



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

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Chair

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Vice Chair for Academic Affairs
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Toxicology

Mary Jo Mulligan-Kehoe, PhD
Research Associate Professor
of Surgery

Brian Pogue, PhD
Adjunct Associate Professor
of Surgery

Mark Savellano, PhD
Research Assistant Professor
of Surgery



MESSAGE FROM THE CHAIR

Earlier this year, I informed the Dean and the Presidents of my intention to retire. Accordingly, a search process was initiated and a distinguished pool of applicants was developed and vetted by the Search Committee. A series of visits and interviews followed as a “short list” was compiled by the Committee and forwarded to the Dean and the Presidents for their consideration. As this Annual Report goes to press, discussions and further interviews are underway but have not been completed – so I can not announce or welcome the new leader for the Department.

But, as the time for my retirement has fully arrived, I asked the Dean and the Presidents to identify a current member of the Department’s faculty to serve in an “acting” role as the search continues. Larry Dacey, MD, a cardiac surgeon, current member of the Board of Trustees and Board of Governors, and long time member and supporter of the Department, has agreed to fill that role.

Over the last year, the prospect of retirement has prompted me to reflect on the progress of the Department over the past decade. Again this year, the annual report reflects the common threads of growth and development which have characterized these last ten years.

Within the Department’s eleven sections, the maturation of subspecialty clinical programs has continued as a consistent theme. The Minimally Invasive Surgery Program, the Solid Organ Transplantation Program, the Face of a Child Program in functional and cosmetic reconstruction of craniofacial defects in children, the Cochlear Implant Program, the Comprehensive Breast Program, the Bariatric Surgery Program, the Thoracic Oncology Program, the Trauma Program, the Prostate Program, and the Aortic Center are examples – among many others – of this kind of ongoing subspecialty programmatic development. Some of these

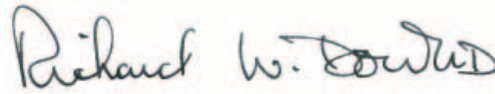
programs and each of the Department’s sections are further highlighted among the following pages of this report. Each of these programs and their sponsoring sections support the clinical mission of the Institution in providing effective, efficient, compassionate, and safe care for each of our patients. Similarly, the educational mission of the Department has also continued to mature with growth in both the size and the number of ACGME approved training programs and subspecialty fellowship opportunities. Along with our “traditional” fellowship in Vascular Surgery, we have now integrated a “primary certificate” program as an option for trainees seeking certification in Vascular Surgery. This year, a new program in Otolaryngology accepted its first residents. Our programs in General Surgery, Vascular Surgery, Plastic Surgery, and Urology have all grown over the decade, and we continue to offer a fellowship in Minimally Invasive Surgery. Six of our seven ACGME training programs are fully approved and accredited while the new program in Otolaryngology enjoys the typical “conditional” approval of a new program.

The Department’s commitment to its educational mission is exemplified again this year by the participation of our faculty in many CME offerings – locally, nationally, and internationally. The faculty continues to fully contribute to undergraduate medical education by training students from our own Dartmouth Medical School and by offering a wide variety of externships and “sub-I’s” to students from other schools. Dartmouth medical students have recognized and appreciated the Department’s contributions to their educational experience by selecting faculty and residents from the Department for individual “teaching awards.” Over the past decade, one of our surgical residents has been selected (in 9 of the 10 years) as the recipient of the “Thomas A. Almay Award” – a teaching award for residents within the Medical Center.

In research, our faculty has increased our understanding of the mechanisms of health and disease through investigations in the basic sciences. They have improved the effectiveness of care, which we provide in the clinical environment, through studies of the processes of care and outcomes. We've continued to disseminate this new knowledge through publications in peer-reviewed media as illustrated in the publication section of this report.

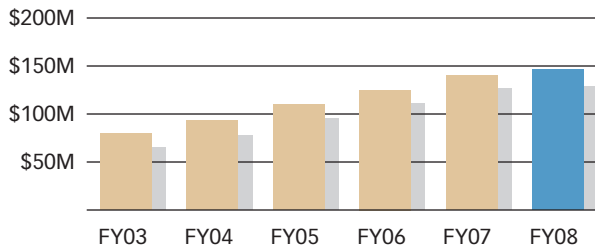
I have vicariously enjoyed the accomplishments and successes of the Department's sections and individual faculty over the past years, and I am pleased to be ending my tenure on a positive note with a robust, enthusiastic, and growing faculty and presence for the Department within our Organization.

It has been an honor for me to serve our Organization. But, of course, I have left many things undone, so there is much still to do. I am confident that future leaders of the Department will further advance Dartmouth-Hitchcock's mission and vision in all areas.

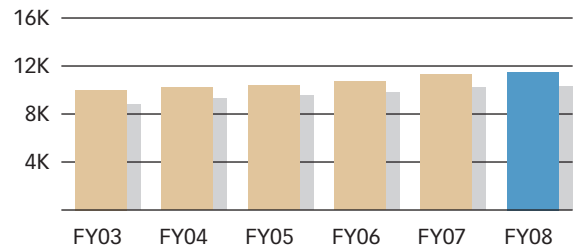


Richard W. Dow, MD, FACS
Chair, Department of Surgery

Department of Surgery Total Gross Professional Revenue

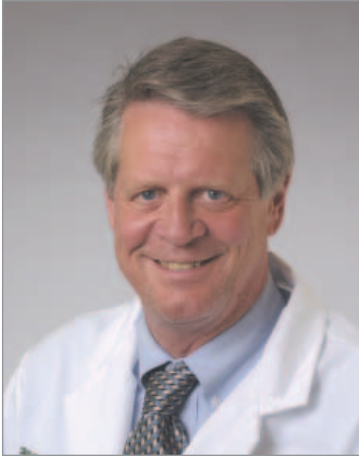


Department of Surgery Total Cases



DEPARTMENT STATISTICS 2008

Section	Faculty	Associate Providers	Residents	Research Projects	Clinical Trials	Publications	Outpatient Appointments	OR Cases
Audiology		8					7,595	
CT Surgery	6	7		1		3	2,587	793
General Surgery	20	3	34	3	4	19	10,669	2,901
Maxillofacial	1					1	1,522	174
Neurosurgery	5	2	7	1	5	32	4,946	840
Ophthalmology	9	3		1	1	1	28,934	844
Otolaryngology	8	10	2			6	14,792	1,452
Pediatric Surgery	8	2		2	3	16	4,562	1,114
Plastic Surgery	7	1	3	2	5	5	8,508	1,257
Transplantation	4	1				4	2,259	316
Urology	7	2	7	3	4	4	11,312	908
Vascular	12		5	4	28	28	6,394	1,002
Surgical Res. Lab	1	1		4		7		
Dept. of Surgery	1					7		
Total	89	32	58	21	50	134	111,121	11,556



William C. Nugent, Jr., MD
 Section Chief
 Professor of Surgery

Introduction

The Section of Cardiothoracic Surgery now consists of the Divisions of General Thoracic Surgery and Cardiac Surgery. This allows Dartmouth-Hitchcock Medical Center to offer a full range of focused and innovative surgical options to all patients with surgical diseases of the thorax. With this increased specialization of the CT Surgical faculty, the hospital has witnessed an increasingly complex caseload with excellent outcomes while the Section continues to lead the Institution in inpatient, outpatient, and referring physician satisfaction. Our continued involvement with the General Surgical Training Program and Dartmouth Medical School allows medical students and surgical residents to experience supervised training in a busy outpatient clinic, inpatient consult and critical care service, and operating room.

The Division of Cardiac Surgery

The Division of Cardiac Surgery, under the leadership of Lawrence Dacey, MD, will see some significant personnel changes this year. In November, John Sanders, MD will retire from active surgical practice after 32 years of practice. Dr. Sanders completed his surgical residency at Peter Bent Brigham Hospital and joined the staff at Northwestern Hospital in Chicago in 1976. There he rose to the rank of Professor of Surgery before relocating to DHMC in 1995. Since joining our ranks, Dr. Sanders has become the “surgeon’s surgeon,” gracing the operating room with his good cheer, robust laugh, and excellent judgment and technical skills. Replacing Dr. Sanders will be Joseph DeSimone, MD. Dr. DeSimone actually joined the Division one year ago after completing his general surgical training at DHMC prior to completing his cardiothoracic training at John’s Hopkins Hospital. His past year was spent between the cardiac surgical operating room and the cardiac catheterization laboratory where he functioned as an advanced fellow in catheter-based interventions with the Section of Cardiology. In addition to these unique skills, Dr. DeSimone will continue to lead our heart failure and Left Ventricular Assist Device (LVAD) program.

The Aortic Center at Dartmouth continues to thrive under the directorship of Anthony Discipio, MD. 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.

The Division of General Thoracic Surgery

The Division of General Thoracic Surgery, under the leadership of David Johnstone, MD, will also see significant personnel changes this year. Cherie Erkmen, MD joined the Division in October after completing her general surgical training at Stanford University in San Francisco and her thoracic surgical training at Brigham and Woman’s Hospital in Boston. Dr. Erkmen brings with her a laboratory, with research interests aimed at defining lymph node drainage patterns within the thorax, and clinical skills in minimally invasive thoracic surgery. With the addition of Dr. Erkmen, the Division will offer a more complete video assisted thoracic surgery (VATS) program that will include, when appropriate, VATS lobectomy and VATS esophagectomy.

The General Thoracic Division continues to be an integral part of Dartmouth-Hitchcock Medical Center’s and Norris Cotton Cancer Center’s Comprehensive Thoracic Oncology Program. This multidisciplinary initiative offers all patients with malignant diseases of the chest direct “one-stop” access to a multi-disciplinary 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.

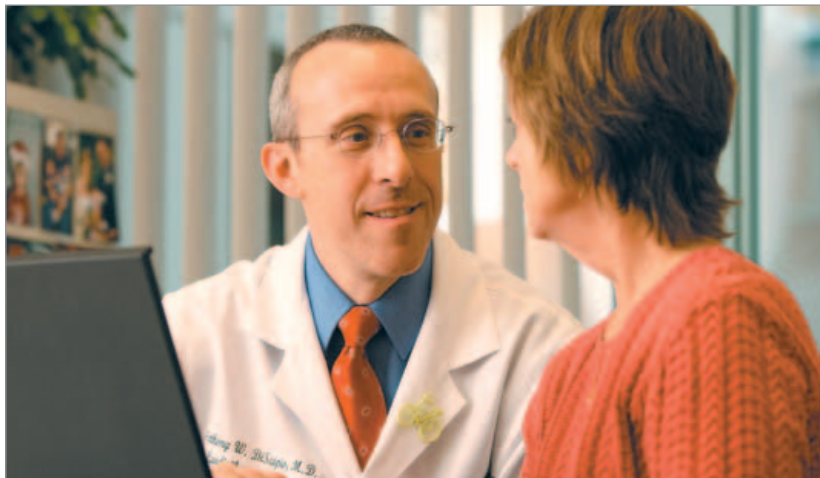
The Division of General Thoracic Surgery continues to grow with direct ties to Norris Cotton Cancer Center at Catholic Medical Center and the addition of a surgical outreach clinic in Manchester, NH. This has allowed patients from the southern regions of NH to get evaluated and followed-up close to home and has allowed referring physicians in Manchester and Nashua increased direct access to our surgical team.

Outcomes

Cardiac surgery remains the most scrutinized speciality in all of medicine. Since healthcare payors 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 at www.dhmc.org/qualityreports/list.

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



FACULTY

Jean Clark, ARNP

Instructor in Surgery

Lawrence Dacey, MD

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 Hafner, PA-C

Instructor in Surgery

David Johnstone, MD

Associate Professor of Surgery

Elizabeth Maislen, ARNP

Instructor in Surgery

William Nugent, Jr, MD

Professor of Surgery and Community & Family Medicine

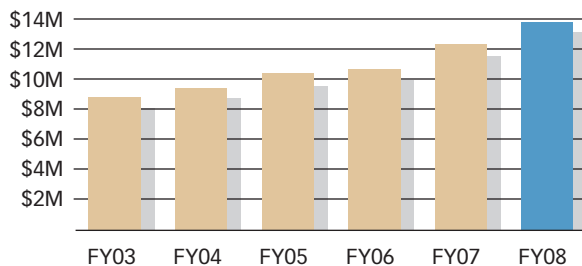
John Sanders, Jr, MD

Professor of Surgery

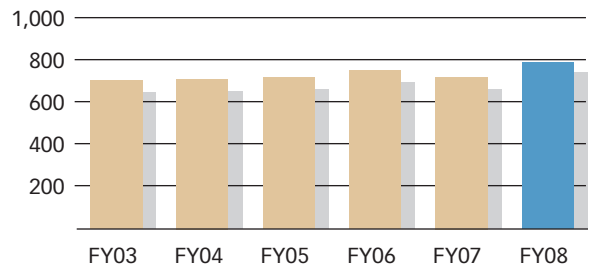
Jamie Wortman, PA

Instructor in Surgery

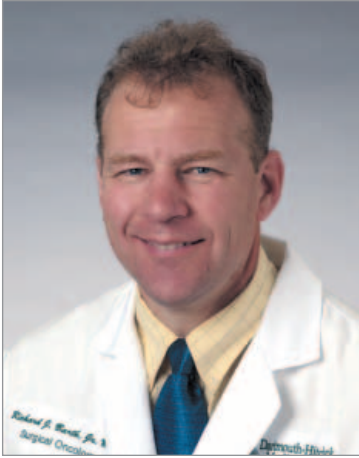
Cardiothoracic Surgery Gross Professional Revenue



Cardiothoracic Surgery Cases



GENERAL SURGERY



Richard J. Barth, Jr., MD

Section Chief

Associate Professor of Surgery

Patient Care

In the past year, we have recruited John Murray, MD to lead a newly formed Division of Colorectal Surgery. Dr. Murray, an accomplished academic surgeon, has directed the colorectal surgery fellowship at the Lahey Clinic for the past 15 years. This expertise will allow us to better serve patients with inflammatory bowel disease and benign conditions of the colon and rectum. The remainder of patient care remains organized under the Division of Minimally Invasive Surgery, directed by William Laycock, MD; the Division of Surgical Oncology, directed by Richard Barth, MD; and the Division of Trauma and Acute Surgical Care, directed by John Sutton, MD.

The Division of Minimally Invasive Surgery is pleased to have recruited Thadeus Trus, MD back to Dartmouth. Dr. Trus brings with him external funding for several research projects as well as expertise in the lap adjustable band procedure for the treatment of morbid obesity. By combining increased volumes with our long track record of excellent outcomes, we look forward to achieving center of excellence status for bariatric surgery.

The Division of Surgical Oncology has taken the DHMC strategic plan to heart by establishing a breast cancer outreach program in Manchester. By traveling to Manchester once a week, Kari Rosenkranz, MD has remarkably improved our ability to provide surgical care for breast cancer patients from southern NH. We look forward to expanding this presence in the following year with the recruitment of additional surgical oncology faculty.

The Division of Trauma and Acute Surgical Care continues to work with a large interdisciplinary Level 1 trauma team to expand and improve trauma and acute surgical care. Jared Barton, MD has joined this Division after completing his training at Dartmouth, and we anticipate an additional faculty member will be joining us in the near future.

General Surgery patients continue to be very satisfied with the care they receive. Our patient satisfaction scores are significantly above the DHMC mean, and for the period of April 2007 through March 2008, we were placed second of all surgery sections. Seventy-six percent of all patients felt their provider's clinical skills and personal manner were excellent.

Education

Samuel Finlayson, MD has greatly expanded his responsibilities by accepting an appointment as Director of the General Surgery Residency Program. Education demands the concerted efforts of several faculty. Paul Kispert, MD continues to lead the weekly Morbidity and Mortality conference with insight and humor. Ken Burchard, MD and Horace Henriques, MD co-direct the surgery clerkship for medical students. Gina Adrales, MD is leading an institution-wide effort to use the Surgical Simulation Lab to help train our medical students and residents in this unique learning environment. Dr. Laycock has now successfully trained two fellows in a thriving fellowship in advanced laparoscopic surgery.

Research

Burt Eisenberg, MD, funded by an R-01 grant, continues to evaluate molecular pathways in the oncogenesis of gastrointestinal stromal tumors. In the last year, Dr. Barth has published papers showing that neoadjuvant therapy can decrease local recurrence rates in patients with pancreatic cancer and MRI of the breast is not routinely indicated for follow-up of breast cancer patients. He has also continued to accrue patients to a novel clinical study designed to test whether cryoablation of human breast cancer induces anti-tumor immunity. Dr. Finlayson has published several papers examining discrepancies in rural vs. urban surgical care. Drs. Burchard and Henriques have published their study examining the process of student examination.

FACULTY

Gina Adrales, MD
Assistant Professor of Surgery

Lori Alvord, MD
Assistant Professor of Surgery
Associate Dean, Student & Minority Affairs

Richard Barth, Jr., MD
Associate Professor of Surgery

Jared Barton, MD
Instructor in Surgery

Kenneth Burchard, MD
Professor of Surgery and Anesthesiology

Thomas Colacchio, MD
Professor of Surgery

Daniel Croitoru, MD
Associate Professor of Surgery and Pediatrics

Burton Eisenberg, MD
Professor of Surgery

Samuel Finlayson, MD
Associate Professor of Surgery
Associate Professor of The Dartmouth Institute

Benjamin Forbush, MD
Assistant Professor of Surgery

Rajan Gupta, MD
Assistant Professor of Surgery

Jeffrey Harnsberger, MD
Assistant Professor of Surgery

Horace Henriques, III, MD
Associate Professor of Surgery

Paul Kispert, MD
Assistant Professor of Surgery and Anesthesiology

Laurie Latchaw, MD
Associate Professor of Surgery and Pediatrics

William Laycock, III, MD
Associate Professor of Surgery

Jean Liu, MD
Assistant Professor of Surgery

Elizabeth McCabe, ARNP, MS
Instructor in Surgery

Ellen McKinnon, ARNP
Instructor in Surgery

Joseph Meyer, MD
Adjunct Associate Professor of Surgery

John Murray, MD
Visiting Professor and Instructor in Surgery

Nick Perencevich, MD
Adjunct Associate Professor of Surgery

Frank Pindyck, MD
Associate Professor of Surgery

Maureen Quigley, ARNP, MS
Instructor in Surgery

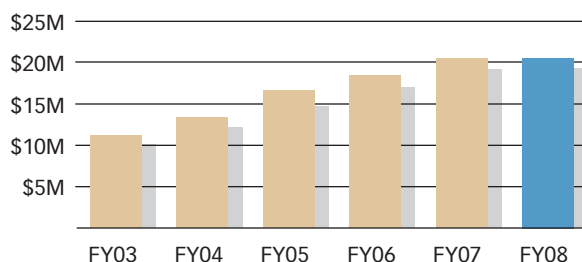
Kurt Rhynhart, MD
Assistant Professor of Surgery

Kari Rosenkranz, MD
Assistant Professor of Surgery

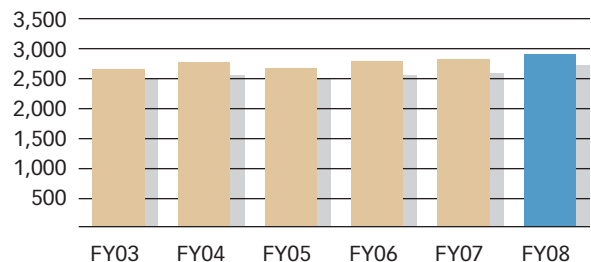
John Sutton, Jr., MD
Professor of Surgery

Thadeus Trus, MD
Associate Professor of Surgery

General Surgery Gross Professional Revenue



General Surgery Cases





David W. Roberts, MD

Section Chief
Professor of Surgery

Introduction

The Section of Neurosurgery is pleased to report another year of continued growth in our clinical programs, research activities, and training program. For the third consecutive year, clinical volumes in operative cases, discharges, and appointments have increased. External funding for investigative work has increased. Our neurosurgery residents continue to gain regional and national recognition for their accomplishments.

Patient Care

Demand for clinical services has propelled the gains noted in the Introduction. We continue to grow our staff, with active recruitments in progress. Patricia Quebada, MD has now joined our faculty full-time, enabling the Section to meet its patient access goals. Nathan Simmons, MD continues to ramp up his heavy clinical responsibilities across pituitary, spine, and tumor. With Kevin Williams, Tobi Cooney, and Stephanie Stone, he leads our OR Utilization QA team. Perry Ball, MD, with Dr. Simmons, represents Neurosurgery in the multidisciplinary Spine Center, and as a member of the Critical Care service, bridges two vital disciplines for the head-injured patient. Kadir Erkmen, MD oversees our skull base tumor program as well as heads up the cerebrovascular service; both have seen continued growth in volumes. He has also assumed a leadership role as Medical Director of the Neuroscience Special Care Unit. Neuroradiology's Cliff Eskey, MD, PhD now has a joint appointment with us collaboratively bringing interventional radiology skills for the endovascular treatment of selected intracranial aneurysm. David Roberts, MD heads up the functional and stereotactic activities, including epilepsy and deep brain stimulation surgery for movement disorders. We have successfully recruited Jo Speaker, PA to join our outstanding midlevel team of David Sargent, PA, Sharon Morgan, ARNP, and Carissa Thurston, RN, CNRN. Ann-Christine Duhaime, MD and Susan Durham, MD (represented in this publication in the Pediatric Surgery section) are integral parts of our comprehensive neurosurgery program and provide

dedicated expertise in pediatric neurosurgery. Drs. Durham and Ball remain active in peripheral nerve. An exciting new clinical program this year involves the use of fluorescence imaging to guide brain tumor resection.

Education

The Dartmouth Neurosurgery Residency training program remains the pride of the Section. Scott Lollis, MD, our current chief resident, successfully completed his NIH-sponsored investigative work on magnetic resonance elastography and presented a top paper at the New England Neurosurgical Society on causes of death among neurosurgeons nationally. He has been accepted into a prestigious spine fellowship at the Cleveland Clinic, beginning July, 2009. George Kakoulides, MD (Tufts Medical School, 2007, and a solid third baseman with a good bat) joined our residency program. Residents had multiple presentations at the annual meetings of the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, and the Pediatric Neurosurgery Society. The Dartmouth Neurosurgical Residency Program was one of 16 institutions represented at the 5th Annual Neurosurgical Softball Tournaments in New York City in June. Our fourth-year medical student elective in Neurosurgery remains active, and this past year saw Gareth Davies, MD go on to a neurosurgical residency at Penn State. Our first- and second-year medical student elective remains oversubscribed. Dr. Erkmen again served as faculty for the St. Louis skull base surgery course. Dr. Duhaime was a visiting professor at the University of Toronto and NYU, and was an

invited speaker at the annual meeting of the American Society of Pediatric Neurosurgeons. She also assumed the Chair of the AANS/CNS Joint Section on Pediatric Neurosurgery. Dr. Roberts was a visiting professor at Columbia and the University of Wisconsin, and gave a keynote address at the inaugural meeting of the Intraoperative Imaging Society. Dr. Ball joined the Long Range Planning Committee of the Neurosurgical Society of America, and continues his work with the AANS Professional Liability Committee. Dr. Roberts was invited to join the American Board of Neurological Surgery.

Research

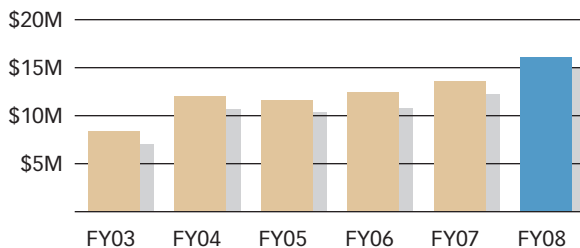
Our five-year NIH-sponsored fluorescence-guided tumor resection study began enrolling patients. Dartmouth garnered the first and only FDA IND for the neurosurgical use of 5-amino levulinic acid, a drug selectively converted to intraoperatively fluorescing protoporphyrin IX in glioma tumor cells, thereby enabling visualization of

tumor tissue for resection. Similar fluorescent technology is being explored in aneurysm surgery. Our investigation of computational brain modeling for image-guided surgery, collaborative with the Thayer School of Engineering and also supported by the NIH, furthered understanding of computational efficiency in the OR setting and incorporated three-dimensional intraoperative ultrasound imaging. In the field of epilepsy, Dartmouth has remained one of the leading enrollers in the NeuroPace responsive stimulation trial, whereby a fully implanted device detects the onset of seizure activity and provides a therapeutic counter-stimulus to the involved brain region. The Section is also participating in a national multi-center study investigating an agent for sealing of dural leaks. The journal, *Stereotactic and Functional Neurosurgery*, edited here at Dartmouth, saw an increase in its Impact Factor for the fifth consecutive year.

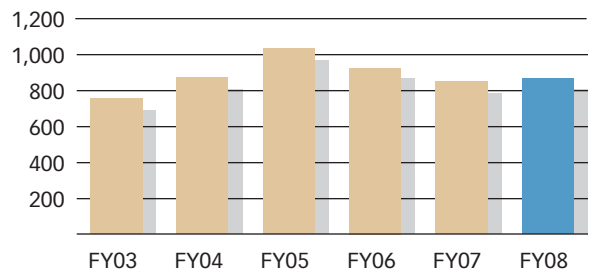
FACULTY

- Perry Ball, MD**
Associate Professor of Surgery and Anesthesiology
- Ann-Christine Duhaime, MD**
Professor of Surgery
- Susan Durham, MD**
Assistant Professor of Surgery and Pediatrics
- Kadir Erkmen, MD**
Assistant Professor of Surgery
- Sharon Morgan, ARNP, 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





Christopher B. Chapman, MD

Section Chief
 Assistant Professor of Surgery
 and Pediatrics

Introduction

We are now seeing the expected increase in the incidence of major eye disorders including macular degeneration, glaucoma, and diabetic eye disease. The increased incidence of eye disease is commensurate with the aging of the American population. Fortunately, we are able to provide new and highly effective medical and surgical treatment strategies for many blinding disorders. Our fellowship-trained ophthalmologists and optometrists provide care through a multidisciplinary and collaborative approach. This past year, the Section of Ophthalmology provided services for over 25,000 patient visits. Our team also provides laser refractive surgery, cataract surgery, and definitive care for pediatric eye disorders, trauma, disorders of the eyelids and orbit, corneal disease, and neuro-ophthalmic disorders.

Patient Care

The Section is pleased to welcome our newest faculty member, Nicholas Uzcategui, MD who provides medical and surgical care for patients with complex oculoplastic and orbital disorders. Dr. Uzcategui completed fellowship training in Ophthalmic Plastic and Reconstructive Surgery at the Doheny Eye Institute and the University of Southern California where he established the USC-Doheny Eye Center for Pediatric Oculoplastic, Craniofacial, and Orbital Disorders. William Rosen, MD, Director of Oculoplastics, and Dr. Uzcategui are board certified surgeons and fellows of the American Society of Ophthalmic Plastic Surgeons.

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. Ms. Nancy Patterson serves as coordinator for the LASIK and refractive surgery team. 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 and Fellowship Director for the Section of Ophthalmology. An international 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. Dr. Pepin is a fellowship-trained, board certified, ophthalmic surgeon who also performs complex cataract surgery.

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. Crystal Colby, PA joined our service in October.

Chris Fields, OD, Peter Lapre, OD, and Ted Petrowski, OD provide primary eye care and optometric services and coordinate care at our Court Street outreach office. Dr. Fields is Director of Low Vision Services.

Education

All providers in the Section of Ophthalmology provide educational opportunities onsite at DHMC as well as regionally, nationally, and internationally. Our vibrant grand rounds program features nationally recognized leaders in ophthalmology. Visiting professors for this past year included Emily Chew, MD, Deputy Director of the National Eye Institute, and Ashley Schauer, MD, from the University of Virginia. 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. Drs. Stevens and Uzcatogui have been invited speakers at several international meetings in China and Japan. Dr. Stevens serves as interim Director for the flying eye hospital program-Project ORBIS. Dr. Fields leads the development of an eye care hospital in Nicaragua and provides an international eye care elective for DMS students. The Section of Ophthalmology sponsors a yearly symposium for ophthalmic technicians and ophthalmic photographers.

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

The Future

The Section of Ophthalmology will begin formal reporting of clinical outcome data this year. We look forward to our glaucoma fellowship program, new clinical therapeutic trials, and tissue engineering research.

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

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

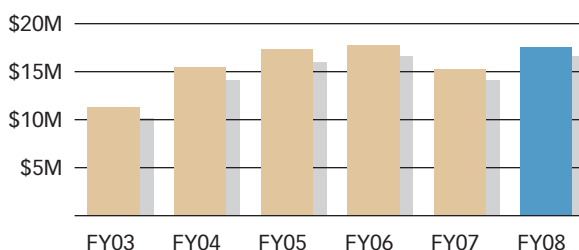
Christopher Soares, MD
Adjunct Assistant Professor of Surgery and Instructor in Surgery

Rosalind Stevens, MD
Professor of Surgery

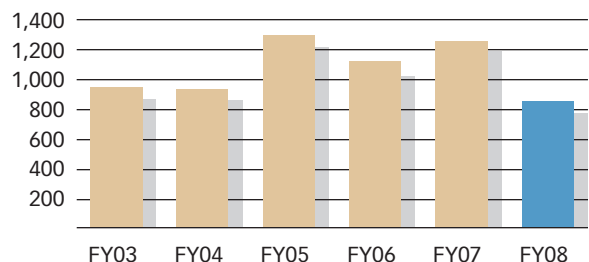
Nicolas Uzcatogui, MD
Assistant Professor of Surgery

Michael Zegans, MD
Associate Professor of Surgery and Microbiology & Immunology

Ophthalmology Gross Professional Revenue



Ophthalmology Cases



OTOLARYNGOLOGY AND AUDIOLOGY



Daniel H. Morrison, Jr., MD

Section Chief

Assistant Professor of Surgery

It has been another exciting year for the Section of Otolaryngology and Audiology. We have grown, changed, and improved to meet our patients' needs and to fulfill our desire to become the preeminent otolaryngology/audiology unit in New England. The most anticipated development has been the start of our new residency training program in otolaryngology. The approval to begin this program came after nearly four years of effort by many faculty members. Seeing the smiling faces of our new residents on July 1st brought a great sense of satisfaction and pride to the entire Section. In addition, several key new faculty members have joined us this past year, bolstering our already strong educational focus, and adding additional clinical expertise and research interests.

A few weeks ago, *U.S. News and World Report* ranked our hospital-wide otolaryngology services at #39 in the country. This was our debut on the top 50 list, and we are one of only three clinical units in DHMC to make the top 50 list. This recognition speaks volumes about the hard work and dedication of our entire ENT team – the nursing staff on the floor and in the clinic, our secretarial staff, audiologists, midlevel providers, physicians, and administrative team. We are not satisfied with simply being a good otolaryngology program; our desire is to be the best. This attitude is also reflected in the recent completion of our Section's comprehensive evaluation by the Ambulatory Performance

Improvement Department. Every aspect of our day-to-day functioning was scrutinized and as a result many changes were made. We expect continued improvement in patient access, QI/QA initiatives, and productivity. We welcome the opportunity to work smarter, not harder, and to improve patient satisfaction – and as a consequence, staff and provider satisfaction.

James Saunders, MD left the University of Oklahoma to join us in January as an otologist and neurotologist. Dr. Saunders did his fellowship training at the prestigious House Ear Institute in Los Angeles and comes to us to continue his very productive 14 year academic career. Giri Venkatraman, MD joined us in December as a rhinologist and sinus surgeon. He hit the ground running, was awarded the Harmes Scholarship this year, and is working with members of The Dartmouth Institute and the VA Outcomes Group on a potentially ground breaking outcomes study involving sinus surgery trends across the US. Two new audiologists joined the team this year – Kerry Gudlewski, AuD is an adult audiologist and Kaitlin McLaughlin, MA, a pediatric audiology specialist. They bring added expertise to our cochlear implant program and our pediatric diagnostic and aural rehabilitative programs. Mitzi Hanke took over as Administrative Assistant and has worked wonders with her fabulous combination of engaging personality and technical expertise in the secretarial realm.

The Future

It has indeed been another banner year for us. We enter the next year financially healthy, academically solid, and clinically well rounded. Our relationships with regional otolaryngologists and other referring providers continue to grow. We have positioned ourselves as the tertiary referral hub of a regional ENT healthcare network. The next year will see the addition of a second pediatric otolaryngologist, another pediatric audiologist, and a nurse manager. We hope to expand our subspecialty services in the Manchester area, making ourselves more accessible to our largest patient group. In a very real sense, we strive to embody the Institution's mission in that we are advancing health through research, education, clinical practice, and community partnerships and providing each person the best care, in the right place, at the right time, every time.

FACULTY

OTOLARYNGOLOGY

Sharon Bry, ARNP

Instructor in Surgery and Medicine

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

Assistant 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 Mosenthal, MEd

Instructor in Surgery

Michael Norris, AUD

Instructor in Surgery

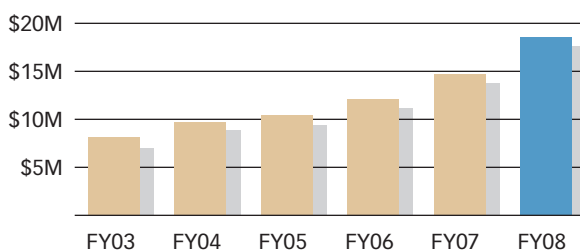
Cynthia Nulton, MA

Instructor in Surgery

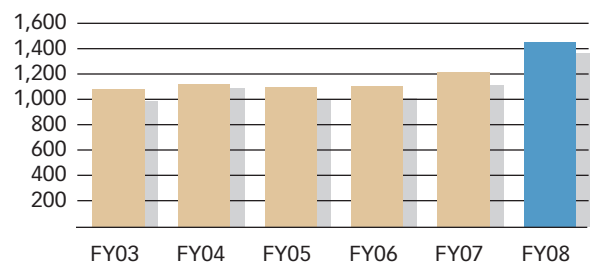
Erin Pospychala, CCC-A

Instructor in Surgery

Otolaryngology Gross Professional Revenue



Otolaryngology Cases





Laurie A. Latchaw, MD

Section Chief
Associate Professor of Surgery
and Pediatrics

Introduction

The Section of Pediatric Surgery, which includes the Pediatric Surgical Specialties of Pediatric General and Thoracic Surgery, Pediatric Neurosurgery, and Pediatric Urology, had a busy and productive year. With the recent recruitment of Leslie McQuiston, MD, the Division of Pediatric Urology will have three physicians, two nurse practitioners, and a nurse coordinator to staff the Lebanon campus as well as the Manchester and Dover Outreach Clinics. Dr. McQuiston, who will begin seeing patients in October, completed a residency in Urology at Brown University/Rhode Island Hospital and a fellowship in Pediatric Urology at the Children’s Hospital Medical Center in Cincinnati, Ohio. She returns to New England via the Cook Children’s Hospital in Fort Worth, Texas, where she was named one of the “Best Doctors” in *Fort Worth Magazine*, 2007. Access for both urology patients and referring providers is expected to improve significantly with Dr. McQuiston’s arrival.

Patient Care

The Section continues to provide a wide variety of clinical programs, including chest wall deformities, pediatric peripheral nerve, and pediatric epilepsy and movement disorders. Daniel Croitoru, MD (pediatric general and thoracic surgery), a world renowned expert in chest wall deformities, has now performed more than 53 minimally invasive pectus excavatum repairs since his arrival in 2005 and has referrals from as far away as Arizona. Both Drs. Daniel Croitoru and Laurie Latchaw have expanded the pediatric laparoscopic and thoracoscopic procedures available at DHMC. Dr. Croitoru performed the first thoracoscopic thymectomy and also thoracoscopically placed the first phrenic nerve pacemaker for a patient with central hypoventilation syndrome. The multidisciplinary Peripheral Nerve Clinic, led by Susan Durham, MD (pediatric neurosurgery), has seen tremendous growth since its inception in 2005. As the only multidisciplinary peripheral nerve program in northern New England, both children and adults with complex peripheral nerve problems are treated. Working with our colleagues in plastic surgery, neurology and rehabilitation medicine, the clinical practice on the Lebanon campus has grown and outreach services in the southern region are planned. Ann-Christine Duhaime, MD (pediatric neurosurgery) continues an active practice in spasticity and movement disorders. Her expertise in brain mapping and epileptogenic foci excisions for children with intractable seizures has created a busy pediatric epilepsy service. Daniel Herz, MD (pediatric urology)

has pioneered work in pediatric robotic surgery and now leads the only robotic laparoscopic genitourinary surgery program in the state. Christine Danielson, ARNP and Lynn Brenfleck, RN have begun a biofeedback program for urinary and fecal incontinence. Paul Merguerian, MD (pediatric urology) continues his role as Interim Medical Director of the Children’s Hospital at Dartmouth. Both Dr. Merguerian and Dr. Herz now see patients at Wentworth-Douglas Hospital in Dover as well as in Lebanon and Manchester. Dr. Latchaw continues to see patients and operate at the Surgicenter at the Manchester Clinic three times a month and provides consultations for pregnant women with prenatally diagnosed abdominal and chest anomalies.

Education

Educational activities for the Section of Pediatric Surgery included didactic and informal sessions with medical students and residents in General Surgery, Neurosurgery, Urology, and Pediatrics at the Lebanon campus. The Pediatric General and Thoracic Surgery service was assigned third-year Dartmouth Medical School students for the first time last academic year with outstanding reviews. Sharon Haire, MSN, ARNP was appointed to the clinical teaching faculty of the nursing schools at Colby Sawyer College, University of New Hampshire, and Norwich University. Our faculty continues to be invited speakers locally, nationally, and internationally. In August, Dr. Durham will travel to Santiago, Chile as an invited lecturer for the Latin American Pediatric Neurosurgery Society.

Research

Dr. Durham completed her Master's Degree at The Dartmouth Institute for Health Policy and Clinical Practice in May 2007. As a result of her thesis work, she received funding through the Joint Section on Pediatrics of the American Association of Neurological Surgeons and the Congress of Neurological Surgeons to head a pediatric neurosurgical workforce task group. In addition, she has several ongoing clinical research projects, including a natural history study of Chiari 1 malformation in children and her continued work studying the effects of head impacts in recreational snowboarders, which is supported by the Harmes Scholar Program. Dr. Duhaime continues her work as a co-investigator on multiple NIH grants in addition to her ongoing RO1 NIH grant in pediatric traumatic brain injury. Dr. Herz is investigating bladder smooth muscle growth on a poly-lacto-glycolic acid scaffold matrix

using chemical nano-etching. Drs. Herz and Merguerian have started a North American and Canadian regional database on infants born with prenatal hydronephrosis. The pediatric urology and neurosurgery groups are also participating in a multi-center grant on occult tethered cord release. Dr. Merguerian continues his clinical research project looking at the efficacy of sedated versus unsedated VCUG's. Multiple papers were published and presentations given at societal meetings throughout the year.

Highlights

In May 2008, Drs. Merguerian and Herz were among a select group of pediatric urologists who passed the newly created Pediatric Urology certification examination. Dr. Durham achieved specialty board certification in Pediatric Neurological Surgery in December 2007.

FACULTY

PEDIATRIC GENERAL AND THORACIC SURGERY

Daniel Croitoru, MD

Associate Professor of Surgery and Pediatrics

Sharon Haire, ARNP, MSN

Instructor in Surgery

Burton Harris, MD

Visiting Professor and Instructor in Surgery and Pediatrics

Laurie Latchaw, MD

Associate Professor of Surgery and Pediatrics

PEDIATRIC NEUROSURGERY

Ann-Christine Duhaime, MD

Professor of Surgery and Pediatrics

Susan Durham, MD

Assistant Professor of Surgery and Pediatrics

PEDIATRIC UROLOGY

Christine Danielson, ARNP, MS

Instructor in Surgery

Daniel Herz, MD

Assistant Professor of Surgery and Pediatrics

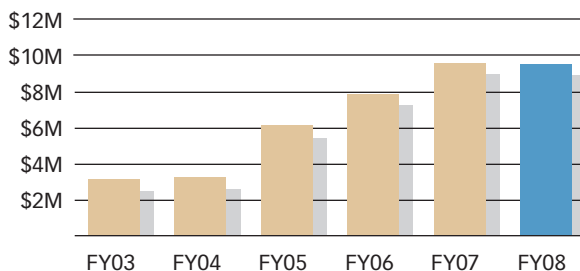
Leslie McQuiston, MD

Assistant Professor of Surgery and Pediatrics

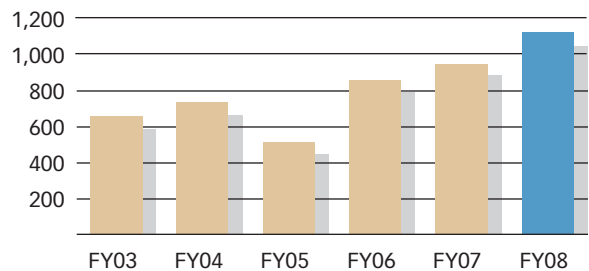
Paul Merguerian, MD

Professor of Surgery and Pediatrics

Pediatric Surgery Gross Professional Revenue



Pediatric Surgery Cases





Carolyn Kerrigan, MD

Section Chief

Professor of Surgery

Introduction

The Section of Plastic Surgery members have two jobs when they come to work each day – doing their own work and improving their work. Our successes have been recognized by invitations to present on patient access improvement, shared medical appointments, shared decision making, staffing redesign, and more.

Patient Care

Improving patient satisfaction was at the forefront of our improvement activities this year. This stemmed from the awareness that we ranked 25th institutionally (out of 52) on patient satisfaction scores. We set a target of being in the top 15 ranking. We set an expectation that every team member would ask every patient “is there anything else we can do for you today;” we implemented AIDET in the clinics with staff having to: acknowledge the patient, introduce themselves, clarify the duration and expectation of the visit, explain the roles of staff and their expertise, and being sure to thank patients for choosing DHMC. As a team, we also insisted on finding ways to go that extra mile to make a memorable visit for patients – from offering to pay for a surgical patient’s local overnight stay when we could not accommodate them after their three hour travel; to inviting a surgical patient and his escort from China to one of our homes when surgical complications were concerning; to finding a quiet spot for a patient in distress to sit and make calls to family members; to simply coordinating care for an appointment in another section when they had difficulties doing so themselves. Our results? Scores show that we are now 9th institutionally on overall patient satisfaction, and have remained there for the past four months. Our goal for 2009: top 5 ranking!

Participation in this year’s Leadership Preventive Medicine Residency Overview of Clinical Microsystems Course has helped us launch an improvement in communication for our patients across “silos.” Having found that patients receive differing instructions from our surgeons, nurses, OR nurses,

rehab medicine, and the same day services personnel, we have begun to develop a refined patient care plan that is easily accessible to all involved in their care as well as the patient themselves.

Plastic Surgery, Orthopaedics, and Rehab Medicine heightened the level of their work on HOP, a multidisciplinary hand service at DHMC. A “hand” phone line was activated; our secretaries are now empowered to schedule appointments for providers across silos based on first available appointment that works best for the patient. We began a formal ad campaign for hand services at DHMC. We held a patient-directed lunch seminar with another planned for the fall.

Having hired two excellent surgeons in the summer of 2008, we are at long last able to speak to regional practices about outreach services. We are excited about these new community partnerships.

Education

Our ACGME accredited residency training program graduated our second resident in the expanded three-year format, Christopher Jensen, MD, who has begun a hand surgery fellowship at New York University. Renee Comizio, MD has been named Associate Program Director. Walter Chang, MD successfully passed his American Board of Plastic Surgery exams.

Research

Christopher Demas, MD has two ongoing clinical studies: 1) the effects of perioperative temperature on wound infection and healing in body contouring patients; 2) psychological profiles of body contouring patients before and after surgery.

Carolyn Kerrigan, MD is funded by 3M to study their wound closure device: steri-strip S. 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 (collaborating with Anne Krendl, PhD at Dartmouth Psychological and Brain Sciences). He is also studying the effect of glabellar botox injections on emotional processing (collaborating with Paul Whalen, PhD at Dartmouth Psychological and Brain Sciences).

Joseph Rosen, MD'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).

Physician Highlights

Dr. Kerrigan is the immediate Past-President of the Plastic Surgery Educational Foundation. She is 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, and was promoted to full Professor this year.

FACULTY

E Dale Collins, MD
Professor of Surgery and
Community & Family Medicine

Renee Comizio, MD
Assistant Professor of Surgery

Christopher Demas, MD
Associate Professor of Surgery

Gerald Doherty, PA
Instructor in Surgery

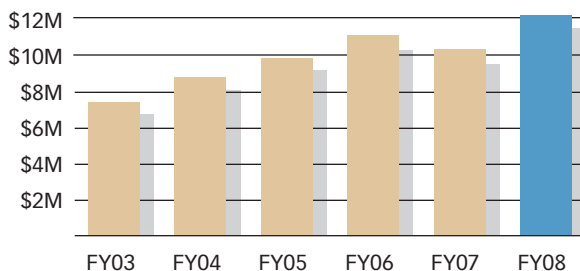
Carolyn Kerrigan, MDCM, MSc
Professor of Surgery

Kenneth Leong, MD
Assistant Professor of Surgery

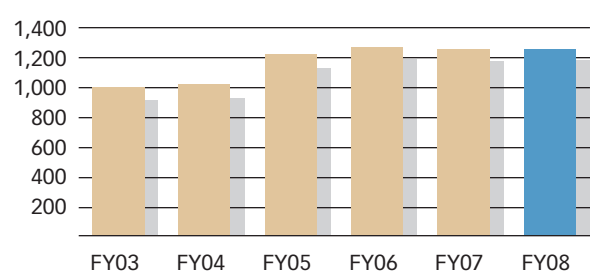
Joseph Rosen, MD
Professor of Surgery
and Radiology

Mitchell Stotland, MD, CM
Associate Professor of Surgery
and Pediatrics

Plastic Surgery Gross Professional Revenue



Plastic Surgery Cases





David Axelrod, MD
 Section Chief
 Assistant Professor of Surgery
 and Community & Family Medicine

Introduction

This past year has been one of continued growth and development for the Section of Transplantation Surgery. One area of focus this year for us has been meeting the needs of our patients in the Southern Region. We now offer twice-a-month clinics in that area, and this fall will offer both post-transplant follow-up visits as well as our comprehensive pre-transplant workup. We have worked to strengthen our relationship with the nephrologists in that area by offering educational talks as well as meeting with them individually and in small group formats to promote open communication. Patient education has been another area of focus for us. This past year saw our first support groups for transplant recipients. We have initiated a community educational event “Everything you wanted to know

about kidney and pancreas transplant” in Manchester and will soon have our first session in Portsmouth. Our plan is to continue these offerings in the upcoming year around New Hampshire and Vermont.

In addition, we have developed a “Review of Transplant for Dialysis Nursing” course, that we will begin offering in the fall. This course is accredited for 7.5 hours of CEU’s and will be offered to nurses involved in the care of renal patients across the region at no charge. We are proud to say our first five dates are already full. Cathy Pratt, RN, our senior coordinator, has done an outstanding job in preparing and coordinating this vital outreach program.

Renal Transplantation

Kidney transplantation remains a key component of the transplant services provided at DHMC. Last year we performed close to 60 renal transplants and despite the nation-wide decrease in deceased donors, we are on track to perform over 50 this year. The number of referrals to our Clinic for evaluation has continued to increase, as has the number of patients active on the wait list for transplant. This ensures further growth and development of the DHMC transplant services.

Pancreas Transplant

The Pancreas Transplant Program has grown rapidly during the past 24 months. This year was a milestone for the program as we performed our 25th pancreas transplant this past spring. To date, we have transplanted a total of 28. For many of these patients, this represents the first time in over 30 years that they have not needed to use

insulin. We are particularly pleased that the majority of our patients have returned to work and are able to participate actively with their families.

Hepatobiliary Surgery

This year has also seen growth in our newly formed Multidisciplinary Liver Tumor Clinic. To date, we have seen close to 100 patients with liver tumors and/or End Stage Liver Disease. The Clinic is co-directed by Brian Berk, MD of Hepatology and David Axelrod, MD, Section Chief of Transplantation Surgery. This clinic provides comprehensive care for patients with liver and bile duct malignancies as well as care for patients with end stage liver disease. The Clinic is cooperatively staffed by Transplantation Surgery, Gastroenterology, Interventional Radiology, Palliative Care, and Oncology. During their evaluation, patients are able to have a complete assessment and care plan developed at a single visit. This has improved care coordination and patient satisfaction. We are particularly pleased as this clinic is unique in Northern New England. In cooperation with Marc Pipas, MD of Oncology, we are initiating a trial of new chemotherapeutic agents for hepatocellular carcinoma.

The Clinic has also evaluated and listed patients for liver transplantation at Lahey Clinic where members of the DHMC surgical faculty have participated in the transplant procedures. Members of the DHMC liver team meet via teleconference twice monthly to list patients with Lahey as well as participating in educational opportunities. This offers an important opportunity for patients in Northern New England to have local evaluation and follow-up with an integrated team approach.

Educational Activities

The Transplantation Surgery Section remains deeply involved in resident and fellow education. We have launched a senior transplant surgery resident rotation dedicated to providing a comprehensive education in all aspects of transplantation and care of patients with end stage organ failure. In addition, each month a nephrology fellow joins the team to learn about the evaluation and management of transplant patients in both the pre-operative and post-operative

session. We are pleased that this collaboration has led to several accepted abstracts at national renal and transplant meetings.

Looking Ahead

We anticipate further expansion of the DHMC Multi-organ Transplant Program. With the addition of additional professional staff, we believe that we can continue to expand our outreach to patients in need of transplant care in Northern New England.

FACULTY

David Axelrod, MD
Assistant Professor of Surgery and Community & Family Medicine

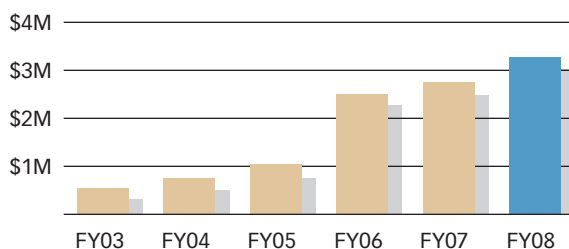
Michael Chobanian, MD
Associate Professor of Surgery and Pediatrics

Richard Dow, MD
Professor of Surgery

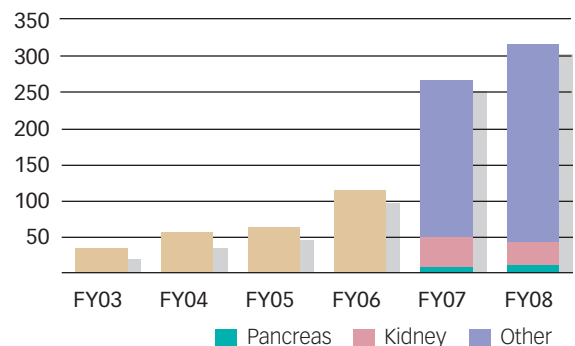
Sarah Parmelee, FNP
Instructor in Surgery

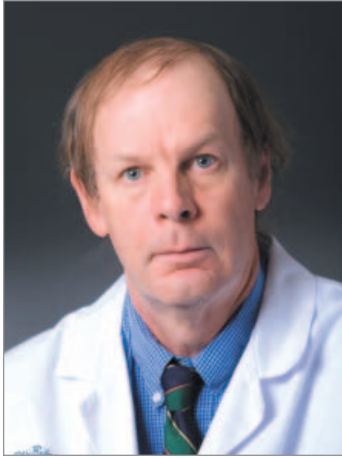


Transplantation Gross Professional Revenue



Transplantation Cases





William Bihrlle, III, MD
Section Chief
Associate Professor of Surgery

Introduction

The Section of Urology enjoyed a particularly productive year, expanding its role as a regional referral service in oncology, lower urinary tract reconstruction, and, with the recent addition of Vernon Pais, MD to the faculty, in the area of stone disease. We witnessed significant growth in outpatient visits, surgical volumes, and discharges, a reflection of the Section's commitment to patient access and referral services. The acquisition of a da Vinci robotic surgical platform represents the Institution's resolve to assessing and acquiring state-of-the-art technology to assist in the care of our patients.

UROLOGY

Patient Care

Urology has completed a successful year in terms of improving patient care. The continued growth in the volume of renal surgeries and cystectomies strongly suggest that DHMC has successfully provided our community with a timely and comprehensive genitourinary oncological program. Since January we have enrolled over 30 patients in the bladder cancer Quality Improvement study, an institutionally funded program designed to provide timely consultation and treatment to patients with high risk bladder cancer.

With two experienced laparoscopic surgeons, the Institution is uniquely positioned to remain on the forefront of the minimally invasive approach to the treatment of GU malignancies. The pioneering work of John Heaney, MD in laparoscopically-assisted pelvic surgery for prostate cancer has been an unalloyed success. Dr. Heaney continues to provide state-of-the-art surgical care to our patients with organ confined prostate cancer with the aid of the da Vinci robotic surgical platform. The PSA/Prostate Biopsy Clinic, under the direction of John Seigne, MD, has been a resounding success; an example of an interdisciplinary (urology and radiology) endeavor providing "one stop consultative and diagnostic shopping" for men with elevated PSAs and abnormal digital rectal examinations. The Minimally Invasive Ablative Therapy Program for solid renal masses, operated in conjunction with the Section of Interventional Radiology, has been expanded to include cryoablation as well as radiofrequency ablation. Dr. Pais is expanding the Section's level of service in the area of renal stone disease. Trained in all aspects of minimally invasive

therapies of the upper urinary tract, including percutaneous access, Dr. Pais is expanding our ability to provide timely and comprehensive care to patients with complex stone disease. An interdisciplinary stone clinic, to be run in conjunction with the Section of Nephrology, will provide a framework for the critical evaluation of the metabolic stone former.

Education

The Dartmouth Program in Urology was rewarded with a five-year accreditation by the Residency Review Committee of the ACGME following last fall's site visit, an acknowledgement of the consistently high level of urological training delivered by a stable and committed faculty to a talented group of residents. Under the watchful stewardship of Ann Gormley, MD, Program Director, the residency has successfully grown to two residents/year with vibrant affiliations at the WRJ, VA and Concord Hospital. The faculty has initiated a discussion regarding a change in the traditional six-year training schema to one which incorporates surgical training in a five-year block. We graduated two residents in June, one of whom is pursuing fellowship training in trauma and plastic and reconstructive surgery. Peter Steinberg, MD, our rising chief resident, has been accepted into a two-year fellowship in laparoscopy and endourology at the University of Rochester to begin in July, 2009.

The pediatric urological experience of our residents, under the direction of Paul Merguerian, MD, and Daniel Herz, MD, continues to expand in depth and volume; evidence of the growth in this area is the recent hire of a third pediatric urologist due to join the staff in October, 2008.

Faculty

Dr. Pais joined the Section faculty in June, 2008. Dr. Pais comes to DHMC from the University of Kentucky where he served as Program Director for the Endourology Fellowship. With clinical and scholarly interests in metabolic and surgical stone disease, Dr. Pais is fast becoming a regional resource for the treatment of complex stone disease.

Section faculty remains generously active in regional and national organized urology; we count no fewer than ten officer and committee assignments in our various societies. Dr. Gormley, Vice President of the Society of Female Urology and Urodynamics, sits on the AUA Residency Training Task Force, she continues as her Society’s editor for the *Journal of Urology*, and last fall was elected Secretary of the New England Section of the AUA, a five-year leadership position in our regional organization. Dr. Seigne completed his second term as New Hampshire representative to the NES – AUA Board of Directors, continues to serve on the AUA Superficial Bladder Cancer Guidelines Panel, and was recently

made the Program Director of the Genitourinary Oncology Group at the Norris Cotton Cancer Center.

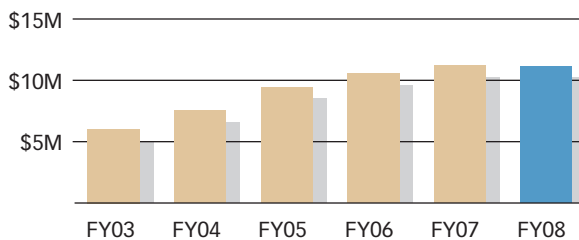
Research

Peter Steinberg, MD, our rising chief resident, has executed a number of outcomes-based initiatives in the areas of stone disease and bladder cancer. Working with Drs. Seigne and Bihrlle, 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 of Anatomic Pathology and Marc Ernstoff, MD, of Medical Oncology, has developed a tissue microarray for renal cell carcinoma, a database which should prove invaluable in the years ahead. This study has recently received extramural funding. Our pediatric colleagues are leading a multi-institutional collaborative in the study of pediatric diagnostic practice patterns. Dr. Heaney and Ryan Halter, PhD, of the Thayer School, recently published seminal work in the *Journal of Urology* on the clinical utility of electroimpedance in the diagnosis of prostate cancer.

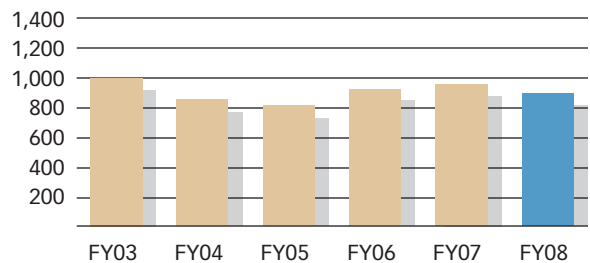
FACULTY

- William Bihrlle, III, MD**
Associate Professor of Surgery
- E Ann Gormley, MD**
Professor of Surgery
- Kelley Hamill Lemay, ARNP**
Instructor in Surgery
- John Heaney, MB, BCh**
Professor of Surgery
- Daniel Herz, MD**
Assistant Professor of Surgery and Pediatrics
- Leslie McQuiston, MD**
Assistant Professor of Surgery and Pediatrics
- Paul Merguerian, MD**
Professor of Surgery and Pediatrics
- Vernon Pais, MD**
Assistant Professor of Surgery
- John Seigne, MB, BCh**
Associate Professor of Surgery
- Laura Stempkowski, ARNP**
Instructor in Surgery

Urology Gross Professional Revenue



Urology Cases





Richard J. Powell, MD
Section Chief
Professor of Surgery and Radiology

VASCULAR SURGERY

Patient Care

Our core focus remains the care of patients with vascular disease. Annual outpatient visits continue to increase. As the primary referral center for a geographically large and rural area, we have developed outreach clinics in Keene and Central Vermont Medical Center to better serve our patients. To provide more comprehensive patient care, we have developed a multidisciplinary vascular clinic where cardiologists and vascular surgeons see patients with vascular disease. This project has been facilitated by Brian Nolan, MD through work with The Dartmouth Institute using microsystems techniques to improve care delivery. This endeavor is a component of an initiative to develop a multidisciplinary Heart and Vascular Center at Dartmouth-Hitchcock Medical Center.

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. To facilitate the development of this program, a new state-of-the-art operating room containing fixed imaging equipment will open this fall.

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. We are in the process of implementing new educational tools, including endovascular and open surgical simulators, to improve the efficiency and quality of training while maintaining patient safety.

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.

Dr. Chang, our 19th vascular fellow, performed 303 major open surgical procedures and 354 interventional procedures. 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. We were fortunate to recruit Dr. Goodney to join our vascular surgery group at Dartmouth-Hitchcock Medical Center.

Section faculty delivered 50 international, national, and regional education presentations this year of which 26 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 16 peer-reviewed journal articles and two book chapters published by faculty this year.

Vascular Surgery conferences are held each Monday morning when faculty and trainees have protected time to attend. These include multidisciplinary biweekly clinical case conferences, a biweekly morbidity and mortality conference as well as monthly vascular laboratory conference, clinical and basic science research conference, and journal club.

Research

Ongoing bench research to study the regulation of smooth muscle cell phenotype remains a central focus of the laboratory. Kathleen Martin, PhD

has received RO1 funding by the NHLBI of the NIH and additional funding from the Flight Attendants Foundation. Richard Powell, MD is the national principal investigator for the HGF-STAT Trial evaluating the use of HGF gene therapy in the treatment of critical limb ischemia.

Dr. Powell is the local 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 Atirum Iliac Stent Graft Trial.

Eva Ruzcidlo, MD 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 has received multiple sources of

funding to compare the outcomes of various treatment modalities in patients with critical limb ischemia.

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 Achievements

David Stone, MD has joined our group from Duke University as an Assistant Professor of Surgery.

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. Eva Ruzcidlo, MD was promoted to Associate Professor of Surgery and was appointed to the Research and Education Committee of the Society for 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.

FACULTY

Jack Cronenwett, MD
Professor of Surgery and
Community & Family Medicine

Mark Fillinger, MD
Professor of Surgery

Philip Goodney, MD
Assistant Professor of Surgery

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

Richard Powell, MD
Professor of Surgery
and Radiology

Eva Ruzcidlo, MD
Associate Professor of Surgery
and Pediatrics

David Stone, MD
Assistant Professor of Surgery

Daniel Walsh, MD
Professor of Surgery

Mark Wyers, MD
Assistant Professor of Surgery

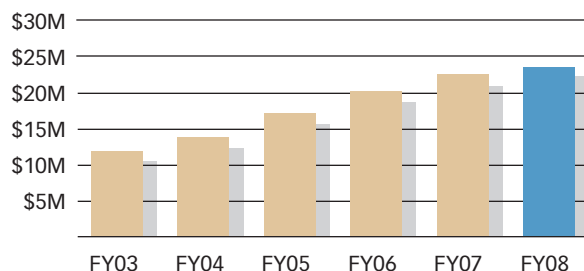
Robert Zwolak, MD, PhD
Professor of Surgery

VASCULAR RESEARCH LAB

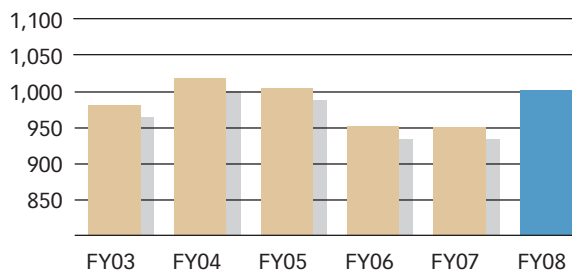
Kathleen Ann Martin, PhD
Research Assistant Professor of
Surgery

Mary Jo Mulligan-Kehoe, PhD
Research Associate Professor of
Surgery

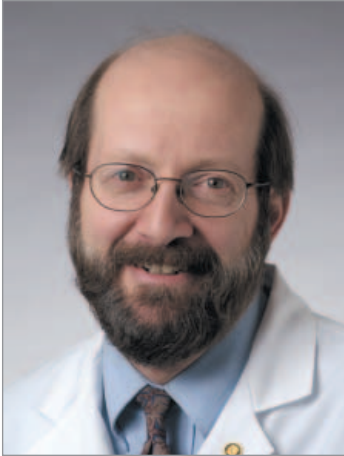
Vascular Surgery Gross Professional Revenue



Vascular Surgery Cases



MAXILLOFACIAL SURGERY



Rocco Addante, DMD, MD

Section Chief
Professor of Surgery and Anesthesiology

Introduction

Oral and Maxillofacial Surgery provides a wide array of care, from primary to tertiary levels. Complex cases involving pathology and structural deformities of the maxillofacial region are referred to Dartmouth-Hitchcock from the tri-state area.

Patient Care

Wishing to meet the new institutional goal of significantly improving access for our patients, the Section began two new services this year. First, we initiated Shared Medical Appointments for wisdom teeth to our patients. In this setting,

groups of patients in need of wisdom teeth extractions are seen together for consultation. The result has been an optimal learning environment for our patients and staff. Second, we have expanded our offering of “nurse only” visits for follow-up care for our patients. The combination of these changes has resulted in a reduction of new patient wait times by ten days over the last six months. We are proud of this, as well as the high patient satisfaction scores seen during this year. We look forward to continued improvements in these areas of our practice.

Rocco Addante, DMD, MD 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*. Dr. Addante also had a manuscript entitled, “Early Onset of Hereditary Gingival Fibromatosis in a 28 Month Old - Case Report” accepted for publication in *Pediatric Dentistry*. He continues to mentor students from Dartmouth with an interest in careers combining medicine and dentistry.

Dr. Addante continues his active participation in a number of DHMC interdisciplinary care clinics. He is a key member of the Craniofacial

Anomalies Clinic and participates in Otolaryngology’s Head and Neck Cancer Care 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.

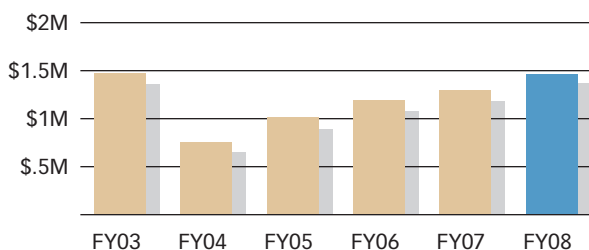
Education

Locally, Dr. Addante hosts monthly meetings for our hospital dental staff, and he regularly presents lectures to members of the dental community on topics of mutual interest. He also serves as regional consultant to the American Board of Oral and Maxillofacial Surgery.

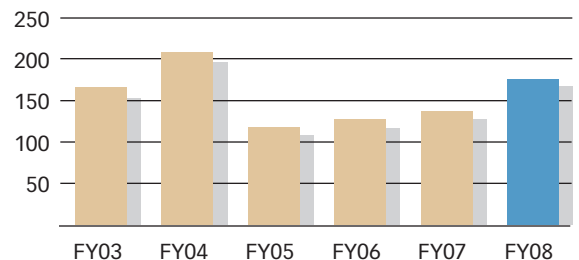
Nationally, Dr. Addante was reappointed as a consultant to the Commission of Professional Conduct of the American Association of Oral and Maxillofacial Surgery. He was also an invited speaker at Grand Rounds at Vanderbilt University, Department of Oral and Maxillofacial Surgery, speaking on “Evaluation and Treatment of Oral Cancer.”

Although there is no residency in Maxillofacial Surgery at DHMC, Dr. Addante maintains close affiliations with the Sections of Plastic Surgery and Otolaryngology and is an active and valued contributor to the resident programs in each of these specialties.

Maxillofacial Surgery Gross Professional Revenue



Maxillofacial Surgery Cases



SURGICAL RESEARCH LABORATORY



P. Jack Hoopes, DVM, PhD

Director
Associate Professor of Surgery
and Medicine

Introduction

The Surgical Research Laboratory (SRL) is a bench laboratory and experimental OR research facility that originated in the Dartmouth Medical School Vail Building on the Hanover campus more than 30 years ago. The facility was originally developed by Dartmouth-Hitchcock Medical Center 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. Due to the fact that the SRL ORs have been able to use both internal and external funds to add new equipment and technology, the decision was made two years ago to conduct DHMC/DMS/Thayer School-based large animal research in the SRL OR space.

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 is under the direction of P. Jack Hoopes, DVM, PhD. The operating suite is directed by Karen Moodie, DVM, a licensed veterinary surgeon, and managed by Susan A. Kane, a certified veterinary technician. Rendall Strawbridge, Senior Laboratory Technician and Manager, provides oversight for bench laboratory activities. Audrey Carr, Department of Surgery Financial Manager, provides administrative support, grant/contract submission, and management consultation.

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 laser and ionizing radiation laboratory. MRI, PET, and nuclear imaging for large and small animal models are available through the Department of Radiology and Norris Cotton Cancer Center associations. Expertise and instrumentation for endoscopy and laparoscopy are also available.

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 (adjacent to the SRL), the SRL has dedicated expertise in

histologic preparation and staining/labeling techniques including histochemistry, immunohistochemistry, in situ-hybridization, and laser dissection.

SRL Resident Faculty

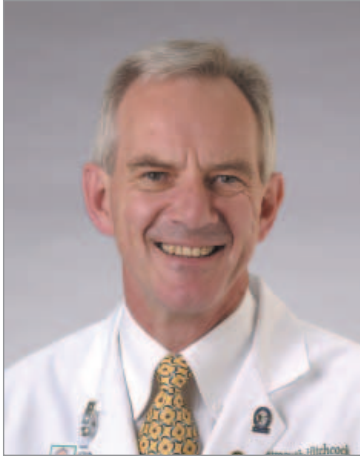
Currently, the SRL houses 13 Dartmouth faculty members including: P.J. Hoopes, DVM, PhD; Mary Jo Mulligan-Kehoe, PhD; Kathleen Martin, PhD; Ann-Christine Duhaime, MD; Susan Durham, MD; Mark Savellano, PhD; Karen Moodie, DVM; Richard Powell, MD; Eva Rzcudlo, MD; Brian Pogue, PhD; Bin Chen, PhD; and Cherie Erkmen, MD. All faculty have dedicated laboratory space, funding, and DMS appointments. Six are practicing DHMC surgeons (Drs. Duhaime, Durham, Chen, Erkmen, Powell, and Rzcudlo), and two have appointments at the Thayer School of Engineering, (Drs. Pogue [primary] and Hoopes [adjunct]). The major research themes of these investigators include:

- Pediatric and translational brain injury research;
- Antibody and non-antibody directed iron oxide nanoparticle cancer treatment;
- Genetic and molecular understanding and targeting of vascular disease;
- Photodynamic therapy: treatment efficacy and mechanism;
- Use and development of fluorescence in cancer imaging, diagnosis and treatment;
- Development and assessment of interventional cardiovascular models and technologies;
- Angiogenesis and associated developmental biology.

Academic Productivity and Funding

In recent years, the SRL (resident faculty) has experienced a dramatic increase in extramural funding and academic productivity. For 2007-08, the SRL resident faculty held (PI), or were associated (funded positions) with, 41 extramurally funded grants and authored more than 110 peer reviewed manuscripts. This number represents an almost four-fold increase since 2008.

PROGRAM HIGHLIGHT



John A. Heaney, MB, BCH

Professor of Surgery
Section of Urology

DHMC Surgical Robotics Program 2008

Surgical Robotics in 2008 implies the utilization of the da Vinci surgical platform in laparoscopic surgery. The surgeon sits at a console visualizing the operative field with binocular optics and controlling articulated laparoscopic instruments within a patient on a remote operating table.

The institution of surgical robotics at DHMC has embodied teamwork throughout the Medical Center. The concept was driven by John Heaney, MD and endorsed by Richard Dow, MD and William Bihrl, MD. The logistics team, formed in spring 2007, was led by Bill Mroz and Catherine Garfield. To enhance patient care, it had to be efficient, safe, and make fiscal sense. With Capital Budget Committee approval in August 2007, the \$1.8M da Vinci Surgical System arrived in October. Simultaneously, OR teams comprising nursing, anesthetic, and surgical components were formed to facilitate the elements peculiar to Robotic Assisted Laparoscopy (RAL) with the da Vinci platform.

Carol Majewski, RN, MS appointed Lorraine Leonard, RN to lead nursing and together they recruited a team of experienced and talented operating nurses and technicians who would commit to consistent excellence. The anesthesia team introduced specific techniques. The surgical and nursing teams in Urology and Gynecology completed the onsite and off-site training required by the Intuitive Corporation.

The DHMC Credentials Committee identified criteria for system utilization. Clinic, OR, and leadership provided solutions for scheduling, block times, billing, and other logistic issues.

Early on, the pivotal role of OR nursing in RAL was recognized. Lorraine Leonard stepped up and recruited for the Department a committed team of class individuals including – Ursula Davis, Chris Sylvester, Jennifer Fox, Shannon Lapierre, Tracy Stokes, Rebecca Parkhurst, Bonnie Bossier, Ellie Munro, and Scarlett Abston. There would be no “program” without them.

In January 2008, the three mandatory “mentored” urology cases were completed by the surgical team of John Heaney, MD, John Seigne, MD, and John Munoz, MD, (DHMC Urology, 2002) – two radical prostatectomies for prostate cancer (RALP) and a most difficult re-redo pyeloplasty. Subsequently, Dan Herz, MD, from Pediatric Urology, and a

team of Gynecological Surgeons have been credentialed in RAL.

From February 2008 to the present, urologic teams using the da Vinci robotic platform have completed – 100 RALP, two enucleative prostatectomies for BPH, and five pyeloplasties. In August 2008, the standard of care for the surgical management of prostate cancer is RALP. With the adaptive process from “straight” laparoscopic prostatectomy (750 cases since 2001) to RALP a distant memory, we can say that we do a “better prostatectomy” with the post operative recovery of the functions of continence and erectile function appearing more rapid. The OR teams have achieved more rapid “set-up” times, shorter operative times, and smoother operative technique. The da Vinci binocular vision system provides incredible tissue-plane visualization and an unquestionable technical advantage with the articulating instruments; these features out-balance any loss of haptic feedback using the system. Urology residents now train on the da Vinci system, with dry lab experience and patient “console time.”

In summary, 15 months after initiating the process of obtaining surgical robotics at DHMC, we are providing a state-of-the-art, high-level, clinical resource to our region and training our nurses and urological residents in this conventional technology.



PROGRAM HIGHLIGHT



E. Dale Collins, MD

Professor of Surgery and Community and Family Medicine
Section of Plastic Surgery

The Comprehensive Breast Program

The Comprehensive Breast Program team strives to improve the quality of the patient/surgeon interaction, increase satisfaction with the decision making process, and reduce distress and decisional conflict. The Comprehensive Breast Program offers state-of-the-art medical care to breast cancer patients. Patients have access to many services not readily available elsewhere, including immediate breast reconstruction, shared decision making tools, patient navigators, new clinical trials, and advanced radiation and radiology technologies.

Approximately 130 patients a year with breast cancer undergo mastectomy at Dartmouth-Hitchcock Medical Center (DHMC). DHMC is one of the few medical facilities north of Boston and south of Montreal offering the choice of immediate breast reconstruction. The number of patients choosing immediate reconstruction has increased nearly four-fold at Dartmouth-Hitchcock over the past four years.

Women who express an interest in breast reconstruction during the consultation process with clinicians in the Comprehensive Breast Program receive a decision aid and materials from the Center for Shared Decision Making explaining the various types of reconstruction. If a woman chooses immediate reconstruction, appointments are scheduled to discuss her options with a general surgeon and a plastic surgeon, often on the same day in the Interdisciplinary Breast Clinic. If the patient and her care team decide that immediate reconstruction is an option, a surgery is scheduled for the combined procedure.

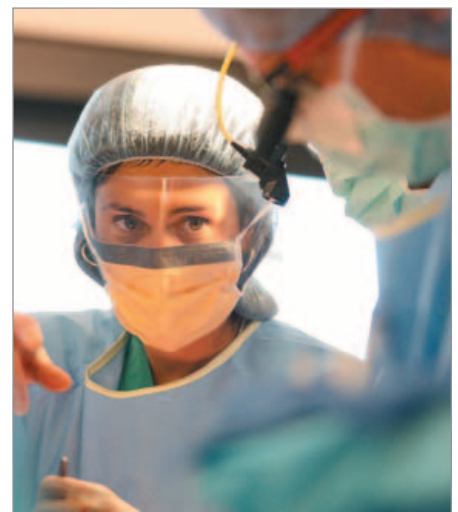
Immediate breast reconstruction is possible through a partnership between General Surgery, Plastic and Reconstructive Surgery, the Familial Counseling Program, and the Center for Shared Decision Making. Women identified as having a high genetic risk for breast cancer by the Familial Counseling Program may choose to have a prophylactic mastectomy and reconstruction. Under these circumstances, immediate reconstruction can ease the aftermath of this emotional surgical decision.

Immediate reconstruction in the setting of cancer surgery improves the cosmetic result, reduces cost and anesthetic risk,

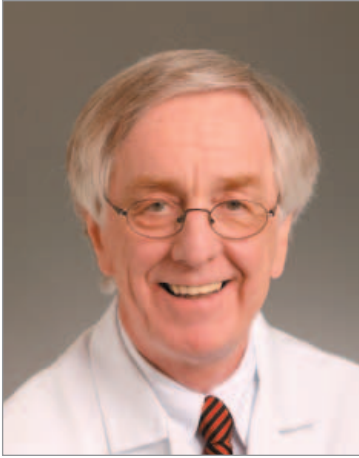
and has been proven to be safe and well tolerated. Richard Barth, MD, Burton Eisenberg, MD, and Kari Rosenkranz, MD are fellowship-trained surgical oncologists at Dartmouth-Hitchcock who perform the mastectomy to remove the cancer followed by one of the plastic surgeons, E. Dale Collins, MD, Renee Comizio, MD, Christopher Demas, MD, Carolyn Kerrigan, MD, or Kenneth Leong, MD, who perform reconstruction to complete the surgery.

Dartmouth-Hitchcock surgeon, Carolyn Kerrigan, MD, is a national leader in developing the shared medical appointment process. Patients choosing delayed reconstruction have the option to attend a shared medical appointment in which various options for reconstruction are discussed, the reconstruction procedure is reviewed, and questions are answered about insurance issues.

The Comprehensive Breast Program (CBP) has found that it is feasible and beneficial to integrate decision support into routine care. Working in care teams, both patients and clinicians are able to receive shared benefit.



PROGRAM HIGHLIGHT



John J. Murray, MD

Visiting Professor and Instructor
in Surgery
Section of General Surgery

Colo-Rectal Program

In March 2008, the Department of Surgery created a new Division of Colon and Rectal Surgery (CRS) within the Section of General Surgery. The Department has expressed a commitment to recruit a total of three colon and rectal surgeons over the next few years to build a Division that provides the full range of clinical services encompassed by the specialty. It is expected that the Division will organize and coordinate care of patients with diseases of the colon, rectum, and anus throughout the geographic area served by the Dartmouth-Hitchcock Clinic and serve as a referral site for patients from central and northern New England.

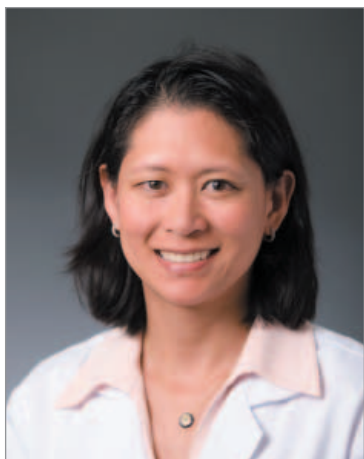
The primary clinical interests of the Division will include:

1. A multidisciplinary approach to the treatment of patients with cancer of the rectum that emphasizes the role of sphincter-saving resections. The Division will also offer options for local treatment of carefully selected patients with early-stage rectal cancers. The Division will be actively engaged in treatment of patients with carcinoma of the colon, as well.
2. Division members will maintain an active practice in diagnostic and therapeutic colonoscopy and will participate in DHMC's colorectal cancer screening program.
3. In collaboration with the Section of Gastroenterology, members of the Division of Colon and Rectal Surgery will be actively engaged in treating patients with Inflammatory Bowel Disease and will offer the full range of surgical options for managing Ulcerative Colitis and Crohn's Disease. The Division will provide longitudinal care for patients suffering debilitating complications of anal Crohn's disease.
4. Treatment of benign and malignant disorders of the anal canal. The Division will serve as the primary resource for care of patients with anorectal abscess/fistula and will provide the full range of treatment options for managing complex anal fistulas. In addition, the Division will coordinate multidisciplinary treatment of patients with anal canal carcinoma and will provide longitudinal care for these patients.
5. The Division of CRS at DHMC will assist in the development of a coordinated, multi-disciplinary approach to the evaluation and treatment of patients with pelvic floor disorders.
6. Colon and rectal surgeons have played a prominent role in the application of minimally invasive surgical techniques to the treatment of benign and malignant disorders of the lower GI tract. The Division of CRS at DHMC will continue to expand the role of laparoscopic intestinal resections as optimal treatment for the majority of patients with benign and malignant disorders of the colon and proximal rectum.

The Division will have a strong commitment to academic and educational pursuits as one of its primary missions. Division members will pursue clinical research and will be committed to graduate and undergraduate medical education. Residents will be active participants in all aspects of our clinical practice. In collaboration with other members of the Section of General Surgery, we will ensure that residents and students acquire a sound understanding of the pathophysiologic basis for diseases of the lower gastrointestinal tract and have in-depth exposure to the surgical management of these disorders.

As the newest subspecialty division in the Department of Surgery at DHMC, Colon and Rectal Surgery will enhance patient care by providing an expanded array of clinical services and by offering an additional perspective on the management of common, but often complex clinical problems. As the Division expands it should augment an already vibrant academic medical center.

PROGRAM HIGHLIGHT



Cherie Erkmen, MD

Assistant Professor of Surgery
Section of Cardiothoracic Surgery

Minimally Invasive General Thoracic Surgical Program

The Division of General Thoracic Surgery has developed a multidisciplinary program within the Norris Cotton Cancer Center to provide progressive and personalized care to patients with malignant diseases of the chest. With the addition of our newest staff member, Cherie Erkmen, MD, we have expanded our services of minimally invasive thoracic surgery to include video-assisted thoracoscopic surgery (VATS) lobectomy and VATS esophagectomy.

Dr. Erkmen, who joined us in October 2008, received both her general and thoracic surgery training at Brigham & Women's Hospital in Boston, Massachusetts. She brings with her a wealth of experience with these newer minimally invasive techniques.

Thoracoscopic surgery utilizes a video camera, one to three small "port" incisions measuring less than 1-inch long, and occasionally a small 1- and 2-inch utility incision to gain access to the chest. Since these incisions are smaller and do not require spreading and sometimes breaking ribs, pain is reduced post operatively, and often times recovery is faster and more complete.

Video assisted thoracoscopic techniques have been available to our patients for a number of years, although reserved primarily for patients needing more minor procedures such as lung biopsy, lung wedge resection, and for the surgical treatment of many forms of pleural and pericardial disease.

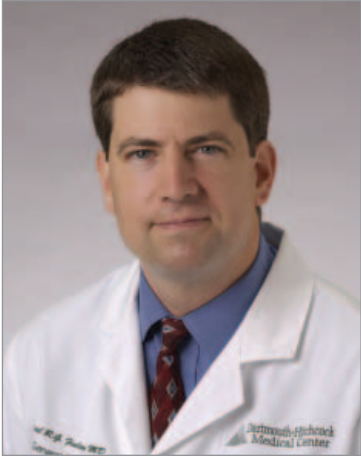
Now, in some patients, VATS techniques can be extended to include more complex procedures, including anatomic lobectomy and esophagectomy. VATS applied to anatomic lobectomy with lymphadenectomy has been shown to decrease pain, frequency of blood transfusions, and length of stay. Because of the shorter recovery time, VATS lobectomy can facilitate the administration of adjuvant chemotherapy as well. Recently, long-term data with VATS lobectomy confirm equivalent outcomes to traditional open lobectomy for early stage lung cancer (stage I and II). Similarly, VATS esophagectomy has been shown to result in decreased

pain, fewer blood transfusions, fewer pulmonary complications, and shorter length of stay. Minimally invasive esophagectomy is equally effective in staging and treating esophageal cancer in appropriately selected patients.

While we believe that the addition of VATS lobectomy and esophagectomy are important options to offer to our patients, not every patient is appropriately treated with these techniques. The successful treatment of patients with surgical diseases of the chest wall requires the integration of minimally invasive thoracic surgery into our multidisciplinary program of care. The Division of Thoracic Surgery remains dedicated to providing state-of-the-art streamlined yet personalized care to patients with surgical diseases of the chest.



TRAINING PROGRAM IN GENERAL SURGERY



Samuel R. G. Finlayson, MD

General Surgery Residency
Program Director
Vice Chair for Academic Affairs and
Faculty Development, Department
of Surgery
Associate Professor of Surgery
Section of General Surgery

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 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 the Surgical Simulation Laboratory, the activities of which will

soon be integrated into the Dartmouth Simulation Center currently under construction. 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 Paul Kispert, MD, Kari Rosenkranz, MD, and Gina Adrales, MD – that provide the surgical residents opportunities for didactic and interactive, case-based learning in clinical and basic surgical sciences.

The Training Program hosted nine visiting professors who presented Grand Rounds and interacted with residents and faculty.

The Training Program is supported by a growing array of data centers that collect and analyze information about procedures

Visiting Professors

Keith Calligaro, MD, Department of Vascular Surgery, Pennsylvania Hospital.

Timothy Chuter, MD, Professor of Surgery, University of California.

Daniel Clair, MD, FACS, Chairman & Program Director, Department of Surgery, The Cleveland Clinic Foundation.

Ronald L. Dalman, MD, Chief, Division of Vascular Surgery, Stanford University Medical Center.

Tim Hardcastle, MD, Senior Surgeon, Senior Lecturer in Surgery, Director Trauma Unit, Tygerberg Hospital, University of Stellenbosch, Western Cape, South Africa.

Richard C. Karl, MD, Richard G. Connor, Professor & Chairman, University of South Florida College of Medicine.

Michael McLeod, MD, Program Director, Department of Surgery, Michigan State University, Kalamazoo Center for Medical Studies.

John Mellinger, MD, Professor of Surgery, Program Director, General Surgery Residency, Chief, Section of Gastrointestinal Surgery, Medical College of Georgia.

Robert Merion, MD, Professor of Surgery, University of Michigan Transplant Surgery.

and outcomes for surgical patients admitted to MHMH. 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 are used to inform the discussion at the weekly Morbidity & Mortality conference.

The residency program continues to provide a popular rotation at Concord Hospital for second- and fourth-year surgical residents. This rotation allows the program to take further advantage of the robust clinical volumes and increasing case complexity occurring in southeastern New Hampshire.

The teaching conference schedule within the Training Program remains robust. Fourteen 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, and a weekly teaching conference with the Program Director.

The Surgical Residency Program at Dartmouth is an academic program and continues to strongly encourage and support resident research. Over the last year, residents in the Training Program produced six scientific presentations at national and regional meetings, and six peer-reviewed publications.



TRAINING PROGRAMS

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.

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

2004-2005

Jared Barton, MD – Leadership in Preventive Medicine – DHMC
Lydia Choi, MD – Cancer Research – Memorial Sloan Kettering
Michael VanBibber, MD – Outcomes Research – DHMC
Daniel Wiener, MD – Cancer Research – Dana Farber Cancer Institute

Fellowship Programs:

Minimally Invasive Surgery
 Plastic Surgery
 Vascular Surgery

Resident Training 2008-2009

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: 1-year internship, includes 3 months neurology, 2 months critical care.
Program Description: 6-year program, includes 4 years in clinical neurosurgery including 6 months minimum of pediatric neurosurgery, and 6 months of related clinical rotations in neuroradiology and neuropathology, one year of independent research, and culminates in a 1-year Chief Resident experience.
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

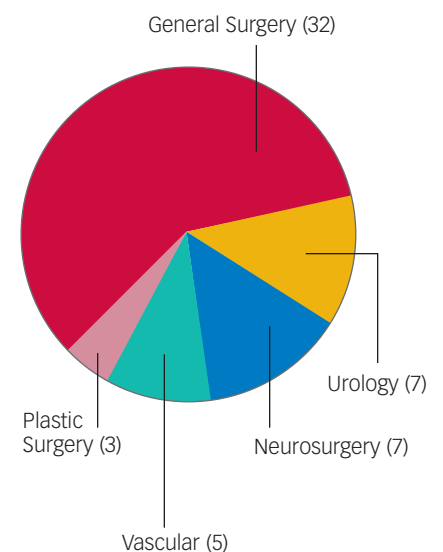
Urology

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



MEDICAL STUDENT EDUCATION



Kenneth W. Burchard, MD

Surgery Clerkship Co-Director,
Consult/Trauma Faculty Learning Leader
Professor of Surgery and
Anesthesiology



Horace F. Henriques, MD

Surgery Clerkship Co-Director
General Surgery Service Faculty
Learning Leader
Associate Professor of Surgery

We continue to have success with our Director of Learning Program, and have been able to focus efforts on communication skills, almost uniquely in the third-year clerkship experience. Engaging faculty and residents with formal education goals has been an important dialogue and continued our understanding of core competencies such as communication, interpersonal skills, and professionalism. We continue to emphasize understanding and teaching surgical concepts leaving acquisition of factual knowledge to the student. In defining this teaching/learning boundary, we model the core competency of self-learning. Our educational research efforts also continue in this vein of communication and interpersonal skills. We have published papers in *Focus* (Association of Surgical Education) and *The American Journal of Surgery* over the last year.

The eight rotation options; Vascular, Trauma/Consult, Transplant/IBD, Oncology/Breast, Cardiothoracic, Pediatric, Minimally Invasive, and the multidisciplinary VA rotation (General, Vascular, Plastics, ENT, Orthopaedics), continue to offer a broad view of the many disciplines within surgery, as well as providing students with a diversity of disease and practice models. All students continue to 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. There is a formal didactic morning every Wednesday,

starting with Surgical M&M and Grand Rounds and followed by student-focused case studies and presentations. The Class of 2008 graduated with 21% of students entering a surgical field, above the national average of 10 – 12%. The Arthur Naitove Surgical Scholar Award commemorates one of Dartmouth's great clinician-scientists and is awarded by the Faculty of the Department of Surgery to a graduating student. Douglas Jones, MD '08 was this year's recipient of the Naitove Award, and he will receive his training at NYP Hospital-Weill Cornell Medical Center, New York, NY in General Surgery. Dr. D. Joshua Mancini, a general surgery chief resident, was this year's recipient of the Thomas P. Almy Housestaff Teaching Award. This honor is awarded to a resident by the graduating medical school class. This year marks the fifth year in a row, and the tenth time in twelve years, that a surgery resident has been awarded this unique honor.

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.

Ball, Perry, MD

- Dura Sealing Study, Confluent Surgical

Barth, Richard, MD

- Alternative Breast Imaging Modalities: Correlation with Local Tissue Property Measurements and Histopathological Indices in Benign and Malignant Lesions
- A pilot study of US guided cryoablation of small unifocal invasive ductal breast cancer using MRI to evaluate tumor viability and immunologic assays to identify and characterize a cryoablation induced immune response
- A prospective study of adjuvant radiation therapy for malignant phylloides tumors
- A phase II trial of erbitux, radiotherapy and twice weekly gemcitabine in patients with adenocarcinoma of the pancreas

Collins, E. Dale, MD

- Preserving Function in Rural Breast Cancer Patients Undergoing Chemotherapy
- Implementing Shared Decision Making In Clinical Care at Dartmouth Hitchcock Medical Center and the White River Junction VA
- To design and test Shared Decision Making practice models for breast cancer patients facing decisions related to surgery, reconstruction, and adjuvant care, that can be widely distributed and used in other interested health care settings
- Platform-Independent Hub for Patient Reported Outcomes in Oncology

Durham, Susan, MD

- Analysis of head impacts in pediatric snowboarders
- Pediatric neurosurgical workforce analysis
- Natural history of asymptomatic Chiari 1 malformation in the pediatric population

Erkmen, Kadir, MD

- DHMC Glioma Vaccine Trial

Fillinger, Mark, MD

- Cordis Corporation, a Johnson and Johnson Company
- 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-31 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

- Evaluation of EndoReflex Endovascular Delivery System and Staple Study 2008-01
- A Phase II, Single-arm, Prospective Study of the safety and Efficacy of the UniFit™ Aorto-uni-iliac Endoluminal Stent Graft for the Repair of Abdominal Aortic Aneurysms in Patients who are not Candidates for Repair with Commercially Available Bifurcated Endovascular Prostheses-Unite Study
- Zenith® TX2™ Thoracic TAA Endovascular Graft Clinical Investigation-Zenith Study
- Prospective Aneurysm Trial: High Angle Aorfix™ Bifurcated Stent Graft-Pythagoras Study
- Evaluation of EndoReflex Endovascular Delivery System and Staple Study 2008-01
- 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
- The Pivotal Study of the Aptus Endovascular AAA Repair System Staple 2
- Endologix Bifurcated Powerlink Stent System Clinical Study Size 34 mm Infrarenal Bifurcated Stent Graft
- Endurant Stent Graft System US Clinical Study

Kerrigan, Carolyn, MD

- Closing Linear Incisions in Plastic Surgery: A Randomized Study

Nangia, Ajay, MBBS

- An analgesia protocol for renal colic in the DHMC ED

Nolan, Brian, MD

- Dartmouth Critical Leg Ischemia Registry

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 Bard® 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
- Stenting and Angioplasty with Protection in Patients at High-Risk for

Endarterectomy-Sapphire Study

- Use of Tissue Repair Cells (TRC's-Autogenous Bone Marrow Cells) in Patients with Peripheral Arterial Disease to Treat Critical Limb Ischemia
- A Phase II Double-blind, Randomized, Placebo-Controlled Study To Assess The Safety and Efficacy of AMG0001 to Improve Perfusion in Critical Leg Ischemia in Subjects Who Have Peripheral Ischemic Ulcers
- Safety and Efficacy of Propionyl-L-Carnitine in Combination with Monitored Exercise Training in Peripheral Arterial Disease (Intermittent Claudication) As Assessed by a Graded Treadmill Protocol
- Genzyme Protocol No. PADHIF00704
- A Phase III, Randomised, double blind, parallel-group study of the efficacy and safety of oral dabigatran etexilate (150 mg bid) compared to warfarin (INR 2.0-3.0) for 6 month treatment of acute symptomatic venous thromboembolism, following initial treatment (5-10 days) with a parenteral anti-coagulant approved for this indication
- A Phase III, Randomized, Multi-Center, Double-Blind, Parallel-Group, Active-Controlled Study to Evaluate the Efficacy and Safety of Oral Dabigatran EteXilate (150 mg bid) Compared to Warfarin (INR 2.0-3.0) for the Secondary Prevention of Venous Thromboembolism, RE-MEDY

Roberts, David, MD

- Responsive Neurostimulator (RNS) System for Patients with Severe Epilepsy (Neuropace)
- Coregistered Fluorescence-Enhanced Resection of Malignant Gliomas
- Model of Brain Deformation
- DHMC Glioma Vaccine Trial

Rzucidlo, Eva, MD

- Randomized Controlled Study Comparing Treatment of Femoropopliteal disease with primary stenting and post angioplasty vs. primary stenting and post cryoplasty

Seigne, John, MB, BCH

- Risk Bladder Cancer Pre-Operative Pathway
- Renal Tumor Tissue Microarray
- Informed Decision Making in Prostate Cancer

Simmons, Nathan, MD

- DHMC Glioma Vaccine Trial
- Dura Sealing Study, Confluent Surgical

Stone, David, MD

- Cast Iliac Stent Pivotal Study

Zegans, Michael, MD

- Steroids for Corneal Ulcer Trial

FEDERAL AND CORPORATE SPONSORED PROJECTS

Alvord, Lori, MD

- Surgical Outcomes

Barth, Richard, MD

- ACOSOG Studies Z10 and Z11

Collins, E. Dale, MD

- Platform Independent Hub for Patient Reported Outcomes (PRO) in Oncology Practice
- FIMDM Core

Cronenwett, Jack, MD

- Aortic Aneurysm
- Quality Improvement

Davies, Louise, MD

- Thyroid Cancer

Duhaime, Ann-Christine, MD

- Biomechanics of Pediatric Head Trauma
- Trauma to the Immature Brain: Response, Repair, & Treatment

Eisenberg, Burton, MD

- RTOG Committee Chair Agreement
- Mesylate in Gists

Finlayson, Samuel, MD

- Rural Veterans Access to Surgical Services
- Access Quality Care
- Esophageal Reflux
- Endovascular Grafts

Gormley, Elizabeth, MD

- UITN Steering Committee Chair

Heaney, John, MD

- Selenium and Vitamin E Cancer Prevention Trial (SELECT)
- PCPT Companion Long Term Follow-Up

- Study for Men with Diagnosed Prostate Cancer

Hoopes, P. Jack, DVM, PhD

- Endoluminal Pyloric
- Surgery Vs Endo
- Feline Model-Phas Ii
- Glycofi Rituxan Proj
- Wave Contract
- Modifying Epo
- Tissue Structures
- Intratumoral Iron
- Warwick Fiber Study

Johnstone, David, MD

- Multicenter Randomized Double Blind Placebo Controlled Phase III Study of Single Agent Tarceva Following Tumor Resection

Keetay, Victoria, PhD

- Dynamic Assessment

Kerrigan, Carolyn, MD

- Carpal Tunnel Syndrome

Likosky, Donald, PhD

- Redesigning Cardiac Surgery to Reduce Neurologic Injury

Martin, Kathleen, PhD

- Novel Targets of Rapamycin and Akt in Vascular Smooth Muscle Cell Differentiation
- Secondhand Smoke

Mulligan-Kehoe, Mary Jo, PhD

- Mechanisms of PAI-1 Induced Anti-Angiogenesis
- Anti-Angiogenesis II

- Philips Master

Nolan, Brian, MD

- Quality of Life in Veterans with an Abdominal Aortic Aneurysm

Powell, Richard, MD

- Carotid Revascularization Endarterectomy vs. Stenting Trial (CREST)
- Endothelial Cell Reg

Quebada, Patricia, MD

- NRSA/NIH T-32 Translational
- Neuroscience Postdoctoral Training Grant

Roberts, David, MD

- Modeling of Brain Deformation During Surgery
- Coregistered Fluorescence-Enhanced Resection of Malignant Glioma

Rzucidlo, Eva, MD

- Mtor Regulation

Savellano, Mark, PhD

- New Strategies for Photoimmunodetection/Therapy

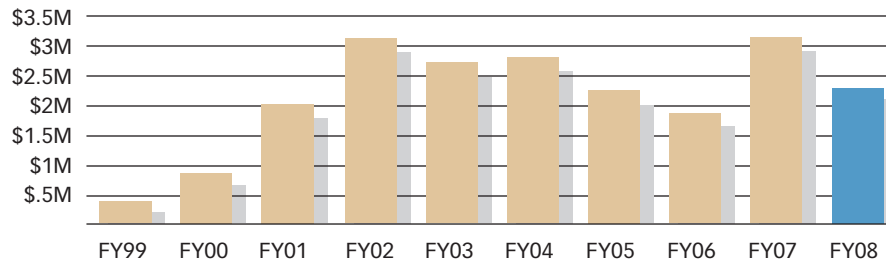
Simmons, Nathan, MD

- Dura Sealing Study, Confluent Surgical

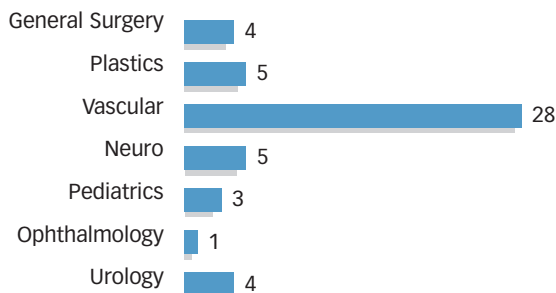
Zegans, Michael, MD

- Steroids in Corneal Ulcers Trial
- Biofilm Formation

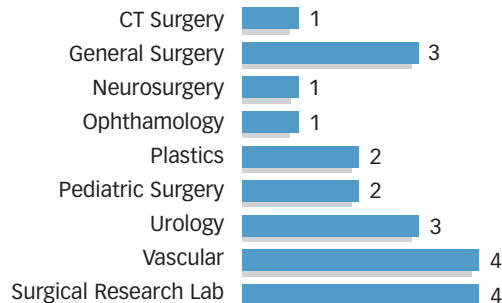
Sponsored Research

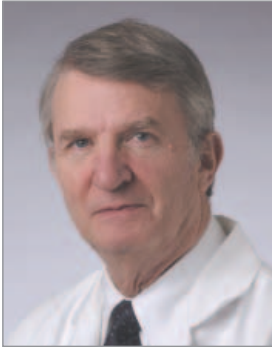


Clinical Trials



Federal & Corporate Research Grants





The Arthur Naitove Distinguished Teaching Award

Richard W. Dow, MD, FACS
Chair, Professor of 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 2008 recipient of the Arthur Naitove Distinguished Teaching Award is Dr. Richard Dow.



The Harmes Surgical Scholar Award

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

The Harmes Surgical Scholar Award is awarded annually to a faculty member 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 named for 2008 is Dr. Giridhar Venkatraman.



The Surgical Chair's Award

Daniel Morrison, MD
Section Chief, Otolaryngology
Assistant Professor of Surgery, Otolaryngology

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 of the Department. The 2008 Surgical Chair's Award recipient is Dr. Daniel Morrison.

DEPARTMENT OF SURGERY

Donald S. Likosky, PhD

Hernandez F, Brown J, **Likosky D**, Clough R, Hess A, Roth R, Ross C, Whited C, O'Connor G, Klemperer J. A Prospective, Randomized Controlled Trial Comparing Off Pump Coronary Artery Bypass Surgery with Conventional Coronary Artery Bypass Surgery Utilizing Cardiopulmonary Bypass. *Ann Thorac Surg* 2007;84:1897-1903.

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Cronenwett J, **Likosky D**, Russell M, Eldrup-Jorgensen J, Stanley A, Nolan B: A Regional Registry for Quality Assurance and Improvement. The Vascular Study Group of Northern New England (VSGNNE). *J Vasc Surg* 2007;46:1093-1102. Epub October 19, 2007.

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CARDIOTHORACIC SURGERY

Lawrence J. Dacey, MD

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GENERAL SURGERY

Richard J. Barth, MD

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Kenneth W. Burchard, MD

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Burton L. Eisenberg, MD

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Samuel R. G. Finlayson, MD

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Rajan Gupta, MD

Stawicki S, Pryor J, Hyams E, **Gupta R**, Gracias V, Schwab C. The Surgeon and the Intensivist: Reaching Consensus in Intensive Care Triage. *J Surg Educ* 2007;64(5):289-293.

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MAXILLOFACIAL SURGERY

Rocco R. Addante, MD

Breen G, **Addante R**, Black C. Early Onset of Hereditary Gingival Fibromatosis in a 28 Month Old. *J Pediatr Dentis* (in press).

PUBLICATIONS

NEUROSURGERY

Perry A. Ball, MD

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Kadir Erkmén, MD

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Patricia B. Quebada, MD

Missios S, Forero J, **Quebada P**, Pekala J, Durham S, Duhaime A. Use of Quick-Brain Magnetic Resonance Imaging for Non-hydrocephalus Indications (abstract). In: 36th Annual Meeting of the American Association of Neurological Surgeons/Congress of Neurological Surgeons Section on Pediatric Neurological Surgery; Miami, FL, 2007.

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David W. Roberts, MD

Lee K, Kristic K, van Hoff R, Hitti F, Blaha C, Harris B, **Roberts D**, Leiter J. High Frequency Stimulation of the Subthalamic Nucleus Increases Glutamate in the Subthalamic Nucleus of Rats as Demonstrated by In Vivo Enzyme-Linked Glutamate Sensor. *Brain Research* 2007;1162:121-129.

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Roberts D, Darcey T: Applications in Epilepsy Surgery. In Barnett G, Maciunas R, Roberts D (eds): *Computer-Assisted Neurosurgery*, 2nd ed. (in press, 2007)

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Barkan H, Darcey T, Thadani V, Williamson P, **Roberts D**. Perioperative Sensorimotor Mapping by Task-Related EEG Activation: A method validation based on a series of ten surgical epilepsy patients. *Neurology* 2007;68 (suppl 1):338, 2007.

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OPHTHALMOLOGY

Michael E. Zegans, MD

Kirn T, Levy N, Gosselin JJB, Rosen W, **Zegans M**. Systematic T-Cell Lymphoma Presenting as Sclerouveitis. *Cornea* October, 2007; 26(9):1147-1149.

OTOLARYNGOLOGY

Benoit J. Gosselin, MD

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PUBLICATIONS

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