal online, visit annalsthoracicsurgery.org. ■

New TAVR NCD Changes Volume Requirements, Endorses Heart Team Approach

Patient access to transcatheter aortic valve replacement (TAVR) will be expanded while patient safety requirements are maintained with the recent publication of a new national coverage determination (NCD) for TAVR.

The Centers for Medicare & Medicaid Services (CMS) has made several important changes to existing Medicare coverage terms for this procedure. Over the past year, STS worked in collaboration with the American College of Cardiology (ACC), the American Association for Thoracic Surgery, and the Society for Cardiovascular Angiography and Interventions to actively petition CMS for high-quality standards that would ensure TAVR is performed safely and in the right patient populations.

The new NCD changes minimum procedure volume requirements to open and maintain a TAVR program. Although the volume requirements have presented concerns to some centers currently performing TAVR, as access to TAVR is expanded in low-risk populations, volume goals should become more easily attainable.

Details on specific volume requirements can be seen in the chart below. While the societies would have preferred CMS replace volume requirements with quality assessment measures from the STS/ACC TVT Registry™, the timing of the NCD made it difficult to codify that change. However, CMS agreed that “validated outcome measures may be an appropriate alternative to procedural volume requirements

when establishing quality standards for TAVR programs” and will consider updating the NCD in the future. For information on how STS and ACC are working with CMS to develop quality metrics, see page 6.

As access to TAVR is expanded in low-risk populations, volume goals should become more easily attainable.

Another way the new NCD addresses concerns about access to care is by modifying the previous requirement that two surgeons independently evaluate patients to determine whether they are candidates for TAVR. CMS now requires that a cardiothoracic surgeon and an interventional cardiologist each examine patients face-to-face and evaluate their suitability for surgical aortic valve

replacement (SAVR). CMS made this change to recognize “the accumulated experience of the TAVR surgeons and interventionalists, the wide acceptance of the heart team approach, and concern for improving access while maintaining quality of care.”

Finally, the NCD specifically requires continued monitoring of TAVR outcomes using a prospective, national, audited registry. Data from the TVT Registry will be used to answer several research questions associated with the NCD and shape the future of treatment for patients with aortic stenosis.

Although there is still progress to be made in Medicare coverage and reimbursement, keeping careful controls on TAVR while focusing on patient access is a win for cardiothoracic surgeons and their patients. ■

Requirements to Begin a TAVR Program for Hospitals without TAVR Experience

- ≥ 50 open heart surgeries in the previous year prior to TAVR program initiation
- ≥ 20 aortic valve related procedures in the 2 years prior to TAVR program initiation
- ≥ 2 physicians with cardiac surgery privileges
- ≥ 1 physician with interventional cardiology privileges
- ≥ 300 percutaneous coronary interventions per year

Requirements to Begin a TAVR Program for Heart Teams without TAVR Experience

- The heart team must include:
 - Cardiovascular surgeon with ≥ 100 career open heart surgeries, of which ≥ 25 are aortic valve related
 - Interventional cardiologist with:
 - Professional experience of ≥ 100 career structural heart disease procedures or ≥ 30 left-sided structural procedures per year
 - Device-specific training as required by the manufacturer

Requirements to Maintain an Existing TAVR Program

- ≥ 50 AVRs (TAVR or SAVR) per year, including ≥ 20 TAVR procedures in the prior year, or ≥ 100 AVRs (TAVR or SAVR) every 2 years, including ≥ 40 TAVR procedures in the prior 2 years
- ≥ 2 physicians with cardiac surgery privileges
- ≥ 1 physician with interventional cardiology privileges
- ≥ 300 percutaneous coronary interventions per year

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For more information on the STS Board of Directors, visit sts.org/BOD.

MARK YOUR CALENDAR

Upcoming STS Educational Events

**Structural Heart Symposium:
Mastery in Mitral Valve and
Tricuspid Valve Therapies**

Chicago, Illinois

August 23-24, 2019

**STS/EACTS/ESTS Shanghai
General Thoracic Surgery
Conference**

Shanghai, China

September 20-21, 2019

**16th Annual Multidisciplinary
Cardiovascular and Thoracic Critical
Care Conference**

Baltimore, Maryland

September 26-28, 2019

**Advances in Quality & Outcomes:
A Data Managers Meeting**

New Orleans, Louisiana

October 23-25, 2019

**ACS/STS Cardiothoracic Surgery
in Your Future**

San Francisco, California

October 28, 2019

**STS/EACTS Latin America
Cardiovascular Surgery Conference**

Cancun, Mexico

November 22-24, 2019

STS Coding Workshop

New Orleans, Louisiana

January 24-25, 2020

**STS 56th Annual Meeting
& Tech-Con**

New Orleans, Louisiana

January 25-28, 2020

Find out more at sts.org/meetings.

Thank You!



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