

Survey: Minimally Invasive Surgery Trainee Operative Experience

Dear Residents and Fellows,

The TSRA is conducting a [survey](#) to evaluate trainees' operative exposure to robotic and minimally invasive cardiothoracic surgery. We hope to identify current trends in education of minimally invasive techniques, as well as its possible barriers in our future practice. The survey consists of 25 questions and should only take 10-15 mins to complete. At the completion of this survey, you have the option of entering your email to a drawing for a **\$50 Amazon gift card or a TSRA textbook**.

You can access the survey via this link: [Exposure to Minimally Invasive Surgical Techniques During Thoracic Surgery Residency](#)

If you have any questions regarding the study, please do not hesitate to reach out to Jenalee Coster (Jenalee.Coster@bcm.edu).

Sincerely,
TSRA Leadership

Trainee Opportunities in CT Surgery

STS Candidate/Pre-Candidate Membership Link: <http://bit.ly/3h59zuM>

AATS 101st Annual Meeting Registration
Link: <https://annualmeeting.aats.org>

ERAS Cardiac Society Experience Conference
Link: <https://erasvirtual2021.com/#modal-to1f4b>

Associate Membership in the TSRA:
Link: <https://bit.ly/3avRf14>

SESATS 13
Link: <https://www.sesats.org/>

2nd Annual Sutureless Summit

2nd annual Sutureless and rapid deployment valve technology held in October 18-19, 2021. Contact quinnr@mmc.org for questions. Link <http://bit.ly/2Ym7HVX>

Johns Hopkins Advanced Lung Failure Fellowship

Surgical Director, Lung Transplant Program
Link: [Link](#)

Contact: Errol.bush@jhu.edu

Did you miss our recent webinars. Recording is available below.

View Here

[TSRA Medtronic Journal Club Series: Management of Left Main Coronary Artery Disease CABG vs. PCI](#)

[TSRA Medtronic Journal Club Series: Lifetime Management Low-Risk Patients w/ Severe Aortic Stenosis](#)

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Young Surgeon's Note: The Match

By: Jason Han

The National Resident Matching Program (NRMP), commonly referred to as "The Match," is a revered tradition in medicine that marks the culmination of over a decade of hard work for countless medical students. After a comprehensive application process consisting of standardized exams, letters of recommendations and interviews, the algorithm brings together programs and applicants based on their mutual preferences.

It is a tremendous, legally binding milestone with life-changing implications. The Match determines your next work environment, your future teachers, and colleagues. In cardiothoracic surgery, these commitments may last a decade, or longer. For some, this location will be where they choose to live and work for the rest of their careers.

This year, on Friday, March 19th, students opened their envelopes, some literally and some figuratively, to discover what the next chapter of their lives will entail. To those who have matched in cardiothoracic surgery, we are thrilled to welcome you as colleagues.

To all, regardless of outcome, we would like to applaud all of the applicants on mustering enough grit and dedication to see this through. In many ways, the rest of your path will be similar. Careers in cardiothoracic surgery will require many more leaps of faith. You will find yourself putting your best efforts into not just applications but also patient care and operations. You will experience again outcomes that enthrall you or humble you.

Also, while we should all celebrate the Match, let us not forget. The Match is a good algorithm. Indeed, it is a Nobel-prize winning algorithm. But all algorithms or tools are only as effective or as fair as we, as human beings, choose to use them. After all, it is us who write letters of recommendations, interview candidates, and enter rank lists. We are the ones who define and rely on metrics or pedigree. As a field, we should always strive to become more aware of the shortcomings in our current processes so we can continue to better serve others. If you are currently facing an uphill in the application process, don't give up. Keep giving it your best.

To those of you who have just matched, as you join your new programs this July, remember that you alone get to decide what kind of surgeon you ultimately become.

So, continue to bring the remarkably diverse qualities that make you who you are, and make you excited to contribute to the field of cardiothoracic surgery. In the end, we will all be better for it.

TSRA Executive Committee

Manuscript of the Month

By: Jessica Luc

Title of Feature Manuscript: Characteristics and Attitudes of Aspiring Cardiothoracic Surgeons: A Survey Study

Authors: Jason J. Han, MD, Jarvis C. Mays, BA, Amrita Sukhvasi, BA, William L. Patrick, MD, Mark R. Helmers, MD, Amit Iyengar, MD, Benjamin Smood, MD, John J. Kelly, MD, Matthew L. Williams, MD, Wilson Y. Szeto, MD, Marisa Cevalso, MD MPH

Abstract

Background: Although recruiting highly qualified, diverse applicants into cardiothoracic surgery (CTS) remains a national priority, their characteristics remain unknown. This study aims to better describe the current and future applicants in CTS.

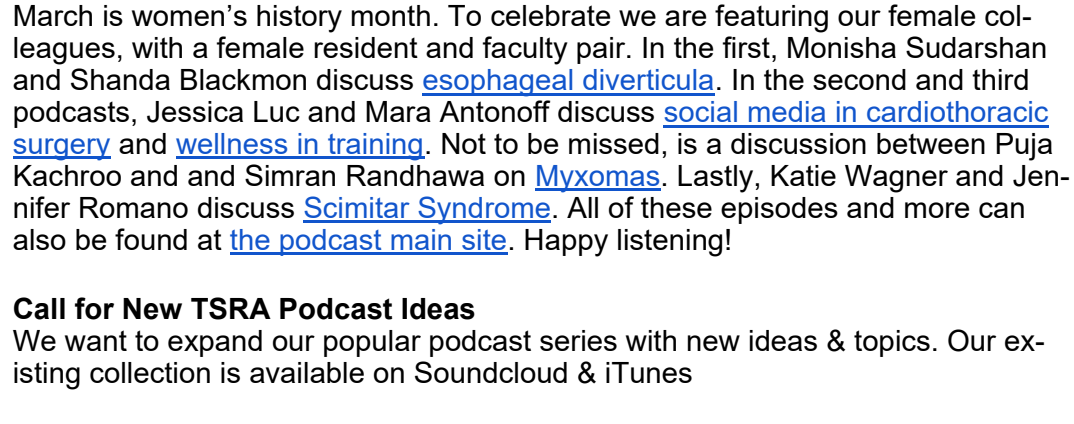
Methods: Aspiring CT surgeons – students interested in matriculating in a North American training program – were voluntarily enrolled in the study via Twitter and email outreach. A 33-question survey evaluated their backgrounds, research experiences, attitudes, and interests within CTS. Standard descriptive statistics were used.

Results: There were 111 participants, of which 40 (36.0%) were female and 27 (24.3%) identified as an underrepresented minority. Of the total, 63 (56.8%) belonged to an institution with a CTS training program. Ninety-one students (82.0%) envisioned having a mostly training career. Seventy-five (67.6%) envisioned pursuing educational roles. The most popular surgical specialties were heart transplantation (50.5%) and aortic surgery (47.8%). Participants indicated having a high-intensity operative environment (81.2%) and an innovative academic environment (58.8%) as the most attractive qualities. Perceived lack of work-life balance (46%) and toxic training/work environment (28%) were the greatest deterrents. Finances during the application process were perceived as a potential barrier by 41 students (36.9%). Approximately 75% (83/111) of students had faculty as mentors; 46.8% (56/111) felt CTS faculty are approachable but had limited time for mentorship.

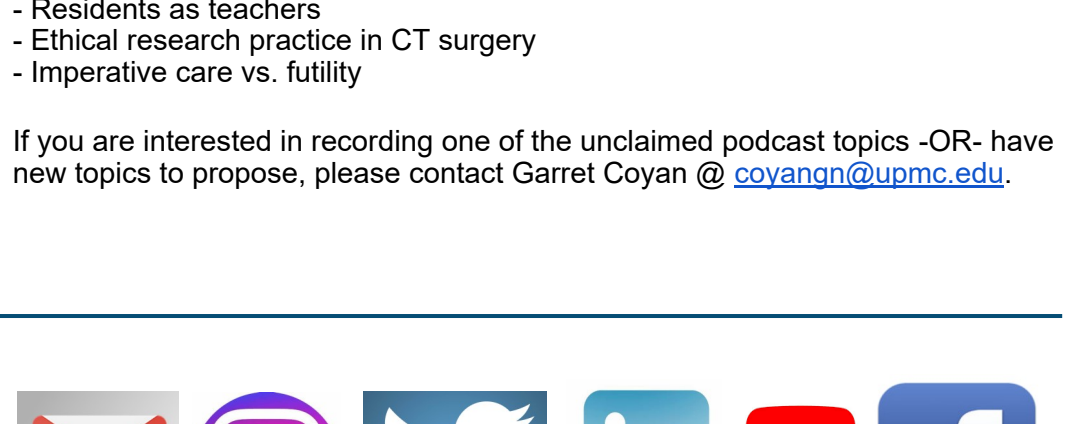
Conclusions: This is the first survey study to characterize a nationally selected pool of aspiring CT surgeons using social media. Future studies involving larger and more diverse cohorts are warranted to find areas for improvement in recruitment, retention, and diversity.

Citation: Han JJ, Mays JC, Sukhvasi A, Patrick WL, Helmers MR, Iyengar A, Smood B, Kelly JJ, Williams ML, Szeto WY, Cevalso M. Characteristics and Attitudes of Aspiring Cardiothoracic Surgeons: A Survey Study. *Ann Thorac Surg.* 2021;3:50003-4975(21)00226-5. doi: 10.1016/j.athoracsur.2021.01.040. Epub ahead of print. PMID: 33548275.

Click here to read the full manuscript in The Annals of Thoracic Surgery - [https://www.annalsthoracicsurgery.org/article/S0003-4975\(21\)00226-5/fulltext](https://www.annalsthoracicsurgery.org/article/S0003-4975(21)00226-5/fulltext)



Question and answer with lead author Dr. Jason Han, Cardiothoracic surgery resident from the University of Pennsylvania:



Question 1: Congratulations on your work and publishing this important article in The Annals of Thoracic Surgery examining the characteristics and attitudes of aspiring cardiothoracic surgeons. What were the main takeaway points from the manuscript?

Thank you for your interest in our work. This was an exploratory survey study of *aspiring cardiothoracic surgeons* – those who identified as having applied to or planning on applying to CT surgical residency in the United States – using social media outreach. The most important finding was that aspiring CT surgeons appeared to be an increasingly diverse group, both with regard to race and gender, and promisingly showed great interest in pursuing academic careers. They were generally involved in research projects and connected to mentors.

More than half of the cohort was exposed to the field prior to medical school, mostly through shadowing and networking opportunities with surgeons, which highlights the importance of such early formative experiences.

Surprisingly, over a third of the respondents found finances to be a significant barrier to entering the field due to significant costs associated with the application process and away rotations, which identifies a potential area of improvement for future recruitment efforts.

Question 2: Can you tell us more about what inspired you to pursue cardiothoracic surgery and reasons behind doing such a study?

I entered this field because of the people. The demanding nature of the work brings together an amazing group of people who are passionately committed to excellent patient care. You also get to meet and help patients from all walks of life who are going through some of their most challenging experiences.

That's also what inspired me to work on this study. Recruiting highly-qualified and diverse applicants to the field is a national priority, and it struck me as a priority to connect to this population in a more active and organized way. We wanted to understand how aspiring CTS viewed the field and what barriers they perceived.

Question 3: It is striking that nearly half of aspiring cardiothoracic surgeons belonged to institutions without a cardiothoracic surgery training program. What advice would you have for these trainees during the COVID-19 era of no away rotations / electives?

The current generation of aspiring CT surgeons certainly face a rather unprecedented challenge during the pandemic. Being able to get in the OR often and to visit other institutions are important experiences that help inform future plans.

My advice would be to not be discouraged by these circumstances, and to look for any and all opportunities to innovate the status quo, not just because of driven my curiosity, but because of *necessity*. The pandemic has already driven many virtual transformations in our learning experiences, many of them owing to the creativity and the enthusiasm among aspiring CT surgeons.

Question 4: What do you see as the next steps / initiatives that can emanate from your study to address the challenges / barriers to pursuing cardiothoracic surgery?

My hope is that aspiring CT surgeons from all continents will continue to organize and become more connected as a result of these early efforts. Admirably, the Thoracic Surgery Medical Students Association (TSMA – @ThoracicStudent) has grown rapidly in a very short period of time, and has already hosted several large-scale events to help students interested in the field find essential resources and connect with necessary mentors. Hopefully, as we continue to strive for such inclusivity and openness, all students interested in pursuing CT surgery regardless of where they come from will have equal access to all of the remarkable opportunities and rewards that the field has to offer.

Once again, thank you for your time and congratulations on an important manuscript.

Featured TSRA Podcast

By: David Blitzler

March is women's history month. To celebrate we are featuring our female colleagues, with a female resident and faculty pair. In the first, Monisha Sudarshan and Shanda Blackman discuss [esophageal diverticula](#). In the second and third podcasts, Jessica Luc and Mara Antonoff discuss [social media in cardiothoracic surgery](#) and [wellness in training](#). Not to be missed, is a discussion between Puja Kachroo and the Simran Randhawa on [Mxomas](#). Lastly, Katie Wagner and Jennifer Romano discuss [Scimitar Syndrome](#). All of these episodes and more can also be found at [the podcast main site](#). Happy listening!

Call for New TSRA Podcast Ideas

We want to expand our popular podcast series with new ideas & topics. Our existing collection is available on Soundcloud & iTunes

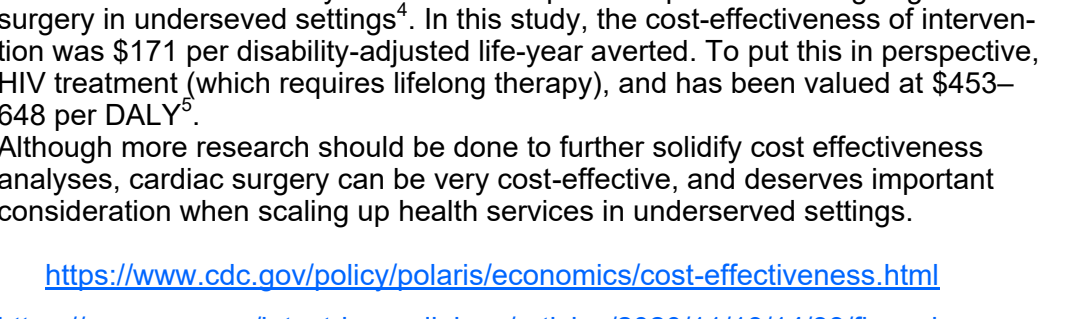
Here is a list of unclaimed topics that need to be recorded:

- Adult Cardiac**
- Brain and spinal cord protection + neuromonitoring
 - Electrophysiology (common arrhythmias, postop arrhythmias)
 - Total arterial revascularization
 - Managing/interrogating LVAD
 - Transcatheter Mitral Valve Replacement
- General Thoracic**
- Advanced endoscopy + POEM
 - Thoracic outlet syndrome
 - Esophageal motility disorders

Congenital

- Residents as teachers
- Ethical research practice in CT surgery
- Imperative care vs. futility

If you are interested in recording one of these unclaimed topics –OR– have new topics to propose, please contact Garrett Coyan @ covangan@upmc.edu.



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TSRA Education Resources

- TSRA Clinical Scenarios in Cardiothoracic Surgery (2nd Ed)**
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Check out the official website with free registration. Open collaboration product with free content questions. Questions updated frequently. 588 questions. Authentic feel.

Abstract Deadlines and Conference Dates

By: Parth Patel

If there are meetings you would like to see here please contact Parth M. Patel, parth.mukund.patel@emory.edu

Meeting	Submission deadline	Location	Dates
Cardiovascular and Thoracic Specific Meetings			
International Society for Heart and Lung Transplantation (ISHLT)	October 27, 2020	Virtual	Apr 27-30, 2021
American Association of Thoracic Surgery (AATS) & Aortic Symposium	January 6, 2021	Virtual	Apr 30- May 2, 2021
AATS Mitral Conclave	October 27, 2020	Virtual	Apr 30- May 2, 2021
American College of Cardiology (ACC)	December 2, 2020	Atlanta, GA + Virtual	May 15-17, 2021
Transcatheter Valve Therapy (TVT) Structural Heart Summit	April 15, 2020	Chicago, IL	June 9-12, 2021
International Society of Minimally Invasive Cardiothoracic Surgery (ISMICS)	January 11, 2021	Warsaw, Poland	June 17-19, 2021
Western Thoracic Surgical Association (WTSA)	January 11, 2021	Victoria, BC, Canada	June 23-26, 2021
Extracorporeal Life Support Organization (ELSO)	July 15, 2020	Indianapolis, IN	Sep 30- Oct 3, 2021
Eastern Thoracic Surgical Society (ECTSS)	July, 27 2020	Manalapuram, FL	Oct 6-9, 2021
European Association for Cardio-Thoracic Surgery (EACTS)	April 30, 2021	Barcelona, Spain	Oct 14-16, 2021
International Thoracic Surgical Oncology Summit	August 17, 2020	Virtual	Oct 16-17, 2020
Transcatheter Cardiovascular Therapeutics (TCT)	June 15, 2020	San Francisco, CA	Oct 22-26, 2021
Congenital Heart Surgeons' Society (CHSS)	May 25, 2021	Chicago, IL	Oct 24-25, 2021
CHEST Annual Meeting	April 28, 2021	Vancouver, Canada	Oct 24-27, 2021
American College of Surgeons (ACS)	March 1, 2021	Washington, D.C.	Oct 24-28, 2021
Surgical Treatment for Arrhythmias and Rhythm Disorders	September 11, 2020	Virtual	Oct 30-31, 2020
Southern Thoracic Surgical Association (STSA)	April 5, 2021	Atlanta, GA	Nov 3-6, 2021
American Heart Association (AHA)	June 4, 2020	Boston, MA	Nov 13-15, 2021
Resuscitation Science Symposium	June 4, 2020	Boston, MA	Nov 13-15, 2021
Society of Thoracic Surgeons (STS)	August 11, 2020	Miami, FL	Jan 29 - Feb 1, 2022
Annual Update on Pediatric & Congenital CV Disease Conference	November 30, 2020	Virtual	Feb 11-14, 2021

General Surgical Meetings of Interest

American Surgical Association (ASA)	November 16, 2020	Seattle, WA	Apr 15-17, 2021
American Transplant Congress (ATC)	December 4, 2020	Virtual	June 5-9, 2021
American Society for Artificial Internal Organs (ASAIIO)	February 1, 2021	Washington, D.C.	June 9-12, 2021
Southeastern Surgical Congress (SESC)	February 19, 2021	Atlanta, GA	August 21-24, 2021
Southern Surgical Association (SSA)	July, 31 2020	Hot Springs, VA	Dec 5-8, 2021
Academic Surgical Congress (ASC)	August 7, 2020	Orlando, FL	Feb 1-2, 2022

Abstract Deadline Status: Upcoming Prior Year for Upcoming Passed for Upcoming

Global Surgery

Cardiothoracic Surgery in developing settings – Is it cost effective?

By: Yihan Lin, MD

There is a significant amount of evidence demonstrating the need and lack of cardiothoracic surgical care in low- and middle-income countries (LMICs), some of which have been discussed in prior TSRA newsletters. However, is scaling up cardiac surgical services in these settings cost effective? For this discussion, we use the CDC's definition of a cost effectiveness analysis¹. The cost effectiveness calculation is a ratio, with the numerator being the net cost of the intervention, and the denominator being the health outcome.

Cost
In a recent analysis in the American College of Cardiology², the costs of cardiac surgery are compared:
In the United States, cardiac surgery can cost up to \$100,000 per operation. However, this cost is significantly less in other settings: as low as \$10000 in Brazil, \$6000 in Nigeria, \$2000 in Vietnam, and <\$2000 in India

Effectiveness (aka improvement in health outcome)
The denominator is more challenging to define, as the disease process, intervention, age of the patient at surgery, and how outcomes are measured affect the calculation. Some use DALYs (disability adjusted life years) as a way to measure health outcomes.

The World Health Organization states³: "One DALY represents the loss of the equivalent of one year of full health".

An example in pediatric patients
A cost-effectiveness analysis was done in pediatric patients undergoing cardiac surgery in underserved settings⁴. In this study, the cost-effectiveness of intervention was \$171 per disability-adjusted life-year averted. To put this in perspective, HIV treatment (which requires lifelong therapy), and has been valued at \$453–648 per DALY⁵.

Although more research should be done to further solidify cost effectiveness analyses, cardiac surgery can be very cost-effective, and deserves important consideration when scaling up health services in underserved settings.

<https://www.cdc.gov/policy/polaris/economics/cost-effectiveness.html>

<https://www.acc.org/latest-in-cardiology/articles/2020/11/19/14/33/financing-cardiac-surgery-in-low-and-middle-income-countries>

<https://www.who.int/data-and-indicator/metadata-registry/imr-details/158>

<https://pubmed.ncbi.nlm.nih.gov/30646368/>

<https://pubmed.ncbi.nlm.nih.gov/25103302/>

Diagnostic Challenge

By: Fatima Wilder

A 52-year-old female presents to the hospital with persistent fevers, shortness of breath, 15lb unintentional weight loss and central chest discomfort over the past 4 weeks. She has had no recent travels. She undergoes a biopsy of the pericardium and anterior mediastinum which demonstrates sulfur granules.

Diagnosis: Actinomycosis involving the pericardium and mediastinum

•The usual presentation of pericardial actinomycosis is with pericardial effusion that may present as cardiac tamponade, constrictive pericarditis or even a pericardial mass.

•Diagnosis can be difficult as isolation of the organism can be challenging (it is a strict anaerobe that requires certain conditions for growth). On histopathology, one will see Sulfur granules. Pericardial biopsy should be completed as well as sampling of the pericardial fluid to increase the diagnostic yield.

•On the view presented here, one can see a tract tunneling toward the anterior chest wall from the left aspect of the mediastinum.

•Treatment includes as long as 6-12 months of penicillin G or amoxicillin.

References

- L. Jánoskuti, M Lengyel, and T Fenyvesi. Cardiac actinomycosis in a patient presenting with acute cardiac tamponade and a mass mimicking pericardial tumour. *Heart.* 2004 May; 90(5): e27. DOI: [10.1136/hrt.2003.031633](https://doi.org/10.1136/hrt.2003.031633); PMID: [15084575](https://pubmed.ncbi.nlm.nih.gov/15084575/)

•Ji-Yeon Han, Ki-Nam Lee, [...], and Pil Jo Choi. An overview of thoracic actinomycosis: CT features. *Insights Imaging* (2013) 4:245–252. DOI 10.1007/s13244-012-0205-9

•Florent Valous, Agathe Senechal, [...], and Tristan Ferry. Actinomycosis: etiology, clinical features, diagnosis, treatment and management. *Infect Drug Resist.* 2014; 7:183-197.

TSRA Educational Resources and Multiple Choice Questions

By: Garrett Coyan

- Which of the following is NOT a strategy in prone positioning?
 - A increased inspired O2 or PEEP
 - B improved V/Q mismatch
 - C previously nondependent air-filled alveoli become dependent
 - D perfusion becomes greater to air-filled alveoli opposed to previously fluid-filled dependent alveoli

Explanation
increased inspired O2 or PEEP is not a function of prone positioning

- Which of the following structures CANNOT be easily reached from a right posterolateral thoracotomy?
 - A Distal trachea
 - B Carina
 - C Distal right mainstem bronchus
 - D Distal left mainstem bronchus
 - E All of the options can be reached from a right posterolateral thoracotomy

Explanation
Distal left mainstem bronchus – the distal left mainstem bronchus is best approached via a left posterolateral thoracotomy

- A newborn has cyanosis. The chest x-ray shows a massive cardiomegaly with a narrow vascular pedicle and oligemic lung fields. The left ventricular function is good on echocardiography with trace pericardial effusion. The most probable diagnosis is
 - A Cardiomyopathy
 - B ALCAPA
 - C Pericardial effusion
 - D Ebstein's anomaly

Explanation
Answer: the other options can cause massive cardiomegaly in the newborn. However, with a cyanotic picture and isolated right ventricular dysfunction, Ebstein's anomaly is more likely.