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**

**Richard Freeman, Jr, MD**  
Chair, Department of Surgery  
William N. and Bessie Allyn Professor of Surgery

**Samuel Finlayson, MD**  
Vice Chair, Academic Affairs & Faculty Development  
General Surgery Residency Program Director  
Associate Professor of Surgery, Community & Family Medicine, and The Dartmouth Institute

**Kerry Ryan**  
Director  
Administrative Associate in Surgery

**Linda Barie**  
Administrative Manager

**Audrey Carr**  
Financial Manager

**Jo-Ann Dugdale**  
Office Assistant

**John Higgins**  
Database Manager

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

**Darrin Michalak, PAC**  
Care Path Administrator

**Terri Nicholson**  
Surgery Clerkship Program Coordinator

**Dawn Robinson**  
Residency Program Administrator

**Laura Stancs**  
Assistant to the Chair
MESSAGE FROM THE CHAIR

I am proud to present this annual report for the Department of Surgery at Dartmouth-Hitchcock Medical Center. Having joined this already distinguished Department one year ago, I can say my original expectations have been exceeded by a wide margin. As this report will document, we have a dynamic, broad, and deep faculty with every subspecialty of Surgery well represented. Our sections are highly productive clinically and academically. Our seven residency programs consistently attract top candidates and have excellent track records in placing our graduates in their positions of choice. Our students score well above national averages on the surgical exams. Our faculty is increasingly attracting funding for clinical and basic research, publishing, and serving in national leadership roles in their respective specialty areas. In addition, we are delighted to welcome our new Dean at Dartmouth Medical School, Chip Souba, MD, an internationally recognized expert in the field of surgical nutrition and oncology, into our Department.

In this report, we highlight several exciting areas within our Department where new techniques and process are evolving. These are on the cutting edge of modern medicine but, by no means, do they represent the only novel developments in Surgery at DHMC. One of our many initiatives started this year has been a focused effort to develop specific care paths that will use the best available evidence and incorporate all aspects of the patient experience into a standardized “pathway.” Our faculty and their teams will develop these to include every aspect of the care, documentation, and follow-up our patients receive with a view to eliminating variation and redundancy, taking cost out of the system, and creating a standard against which trials of new techniques or therapies can be judged. We are fortunate to have attracted Darrin Michalak, PAC, from Geisinger Medical Center, to help lead this effort. In addition, Joseph Paydarfar, MD has embarked on a truly innovative approach to surgical treatment of oral cancer that has the potential to significantly reduce morbidity and hospitalization for patients with these diseases. We also highlight this year our Bariatric Surgery Program, under the direction of William Laycock, MD and Maureen Quigley, APRN, as it has received provisional approval as a Center of Excellence for Bariatric Surgery from the American College of Surgeons. Dr. Laycock’s team has a well-established and long track record of providing the best surgical care for obese patients using the latest minimally invasive techniques.

Other important initiatives include our first ever regional meeting for surgeons across all of the Dartmouth-Hitchcock Clinic sites in order to better enhance collaboration among our faculty and staff as well as integrate surgical care in our region. We have enhanced Department support for young investigators through the Dow-Crichlow Career Development Awards and scholarships for Department members to pursue Master Degrees at The Dartmouth Institute.

Surgery, along with all of health care, is changing rapidly. I was attracted to DHMC because it is uniquely positioned to lead the way through these changes. Our dynamic and innovative Department is taking a proactive role in these times of change, and we all look forward to addressing the challenge that the future will bring.

Richard B. Freeman, Jr, MD
Chair, Department of Surgery
William N. and Bessie Allyn Professor of Surgery
## Department of Surgery Total Gross Professional Revenue

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### DEPARTMENT STATISTICS 2010

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The Division of Cardiac Surgery

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

The Aortic Center at Dartmouth continues to thrive under the directorship of 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 imaging and therapeutic modalities available and by a team of professionals dedicated to understanding and treating these conditions.

With the retirement of John Sanders, MD, the Division of Cardiac Surgery welcomes our newest faculty member, James Yun, MD. Dr. Yun is a graduate of Harvard College where he graduated cum laude with a concentration in Applied Mathematics and Chemistry. He received his MD from Yale Medical School and PhD from UCLA prior to becoming a general surgical resident at the Brigham and Woman’s Hospital in Boston. After completing his general surgical training, Dr. Yun then completed his cardiothoracic surgical training at Stanford University and an additional two years focusing on cardiac and lung transplantation and left ventricular assist techniques at the Cleveland Clinic. Dr. Yun will lead our surgical heart failure program.

The Division of General Thoracic Surgery

The Division of General Thoracic Surgery continues to be an integral part of Dartmouth-Hitchcock Medical Center’s and Norris Cotton Cancer Center’s Comprehensive Thoracic Oncology Program (CTOP). This multidisciplinary initiative offers all patients with malignant diseases of the chest direct “one-stop” access to a multidisciplinary team of experts dedicated to better understanding and treating these devastating conditions. This program meets weekly and combines a clinical conference, where individual patient’s 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 clinic location. This has offered both patients and clinicians the opportunity for “real-time” collaboration and consultation. The General Thoracic Division offers a full range of surgical procedures for patients with benign and malignant diseases of the lung, esophagus, mediastinum, and pleural spaces. This includes, where appropriate, video assisted thoracic surgery (VATS) including VATS lobectomy and esophagectomy.

As the Dartmouth-Hitchcock Medical Center embarks on the creation of an integrated healthcare system throughout New Hampshire and Vermont, the General Thoracic Division now offers an outreach clinic at the White River Junction, VT, Veteran’s Hospital and in Manchester, NH. This has allowed veterans and patients from the southern regions of NH to get evaluated and
followed up closer to home and has allowed referring VA physicians and physicians in Manchester and Nashua increased direct access to our surgical team.

The General Thoracic Division collaborates with the Norris Cotton Cancer Center in numerous in-house research protocols and is a member of Cancer and Leukemia Group B (CALGB), a multi-institutional national oncology research organization. This allows our patients access to the most innovative cancer treatments available. Over the next 12 months, General Thoracic Division looks forward to expanding our basic science research efforts into the laboratory and looks forward to expanding our clinical research capabilities with the creation of a clinical outcomes registry.

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

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

Cardiothoracic Surgery Gross Professional Revenue

Cardiothoracic Surgery Cases
Patient Care
Dermtology outpatient care has the highest volume of any section at DHMC. With less than seven FTEs (2010), we manage to see over 30,000 visits per year, and maintain a high patient satisfaction, routinely above the DHMC standard. We continue to try to improve our access with shared medical appointments, weekly or twice weekly “spot clinics,” and we are evolving how we team up for patient care with the “pod system.” We have numerous specialty clinics including an allergic contact dermatitis clinic, laser and cosmetic clinic, combined rheumatology and collagen vascular disease clinic, the only true pediatric dermatology (fellowship trained) clinic north of Boston, cutaneous T-cell lymphoma clinic, genodermatosis, and a Mohs surgery program. Our dermatologists frequently serve as consultants for many private practices and academic dermatologists in the region. Because we are a relatively small section, with an extremely high demand for our services, our biggest challenge is maintaining access for our patients, our regional referral base, and consultant practice (and maintaining our residency program). Each day, we discuss ways to improve our access, efficiency, and quality of care.

Education
Our residents continue to thrive in a changing sectional environment. Kathy Zug, MD has accepted the Residency Program Directorship and Nicole Pace, MD will serve as Vice-Program Director in the upcoming year to help fill-in any gaps and continue to expand and improve the curriculum. The Dermatopathology Fellowship is in its third year and by all accounts, the fellowship is thriving. Our resident education curriculum is excellent, and we continue to separate ourselves from other residencies by having a “Dermatology Boot Camp” for incoming residents, increasing our didactic lecture curriculum, and adding multi-specialty clinics, such as the Derm-Rheum Clinic.

Dr. Zug is the Program Director for the SBM Dermatology course at Dartmouth Medical School, which continues to be one of the highest rated courses in the second year. Our innovations in this course (live patient viewing and clinical examination) have now caught on with other courses, and have become the standard of teaching medical students at Dartmouth Medical School.

Research
Our Section continues to participate in multiple industry-sponsored clinical trials. We currently have five ongoing trials that range from psoriasis to acne, and hand dermatitis to fungal infections. We have recently been granted a “new biologic” study using an oral medication to inhibit the JAK cascade of inflammatory cytokines to treat psoriasis, which is quite a coup, given the competition for trials with these new medications. Dr. Zug has been funded through the North American Contact Dermatitis Society and continues her ongoing work and data collection on allergic contact dermatitis and occupational dermatitis.

Faculty Highlights
Denise Aaron, MD is the Co-Course Director of a very successful annual Dartmouth Dermatology Conference for Practitioners in Primary Care. Dr. Baughman, has begun his 50th year of service as a physician at the Dartmouth-Hitchcock Clinic. M. Shane Chapman, MD has assumed the acting Section Chief position of the Section, while a national search is
underway to find a permanent section chief of Dermatology. Marshall Guill, MD is our most recent addition to the Section. Dr. Guill has been a dermatologist in the military and most recently in private practice in Augusta, Georgia. Antoinette Korc, MD is our Mohs surgeon at DHMC. Dr. Korc continues her educational efforts with the resident didactic Mohs surgery and general dermatologic surgical techniques. Dr. Pace, is our pediatric dermatologist. Dr. Zug, founded and continues to develop our most specialized dermatology clinics in cutaneous T-cell lymphoma (combined with Hematology and Oncology) and contact dermatitis.

Looking to the Future
We look forward to recruiting and hiring new faculty, at least one Mohs surgeon and another general dermatologist, which will bring new energy and new ideas to the Section.

There are many challenges ahead, but we are scheduled to move into a new clinic space off campus, which will allow us to design and build a larger, more efficient dermatology clinic, while offering us capacity to grow, innovate, and ultimately thrive. Our goal is to maintain current excellence in clinical care and expand our current specialty clinics.

FACULTY

Denise Aaron, MD
Assistant Professor of Surgery

Richard Baughman, MD
Professor of Surgery

M. Shane Chapman, MD
Associate Professor of Surgery

James Dinulos, MD
Associate Professor of Surgery and Pediatrics

Marshall Guill, III, MD
Assistant Professor of Surgery

Sidney Klaus, MD
Professor of Surgery

Antoinette Korc, MD
Assistant Professor of Surgery

Nicole Pace, MD
Assistant Professor of Surgery

Steven Spencer, MD
Professor of Surgery

Kathryn Zug, MD
Professor of Surgery

Dermatology Gross Professional Revenue

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Introduction
The Section of General Surgery, on a daily basis, strives to accomplish DHMC’s mission: to advance health through research, education, and clinical practice, providing each patient the best care, in the right place, at the right time. We also strive to optimize the job satisfaction of each of our providers and staff, realizing this is essential for us to collectively accomplish our mission.

Patient Care
General surgery patients continue to be very satisfied with the care they receive. During 2010, our patient satisfaction scores were the fourth highest of all 56 sections at DHMC and first among surgery sections. Eighty percent of all patients felt their provider’s clinical skills and personal manner were excellent.

A long range plan, which will transform the way we deliver care for trauma patients and patients with acute general surgery conditions, was approved by the DHMC Presidents. We look forward to adding several acute care surgeons to our faculty over the next few years. Eventually, acute care surgeons will be in-house 24/7 in order to provide optimal patient care. With the retirement of John Sutton, MD, Rajan Gupta, MD has been named Chief of the Division of Trauma and Acute Surgical Care.

Patient demand for colorectal surgical expertise surpassed John Murray, MD’s considerable clinical capacity, leading us to recruit Stefan Holubar, MD from a fellowship at the Mayo Clinic.

The Division of Minimally Invasive Surgery has been performing laparoscopic bariatric surgery for many years with extremely low leak rates and excellent weight loss outcomes. They have received well-deserved recognition for their work in the form of provisional designation by the American College of Surgeons as a Center of Excellence for Bariatric Surgery.

The Division of Surgical Oncology has greatly enhanced its care of breast cancer patients by establishing an interactive session with breast radiologists immediately prior to General Surgery office visits. We have collaborated with DH-Manchester to hire a full-time breast surgeon, Roshini Patel, MD in Manchester. One year after initiating a multidisciplinary clinic for patients with pancreatic cancer, we observed the time from diagnosis to treatment was markedly improved from one month to one week. Kerrington Smith, MD, one year out of his fellowship at MD Anderson, has established himself as a technically excellent and compassionate provider for these challenging patients.

Education
Samuel Finlayson, MD, Director of the General Surgery Residency Program, has recruited an excellent class of interns for the coming year. Dedicated time for resident teaching has been expanded for two additional hours on Wednesday mornings. Horace Henriques, MD and Kenneth Burchard, MD are implementing a new curriculum for medical student teaching. Paul Kispert, MD enhances all of our education by leading the Morbidity and Mortality conference with insight and humor. William Laycock, MD continues to direct a thriving fellowship in laparoscopic surgery. Dr. Burchard is well on his way towards obtaining approval for a new Surgical Critical Care Fellowship. The Section supported Kurt Rhynhart, MD as he took a sabbatical from his clinical duties and completed a Fellowship in Critical Care at Dartmouth. One graduating Chief Resident this year entered private practice, the rest advanced to fellowships in Trauma Surgery (Maryland Shock Trauma), Vascular Surgery (U. Florida), and Colorectal Surgery (Minnesota).

Research
The Section continued to add new knowledge to the surgical literature this past year, with 28 peer-reviewed publications. Dr. Finlayson served as an excellent mentor for surgical residents interested in outcomes research and published several papers on the rural surgical workforce and access to care. Burton Eisenberg, MD demonstrated conjugated linoleic acid, through its affect on fatty acid metabolism, inhibited the growth of liposarcoma and breast cancer cells in vitro, setting the stage for a clinical trial now accruing patients. Richard Barth, MD completed a clinical trial utilizing a dendritic cell vaccine to induce anti-tumor immune responses in patients with colorectal cancer, demonstrating patients who developed an immune response against their own tumor had a greater recurrence free survival.
Faculty Highlights
Thomas Colacchio, MD shifted his administrative duties from President of DHC to President of Dartmouth-Hitchcock Health, focusing his efforts on integrating and improving the health care of our entire region. Gina Adrales, MD was awarded a grant to study for her master’s degree at The Dartmouth Institute, and Dr. Smith was honored by receiving the Harmes Award for his pancreas cancer research. Several section members are playing prominent roles in national organizations: Dr. Gupta was named Chair of the Rural Trauma Committee of the Eastern Association for Trauma; Dr. Finlayson plays an integral role in the American College of Surgeons National Quality Improvement Program, which will be deployed at Dartmouth this year; Thadeus Trus, MD is leading the international laparoscopic training efforts of SAGES; and Kari Rosenkranz, MD is PI on a new breast cancer clinical trial being developed at ACOSOG. Drs. Gupta and Rhynhart went to Haiti and led the Dartmouth effort to assist the earthquake victims.

Looking Ahead
The Section looks forward to cooperation with community hospitals in our area to regionalize acute general surgical care. When professional and technical revenue are combined, the net operating margin for Fiscal Year 2010 for the Section of General Surgery was over nine million dollars. As DHMC faces a future of financial uncertainty, we will strive to continue to make an important contribution.

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Patient Care
For the fifth consecutive year, the Section of Neurosurgery has continued to exceed clinical activity benchmarks. Our model of subspecialization within the Section, coupled with multidisciplinary programs within the Medical Center, saw further refinement in tumor, skullbase, pituitary, radiosurgery, cerebrovascular, endovascular, epilepsy, functional, peripheral nerve, and not least, spine. As clinical volumes grew, we successfully recruited a new faculty member with a special focus in complex spine as well as an additional midlevel provider with a focus on cerebrovascular and skullbase patient care.

Education
There were multiple highpoints this past year in the educational mission. Our chief resident, Symeon Missios, MD won the prestigious Shulman Award for best resident paper at our national pediatric neurosurgery meeting, presenting his laboratory work on neuronal regeneration. A highly successful skullbase cadaver workshop, in collaboration with our ENT colleagues, was held in April. Our DMS-1 and 2 elective - Exposure to Neurosurgery - remained oversubscribed, and a record number of third- and fourth-year students joined us for sub-I rotations. Seven students from other institutions rotated on our service during the year. Our faculty continued to work with Dartmouth undergraduates in the Shadow Program, and a number of graduate students joined our investigative teams for their PhD or master’s degree work. Dartmouth MD-PhD student Pablo Valdes won the Best Poster Award at the Optical Society of America 2010 meeting for his work on tumor fluorescence. This summer MD-PhD student Alex Kotlyar won an AANS Neurosurgery Research Fellowship Award. In the Neurosurgery resident match, Dartmouth was most pleased to pair with DMS Dean’s Medal Award (given to the student with the highest academic record) recipient, Linton Evans, MD. This spring, Neurosurgery resident William J. Spire, MD joined the Dartmouth Surgical Epilepsy Team in its long-standing outreach mission in Montevideo, Uruguay, operating and lecturing in Spanish.

Research
The NIH-funded fluorescence-guided tumor resection project expanded in numbers and scope, and a Research Coordinator, Heather Ruel, was recruited. Inclusion criteria were broadened to enroll (in addition to gliomas) meningiomas, metasases, and pituitary tumors. Introduction of quantitative fluorescence technology improved sensitivity of our instrumentation, with implications for wider application of this exciting technique. A supplementary NIH Award was received to include gene expression studies in these patients, bringing Norris Cotton Cancer Center Director, neuro-oncologist Mark Israel, MD, onto the team. Our fluorescence-adapted operating microscope afforded the opportunity to investigate new fluorescent applications in intracranial cerebrovascular surgery using indocyanine green intravascular dye. Together with Radiation Oncology and Neuro-oncology, an investigation of radiosurgery without whole brain radiation therapy for intracranial metastatic disease was carried out. The NeuroPace multi-institutional study of responsive (closed-loop) stimulation for intractable epilepsy, in which Dartmouth was one the largest contributors, presented its positive results in December. The Neurosurgery program had 40 resident and faculty publications this past year. The journal Stereotactic and Functional Neurosurgery, with its Editorial Offices here at Dartmouth, initiated a program for distribution to neurosurgeons in the
developing world. Dartmouth faculty is represented on the multi-institutional Medtronic DBS for depression study’s Data Monitoring Committee.

**Faculty Highlights**

In the midst of this busy year, Perry Ball, MD served three months in Iraq with the US Army Reserve. Also serving as Secretary of the New England Neurosurgery Society, he organized, with Tobi Cooney’s invaluable assistance, this year’s annual meeting. Nathan Simmons, MD, who heads our Pituitary Program and is a leading participant in the Spine Center, has taken the initiative with our new spinal radiosurgery service. Kadir Erkmen, MD, who leads our skull-base and cerebrovascular programs and directs the Neuro Special Care Unit, put together the Skullbase Workshop and is an active faculty member at national skullbase courses. David Roberts, MD was the honored guest at the biennial meeting of the American Society for Stereotactic and Functional Neurosurgery. After nine years leading the Pediatric Neurosurgery Program at Dartmouth, Tina Duhaime, MD departed June, 2010, to head-up the pediatric neurosurgical service at Massachusetts General Hospital.

David Roberts, MD was the honored guest at the biennial meeting of the American Society for Stereotactic and Functional Neurosurgery. After nine years leading the Pediatric Neurosurgery Program at Dartmouth, Tina Duhaime, MD departed June, 2010, to head-up the pediatric neurosurgical service at Massachusetts General Hospital; she will be greatly missed. Susan Durham, MD, the other half of our pediatric team, will now assume the more senior role, and a search for another pediatric neurosurgeon is well underway. After two years on the clinical service, Patricia Quebada, MD is now pursuing fellowship training in Pediatric Neurosurgery at Nationwide Children’s Hospital in Columbus, Ohio. In the meantime, Scott Lollis, MD, who completed a spine fellowship at the Cleveland Clinic, has just joined our faculty.

**Looking Ahead**

With recruitment of new faculty, the Section looks forward to continued growth of its clinical, educational, and research programs. We are expanding our clinical presence in the Southern Region, with the addition of outpatient clinics in Manchester. We are exploring expansion of our residency program as well as our medical student rotation responsibilities into the third year. With extension of our 5-ALA IND into other surgical disciplines beyond neurosurgery, we look forward to contributing to the ever growing and successful investigative programs of Dartmouth’s Department of Surgery.
Introduction

With the aging population, we are seeing increased incidence of eye disease. This past year, the Section of Ophthalmology provided services for over 30,000 patient visits. The Section is providing primary, secondary, and tertiary eye care, with subspecialty care in neuro-ophthalmology, pediatrics, glaucoma, oculoplastics, vitreoretina, and cornea. We also offer state-of-the-art cataract and laser refractive surgery. Our team includes three optometrists offering complete primary eye care, contact lens wear, and low vision evaluations and treatment.

Patient Care/Faculty Highlights

Michael Zegans, MD provides surgical care for patients with complex corneal disorders and uveitis syndromes.

Donald Miller, MD provides onsite laser refractive surgery (LASIK) for farsighted and nearsighted patients and has achieved superb visual outcomes. The advent of toric intraocular lenses now has a role in selected patients with cataract and refractive disorders.

David Campbell, MD serves as Director of The Glaucoma Service. This year he is joined by Anthony Castelbuono, MD who was the Director of the Glaucoma Service at Kreiger Eye Institute in Baltimore, MD.

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

Christopher Chapman, MD and Rosalind Stevens, MD provide comprehensive medical and surgical expertise for patients with complex disorders of the retina, vitreous and macula, including trauma, and laser treatment for premature infants with retinopathy of prematurity. Crystal Colby, PA is now part of the team, assisting in patient evaluation and surgery.

In addition to being Section Chief, William Rosen, MD provides comprehensive ophthalmic care as well as expertise in diseases of the eyelid, orbit, and lacrimal system.

He is a diplomate of the American Society of Oculoplastics and Reconstructive Surgeons. David Weinberg, MD has joined DHMC this year to work with Dr. Rosen on surgical oculoplastics cases.

Chris Fields, OD and Peter Lapre, OD provide primary eye care and optometric services at our Court Street outreach office on the green in Lebanon, NH. They are joined this year by Cynthia Lawrence, OD. Dr. Lawrence did her optometry training in Boston, MA, and joins us from a private practice in Orlando, FL. 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. Dr. Stevens finished her MPH degree in International Ophthalmology from Johns Hopkins, and is now the Chief Advisor for Global Programming for ORBIS, the flying eye hospital. Dr. Fields continues to lead eye care missions to Nicaragua and provide eye care for people in remote villages. Our vibrant grand rounds program features nationally recognized leaders in ophthalmology. Dr. Pepin serves as coordinator of medical student and resident education. She is also the Chief of Diversity at Dartmouth Medical School. Dr. Campbell continues to be an invited speaker at the Lancaster Ophthalmology Review Course. We are proud of our collective success in matching Dartmouth Medical School students each year to competitive ophthalmology residency programs.
Clinical Trials and Research
Dr. Zegans continues his research in epidemiology and microbiology and also is active in international eye care through the Dickey Center at Dartmouth, and through his association with the Aarivand Eye Hospital in India. Dr. Pepin conducts several clinical trials including therapeutic studies involving multiple sclerosis, Alzheimer’s disease, and ischemic optic neuropathy.

Looking Ahead
The Section of Ophthalmology is constantly striving to improve our patient access and satisfaction, while we deliver state-of-the-art treatments in the most cost-effective manner possible. Patient access should improve with the addition of three new providers and also a revised scheduling format. The LASIK Program continues to strive for increased demand and is presently launching a new ad campaign featuring gold medalist, Hannah Kearney. The addition of Ram Rampersaud, as our Practice Manager, is helping us move forward. The principle three-year goal of the Section is starting a residency program. All of the faculty view education and teaching as part of their mission and all desire a residency training program.
Patient Care
We have fully developed clinic programs covering every aspect of otolaryngology specialty care. Noteworthy developments include the consolidation of our skull-base surgical team with Joseph Paydarfar, MD, James Saunders, MD, and Daniel Morrison, MD collaborating with Kadir Erkmen, MD from the Section of Neurosurgery. This allows us to manage virtually any skull-base surgical issue with a high level of expertise and a patient-centered focus. Our head and neck surgical oncology group (Benoit Gosselin, MD and Dr. Paydarfar), working as an interdisciplinary team with medical and radiation oncologists, social workers, speech therapists, and dedicated nurse clinicians, sets a regional standard for care for this very challenging patient group. Complex pediatric cases are expertly managed by our team of fellowship-trained pediatric otolaryngologists Mark Smith, MD and Eunice Chen, MD, PhD.

Education
Our residency in otolaryngology, now in its third full year, has served as a catalyst for change across many key academic and clinical activities. In addition, the audiology unit has started an AuD externship, further stimulating their educational program.

Research
The most exciting development through this past year has been the blossoming of our research programs. Dr. Chen has established a fully functional basic science lab and has authored six significant papers. She is collaborating with strong institutional labs exploring tissue hypoxia and nanoparticle treatment of tumors. Giridhar Venkatraman, MD, MBA, in collaboration with researchers from TDI, has published two landmark papers detailing the growing rates of endoscopic sinus surgery across the country and significant unexplained regional variation. This has attracted attention from both the lay press as well as the highest levels of the American Academy of Otolaryngology. Dr. Morrison, also working with TDI, has published three papers and has teamed with an innovative local corporation to develop a patient registry for chronic sinusitis. Dr. Saunders has authored five papers and continues as a national and international leader in exploring the genetic basis of hearing loss in developing countries. Louise Davies, MD, MS, working with the VA Outcomes group, has published three papers detailing thyroid sinus surgical rates and management of thyroid tumors across the US. Our residents, Tate Maddox, MD and Laura Shively, MD, have also contributed, presenting papers at regional and national meetings. We expect continued growth of our research programs, leveraging our growing relationship with institutional strengths such as TDI and Norris Cotton Cancer Center.

Quality Improvement, always a priority, has become a more consistent theme of our daily work. Recognizing that lasting and ongoing QI work is very definitely a skill-based endeavor and collaborating with the Simulation Center, Dr. Morrison has helped develop a section-wide QI educational program. This will be rolled out over the next few months as a team-based exercise utilizing a highly modified version of the team STEPPS program developed by the Department of Defense and QI curriculum written by TDI faculty members. The goal will be to have every member of the Section, including secretaries, nursing staff, audiologists, midlevels, faculty, and residents, fully educated and engaged in methods of quality improvement.

Introduction
It has been another exciting year for the Sections of Otolaryngology and Audiology. We have grown, changed, and improved to meet our patients’ needs and to fulfill our important role as a tertiary care provider of otolaryngology and audiology services for northern New England.
Faculty Highlights
This year we say good-bye to a long-time member of the Section, Oliver Donegan, MD. Dr. Donegan served with distinction as section chief from 1995 to 2006. He is retiring to be able to spend more time with his family, especially his grandchildren. We are very grateful for his many years of service to his patients and for his leadership.

And finally, on a sad note, we mark the passing of a beloved member of our family, Nathan Geurkink, MD, who lost his five-year battle with cancer a few months ago. Dr. Geurkink was a dynamic and formative figure in the history of the Section, serving as section chief from 1980 to 1995. We think of him often, holding our weekly educational sessions in the Geurkink Library.

Otolaryngology and Audiology Gross Professional Revenue

Otolaryngology Cases
**Patient Care**

Striving to provide outstanding surgical health care to the children we serve remains the primary mission of the Section of Pediatric Surgical Specialties. We continue to offer outreach clinics in Manchester, Dover, and this past year in Nashua. PainFree CHaD allows simple, routine but often painful procedures to occur using anesthesia, sedation, and/or distraction methods to minimize the discomfort. Same Day Surgery is offered in Lebanon and the Manchester Ambulatory Surgery Center. We have been working to determine how best to provide additional access in the southern region in the coming year.

Pediatric Trauma Program – In January, 2009, the American College of Surgeons verified the Pediatric Trauma Program at the Children’s Hospital at Dartmouth as a Level 1 Pediatric Trauma Center. This is the only ACS designated Level 1 Pediatric Trauma Center in northern New England and one of less than 30 such centers in the United States. Laurie A. Latchaw, MD is the Pediatric Trauma Medical Director and Sharon Haire, APRN is the Pediatric Trauma Program Manager. The Pediatric Trauma Program has cared for more than 450 injured children since the ACS verification. The Chest Wall Deformity Program – This program is offered both in Lebanon and Manchester by Daniel Croitoru, MD has now evaluated over 200 patients with Pectus Excavatum and over 90 patients with Pectus Carinatum. Eighty-four of the excavatum patients have had minimally invasive repair of their deformities. This service is offered to young adults as well as children and teenagers. Minimally Invasive Surgery – This surgery continued to expand this past year to include laparoscopic assisted small bowel and colon resections. The surgical correction of Hirschsprung’s Disease can now often be accomplished without any abdominal incision. Peripheral Nerve Clinic – Susan Durham, MD continued the only coordinated care of children and adults with peripheral nerve problems in northern New England. This multidisciplinary clinic facilitates the proper diagnosis and treatment plan for these debilitating conditions.

Pediatric Brain Tumor Clinic – This multidisciplinary clinic involving Pediatric Neurosurgery, Pediatric Neurology, and Pediatric Neuro-oncology was instituted last year and continues to coordinate the surgical and medical care and follow-up of infants and children with brain and spinal cord tumors.

Spina Bifida Clinic - This clinic is one of the longest running multidisciplinary clinics at CHaD and includes the expertise of Dr. Durham and Ann-Christine Duhaime, MD from the Section of Neurosurgery as well as the pediatric urology team of Daniel Herz, MD and Leslie McQuiston, MD, Lynn Brenfleck, RN, urology nurse coordinator, and Bridget Logan, APRN pediatric urology nurse practitioner.

Pediatric Genitourinary Robotic Surgery Program – Dr. Herz has expanded his use of the robot to include pyeloplasty, ureteral reimplants, orchidopexy, and appendicoccecostomy. This is the only pediatric robotic program in northern New England.

**Education**

Medical education of our patients and families as well as present and future health care providers continues to be a top priority of the Section. The Division of General and Thoracic Pediatric Surgery remains one of the core surgical teaching services for the third-year Dartmouth Medical students. All three Divisions participate actively.
in residency training programs. Dr. McQuiston helped develop a computer-based surgical skills program. This program can be used to teach Pediatric and OB/GYN residents to do newborn circumcisions. Members of the Section gave Grand Rounds five times and were invited national and international speakers over ten times. Bridget Logan, APRN spoke at the NH School Nurses Association annual conference.

**Research**

Dr. Duhaime continued as principal investigator of her NIH funded research into the effects of trauma on the immature brain. She remained co-investigator on two additional NIH funded grants. The Division of Pediatric Neurosurgery had 11 publications during 2009-10. The clinical research projects of the Division of Pediatric Urology resulted in five published papers and several meeting presentations.

**Faculty Highlights**

Drs. Durham and Herz were both promoted to Associate Professors of Surgery and Pediatrics at Dartmouth Medical School. Dr. Herz received a Department of Surgery scholarship to attend the Master’s Degree Program at The Dartmouth Institute for Health Policy and Clinical Practice beginning in July, 2010. Dr. Latchaw was voted into membership of The Eastern Association of Trauma Surgeons. After nine years of bringing pediatric neurosurgical care to CHaD, Dr. Duhaime accepted the Nicholas T. Zervas Professorship in Neurosurgery at the Massachusetts General Hospital and Harvard Medical School.

**Looking Ahead**

The Section of Pediatric Surgical Specialties is actively recruiting a second pediatric neurosurgeon at this time and hopes to fill that position in the next few months. We also will be preparing for the re-verification of the Level 1 Pediatric Trauma Program slated for the end of 2011. Next year, we will also be developing “best practices” for the surgical care of children using evidence-based data which can be used to set the standard of pediatric surgical care in New Hampshire and beyond.

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**FACULTY**

**PEDIATRIC GENERAL AND THORACIC SURGERY**

Daniel Croitoru, MD  
Associate Professor of Surgery and Pediatrics

Sharon Haire, APRN, MSN  
Instructor in Surgery

Laurie Latchaw, MD  
Associate Professor of Surgery and Pediatrics

**PEDIATRIC NEUROSURGERY**

Ann-Christine Duhaime, MD  
Adjunct Professor of Surgery

Susan Durham, MD  
Associate Professor of Surgery and Pediatrics

Scott Lannon, APRN  
Instructor in Surgery and Pediatrics

**PEDIATRIC UROLOGY**

Daniel Herz, MD  
Associate Professor of Surgery and Pediatrics

Bridget Logan, NP-C  
Instructor in Surgery and Pediatrics

Leslie McQuiston, MD  
Assistant Professor of Surgery and Pediatrics

Paul Merguerian, MD  
Professor of Surgery and Pediatrics

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 **Pediatric Surgery Gross Professional Revenue**

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<th>FY05</th>
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**Pediatric Surgery Cases**

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Patient Care
We are focusing on creating a culture of safety for patients and staff. We are looking to understand how safe we feel with each other, have held training sessions on “crucial” conversations, and are collaborating with OR staff to find ways to strengthen trust to keep our patients safe. This is eye-opening and exhilarating work.

We saw significant improvement in patient access this year, moving percent of clinical time booked from 74.6% to 89%; resulting in our being recognized as “best practice” for the percent booked project which was a priority for all practices this year. We also surpassed our impressive OR utilization results of 76% last year to 85%.

We were thrilled when our third-year resident, Gary Freed, MD accepted our offer to become our newest faculty member upon graduation. He is assisting us with strategic planning to develop a presence in the southern region. Our initial focus will be on breast reconstruction and Mohs surgery to meet the needs of patients in the south.

Education
Dr. Freed presented on the use of absorbable antibiotic beads in treatment of complex wounds at the New England Society of Plastic Surgeons annual meeting. He is also responsible for resurrecting the Resident Council at DHMC, is an active participant on the Graduate Medical Education Committee, and has served on Internal Reviews of other residency programs. Michael Van Vliet, MD co-published two articles, the first in the Journal of Plastic and Reconstructive Medicine and the second published in Virtual Mentor. Our ACGME accredited residency program graduated Todd Burdett, MD who is now in private practice in Concord, NH.

Research
Ethicon-Endo Inc. awarded funding to Carolyn Kerrigan, MD to study the use of the harmonic scalpel in breast reduction surgery. She’s also collaborating with researchers from Memorial Sloan Kettering to develop outcome measures for women undergoing breast surgery. Mitchell Stotland, MD is exploring perceptual response to facial difference; the effect of isolated muscle paralysis on emotional processing, and is involved in two projects designing new medical devices with Thayer Engineering students. Joseph Rosen, MD has a grant entitled, “Armed Forces Institute of Regenerative Medicine (AFIRM);” is the Craniomaxillofacial Program Director for the Armed Forces Institute of Regenerative Medicine, Rutgers Cleveland Clinic Consortium; is on the Executive Committee of AFIRM; is Chair of the Clinical and Rehabilitative Advisory Team; and co-investigator on a grant focused on predicting surgical errors. He led an international surgical team to Vietnam and is developing a network-based telemedicine healthcare system for Vietnam called RICE (Remote Interaction Consultation Epidemiology and Reconstructive International Cooperation Exchange). Dr. Rosen teaches two courses at the Thayer School. Dale Collins Vidal, MD is the PI on a multimillion dollar grant from the Foundation for Informed Medical Decision Making to integrate shared decision making in the breast, cardiology, and spine patient populations. She is an oversight committee member for the Clinical Translational Research Science Award (CTSA) currently under review. For this proposal she is the co-PI on the section entitled, “Development of Novel Clinical and Translational Methodologies.” She also supports several junior faculty members as mentor on sponsored research developmental awards.
Faculty Highlights
Dr. Kerrigan is a trustee of the American Association of Plastic Surgeons and a council member of the New England Society of Plastic Surgeons. Dr. Kerrigan was recognized this year by The Plastic Surgeon Educational Foundation and received “The Distinguished Service Award” for her exceptional dedication and contributions of time and energy toward helping the Plastic Surgery Educational Foundation achieve its missions and goals. Dr. Rosen was recognized with the Secretary’s Highest Recognition Award by the Department of Health and Human Services for services he provides for persons with disabilities at the Walter Reed Medical Center. As Chief of the Section of Plastic Surgery, Professor of Surgery at DMS, Director of the Center for Informed Choice, and Medical Director of the Center for Shared Decision Making, Dr. Vidal is engaged in activities aimed at transforming local, regional, and national environments for clinical and translational science. As a leader in Health Care Transparency and Shared Decision-Making, she was selected as the current curriculum committee chair for the new Masters of Health Care Delivery Science Program at Dartmouth. This role allows her the ability to effectively shepherd new advances in health care delivery and oversee quality improvement efforts in the use of health information technology systems and development of novel clinical and translational methodologies.

FACULTY

Renee Comizio, MD
Assistant Professor of Surgery

Christopher Demas, MD
Associate Professor of Surgery

Carolyn Kerrigan, MDCM, MSc
Professor of Surgery and The Dartmouth Institute

Kenneth Leong, MD
Assistant Professor of Surgery

Emily Ridgway, MD
Instructor in Surgery

Joseph Rosen, MD
Professor of Surgery and Radiology

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

Dale C. Vidal, MD
Professor of Surgery, Community & Family Medicine, and The Dartmouth Institute

Plastic Surgery Gross Professional Revenue

Plastic Surgery Cases
Introduction

The Section of Transplantation Surgery at Dartmouth-Hitchcock Medical Center provides comprehensive care to patients in northern New England with end-stage organ failure. We perform more than 50 transplants annually and have become the largest pancreas transplant program in the region. This past year, our program received certification from CMS, as well as acceptance into Center of Excellence status with our two largest payors, both Anthem and Cigna. Our care of patients with end-stage liver disease has also progressed with the development of an integrated liver transplantation evaluation and care program.

Patient Care

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

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

Liver Transplantation and Hepatobiliary Surgery: Our liver program provides care for end-stage liver disease, including hepatocellular carcinoma, cirrhosis, and end-stage liver disease through our multi-disciplinary liver clinic. This clinic includes surgeons, hepatologists, oncologists, and interventional radiologists who participate in a shared medical appointment. Liver care at DHMC also includes the evaluation and post-operative care of liver transplant patients. DHMC patients are listed for transplant at the Lahey Clinic in Boston, where David Axelrod, MD is on staff and performs liver transplants. This integrated program allows for seamless continuity between the northern evaluation team and the Lahey Transplant Program. Interest in the Program is growing rapidly along with the list of patients awaiting transplant at this joint venture. This next year, we will be expanding this clinic to offer appointments at our DH Manchester site as well.

Education

The Transplantation Section remains committed to the education of medical students, residents, fellows, patients, and the community. Currently, fourth-year surgical residents spend three dedicated months on the transplant service participating in all aspects of the service. We also train nephrology fellows, urology residents, medical students, and have developed a transplant medicine rotation for the internal medicine residents as well. The Section also offers a one-day nursing preceptor program that is certified by the Office of Continuing Education for seven credits. This relatively new program is scheduled on a regular basis and combines didactic teaching with observation, including a trip to the OR to observe a living donor transplant.

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

Research

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

Faculty Highlights
Members of the DHMC faculty have been active in the national transplant community. Dr. Axelrod serves as the Vice Chairman of the national Pancreas Transplant Committee of the United Network for Organ Sharing (UNOS). Here he advocates for patients to ensure timely access to transplant services. He also serves as the Chairman of the Region 1 Region Pancreas Transplant Oversight Committee. Dr. Axelrod has also been appointed as Chairman of the Business Practice Development Committee of the American Society of Transplant Surgeons and has created a new leadership development program for the society. Michael Chobanian, MD continues in his role as a member of the National Pediatric Transplant Committee of UNOS.

We are very excited that the Section of Transplantation Surgery has a new member of our surgical team, our chair in the Department of Surgery, Richard Freeman, MD. Dr. Freeman is a nationally and internationally recognized researcher in transplant infectious disease, liver transplant allocation, and donation after cardiac surgery. He serves on the Board of Directors of the United Network for Organ Sharing. Dr. Freeman will be active in all areas of the transplant program including kidney transplant, dialysis access surgery, and hepatobiliary care.

Looking Forward:
We anticipate continued growth in all aspects of the Transplantation Program. In the area of patient care, the Section plans to revitalize our pre- and post-transplant support groups for our patients. We will also continue to expand our outreach and clinical activities in the southern region to ensure access to efficient care for patients. In the area of teaching, we are working on delivering an educational session to each of our dialysis units on the transplant experience. Section members continue to advance our knowledge in the areas of transplant economics, organ allocation, immune monitoring, and cardiovascular evaluation of pre-transplant recipients.

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<th>Faculty</th>
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<tr>
<td><strong>David Axelrod, MD</strong></td>
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<td>Assistant Professor of Surgery and Community &amp; Family Medicine</td>
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<td><strong>Richard Freeman, MD</strong></td>
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<td>Chair, Department of Surgery</td>
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<td>William N. &amp; Bessie Allyn Professor of Surgery</td>
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<td><strong>Sarah Parmelee, FNP, MSN</strong></td>
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<td><strong>Nicole Siparsky, MD</strong></td>
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Transplantation Surgery Cases

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UROLOGY

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

With three experienced laparoscopic surgeons, the Section remains on the forefront of the minimally invasive approach to the treatment of genitourinary malignancies and benign disorders of the upper urinary tract. The da Vinci robotic surgical platform is being employed to assist in the performance of radical prostatectomies, complete and partial nephrectomies, cystectomies, and the reconstruction of upper and lower urinary tract pathology. The PSA/prostate biopsy clinic, under the direction of John Seigne, MD, is an example of an interdisciplinary endeavor providing “one stop consultative and diagnostic shopping” for men with elevated PSAs and abnormal digital rectal examinations. This clinic continues to expand. The Section is now able to offer men streamlined appointment access with evaluation, biopsy, and informed decision-making in a timely and patient-focused manner. The Minimally Invasive Ablative Therapy Program for solid renal masses offers radiofrequency and cryoablative energy programs for the treatment of renal lesions. The volume of stone related interventions performed by Vernon Pais, MD, close to 100 percutaneous renal surgeries over the last year, makes DHMC a regional referral center for northern and western New England. This year the Section has launched dedicated clinics for the evaluation of hematuria and metabolic stone disease.

Education
The Section has approved a change in the residency training block; the transition to a five-year program emphasizes the clinical strengths of the Dartmouth program and allows us to build an educational schema based on a core urological syllabus, including transplantation and a research experience. Affiliations with the VAMC in White River Junction, VT and Concord Hospital in Concord, NH solidify the educational experience for our residents. Four of our last six graduating residents have either entered into postgraduate fellowships or become affiliated with residency training programs.

Faculty
Section members remain active in regional and national organized urology. Ann Gormley, MD is the immediate past-president of the Society of Urodynamics and Female Urology. She sits on the AUA Residency Training Task Force and serves as her Society’s editor to the Journal of Urology. Dr. Gormley coordinates the educational experience for our residents. Four of our last six graduating residents have either entered into postgraduate fellowships or become affiliated with residency training programs.

Introduction
The Section of Urology continues to expand its role as a regional referral service in oncology, lower urinary tract reconstruction, incontinence, and complex stone disease. Growth in outpatient visits, surgical volumes, and discharges reflect the Section’s commitment to patient access and referral services. The successful integration of the da Vinci robotic surgical platform into the treatment of prostate cancer and disorders of the kidney makes DHMC a leader in the minimally invasive approach to genitourinary disease.

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

Patient Care
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at the University of Nebraska and a nationally respected authority on renal transplantation, as section chief at the Veterans Affairs Medical Center in White River Jct., VT.

Research
The Section of Urology is aligned with the Thayer School of Engineering in the development of new technologies designed to more accurately image malignant changes in the prostate. John Heaney, MD is collaborating with Ryan Halter, PhD on Alex Hartoff, MD’s NIH-funded grant investigating the use of electrical impedance technology in the accurate diagnosis and staging of prostate cancer. Their work has recently been published in the Journal of Urology. Drs. Seigne and Halter are engaged in an NIH-funded Challenge Grant to develop a prostate biopsy needle capable of receiving electrical impedance images at the time of prostate biopsy. Drs. Seigne and Bihrle, in collaboration with Andrew Forauer, MD, of the Section of Interventional Radiology, have developed a schema for the management of small renal masses using the results of percutaneous renal biopsy. Dr. Seigne, with Marc Ernstoff, MD, of the Section of Medical Oncology, is participating in an NIH-funded clinical trial studying the use of autologous tumor cell vaccine and Interleukin-2 in patients with advanced renal cancer.

Dr. Pais is developing new techniques and best practices for the endoscopic evaluation of upper tract malignancies and has initiated an IRB-approved prospectively based urolithiasis database designed to critically analyze all aspects of the evaluation and treatment options for patients with stone disease.

Looking Ahead
The Section expects to expand its array of clinical services to include a focused approach to the evaluation and treatment of men’s health issues. The demand for oncological, stone, and reconstructive services dictates the need for additional faculty with training and experience in minimally invasive surgical techniques.
Our open surgical case volume remains steady while our endovascular volume has grown over the last year by 34%. Our Branched and Fenestrated Stent Graft Program, for the repair of thoracoabdominal aortic aneurysms, 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 opened in early 2009. This OR has allowed us to accommodate the increased demand for these complex, yet less invasive, procedures.

**Education**

Our Vascular training program, lead by Program Director Mark Fillinger, MD continues to maintain its reputation as one of the best in the nation. The fellowship program continues to attract high quality applicants. Our Vascular Surgery Residency Program, the first in the nation, is now in its fourth year.

In April of 2010, the Section, in conjunction with the Dartmouth CME Office, held its second annual CME accredited course on the care of the vascular patients in Manchester, NH. This well received program was targeted at primary care providers and enrolled over 100 attendees. We plan to make this into an annual event.

Section faculty delivered over 90 international, national and regional education presentations this year of which 35 were for vascular surgical society meetings. Research activity resulted in 41 peer-reviewed articles and five 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 basic science bench research is led by Eva Rzucidlo, MD who is studying the regulation of smooth muscle cell phenotype. Dr Rzucidlo has received a Hitchcock Foundation Grant to investigate the role of connective tissue growth factor in the regulation of vascular smooth muscle cell phenotype. She is currently pursuing RO-1 funding with preliminary data based upon this proposal.

Section members remain heavily involved in industry sponsored clinical 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 abdominal aortic aneurysms, thoracic aortic aneurysm, aortic dissection, and traumatic aortic injury. Richard Powell, MD is the national principle investigator for stem cell therapy and plasmid gene therapy trials for the treatment of critical limb ischemia. Dr. Powell is the local principle investigator for multiple carotid stent trials, including the recently completed NIH sponsored CREST Trial. David Stone, MD is the local principle investigator for the Atrium iliac stent graft trial. Philip Goodney, MD served as the local principle investigator for the Hercules trial. Dr. Rzucidlo leads a clinical trial comparing cryoplasty and stenting to stenting alone for treatment of superficial femoral artery lesions.

Outcomes research is lead by Brian Nolan, MD, Dr. Goodney, and Jack Cronenwett, MD 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. Of particular note, Dr. Nolan is in his second year of a K-23 Career Development Award from the National Institutes of Health for research in quality of life of patients with abdominal
aortic aneurysms and has applied for a matching grant from the American Vascular Association for this project. Steven Wolsohin, MD, from TDI, will serve as his primary mentor. This is an outstanding accomplishment.

Dr. Goodney received the highest possible score of 1.0 on his recent NHLBI K-08 proposal to study variation in treatment of critical limb ischemia. Funding for his five-year proposal begins October 2010, and Elliott Fisher, MD, Director of the Center for Population Health at The Dartmouth Institute, will serve as his primary mentor. He also received a Faculty Loan Repayment Award for his project entitled, “Regional Variation in Treatment Intensity with Lower Extremity PAD” from the Department of Health and Human Services.

Dr. Cronenwett continues to lead the Vascular Study Group of New England. This multi-institutional group now has more than 12,000 vascular surgery operations analyzed to provide hospital-specific feedback for improving outcomes.

Lastly, Drs. Goodney and Stone together have received the Harmes Scholar Award to study outcomes of endovascular repair of thoracic aneurysm compared to open surgical repair using Medicare Care claims data. They, along with vascular fellow Salvatore Scali, MD presented their initial findings at the 2010 American College of Surgeon’s Surgical Forum in Washington, DC.

Faculty Achievements
Dr. Cronenwett is the Editor of the textbook Rutherford’s Vascular Surgery. Robert Zwolak, MD is President of the Society for Vascular Surgery and has been appointed Vice-Chair of AMA/Specialty Society Relative Value Committee Five-Year Review Workgroup. Dr. Zwolak has also been elected Chair of the American College of Surgeons Socioeconomic Issues Committee. Lastly, Dr Zwolak has been appointed to the Executive Board of the newly established Patient Centered Outcomes Research Institute (PCORI). He is the only surgeon on the Board, and this is a tremendous accomplishment. Dr. Fillinger was elected Recorder of the New England 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. Dr. Goodney was appointed to the Society for Vascular Surgery’s Outcomes Committee, as well as the New England Society for Vascular Surgery’s Clinical Research Committee, which is chaired by Dr. Cronenwett. Lastly, Jessica Wallaert, MD received the Darling Award for the best presentation at the New England Society for Vascular Surgery’s Annual Meeting for her project entitled, “Completion Imaging in Carotid Endarterectomy in New England.”

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

Vascular Surgery Gross Professional Revenue

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Vascular Surgery Cases

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

Mark Fillinger, MD
Professor of Surgery

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

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

Richard Powell, MD
Professor of Surgery and Radiology

Eva Rzucidlo, MD
Associate Professor of Surgery and Pediatrics

Carey Stillman, APRN
Instructor in Surgery

David Stone, MD
Assistant Professor of Surgery

Daniel Walsh, MD
Professor of Surgery

Mark Wyers, MD
Assistant Professor of Surgery

Robert Zwolak, MD, PhD
Professor of Surgery

VASCULAR RESEARCH LAB
Kathleen Martin, PhD
Adjunct Associate Professor of Surgery and Pharmacology & Toxicology

Mary Jo Mulligan-Kehoe, PhD
Associate Professor of Surgery
**Introduction**

The Surgical Research Laboratory (SRL) is a 10,000 sq. ft. basic science laboratory and experimental animal OR research facility operated under the direction of the Department of Surgery. The SRL is directed by P. Jack Hoopes DVM, PhD and receives administrative input and oversight from the Dartmouth Medical School, Dartmouth College’s Animal Care and Use Program, and DC Institutional Animal Care and Use Committee (IACUC). The full-time support staff includes three veterinarians, two veterinary technicians, two research associates, three laboratory/OR managers, and a part-time financial manager. Currently, the resident faculty supports the research of 12 graduate students and 13 undergraduates.

The basic science aspect of the SRL includes a complete array of molecular biology instrumentation and techniques including: DNA microarray, proteomics array, northern, western, and southern blots, ELISA, TUNNEL assay, RT-PCR, autoradiography, etc.

The SRL has dedicated expertise in histologic preparation and staining/labeling techniques including histochemistry, immunohistochemistry, in situ-hybridization as well as fluorescent microscopy, and automated/computer based microscopic image analysis.

The experimental animal operating suite routinely studies species ranging from rodents to pigs and sheep. Techniques include state-of-the-art anesthesia delivery and monitoring, dedicated clinical fluoroscopy/angiography, ultrasound and a laser, and ionizing radiation laboratory. The facility contains five permanent and two mobile operating microscopes, suitable for conventional and microsurgery applications. Modalities currently available for rodents and large animal imaging include MRI, CT PET, ultrasound, fluoroscopy/angiography and bioluminescence, and fluorescence instrumentation. Expertise and instrumentation for endoscopy, laparoscopy, and radiation therapy/treatment planning are also available. An advanced intraoperative MR/CT clinical/animal facility has been funded by the NIH, with construction to begin in early 2011.

**SRL Resident and Non-Resident Faculty**

Currently, the SRL provides dedicated research space for 16 Dartmouth Medical School faculty members. Ten of the SRL faculty are practicing Department of Surgery clinicians. An additional nine DHMC clinicians have ongoing research projects that utilize the SRL facility. Two SRL faculty have appointments at the Thayer School of Engineering. Twelve additional Thayer School of Engineering faculty, two Department of Medicine, one Department of Radiology, and one Department of OB/GYN, conduct research in the SRL.

Funded research projects include:
- Pediatric and translational brain injury research (NIH R01 and foundation awards);
- Antibody and non-antibody directed iron oxide nanoparticle cancer treatment (NIH NCI U54, ACS/NCCC internal, NIH SBIR awards);
- Development of iron/iron oxide nanoparticles (NIH U54 and foundation award);
- Neonatal cardiopulmonary monitoring and care (industry funding);
- Natural Orifice Transluminal Endoscopic Surgery (NOTES) (CIMIT/NIH award);
- Assessment of novel surgical mesh material (industry and NIHRC awards);
- Noninvasive microwave imaging and heating techniques (ACS/NCCC internal award);
- Electron paramagnetic resonance assessment of O2 levels in radiation tissue damage (NIH P01, U19 awards);
- Radiation innovation and development research (NIH P30 award);
- Retinal implant technology for restoration of retinal blindness (industry award);
- Cornea reshaping technology (industry award);
- Novel esophageal stent technology (industry award);
- Assessment of novel electrocautery technology (industry award);
- Photodynamic therapy: treatment efficacy and mechanism (NIH R01, P01 and K01 awards);
- Use and development of fluorescence and near infrared (NIR) in cancer imaging, diagnosis, and treatment (NIH R01);
- Development and assessment of interventional cardiovascular models and technologies (NIH SBIR and industry funding);
- Anti-angiogenesis and associated developmental biology (NIH R01 and foundation awards);
- Electrical impedance spectroscopy and tomography imaging technology (NIH P01 awards);
- Protein engineering for diagnosis and therapy of cancer and developmental disease (NIH U54, P20 and NSF);
- Development and assessment of absorbable surgical staples (industry award);
- Novel treatment of spinal cord injury (industry and IRS award).

Educational/training activities:
- Microsurgery GME course (plastic surgery).
- Medical student suture training course.
- Introduction to aseptic training technique.
- Advanced trauma surgery and life support (ATLS) training course.

2009-10 Grant and Contract Funding and Publications

The resident SRL faculty was associated with approximately 48 funded research grants in 2009-2010 (31 as Principle Investigator/PI). The majority of these grants were/are supported by peer reviewed funding. In September 2010, Dartmouth was awarded a five-year, $12.8 million dollar grant to establish an NCI Center of Cancer Nanotechnology Excellence (CCNE). Five SRL faculty and six graduate students, representing approximately 38% of the total funding, have a research base in the SRL.

Resident SRL faculty accounted for 172 published manuscripts (107) and full-length proceeding papers in 2009-10.
Rocco R. Addante, DMD, MD
Section Chief
Professor of Surgery
and Anesthesiology

Introduction
Oral and Maxillofacial Surgery provides a diverse spectrum of care ranging from primary to tertiary levels. Increasing numbers of complex cases involving pathological and structural deformities of the maxillofacial region are referred to DHMC from the tri-state area.

Patient Care
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. In addition, he continues to mentor students from Dartmouth with an interest in careers combining medicine and dentistry.

Dr. Addante participates in a number of DHMC interdisciplinary care clinics. He is a key member of the Craniofacial Anomalies Clinic and interacts on the Head and Neck Cancer team and tumor board. He also provides care for patients from the Hematology Oncology Section who typically exhibit coagulation disorders and immune suppression along with their need for oral surgery intervention. Cases involving the care of patients who have undergone radiation therapy as a component of their head and neck cancer care or who develop osteonecrosis as a consequence of bisphosphonate use are also included in the mix of patients with significant co-morbidities.

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 serves on the Anesthesia Review Committee for the state of New Hampshire which credentials oral surgery offices and care providers for the administration of sedation and anesthesia. He also lectures to the Operating Room Technicians Program group at DHMC.

Nationally, he has completed a long tenure on the Commission of Professional Conduct of the American Association of Oral and Maxillofacial Surgeons. Although there is no residency program in Oral and Maxillofacial Surgery at DHMC, Dr. Addante maintains close affiliations with the Sections of Plastic Surgery and Otolaryngology and is an active contributor to the training programs in each of these specialties.

In May of this year, Dr. Addante lectured to the Maxillofacial Surgery Faculty and Resident Staff at the University of Rome, La Sapienza (Umberto Primo Polyclinic) on topics of orthognathic surgery, mandibular reconstruction, and salivary gland pathology.
2010 AWARDS

The Arthur Naitove Distinguished Teaching Award

Robert M. Zwolak, MD, PhD, Professor of Surgery, Vascular Surgery; Chief of Surgery, VAMC

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 2010 recipient of the Arthur Naitove Distinguished Teaching Award is Robert M. Zwolak, MD, PhD.

The Harmes Surgical Scholar Award

Kerrington Smith, MD, Assistant Professor of Surgery, General Surgery

The Harmes Surgical Scholar Award is awarded annually to a faculty member(s) at the Assistant or Associate Professor level in the Department of Surgery. The annual financial award is provided over three years to facilitate career development by strengthening individual professional skills; enhancing contributions to the academic, clinical, and administrative programs of the Department; improving the regional and national visibility of DHMC; and increasing each individual’s sense of professional competence and satisfaction. The Harmes Scholar Award for 2010 was awarded to Kerrington Smith, MD, PhD.

The Surgical Chair’s Award

Paul H. Kispert, MD, Assistant Professor of Surgery and Anesthesiology, General Surgery

Each year, the Chair of the Department has the opportunity to acknowledge the contribution of an individual, or several individuals, through the Chair’s Award. The Award is intended to recognize an individual’s accomplishments which have especially reflected the ideals or goals for the Department. The 2010 Surgical Chair’s Award recipient is Paul H. Kispert, MD.
I am sorry to report that despite our best efforts within the DHMC Bariatric Surgery Program, the United States’ obesity epidemic continues to grow. Data from 2007-2008 reflect that 33.8% of American adults were clinically obese (Body Mass Index > 30). This number has doubled in the past 30 years and has not stopped increasing even with the significant rise in obesity-related operations. A recent report from the National Bureau of Economic Research estimates that the annual cost of treating obesity-related illness in the U.S. is $164.4 billion, or 16.5% of medical spending.

With this sobering introduction, I am excited to share several developments within the Bariatric Surgery Program. The first item is that October 2010 marks a decade of laparoscopic weight loss surgery at DHMC! These first cases were done as a team approach with Thadeus Trus, MD and William Laycock, MD on carefully selected patients. Since then the instrumentation and technique have evolved substantially, and the patient selection criteria for the laparoscopic approach have been expanded to the point where this is now the method of choice for nearly all patients. With over 40 years of continuous weight loss surgery being performed, DHMC is clearly the most experienced institution in northern New England. This level of expertise is reflected in the Bariatric Surgery Quality Reports published online for public viewing at http://www.dhmc.org/qualityreports/list.cfm?metrics=BS. Since 2005, we have not had a 30-day mortality or an anastomotic leak and nearly all (97%) lost at least half of their excess body weight. Despite efforts by the pharmaceutical industry, weight loss surgery remains the only effective and durable option for the majority of obese individuals.

As a result of better information regarding the benefit and value of bariatric surgery, we have seen greater willingness amongst insurers to provide this as a covered benefit. Directly related to this improved insurance coverage, we have seen our case volumes in 2010 increase to over 100 cases for the first time since 2005, when there were widespread changes in insurance coverage. With our increased case volumes, we have applied for and are expecting to be a designated level 1A American College of Surgeons Bariatric Surgery Center Network hospital, and the only institute with this highest level certification in New Hampshire and Vermont.

In 2010, we began to offer the laparoscopic sleeve gastrectomy as an option for obesity. This operation involves removing 70-80% of the stomach along the greater curvature and leaving a J-shaped stomach based along the lesser curvature. The surgical skills and risk profile fall somewhere between the roux-en-y gastric bypass and adjustable gastric band, which are the other two operations currently offered at DHMC. As more data accumulates on long-term results and insurance coverage improves, the sleeve gastrectomy has the potential to become the procedure of choice for many patients.

As the obesity numbers continue to increase, the DHMC Bariatric Surgery Team remains committed to providing state-of-the-art compassionate care for the people who clearly benefit from this life prolonging intervention.
A new initiative for the Department of Surgery this year will be the structured integration of clinical pathways within all sections. The objective of these pathways will be:

- to ensure that all evidence-based care components are delivered to each patient,
- to seek observable improvements in the outcomes from care,
- to enhance management of co-morbid conditions, and
- to redesign all aspects of the provider workflow to drive fundamental efficiency improvements.

The first phase of this new initiative will be the review of the available evidence and the creation of best practices. The existing workflow will then be evaluated as well as the cost of care delivered. Efficiencies will be implemented with the goal of maintaining the highest quality of care at the best possible value. The second phase will be integrating these clinical pathways within the new electronic health record eD-H.

The proposed clinical transformations include:
- Cardiac Surgery: Coronary artery bypass, heart valve replacement and aortic diseases
- Dermatology: MOHS surgery for basal cell cancer removal
- General Surgery: Invasive breast cancer and obesity surgery
- Neurosurgery: Brain tumor excision
- Neurosurgery and Otolaryngology: Acoustic neuroma
- Ophthalmology: Cataract removal
- Oral and Maxillofacial Surgery: Orthognathic surgery
- Otolaryngology: Major head and neck surgery for cancer
- Pediatric Surgery: Minimally invasive pectus excavatum repair, pyloromyotomy, ureteral reimplantation
- Plastic Surgery: Breast reconstruction
- Thoracic Surgery: Lung cancer resection
- Transplant Surgery: Kidney transplant
- Urology: Prostate cancer
- Vascular Surgery: Carotid endarterectomy

Eventually, it is expected that each section will continue the development and implementation of these clinical pathways so that they will provide a framework for the majority of surgical care delivered. This will guarantee that Dartmouth-Hitchcock efficiently provides the highest quality care with the best possible outcomes.
Head and neck cancer, specifically cancers of the pharynx (throat) and larynx (voice box), can be challenging to treat surgically. Due to the difficulty in accessing these sites, traditional surgical approaches require extensive dissection through uninvolved tissues simply to expose the tumor. This results in incisions extending from the neck into the throat and occasionally, even requires splitting the lower lip and mandible. In many cases, patients require a tracheostomy as well as complex reconstructive surgery. Due to the complexity and duration of these surgeries, the risk of peri-operative complications and prolonged hospital stay can be quite high.

Nonsurgical treatments such as radiation therapy or chemotherapy with radiation provide cure rates comparable to surgery; however, these treatments are not without their own side effects and complications. Not infrequently, patients will experience permanent dry mouth, dental decay, swallowing difficulties to the point of requiring a gastrostomy tube as well as radiation fibrosis and radiation injury to the mandible. In addition, should these patients have a recurrence their only viable treatment option would be salvage surgery, which is fraught with complexity and complications.

In order to reduce the morbidity of conventional treatments for head and neck cancer, we have been exploring more “minimally invasive” surgical approaches. One particular approach that we are quite excited about is surgical robotics. The da Vinci Surgical System, the only commercially available surgical robot, was recently FDA approved for head and neck surgery. This system utilizes a bedside robot fitted with a 3D high definition camera as well as three manipulator arms which provide multiple degrees of freedom and can accommodate a number of different instruments. The surgeon controls the robot from a separate console, usually located in the operating room. The advantage of this technology is that it provides unprecedented visualization as well as the ability to easily work around corners in a tremor free and precise fashion. Although not originally designed for head and neck surgery, the da Vinci System is being evaluated by a number of institutions, including Dartmouth-Hitchcock, for management of tumors of the larynx and pharynx. The Head and Neck Robotic Surgery Program at Dartmouth-Hitchcock was started in April 2010. To date, we have one of the largest experiences in head and neck robotic surgery in Northern New England having performed over 30 operations. Preliminary results suggest operative times and hospital stay considerably shorter than with traditional surgical approaches. With increased surgical volumes and longer term follow up, we hope to further elucidate the functional and oncologic outcomes from head and neck robotic surgery, and, thereby, providing a better understanding of the capabilities and limitations of this new technology. We envision many additional avenues for research and collaboration, specifically in the areas of instrument development, intra-operative imaging, and tumor mapping, cost-effectiveness research as well as new applications of this technology to skull base surgery, neck surgery, sleep apnea surgery, and head and neck reconstructive surgery.
MEDICAL STUDENT EDUCATION

It is a challenge to concurrently have a significant increase in class size (40%) and a broad curriculum for a core clerkship in six weeks. The LCME is adding the concept of “credentialing” the clerks in certain skills and competencies. Hence, the ability to individualize attention is lessening and less personal grading assessments are a reality. The need for residents to be directly linked as educators and integrated into our curriculum is increasingly important under these evolving constraints. The good news regarding the constraints is that we, faculty, residents, and students, are more clearly collaborating in the responsibility of being concurrently a teacher, learner, and facilitator. It is a more dynamic and less hierarchical learning environment. The Surgery Clerkship’s educational focus remains on surgical concepts, surgical decisions, and acute care delivery.

The multi-media sophistication of our students has allowed us to use a variety of educational formats, and this redundancy allows students to individually choose their own way to acquire factual knowledge. In the shortened curriculum, all students did well by one measure of knowledge, the NBME shelf exam. Our oral exam now includes a student-prepared presentation to judge a student’s insight to a patient he or she has cared for.

This year we have added Concord Hospital to our rotation options adding more broad general surgery experience. Our goal is for ample opportunities to experience acute care practice, to be part of surgical decision making, and see multidisciplinary care delivery (anesthesia, ER, critical care, etc). All students participate in night call with the Trauma/Consult team to ensure a real and broad sense of the most acute diseases.

The Class of 2010 graduated with 31% of the students entering a surgical field – well above the national average of 20%. The Arthur Naitove Surgical Scholar, awarded by the Department of Surgery, is Nicholas Bayley, MD. He will receive his training at The University of Toronto Affiliated Hospital in Orthopedic Surgery.

Sonny Chatterjee, MD and Randy DeMartino, MD, as third-year residents, were selected by the third-year clerks to receive a Gold Foundation Humanism and Excellence in Teaching Award. In addition, Arne Olsen, MD, a chief resident, received the Thomas P. Almy Housestaff Teaching Award. The Almy honor is awarded to a resident by the graduating DMS class. We believe the effectiveness of our Director of Learning model is clearly being validated by our medical students, and the model’s depth and durability is documented by the teaching awards our residents receive.

Clerkship Advisory Board

The Clerkship Advisory Board meets monthly and works to advance the educational climate. The committee conducts ongoing reviews of the curriculum, examination process, and student progress. Our new Chair, Richard Freeman, MD is an active, eager participant and continues the active chair advocacy of quality education. The group makes revisions to maintain a current curriculum. It is the forum by which the Department of Surgery formally interacts with the Dean’s office and our affiliated hospitals in student and curriculum issues.
The residency program in Dermatology trains six advanced dermatology residents, two residents at each of the three levels of residency training. Our three-year curriculum emphasizes graduated clinical autonomy while maintaining a strong focus on academic study. Through collaboration with the faculty and research teams of the Norris Cotton Cancer Center, the Children's Hospital at Dartmouth, and The Dartmouth Institute for Health Policy and Clinical Practice, we support the development of academic- and research-oriented careers in dermatology.

Three years ago, we began a joint fellowship in Dermatopathology (with the Department of Pathology) which has graduated two fellows, thus far.

Our residents receive their training through the Mary Hitchcock Memorial Hospital and the Veterans Affairs Medical Center in White River Junction, VT. Our residents benefit from the rich array of dermatological cases, from the general dermatology clinic at DHMC and the VA, to our specialty clinics.

The Dermatology Residency Program draws on the strengths of a committed section faculty and a growing array of resources. The dermatology residents rotate and actively participate in the Section’s subspecialty clinics, including:

- Contact and Occupational Dermatology Clinic
- Cutaneous Lymphoma Clinic
- Pediatric Dermatology Clinic
- Mohs and General Dermatologic Surgery Clinic
- Laser and Cosmetic Dermatology Clinic

Residents also quickly flourish in their clinical decision making skills with their “own” continuity clinic that begins in the first year and continues throughout their three-program years, with graduated responsibility and complexity of patients. This type of clinic and autonomy separates our residency from most other residencies.

The teaching conference schedule within the Dermatology Training Program remains robust. Conferences are daily but may vary by resident based on their service. These conferences include a noon conference on most days of the week (clinical slides, didactic lectures, journal club, and dermatopathology practical sessions at the microscope), Melanoma Tumor Board, Dermatology Grand Rounds, a weekly teaching conference with the faculty, as well as service-specific conferences.

The Dermatology Training Program hosts visiting professors who present basic science lectures in their areas of interests, participate in Grand Rounds, and interacted with residents and faculty. In addition to invited speakers for Grand Rounds, this year we invited Chris Arpey, MD, from the Mayo Clinic, to perform an independent evaluation of our program.

We are an academic program and continue to encourage and support resident research and teaching. Our residents have continuously produced numerous abstract presentations at national and regional meetings and several peer-reviewed publications.

In the last ten years, our program has produced seven (out of 22 graduates) academic dermatologists who remain in academia, and an additional five residents (out of 22) who have successfully pursued a specialty fellowship within dermatology. Hence, over 50% of our recent graduates have gone on to a career in academic dermatology or fellowship training.
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 entering other training programs.

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

The General Surgery Residency Program draws on the strengths of a committed departmental faculty and a growing array of resources. Gina Adrales, MD serves as Director of Surgical Simulation in Dartmouth’s Patient Safety Training Center. Dr. Adrales’s responsibilities include oversight and coordination of the laparoscopic and trauma simulations as well as training in basic surgical skills. Ted Trus, MD oversees the Surgical Endoscopy Training Program in the third post-graduate year. In addition, the Program includes a weekly “academic half-day” including surgical seminars directed by Paul Kispert, MD, Kari Rosenkranz, MD, and Kurt Rhynhart, MD; a basic science curriculum directed by Ken Burchard, MD; and a broad-based simulation training curriculum directed by Dr. Adrales. These sessions provide the surgical residents didactic, interactive, case-based learning in clinical and basic surgical sciences.

The General Surgery Training Program is supported by a growing array of data centers that collect and analyze information about procedures and outcomes for surgical patients admitted to DHMC. These include registries administered by the Surgical Outcomes Assessment Program at Dartmouth, the Northern New England Cardiovascular Disease Study Group, and the Vascular Study Group of Northern New England. Specific complications are identified, collated, and sorted into defined categories. Data from these centers are made available in a confidential manner to house officers and faculty, and can be used to inform the discussion at the weekly Morbidity & Mortality conference. In addition, beginning in 2011, the Department anticipates participating in the American College of Surgeons National Surgical Quality Improvement Program (NSQIP).

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

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

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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, Community & Family Medicine, and The Dartmouth Institute

GENERAL SURGERY
Residency
Established: 1946
Prerequisite Training: 4 years of medical school
Program Description: 5-year program, training in all division.
Residents per year: 4

Fellowship
Minimally Invasive Surgery Fellowship: 1
The General Surgery Training Program hosted twelve visiting professors who presented Grand Rounds and interacted with residents and faculty.

The General Surgery Residency Program at Dartmouth is an academic program and continues to encourage and support resident research and teaching. Over the last few years, residents in the General Surgery Training Program have produced numerous scientific presentations at national and regional meetings, several peer-reviewed publications, and even garnered mention in regional and national media. Resident teaching has also maintained its outstanding tradition. In 2009, chief resident Arne Olsen, MD received the T. P. Almy Resident Teaching Award from the graduating class at Dartmouth Medical School. This represents the ninth time in the last eleven years that the Almy award has been given to a resident in the Department of Surgery.
has proudly graduated neurosurgeons who have been successful across a wide range of endeavors. Over the past twenty-five years, more than half have gone on to academic positions.

The residency program in Neurosurgery trains seven residents, one at each level of training. The six-plus-one year curriculum begins with an integrated PGY-1 year, which includes general surgery, neurology, critical care, and neurosurgery rotations. The PGY 2-5 rotations in clinical neurosurgery are interspersed with dedicated blocks in pediatric neurosurgery as well as related neuroscience disciplines, including neuroradiology and neuropathology. The PGY-6 year provides a twelve-month experience in the laboratory or on independent study, variably involving wet-bench research, clinical investigation, supplementary clinical subspecialization, or study in a master's degree program. Clinical instruction follows graduated progression through increasing levels of intellectual growth, technical proficiency, and clinical responsibility culminating in twelve months as chief resident. By the final year of training, the resident has acquired a broad education, is capable of teaching medical students and junior residents, and is able to operate across the full range of neurosurgical disorders. The clinical neurosurgical service is founded on a model of subspecialization within Neurosurgery, functioning in multidisciplinary programs of the Medical Center. Residents are fully integrated into the clinical service, each teamed with a faculty member. Residents participate fully in the operating room beginning in their first year and are given progressive responsibility through their succeeding years. All subspecialties of Neurosurgery are represented in the Program by faculty with special training, clinical expertise, and investigative interest.

The teaching conference schedule is rigorous and protected. Conferences include Neurosurgery Journal Club, Grand Rounds, Clinical Case Conference, Morbidity and Mortality, Neuro-Oncology Tumor Board, Neuroradiology, Neuropathology, Neurophysiology, Neurosurgery Chapter Review, Cerebrovascular Conference, Epilepsy Conference, Pediatric Trauma and Tumor Board Conferences, and a weekly case presentation conference with the Program Director.

An active visiting professor program brings four-to-six distinguished academicians each year. In the tradition of Dartmouth's international reach, neurosurgery residents have joined our faculty in recent medical education initiatives to Vietnam and Uruguay. Residents have an opportunity to participate in national courses and workshops, including those organized by the AANS, the CNS, and the AFIP. Each resident, during their training, attends the Woods Hole RUNN course. Residents actively present and publish their research and clinical investigative work. During 2009-2010, the program was responsible for 49 publications, and recent residents have won the Shulman Award for the best resident paper at the CNS/AANS Pediatric Section meeting, and the Gildenberg Award for the best resident paper at the AANS/CNS Stereotactic and Functional Section meeting. Recent residents have won AANS Research Fellowships, multiple NIH awards, and the Retzius Neuroanatomy competition.
Our residency training program in Otolaryngology began in July, 2008 with two residents and high expectations. The Program was given approval by the ACGME’s Residency Review Committee after a three-year application process. We became just the second new otolaryngology program to be approved in the past 20 years.

The residency has served as a catalyst for change throughout the Section. As part of the preparation for the residency, a select group of accomplished faculty members were recruited. This provided expert coverage for all clinical subspecialty areas of otolaryngology and jump started our research efforts. All otolaryngology residencies are expected to have a basic science research program. We were quite pleased to welcome, Eunice Chen, MD, PhD as a half time researcher in this area. Through the research interests of the faculty, our residents have opportunities to engage in studies across a broad swath of the specialty.

We conduct educational sessions three-times per week. Besides the more traditional Grand Rounds, Morbidity and Mortality, and Journal Club sessions, we have a well developed curriculum conference schedule. The curriculum conferences are highly interactive sessions, providing an active learning opportunity for residents and faculty alike. A monthly radiology conference, taught by the neuroradiology faculty, is very popular as is our summer-month clinical basics lecture series. A new addition is the weekly “Business of Healthcare” session in which the residents are guided through a series of 30 web-based learning modules. We now have four residents and next year will be fully populated with five – one per each year in training. Future goals include an expansion to two residents per year in training and a possible collaboration with the Leadership, Preventive Medicine Residency.

Daniel H. Morrison, MD, FACS
Otolaryngology Residency Program Director
Assistant Professor of Surgery and Section Chief, Otolaryngology

OTOLARYNGOLOGY RESIDENCY TRAINING PROGRAM

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

The residency program in Plastic Surgery trains three residents, one per academic year in a three-year program. MHMH provides a comprehensive and broad-based training experience through exposure to the outpatient clinics, minor surgery suite, main operating room, outpatient surgery center, and inpatient wards. Most of our faculty members have fellowship training and subspecialty areas of clinical and research interest, permitting an exposure to a wide-spectrum of plastic surgery problems. We assign residents two half-day supervised clinics per week, providing them with a regular opportunity for both new patient workups and follow-up evaluations.

During the final year of the program, the chief resident is given increasing responsibility for coordinating and customizing the educational and clinical aspects of the program. Residents at every level are involved in the management of all plastic surgical problems presenting through the Emergency Department. Research electives, throughout the residency, provide meaningful learning opportunities. During the chief resident year, the resident may also train overseas.

There are twice-weekly conferences for resident education. In both settings, there is active participation by the resident and attending staff. These conferences address the weekly case log, a journal review, and lecture series which are based on the core curriculum established by the American Board of Plastic Surgery.

The program supplements the experience at MHMH with a dedicated burn rotation at LAC/USC Hospital in a burn unit within the plastic surgery division. Additionally, exposure to private practice setting is achieved with rotations at a well-established group in Maine and a nationally recognized cosmetic surgeon in Miami. Every year our residents present at both national and regional society meetings.

The graduates of the program have been successful in pursuing fellowship positions with Oscar Ho, MD going to Stanford for a microsurgery fellowship, and Christopher Jensen, MD going to NYU for a hand surgery fellowship.

PLASTIC SURGERY
Residency
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

Fellowship
Fellows per year: 1
The Dartmouth-Hitchcock Urology Residency Program was started in 1949 by William McLaughlin, MD as a two-year urology residency with one resident accepted per year. In 1987, we became a four-year program and in 2006, we were given approval to complete our expansion to two residents per year. Historically, our residents have completed two years of general surgery training prior to entering the urology residency. This will change in July 2012 to one year of general surgery training, which will align us with most of the other urology programs in the Country.

The Dartmouth-Hitchcock Urology Residency Program is dedicated to the overall mission of the Dartmouth-Hitchcock Medical Center (DHMC) and strives to improve, through research and education, our understanding of the causes, courses, management, and prevention of urologic diseases.

Nine full-time faculty members provide a complete range of subspecialty urologic training. Clinical urology training at Dartmouth is oriented around the philosophy of resident exposure to continuity of patient care. Residents are assigned on an “apprenticeship basis” to a team of two or three urology attendings. The Section emphasizes one-on-one interaction between the faculty and the resident fostering an apprenticeship style allowing a resident to progress at his or her own pace, although there are expectations for what the resident should accomplish within each year. As we have expanded our resident numbers, we have also adapted certain aspects of a hierarchical model where the Chief Resident runs the in-patient service and is ultimately responsible for assignment of operative cases.

The Urology Training Program also involves the Veterans Affairs Medical Center in White River Junction, VT, and Concord Urology in Concord, NH. While at the VA, the resident is responsible for the total patient care in the out-patient clinic, emergency room, and the in-patient ward service. The resident operates on virtually all urologic cases with appropriate faculty supervision. The Concord rotation was designed to give our residents exposure to a system that is more of a private practice model. While rotating at Concord, the resident, under supervision, is potentially responsible for total patient care of all urological in-patients. The resident operates three- or four-days per week and, therefore, completes the rotation having improved his or her surgical logs and clinical experience.

The Urology Training Program has a robust conference schedule which affords residents protected educational time. Research meetings, urogynecology/female urology case conferences, and faculty led case conferences round out the teaching program. During the summer months, ethics conferences are held in place of Urology Grand Rounds.

Resident research is expected throughout the Urology Residency Program. Our residents routinely present at regional and national meetings. Residents also have an opportunity to attend nationally organized courses and workshops.

At the completion of our residency program, our residents are well prepared for academic or private practice. Our residents are able to compete for competitive fellowships in all urologic subspecialties; whereas, other residents have their pick of private practice opportunities. We have maintained a very high pass rate for Part I and Part II of the American Board of Urology Exams.
The residency program in Vascular Surgery continues to maintain its reputation as one of the best in the nation. The overall Vascular Surgery Residency Training Program continues to have two options for training pathways, with both the traditional fellowship and the newer residency program.

The traditional vascular fellowship is of course for residents in the “5+2” pathway, who have completed a five-year general surgery training program. The fellowship continues to attract great applicants from around the country.

Our five-year integrated vascular surgery residency program is open for applicants who will join after successful completion of an MD program, also known as the “0+5” training pathway. The Dartmouth integrated program was the first approved in the nation, and is now in its fifth year. Our program had its first site visit in 2009 and achieved full five-year reaccreditation by the ACGME. Our most recent residents joining the program are Courtney Warner MD, PGY2, a graduate of Dartmouth Medical School, and Emily Spangler MD, PGY1, who comes to DHMC from the University of Pittsburgh. Randall DeMartino MD is the first resident to begin the research year in the Program. He was elected as the resident representative to the Executive Council of the Association of Program Directors in Vascular Surgery.

Both the residency and fellowship programs have robust training with regard to case volume, variety, and complexity, with the complexity ranking among the 90th percentile nationwide. The full spectrum of research opportunities exist, including basic science, engineering, and outcomes-related research, many of which include NIH funding. A large number of databases are available in this regard, ranging from the Section’s own database to the regional Vascular Study Group of New England database (founded here by Jack Cronenwett, MD), to a regional and national aortic aneurysm imaging database via M2S, as well as national NIS and Medicare databases. The vascular section continues to be active in nationwide clinical trials, with approximately twenty-eight such trials currently in various stages. These trials provide patients and trainees access to the latest technology, ranging from devices for endovascular repair of thoracic aortic aneurysms, dissections, and traumatic injury, to abdominal aortic aneurysms, carotid artery stenting for stroke prevention, lower extremity and renal artery stenting, and even gene therapy for lower extremity limb salvage.

Training opportunities include dedicated Vascular Surgery conferences held each Monday morning, when faculty and trainees all have protected time to attend. These include multidisciplinary clinical case conferences, morbidity and mortality conference, monthly vascular laboratory conference, clinical and basic science research conferences, and journal clubs. Vascular laboratory training includes dedicated, supervised case review to complete the requirements for credentialing as an MD reviewer. The residency has joint conferences with the General Surgery Residency Training Program on Wednesdays as well as patient simulation experiences built-in to the training program.

The vascular programs at MHMH have been successful academically in many regards. Residents and fellows have produced numerous scientific presentations at regional, national and international meetings, numerous peer-reviewed publications, and awards at our national meeting the last two years. The Program has been quite successful in training academic vascular surgeons, with the large majority of our trainees joining the faculty at academic teaching institutions.
Adrales, Gina, MD
  • Simulation and resident learning
  • TDI

Ball, Perry, MD
  • Outcomes & complications associated with spinal surgery; medical liability
  • Coregistered Fluorescence-Enhanced Resection of Malignant Glioma

Barth, Richard, MD
  • Immunotherapy clinical trials for colon cancer and breast cancer
  • Phyllodes tumor of the breast, clinical trial
  • Breast conserving surgery for breast cancer, clinical trials of MRI guided breast surgery and fluorescence based image detection of margins
  • Alternative Breast Cancer Imaging Modalities
  • A study to evaluate the use of supine MR images in breast conserving surgery
  • Ultrasound evaluation of sentinel lymph nodes in melanoma patients and in patients with MELTUMP or atypical spitz nevus: a prospective database

Burchard, Kenneth, MD
  • Salivary cortisol as a measure of free cortisol in critical illness.
  • Ratio in human trauma: relation to total cortisol, free cortisol, short term outcomes inflammation induced hypothermia: oxygen consumption and survival with therapeutic rewarming in an experimental

Chapman, M. Shane, MD
  • The Non-Surgical Treatment of Melanoma with Toll-Like Receptor Agonists and Retinoids, Treatment of Psoriasis with Biologics

Chen, Eunice, MD, PhD
  • Tumor hypoxia
  • EPR oximetry
  • Magnetic nanoparticle tumor treatment
  • Tissue pO2 levels in radiation-induced fibrosis
  • Using tissue oxygen profiling to optimize wound healing in irradiated tissue
  • Tissue oxygenation and optimizing intervention for wound healing

Croitoru, Daniel, MD
  • Perioperative NSAIDs in MIPER

Cronenwett, Jack, MD
  • Regional registries to improve vascular surgery outcomes
  • Vascular Study Group of New England

Davies, Louise, MD
  • Qualitative outcomes in head and neck cancer, screening for thyroid carcinoma

DeSimone, Joseph, MD
  • NNE Valvular Heart Disease

DiScipio, Anthony, MD
  • NNE Valvular Heart Disease

Duhaime, Ann-Christine, MD
  • Biomechanical Basis of Mild Traumatic Brain Injury
  • Biomechanics of Pediatric Head Injury
  • Development of a porcine model using advanced MRI to study severe brain damage following subdural hematoma in infancy
  • Neurogenesis and Cell Migration after Early Brain Injury and Electronic Media Stimulation Effects on the Developing Brain
  • Role of Biomechanical Force Exposure and Genotype on Outcome after Traumatic Brain Injury
  • The effects of anesthetics in the developing brain

Durham, Susan, MD
  • Analysis of head impacts during snowboarding in the pediatric population
  • Natural history of asymptomatic Chiari 1 malformation in the pediatric population

Eisenberg, Burton, MD
  • The Molecular Actions of Imatinib Mesylate in Gastrointestinal Stromal Tumors

Erkmen, Cherie, MD
  • Non Invasive Positive Pressure Ventilation Following Esophagectomy: How Much Pressure Can An Anastomosis Handle?
  • Fluorescence Detection of Thoracic Tumors

Erkmen, Kadir, MD
  • Acoustic Neurauma surgery outcomes, Aneurysm surgery outcomes, Fluorescence-guided brain tumor resection; ICG fluorescence during intracranial cerebrovascular procedures; ICG fluorescence during intracranial cerebrovascular procedures
  • Coregistered Fluorescence-Enhanced Resection of Malignant Glioma

Fillinger, Mark, MD
  • Zenith TX2 Thoracic Aneurysm Endovascular Graft Post Market Approval Study
  • Gore TAG Thoracic Aneurysm Trial
  • Gore TAG Thoracic Dissection Trial
  • Gore TAG Thoracic Transaction Trial
  • A Clinical Study Evaluating the Use of the GORE EXCLUDER® Bifurcated Endoprosthesis-31mm in the Primary Treatment of infrarenal Abdominal Aortic Aneurysms-Protocol
  • Prospective Aneurysm Trial: High Angle Aortifx™ Bifurcated Stent Graft
  • Aptus Staple 2 Trial, to evaluate the safety and efficacy of the Aptus Endovascular AAA Repair System with a historical control group
  • Comparison of EVAR Using AneuRx Stent-Grafts with High-Density Versus Reduced-Porosity Graft Material
  • 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 Commerciaally Available Bifurcated Endovascular Prostheses or Conventional Surgical Repair

Finlayson, Samuel, MD
  • Rural healthcare delivery
  • NSQIP

Freeman, Richard, MD
  • Long term outcome for liver transplantation for hepatocellular carcinoma

Goodney, Philip, MD
  • Understanding Regional Variation in Treatment Intensity with Lower Extremity PAD
  • Outcomes of Thoracic Aneurysm Repair in the Medicare Population
  • Risk Prediction Model for Complications and Functional Outcomes Following Lower Extremity Revascularization
  • Development of a Risk Prediction Model for Complications and Functional Outcomes Following Lower Extremity Revascularization
  • Standardizing Arterial Closure Technique following Percutaneous Arterial Intervention: A Feasibility Study
  • Completed: Has carotid stenting affected the incidence of carotid endarterectomy
  • Percutaneous arterial closure - Can we decrease morbidity
  • Medicare Outcomes for Thoracoabdominal Aneurysms

Gormley, E. Ann, MD
  • Chair of the Steering Committee for the NIH Urinary Incontinence Treatment Network

Gupta, Rajan, MD
  • Various clinical aspects of trauma patient management, including some multi-institutional clinical trials

Heaney, John, MB
  • Chair of the Steering Committee for the NIH Urinary Incontinence Treatment Network

Henriquez, Horace, MD
  • Measurement of medical student learning
Herz, Daniel, MD
- Postnatal database for infants with prenatal hydrenephrosis
- Occult tethered cord surgical vs. nonsurgical treatment
- Decision analysis top down vs. traditional imaging in children febrile UTI

Holubar, Stefan, MD
- Inflammatory bowel disease

Hoopes, P. Jack, DVM, PhD
- Pediatric and translational brain injury research
- Antibody and non-antibody directed iron oxide nanoparticle cancer treatment
- Development of iron/iron oxide nanoparticles
- Neonatal cardiorespiratory monitoring and care
- Natural Orifice Transluminal Endoscopic Surgery (NOTES)
- Assessment of novel surgical mesh material
- Noninvasive microwave imaging and heating techniques
- Electron paramagnetic resonance assessment of O2 levels in radiation tissue
- Radiation innovation and development research
- Retinal implant technology for restoration of retinal blindness
- Cornea reshaping technology
- Novel esophageal stent technology
- Assessment of novel electrocautery technology
- Photodynamic therapy: treatment efficacy and mechanism
- Use and development of fluorescence and near infrared (NIR) in cancer imaging, diagnosis, and treatment
- Development and assessment of interventional cardiovascular models and technologies
- Anti-angiogenesis and associated developmental biology
- Electrical impedance spectroscopy and tomography imaging technology
- Protein engineering for diagnosis and therapy of cancer and developmental disease
- Development and assessment of absorbable surgical staples
- Novel treatment of spinal cord injury

Johnstone, David, MD
- Clinical trials in multimodality therapy for lung cancer
- Clinical trials in esophageal cancer
- Retrospective analysis of esophageal resection experiences

Kerrigan, Carolyn, MD
- A Detailed Analysis of Level I Evidence (Randomized Controlled Trials and Meta-Analyses) in Five Plastic Surgery Journals
- Profit and Efficiency Analysis of Performing Carpal Tunnel Surgery in the Operating Room versus the Clinic Setting in the United States
- A Randomized Clinical Trial Comparing the Harmonic Scalpel to Electrocautery for Breast Reduction Surgery
- The Effectiveness of Research Questionnaires as a Tool In Predicting the Diagnosis and Treatment Strategies of Common Hand Pathologies.
- Measuring Patient Satisfaction with Breast Surgery: Development and Validation of a Patient-Based Outcomes Instrument
- Study of the Safety and Effectiveness of the mentor Contour Profile Gel Mammary Prosthesis in Subjects who are undergoing primary breast augmentations, primary breast reconstruction or revision
- An Evaluation of Dupuytren’s Contracture Treatment Outcomes
- Patient Reported Symptoms: QuickDASH and Levine survey score distribution across different hand conditions
- Development and validation of the Breast-Q (collaboration with A. Pusic, Memorial Sloan Kettering)
- Shared Medical Appointments in an academic medical center

Kispert, Paul, MD
- Costs and efficacy of helicopter transport as part of a state trauma

Laycock, William, MD
- Occasional clinical papers on laparoscopic techniques

Leong, Kenneth, MD
- Stem cells
- Nerve tissue regeneration

Likosky, Donald, PhD
- Surgical outcomes, observational epidemiology, quality improvement

Lollis, S. Scott, MD
- Magnetic resonance elastography (MRE), Neurosurgical robotics, Vaccination of brain tumors, Cerebrospinal fluid shunting for refractory periphtalmic fistula

McQuiston, Leslie, MD
- Shared decision making in Children with VUR

Morrison, Daniel, MD
- Decision and cost effectiveness analysis, QI outcomes studies, Developing a patient registry for chronic sinusitis

Mulligan-Kehoe, Mary Jo, PhD
- Graduate student studies include the pro-angiogenic activity of another truncated PAI-1 protein in atherosclerosis and hind limb ischemia mouse models
- Mechanisms of PAI-1 Induced Anti-Angiogenesis
- Dysregulated Angiogenesis in Scleroderma-Associated PAH

Nolan, Brian, MD
- Outcomes of endovascular therapy
- Quality of life assessment in vascular patients
- Quality of Life in People with Abdominal Aortic Aneurysms
- Regional Outcomes of AAA repair, carotid endarterectomy and lower extremity bypass

- Regional Quality improvement initiatives in perioperative care of vascular patients
- Dartmouth Critical Leg Ischemia Registry

Pace, Nicole, MD
- The Treatment of Hemangiomas with Beta-Blockers

Pais, Vernon, MD
- Stone Disease: Minimally Invasive Approaches to Quality Care Improvements to the Treatment of Stone Disease

Paydarfar, Joseph, MD
- Multivariate analysis of Head and Neck Surgical Outcomes
- EPR oximetry
- Use of intraoperative tissue fluorescence to guide resection of upper airway lesions

Pepin, Susan, MD
- Non Artistic Anterior Ischemic Optic Neuropathy (NAION) Study
- Neuro-Ophthalmologic Predictors of Preclinical Alzheimer’s Disease: Part II
- Analysis of Adolescent and Young Adult Headaches with Positive Visual Phenomena
- Optical Coherence Tomography Characterisics of Low Tension Glaucoma
- Idiopathic Intracranial Hypertension Survey
- A 24-month Double blind, Randomized, Multicenter, Placebo-Controlled, Parallel-group Study Comparing the Efficacy and Safety of 0.5 mg and 1.25mg Fingolimod (FTY720) Administered Orally Once Daily Versus Placebo in Patients With Relapsing-Remitting Multiple Sclerosis
- Double-Blind, Placebo Controlled Study of the Safety and Efficacy of ONO-4641 in Patients With Relapsing-Remitting Multiple Sclerosis
- Creating Excellence in Cataract Surgery Flow

Powell, Richard, MD
- Evaluation of cistostanol in combination with L-carnitine in the treatment of intermittent claudication
- Carotid Revascularization Endarterectomy vs. Stent Trial
- A Phase 2, Randomized, Double-blind, Placebo-controlled, Parallel-group, Multicenter, Dose-Selection Study of Ad2/Hypoxia Inducible Factor (HIF)-1a/VP16 in Patients with Intermittent Claudication
- Protocol#: AG-CJ1-0205-Phase II Double-Blind, Randomized, Placebo-Controlled Study to Assess The Safety and Efficacy Of AMG00001 To Improve Perfusion in Critical Leg Ischemia In Subjects Who Have Peripheral Ischemic Ulcers
- The Embolic Protection with reverse Flow (EMPIRE Study) Study of the Gore Neuro Protection System in Carotid Stenting of Subjects at High Risk for Carotid Endarterectomy
- Aastrom RESTORE Critical Limb Ischemia Trial, to test the safety and efficacy of TRC Autologous Bone Marrow Cells in patients with peripheral arterial disease to treat critical limb ischemia
CLINICAL TRIALS AND RESEARCH

- CABANA Registry: A Carotid Stent Boston Scientific Surveillance Program
- A Phase III, Randomized, Double blind, Parallel-Group Study of the Efficacy and Safety of Oral Dagabatiran Etxelate (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) With a Parenteral Anticoagulant Approved for this Indication.
- A Phase III, Randomized, Multicenter, Double-Blind, Parallel-group, Active Controlled Study to Evaluate the Efficacy and Safety of Oral Dagabatiran Etxelate (150 mg bid) Compared to Warfarin (INR 2.0-3.0) for the Secondary Prevention of Venous Thromboembolism-RE-MEDY Protocol
- Carotid Angioplasty and Stenting versus Endarterectomy in Asymptomatic Subjects with Significant Extracranial Carotid Oclusive Disease
- Stenting and Angioplasty with Protection in Patients at High-Risk for Endarterectomy
- Development of a Risk Prediction Model for Complications And Functional Outcomes Following Lower Extremity Revascularization Using a Prospective Regional Database
- Intracellular signaling mechanisms which regulate SMC phenotype
- Natural history of critical limb ischemia
- Cell death and stenting
- Angiogenesis

Quebada, Patricia, MD
- Coregistered Fluorescence-Enhanced Resection of Malignant Glioma

Rhynhart, Kurt, MD
- Inflammatory response to trauma

Roberts, David, MD
- Modeling of Brain Deformation during Surgery
- Responsive Neurostimulator
- RNS System Long Term Treatment Clinical Investigation
- Coregistered Fluorescence-Enhanced Resection of Malignant Glioma
- Coregistered Fluorescence-Enhanced Resection of Malignant Glioma/ing
- Correlates of Tumor Specific Molecular Changes
- Electrical impedance-based Imaging of Brain Compliance in an Animal Model.

Rosenkranz, Kari, MD
- Clinical trials for treatment of multicentric breast cancer
- Role of MRI in diagnosis of breast cancer

Rzucidlo, Eva, MD
- Intracellular signaling mechanisms which regulate SMC phenotype
- Effect of statins on VSMC phenotye and cellular signaling
- Arterial duplex to predict early distal bypass graft failure
- Treatment of superficial femoral artery disease using angioplasty and stenting
- Treatment of iliac occlusive disease with stent grafts

Saunders, James, MD
- Novel Targets of Statins in the Treatment of Intimal Hyperplasia
- Randomized Controlled Study Comparing Treatment of Femoropopliteal Disease with Primary Stenting and Post Angioplasty vs. Primary Stenting and Post Cryoplasty
- Effects of second hand cigarette smoke exposure on adiponectin, mTOR, and vascular disease

Seigle, John, MB, BCH
- GU Oncology: Application of Electrical Bioimpedence in Diagnosis/Staging of Prostate Cancer Shared Decision Making in Gy Malignancies
- Development of a Drug Box for Fiansteride for Prostate Cancer Prevention
- Investigation of the role of Gli-1 in Bladder Cancer
- Electrical Property based image guided prostate biopsy
- The impact of prostate cancer education on knowledge attitudes and shared decision making among patients with newly diagnosed prostate cancer
- PUNCH Trial

Smith, Kerrington, MD
- Oncolytic virus treatment of pancreas cancer in murine models
- Creating a murine model to grow and study chemosensitivity of human pancreatic cancer

Stevens, Rosalind, MD
- Establishing clinical indicators for quality care in ophthalmology for an international mobile ASC
- Fundus findings in known HIV/TB in Tanzania

Stone, David, MD
- Spinal cord ischemic complications following thoracic aortic surgery
- Thoracic aortic ischemia reperfusion injury
- Outcomes following thoracoabdominal aneurysm repair/stent graft repair of the thoracic aorta
- Intimal hyperplasia
- Impact of Plavix on bleeding complications during vascular surgery
- iCast Iliac Stent Pivotal Study
Department of Surgery

Donald S. Likosky


Likosky DS, Surgenor SD, Dacey LJ, DeFoe GR, Maislen EL, Clark JA, Aubuchon JP, Higgins JH, Beaulieu PA, O'Connor GT, Ross CS.

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