A cardiothoracic surgery interest group starter kit for medical students from the Thoracic Surgery Medical Student Association

Andrew D. Vogel, MS, Ahmet Bilgili, BS, Betemariam Sharew, BA, Allen Kushneria, BS, Kenny Nguyen, BS, John A. Treffalls, BS, Zachary Brennan, DO, Dominic Emerson, MD, Tyler J. Wallen, DO, Ibrahim Sultan, MD, and Jeffery P. Jacobs, MD

Cardiothoracic surgery is an engaging and dynamic field that attracts the highest caliber of medical students. Students applying to integrated cardiothoracic surgery residency programs are required to determine their interest in the field early in medical school. Although the traditional track to train cardiothoracic surgeons remains, the literature has demonstrated that general surgery residents are getting less exposure to cardiothoracic surgery during their rotations. Consequently, a strong need exists to increase exposure to cardiothoracic surgery for medical students. Interest groups can play a vital role in developing and continuing interest in cardiothoracic surgery for medical students who may not have considered the field as an option by offering a platform for cardiothoracic surgeons to speak to students, providing hands-on wet lab simulations, and creating a better understanding of the field.

The Thoracic Surgery Medical Student Association (TSMA) is a national organization established to recruit, engage, and prepare passionate medical students interested in careers in cardiothoracic surgery. This organization aims to increase early exposure to the field, provide educational tools, offer networking opportunities, create a community of peer mentorship, and offer collaboration among students nationwide. The Projects and Proposals Committee is a branch of TSMA dedicated to starting new initiatives desired by its members. The committee gathers entrepreneurial ideas from TSMA members and committees to deliver events and materials that garner interest and increase exposure to cardiothoracic surgery.

The TSMA Projects and Proposals Committee is delighted to deliver this starter kit that provides a step-by-step guide on how to create a cardiothoracic surgery interest group. We hope this kit provides the foundation for
developing cardiothoracic surgery interest groups connected with TSMA and each other.

**HOW TO START A CARDIOTHORACIC SURGERY INTEREST GROUP**

**Understanding Infrastructure for Interest Groups at Your School**

Each school has a different process for developing an interest group. For example, some schools may require a certain number of students to show interest in a group before approval. If you desire to develop a standalone cardiothoracic surgery interest group (CTSIG), then it is recommended that you contact your student government association and determine what requirements are necessary to create a group within your school. Requirements may include:

- Having a certain number of people who have signed a document demonstrating interest;
- Defining a means of philanthropic support;
- Determining how the CTSIG will interact with the community;
- Finding support from faculty, specifically cardiothoracic surgeons;
- Clarifying plans for fundraisers, and
- Documenting means of income for events as well as addressing an expected yearly budget.

If a school has a surgery interest group (SIG), it may be better to develop a group or committee under the infrastructure of the SIG. This approach can simplify the startup process. Depending on the initiation process, it is essential to be sure that the proposal will satisfy the requirement for a certain number of students to show interest in participating in the CTSIG, if such a requirement exists for the proposal to be approved. It is recommended that you discuss the idea of developing a group with your student government and determine the complexity of the proposal.

The goal of determining your school’s infrastructure is to understand the best strategy for a platform to be developed that can help students gain exposure and develop an interest in cardiothoracic surgery.

**Obtaining Faculty Support**

Faculty support is essential for starting and maintaining a productive CTSIG, whether as a standalone group or as an entity of your SIG.

This faculty member(s) might:

- Serve as your group advisor,
- Know how to conduct events at your school,
- Find resources to help your group, or
- Know surgeons within your community who would be willing to help.

A faculty advisor should be a cardiothoracic surgeon who is a faculty member at your school. If there are no cardiothoracic surgeons on the faculty, finding a general surgeon is a reasonable option. If your school does not have any surgeons on faculty, it may be best to reach out to your surgery clerkship chair.

If you choose to develop an entity under your SIG, this task may be irrelevant to your situation because you should already have a faculty advisor assigned to your SIG. Nevertheless, the eventual involvement of cardiothoracic surgeons will be critical, as discussed below.

**Obtaining Cardiothoracic Surgeon Support**

This component is critical to maintaining a strong CTSIG. Multiple strategies exist to access cardiothoracic surgeons willing to help your CTSIG and promote the field.

**Academic medical institutions.** If there are cardiothoracic surgeon(s) on faculty at your institution, it is best to start with them. If you are connected to an academic institution or hospital that has a cardiothoracic surgery residency or fellowship, it is ideal to reach out to these residents/fellows and include them in your events. Academic medical institutions typically house a robust cardiothoracic surgery department and should have a few surgeons who would be willing to help your CTSIG.

**Surrounding hospitals.** If your medical school is not directly connected to an academic or hospital system and does not have a cardiothoracic surgeon on faculty, it may be best to determine the hospital systems your medical school does have affiliations with for clinical students to complete their surgical rotations. Some of these hospitals may have cardiothoracic surgeons who may be willing to help your CTSIG. It is best to start with the hospitals closest to your institution and work away. This approach will facilitate finding a cardiothoracic surgeon who may be able to attend events in person and not virtually.

Although most students interact with academic surgeons, many surgeons work in private practice, including cardiothoracic surgeons. Private practice cardiothoracic surgeons should not be forgotten when considering who can serve as a resource for your CTSIG. These private practice cardiothoracic surgeons will work for a group that practices at 1 or more hospitals. If no academic cardiothoracic surgeons are located in your area, it may be best to reach out to those who are in private practice.

**Resident support.** Resident support may be overlooked, but having a resident who can support your CTSIG will further engage your members and may attract more medical students who are interested in hearing about aspects of residency that are not as evident during medical school. Due to more recent first-hand experience, residents may have more up-to-date, practical knowledge and advice, especially when considering the residency application process.
When looking for resident support, start by determining if your academic institution/affiliated hospitals/hospitals in your area have a cardiothoracic surgery residency program, fellowship program, or general surgery residency program. General surgery residents pursuing a cardiothoracic surgery fellowship can be a great resource to students because they can describe a different path to cardiothoracic surgery than the integrated program. This concept also includes finding residents who may be involved in a 4 + 3 program.

**Virtual support.** If you are having trouble with the previously mentioned pathways to find support for your CTSIG, finding cardiothoracic surgeons and residents who are willing to help you from afar can still be a solid support system for your CTSIG.

**Building Your CTSIG Leadership Team**
Having defined roles in the CTSIG will help maintain the organization, reduce individual workload, and support the group’s continuity during each academic year. Although all these roles may not apply to your CTSIG (eg, if there are few students in your CTSIG), consider adding them in the order listed below to divide responsibilities.

**President.**
1. Chief executive officer of CTSIG and be responsible for communication and coordination between CTSIG and the student government association.
2. Provides oversight to all executive board duties.
3. Responsible for appointing committees.
4. Coordinates with the vice president to plan a program of events for their term of office.
5. Organizes elections.

**Vice president.**
1. Fulfills duties of the president if the vice president is absent or becomes incapacitated.
2. Assists in the coordination and planning of calendar events.
3. Assists in the organization of elections and training of new officers.

**Secretary.**
1. Fulfills the duties of the vice president if the vice president is absent or becomes incapacitated.
2. Responsible for maintaining accurate minutes of all meetings and making these minutes available to the CTSIG.
3. Responsible for taking attendance to ensure members are meeting the requirements of attendance.
4. Responsible for correspondence with other organizations and individuals.

**Treasurer.**
1. Maintains accurate records of all transactions by the CTSIG and conducts all financial affairs properly.
2. Keeps the president informed of any and all financial issues.
3. Requests allotments from the student government association.
4. Updates budget as needed with presidential oversight.

**Public relations manager.**
1. Responsible for developing and promoting all media content and promoting all events for the CTSIG.
2. Maintains all media and marketing communications among the executive board, student government association, and the student body.

**Event coordinator.**
1. Coordinates with the executive board for the approval and scheduling of events.

**First-year liaison.**
1. Maintains an open line of communication between the CTSIG and the first-year class.

**SIG cardiothoracic surgery committee chair.**
If you are considering working within your institution’s SIG, the leader of your organization will potentially serve as the cardiothoracic surgery committee chair or a variation of this position. This approach means that your leadership team will be responsible for a blend of the above tasks when conducting events, as the leadership for the cardiothoracic surgery specialty. However, this approach should attenuate your leadership team’s financial and administrative responsibilities compared to creating an independent CTSIG. Your leadership team can then focus on developing unique and innovative events that introduce cardiothoracic surgery and increase interest in the specialty.

**Creating Interest in Cardiothoracic Surgery**
Having a detailed action plan is essential when considering which events you plan to conduct during the academic year. As stated previously, unique and innovative events tailored to your institution will draw the most interest to the specialty. This goal is facilitated by finding alumni from your institution who are training in cardiothoracic surgery, those who are training in cardiothoracic surgery or those who are already practicing cardiothoracic surgery to talk to students. In addition, students are more interested in hands-on experiences. For example, wet lab simulation events typically draw interest from most students.6,7

It is essential to develop quality events that accentuate the field and provide students with exposure to the full scope of cardiothoracic surgery. Furthermore, some of the first events conducted by CTSIGs should focus on introducing students...
to cardiothoracic surgery rather than discussing intricate procedures or other details of the field that may not yet be relevant to students who have had limited exposure to the field. Although wet lab simulations are an excellent event for students, starting the year with a wet lab may be challenging because first-year medical students may not yet have any experience with surgical instruments or tying knots. Thus, it would be ideal to have a suture lab that teaches basic surgical knot tying and surgical instrumentation before conducting a more advanced wet lab. In the beginning, surveys and Google forms are a great way to gauge interest and assess the experience level of the students interested in cardiothoracic surgery at your medical school.

Developing a thoughtful and detailed event calendar, as well as an associated budget, for your academic year is integral to a successful CTSIG.

**PLANNING YOUR CTSIG YEAR**

**Strategies to Obtain Funding**

Multiple strategies exist to obtain funding to support your CTSIG. These strategies can be specific to the field of cardiothoracic surgery but can also be generic approaches that have helped other interest groups at your institution. Below are a few examples of how one may be able to obtain funding:

- If your institution has a cardiothoracic surgery department or a general surgery department, they may be willing to sponsor your CTSIG. Reach out to these departments and determine if they can help.
- Multiple fundraising ideas exist that could produce funds to help your CTSIG. These strategies include selling merchandise or obtaining support from local restaurants.
- Hosting events that require minimal to no funds is the best option for startup CTSIGs. These inexpensive events include hosting a speaker for a lecture event or sourcing materials for wet labs donated to you for free.
- Hospitals around your institution may be willing to donate their expired sutures for use for your wet lab events.
- If your CTSIG is under your institution’s SIG, then you should be able to use funding from your SIG to help with your CTSIG events.

**Example CTSIG Events**

Below is a list of events that could be completed at your institution.

**Lecture events.**

- Invite a fourth-year medical student to discuss the path to matching into an integrated cardiothoracic surgery residency and how students can get involved in research during their preclinical years. A fourth-year medical student can also discuss how to succeed in clerkship/audition rotations and network in the field as a medical student.
- Invite a general surgery resident and recent graduate of your institution interested in cardiothoracic surgery to discuss the traditional pathway to cardiothoracic surgery. They can also focus on discussing general surgery with the audience and the integral steps necessary for medical students to take to match into general surgery.
- Invite an integrated cardiothoracic surgery resident who can speak about their current experiences. Integrated cardiothoracic surgery residents can also discuss their path and approach to the match.
- Invite a local cardiothoracic surgeon (from an academic institution, a hospital affiliated with your institution, or a surgeon from a private practice) to give an in-person discussion about cardiothoracic surgery. Ask them to discuss the field of cardiothoracic surgery and what their operations, clinic, and practice include. Additionally, they can discuss their lifestyle, work/life balance, and the training route to become a cardiothoracic surgeon.
- Invite a cardiothoracic surgery subspecialist (transplant, congenital, or aorta) who can speak about their practice and how it differs from a cardiothoracic surgeon without subspecialization. In addition, they can discuss their pathway to their subspecialized field. Ideally, this event should be planned later in the year because it focuses on a specialized field of cardiothoracic surgery.

**Wet laboratory simulation events.**

- A vascular anastomosis wet lab can teach students how to suture 2 vessels together using a porcine aorta. Depending on your situation, a local representative that your cardiothoracic surgeon advisor knows may offer the easiest route to organizing these types of labs. However, if this approach is not possible, other routes to sourcing these materials are discussed later in this starter kit.
- An introductory cardiac/pulmonary/thoracic cavity anatomy lab can teach students important landmarks a surgeon identifies during operations as well as prepare students for more involved wet lab events.
- A cardiac wet lab can simulate aortic valve replacement with a prosthetic valve. The lab can use a porcine heart model to allow for the simulation of an aortic valve replacement. As stated before, having your faculty advisor or a local cardiothoracic surgeon contact a local representative from a valve company to facilitate this wet lab would be ideal. However, if you cannot find a local representative who would be willing to
support this initiative, other options exist to source material.

**Tailoring Events to Your School**

- If you do not have a cardiothoracic surgeon at your institution or on your faculty, then it may be best to find a cardiothoracic surgeon who serves as a preceptor for the third- and fourth-year medical students of your institution at 1 of the core rotation sites of your institution. Additionally, asking any cardiothoracic surgeon in your community may be the best strategy to identify someone who could help your CTSIG.

- For wet lab events, porcine aortas and hearts could be sourced from a local meat packing company, and a local cardiothoracic surgeon in your area can run the event. Other CTSIG board members may be able to serve as assistants to help with the logistics of the lab. Aortic valve replacement models can be developed with a variety of supplies, including a valve prosthetic made from rigid foam board insulation sheathing and aluminum hobby wire.

- If one is at an osteopathic institution, a lecture about cardiothoracic surgery from a doctor of osteopathic medicine who is a cardiothoracic surgeon can make the idea of becoming a cardiothoracic surgeon more relatable for osteopathic students.

**Surgical Shadowing and Promoting Diversity in Cardiothoracic Surgery**

A CTSIG can facilitate the creation of opportunities for students to shadow cardiothoracic surgeons and become involved with both their clinical and research activities. Such shadowing may have an essential formative influence on students’ views regarding potential careers in cardiothoracic surgery. Furthermore, it has been demonstrated that “students without family members in medicine tend to have less prior exposure to medicine and could likely benefit more from this type of shadowing programme.”

By creating shadowing opportunities “for those within historically underrepresented socio-economic populations, unique opportunities for academic scholarship and professional success can be created with greater diversity, equity, and inclusion.” Thus, the CTSIG can facilitate shadowing of cardiothoracic surgeons and simultaneously address known disparities in applications and matriculants into the integrated cardiothoracic programs among women and minorities.

**Remind Your Members about the National Resources Available to Them**

At every event, it is essential to remind your members that national resources are available to help them connect with cardiothoracic surgeons and residents. These resources can be a door to the start of their early career in cardiothoracic surgery. This information is integral for finding scholarships, awards, and research opportunities and may help connect dedicated members with cardiothoracic surgeon coaches, mentors, and sponsors. These coaches, mentors, and sponsors are integral to the early career of a cardiothoracic surgeon.

**Conflict of Interest Statement**

The authors reported no conflicts of interest.

The Journal policy requires editors and reviewers to disclose conflicts of interest and to decline handling manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflict of interest.

**References**


