The Mount Sinai Medical Center, New York

Integrated Thoracic Surgery Residency Program

We designed our I6 Residency Program with the aim of graduating cardiovascular surgeons fully equipped to deal with a changing specialty, training applicants directly from medical school, from research, and from clinical practice. These pages will give you an introduction to this outstanding program.

David H. Adams, MD
Chairman and Program Director

Program Overview

The Mount Sinai Medical Center is a 1,171-bed, tertiary-care, teaching facility founded in 1852. It encompasses The Mount Sinai Hospital and Mount Sinai School of Medicine. Situated in Manhattan between Central Park and Madison Avenue, and serving the Upper East Side, Harlem, and Queens, The Mount Sinai Medical Center bridges some of the most diverse communities in the US.

Mount Sinai’s I6 program was one of the first to be accredited in the US and will have Residents in each of the first four years of the program in July 2012. Our I6 program runs in parallel with a highly successful 2-year ACGME Fellowship Program, with both programs taking one applicant per year.

The I6 Program has some unique aspects. It provides the most experience in cardiac surgery of any integrated program with almost 40 months in adult cardiac and congenital cardiac surgery, as well as blocks dedicated to cardiac critical care, endovascular surgery, perfusion and echocardiography. In the first six months of the program, Residents get early exposure to cardiac surgery learning to open chests, cannulate for cardiopulmonary bypass, and complete cases. There is also flexibility for Residents to choose a more general cardiothoracic pathway as well as mentored research.

How to apply: Go through ERAS starting in September. Denise Galeano can deal with any enquiries, and our residents are also happy to answer questions (emails above and on the back page). We get around 150 applications per year, and interview 10-15 people in January.
Program Overview continued

The training program is specifically designed to produce surgeons who will provide comprehensive care to the cardiac patient and fully participate in the rapid expansion of minimally invasive, hybrid, and endovascular surgery as clinical and academic leaders.

Training takes place at The Mount Sinai Hospital for five of the six years, with 12 months spent at nearby Englewood Hospital during the first three years of the program. Englewood, a large, modern hospital, provides outstanding exposure to general and vascular surgery and is located 25 minutes from the Sinai campus. It also allows I6 Residents to complete the ABTS General Surgery Operative Requirements within a 12-month block very early on in their training (see block schedule below).

The mandatory 24 months of “core surgery” is made up of this 12-month general and vascular surgery block, and 3 months of critical care training in the Cardiac Surgery ICU in PGY1. This is followed by 3 months rotating through cardiac surgery, cardiac anesthesia, and perfusion, and then 6 months of thoracic surgery at the end of PGY 2.

In PGY 3 Residents will choose to focus on a cardiac or thoracic track. Cardiac track residents complete six months in interventional and endovascular skills, whereas thoracic track residents focus on advanced general and thoracic surgery training, with 6-month electives available at the end of the Residency Program to gain advanced specialty skills.

Mentored research is a key component for all I6 Residents throughout their training. For selected applicants there is the opportunity to complete a PhD during the residency program, with a period of 1 – 2 years full-time funded research between the 2nd and 3rd year blocks. In addition to the many clinical research projects within the department, Residents can choose to pursue projects with any of the many research groups that make Sinai one of the top 10 institutions for NIH funded projects.

*The anesthesia block is spent in general anesthesia (including simulation training), cardiac anesthesia (which includes TEE) and perfusion.

- Englewood
- CTS: cardiac Surgery
- Peds: congenital
- IR / IC: interventional and endovascular
- CTICU: cardiac Surgery critical care

Current block schedule
Educational Rationale

Cardiac Surgery: Up to 39 months can be spent in cardiac surgery over the course of the 6-year program, allowing Residents to exceed not only their ABTS operative requirements, but also to really gain proficiency in all areas of cardiac surgery. Our Program is internationally recognized for its particular strengths in mitral and aortic valve surgery, attracting advanced Fellows from the US and abroad for training in these areas. Cardiac surgery training is divided into three main blocks.

- **Introductory Cardiac Surgery** is a 3-month block in PGY1, where Residents will learn the basic principles of cardiac surgery; taking supervised responsibility for the post-operative care of cardiac surgery patients as they build on the skills and knowledge gained during the 3-month critical care rotation in the Cardiac Surgery ICU. Residents scrub in on cardiac cases daily, learn to open and close the chest, cannulate for cardiopulmonary bypass, and will potentially perform selected cases as primary surgeon. Englewood has a busy cardiac surgery group that will allow Residents to consolidate these skills.

- **Intermediate Cardiac Surgery** is a 12-month block during PGY3 and PGY4, where Residents will build on their core surgery training to start performing cases in addition to assisting. They will also, for the first time, take independent responsibility for the care of cardiac patients. ICU on-call will be taken with a Senior Fellow until residents are assessed as ready to take independent call.

- **Advanced Cardiac Surgery** is an 18-month block, beginning with six months of congenital surgery, where Residents will gain proficiency in coronary artery bypass grafting, valve surgery, aortic procedures, and congenital surgery. The electives in the final year offer the chance to focus on areas such as transplant, ventricular assist devices, or minimally invasive and hybrid approaches to cardiac surgery.

Critical Care: This is a crucial part of the cardiothoracic surgeon’s skill-set. We recognize this by starting all our I6 Residents with a 3-month rotation in the Cardiac Surgery ICU under the direct supervision of a team of cardiac intensivists and cardiac surgeons, dual-certified in critical care, who provide a structured, didactic program with graduated responsibility for patient care, and the teaching of procedural skills such as line insertion. This rotation is designed to give Residents the knowledge and skills to be able to look after complex, post-operative patients from an early stage and will enable Residents to get the most out of their subsequent general surgery, thoracic, and cardiac surgery rotations. Supervision is graduated according to skills and knowledge. Residents spend several nights a month on-call with a Senior Resident or intensivist throughout the first two years of the program prior to taking independent night call. After the 3-month ICU rotation, Residents consolidate critical care knowledge and skills such as airway management, line insertion, and echocardiography in the anesthesia block.
Teaching & Training

Conferences

Faculty-led teaching and clinical conferences are a key element of the didactic program with time allotted during the work week for Residents to attend ABTS curriculum sessions, case discussions, and teaching rounds (please see conference schedule below).

Mentorship and Appraisal

Fellows are assigned a faculty mentor with shared clinical and research interests to provide additional guidance and support wherever needed outside the formal evaluation process.

All Fellows take part in 360° evaluations every six months with a review of the operative logbook, academic progression, and career plans by the Program Director and/or Associate Program Director. Regular appraisal and discussion of objectives helps tailor the training program to individual needs and goals.

Simulation

Surgical skills training allow I6 Fellows to rapidly develop technical proficiency outside the operating room. We use teaching tools ranging from high-fidelity simulation of cardiac and thoracic surgical procedures in cadaver wetlabs (above), to low fidelity synthetic suturing models. We also regularly use faculty run, in-house, surgical skills wetlabs, using animal hearts to teach cardiac anatomy and surgical techniques. MSH has a number of high-fidelity simulation resources including dedicated models for critical care, echocardiography, and laparoscopic surgery.

Financial support

Subsidized housing or allowance
Food allowance
Textbook and equipment grant (including operating loupes and headlight)
Educational funding for one national conference per year in addition to a board review course in the final year

Conference schedule

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<thead>
<tr>
<th>Conference</th>
<th>Frequency</th>
<th>Description</th>
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<tbody>
<tr>
<td>Core Curriculum</td>
<td>Daily during summer monthly rest of year</td>
<td>Faculty moderated tutorials covering all aspects of clinical and basic science TSDA curriculum</td>
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<tr>
<td>Mock Oral Boards</td>
<td>Monthly</td>
<td>Faculty led practice oral exams on topic provided in advance with constructive review</td>
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<tr>
<td>Conference</td>
<td>Weekly</td>
<td>Lecture by department faculty with bimonthly visiting professor</td>
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<tr>
<td>Wetlabs, simulation and surgical skills teaching</td>
<td>please see panel above</td>
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<tr>
<td>Journal Club</td>
<td>Quarterly</td>
<td>Critical review of key publications</td>
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<tr>
<td>M&amp;Ms</td>
<td>Monthly</td>
<td>Multidisciplinary case review</td>
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<tr>
<td>Tumor Board</td>
<td>Weekly</td>
<td>Multidisciplinary case review</td>
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<tr>
<td>ICU Rounds</td>
<td>Weekly</td>
<td>Multidisciplinary case review</td>
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<tr>
<td>Transplant and VAD Conference</td>
<td>Weekly</td>
<td>Multidisciplinary case review</td>
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<tr>
<td>Joint Cardiology Conference</td>
<td>Fortnightly</td>
<td>Case-based discussion of challenging cases.</td>
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