



An Enrichment of Medical Students Clinical Experience: The Summer Scholars Program in Cardiothoracic Surgery

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Abstract

Importance: Producing more cardiothoracic surgeons is imperative to relieving the shortage of cardiothoracic surgeons.

Objective: To expose more medical students to cardiothoracic surgery to positively influence their residency choice.

Design: An eight week clinical experience in pediatric heart disease, adult heart disease, and adult thoracic diseases.

Setting: Nationwide Children Hospitals and the Ohio State University Wexner Medical Center Ross Heart Hospital, and James Cancer Hospital and Solve Research Institute.

Participants: Medical students, residents, faculty, mid-level providers, nurses, and staff.

Main Outcomes and Results: We have facilitated the Summer Scholars Program for seven years. Medical student experiences have been largely very positive. To date, five of twelve medical students have who matched will enter cardiothoracic surgery residencies.

Conclusion: Early exposure and immersion in cardiothoracic surgery increases the number of potential cardiothoracic surgery residents.

Keywords: Cardiothoracic surgery; Summer scholars program; Students

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Introduction

An Enrichment of Medical Students Clinical Experience: The Summer Scholars in Cardiothoracic Surgery. We had previously identified an impending shortage of cardiothoracic surgeons by 2035 resulting in a call to arms so to attract more medical students and women to the profession of cardiothoracic surgery [1,2].

Methods

The Summer Scholars were students that were between their first and second years of medical school. Figure 1 shows a representative schedule for the students who rotated on our service in 2013 over an 8 week period. The figure shows the faculty mentors, mid-level provider contacts, faculty advisor, and administrative support. The program included a suturing session in the first week followed by two weeks on Adult Cardiac surgery, two weeks on Adult Thoracic surgery, and two weeks on children's surgery. The Summer Scholar students then made clinical case presentations during the final week to the faculty and residents. The Summers Scholars' reports and feedback were due at the end of the 8 week period. The methods we used for the Summer Scholars Program are summarized in (Table 1).

Recruitment into the program occurred in November once the scholarships from the AATS and the American Heart Association were finalized. We then notify the medical student class via the student financial aid advisor and advertised this opportunity via e-mail.

Once the students complete the application and undergo an interview, we write and submit the letters to the AATS and the AHA. In February, we have group interviews for the candidates with the faculty, and then rate the applicants. In mid-March the AATS and, later on, the American Heart Association, notifies the selected applicants. We then provide additional scholarships to the other applicants that have been selected.

Table 1: Time line for the Summer Scholars Program.

November	Look for the AATS announcement and the AHA announcement
December	Notify student financial advisor
	E-mail every class member
	Start Interviews and write letters
January	Continue Interviews and write letters
February	Compile their applications into a book
	Have group interviews with the faculty
	Rate applicants
March	Mid March - AATS announcements
	Notify the other Selected Applicants
	Check the residency matches
April	Solicit other scholarship funds
May	Schedule rotations
	Select faculty mentors
	Select Mid-Level Providers Contacts
June	Start the Program
	Clinical Skills
July	Continue the Program
	Reception
	Report Day - invite student financial advisor and Deans
August	Finish the program
	Evaluation of the program for the year
September	Distribute Summer Scholars Final Reports to all staff and faculty members

Finally in May we schedule the rotations for the Summer Scholars and select the faculty mentors and mid-level provider contacts. We have a reception for the students and the faculty members. At the end of the summer experience the students prepare a case report and we celebrate the program by inviting the student faculty advisor and the Dean of the College of Medicine to the program. In September we distribute the Summer Scholars Final Reports to all faculty and staff members.

Results

Students

The program began in 2010 with three students. In 2011, there were again three students. By 2012 there were five students, and in 2013 there were four students. In 2014 there were two students and we were fortunate enough to have five in 2015. Overall, a total of 22 students have participated in the Summer Scholars Program.

Surveys

We surveyed Summer Scholars in 2014 [3]. Twelve of fifteen were going into surgical fields; five to general surgery, four to cardiothoracic surgery, and one each into ophthalmology, orthopedics, and urology.

With regard to type of practice, ten indicated intent to enter academic practice, seven said a hospital employed group, six suggested for a large group, and one indicated private practice.

Factors that influenced the Summer Scholars in their decisions were work-life balance, 9 students, academic potential, 7 students, life style considerations, 5 and professional distinction 3.

Quotations

Each student was required to give an assessment of our program

after they finished. These are some of their remarks:

“Entering the summer internship, I was armed with a thorough, yet basic understanding for the pathophysiology of the cardiac and pulmonary systems since our first year of medical school culminated with our cardiopulmonary block. The summer program reinforced the material we learned in our curriculum and introduced me to additional medical facets such as pre, peri and post-operative patient care.”

Another student wrote this: “My longest day was 6 am to 2 pm... the next day. I’d done a full day of shadowing, but near the end of the day got to scrub into a double lung transplant that ended around 11 pm. We then caught word of yet another lung transplant and Dr. Lee let us accompany him on the harvest at 2 am. So after sleeping for one hour, we rode to the airport, boarded a private jet and got to scrub on the harvest in Chattanooga, TN. This was the first time I’d seen a harvest, and I distinctly remember when it hit me that the man lying on the table would be dead after all of the teams finished removing his organs. I stood in the corner of the OR and hid my tears behind my plastic eye protection. I just couldn’t believe this was the first “patient” that I would see who wouldn’t get to leave the OR alive. But after the lung harvest and coming back to Ohio, watching the surgeons put the lungs into the recipient is enough explanation as to why CT surgery is an incredible field. I’ll never forget the alveoli popping open as they inflated for their new owner. That patient would wake up with a new set of lungs; real life would be better than his dreams. What an incredible gift that CT surgeons take part in bestowing!”

One wrote, “One of the things I truly appreciated this summer is that everyone in the OR, from the nurses, to the anesthesiologists, to

2013 CARDIOTHORACIC SURGERY SUMMER SCHOLARS PROGRAM

Wexner Medical Center	ROTATIONS			
	June 17- June 28	July 1- July 12	July 15- July 26	July 29- August 9
Neeraj C.	Thoracic	Cardiac	Optional/Research	Pediatric
Anupama J.	Pediatric	Optional/Research	Thoracic	Cardiac
Diana W.	Cardiac	Thoracic	Pediatric	Optional/Research
Courtney Y.	Optional/Research	Pediatric	Cardiac	Thoracic

Faculty Mentors

Cardiac Dr. Ahmet Kilic	Administrative Assistant: Kay Y.
Cardiac Dr. Bryan Whitson	Administrative Assistant: Shelly K.
Thoracic Dr. Vincent Daniel	Administrative Assistant: Amy R.
Pediatric/NCH Dr. Patrick McConnell	Administrative Assistant: Enjoli B.

Mid-Level Providers Contacts ("Go-to" people for clinical activity)

- **Cardiac: Michelle Weaver** Pager: 000.0000; Phone: 293.0000; Email: xxxxxxxxx@osumc.edu; Rm #: N827 Doan Hall
- **Thoracic: Scott Cackler** Pager: 000.0000; Phone: 293.0000; Email: xxxxxxxxx@osumc.edu; Rm #: N839 Doan Hall

Faculty Advisor

- **Dr. Tom Williams**- 293.0000, xxxxxxxxx@osumc.edu

Administrative Support

- **Corey Ferguson**- 000.0000, xxxxxxxxx@osumc.edu, Cell: 000.000.0000(Call or text)

Program Information & Dates

- **Program:** June 17 - August 9
- **Suturing Session:** June 19
- **Case Presentations:** August 8
- **Reports/Feedback Due:** August 31

Figure 1: Rotations, Faculty and Staff.

the surgeons, would go out of their ways to explain to us the reasoning behind the steps being performed during the surgeries. I found this to be particularly helpful, because while I could mimic others and attempt to participate during the surgeries through suctioning, retraction, sub-dermal stitches, etc, understanding what the surgeons were thinking enabled me to have a greater level of participation in the procedures.”

Another wrote, “My favorite part of this summer was the opportunity to scrub in on cases. I learned so much about surgery and how to conduct myself in an OR. I feel extremely prepared for M3 rotations after this experience. I also enjoyed going to rounds. I appreciated seeing the patients after their surgery to learn about their progress and post-operative care. Dr. Daniel also took the students aside to teach us, and that was very helpful; I learned a lot about labs, imaging, and lung cancer during those teaching sessions, which was extremely helpful.”

Academic productivity

We were fortunate to have four students who wrote five papers on which they were the first authors [4-8].

Matches

A total of fifteen Summer Scholars have taken the program from 2010 to 2013. Two of the students have taken an MBA program, as well, delaying graduation for one of them. Two have dropped out of medical school.

Three women Summer Scholars have matched in Pediatrics. Two women will go into Internal Medicine. One woman will go into Urology. One man has matched to an integrated program in cardiothoracic surgery. Four men have matched into general surgery with the intention of going onto cardiothoracic surgery. One man will go into Emergency Medicine.

Discussion

A total of 22 students have completed the Summer Scholars Program. Twelve have matched since with six choosing primary care fields, and six choosing surgical fields. Of those who chose surgical fields, five are going into cardiothoracic surgery.

The survey results indicate they favored academic careers as a part of large group practice. Work-life balance and life style considerations were influences for them.

The Summer Scholars students rose to the challenges of their experience, as seen from the quotations and the published papers.

We want to thank our associates and staff, the mid-level providers, the residents and fellows, and our faculty who make this a wonderful opportunity for the Summer Scholars.

Conclusion

Establishing a Summer Scholars Program is hard work; it requires administrative, faculty and institutional support. However, with structure and discipline the Summer Scholars program has the potential to influence young, aspiring medical students to become cardiothoracic surgeons and follow in our footsteps.

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