MISSION
We advance health through research, education, clinical practice and community partnerships, providing each person the best care, in the right place, at the right time, every time.

VISION
Achieve the healthiest population possible, leading the transformation of health care in our region and setting the standard for our nation.
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ADMINISTRATION
Lawrence Dacey, MD
Acting Chair of the Department of Surgery
Professor of Surgery and Community & Family Medicine

Samuel Finlayson, MD, MPH
Vice Chair for Academic Affairs & Faculty Development
Residency Program Director
Associate Professor of Surgery and The Dartmouth Institute

Kerry Ryan
Director

Linda Barie
Administrative Manager

Peter Beaulieu
Program Assistant

Audrey Carr
Financial Manager

Christina Sliwinski
Surgery Clerkship Program Coordinator

John Higgins
Database Manager

Donald Likosky, PhD
Departmental Epidemiologist
Assistant Professor of Surgery, Community & Family Medicine, and The Dartmouth Institute

Dawn Robinson
Residency Program Administrator

Laura Stancs
Assistant to the Chair

SURGICAL RESEARCH LAB
P Jack Hoopes, DVM, PhD
Professor of Surgery and Medicine

Brian Pogue, PhD
Adjunct Associate Professor of Surgery

Mark Savellano, PhD
Research Assistant Professor of Surgery
It has again been an exciting and accomplished year for the Department of Surgery. I have been honored to serve as the Acting Chair since Dr. Dow’s retirement. Part of my initial work before I started was to go to our section chiefs and practice managers to get to know the scope of their work. I was astounded at the quality, quantity, and creativity of the programs that we have in the Department. Our faculty and staff are exceedingly talented and deeply committed to our missions of patient care, education, and research in a time of increasing pressures and demands. We have many pockets of true excellence that rival the best in the nation. We continue to grow and expand, and have added exceptional individuals to our faculty. This report highlights just a few of the many remarkable accomplishments of our sections.

It is because of the strength and distinction of the Department that we were able to recruit a truly outstanding individual as our new Department Chair. I am delighted that Richard B. Freeman, MD has accepted the position as Chair of the Department of Surgery effective January 4, 2010. Dr. Freeman is a nationally prominent transplant surgeon and currently is Professor of Surgery, Vice Chair for Research, and Director of Surgical Research Laboratories at Tufts University School of Medicine. He is on the Board of Trustees of the New England Organ Bank, Associate Editor of the American Journal of Transplantation, and a reviewer or editorial board member for more than a dozen journals. Dr. Freeman is an active educator and clinical researcher. He has led surgical education at Tufts, served on the curriculum committee, contributed to that institution’s clinical curriculum redesign, and directs the transplant fellowship at Tufts-New England Medical Center. Dr. Freeman’s major research interests include genetic differences in the immune response, immunology of liver regeneration, viral infections in transplantation, long-term outcomes after transplantation, and organ allocation and policy development. He has written more than 130 journal articles, served on study sections for the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), been Principal Investigator in numerous industry-supported clinical investigations, and has grant-funded research through the National Cancer Institute and the NIDDK.

Academic medicine is changing, as it always has, and much more rapidly than in the past. External forces are shaping the destiny of medicine, and merely reacting to them rather than leading change will be a painful and ultimately defeating experience. With the arrival of Dr. Freeman and his visionary leadership, the Department will continue to change, adapt, innovate, thrive, and excel. The next few years will be a thrilling time to be here; I look forward to the journey.

Lawrence Dacey, MD
Acting Chair of the Department of Surgery
Professor of Surgery and Community & Family Medicine
### Department Statistics 2009

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The Division of Cardiac Surgery
The Division of Cardiac Surgery continues to offer a full-range of surgical procedures for patients with acquired adult cardiac diseases. These procedures include, as needed, off-pump coronary revascularization, mitral valve repair, valve sparing aortic valve surgery, and various forms of left ventricular remodeling procedures. Our continued involvement in the Northern New England Cardiovascular Disease Study Group insures that our outcomes are closely and transparently tracked against institutional, regional and national standards, and we are proud to continue to demonstrate some of the best outcomes in the nation. Patients can now access and review our surgical outcomes by logging onto www.dhmc.org/qualityreports/list.cfm?metrics=CT.

The Aortic Center at Dartmouth continues to thrive under the directorship of Dr. Anthony DiScipio. This multidisciplinary initiative offers patients with complex diseases of the thoracic and abdominal aorta many of the most sophisticated surgical interventions performed today. Patients with life-threatening aortic diseases can now be evaluated and electively treated by the most advanced diagnostic and therapeutic modalities available and by a team of professionals dedicated to understanding and treating these conditions.

Progress continues on the creation of the Heart and Vascular Center at Dartmouth. Once initiated, the Center will combine the resources of the Sections of Cardiology, Cardiac Surgery, Vascular Surgery, and Interventional Radiology into a single entity. The mission of the Heart and Vascular Center at Dartmouth will be to provide integrated care for patients with all forms of cardiovascular diseases, to provide an interdisciplinary educational program for residents and fellows, and to provide a venue for translational research in cardiovascular disease.

The Division of General Thoracic Surgery
The Division of General Thoracic Surgery continues to be an integral part of Dartmouth-Hitchcock Medical Center's and Norris Cotton Cancer Center's Comprehensive Thoracic Oncology Program (CTOP). This multidisciplinary initiative offers all patients with malignant diseases of the chest direct “one-stop” access to a multidisciplinary team of experts dedicated to better understanding and treating these devastating conditions. This program meets weekly and combines a clinical conference, where individual patients' conditions are discussed and treatment plans generated, with a clinic that places clinicians from medical oncology, surgical oncology, pulmonary, diagnostic and interventional radiology, and pathology in one place. This has offered both patients and clinicians the opportunity for “real-time” collaboration and consultation. The General Thoracic Division offers full procedures for patients with benign and malignant surgical diseases of the lung, esophagus, mediastinum, and pleural spaces. These procedures include, where appropriate, video assisted thoracic surgery (VATS) including VATS lobectomy and esophagectomy.

As the Dartmouth-Hitchcock Medical Center embarks on the creation of an integrated healthcare system throughout New Hampshire and Vermont, the General Thoracic Division now offers an outreach clinic at the White River Junction Veteran's Hospital and in Manchester, NH. This has allowed veterans and patients from the southern regions of NH to get evaluated and followed-up close to home and has allowed referring VA physicians and physicians in Manchester and Nashua increased direct access to our surgical team.
The General Thoracic Division collaborates with the Norris Cotton Cancer Center in numerous in-house research protocols and is a member of Cancer and Leukemia Group B (CALGB), a multi-institutional national oncology research organization. This allows our patients access to the most innovative cancer treatments available. Over the next 12 months, General Thoracic Division looks forward to expanding our basic science research efforts into the laboratory and looks forward to expanding our clinical research capabilities with the creation of a clinical outcomes registry.

**Outcomes**

Cardiac surgery remains the most scrutinized specialty in all of medicine. Since healthcare payers and their patients have insisted on increased accountability and transparency in outcomes, the Section of Cardiothoracic Surgery has responded by making our surgical outcomes transparent to the public. DHMC now provides patient access to our surgical outcomes in a patient-friendly format [www.dhmc.org](http://www.dhmc.org)/qualityreports/list.cfm?metrics=CT.

This initiative, combined with our continued involvement with the Northern New England Cardiovascular Disease Study Group (www.nnecdsg.org), makes the Section of Cardiothoracic Surgery an international leader in understanding and improving healthcare outcomes.

---

**FACULTY**

- Jean Clark, APRN
  - Instructor in Surgery
- Lawrence Dacey, MD
  - Acting Chair of the Department of Surgery
  - Professor of Surgery and Community & Family Medicine
- Joseph DeSimone, MD
  - Assistant Professor of Surgery
- Anthony DiScipio, MD
  - Assistant Professor of Surgery
- Cherie Erkmen, MD
  - Assistant Professor of Surgery
- Ryan Paquette, PA-C
  - Instructor in Surgery
- David Johnstone, MD
  - Associate Professor of Surgery
- Elizabeth Maislen, APRN
  - Instructor in Surgery
- William Nugent, Jr, MD
  - Professor of Surgery, Community & Family Medicine and The Dartmouth Institute
- John Sanders, Jr, MD
  - Professor of Surgery
- Jamie Wortman, PA
  - Instructor in Surgery

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**Cardiothoracic Surgery Gross Professional Revenue**

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**Cardiothoracic Surgery Cases**

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John Murray, MD has been a clinical workhorse as he strives to firmly establish the newly formed Division of Colorectal Surgery. Working in a multidisciplinary setting, he and Horace Henriques, MD optimize the care of patients with inflammatory bowel disease.

The Division of Minimally Invasive Surgery continues to provide innovative approaches to surgical problems. After inventing a laparoscopic procedure for inferior epigastric vessel ligation for reconstructive breast surgery, Thadeus Trus, MD has now developed a laparoscopic procedure for patients with median arcuate ligament syndrome. The extremely low leak rates and excellent weight loss outcomes after bariatric surgery are testaments to the technical skill of the surgeons in this Division, along with the dedicated clinical team led by William Laycock, MD and Maureen Quigley, APRN.

General Surgery patients continue to be very satisfied with their care. Our patient satisfaction scores are significantly above the DHMC mean, placing us third of all surgery sections. Seventy-six percent of patients felt their provider’s clinical skills and personal manner were excellent. Our providers and staff continue to find ways to increase our patients’ satisfaction.

Education
Kenneth Burchard, MD is well on his way towards obtaining approval for a new Surgical Critical Care Fellowship. Samuel Finlayson, MD has settled in as Director of the General Surgery Residency Program and has recruited an excellent class of interns for the coming year. Gina Adrales, MD has established the Surgical Simulation Lab to help train our medical students and residents in this unique learning environment. Education demands the concerted efforts of several faculty on a continuous basis. Paul Kispert, MD enhances all of our education by leading the Morbidity and Mortality conference with insight and humor. Dr. Laycock continues to direct a thriving fellowship in Advanced Laparoscopic Surgery; with last year’s fellow joining the faculty at McGill University. Graduating chief residents this year will be advancing to fellowships in endocrine surgery (Michigan), thoracic surgery (Harvard), trauma surgery (Johns Hopkins), and critical care (Dartmouth).

Research
The Section improved its research productivity this past year with 24 peer-reviewed publications. Dr. Finlayson served as an excellent mentor for surgical residents interested in outcomes research and published several papers on the rural surgical workforce and access to care. Burton Eisenberg, MD recognized as a national expert on the treatment of patients with gastrointestinal stromal tumors, contributed both clinical and basic science articles to the literature on this subject. Richard Barth, MD completed a ten-year study of patients with phyllodes tumors of the breast. His results showed adjuvant radiation therapy markedly lowers recurrence rates after breast conserving resections, which will likely change the way these patients are treated.

Faculty Highlights
The New England Surgical Society Annual Meeting had a distinctly Dartmouth flavor to it this past year with Thomas Colacchio, MD as Society President and Dr. Barth as Program Chair.
Committee Chair. Dr. Eisenberg, in his role as Deputy Director of the Norris Cotton Cancer Center, helped write a grant which led to our re-certification as one of the nation’s 41 NCI-designated Comprehensive Cancer Centers. Kari Rosenkranz, MD was recognized as one of NH Magazine’s “Top Doctors” for breast cancer care since she joined our Section three years ago, and has now been asked by NCCC leadership to lead the Comprehensive Breast Program. Maureen Quigley, ARNP was honored with the James Varnum Quality Award for the outstanding quality and patient care she provides our bariatric patients.

Looking Ahead
The Section looks forward to cooperation with community hospitals in our area to regionalize acute general surgical care. We anticipate the care of patients with acute surgical conditions will increasingly be performed by surgeons specializing in the care of these patients. Our bariatric surgeons are focused on achieving recognition as a center of excellence for bariatric surgery. We will continue to work with Catholic Medical Center to coordinate and enhance the care of cancer patients in southern NH. Kerrington Smith, MD, a surgical oncology fellow at MD Anderson Cancer Center with a basic science interest in oncolytic viruses, has joined our faculty this year.
Introduction
The past year has been one of continued growth and success in the clinical, education, and research areas. It was also one of great sadness with the passing of Professor Emeritus, Henry Schmidek, MD. Dr. Schmidek’s scholarly contribution, wit, and wisdom will be greatly missed. On a happier note, new arrivals to the Drs. Durham/Forero, Quebada/Clerkin, Radwan, and Whitson families highlighted a most productive year.

Patient Care
Clinical activity in the Section continued to grow across multiple subspecialty areas, with further integration of disease-related programs through multidisciplinary teams. Intracranial tumor management incorporating our dedicated glioma, acoustic, pituitary, meningioma, and metastatic tumor programs worked closely with Neuro-oncology, Otolaryngology, and Endocrinology; Radiosurgery coordinated with Radiation Oncology; Cerebrovascular, with Stroke Neurology and Interventional Neuroradiology; Spine, with the Spine Center; Pain, with the Pain Service; Epilepsy, with the Surgical Epilepsy Program; Functional, with the Movement Disorders Clinic; and Peripheral Nerve, with Neurology and Plastic Surgery. Trauma, working closely with the Trauma Service, saw progressive assumption of coverage responsibility for a growing catchment area.

Education
The residency program prepared for and completed a successful RRC site visit and review this year, receiving a five-year full accreditation. Neurosurgery nationally transitioned from the San Francisco Resident Matching Program to the ERAS/NRMP match, and our own transition went smoothly. Our Neurosurgery Exposure elective for first- and second-year DMS students remained oversubscribed, and the Section continued its active participation in the Nathan Smith Shadow Program, the Advanced Medical Sciences course, the SBM course, and a number of courses at the College and at the Thayer School of Engineering. Faculty participated on the faculty of regional and national surgical workshops, and were visiting professors at five institutions.

Research
Dartmouth was one of the leading contributors to the national, multicenter NeuroPace responsive stimulation trial for intractable epilepsy, an exciting cutting-edge treatment strategy involving the implantation of an intracranial device that autodetects focal seizure onset and provides therapeutic counter stimulation. The Section is also involved in the multicenter trials investigating Duraseal for CSF leak and extracranial-to-intracranial artery bypass for cerebral revascularization. Lastly, we completed the first U.S. clinical trial using 5-aminolevulinic acid induced intraoperative fluorescence for facilitation of surgical resection of intracranial tumor. Extramural funding included four NIH grants. There were 56 presentations and 48 publications over the past year.

Faculty Highlights
Perry Ball, MD served on the AANS Professional Liability Committee, the Executive Committee of the New England Neurosurgical Society, the Long-range Planning Committee of the Neurosurgical Society of America, the United Council of Neurologic Subspecialties Neurocritical Care Exam Committee, and the Admissions Committee of DMS as well as in the US Army Reserve as a Lieutenant Colonel. Nathan Simmons, MD is heading up the Duraseal study and chairs the Neurosurgery subcommittee on OR Utilization and Improvement. Kadir Erkmen, MD was on the faculty...
of the St. Louis Skullbase Course and invited to present at the 3rd Annual Sanbo Neuroscience Symposium, Beijing, China. During the past year, he assumed the Medical Directorship of the Neuroscience Special Care Unit. Patricia Quebada, MD, who transitioned from the T32 Training Program to clinical activity, is presently preparing for pediatric fellowship training. Ann-Christine Duhaime, MD continues her active laboratory work in head injury and plasticity; and is presently serving as Board Director of the American Board of Pediatric Neurological Surgery. She joined the editorial board of the Journal of Neurosurgery/Pediatrics this past year. Susan Durham, MD has been on maternity leave, but continues both her investigative and clinical work, growing her peripheral nerve practice. David Roberts, MD joined the American Board of Neurological Surgery, continues to edit Stereotactic and Functional Neurosurgery here at Dartmouth, and is PI on the tumor fluorescence study.

Looking Ahead
As clinical demand has continued to grow, faculty recruitment has been a priority and an opportunity. Following a year’s fellowship in spine surgery at the Cleveland Clinic, our current chief resident, Scott Lollis, MD, will be returning on staff next July. Henry Pallatomi, MD has completed four years in the Navy and returned to Portsmouth. As an adjunct faculty member, he will assist in development of our regional strategy. Our brain tumor clinical trial investigating intraoperative fluorescence-guided resection in glioma is expanding to include a wider range of tumors. In keeping with our interdisciplinary theme, we are looking forward to enhancement of our resident training through collaboration with Otolaryngology in the surgical skills laboratory.

FACULTY
Perry Ball, MD
Associate Professor of Surgery and Anesthesiology

Kadir Erkmen, MD
Assistant Professor of Surgery

Sharon Morgan, APRN, MSN
Instructor in Surgery

Patricia Quebada, MD
Instructor in Surgery

David Roberts, MD
Professor of Surgery

David Sargent, PA
Instructor in Surgery

Nathan Simmons, MD
Assistant Professor of Surgery

Joellen Speaker, MSPA
Instructor in Surgery

Neurosurgery Gross Professional Revenue

Neurosurgery Cases
With the aging population, we are seeing increased incidence of eye disease. This past year, the Section of Ophthalmology provided services for over 26,000 patient visits. The Section is providing primary, secondary, and tertiary eye care, with subspecialty care in neuro-ophthalmology, glaucoma, oculoplastics, vitreo-retina, and cornea. We also offer state-of-the-art cataract and laser refractive surgery. Our team includes two optometrists offering complete primary eye care, contact lens wear, and low vision evaluations and treatment.

Michael Zegans, MD provides surgical care for patients with complex corneal disorders and uveitis syndromes. He began the DSAEK (Descemet's Stripping Automated Endothelial Keratoplasty) Program at Dartmouth which is a promising and exciting approach to corneal transplantation. Donald Miller, MD and Basilio Kalpakian, MD provide onsite laser refractive surgery (LASIK) for farsighted and nearsighted patients and have achieved superb visual outcomes. The advent of toric intraocular lenses now has a role in selected patients with cataract and refractive disorders.

David Campbell, MD serves as Director of The Glaucoma Service. A world renowned expert in glaucoma, Dr. Campbell performs complex glaucoma and cataract surgery.

Susan Pepin, MD serves as Director of Neuro-Ophthalmology. Dr. Pepin provides definitive consultation for patients with disorders of the visual pathway and complex motility disorders. She works closely with the Department of Neurology, seeing those patients that have neurological disorders affecting the ocular system. In addition, she is a skilled cataract surgeon, often performing surgery on complex cataract patients.

Christopher Chapman, MD and Rosalind Stevens, MD provide comprehensive medical and surgical expertise for patients with complex disorders of the retina, vitreous and macula, including trauma, and laser treatment for premature infants with retinopathy of prematurity. Fortunately, the new injection treatments - Avastin and Lucentis – offered by Drs. Stevens and Chapman, have proven quite beneficial for certain patients with macular degeneration. Crystal Colby, PA is now part of the team, assisting in patient evaluation and surgery.

In addition to being Section Chief, William Rosen, MD provides comprehensive ophthalmic care as well as expertise in diseases of the eyelid, orbit, and lacrimal system. He is a diplomate of the American Society of Oculoplastics and Reconstructive Surgeons.

Chris Fields, OD and Peter Lapre, OD provide primary eye care and optometric services at our Court Street outreach office on the green in Lebanon, NH. Dr. Fields is Director of Low Vision Services.

All providers in the Section of Ophthalmology provide educational opportunities onsite at DHMC as well as regionally, nationally, and internationally. Dr. Stevens has been an invited speaker at several national and international meetings including: keynote speaker at the Ophthalmic Photographers’ Society, ORBIS teaching mission in the Dominican Republic, ORBIS surgical mission in Harbin, China, and keynote speaker at the King Khaled Eye Hospital in Saudi Arabia. Dr. Stevens is also finishing her MPH in International Health, with support from the Alma Has Milham Scholarship, through Dartmouth Medical School.

Dr. Fields leads the development of an eye care hospital in Nicaragua and provides an international eye care elective for DMS students. Dr. Rosen joined Dr. Joseph Rosen, from Plastic Surgery, on his recent RICE project trip to Hanoi, Vietnam, where he instructed and lectured at the eye hospital in Hanoi.
Our vibrant grand rounds program features nationally recognized leaders in ophthalmology. The Section’s Carts Visiting Professorship lecture was given by Jonathan Song, MD from the University of Southern California, who lectured on pediatric corneal disease. Dr. Pepin serves as coordinator of medical student and resident education. We are proud of our collective success in matching Dartmouth Medical School students each year to competitive ophthalmology residency programs.

The Section of Ophthalmology sponsors a yearly symposium for ophthalmic technicians and ophthalmic photographers. Drs. Campbell and Pepin where invited lecturers at this year’s Lancaster Ophthalmology Review Course.

**Clinical Trials and Research**

Our providers have published substantive studies in leading eye care journals and serve as reviewers and members of several editorial boards. Dr. Zegans has secured funding from The National Eye Institute to study biofilm formation and pseudomonas infection in the eye. Dr. Zegans directs the steroids for corneal ulcers international trial.

Dr. Stevens has secured funding through The World Diabetes Foundation to study diabetic retinopathy in Jakarta. She is also finishing her MPH in international ophthalmology at Johns Hopkins University.

Dr. Pepin conducts several clinical trials including therapeutic studies involving multiple sclerosis, Alzheimer’s disease, and ischemic optic neuropathy.

Dr. Chapman is involved in a high technology research project involving retinal chip implants for patients who are blind.

**Looking Ahead**

The Section of Ophthalmology is actively recruiting for an additional glaucoma specialist to assist Dr. Campbell in his full practice. Additionally, we hope to start our glaucoma fellowship program which has been approved by the Institution. We are constantly striving to improve our patient access and satisfaction, while we deliver state-of-the-art treatments in the most cost-effective manner possible.

---

**FACULTY**

- **David Campbell, MD**
  Professor of Surgery
- **Christopher Chapman, MD**
  Assistant Professor of Surgery and Pediatrics
- **Crystal Colby, PA**
  Instructor in Surgery
- **Chris Fields, OD**
  Instructor in Surgery
- **Basilio Kalpakian, MD**
  Instructor in Surgery
- **Peter Lapre, OD**
  Instructor in Surgery
- **Donald Miller, MD**
  Assistant Professor of Surgery
- **Susan Pepin, MD**
  Associate Professor of Surgery
- **William Rosen, MD**
  Associate Professor of Surgery
- **Christopher Soares, MD**
  Adjunct Assistant Professor of Surgery and Instructor in Surgery
- **Rosalind Stevens, MD**
  Professor of Surgery
- **Michael Zegans, MD**
  Associate Professor of Surgery and Microbiology & Immunology

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**Ophthalmology Gross Professional Revenue**

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Patient Care
Clinically, we continued to transition to a true tertiary referral service for the entire Northern New England area. The subspecialty areas with the largest growth have been otology, rhinology/sinus surgery, and pediatric otolaryngology. To help with the pediatric volume, we were fortunate to hire Eunice Chen, MD. Dr. Chen started in January following her Pediatric Otolaryngology fellowship training at the University of Washington. Dr. Chen comes to us as an accomplished and very productive basic science researcher—a role that she will continue on a half-time basis. Oliver Donegan, MD was persuaded to postpone retirement and will continue to work part-time in his capacity as a general otolaryngologist. The Head and Neck Surgical Oncology Program continues to flourish under the direction of Benoit Gosselin, MD. Joseph Paydarfar, MD has added greatly to this program through the growth of his regional practice in Manchester.

Education
Our involvement in the education of Dartmouth Medical School students continues to grow. Mark Smith, MD has been designated as our Section’s Director of Medical Student Education. Dr. Smith organized our involvement in the head and neck portion of the gross anatomy class and is revising the otolaryngology elective and subinternship curriculum. Daniel Morrison, MD continues to regularly participate in the Family and Community Medicine clerkship and has developed a very popular enrichment elective for first- and second-year students in head and neck surgical anatomy. Through these efforts, we have seen a steady increase in the number of students interested in pursuing a career in otolaryngology. Two students from the graduating class will enter otolaryngology residencies this summer.

Research
Our research efforts continue to grow and diversify. Louise Davies, MD works as a researcher with the VA Outcomes group and continues to make significant contributions in the area of surgical outcomes from thyroid surgery as well as in qualitative outcomes studies. Dr. Chen is busy getting her lab up-and-running and is pursuing grant funding through both internal and external sources. James Saunders, MD has had several papers published and is quickly developing an international reputation in the area of genetically-related hearing loss as well as in humanitarian efforts in general. Dr. Morrison, supported by the Milham Scholarship, has started work toward a Masters degree in Public Health through The Dartmouth Institute for Health Policy and Clinical Practice. His areas of interest include quality improvement in otolaryngology as well as surgical decision analysis. Giridhar Venkatraman, MD continues his research, supported by the Harmes Scholarship, and in collaboration with researchers at TDI, on outcomes in sinus surgery and geographical variation in rates of sinus surgery. He is also involved with mentoring students from the Tuck Business School. Drs. Paydarfar...
and Gosselin have both submitted grants for translational research in collaboration with basic science labs at DMS. Drs. Paydarfar and Saunders have successfully mentored Dr. Maddox through the presentation and publication of two clinical research papers.

**Looking Ahead**

During the next year, we look forward to developing more of a presence in the Manchester – Nashua region as DHMC solidifies its relationship with Catholic Medical Center in Manchester. It is anticipated that pediatric audiology, otology, and pediatric otolaryngology will join our existing clinical unit in head and neck surgical oncology in Manchester. Our goal is to use these subspecialty clinics, in partnership with the existing private otolaryngology groups in those regions, to develop a more fully integrated care delivery system for our patients.

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**FACULTY**

**Sharon Bry, APRN**  
Instructor in Surgery and Medicine

**Eunice Chen, MD**  
Assistant Professor of Surgery and Pediatrics

**Louise Davies, MD**  
Assistant Professor of Surgery and Community & Family Medicine

**Peter Dixon, PA**  
Instructor in Surgery

**J Oliver Donegan, MB, BCh**  
Professor of Surgery

**JJ Benoit Gosselin, MD**  
Associate Professor of Surgery

**Daniel Morrison, Jr, MD**  
Assistant Professor of Surgery

**Joseph Paydarfar, MD**  
Assistant Professor of Surgery

**James Saunders, MD**  
Associate Professor of Surgery

**Mark Smith, MD**  
Assistant Professor of Surgery and Pediatrics

**Giridhar Venkatraman, MD, MBA**  
Assistant Professor of Surgery

**AUDIOLOGY**

**Kerry Gudlewski, AUD**  
Instructor in Surgery

**Julie Johnson, AUD**  
Instructor in Surgery

**Maria Stella McHugh, MS**  
Instructor in Surgery

**Katelyn McLaughlin, MA, CF/A**  
Instructor in Surgery

**Leah Moshenthal, MEd**  
Instructor in Surgery

**Michael Norris, AUD**  
Instructor in Surgery

**Cynthia Nulton, MA**  
Instructor in Surgery

**Erin Pospychala, CCC-A**  
Instructor in Surgery

**Catherine Rieke, AuD**  
Instructor in Surgery

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**Otolaryngology and Audiology**

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**Otolaryngology Cases**

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Patient Care
In January, 2009, the American College of Surgeons verified the Pediatric Trauma Program at the Children’s Hospital at Dartmouth as a Level 1 Pediatric Trauma Center. This is the only ACS designated Level 1 Pediatric Trauma Center in northern New England and was the culmination of the efforts of Co-Medical Directors, Ann Christine Duhaime, MD and Laurie Latchaw, MD Pediatric Trauma Program Manager, Sharon Haire, APRN, and numerous others. Verification by the ACS indicates that the care of injured children at CHaD meets the highest standards required by a tertiary referral trauma center.

Surgical Specialty clinical programs continued to grow. Daniel Croitoru, MD has evaluated over 140 patients with pectus excavatum and over 73 patients with pectus carinatum in the Lebanon and Manchester offices. Fifty-nine of the excavatum patients have had minimally invasive repair of their deformities. Dr. Latchaw, working in conjunction with Pediatric Endocrinology, has performed over 20 total thyroidectomies, seven of these were in patients under five years of age for a unique genetic syndrome MEN 2 A. Minimally invasive surgical techniques continued to include thoracoscopic lung resection, benign and malignant thoracic tumor/cyst resection, decortication for empyema, laparoscopic correction of malrotation, fundoplication for GERD, and some colon resections. Both Drs. Latchaw and Croitoru have outreach clinics in Manchester.

Susan Durham, MD and the multidisciplinary Peripheral Nerve Clinic offered the only coordinated care of children and adults with peripheral nerve problems in northern New England. Dr. Duhaime has created a program to care for children with intractable seizures. This care includes intricate brain mapping with surgically placed electrodes and subsequent removal of the seizure focus once located. A multidisciplinary Pediatric Brain Tumor clinic was instituted this year to coordinate the surgical and medical care and follow-up of these patients.

Daniel Herz, MD has expanded his robotic pediatric genitourinary surgery program to include pyeloplasty, ureteral reimplants, orchidopexy, and appendicoccecostomy. This is the only pediatric robotic program in northern New England. Leslie McQuiston, MD who joined us in October, 2008, was busy building her practice in Lebanon and Manchester. She is especially interested in shared decision making with patient families. Lynn Brenfleck, RN, in Lebanon, and Mary Gheen, APRN, in Manchester, continued working with the urinary and fecal incontinence biofeedback program. Paul Merguerian, MD who remains the Interim Director of CHaD, has worked with DHMC Patient Safety Office to improve CHaD’s quality and patient safety on many levels. Both he and Dr. Herz continued outreach clinics in Manchester and Dover, NH. Members of Pediatric Neurosurgery and Pediatric Urology participated in the monthly Spinal Dysraphism Clinic.

Education
The educational activities of the Section in 2008 were more diverse and widespread than ever before. The Division of General and Thoracic Pediatric Surgery continued their DMS3 clerkship participation. All three subdivisions actively engaged in their specialty’s residency education and regularly gave presentations to residents in other specialties. Regional, national, and international presentations as invited guests or visiting professors occurred more than a dozen times in 2008.
Research
In 2008, Dr. Durham finished her research on the effects of head impacts during recreational snowboarding. She published four peer reviewed articles on that and other topics. Dr. Durham continued to accrue patients into the Chiari 1 malformation trial. Dr. Duhaime continued as principal investigator of her NIH funded research into the effects of trauma on the immature brain. She remained co-investigator on two additional NIH funded grants. Her work resulted in four peer reviewed publications and four national meeting posters. Dr. Merguerian continued his work on establishing a multi-institutional data bank in pediatric urology. Dr. Herz’s clinical research has been documented in three published papers.

Faculty Highlights
Dr. Duhaime became the Chair of the Section of Pediatric
Neurosurgery of the American Association of Neurological Surgery/Congress of Neurological Surgeons. Dr. Merguerian continued in the Master’s Degree Program at The Dartmouth Institute for Health Policy and Clinical Practice. He is expected to complete his degree in July, 2009. Dr. Latchaw completed the Executive Education Program for Section Chiefs and Practice Managers given jointly by the Tuck School of Business and the Dartmouth Medical School.

Looking Ahead
In June, 2009, Pediatric General and Thoracic Surgery and Pediatric Urology will begin seeing patients at the Dartmouth-Hitchcock Clinic in Nashua on Tuesdays. A multidisciplinary Pediatric Spine Center is planned for the Lebanon campus.

FACULTY
PEDIATRIC GENERAL AND THORACIC SURGERY
Daniel Croitoru, MD  
Associate Professor of Surgery and Pediatrics

Sharon Haire, APRN, MSN  
Instructor in Surgery

Burton Harris, MD  
Visiting Professor and Instructor of Surgery and Pediatrics

Laurie Latchaw, MD  
Associate Professor of Surgery and Pediatrics

PEDIATRIC NEUROSURGERY
Ann-Christine Duhaime, MD  
Professor of Surgery

Susan Durham, MD  
Associate Professor of Surgery and Pediatrics

PEDIATRIC UROLOGY
Christine Danielson, MS  
Instructor in Surgery

Daniel Herz, MD  
Associate Professor of Surgery and Pediatrics

Leslie McQuiston, MD  
Assistant Professor of Surgery and Pediatrics

Paul Merguerian, MD  
Professor of Surgery and Pediatrics

Pediatric Surgery Gross Professional Revenue

Pediatric Surgery Cases
PLASTIC SURGERY

Patient Care
Our third biennial retreat was held at Lake Pineo in Quechee, Vermont this year. It was an exhilarating and tremendously successful day – giving us an opportunity to see “two years in review” on work we began during our 2006 retreat. At that time, we had set our sights on improving patient satisfaction scores by at least half – from a standing of 26th institutionally, to at least 13th consistently. Sharing the results from where we began to the time of this year’s retreat (a standing of 6th), was cause for great celebration! The enthusiasm and energy that arose in recognition of our ability to make a significant difference, when focusing as a team, drove our new work from this year’s retreat.

Although determined to maintain patient satisfaction scores at 13 or above by finding ways to delight patients with our care, we have moved our team to working on “creating a healthcare culture of safety” for all (patients and staff alike) in our practice. This new work has already resulted in our surveying staff for a baseline on how safe we feel with each other, to holding training sessions on ways to have those “crucial” conversations often difficult for some to have, and to collaborating with the OR staff so we may find ways to strengthen our trust so that we may keep our patients safe.

Plastic Surgery, Orthopaedics, and Rehab Medicine continue their work on strategically placing a multidisciplinary hand service at DHMC. Our secretaries are empowered to schedule appointments for providers across clinics based on the first available appointment working best for the patient; we have shared the concept of shared medical appointments for this patient population; we have begun setting up shared clinics for hand patients; and we are collaborating on didactic teaching for our residents and staff. Our formal campaign for hand services included two seminars in the local community with more planned in the upcoming year. This group has also begun discussion with Occupational Medicine to see how we can assist them within the Institution as well as community businesses they support.

Education
Renee Comizio, MD has been named Associate Program Director. Our ACGME accredited residency training program graduated Christopher Jensen, MD who has begun a hand surgery fellowship at New York University with plans to move to Alaska to open a private practice. Our current chief resident, Oscar Ho, MD has been accepted to a microsurgical fellowship at Stanford University. Walter Chang, MD is now a diplomat of the American Board of Plastic Surgery.

Research
Christopher Demas, MD is studying the effects of perioperative temperature on wound infection and healing in body contouring patients. Carolyn Kerrigan, MD was awarded funding by Ethicon-Endo Inc. to study the use of the harmonic scalpel in breast reduction surgery. Also, she is collaborating with researchers from Memorial Sloan Kettering to develop outcome measures for women undergoing breast surgery. E. Dale Collins, MD is the PI on a multimillion dollar grant from the Foundation on Informed Medical Decision Making to integrate shared decision making in General Internal Medicine and the breast cancer population. She is also the clinical PI on an NCI grant to develop a platform for patient reported outcomes in oncology at DHMC. Mitchell Stotland, MD is exploring perceptual response to facial difference; the effect of isolated

E. Dale Collins, MD
Section Chief
Professor of Surgery, Community & Family Medicine, and The Dartmouth Institute

Introduction
The team members in the Section of Plastic Surgery are committed to holding two jobs on a daily basis - doing their own work, and improving their work. Their willingness to do so has led to our successes as a team continuing to be recognized with our receiving invitations to present our work on patient access improvement, shared medical appointments, shared decision making, staffing redesign, and new for us this year - patient satisfaction successes!
muscle paralysis on emotional processing; and is also involved in two projects designing new medical devices with Thayer Engineering students. Dr. Joseph Rosen’s grants include developing a telemedicine healthcare system for Vietnam using RICE (Remote Interaction Consultation Epidemiology and Reconstructive International Cooperation Exchange), which is privately funded. He is Chair of the Clinical and Rehabilitative Advisory Team (CREATE), and Synergy group member. In addition, he is co-chair for the New Jersey Symposium on Biomaterials Science and Regenerative Medicine. During the year, he chaired the Medical Subpanel for the Joint Improvised Explosive Device Defeat Organization (JIEDDO) under the US Defense Science Board (DSB).

**Faculty Highlights**

Dr. Kerrigan is a trustee of the American Association of Plastic Surgeons and a council member of the New England Society of Plastic and Reconstructive Surgeons. Dr. Rosen was locally and nationally recognized for his active work with reconstructing soldiers returning from Iraq. Dr. Collins completed the 2007-2008 Class of the Hedwig van American Executive Leadership in Academic Medicine (ELAM) Program, was promoted to full Professor of Surgery, and was appointed Director of Center for Informed Choice, The Dartmouth Institute this year.
TRANSPLANTATION SURGERY: KIDNEY AND PANCREAS TRANSPLANT

Patient Care

Kidney Transplant: The program has continued to expand transplant services through monthly evaluation sessions at DH Manchester clinic. Improved access to living donation resulting from the availability of laparoscopic nephrectomy, participation in desensitization and live donor exchange programs, and selective use of expanded donor kidney transplantation have allowed us to achieve a transplant rate for our waitlisted patients which is nearly three times faster than national average. We also have the largest experience in New England with corticosteroid free immunosuppression.

Pancreas Transplant: DHMC is now the largest pancreas transplant program in New England. We transplant nearly three times more patients annually than the next largest program. Diabetic patients with kidney disease are offered the opportunity to undergo a combined kidney and pancreas transplant, simultaneously eliminating their diabetes and restoring renal function. In addition, pancreas transplantation is performed for diabetic patients following live donor kidney transplant and alone in specific circumstances. We are pleased that our first pancreas recipient is over three years out and feeling very well.

Liver Transplantation and Hepatobiliary Surgery: Over the past year, we have expanded our program to provide care for end stage liver disease through including hepatocellular carcinoma, cirrhosis, or end stage liver disease in our multidisciplinary liver care centers. We have initiated a successful multidisciplinary liver care clinic including surgeons, hepatologists, oncologists, and interventional radiologists who participate in a shared medical appointment. Liver care at DHMC has now expanded to include the evaluation and post-operative care of liver transplant patients. DHMC patients are listed for transplant at the Lahey Clinic in Boston, where David Axelrod, MD is on staff and performs liver transplants. This integrated program allows for seamless continuity between the northern evaluation team and the Lahey transplant program. Interest in the program is growing rapidly along with the list of patients awaiting transplant at this joint venture.

Education

The Transplantation Section remains committed to the education of medical students, residents, fellows, patients, and the community. Currently, fourth-year surgical residents spend three dedicated months on the transplant service participating in all aspects of the service. We also train nephrology fellows, urology residents, medical students, and have recently developed a new transplant medicine rotation for the internal medicine residents. The transplant faculty was asked to present a half-day resident symposium for the Department of Medicine which was very well attended.

For our patients, the Section continues to conduct outreach sessions for patients and has two sessions scheduled in Manchester and Portsmouth. These sessions bring together health care professionals, local nephrologists, and transplant patients in community sessions designed to promote an understanding of transplant. For the community, Dr. Axelrod presented two lectures for the Dartmouth Community Medical School on “Milestones in Transplantation.” These sessions attracted members of the public and explored the evolution of transplant from theory to practice.

Research

The Transplantation Section has also been active in research, contributing to national meetings in transplantation and nephrology. As recently published in the Journal of the American Medical Association, researchers...
from Dartmouth and the University of Michigan have demonstrated that citizens living in rural areas have less access to transplant services nationwide. Other areas of inquiry include improved methods of evaluating and monitoring post transplant outcomes, economic implications of donor quality and recipient severity of illness, and improved immunologic monitoring in cooperation with Randy Noelle, PhD in the Department of Immunology. Section members have been the recipients of funding from the Hitchcock Foundation and have applied for support under the recently announced NIH challenge grants. Section research has recently been presented at the American Transplant Congress, the American Society of Nephrology meeting, and the Winter Meeting of the American Society of Transplant Surgery.

**Faculty Highlights**
Members of the DHMC faculty have been active in the national transplant community. Dr. Axelrod serves as the Vice Chairman of the national Pancreas Transplant Oversight Committee. Dr. Axelrod has also been appointed as Chairman of the Business Practice Development Committee of the American Society of Transplant Surgeons. Michael Chobanian, MD continues in his role as a member of the National Pediatric Transplant Committee of UNOS.

We are very excited that the Section of Transplantation Surgery has recently recruited a new transplant surgeon. Nicole Siparsky, MD has joined the Section after completing her training in General Surgery at Washington Hospital Center and her transplantation fellowship at the renowned Thomas Starzl Transplant Institute at the University of Pittsburgh. We are very pleased that Dr. Siparsky has joined the Section.

**Looking Forward:**
We anticipate continued growth in all aspects of the Transplantation Program. We hope to expand our basic science collaboration with Dr. Noelle. We have also embarked on expanded outreach and clinical activities in the Southern Region to ensure access to efficient care for patients in this area.
Introduction
The Section of Urology continues to expand its role as a regional referral service in oncology, lower urinary tract reconstruction, incontinence, and complex stone disease. Growth in outpatient visits, surgical volumes, and discharges reflect the Section’s commitment to patient access and referral services. The successful integration of the da Vinci robotic surgical platform into the treatment of prostate cancer and disorders of the kidney makes DHMC a leader in the minimally invasive approach to genitourinary disease.

Patient Care
The growth in the volume of renal surgeries and cystectomies performed at DHMC suggests that the comprehensive genitourinary oncological initiative is resonating with our patients and referring physicians. Our high risk bladder cancer quality improvement study demonstrates that the Section can provide timely consultation and treatment to a population of patients whose prognosis is dependent on speedy intervention.

With three experienced laparoscopic surgeons, the Section remains on the forefront of the minimally invasive approach to the treatment of genitourinary malignancies and benign disorders of the upper urinary tract. John Heaney, MD provides state-of-the-art surgical care to our prostate cancer patients with the aid of the da Vinci robotic surgical platform. Since acquiring the robot in January, 2008, over 200 radical prostatectomies have been performed, making DHMC one of the largest volume referral centers in New England. The PSA/Prostate Biopsy clinic, under the direction of John Seigne, MD, is an example of an interdisciplinary endeavor providing “one stop consultative and diagnostic shopping” for men with elevated PSAs and abnormal digital rectal examinations. The Section is now able to offer men streamlined appointment access with evaluation, informed decision making, and biopsy in a timely and patient-driven manner. The Minimally Invasive Ablative Therapy Program for solid renal masses, operated in conjunction with the Section of Interventional Radiology, offers radiofrequency and cryoablative energy programs for the treatment of renal lesions. The volume of stone related interventions performed by Vernon Pais, MD - close to 100 percutaneous renal surgeries over the last year - makes DHMC a regional referral center for northern New England.

Education
Under the stewardship of Ann Gormley, MD the urology residency has successfully grown to two residents per year. The Section has approved a change in the residency training block; the transition to a five-year program will emphasize the clinical strengths of the Dartmouth program and allow us to build an educational schema based on a core urological syllabus. Peter Steinberg, MD our chief resident, will be starting a one-year fellowship in laparoscopy and endourology at the Albert Einstein School of Medicine, in preparation for an academic career. Four of our last six graduating residents have either entered into postgraduate fellowships or become affiliated with residency training programs.

Faculty Highlights
Section members remain active in regional and national organized urology; we count no fewer than ten officer and committee assignments in our various societies. Dr. Gormley is the current President of the Society of Urodynamics and Female Urology. She sits on the AUA Residency Training Task Force and serves as her Society’s editor to the Journal of Urology. As the Secretary of the New England Section of the AUA, Dr. Gormley coordinates the scientific program for its annual meeting. Dr. Seigne serves on the AUA Superficial Bladder Cancer Guidelines Panel, is the Program Director of the Genitourinary Oncology Group at the Norris Cotton Cancer Center, and recently coordinated a genitourinary oncology symposium with colleagues from UVM and McGill University, a forum at which Dr. Heaney was a presenter. Dr. Pais is taking the lead role in coordinating our various clinical relationships with the Dartmouth Medical School. With scholarly interests in metabolic and surgical stone disease, Dr. Pais is becoming a regional resource.
for the treatment of complex stones. Dr. Pais spoke at last fall’s NES-AUA on the use of percutaneous surgery in the treatment of urinary tract stones.

The Section welcomes Barry Stein, MD former Chair of the Department of Urology at Brown University, as its newest colleague; Dr. Stein is a staff urologist at the White River Junction VAMC.

Research
Dr. Steinberg, chief resident, has completed a number of quality initiatives in the areas of stone disease and bladder cancer. Working with Drs. Seigne and Bihrle, he has developed a clinical pathway for the efficient evaluation, scheduling, and post surgical management of patients with muscle invasive bladder cancer. The Section, in collaboration with Alan Schned, MD (Pathology) and Marc Ernstoff, MD (Medical Oncology), has developed a DNA tissue microarray for renal cell carcinoma. Dr. Heaney and Ryan Halter, PhD recently published seminal work in the Journal of Urology on the clinical utility of electroimpedance in the diagnosis of prostate cancer. Working with our colleagues in Interventional Radiology, Drs. Kowal, Seigne, and Bihrle have compiled one of the largest single institution experiences in the role of biopsy for small renal lesions. Dr. Seigne’s work on the use of shared decision making techniques for patients with newly diagnosed prostate cancer, presented at the recent AUA meeting, focuses attention on the way patients assimilate clinical information and therapeutic options.

Looking Ahead
The Section expects to expand its array of clinical services to include a focused approach to the evaluation and treatment of men’s health issues. The demand for oncological services dictates the need for an additional faculty member with training and experience in minimally invasive surgical techniques.

FACULTY
William Bihrlle, MD
Associate Professor of Surgery
E Ann Gormley, MD
Professor of Surgery
Kelley Hamill Lemay, APRN
Instructor in Surgery
John Heaney, MB, BCh
Professor of Surgery
Daniel Herz, MD
Associate Professor of Surgery and Pediatrics
Leslie McQuiston, MD
Assistant Professor of Surgery and Pediatrics
Vernon Pais, MD
Assistant Professor of Surgery
Katharine Riley, PA
Instructor in Surgery
John Seigne, MB, BCh
Associate Professor of Surgery
Laura Stempkowski, APRN
Instructor in Surgery

Urology Gross Professional Revenue

Urology Cases
Our case volume remains steady. Mark Fillinger, MD has developed the Branched and Fenestrated Stent Graft Program for the repair of thoracoabdominal aortic aneurysms. DHMC is one of only a handful of centers in the United States capable of performing this procedure.

Education
Last year Dr. Fillinger assumed the duties of program director from Jack Cronenwett, MD for both the five-year vascular residency and the vascular fellowship. Our vascular fellowship continues to attract high quality applicants. Robert Chang, MD and Philip Goodney, MD are the first graduates of our expanded vascular fellowship program. Their open surgical and endovascular experience has not diminished following expansion of the training program. He has joined the vascular surgery group at Kaiser in San Francisco. Dr. Goodney, our 20th vascular fellow, performed 252 open surgical procedures and 332 interventional procedures. Dr. Goodney has joined our vascular surgery group at Dartmouth-Hitchcock Medical Center.

Section faculty delivered 43 international, national and regional education presentations this year of which 14 were for vascular surgical society meetings. A quarterly regional educational CME meeting in the southern region for providers interested in the care of patients with vascular disease has been developed. This series covers lower leg ischemia, aneurysmal disease, carotid occlusive disease, and renal and mesenteric disease. Research activity resulted in 13 peer reviewed articles and one book chapter published by faculty this year.

Research
Ongoing bench research to study the regulation of smooth muscle cell phenotype remains a central focus of the basic science laboratory. Kathleen Martin, PhD has received RO1 funding by the NHLBI of the NIH and additional funding from the Flight Attendants Foundation. Eva Rzucidlo, MD has received a Hitchcock Foundation Grant to investigate the role of connective tissue growth factor in the regulation of vascular smooth muscle cell phenotype. Richard Powell, MD is the national principle investigator for a stem cell therapy and an adenoviral gene therapy trial for the treatment of vascular disease. Section members remain heavily involved in industry sponsored device trials. Dr. Fillinger is the national principle investigator for the Pythagoras Endoprosthesis Trial for abdominal aortic aneurysms and is the local principle investigator for several endoprosthesis trials for AAA. Dr. Powell is the local principle investigator for six carotid stent trials including the recently completed NIH sponsored CREST Trial. David Stone, MD is the local principle investigator for the Atrium Iliac Stent Graft Trial. Dr. Rzucidlo leads a clinical trial comparing cryoplasty and stenting to stenting alone for treatment of superficial femoral artery lesions.

Outcomes research is lead by Drs. Nolan and Goodney who have worked closely with researchers from The Dartmouth Institute. Dr. Nolan is developing a tool to evaluate AAA on QOL. Dr. Goodney is examining risk prediction modeling in vascular surgery as well as procedural trends in lower extremity revascularization. Dr. Cronenwett continues to lead the Vascular Study Group of Northern New England. This multi-institutional...
group now has more than 9,300 vascular surgery operations analyzed to provide hospital-specific feedback for improving outcomes.

**Faculty Highlights**

Dr. Cronenwett is the editor of Rutherfords text book in Vascular Surgery. Robert Zwolak, MD has been elected Vice-President of the Society for Vascular Surgery and has been appointed Member of AMA/Specialty Society Relative Value Committee Medical Home Workgroup. Daniel Walsh, MD is completing his term as president of the New England Society of Vascular Surgery and the Collier Surgical Society. Dr. Rzucidlo was promoted to Associate Professor of Surgery and was appointed to the Research and Education Committee of the Society for Vascular Surgery as well as the Program Committee for the New England Society of Vascular Surgery. Dr. Powell has been elected to serve on the NIH/NHLBI Data Safety Monitoring Board for the CLEVER Trial and has been elected to membership on the Surgery and Bioengineering Study Section of the NIH.

Overall the members of the Section continue to perform at an outstanding level in their commitment to the care of patients with vascular disease and to the educational and research missions of the Section.

**Vascular Surgery Gross Professional Revenue**

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**Vascular Surgery Cases**

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**FACULTY**

**Jack Cronenwett, MD**
Professor of Surgery, Community & Family Medicine, and The Dartmouth Institute

**Mark Fillinger, MD**
Professor of Surgery

**Philip Goodney, MD**
Assistant Professor of Surgery and The Dartmouth Institute

**Brian Nolan, MD**
Assistant Professor of Surgery and The Dartmouth Institute

**Richard Powell, MD**
Professor of Surgery and Radiology

**Eva Rzucidlo, MD**
Associate Professor of Surgery and Pediatrics

**Carey Stillman, APRN**
Instructor in Surgery

**David Stone, MD**
Assistant Professor of Surgery

**Daniel Walsh, MD**
Professor of Surgery

**Mark Wyers, MD**
Assistant Professor of Surgery

**Robert Zwolak, MD, PhD**
Professor of Surgery

**VASCULAR RESEARCH LAB**

**Kathleen Ann Martin, PhD**
Research Assistant Professor of Surgery

**Mary Jo Mulligan-Keohoe, PhD**
Research Associate Professor of Surgery
Patient Care
Treatment can involve procedures performed in the office ambulatory facility with local anesthesia and sedation as well as in the CHaD Pain Free Unit under general anesthesia and in the main operating room for more extensive cases. The Section’s facilities have recently been favorably evaluated by the State Board of Anesthesia and Sedation in Oral and Maxillofacial Surgery.

Rocco Addante, DMD, MD continues his active participation in a number of DHMC interdisciplinary care clinics. He is a key member of the Craniofacial Anomalies Clinic and participates on Otolaryngology’s Head and Neck Cancer Team. He also provides care for patients from the Hematology Oncology Service who typically exhibit coagulation disorders and immune suppression along with their need for oral surgery care.

Education
Dr. Addante remains active academically as a journal reviewer for articles submitted for publication to the Journal of Oral and Maxillofacial Surgery and the Journal of Oral Surgery, Oral Medicine, and Oral Pathology. In addition, he continues to mentor students from Dartmouth with an interest in careers combining medicine and dentistry.

Locally, Dr. Addante hosts monthly meetings for our hospital dental staff and regularly presents lectures to members of the dental community on topics of mutual interest. He presented to students at the Thayer School of Engineering this year on “Biomaterials Used in Oral and Maxillofacial Surgery,” and he continues to serve as a regional consultant to the American Board of Oral and Maxillofacial Surgery. He recently participated in an oral cancer screening program at Norris Cotton Cancer Center North in St Johnsbury.

Nationally, Dr. Addante continues in his appointment as a consultant to the Commission on Professional Conduct of the American Association of Oral and Maxillofacial Surgery. Although there is no residency in Oral and Maxillofacial Surgery at DHMC, Dr. Addante maintains close affiliation with the Sections of Plastic Surgery and Otolaryngology and is an active and valued contributor to the residency programs in each of these specialties.

Introduction
Oral and Maxillofacial Surgery provides a diverse spectrum of care from primary to tertiary levels. Complex cases involving oral pathology and structural deformities of the maxillofacial region are referred to Dartmouth-Hitchcock from the tri-state area.
Surgical Research Laboratory (SRL) is a bench laboratory and experimental OR research facility that originated in the DMS Vail Building on the Hanover campus more than 30 years ago. The facility was originally developed by DHMC surgeons to test new surgical devices and procedures. At the time of origin, the facility was and remains unique in that it contains a large animal experimental OR facility that is located outside of the institutional animal research facility and directed by a Department of Surgery faculty member.

The SRL is comprised of an animal OR and six bench laboratories. The SRL is operated under the direction of the Department of Surgery and receives administrative input from the Dartmouth Medical School Dean’s office and the Dartmouth College’s Animal Care and Use Program and DC Institutional Animal Care and Use Committee (IACUC). The SRL experimental animal operating suite includes state-of-the-art anesthesia delivery and monitoring, dedicated clinical fluoroscopy/angiography, ultrasound and CT imaging as well as a laser and ionizing radiation laboratory. MRI, PET, and nuclear imaging for large and small animal models are available through Radiology and Norris Cotton Cancer Center associations. Expertise and instrumentation for endoscopy and laparoscopy are also available. A new five-station microsurgery facility was constructed in 2008-2009. The facility contains five permanent operating microscope positions including water cooling for bone surgery techniques.

The SRL operates and/or facilitates a complete array of molecular biology instruments and techniques including: DNA microarray, proteomics array, northern, western, and southern blots, ELISA, TUNNEL assay, COMET assay, RT-PCR, autoradiography, etc. The SRL has dedicated expertise in light and fluorescent microscopy, automated/computer based microscopic image analysis, and has recently added whole animal fluorescent and intravital microscope imaging capabilities. Although performed in the Department of Pathology, the SRL has dedicated expertise in histologic preparation and staining/labeling techniques including histochemistry, immunohistochemistry, in situ-hybridization, and laser dissection.

SRL Resident and Non-Resident Faculty
Currently, the SRL provides dedicated research space (laboratory and office) for 12 Dartmouth Medical School faculty members. All faculty have funded research programs. Six of the SRL faculty are practicing DHMC clinicians and two resident faculty have appointments at the Thayer School of Engineering. Nine DHMC clinicians have ongoing research projects that utilize the SRL facility.

The major research themes of these investigators include:
- Pediatric and translational brain injury research;
- Antibody and non-antibody directed iron oxide nanoparticle cancer treatment;
- Development of iron/iron oxide nanoparticles;
- Neonatal cardiorespiratory monitoring and care;
- Natural Orifice Transluminal Endoscopic Surgery (NOTES);
- Assessment of novel surgical mesh material;
- Noninvasive microwave imaging and heating techniques;
- Electron paramagnetic resonance assessment of O2 levels in radiation tissue damage;
- Retinal implant technology for restoration of retinal blindness;
- Cornea reshaping technology;
- Novel esophageal stent technology;
- Assessment of novel saline based electrocautery technology;
- Genetic and molecular understanding and targeting of vascular disease;
- Photodynamic therapy: treatment efficacy and mechanism;
- Use and development of fluorescence and near infrared (NIR) in cancer imaging, diagnosis, and treatment;
- Development and assessment of interventional cardiovascular models and technologies;
- Angiogenesis and associated developmental biology;
- Electrical impedance spectroscopy and tomography imaging technology;
- Protein engineering for cancer diagnosis and therapy.

2008-09 Grant and Contract Funding and Publications
The resident SRL faculty was associated with 40 funded research grants in 2008-2009 (28 as Principle Investigator/PI). The majority of these grants were/are supported by the peer review/NIH funding. The SRL faculty participated in the submission of ten NIH ARRA (Challenge/Infrastructure grants). These grants are currently pending.

In 2008-2009, resident SRL faculty published 107 manuscripts including 75 peer reviewed manuscripts and 32 proceeding papers.
Introduction
In the past year, the Data Center has continued to focus its efforts on alignment with the Department of Surgery’s role in achieving the Institution’s mission and vision. We continue to provide maintenance of surgical-based registries, epidemiological and statistical consultations, and research mentorship. New this year was the addition of a project assistant position (Peter Beaulieu, MPH). This new role has been used to support faculty development in areas such as quality assessment and improvement as well as manuscript development.

Research
The Data Center supports and facilitates research throughout the Department in a number of ways. John Higgins, MS, Database Manager, continues to work on enhancing the Department’s capabilities to support existing and future research initiatives. Eleven of the Department’s sections utilize the Data Center for registry maintenance and information gathering as they continue research and improvement projects.

A special focus this year was the Vascular Study Group of Northern New England (VSGNNE, PI: Jack Cronenwett, MD), in which the Data Center has developed a relational database to support the VSGNNE’s regional collaborative and assisted in its transition to a web-based format in conjunction with M2S, Inc. (http://www.m2s.com/).

Education and Mentorship
Donald Likosky, PhD has assisted Kenneth Burchard, MD and Horace Henriques, MD in evaluating and improving the education provided to medical students in their third-year clerkship. Dr. Likosky and Samuel Finlayson, MD have continued their work providing mentorship to surgical residents and faculty members. Seven General Surgery residents and medical students provided presentations at regional and national meetings during calendar year 2008. In addition, Professor Likosky and Dr. Finlayson mentored Giridhar Venkatraman, MD through his Harmes Award’s study. Dr. Venkatraman is focusing his efforts on variability in the surgical treatment of chronic sinusitis. During 2009, Philip Goodney, MD and David Stone, MD (2009 Harmes recipients) will focus their attention on the surgical treatment of vascular disease (utilization and outcomes of thoracic aneurism repair).

Community Partnerships
Dr. Likosky and Mr. Higgins provide support to Department of Surgery faculty who participate in two regional community collaboratives: the Vascular Study Group of Northern New England (VSGNNE) and the Northern New England Cardiovascular Disease Study Group (NNECDSG). In this role, the Data Center provides and supports the infrastructure to enable this participation as well as contemporaneous reporting structures for the front-line teams. Mr. Beaulieu supports the NNECDSG through the development of a web-based prediction model for all eight centers to use throughout the continuum of care.
Clinical Practice
Mr. Beaulieu has worked with a number of sections to undertake quality improvement initiatives this year. As a result, the Transplantation Section has decreased access barriers for its newly referred patients. The Cardiothoracic Surgery Section continues to use the Data Center for maintaining and upgrading its contemporaneous reporting system. The Section has 2’x3’ posters in its offices each containing graphical displays of 21 quality measures for five cardiac surgical cohorts. In order to ensure transparency and use of this data throughout the Institution, this information is now provided in each of the two cardiac surgery operating rooms on plasma screens as well as in the cardiac nursing units. Plastic Surgery is in the midst of devising a strategy for reducing operating room turnover time, improving procedure booking practices, and finding actionable ways to build an empowering culture.

The Best Care, in the Right Place, at the Right Time, Every Time
The Cardiothoracic Section now utilizes a risk prediction model for peri-operative outcomes during the “Timeout” period in order to identify this risk to all team members as well as determine an intra-operative strategy for minimizing this risk. The Data Center has been able to bring this model to the OR electronically so that staff members can risk stratify patients in real-time enabling the design of a specific care strategy.

Team Members
Co-Directors: Samuel Finlayson, MD, MPH, and Donald Likosky, PhD
Database Manager: John Higgins, MS
Project Assistant: Peter Beaulieu, MPH
An internationally recognized strength of Dartmouth’s Department of Surgery has long been its research and translational work in biomedical engineering, built upon the close collaboration between the Medical Center and the Thayer School of Engineering. Dartmouth’s size and academic environment have been ideally suited for such research programs, as in the biomaterials compatibility studies of hip prosthetics, the frameless stereotactic operating microscope, the modeling of aortic aneurysms, the validation of electromagnetic imaging properties of the breast, or the utility of electrical impedance measurement in prostate surgery. This past year has again seen Dartmouth ahead of the curve with the first U.S. clinical trial using tumor fluorescence for the resection of intracranial tumors.

This NIH study is exploring a surgical strategy utilizing the selective accumulation of fluorescent protoporphyrin IX within tumor cells, enabling visualization of otherwise poorly distinguished tumor. Patients are administered orally the non-fluorescent precursor of protoporphyrin IX, 5-aminolevulinic acid prior to going to the operating room. During surgery, the conventional white light of the operating microscope can be switched to blue light of the appropriate excitation wavelength, and the operating surgeon will then see tumor tissue that ordinarily may be indistinguishable from normal brain now glow a striking pinkish-red. As a guide to initially identifying tumor and, more importantly, detecting residual tumor at the close of resection, such visualization is proving invaluable.

The Dartmouth study has been investigating the correlation between intraoperative fluorescence and preoperative gadolinium enhancement on MRI, and recently presented its findings at the annual meeting of the American Association of Neurological Surgeons. In a series of 24 patients undergoing resection of intracranial tumor, very high correlation was found between focal fluorescence and MRI-enhancement; lower grade glial tumors generally did not enhance, and intraoperatively fluoresced poorly. Two vascular malformations preoperatively diagnosed as presumed tumor enhanced on MRI but did not fluoresce.

In parallel with this initial clinical trial, development is underway of two refinements of the technology employed in fluorescence-guided tumor resection. Presently adapted operating microscopes provide only the optical visualization of tissue fluorescence, but the development of qualitative fluorescence imaging should allow both detection of tumor at lower protoporphyrin IX concentrations and improved interpretation of the degree of fluorescence. A second improvement of potential enormous value is that enabling detection of fluorescence deep to the visualized surface; preliminary work shows sensitivity at a depth of a centimeter. With the implementation of these new tools, a second clinical trial pitting fluorescence against current image-guided surgery will be undertaken.

In the meantime, expansion of our clinical trial to other types, including meningioma, pituitary adenoma, and metastatic tumor is about to begin. Further extension to applications outside of the head are readily envisioned and promise to continue the Department’s tradition of great collaboration across the Dartmouth campus.
Figure 1A. Operating microscope view during tumor resection under (conventional) white light.

Figure 1B. Same operating microscope view under blue light, demonstrating fluorescence of the tumor tissue.
DHMC has undertaken to build and operate an Outpatient Surgery Center (OSC) on the Lebanon campus. The OSC is located on LeHaye Drive and although physically detached from the Medical Center, it is wholly-owned and operated by DHMC. After very careful evaluation of demographic trends in our service area, growth in the demand for peri-operative services at DHMC, and the consideration of likely future trends in clinical practice changes, it was determined that additional OR capacity at the Lebanon campus would be needed by 2010. In the last 10 years, the number of outpatient procedures performed at DHMC has grown tremendously. As a result, the Board of Governors and Board of Trustees approved this $33M OSC project and construction began in the fall of 2008.

Currently, the OSC project is on schedule and on budget with an expected opening of spring 2010. The building will contain eight ORs and 30 prep/recovery rooms as well as central sterile reprocessing facilities, locker rooms, staff lounge, waiting area, and office space. Four of the ORs and a portion of the prep/recovery rooms will be “shelled” initially. In the first year, there will be six surgical sections/departments performing procedures in the OSC: Orthopedics, Ophthalmology, Otolaryngology, Urology, Plastics, and Pediatrics. There will be an opportunity for other providers and sections to be considered for the OSC in future years. It is a priority that the OSC be as efficient as possible, and national surgery center benchmarks for procedure times, case costs, etc. are being integrated into the DHMC OSC operational plan. The new OSC will enable DHMC to provide greatly improved care experiences for our patients including a more accessible facility and a care environment dedicated to efficient provision of outpatient surgical services. The OSC will also increase provider and staff satisfaction by creating a patient-centered, highly-efficient environment in which to practice. Finally, the OSC will make an important contribution to our academic environment by providing a “real-world” learning environment for senior residents who need to learn how to perform procedures quickly and efficiently.
We have been challenged this year by the Dean’s office to consolidate our clerkship into a six-week rotation. This change is due to the students’ desire for elective time as well as the realities of clinical resources needed to accommodate an increase in class size. The time constraints pushed us into a single service, six-week rotation rather than two services of four weeks each. The shortened curriculum has emphasized the educational importance of our Director of Learning Program and highlighted the need to focus on communication skills. We continue our emphasis on understanding surgical concepts, leaving the acquisition of factual knowledge to the student.

Our educational research efforts continue in communication and measures of educational effectiveness. We have an active project reviewing the clinical competence and the correlation between written, oral, and ward examination performance. We are seeking funding for a project to better understand communication competency and ranking of knowledge by a comparison of surgical faculty and non-physician evaluators.

The rotation options of Vascular, Trauma/Consult, General, Oncology, Cardiothoracic, Pediatric, Minimally Invasive, and the VA remain at our core. Each rotation offers ample opportunities for students to experience acute care medical practice, to be part of surgical decision making, and see multidisciplinary care delivery (anesthesia, ER, critical care, etc). Students participate in night call with the Trauma/Consult team. Night call also allows students to routinely interact and experience non-core surgical disciplines such as Orthopaedics, Neurosurgery, Urology, Plastics, and Ophthalmology. Formal weekly didactics sessions include Surgical M&M, Grand Rounds, student focused case studies, and presentations.

The Class of 2009 graduated with 29% of the students entering a surgical field - well above the national average of 21%. The Arthur Naitove Surgical Scholar Award commemorates one of Dartmouth’s great surgeon-scientists and is awarded by the faculty of the Department of Surgery. This year’s recipient is Courtney Warner, MD. She will receive her training at The University of Pittsburgh’s Presbyterian Hospital in Vascular Surgery.

Daniel Wiener, MD and David Hughes, MD two of our chief residents, were selected by the third-year students to receive a Gold Foundation Humanism and Excellence in Teaching Award. In addition, Dr. Hughes was this year’s recipient of the Thomas P. Almy Housestaff Teaching Award. The Almy honor is awarded to a resident by the graduating DMS class. This year marks the sixth year in a row, and the eleventh in twelve years, that a surgery resident has been awarded this honor. We believe the effectiveness of our Director of Learning model is clearly being validated by our medical students.

Clerkship Advisory Board
The Clerkship Advisory Board meets monthly and is comprised of individuals actively involved in student education. The committee conducts ongoing reviews of the curriculum, examination process, and student progress. The group makes revisions as necessary to maintain a current curriculum and to advance the educational climate. It is the forum by which the surgery clerkship formally interacts with the Dean’s office in student and curriculum issues.
The residency program in General Surgery trains twenty categorical general surgery residents, including four residents at each of the five levels of residency training. In addition, fourteen more surgical residents participate in the General Surgery Program preliminary to pursuing training in other surgical residencies.

Residents benefit from the rich array of surgical cases. As Mary Hitchcock Memorial Hospital (MHMH) continues to grow, surgical cases have not only continued to increase in number, but also in complexity as measured by the case mix index and specific measures for trauma patients.

The Surgical Residency Program draws on the strengths of a committed departmental faculty and a growing array of resources. Gina Adrales, MD serves as Director of Surgical Simulation in Dartmouth’s newly opened Patient Safety Training Center. Dr. Adrales’s responsibilities include oversight and coordination of the laparoscopic and trauma simulations as well as training in basic surgical skills. In addition, the Program includes regularly scheduled surgical seminars – directed by Kerrington Smith, MD, Kari Rosenkranz, MD, and Dr. Adrales, MD – that provide the surgical residents didactic, interactive, case-based learning in clinical and basic surgical sciences.

The Training Program is supported by a growing array of data centers that collect and analyze information about procedures and outcomes for surgical patients admitted to DHMC. These include registries administered by the Surgical Outcomes Assessment Program at Dartmouth, the Northern New England Cardiovascular Disease Study Group, and the Vascular Study Group of Northern New England. Specific complications are identified, collated, and sorted into defined categories. Data from these centers are made available in a confidential manner to house officers and faculty, and can be used to inform the discussion at the weekly Morbidity & Mortality conference.

The Training Program hosted eleven visiting professors who presented Grand Rounds and interacted with residents and faculty:

Ossama Al-Mefty, MD, Professor of Surgery, Chairman, Department of Neurosurgery, University of Arkansas for Medical Sciences, Little Rock, AR.

Chris Breuer, MD, Assistant Professor of Surgery, Yale Medical School, New Haven, CT.

Ruth Bush, MD, Associate Professor of Surgery, Program Director, Vascular Fellowship, Division of Vascular Surgery, Texas A&M University Health Science Center, Temple, TX.

Merril Dayton, MD, Professor of Surgery, Chairman, Department of Surgery, The State University of New York (SUNY), Buffalo, NY.

Justin Dimick, MD, Assistant Professor of Surgery, University of Michigan, Ann Arbor, MI.

Richard Gamelli, MD, Professor of Surgery, Chairman, the Department of Surgery, Loyola University Medical Center, Chicago, IL.

Christine Lau, MD, Assistant Professor of Surgery, University of Virginia Health Systems, Charlottesville, VA.

Peter Rubin, MD, Associate Professor of Surgery, Division of Plastic Surgery, University of Pittsburgh, Pittsburgh, PA.

John Pryor, MD, FACS, Director, Trauma Program, University of Pennsylvania, Philadelphia, PA.

Kerrington Smith, MD, Surgical Oncologist Fellow, Department of Surgical Oncology, University of Texas MD Anderson Cancer Center, Houston, TX.

Riccardo Superina, MD, Professor of Surgery, Children’s Memorial Hospital, Chicago, IL.
The Residency Program continues to provide a popular rotation at Concord Hospital for second- and third-year surgical residents. This rotation allows the program to take further advantage of the robust clinical volumes and increasing case complexity occurring in southern New Hampshire.

The teaching conference schedule within the Training Program remains robust. Conferences are available on a weekly basis on various services. These include GI Tumor Board, Trauma Rounds, the Surgical Seminars, Surgical Grand Rounds, Morbidity & Mortality conference, an interdisciplinary Gastrointestinal Disease Conference, a weekly teaching conference with the Program Director, as well as service-specific conferences.

The Surgical Residency Program at Dartmouth is an academic program and continues to encourage and support resident research and teaching. Over the last few years, residents in the Training Program have produced numerous scientific presentations at national and regional meetings, several peer-reviewed publications, and even garnered mention in regional and national media. Resident teaching has also maintained its outstanding tradition. In 2009, chief resident Daniel Wiener, MD received the Gold Foundation Humanism and Excellence in Teaching Award, and chief resident David Hughes, MD received the T. P. Almy Resident Teaching Award from the graduating class at Dartmouth Medical School. This represents the eighth time in the last ten years that the Almy award has been given to a resident in the Department of Surgery.
Research and Preventive Medicine Training Opportunities

We offer research opportunities in molecular labs and outcomes research. Some residents elect to join our Leadership in Preventive Medicine Residency Program where they get formal training in outcomes research, earn an MPH, and become eligible for Preventive Medicine certification.

2009-2010
Joshua Goldberg, MD – Vascular Research – DHMC
Piroska Kopar, MD – Medicine and the Media, Journalism
Meredith Sorensen, MD – Medical Ethics Education

2008-2009
Abhishek Chatterjee, MD – Outcomes Research – DHMC/VAMC
Joshua Goldberg, MD – Vascular Research – DHMC

2007-2008
John Gorechlad, MD – Cancer Research – DHMC
Sarah Greer, MD, MPH – Leadership in Preventive Medicine Residency – DMS
Joseph Lupo, MD – Outcomes Research – DHMC/VAMC

2006-2007
Sarah Greer, MD – Leadership in Preventive Medicine Residency – DMS
Jason Kemp, MD – Outcomes Research – VAMC
Arne Olsen, MD – Cancer Research – DHMC
Ian Paquette, MD – Outcomes Research – DHMC
Sarah Pletcher, MD – Research – DHMC

2005-2006
Justin Dumouchel, MD – Vascular Research, DHMC
Lydia Choi, MD – Cancer Research, Memorial Sloan Kettering

Sarah Greer, MD, MPH –
Cancer Research –
National Institute of Health
David Hughes, MD –
Cancer Research – DHMC
Daniel Wiener, MD –
Cancer Research, Dana Farber Cancer Institute

Fellowship Programs:
Minimally Invasive Surgery
Vascular Surgery

Resident Training 2009-2010
General Surgery
Established: 1946
Prerequisite Training: 4 years of medical school
Program Description: 5-year program, training in all divisions.
Residents per year: 4

Neurosurgery
Established: 1947
Prerequisite Training: 4 years of medical school
Program Description: 7-year program, includes rotations in Neurology, Critical Care, Neuroradiology and Neuropathology, one year of independent research/training, and five years of clinical neurosurgery, culminating in a one year Chief Resident experience.
Residents per year: 1

Otolaryngology
Established: 2008
Prerequisite Training: 4 years of medical school
Program Description: 5-year program, includes 6 months of general surgery rotations to include trauma, surgical oncology, plastic surgery, and cardiothoracic surgery.
Residents per year: 1

Plastic Surgery
Established: 1960
Prerequisite Training: 3 years of general surgery or completion of a residency in another surgical discipline.
Program Description: 3-year training with a period of research integrated into the program.
Residents per year: 1

Urology
Established: 1949
Prerequisite Training: 2 years of general surgery
Program Description: 4-year program, including 6 months of research. Training in pediatric and adult urology, including oncology, female urology, BPH, reconstruction, stone disease, and transplant. Ample experience is gained in open, laparoscopic, robotic, and endoscopic surgery.
Residents per year: 2

Vascular Surgery
Established: 2007
Prerequisite Training: 4 years of medical school
Program Description: 5-year program, includes 26 months of vascular surgery, 10 months of interventional/endovascular surgery, and 24 months of core general surgery experience. Optional non-accredited research education year (including option for formal coursework at The Dartmouth Institute leading to master's degree in public health with focus on outcomes research).
Residents per year: 1

Training Programs:

- **General Surgery (33)**
- **Otolaryngology (2)**
- **Plastic Surgery (3)**
- **Neurosurgery (7)**
- **Urology (8)**
- **Vascular Surgery (6)**

TRAINING PROGRAMS
The Arthur Naitove Distinguished Teaching Award

John J. Murray, MD
Instructor and Visiting Professor of Surgery, General Surgery

The Arthur Naitove Distinguished Teaching Award was instituted by the residents in 1997 to recognize a faculty member’s commitment to the housestaff. The Award is presented to an attending staff for their commitment to enhance the residency educational experience. The 2009 recipient of the Arthur Naitove Distinguished Teaching Award is John J. Murray, MD.

The Surgical Chair’s Award

Richard W. Dow, MD, FACS
Active Emeritus Professor of Surgery
Former Chair, Department of Surgery

Each year, the Chair of the Department has the opportunity to acknowledge the contribution of an individual, or several individuals, through the Chair’s Award. The Award is intended to recognize an individual’s accomplishments which have especially reflected the ideals or goals for the Department. The 2009 Surgical Chair’s Award recipient is Richard W. Dow, MD.

The Harmes Surgical Scholar Award

David H. Stone, MD
Assistant Professor of Surgery, Vascular Surgery

Philip P. Goodney, MD
Assistant Professor of Surgery, Vascular Surgery, and The Dartmouth Institute

The Harmes Surgical Scholar Award is awarded annually to a faculty member(s) at the Assistant or Associate Professor level in the Department of Surgery. The annual financial award is provided over three years to facilitate career development by strengthening individual professional skills; enhancing contributions to the academic, clinical, and administrative programs of the Department; improving the regional and national visibility of DHMC; and increasing each individual’s sense of professional competence and satisfaction. The Harmes Scholar Award for 2009 was jointly awarded to David H. Stone, MD and Philip P. Goodney, MD.
**CLINICAL TRIALS**

**Barth, Richard, MD**  
• Alternative Breast Imaging Modalities: Correlation with Local Tissue Property Measurements and Histopathological Indices in Benign and Malignant Lesions  
• A prospective study of Adjunctive Radiation Therapy after Resection of Borderline and Malignant Phyllodes Tumors  
• A prospective study of Sentinel Node and Bone Marrow Micrometastases in Women with Clinical T1 or T2 NO MO Breast Cancer who have a Positive Sentinel Node  
• A Phase III randomized, double-blind study of Adjutant STS51 (Gleevec) vs Placebo in Patients Following the Resection of Primary GIST

**Collins, E. Dale, MD**  
• Integrating Decision Support in the Care of Women Facing Adjunctive Treatment Choices for Early Stage Breast Cancer  
• Study of the Safety and Effectiveness of the Mentor Contour Profile Gel Mammary Prosthesis in Subjects who are Undergoing Primary Breast Augmentation, Primary Breast Reconstruction, or Revision

**Cronenwett, Jack, MD**  
• Northern New England Vascular Surgery Quality Improvement Initiative

**Durham, Susan, MD**  
• Analysis of Head Acceleration Impact in Helmeted Alpine Sports

**Fillinger, Mark, MD**  
• Cordis Endovascular Quantum LPM Stent Graft System for Treatment of AAA  
• A clinical study comparing use of the Modified Bifurcated EXCLUDER Endoprosthesis to Open Surgical Repair in the Primary Treatment of Infrarenal Abdominal Aortic Aneurysms (AAA)- Gore Modified Study  
• A clinical evaluation of the Gore EXCLUDER® Bifurcated Endoprosthesis-Low Permeability in the Primary Treatment of Infrarenal Abdominal Aortic Aneurysms-Gore 04-04 Study  
• Clinical study evaluating the use of the Gore EXCLUDER® Bifurcated Endoprosthesis-33 mm in the Primary Treatment of Infrarenal Abdominal Aortic Aneurysms (AAA)- Gore 03-02 Study  
• Evaluation of the Medtronic Ave Talent Thoracic Stent Graft System for the Treatment of Thoracic Aortic Aneurysms-Valor Study  
• A Phase II, single-arm, prospective study of the Safety and Efficacy of the UniFit™ Aortouni-iliac Endoluminal Stent Graft for the Repair of Abdominal Aortic Aneurysm in Patients who are not Candidates for Repair with Commerically Available Bifurcated Endovascular Prostheses-Unity Study  
• Zenith® TX²™ Thoracic TAA Endovascular Graft Clinical Investigation-Zenith Study  
• Prospective Aneurysm Trial: High Angle AorticB®-Bifurcated Stent Graft-Pythagoras Study  
• A Phase III Evaluation of the Safety and Efficacy of the AneuRx Stent Graft System in the Treatment of Abdominal Aortic Aneurysm (AAA)-AneuRx Study

**AneuRx Comparison of EVAR using AneuRx Stent-Grafts with High-Density versus Reduced-Porosity Graft Material**

**Herz, Daniel, MD**  
• Efficacy of Surgical Section of the Filum Terminale of Children with Long Standing Medically Refractory Urinary Incontinence

**Goodney, Philip, MD**  
• Development of a Risk Prediction Model for Complications and Functional Outcomes Following Lower Extremity Revascularization Using a Prospective Regional Database

**Johnstone, David, MD**  
• Phase III study of Single-Agent Taceva (Erlotinib) following Complete Tumor Resection with or without Adjunct Chemotherapy in Patients with Stage IIIA-IIIA Non-small Cell Lung Carcinoma who have EGFR-Positive Tumors (RADIANT)

**Kerrigan, Carolyn, MD**  
• A randomized clinical trial comparing the Harmonic Scalpel to Electrocautery for Breast Reduction Surgery

**Likosky, Donald, PhD**  
• Nutritional and Metabolic Injury after Cardiac Surgery  
• Renovascular Disease: A Multimodal Approach  
• A randomized, double-blind, placebo-controlled study to Evaluate the Safety and Efficacy of Pembrolizumab in Patients with Metastatic Melanoma who are not Candidates for Immunotherapy

**Nolan, Brian, MD**  
• Dartmouth Tbral Registry-Critical Leg Ischemia  
• Quality of Life Survey, Peripheral Vascular Surgical Society

**Powell, Richard, MD**  
• Asymptomatic Carotid Stenosis, Stenting vs. Endarterectomy Trial - the ACT I Study  
• Carotid Revascularization Endarterectomy vs. Stent Trial-CREST Study  
• The VIVEXX™ Carotid Revascularization Trial (VIVA) for High Surgical Risk Patients with Extracranial Carotid Artery Stenosis using the Bare® VIVEXX™ Carotid Stent and Emboshield™ BareWire™ Rapid Exchange Embolic Protection System-VIVA BARD Study  
• The Embolic Protection with Reverse Flow (EMPiRE) Study of the GORE Neuro Protection System in Carotid Stenting of Subjects at High Risk for Carotid Endarterectomy  
• A randomized study of various medical treatments for Peripheral Arterial Disease (Intermittent Claudication) as Assessed by a Graded Treadmill Protocol

**Razic, Eva, MD**  
• Randomized controlled study Comparing Treatment of Femoropopliteal Disease with Primary Stenting and Primary Angioplasty

**Seigne, John, MB, BC**  
• A randomized, double-blind, placebo-controlled Phase III study of Early versus Standard Zoledronic Acid to Prevent Skeletal Related Events in Men with Prostate Cancer Metastatic to Bone  
• Randomized Phase III study of Neo-Adjunct Docetaxel and Androgen Deprivation Prior to Radical Prostatectomy versus Immediate Radical Prostatectomy in Patients with High-Risk, Clinically Localized Prostate Cancer

**Sims, Nathan, MD**  
• Dura Sealing Study, Conduit Surgical

**Stone, David, MD**  
• Cast Iliac Stent Pivotal Study

**Stotland, Mitchell, MD**  
• The Effect of Botulinum Toxin Type A Injection Intervals on the Irreversibility of Targeted Muscle Paralysis

**Zegans, Michael, MD**  
• Seroids for Coronal Ulcer Trial  
• Myotic Ulcer Treatment Trial
FEDERAL AND CORPORATE SPONSORED PROJECTS

Barth, Richard, MD
• Studies Z10 and Z11

Collins, E. Dale, MD
• PRO in Oncology

Cronenwett, Jack, MD
• Aortic Aneurysm

Davies, Louise, MD
• Thyroid Cancer

Duhaime, Ann-Christine, MD
• Trauma to the Immature Brain
• Subdural Hematoma
• PEDI Head Trauma

Gormley, Elizabeth, MD
• UITN

Heaney, John, MD
• Selenium/Vitamin E (SELECT)

Hoopes, P Jack, DVM, PhD
• Warwick Fiber Study
• Tissue Structures
• Pre-Clinical Nepio
• IMI Retinal Implant
• Intratumoral Iron
• Nanoparticle Hyperthermia

Johnstone, David, MD
• Phase III Tarceva

Likosky, Donald, PhD
• Redesign Cardiac Surgery

Martin, Kathleen, MD
• Anti-Angiogenesis II

Moodie, Karen, DVM
• Electrosurgical Instruments II

Mulligan-Kehoe, Mary Jo, PhD
• Anti-Angiogenesis II

Powell, Richard. MD
• Stenting Trial

Roberts, David, MD
• Coregistered Fluores

Rosen, Joseph, MD
• Compartment Syndrome

Rzucidlo, Eva, MD
• mTOR Regulation

Savellano, Mark, PhD,
• New Strategies

Zegans, Michael, MD
• Steroids in Corneal Ulcers

Clinical Trials

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Federal & Corporate Research Grants

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PUBLICATIONS

CT SURGERY

Lawrence J. Dacey


Anthony W. DiScipio


Donald S. Likosky


GENERAL SURGERY

Richard J. Barth Jr.


Thomas A. Colacchio
PUBLICATIONS

Burton L. Eisenberg


Samuel R. G. Finlayson


Rajan Gupta


Eisenberg B

Haut E, Auerbach S, Sonnad S, Greer S, Pipas J, Sutton J. Early Involvement of the Trauma Service Associated with Reduced Mortality. JACS, 2008.


NEUROSURGERY

Perry A. Ball


Kadir Erkmen


Patricia B. Quebada

PUBLICATIONS


David W. Roberts

Ji S, Paulsen K, Harov A, Roberts D. Brain-Skull Contact Boundary Conditions in an Inverse Computational Deformation Model. Medical Image Analysis (in press).


OPHTHALMOLOGY

Michael E. Zegans


OTOLARYNGOLOGY

Eunice Y. Chen


James E. Saunders


### PUBLICATIONS

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<th>Author(s)</th>
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<th>Journal</th>
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<tr>
<td>Mark C. Smith</td>
<td>Unilateral Vocal Fold Paralysis Approach to the Craniocervical Region</td>
<td><em>Childs Nerv Syst,</em> 2008;24(10):1195-1201</td>
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<td>Susan R. Durham</td>
<td>Non-Accidental Trauma in Children</td>
<td><em>Pediatric Neurosurgical Workforce</em></td>
<td>2008;1:429-432</td>
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<td>P. Jack Hoopes</td>
<td>Feasibility and Safety of Targeted Cisplatin Delivery to a Select Lung Lobe in Dogs via Areoprobe Incorporeal Nebulization Catheter (INC)</td>
<td><em>Cancer Res</em> (in press)</td>
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<td>Noninvasive Measurement of Aminolevulinic Acid-Impressed Fluorescence Imaging</td>
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### SURGICAL RESEARCH LAB

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### PLASTIC SURGERY

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**PUBLICATIONS**


**Tate J, Ogden J, Strawbridge R, Hoopes P. Toxicity and biodistribution of activated and non-activated intravenous iron oxide nanoparticles. Proc SPIE, 2009;71810L.**

**Chen B, Crane C, He C, Gondek D, Agharkar P, Nanoparticles. Proc SPIE, 2009;7181,71810P.**


**Kathleen Martin Parolari C, Zhuang Z, Martin K, Simons M. Syndecan 4 and PKalpa2 Mediate mTORC2 Assembly and Akt Activity. Mol Cell, 2008;32(1):140-149.**


**Urology**

**Elizabeth Gormley Gormley E. Urinary incontinence. in Raken & Bope: conn’s Current Therapy (in press).**


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Vascular Surgery

Jack L. Cronenwett


Mark F. Fillinger


Philip P. Goodney


Mary Jo Mulligan-Kehoe


Brian W. Nolan


**PUBLICATIONS**

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This 2009 Annual Report was produced by the Department of Surgery with contributions from numerous faculty and staff members. A special thank you to Laura Stancs and to Bob Hagen of The Hagen Group, Hanover, NH for all their efforts in coordinating this annual report.