

CTSNet Program Profile Questionnaire

PROGRAM DETAILS

1. Names of the
 - a. Program director: [Robert A. Guyton, MD](#). Associate Directors: [Vinod H. Thourani, MD](#) and [Daniel Miller, MD](#)
 - b. Chief(s) of cardiac division: [Robert Guyton, MD](#)
 - c. Chief (s) of thoracic division: [Daniel Miller, MD](#)
2. Program Contact information: [Carol Adams \(work: 404-778-3836\)](#)
3. Link to your program's website:
4. We would be happy to post relevant pictures regarding your program (3 pictures maximum).
5. Indicate the # of residents accepted per year to your program: [4 per year](#)
6. Indicate the length of the program: [3 years](#)
7. Does your program have separate cardiac and thoracic tracks? [Yes](#)
 - a. if yes, how many positions are there in each?
 - i. Cardiac positions: [3 Cardiothoracic positions](#)
 - ii. Thoracic positions: [1 Thoracic Track](#)
8. Indicate the approximate deadline for application and interview dates:
 - a. Deadline: [January 30](#)
 - b. Interview dates: [March and April](#)

CASE VOLUME

1. Please indicate the average number of cases per year performed in your program for the following ABTS categories:

	Total Institution Cases	Total Cases per Resident
Total number of cardiac cases:	3921	435
Total number of thoracic cases:	1028	114
Congenital heart disease:	642	71
Acquired valvular heart:	1030	114
Valve repairs:	112	12.4
Myocardial Revascularization:	1519	169
Aorta:	408	45.3
Pneumonectomy, lobectomy, segmentectomy:	221	24.6
Esophagus resection:	61	6.8
Benign Esophageal Disease:	137	15.2
Heart transplants:	37	4.1
Lung transplants:	23	2.6
Ventricular assist device:	20	2.2
Minimally invasive cardiac:	Not recorded, approx 250	~27

CURRICULUM

1. Details of curriculum:
 - a. Indicate the # of months on each rotation for each year (for each cardiac and thoracic track if applicable), and which hospital(s): The three-year curriculum of this independent thoracic surgery residency program is divided into three, four-month rotations in each year. In the first year, the resident has a learning experience in pediatric cardiac surgery for four months at Children's Healthcare of Atlanta, adult cardiac surgery for four months at Emory University Hospital Midtown, and general thoracic surgery for four months at Emory University Hospital. In the second year, the resident has an intermediate rotation in adult cardiac surgery at Emory University Hospital, an adult cardiac surgery rotation at Kennestone Hospital, and a mixed general thoracic and adult cardiac rotation at the VA Medical Center. In the third year, the resident is in a supervisory position leading the resident/fellow/physician assistant team at Emory University Hospital in adult cardiac surgery for four months and at Emory University Hospital Midtown in general thoracic and adult cardiac surgery for four months. Four months of the third year is devoted to an elective. Residents are in a Chief Resident position (the most senior resident on the service, leading the residency/midlevel/fellow team) during twenty months of the three year program. See Appendix 1 for block diagram and General Thoracic Track.
 - b. Please describe any opportunities for electives: Third Year Elective. The elective rotation of the third year is focused upon a specific career goal, often helping the resident attain a superiority position relative to other residents graduating in the country in a subspecialty area. This rotation can be at one of the Emory Hospitals or by prearrangement in an external facility. If the external facility rotation is longer than four weeks, prearrangement is necessary (short observation periods are allowed without prearrangement). The subspecialties chosen by the residents in the past have been advanced congenital cardiac surgery, minimally invasive general thoracic surgery, endovascular therapy of thoracic aortic aneurysms, ventricular assist device therapy and transplantation, development of simulation for cardiac surgery, and transcatheter aortic valve implantation. This rotation has been extremely popular with the residents as well as with the practices seeking to hire the residents. The residents are able to develop focused skills in vary advanced areas that are state of the art at the time of their graduation.
 - c. Please describe any wet labs and simulation technology used in training and how frequently these are used: Wet labs are used three times per year. Simulation tools are used in the second year, especially on the Kennestone Adult cardiac rotation (~ weekly on this rotation).
 - d. Please briefly describe the number and type of weekly conferences residents are expected to attend: Mandatory are weekly didactic lectures on Wednesday mornings (6:30 to 7:30) and weekly CT rounds/M&M conferences on Thursday mornings (7:00 to 8:00). Journal club is held ~9x/yr in the evening at a restaurant. Residents additionally have dinner with visiting professors three times a year. Each rotation generally has its own conference weekly for the resident(s) on that rotation.
 - e. Please indicate what provisions are made for attending national research meetings (i.e., # per year for which funding is provided, and if that is dependent on presenting an abstract): Funding and time away is provided for each resident to attend one major meeting (four days) and additionally, if a resident is presenting a paper, funding and time away is also provided for that meeting (2 days). Each second and third year resident also generally attends one industry-sponsored review course each year.
 - f. Please describe opportunities for research (clinical, basic science). Clinical research is supported by the Clinical Research Unit, a translational research effort funded initially by the institution and then funded in 2009 by the CTS network (an NIH network of nine institutions collaborating for prospective clinical trials and cardiac surgery, funded with \$250,000 annually in NIH funds for infrastructure support to each institution). Emory had to compete nationally for our position in this network with approximately 30 other institutions. Resident research is particularly solicited by members of the clinical research unit who meet in the fall of each residency year with the residents to present opportunities to them. The residents present their project at the General Surgery Research Day and the Cardiac Surgery Resident Research Day in May and June of each year in addition to making presentations at regional and national meetings. We generally have three visiting professors each year, one in Pediatric Cardiac Surgery, one in Adult Cardiac Surgery, and one in General Thoracic Surgery. Faculty members are encouraged to help the resident be the first author or the presenter on publications and presentations. In the last three years, 36 publications included resident authors, with 26 having resident first authors. 19 presentations were given by residents at national or regional meetings related to these papers in three years. Basic research is generally not feasible in the three year curriculum, except as a four month elective in the third year.

g. Please describe the call structure (i.e., frequency, in-house vs. home call): The ACGME work hours are observed. Generally there are two nights "on call" per week in the first two years. Staying in-house is optional (with the exception of the pediatric cardiac rotation with mandatory in-house call), but sick patients keep the resident in-house frequently.

h. Please indicate whether funds are provided for loupes? Yes Textbooks? No Phones? No

2. Subjective:

a. Please describe your program's biggest strengths

The thoracic surgery residency program at Emory University School of Medicine is one of the oldest and most successful in the country. The program began in 1963 under Dr. Osler Abbott producing the first female board certified cardiothoracic surgeon in the country. In 1970, Dr. Charles R. Hatcher became program director and led a dramatic expansion of cardiac surgical activity at Emory. By 1980, Emory was one of the premier adult cardiac and adult general thoracic programs in the country in terms of volume and clinical outcomes. Between 1980 and 1990, the pediatric cardiac program at Emory, under the direction of Dr. Willis Williams, flourished and achieved a similar status with regard to volume and clinical outcomes in pediatric cardiac surgery. The cardiac transplant program began in 1985 and flourished from 1985-1995 also reaching national prominence in cardiac transplantation. The lung transplant effort has achieved similar results beginning in 1995. Dr. Robert Guyton became chief of cardiothoracic surgery and director of the thoracic surgery residency program in 1990. By the year 2000, the thoracic surgery residency program at Emory was among the top five programs nationally in adult cardiac surgical volume, among the top five programs nationally in general thoracic surgical volume, in the top five programs nationally in pediatric cardiac surgical volume, and in the top five programs nationally in thoracic organ transplantation. Notable is the fact that the turnover in Emory faculty has been very small through the years, with many notable thoracic surgeons (Miller, Mansour, Symbas, Hatcher, Jones, Craver, Williams, Guyton) spending their entire careers at Emory. The residency program has had only three directors in 47 years.

In addition to clinical volume and clinical outcome quality, Emory has made a major contribution in both basic and clinical research. The cardiothoracic research laboratory, originally under the direction of Dr. Robert Guyton, began in 1980. In 1995, direction of the laboratory was intensified by hiring a full-time PhD to run the laboratory leading to a dramatic increase in national visibility. The focus of the laboratory has been myocardial preservation and resuscitation during and after periods of ischemia. The concept of post conditioning originated in the cardiothoracic research laboratory (post conditioning became such a hot topic that it was the focus of individual sessions at multiple American Heart Association meetings). The laboratory has progressively moved from system physiology to cellular physiology and now to molecular level physiology with Dr. David Lefer as head of the laboratory. The laboratory currently has over three million dollars of active NIH direct funding.

In translational and clinical research, Emory has made major contributions in coronary revascularization with early studies documenting the importance of completeness of revascularization and then pivotal studies in off-pump coronary artery bypass. Emory is an acknowledged national leader in off-pump coronary artery bypass surgery. We have performed nationally recognized single institution trials of off-pump vs on-pump coronary artery bypass surgery, warm vs cold heart surgery, and methods of amelioration of inflammation during perfusion techniques. In 2006, a robust clinical research unit was created under the direction of Dr. John Puskas. This unit has taken advantage of the adult cardiac database which was established in 1975 collecting over 250 fields of data on all adult cardiac surgery patients for a 35-year period. Because of the success of the clinical research unit, Emory has been chosen as a member of CTS NET, a network of eight institutions sponsored by NIH to prospectively study topics of clinical patient interest in adult cardiac surgery. Emory's position in cutting-edge innovation in adult cardiac surgery is punctuated by our participation in the PARTNER II trial of transcatheter aortic valve implantation, being the fourth busiest enrollment center in the country in this critical new trial.

Our general thoracic program continues to flourish with a large volume of major procedures available for resident education. There has been a progressive shift to thoracoscopic pulmonary resection. Over 70% of pulmonary resections now performed at Emory are done thoracoscopically. Emory will be the host site in the fall of 2010 for the first of a newly created STS series of general thoracic teaching courses featuring thoracoscopic pulmonary resection. Emory's thoracic surgery residency program has been approved for a thoracic track resident, a track which is scheduled to begin in July 2011.

Pediatric cardiac surgery at Emory has been a phenomenal success with patient outcomes are that arguably unmatched in the country. In the STS congenital cardiac database, Emory's risk adjusted

outcomes have been in the top three institutions for large volume institutions in the country for the last three years. An ACGME approved congenital cardiac fellowship began in July 2009.

The thoracic organ transplantation program at Emory continues to grow with over 35 adult and pediatric cardiac transplants per year and 25 lung transplants per year. The thoracic surgery residents are intimately involved in the transplantation program (there is no “transplantation” fellow). The thoracic surgery residents are the operating surgeon on the majority of the thoracic organ transplants, and they participate in most organ procurements. The ventricular assist device program is also growing with 10 ventricular assist devices implanted in calendar year 2009 and 11 implanted in the first four months of calendar year 2010. Emory is a CMS approved ventricular assist device center and is currently implanting miniature left ventricular assist devices for destination therapy. Twelve to fifteen patients are currently being treated as outpatients with ventricular assist devices in place at Emory.

- b. Please provide 1-2 adjectives that describe your program **Innovative. Clinically focused.**
- c. Please indicate what is unique about your program relative to other programs

The goal of the thoracic surgery residency program is to produce leaders in cardiothoracic surgery with exceptional surgical skills, with superior perioperative management methods, with a thorough knowledge of translational research, with exemplary behavioral attributes and with a commitment to serve patients as individuals and society as a whole.

These goals are accomplished by a focus on resident education and unusual clinical volume in all areas of Cardiothoracic Surgery. Other programs may match us in one area or another, but the volume in adult cardiac, pediatric cardiac, general thoracic, AND thoracic organ transplantation/VADs is unequalled. Residents are the focus of the teaching program, with external fellows subordinate to our residents. There are no “super-fellows” taking the best cases. Additionally, there are 22 “physician –extenders” employed on our services, so that residents perform very little of the routine or “scut” work.

In the final analysis, the outcome factors that differentiate our program are the success of our graduates, their contribution to society, and their continued association with Emory. We have over one hundred and twenty Emory graduates actively practicing thoracic surgery in all parts of the United States. One in three of recent graduates are in academic positions. More than half of our graduating residents are hired by former residents. Largely because of this, we have never had a graduate fail to find a suitable job, despite the “job crisis” in cardiothoracic surgery in the last ten years. Our graduates are successful. As their practices grow, they return to Emory to hire new associates. They want a partner with state-of-the-art knowledge and skills, with exemplary professional behavior and with the ability to thrive in diverse medical systems. They want a partner trained as they were trained, a partner trained at Emory.

GRADUATES

1. Indicate the percentage of graduates that do further training: **In the last 5 years, 1/15 (7%) in aortic surgery and 2/15 (13%) in congenital cardiac surgery – 20% total)**
2. Indicate the percentage of graduates that pursue academics vs. private practice: **33% academic**
3. Please provide an account of job placement for your graduates over the last 3 years: **No resident has failed to find a suitable job by February of the final year in the last five years. Generally three to four job offers are received. More than half of our graduating residents are hired by former residents. We have over one hundred and twenty Emory graduates actively practicing thoracic surgery in all parts of the United States Largely because of this, we have never had a graduate fail to find a suitable job, despite the “job crisis” in cardiothoracic surgery in the last ten years. Our graduates are successful. As their practices grow, they return to Emory to hire new associates. They want a partner with state-of-the-art knowledge and skills, with exemplary professional behavior and with the ability to thrive in diverse medical systems. They want a partner trained as they were trained, a partner trained at Emory.**
4. Please describe “super” fellowship opportunities (e.g. transplant, endovascular, minimally invasive, congenital) available at your institution: **External adult cardiac fellowships are available for both international and US-trained fellows. These positions are subordinate to the Emory ACGME chief residents on all rotations and are therefore not “superfellows”. These positions are useful for US fellows who need additional “routine” cardiac cases prior to entering practice.**

FUTURE CHANGES

1. Please indicate whether your program is planning on developing a Joint Thoracic/General Surgery (4+3) or Integrated Program (if your program already has one, please skip this section and complete the last portion of the questionnaire entitled "Additional questions for Joint Thoracic/General Surgery (4+3) and Integrated (i6) programs")? [We are in the process of transition to an integrated six year program. For the next three years we will be beginning residents in the integrated program \(two to three per year \) and in the traditional three year program \(three per year\).](#)

JOINT THORACIC/GENERAL SURGERY (4+3) and INTEGRATED PROGRAMS (I6) *Please only fill this out if your program already has an approved 4+3 or integrated program*

1. Please indicate the # of residents accepted per year: [Two to three](#)
2. Please indicate the year of your first entering class: [Planned for 2011](#)
3. Details of curriculum:
 - a. Please indicate the # of months on each rotation for each year, and which hospital. Please feel free to send as an attachment your rotation block diagram: [See Appendix 2](#)
 - b. Please indicate whether research time is included in the curriculum. Is this optional or required? [Elective time is available in years 1,2, 3, and 6. There is no mandatory research time](#)
 - c. Please briefly describe what exposure students will receive to fields adjunct to CT surgery (i.e., echocardiography/cardiac imaging, cardiology, ICU, endovascular technology) [See Appendix 2.](#)
4. Please provide additional relevant comments: [The six year program will allow tracking into general thoracic or cardiac surgery. The final three years of the six year program will be identical to the current three year independent program, allowing flexibility and elective time for six year residents, but also allowing continued matriculation of residents completing a General Surgery residency and then entering the final three years of our program.](#)

Appendix 1

INDEPENDENT Program Format YEAR 1 (CARDIOTHORACIC TRACK)

Period	4 months	4 months	4 months
Site	EUH-Midtown (EUHM)	Egleston-Children's Hospital	EUH-main (EUH)
Service	Cardiothoracic	Congenital	General Thoracic
Inpatient / Outpatient	I/O	I	I/O
Exposure	1 week perfusion/1 week transesophageal echo/ 1 week pulmonology	1 week perfusion/1 week echo	1 day/per week tumor board/1 week transplant

INDEPENDENT Program Format YEAR 2 (CARDIOTHORACIC TRACK)

Period	4 months	4 months	4 months
Site	EUH	Kennestone Hospital	Veterans Administration (VA)
Service	Adult Cardiac	Adult Cardiac	Cardiothoracic
Inpatient / Outpatient	I	I/O	I/O
Exposure	1 week perfusion	1 week cardiac cath	1 day/week tumor board, 1 am/week cardiac cath conference

INDEPENDENT Program Format YEAR 3 (CARDIOTHORACIC TRACK)

Period	4 months	4 months	4 months
Site	EUH	EUHM	Elective-Variable location
Service	Adult Cardiac/Heart Failure	Cardiothoracic	Interventional/Vascular/Minimally invasive/Endovascular/Robotics/ Transcatheter Valve
Inpatient / Outpatient	I/O	I	Variable
Exposure			

APPENDIX 1 CONTINUED

INDEPENDENT Program Format YEAR 1 (THORACIC TRACK) (TO BEGIN 2011)

Period	4 months	4 months	4 months
Site	EUH	EUHM	EUH
Service	General Thoracic	General Thoracic	Adult Cardiac
Inpatient / Outpatient	I/O	I/O	I/O
Exposure	1 month Pulmonology 2 weeks GI	2 weeks GI	2 weeks perfusion

INDEPENDENT Program Format YEAR 2 (THORACIC TRACK)(TO BEGIN 2012)

Period	4 months	4 months	4 months
Site	EUHM	EUH	VA
Service	Adult Cardiac	Interventional Pulmonology	General Thoracic
Inpatient / Outpatient	I/O	I	I/O
Exposure	1 week perfusion/1 week transesophageal echo	2 weeks GI/ 2 weeks General Pulm	1 day/per week tumor board

INDEPENDENT Program Format YEAR 3 (THORACIC TRACK)(TO BEGIN 2013)

Period	4 months	4 months	4 months
Site	EUH	EUH	EUH
Service	General Thoracic/Minimally-Invasive	General Thoracic/Lung transplant	Adult Cardiac
Inpatient / Outpatient	I/O	I	I/O
Exposure	1 day/week Tumor Conference	2 weeks Transplant pulmonology	

Appendix 2

PROPOSED INTEGRATED PROGRAM CURRICULUM (LAST 3 YEARS ARE IDENTICAL TO CARDIOTHORACIC TRACK AND THORACIC TRACK ABOVE)

INTEGRATED Program Format YEAR 1 (ALL RESIDENTS)

Period	1 month	1 month	1 month	1 month	1 month	1 month	1 month	1 month	1 month	1 month	2 months
Site	Grady	Grady	Grady	EUH	EUH	Egleston	EUHM	EUH	EUH	EUH	Athens Regional
Service	General Surgery A	General Surgery B	Trauma	Surgical Oncology	Vascular	Pediatric	General Cards	Cards - Heart Failure	Trans-plant	Elective-Remedial	Cardiothoracic
Inpatient / Outpatient	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O
Exposure				Tumor conf. weekly	1 week endovasc		1 week EP				

INTEGRATED Program Format YEAR 2 (ALL RESIDENTS)

Period	2 months	2 months	1 month	1 month	1 month	1 month	2 months	1 month	1 month
Site	Grady	EUH	EUH	EUH	EUH	VA	Piedmont Hosp.	EUH	EUH
Service	SICU	Cardiothoracic ICU	Surgery A	Surgery B	Vascular	Vascular	General/Vascular Surgery	ECHO	Elective
Inpatient / Outpatient	I	I	I/O	I/O	I/O	I/O	I	O	I/O
Exposure			1 week esophageal physiology		2 weeks Endovascular			1 week TEE	

INTEGRATED Program Format YEAR 3 (CARDIOTHORACIC TRACK)

Period	2 months	2 months	4 months	2 months	1 month	1 month
Site	EUHM	EUH	Kennestone	EUH/VA	EUHM	EUH
Service	Adult Cardiac	Adult Cardiac	Adult Cardiac	Vascular	Interventional Cardiology	Elective - Cardiothoracic
Inpatient / Outpatient	I/O	I/O	I/O	I/O	I	I/O
Exposure	1 week perfusion	1 week EP	4 weeks endovascular	2 weeks endovascular		

INTEGRATED Program Format YEAR 3 (THORACIC TRACK)

Period	2 months	2 months	4 months	2 months	2 months
Site	EUHM	EUH	Kennestone	EUH/VA	Elective
Service	Adult Cardiac	General Thoracic	Cardiac/Thoracic	Vascular	Thoracic
Inpatient / Outpatient	I/O	I/O	I/O	I/O	I/O
Exposure	1 week perfusion	2 weeks Pulmonology/ 2 weeks GI	2 months General Thoracic	2 weeks endovascular	Interventional Pulmonology/Lung transplantation