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.
DEPARTMENT OF SURGERY ADMINISTRATION

Back row (left to right): Terri Nicholson, Audrey Carr, Gary Hunt, Jo-Ann Dugdale
Front row (left to right): John Bolg, Lara Judd, Richard Freeman
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**DEPARTMENT OF SURGERY**

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

John R. Bolg
Director

Lara M. Judd
Department Manager

Audrey B. Carr
Financial Manager

Jo-Ann Dugdale
Administrative Assistant

Gary Hunt
Data Center Manager

Terri J. Nicholson
Clerkship Program Coordinator

Sarah N. Pletcher, MD
Assistant Professor of Surgery

Kari M. Rosenkranz, MD,
Associate Professor of Surgery
2014 was a banner year for the Department of Surgery. Some of the many accomplishments are highlighted herein.

We continue to expand our tertiary care and community surgery programs with 13 new faculty joining us in 2014. These very accomplished surgeons are adding to our already superb faculty and together we are adding new innovative programs on a continuous basis. For example, we have recently installed a state of the art surgical robot and have recruited a new thoracic surgeon to help expand our already well established robotic surgery program. This newest technology will allow us to provide the most advanced robotic procedures including thoracic, pancreatic, and rectal surgery in addition to our high quality programs in urologic, gynecologic, and head and neck cancer surgery; this is not just a clinical program. We were delighted to receive an innovation grant from Intuitive Surgical to develop cross-discipline simulation models for robotic simulation training using easily obtainable animal tissue and artificial models using 3-D printing technology created in collaboration with our engineering school. Models for uterine myomectomy, radical tracheotomy, suture rectopexy, vesico-urethral anastomosis and pancreatic ductal reanastomosis will be the focus for this project. The models will be tested for face, content, and construct validity as well as acceptability, feasibility and educational impact. This program will measure the effectiveness of these models for the development of robotic surgical proficiency for surgical trainees from many surgical disciplines.

Another innovative program brought into full operation in 2014 is our Center for Surgical Innovation which was recently highlighted by the Wall Street Journal (Feb. 16, 2015). In this one-of-a-kind facility, our neurosurgeons along with colleagues from the Department of Orthopaedics are using intraoperative CT and MRI imaging to more precisely perform intricate neurosurgical procedures. In 2014 we performed many cases where this technology has improved our surgeons’ ability to more accurately resect malignant lesions in the central nervous system and more precisely target areas for surgical correction in the spine.

Finally, in this report we update our progress in implementing telemedicine for surgical care across our region. Early evidence suggests that effective use of virtual visits and home monitoring can reduce the burden of medical care for patients in rural areas and can reduce costs of care by avoiding transfers and over use of emergency facilities. In almost every surgical subspecialty, we are exploring opportunities to apply telemedicine in one form or another and have already implemented several. We are extremely enthusiastic about the many potential applications in surgery to deliver more patient centered care directly to our patients through these technologies.

These are just a few areas where our department is taking significant and innovative strides academically and clinically. I invite you to read further to explore the details in depth about the great accomplishments and work underway in our department.
### DEPARTMENT STATISTICS 2014

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#### Department of Surgery Total Gross Professional Revenue

- **FY09**: $150M
- **FY10**: $200M
- **FY11**: $200M
- **FY12**: $200M
- **FY13**: $200M
- **FY14**: $200M

#### Department of Surgery Total OR/OSC Cases

- **FY09**: 15,000
- **FY10**: 15,000
- **FY11**: 15,000
- **FY12**: 15,000
- **FY13**: 15,000
- **FY14**: 15,000
INTRODUCTION
The Section of Cardiothoracic Surgery consists of the Divisions of General Thoracic Surgery and Cardiac Surgery.

THE DIVISION OF CARDIAC SURGERY
The Division of Cardiac Surgery is pleased to welcome Jock N. McCullough, MD, as Section Chief. Dr. McCullough joined Dartmouth-Hitchcock in September of 2014. We would like to thank Richard J. Powell, MD, for being the interim Section Chief of Cardiac Surgery from September 2013 to September 2014. Cardiac Surgery offers a full range of focused and innovative surgical options to all patients with cardiac disease. The division has witnessed an increasingly complex caseload with excellent outcomes while it continues to be an institutional leader in inpatient, outpatient, and referring physician satisfaction. Our continued involvement with the General Surgical Residency Training Program and the Geisel School of Medicine at Dartmouth allows medical students and surgical residents to experience supervised training in a busy outpatient clinic, inpatient consult, critical care service, and operating room environment.

Cardiac Surgery continues to offer standard cardiac surgery procedures, i.e., coronary bypass, aortic valve replacement, as well as more complex procedures such as valve sparing aortic valve surgery, mitral valve repair, replacement, and various forms of left ventricular remodeling procedures. Dr. McCullough joins Dr. Joseph DeSimone to partner with Cardiology for Transcatheter Aortic Valve Replacement (TAVR). Our continued involvement in the Northern New England Cardiovascular Disease Study Group (NNE) cardiac database. Research activities were as follows:

- Impact of Left Main Stenosis on Timing to CABG - JACC poster presentation 2015
- Is Patient Prosthesis Mismatch Changing?: A National Incidence Study 2000-2010 (project approved by STS)
- PARTNER Sapien 3 Trial
- Impact of Postoperative Respiratory Failure on Short- and Long-Term Outcomes
- Role of the Leukocyte in Red Cell Related Transfusion

The Aortic Center at Dartmouth-Hitchcock continues to flourish under the directorship of Dr. Anthony DiScipio. This multidisciplinary initiative offers patients with complex diseases of the thoracic 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.

Cardiac Surgery collaborates with our electrophysiology department in a laser-assisted lead extraction program for aging or worn out pacemaker and defibrillator leads. This program will address a mounting clinical problem as more of these devices need to be modified. Also, with the electrophysiology group, a left atrial appendage program has been launched.

RESEARCH WITHIN THE DIVISION OF CARDIAC SURGERY
Research opportunities for faculty and residents continue within the division. Under the direction of Dr. DeSimone, we are continuing to enroll patients into a trial for TAVR. Dr. DeSimone also coordinates a large animal laboratory study looking at the effects of pulsatile perfusion on organ systems. Finally, outcomes research remains robust through our collaboration with the Northern New England Cardiovascular Disease Study Group (NNE) cardiac database.
OUTCOMES AND THE FUTURE OF HEALTHCARE

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 Division of Cardiac Surgery has responded by making our surgical outcomes transparent to the public. Dartmouth-Hitchcock Medical Center (DHMC) now provides patient access to our surgical outcomes in a patient-friendly format [http://www.dartmouth-hitchcock.org/quality/quality_report/CT](http://www.dartmouth-hitchcock.org/quality/quality_report/CT).

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

THE DIVISION OF THORACIC SURGERY

This was a challenging year for the Division of Thoracic Surgery. William Nugent, MD, retired in July 2014 and Cherie Erkmen, MD, also left in July 2014. This created a huge void for Thoracic Surgery. Dr. Nugent returned on a part-time basis to help manage the inpatient population. Prior to her departure, 2014 was a productive year for Dr. Erkmen. She was instrumental in developing a Lung Cancer Screening program at DHMC with Dr. William Black in Radiology. Dr. Erkmen also instituted a clinical care pathway for esophageal cancer patients and organized the 2nd Norris Cotton Cancer Center Thoracic Oncology CTOP Retreat.

In January 2015, the Division of Thoracic Surgery welcomed a new Section Chief, David J. Finley, MD, and Thoracic Surgery is once again a thriving division in the Department of Surgery. We would like to thank Dr. Powell for being the interim Section Chief of Thoracic Surgery from September 2013 to January 2015.

RESEARCH WITHIN THE DIVISION OF THORACIC SURGERY

- Clinical Pathway for Esophagectomy Improves Perioperative Nutrition accepted for publication in CHEST
- TEVAR for Temporizing Aortic Erosion from Mediastinal Infections, submitted.

FACULTY

CARDIAC SURGERY

- Daniel J. Chentorycki, PA-C Instructor in Surgery
- M. Adam Christopher, PA-C Instructor in Surgery
- Curtis A. Cote, PA-C Instructor in Surgery

THORACIC SURGERY

- Cherie P. Erkmen, MD Assistant Professor of Surgery and Medicine
- William C. Nugent, MD Louise R. and Borden E. Avery Professor of Surgery, Community and Family Medicine and The Dartmouth Institute
- Elizabeth L. Maislen, APRN Instructor in Surgery Certified Tobacco Treatment Specialist

Lawrence J. Dacey, MD Professor of Surgery and Community and Family Medicine
Gordon R. DeFoe, CCP Instructor in Surgery
Joseph P. DeSimone, MD Assistant Professor of Surgery
Anthony W. DiScipio, MD Assistant Professor of Surgery
Jamie M. McCormack, PA-C Instructor in Surgery
Jock N. McCullough, MD Assistant Professor of Surgery
Robert Miljan, PA-C Instructor in Surgery

Cardiothoracic Surgery Gross Professional Revenue

Cardiothoracic Surgery OR/OSC Cases
INTRODUCTION

Dermatology continues to achieve very high patient satisfaction, while continuing to maximize efficiencies and maintain a high patient volume. We have increased access by hiring several new staff physicians: Drs. Jeffrey Shornick, Julianne Mann, and Mari Paz Castanedo Tardan who was one of our graduates in June. In addition, we have also expanded the practice to include Physicians’ Assistants. Both Marie “Bri” Schreiner, PA-C, and Elisabeth Novak, PA-C, joined the practice in early 2014 and continue to specialize their training in dermatology. Beginning in February, we established a presence at New London Hospital, where we are able to offer a more convenient clinical location to our patients residing south of Lebanon along I-89. Our patient satisfaction continues to benefit from our improved and more convenient access due to additional staffing and added locations.

In regard to our increased access, patients are also seeing an increase in the availability of several of our specialty clinics. We’ve added availability for Patch Allergy Testing, Pediatric Surgery, and Cutaneous T-Cell Lymphoma (CTCL) clinics, with the addition of specialized Drs. Castanedo Tardan and Mann.

Our section is consistently working on efficiency projects, most recently focusing on seeing our patients within the appropriate time frame based on reason for visit. Under the leadership of The Dartmouth Institute (TDI) Coach the Coaches project, we have reviewed our referral workflow and made changes that reduce wait time, address priority of diagnoses, and increase referring provider satisfaction. Following this project we have initiated opportunities for our staff to engage in Yellow Belt training over the next year to increase our internal capacity for quality improvement at the grass roots level.

As we move forward with our growth, so does our need for continued development of our clinical work flows. To address nursing shortages and job satisfaction our section has initiated a Clinical Secretary Scribing Model Pilot. The value of this pilot is to increase job satisfaction/retention among our nursing staff (who have previously been used as scribes) offer positions of growth to our administrative staff, and help to maintain productivity of our clinics.

EDUCATION

Our Dermatology Residency Training Program continues to move upward under the leadership of Kathryn Zug, MD who is in her fifth year as Program Director. Dr. Castanedo Tardan also specializes in Contact Dermatitis, alongside Dr. Zug. Joan Paul, MD will present to the World Congress of Dermatology in Vancouver, British Columbia, Canada on “The Impact of Race Concordance on Patients' Perception of the Quality of Dermatological Care” during her third year of residency. Dr. Paul was also the recipient of the American Academy of Dermatology Resident International Grant, and will travel to Botswana to participate in a four week elective at Princess Marina Hospital.

Thomas Knackstedt, MD, one of our third year residents, has been accepted to a Mohs Fellowship in Rhode Island following graduation in June. Over the past year Dr. Knackstedt has continued extensive research in several aspects of Mohs Surgery, and his articles have been published in the following journals:

- "Incidence of Squamous Cell Carcinoma in Biopsy-Proven, Transected Squamous Cell Carcinoma In Situ Referred for Mohs Surgery.” International Journal of Dermatology.

As we continue to grow we have the hopes of increasing our residency program and initiating Pediatric Dermatology and Mohs Fellowship programs in the near future.

M. Shane Chapman, MD
Section Chief
Associate Professor of Surgery

Ashley E. Luurtsema
Practice Manager
RESEARCH
Dr. M. Shane Chapman continues to expand his work with the Clinical Research Unit (CRU) office and over the last year has grown Dermatology’s clinical studies from five to fifteen. In October, Dr. Chapman was invited to New York City on behalf of Celgene to discuss their clinical research and work on the drug Otselra which was recently approved for the treatment of psoriasis.

FACULTY HIGHLIGHTS
Dr. Chapman was accepted into the MIT Executive Masters in Business Administrative program and began classes in September. He hopes this education will enhance his ability to continue to run a strong section and make improvements in the coming years.

Dr. Faramarz Samie spent much of the year focusing on research and publications. Some of the highlights, in addition to those noted above as peer-authored by Dr. Knackstedt, include:

• “Modification of Burow’s advancement flap: Avoiding the secondary triangle.” JAMA Facial Plastic Surgery.
• “An important mimicker: plaque-type syringoma mistakenly diagnosed as microcystic adnexal carcinoma.” Dermatology Surgery.
• “Lip reconstruction with a mucosal A-to-T Flap, revisited” Dermatology Surgery.

LOOKING AHEAD
Dermatology has many plans for the future to involve continued growth and collaboration with the D-H Dermatology clinics in Keene, Concord, Nashua, and Portsmouth while identifying other sites that do not currently have active dermatology staffing but a strong need. With the addition of several new sub-specialists, we have new energy for office workflow and quality improvement projects. We remain committed to our staff and focus most of our emphasis on their engagement to make sure their workdays run smoothly, a continued challenge in the constantly changing and increasingly demanding healthcare environment!

FACULTY

DERMATOLOGY

Virginia H. Arvold, PA-C (VA)
Instructor in Surgery

Denise M. Aaron, MD
Assistant Professor of Surgery

Dorothea T. Barton, MD
Assistant Professor of Surgery and Pathology

Nancy J. Burnside, MD (VA)
Assistant Professor of Surgery

Mari Paz Castanedo Tardan, MD
Instructor in Surgery

M. Shane Chapman, MD
Associate Professor of Surgery

Marshall A. Guill, MD
Assistant Professor of Surgery

Julianne A. Mann, MD
Assistant Professor of Surgery

Elisabeth G. Novak, PA-C
Instructor in Surgery

Nicole C. Pace, MD
Assistant Professor of Surgery

Faramarz H. Samie, MD, PhD
Assistant Professor of Surgery

Marie B. Schreiner, PA-C
Instructor in Surgery

Jeffrey K. Shornick, MD
Promotable Instructor and Clinical Associate Professor of Surgery

Kathleen A. Zug, MD
Professor of Surgery

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Dermatology Gross Professional Revenue

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INTRODUCTION
The Section of General Surgery, on a daily basis, strives to accomplish the D-H 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.

NEW MEMBERS AND INITIATIVES
During the past year four new young surgeons who received fellowship training at top institutions have started work in our section. Dr. Christina Angeles joined us after finishing her fellowship in surgical oncology at Memorial Sloan Kettering Cancer Center. Christina’s clinical interests include gastric cancer, sarcoma, melanoma, and breast cancer. Dr. Rashna Ginwalla joined us as a trauma and acute care surgeon. Dr. Ginwalla has a passion for surgical care delivery in underdeveloped areas, and just completed a year of surgery in Rwanda. Dr. Srinivas Ivatury joined our Colorectal Division after completing a colorectal fellowship at the University of Minnesota. He practices colorectal surgery at both Dartmouth-Hitchcock Medical Center (DHMC) and Alice Peck Day Hospital. Dr. Meredith Sorensen, a graduate of the Geisel School of Medicine at Dartmouth and the Dartmouth General Surgery (GS) Residency Program, returns after an endocrine fellowship at the University of Michigan. She performs both endocrine surgery at DHMC and general surgery at New London Hospital. In addition, four new Advanced Practice Registered Nurses, Deborah Fournier, Katelyn Husband, Rachel Sargent and Deborah Upton, have substantially strengthened this team. Angela Welch, PA has joined our Minimally Invasive and Community Surgery Divisions and is providing excellent care to inpatients on those services.

The section fully participated in a Relational Coordination teamwork exercise sponsored by the Department of Surgery. A concrete result of that process was the development of a Promoting Professionalism Committee. The goal of this committee is to eliminate unprofessional behavior incidents by members of the section. It is composed of a broad spectrum of section members. Our preliminary results show a trend towards fewer unprofessional behavior reports. We are the first section at Dartmouth-Hitchcock (D-H) to develop and operationalize a committee for this purpose.

Dr. Kerrington Smith, in collaboration with Dr. Timothy Gardner from Gastroenterology, has established an islet cell transplantation program at D-H for patients with pancreatitis. This required a substantial team effort both to coordinate and implement. Drs. Smith and Gardner have also been fortunate to secure a major development gift that will support the general surgery laboratory now and a Pancreas Center in the future.

QUALITY PATIENT CARE
General Surgery providers performed 3,468 operative cases in FY14 and had 13,811 outpatient clinic appointments, achieving 100% of our budgeted volumes. In FY13 General Surgery contributed $5.8 million towards the D-H net operating margin.

Our patients continue to be very satisfied with the care they receive. For the past 10 years our patient satisfaction scores have been significantly above the DHMC mean. 2014 was no exception: 80% of all GS outpatients rated their provider’s clinical skills and personal manner to be excellent.

Dr. Kurt Rhynhart, newly appointed Division Chief of our Trauma and Acute Care Division, led the effort by our trauma group to successfully re-certify as an American College of Surgeons Level 1 Trauma Center. The ACS evaluators, after looking under every proverbial stone, could find no deficiencies in our outstanding trauma program.
Under the direction of Dr. William Laycock and Maureen Quigley, APRN our Bariatric Surgery Program has been reaccredited by the American College of Surgeons as a Level 1 Bariatric Surgery Center.

The Comprehensive Breast Care Program, under Dr. Kari Rosenkranz’ leadership, has been selected to be a “Program of Distinction” by D-H leadership in recognition of its demonstrated excellence in patient care.

We initiated and completed several section-wide quality improvement efforts, including a project to decrease our infection rate after colorectal operations. Drs. John Murray, Stefan Holubar and Richard Barth developed and implemented a best practice infection prevention bundle and Priscilla Marsicovetere, PA analyzed the data. In the year after adoption of the infection prevention bundle our colorectal surgery infection rate dropped from 26% to 12%. Our infection rate is now at the NSQIP mean and we have identified patient subgroups for targeting future improvements.

We also implemented an infection prevention bundle intervention in hepatic surgery cases. In 113 cases prior to bundle implementation, our overall and surgical site infection incidences were 20% and 15%. In 50 cases after bundle initiation our overall and surgical site infection rates dropped to 4%. This resulted in an average two-day decrease in per patient length of stay translating to a savings of $3,000 per patient.

General Surgery swept the Care Path awards this year. Deborah Fournier, APRN led an effort to use a new type of brace for trauma patients with spine injuries which will decrease length of stay and costs. Dr. Stefan Holubar has enthusiastically championed Enhanced Recovery after Surgery (ERAS) programs for several different types of surgeries. The ERAS pathway decreases length of stay and reduces cost.

EDUCATION

Drs. Paul Kispert and Kari Rosenkranz continue to excel in their roles as General Surgery Residency Program Director and Co-Director. They have improved the method by which new residency candidates are evaluated and the process of current resident feedback and evaluation. Drs. Paul Kispert and Thomas Colacchio have done an outstanding job taking turns moderating the Morbidity and Mortality conference each week. Drs. Brent White and Sean Bears have started a new chief resident clinic which has allowed our chief residents to develop more autonomy in a well supervised environment. Drs. Gina Adrales and Andrew Crockett have implemented a new curriculum for medical student teaching. Dr. Thadeus Trus directs a thriving fellowship in laparoscopic surgery. Two graduating chief residents this year entered fellowship training in thoracic surgery, one is doing a surgical oncology fellowship and one entered private practice.

RESEARCH

The section contributed 34 publications to the surgical literature this past year. Several section members also secured research grants.

Dr. Christina Angeles was awarded The Robert Crichlow award this year to support her research with immunologist Mary Jo Turk on autoimmune T cells in the skin of patients with melanoma associated vitiligo. Dr. Holubar has established a liaison with Dr. Hal Swartz to use a new monitoring device, the Oxychip, to measure oxygen levels within rectal tumors. Dr. Holubar secured a large grant from the Norris Cotton Cancer Center and was awarded a Harmes Scholarship to begin to evaluate whether one can increase tumor oxygen content and thereby increase the effectiveness of neoadjuvant radiation therapy for rectal cancers. Dr. Smith, also supported by the Norris Cotton Cancer Center funds, has pioneered the development of immunodeficient mice who can support the growth of human pancreas cancer xenografts. This allows Dr. Smith to study the biology of these tumors and, by treating mice bearing a human tumor, determine whether a patient’s tumor is likely to respond to one of several potential chemotherapeutic agents.

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**General Surgery Gross Professional Revenue**

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**General Surgery OR/OSC Cases**

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Dr. Barth was awarded a grant from the National Cancer Institute to fund a clinical trial comparing standard wire localization of non-palpable breast cancers to a new localization technique utilizing supine MRI and optical scanning. He and his co-investigators from the Thayer School of Engineering hypothesize that the new localization technique will decrease the positive margin rate after breast conserving surgery.

FACULTY HIGHLIGHTS

Drs. Rosenkranz and Murray were chosen as the Top Surgeons in their specialties by NH physicians, as reported in NH Magazine.

Dr. Eric Martin has ably assumed an important role on the three-person ICU Council, which collaboratively governs the ICU. Maureen Quigley, APRN, is Chair of the American Society for Metabolic and Bariatric Surgery Integrated Health Education Committee.

Dr. Horace Henriques has continued to play vital administrative roles in Care Management and as Transfer Center Director. Several section members have prominent roles in national organizations.

Dr. Trus is gearing up to be the Program Director for an upcoming SAGES meeting.

Drs. Rosenkranz, Rhynhart and Barth hold leadership roles in the New England Surgical Society.

We would like to congratulate Richard J. Barth, Jr., MD on his promotion to Professor of Surgery, and Kari M. Rosenkranz, MD on her promotion to Associate Professor of Surgery.

FACULTY

GENERAL SURGERY

Gina L. Adroales, MD
Associate Professor of Surgery

Christina V. Angeles, MD
Assistant Professor of Surgery

Richard J. Barth, Jr., MD
Professor of Surgery

Sean D. Bears, MD
Assistant Professor of Surgery

John D. Birkmeyer, MD
Professor of Surgery and The Dartmouth Institute

Kenneth W. Burchard, MD
Professor of Surgery and Anesthesiology

Thomas A. Colacchio, MD
Professor of Surgery

Andrew O. Crockett, MD
Assistant Professor of Surgery

Debra A. Fournier, APRN
Instructor in Surgery

Benjamin W. Forbush, MD (VA)
Assistant Professor of Surgery

Rashna F. Ginwalla, MD
Assistant Professor of Surgery

Horace F. Henriques, III, MD
Associate Professor of Surgery

Stefan D. Holubar, MD
Assistant Professor of Surgery and The Dartmouth Institute

Katelyn J. Husband, APRN
Instructor in Surgery

Srinivas J. Ivatury, MD
Assistant Professor of Surgery

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

William S. Laycock, III, MD
Associate Professor of Surgery

Jean Y. Liu, MD (VA)
Assistant Professor of Surgery

Priscilla S. Marsicovetere, PA-C
Instructor in Surgery

Eric D. Martin, MD
Assistant Professor of Surgery

Elizabeth B. McCabe, APRN
Instructor in Surgery

Ellen M. McKinnon, APRN
Instructor in Surgery

John J. Murray, MD
Associate Professor of Surgery

Maureen T. Quigley, APRN
Instructor in Surgery

Kurt K. Rhynhart, MD
Assistant Professor of Surgery

Kari M. Rosenkranz, MD
Associate Professor of Surgery

B. Fernando Santos Aleman, MD (VA)
Assistant Professor of Surgery

Rachel L. Sargent, APRN
Instructor in Surgery

Timothy R. Siegel, MD
Assistant Professor of Surgery

Kerrington D. Smith, MD
Assistant Professor of Surgery

Meredith J. Sorensen, MD
Assistant Professor of Surgery

Thadeus L. Trus, MD
Associate Professor of Surgery

Deborah A. Upton, APRN
Instructor in Surgery

Angela J. Welch, PA-C
Instructor in Surgery

Brent C. White, MD
Assistant Professor of Surgery
INTRODUCTION
With the opening of the Center for Surgical Innovation (CSI) and its two new operating rooms equipped with intraoperative 3T MRI, intraoperative 64-slice CT, two state-of-the-art image-guidance systems, extraordinary space and perhaps most importantly an orientation toward investigational studies and discovery, the Section of Neurosurgery enjoyed an especially exciting and productive year. The inter-related clinical, educational and research missions were all successfully advanced, and new faces and initiatives complemented renewal of long-standing programs.

CLINICAL ACTIVITIES
Neurosurgery’s broad spectrum of subspecialty services—tumor, cerebrovascular, trauma, spine, peripheral nerve, pain, pediatric, epilepsy, and functional—is comprehensively covered, led by a focused-practice faculty. Our clinical productivity continued well-above (108%) the 60th percentile benchmark of the institution, ensuring both critical volumes for excellence in care, as well as ample volume for our educational mission. The arrival of Dr. Robert Singer brought a more rapid growth in interventional cerebrovascular disease management than anticipated, as that field has continued to transition worldwide from open craniotomy to less invasive technologies. Dr. Singer has led our telemedicine initiative, working on teleconsulting technology linking our referring physicians and hospitals for management of cerebrovascular disease. Our multidisciplinary brain tumor program, not the only but perhaps the largest beneficiary of the CSI to date, continues to work collaboratively with Neuro-oncology (glioma), Otolaryngology (skull-base), Endocrinology (pituitary), Pediatrics (pediatric), Orthopaedics (spine), and Plastics (peripheral nerve). Our IND-supported fluorescence-guided tumor surgery work, which had successfully completed its initial, five-year investigational study, opened its second phase, remaining the only service in the Northeast and one of only a handful in the country, providing five ALA-assisted tumor surgery. Under the guidance of Dr. David Bauer, pediatric neurosurgery has expanded its spasticity, epilepsy, endoscopic and spine programs; the last has uniquely benefited from integration with the CSI and with our orthopaedic colleagues. Dr. Nathan Simmons has now taken on leadership responsibility for the interdisciplinary Spine Center, and together with Dr. Perry Ball and Dr. S. Scott Lollis, complex spine remains a major activity within the clinical service. Dr. Lollis continues to maintain a presence in the Manchester outpatient clinics. With final FDA approval of responsive stimulation for epilepsy (an effective, non-resective “smart” technology incorporating an implanted set of intracranial electrodes, processing chip and battery that both detect seizure activity and provide an appropriate counter-stimulus when and where indicated), the multidisciplinary surgical epilepsy team has transitioned from a national pivotal trial in which we were one of the largest enrollers to one of the first in the country to implant the device as a new standard of care.

EDUCATION
Recent residency graduates Atman Desai, MB, BChir and Symeon Missios, MD have just begun faculty positions at Stanford and the University of Louisiana at Shreveport, respectively. George Kakoulides, MD has joined a private practice group outside New York City. New Geisel School of Medicine at Dartmouth graduate Pablo Valdes, MD, PhD, who did his doctoral and post-doctoral work in the section working on fluorescence technologies, moved on to start neurosurgery training in the Brigham and Women’s program. Joining the Dartmouth residency program is Tufts-graduate, Daniel Calnan, MD, PhD (Neuroscience, Stanford).

Residents presented at meetings of the American Association of Neurological Surgeons (seven oral papers and posters, including Best Paper in the socioeconomic category), the Congress of Neurological Surgeons (seven papers and posters), the
New England Neurosurgical Society (two), the AANS/CNS Joint Section on Pediatric Neurosurgery (two), Joint Section for Cerebrovascular Disease, and The International Endovascular Stroke Society. Kimon Bekelis, MD serves on the AANS young Neurosurgeons Committee and is liaison to the AANS Neurosurgery Research and Education Foundation Development Committee.

Neurosurgery residents were responsible for 32 peer-reviewed publications, and earned grant awards from the National Institute on Aging, the Congress of Neurological Surgeons, and the Hitchcock Foundation. Drs. Brandon Root and Kimon Bekelis, under Dr. Singer’s tutelage, helped produce an educational video from Touch Surgery for external ventricular drain placement.

Third-year Geisel students are now rotating on the neurosurgical service and Dr. Lollis is overseeing this rotation. Sub-internships by both Dartmouth and visiting students remained popular. Our elective, Neurosurgery Exposure, continues to be over-subscribed by first and second year students. Dartmouth undergraduates in the Shadow Program were introduced to the operating room, outpatient clinic, and laboratory.

RESEARCH

Neurosurgery’s externally-funded JB Marshall Laboratory for Neurovascular Therapeutics has been investigating neuroprotective strategies for the ischemic brain. Research Fellow Imad Khan, MD, working with Dr. Singer, has been working on intraarterial administration of MMP-9 inhibitors for ischemic stroke in a rodent model and presented at the New England Neurosurgical Society and the International Endovascular Stroke Conference. Also working with Dr. Singer, Dr. Root has investigated translation of Google Glass technology into the operating room.

The fluorescence-guided surgery for tumor program, successful in competitive-renewal of its National Institutes of Health (NIH) funding, is integrating technology development in fluorophore detection and clinical trials utilizing new methodologies. Over the past year, 16 new patients have been enrolled. A long-standing collaboration with the biomedical engineering program of the Thayer School of Engineering, spearheaded by Keith Paulsen, PhD, has enabled expansion of the country’s only intraoperative probe-based, quantitative fluorescence system to an operating microscope-based wide-field hyperspectral imaging system. A highly productive team has been assembled including neurosurgeons Keith Paulsen, Brian Pogue, Alex Hartov, Pablo Valdes, Kolbein Kolste, Jaime Bravo, Chad Kanick, Jonathan Olson, and Scott Davis as well, as Brian Wilson (University of Toronto), Fred Leblond (Polytechnique Montreal), and Brent Harris (Georgetown). Research agreements with Medtronic, Zeiss, and DUSA have provided equipment and pharmaceutical support. Technology development and investigational studies in quantitative, wide-field, dual fluorophore, and depth-resolved fluorescence technologies were presented at SPIE Photonics West, AANS and CNS.

Brain modeling and stereovision projects, also in collaboration with Dr. Paulsen and the Thayer School and supported by the NIH, have succeeded in advancing updated and fiducial-less co-registration methodologies (with special kudos to Xiaoyao Fan, PhD), with application in over 150 operative cases. Initially developed for surgery for glial tumor resection, these technologies have been successfully extended to epilepsy surgery. Dr. Lollis and Songbai Ji, DSc, have further extended the technology into the potentially large field of degenerative spine. Stereovision co-registration methodologies for this have been developed in a large animal model and translated to clinical application; both are utilizing the resources of the CSI.

Dr. Bauer, a former Harmes Scholar research grant recipient, is investigating craniosynostosis, Chiari malformations, and in collaboration with Ryan Halter, PhD, at the Thayer School, new CSF shunt design.
Under the mentorship of Jon Skinner, PhD, at the Dartmouth Institute for Health Policy and Clinical Practice, and with funding support from the NIH, the CNS, and the Hitchcock Foundation, Dr. Bekelis has continued investigation of outcome predictive modeling, resource utilization, workforce allocation, regional disparities, diffusion of innovation, and intensity of care in cerebrovascular disease.

FACULTY HIGHLIGHTS
Dr. Lollis, a former recipient of the Robert Crichlow Career Development Award for his work in complex spine co-registration, successfully passed his oral boards this past spring, the final step in Neurosurgery’s board certification. He is a newly elected Member-at-Large for the New England Neurosurgical Society.

Dr. Simmons served as a neurosurgery oral board’s guest examiner. He has been appointed the new director of the multidisciplinary Spine Center.

Dr. Ball is serving as the Scientific Program Chair for the Neurosurgical Society of America annual meeting and has been awarded the USA Meritorious Service Medal for his recent deployment in Germany.

Dr. Singer successfully transferred his cerebrovascular research laboratory to Dartmouth and has led initiatives in instructional digital media and clinically in telemedicine through development of the Neurovascular Telehealth Network. He is enrolled in a Leadership Development program at the Tuck School of Business.

Dr. Roberts served as Chairman of the American Board of Neurological Surgeons and continues to serve as editor for the journal Stereotactic and Functional Neurosurgery.

We would like to congratulate Nathan E. Simmons, MD on his promotion to Associate Professor of Surgery.

FACULTY

NEUROSURGERY
Perry A. Ball, MD
Professor of Surgery and Anesthesiology
S. Scott Lollis, MD
Assistant Professor of Surgery
Amber P. Merrill, APRN
Instructor in Surgery
Sharon A. Morgan, APRN
Instructor in Surgery
David W. Roberts, MD
Professor of Surgery and Neurology
David H. Sargent, PA
Instructor in Surgery
Nathan E. Simmons, MD
Associate Professor of Surgery

Robert J. Singer, MD
Assistant Professor of Surgery and Radiology
David P. Soucy, PA
Instructor in Surgery
Meredith A. Stringer, APRN, MSN
Instructor in Surgery
INTRODUCTION

With the aging population, we are seeing increased incidents of eye disease. This past year, the Section of Ophthalmology provided services for over 25,000 patient visits. The section is providing primary, secondary, and tertiary eye care, with subspecialty care in pediatrics, glaucoma, oculoplastics, vitreo-retina, cataract surgery, uveitis and cornea. Our team also has optometrists offering complete primary eye care including contact lens fitting.

PATIENT CARE/ FACULTY HIGHLIGHTS

David Campbell, MD serves as Director of the glaucoma service.

Christopher Chapman, MD provides 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.

Rosalind Stevens, MD provides comprehensive medical treatment for patients with retinal and macular disease. Dr. Stevens is very involved in the flying eye hospital, ORBIS, where she is Program Director. ORBIS provides advanced ophthalmology training to ophthalmologists in developing countries.

Cynthia Lawrence, OD provides primary eye care and optometric services as well as contact lens fitting and prescribing.

Donald Miller, MD provides treatment of corneal disease as well as cataract surgery, including the use of toric intraocular lenses for patients with significant astigmatism.

William Rosen, MD provides expertise in diseases of the eyelid, orbit, and lacrimal system. He is a diplomat of the American Society of Oculoplastics and Reconstructive Surgeons.

Erin Salcone, MD is a comprehensive pediatric ophthalmologist and treats pediatric eye disease and adult strabismus. She was a medical student at the Geisel School of Medicine at Dartmouth (GSM) before doing her residency and fellowship at Mass Eye and Ear, and Children’s Hospital in Boston.

Robert Schertzer, MD recently joined the glaucoma service. Dr. Schertzer was in solo private practice in Vancouver, British Columbia, Canada after spending many years in academic medicine at the Kellogg Eye Institute and the University of British Columbia. Dr. Schertzer offers the latest surgical techniques available for treating advanced glaucoma.

Barbara B. Schneekloth, CO is an orthoptist providing care to children and adults with ocular movement problems.

Sowmya Srinivas, OD recently joined our team to provide primary eye care and optometric services as well as contact lens fitting and prescribing.

Michael Zegans, MD provides surgical care for patients with complex corneal disorders, cataracts, tumors of the ocular surface and uveitis syndromes. Dr. Zegans spends about 50% of his time doing research centered on the microbiology of the eye.

EDUCATION

All providers in the Section of Ophthalmology provide educational opportunities onsite at Dartmouth-Hitchcock as well as regionally, nationally, and internationally. Our vibrant Grand Rounds program, overseen by Dr. Schertzer, is well attended by the eye care community in northern New England and includes speakers from Dartmouth-Hitchcock Medical Center (DHMC) as well as national leaders in ophthalmology. Dr. Stevens is an advisor for Global Programming for ORBIS, the flying eye hospital. Dr. Campbell continues to be an invited speaker at the Lancaster Ophthalmology Review Course. Dr. Zegans is involved in educational activities through the American Academy of Ophthalmology, both at the annual meeting and via their online educational initiatives. He developed and taught a course for Dartmouth College undergraduates in the spring of 2014 focusing on the cell biology of the eye.

Dr. Salcone serves as coordinator of medical student and resident education. We are proud of our collective success in matching GSM students each year to competitive ophthalmology residency programs. We were particularly pleased that Andrew N. Siedlecki Jr, a GSM student planning to go into ophthalmology was selected to present his research at the 2014 meeting of the Ocular Microbiology and Immunology Group meeting in Chicago.

CLINICAL TRIALS AND RESEARCH

National Eye Institute Sponsored Clinical Trials

Mycotic Ulcer Treatment Trial (MUTT). A study comparing different antifungal therapies in the treatment of fungal
corneal infection. Dr. Zegans and Christine Toutain-Kidd PhD, COA in collaboration with UCSF and Aravind Eye Hospital in India. Standardization of Uveitis Nomenclature (SUN). A study to develop standard criteria for the diagnosis of uveitis. Drs. Zegans and Toutain-Kidd in collaboration with the SUN study group. NASA Funded Projects NASA EPSCoR: Ocular venous contributions to spaceflight visual impairment. Investigating and modeling mechanisms associated with changes in the globe and visual function during space flight. Drs. Zegans and Toutain-Kidd in collaboration with the Buckey Laboratory and CREARE. NASA NSPIRES: Role of the cranial venous circulation in microgravity-associated visual changes. Examining the role of venous constriction and compliance on spaceflight-associated visual impairment and increased intracranial pressure. Dr. Zegans in collaboration with the Buckey Laboratory, Dr. Clifford Belden and CREARE. Intramural Funding Hitchcock Foundation Grant. Ocular Surface Microbiome of African Children With and Without Ocular Chlamydia Infection in a Trachoma-Endemic Area. Dr. Zegans and Laura Filkins (graduate student GSM). Norris Cotton Cancer Center Comparative Effectiveness Research (CER) Grant. Interferon-Alpha 2b for the Treatment of Ocular Surface Squamous Neoplasia. Andrew Siedlecki (GSM 3), Stephanie Tapp, Anna Tosteson, Robin Larson, and Dr. Zegans. Other Projects and Initiatives Ophthalmology consults in a rural emergency department. The purpose of this study is to further investigate the type of injury, diagnosis, procedures done, and identify any at-risk populations that present for evaluation at a rural emergency department to further improve delivery of care. Drs. Salcone and Edmund Tsui (intern). Initiative to assess patient outcomes from cataract. Dr. Miller and Kim McQuaid, COMT are collaborating to develop and implement measures of patient satisfaction and clinical outcomes related to cataract surgery. Microbiology of ocular infection. Dr. Zegans conducts laboratory based studies related to the microbiology of ocular infection. Support for this work has come from the NEI and MedImmune. 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. We are actively recruiting new faculty with expertise in the areas of neuro-opthalmology, retina, oculo-plastics and glaucoma. The principal three-year goal of the section is starting a residency program. A major step that will help our residency application is the new ophthalmology program being started at the White River Junction VA Medical Center (WRJ VAMC). Our aim is to affiliate our residents with rotations at the WRJ VAMC facility. All of the faculty view education and teaching as part of their mission and all desire a residency training program. Faculty Ophthalmology David G. Campbell, MD Professor of Surgery Christopher B. Chapman, MD Assistant Professor of Surgery and Pediatrics Cynthia J. Lawrence, OD Instructor in Surgery Donald M. Miller, MD Assistant Professor of Surgery William J. Rosen, MD Associate Professor of Surgery Erin M. Salcone, MD Assistant Professor of Surgery Robert M. Schertzer, MD Assistant Professor of Surgery Sowmya Srinivas, OD Instructor in Surgery Rosalind A. Stevens, MD Professor of Surgery Christine M. Toutain-Kidd, PhD, COA Research Associate in Surgery Michael E. Zegans, MD Professor of Surgery and Microbiology and Immunology
INTRODUCTION
The Section of Otolaryngology, Audiology and Maxillofacial surgery enjoyed another productive year pursuing our goals of excellence in patient care, education, service, and research.

PATIENT CARE
Clinical efforts in our section have been focused primarily on improving access for our patients and supporting our well established specialty clinics. We realize the importance of offering care locally; our two outreach programs, a comprehensive otolaryngology clinic at New London Hospital with Dr. Daniel Morrison, Jr. and the Head and Neck Tumor Outreach Clinic with Dr. Joseph Paydarfar in Manchester have successfully provided improved access to the population in these areas. In order to improve patient access in Lebanon, we have implemented a pilot program in the Head and Neck Tumor Clinic utilizing our outstanding associate providers Peter Dixon, PA and Sharon Bry, APRN, to manage established cancer patients thereby freeing up time for our head and neck surgeons to see new and urgent referrals. This lead to a nearly 50% increase in the number of new patients seen per month, a decrease in our third available times by three weeks, and a near complete elimination of double bookings in clinic. We plan on expanding this pilot program to other surgical practices in our section, tailored specifically to each surgeons practice style and needs.

The “team care” concept is exemplified in our specialty clinics. The Head and Neck Cancer Program under the leadership of Dr. Benoit J. Gosselin continues to provide state of the art surgical care for this complex patient population. Over the last year, we saw over 500 new patients with confirmed or “rule out” head and neck cancer. Our highly capable and dedicated head and neck cancer nurse navigator, Sheila Keating, RN, manages confirmed cancer patients on the pre-treatment Head and Neck Cancer Care Path. Post-treatment follow up and surveillance in the Multi-Disciplinary Head and Neck Tumor Clinic is coordinated by Ms. Keating working with our colleagues in Radiation and Medical Oncology, Nutrition, Speech Therapy, Physical Therapy, Social Work, and Palliative Care. Patients requiring surgical management have benefited from minimally invasive approaches such as trans-oral robotic surgery and trans-oral laser microsurgery as well as complex open surgical procedures with microvascular free tissue transfer reconstruction in coordination with Drs. Gary Freed and John Nigriny in Plastic Surgery.

The Lateral Skull Base Program, directed by Dr. James Saunders, was quite productive last year, evaluating 96 patients with acoustic and other lateral skull base tumors in this multi-disciplinary clinic. Twenty-six surgeries were performed in coordination with Dr. Nathan Simmons from Neurosurgery. Dartmouth-Hitchcock Medical Center (DHMC) was recognized in 2014 as an Acoustic Neuroma Association Center of Excellence.

Drs. Mark Smith and Rocco Addante maintain their active involvement in the Multi-Disciplinary Craniofacial Program providing much needed services to another patient population with complex and multi-faceted needs. Over 120 patients were cared for in the Craniofacial Program in 2014 coordinating with Plastic Surgery, Social Work, Speech Therapy, and Audiology.

The success of these multi-disciplinary clinics would not be possible without the teamwork and dedication of our nursing staff under the energetic leadership of Jennifer Christoffers, RN.

Our outstanding practice manager, Annette Tietz, continues her tireless efforts encouraging the staff in quality improvement projects, organizing regular section meetings, and conducting team building and coaching exercises through the Value Institute Relational Coordination Program.
EDUCATION

The Otolaryngology Residency Program directed by Dr. Smith had another successful year and graduated our third resident, Brian Thomas, MD. Dr. Thomas has joined a private practice in Billings, MT to be closer to both his and his wife’s family.

Our current chief resident, Jack Russo, MD matched into his first choice fellowship program in Head and Neck Oncologic and Reconstructive Surgery at Mount Sinai Medical Center in New York. Dr. Russo is our first resident to pursue fellowship training.

The Audiology group in our section matched their fourth Doctor of Audiology (AuD) Extern, Nicole “Nicci” Maynard. Nicci is a native Vermonter who is completing her fourth year with us via the University of Massachusetts at Amherst.

Mentorship has been an important part of the educational mission of the section and in 2014 we had a number of mentoring activities.

• Dr. Saunders was a research mentor to Geisel School of Medicine at Dartmouth (GSM) students Sunil Bhatt for the project “Automated hearing screening in Nicaraguan school children”, Lye Yeng Wong for “Low-cost, Mobile Hearing Assessment for Newborns in the Developing World”, and Cong “Ivy” Ran for “Nervus intermedius outcomes in acoustic neuroma patients.”

• Louise Davies, MD, MPH was a research mentor to GSM student Chengetai Mahomva for the project “Improving school access in South Africa for tracheostomy dependent children,” as well as to Otolaryngology resident Dr. Russo for his project “Telemedicine — development of real time physical exam capability for remote veterans.”

• Drs. Smith and Eunice Chen were research co-mentors to otolaryngology resident, Courtney Hill, MD for her research examining taste acuity, chronic tonsillitis, and tonsillectomy and its effect on BMI in children. Dr. Hill received two grants under the mentorship of Drs. Chen and Smith, a Hitchcock Foundation Research Grant, “Taste Acuity and Obesity in Children with Chronic Tonsillitis,” ($17,780) and an AAO-HNSF Resident Research Grant, “Effect of tonsillectomy on taste acuity and BMI in children,” ($10,000).

• Dr. Addante mentored a number of dental students rotating through DHMC from the Harvard School of Dental Medicine and Boston University School of Dental Medicine.

• Drs. Gosselin and Paydarfar continued their active mentorship of Dartmouth College undergraduate students interested in medicine through the Nathan Smith Pre-medical Society.

Community education is another significant part of our educational mission. 2014 marked the inauguration of the Weider Memorial Patient Education Day. Our first education day in September was on “Hearing Health” and highlighted the latest developments in hearing amplification technology, surgical treatments for hearing loss, and global health issues related to hearing. This event was attended by 80 members of the community.

We held the “4th Annual Autumn in New England Otolaryngology Update Meeting” this past October at Lake Morey Resort. This is a comprehensive update meeting geared toward the general otolaryngologists and associate providers. All of our section faculty, other invited Geisel faculty, as well as a variety of distinguished guest speakers have contributed to this well-received meeting.

FACULTY HIGHLIGHTS

Dr. Paydarfar has assumed the role of Section Chief for the Section of Otolaryngology, Audiology and Maxillofacial Surgery. He takes the reins from the very capable hands of Dr. Morrison. During his tenure, Dr. Morrison piloted the section through considerable change, introducing the otolaryngology residency, expanding the faculty, and initiating multiple successful quality improvement and care path projects. In addition to assuming the leadership of the section, Dr. Paydarfar was awarded a SYNERGY Pilot and Collaborative Studies Program Grant ($49,000) with Co-PI Ryan Halter PhD, for the study “Improving trans-oral surgical outcomes through intra-operative image guidance.” This study takes advantage of the unique intra-operative imaging opportunities afforded by the Center for Surgical Innovation at DHMC to develop predictive models of upper aerodigestive tract deformation during trans-oral surgery. Dr. Paydarfar was also an invited speaker at the Annual International Congress of the Iranian Society of Otorhinolaryngology in Tehran, Iran and the Annual Meeting of the Indian Academy of Otolaryngology — Head and Neck Surgery in Chennai, India.

Dr. Giridhar Venkatramanan has expanded his commitment to the Value Institute and now spends 70% of his time in quality improvement work with the Perioperative Center and the Value Institute. He has championed a pilot study examining indices for frailty and surgical outcomes. These results were recently presented at Value Grand Rounds. He is currently working with students from GSM to implement the findings more widely throughout Dartmouth-Hitchcock (D-H). He has also been involved in ongoing bimonthly perioperative team training at the Simulation Center to improve team performance and patient safety in the operating room.

In addition to his role as leader of the Head and Neck Cancer Program, Dr. Gosselin has been an active member of the Head and Neck Surgery Education Committee of the American Academy of Otolaryngology — Head and Neck Surgery and is the New Hampshire representative on the Board of Governors of the American Academy of Otolaryngology — Head and Neck Surgery. During this past year he completed course work and received the TDI Certificate in the “Fundamentals of Value-Based Care.” He has been the lead on the STAT Airway Project, an institution wide effort to improve safety in patients with fresh tracheostomies. He was also an invited speaker on human papilloma virus and head and neck cancer at the National Meeting of the American Academy of Otolaryngology — Head and Neck Surgery in Orlando, FL.

As the Chair of the Children’s Hospital at Dartmouth-Hitchcock Anesthesia,
measurement of pO2 for enhancing “the direct and repeated clinical institute program project grant (P01), institutes of health/National Cancer of skin cancers,” ($50,000), National precise and tissue-sparing excision receptor concentration imaging enables studies pilot award, “in vivo optical number of research grants including Dr. Chen has been the recipient of a director of medical student education in otolaryngology for the GSM.

Dr. Chen has been the recipient of a number of research grants including the SYNERGY Pilot and Collaborative Studies Pilot Award, “in vivo optical receptor concentration imaging enables precise and tissue-sparing excision of skin cancers,” ($50,000), National Institutes of Health/National Cancer Institute Program Project Grant (P01), “the direct and repeated clinical measurement of pO2, for enhancing cancer therapy,” ($6,420,000), as well as those received as co-mentor for Dr. Hill. She has been an active member of a number of committees with the American Academy of Otolaryngology — Head and Neck Surgery including the Pediatric Otolaryngology Home Study Working Group, the Pediatric Otolaryngology Education Committee, and the Vascular Anomaly Task Force.

Dr. Saunders was an invited speaker to numerous national and international meetings on hearing health including the ACIA Cochlear Implantation in Children Conference in Nashville, TN, the American Academy of Otolaryngology — Head and Neck Surgery Annual Meeting in Orlando, FL, the World Health Summit in Berlin, Germany, the Pan American Congress in Cartagena, Columbia, the Coalition for Global Hearing Health in Oxford, England, the Venezuelan Society of Otolaryngology in Caracas, Venezuela, and the South African Cochlear Implant Society in Johannesburg, South Africa. He is a member of the Global Burden of Disease Working Group, Socioeconomic Committee Member of the American Neurotological Society, and Coordinator of International Affairs for the American Academy of Otolaryngology — Head and Neck Surgery.

Dr. Davies continues her research interests in treatment decision making and cancer detection. In 2014 she became the Fellowship Director of the VA Quality Scholars Program. She was the keynote speaker for the New Hampshire Cancer Coalition Annual Meeting and was invited to speak at the American Association of Clinical Endocrinologists Annual Meeting in Las Vegas, NV and the “value-based Healthcare in Head and Neck Cancer” meeting at the MD Anderson Cancer Center in Houston, TX. She serves on the Surgical Affairs Committee of the American Association of Clinical Endocrinologists and the Research Committee of the American Head and Neck Society. She was awarded a grant ($10,000) through the Leslie Center for the Humanities at Dartmouth/Mellon Foundation/CHCI for “Harnessing patient experiences of observing thyroid nodules to the public.”

Dr. Addante was a Visiting Professor with the Maxillofacial Surgery Program at La Sapienza Universita in Rome, Italy. He was also invited to speak on diagnosis and management of cancers of the head and neck at the Bronx Lebanon Hospital, Montefiore Medical Center, New York City. He continues to serve as Chairman of the Commission on Professional Conduct of the American Association of Oral and Maxillofacial Surgery.

LOOKING AHEAD
We are actively recruiting a fellowship trained Rhinologist/Anterior Skull Base Surgeon. We have plans to recruit a fellowship trained Laryngologist and possibly expand our associate provider staff both in Lebanon and New London. We are actively developing a strategy to work with our D-H partners in Manchester and Keene, NH, as well as the southern Vermont region to improve comprehensive otolaryngology, sub-specialty Otolaryngology, and Audiology coverage in these areas.

We would like to congratulate Mark C. Smith, MD on his promotion to Associate Professor of Surgery and Pediatrics.
Otolaryngology/Audiology Gross Professional Revenue

- FY09: $500K
- FY10: $1M
- FY11: $1.5M
- FY12: $2M
- FY13: $2.5M
- FY14: $3M

Otolaryngology OR/OSC Cases

- FY09: 200
- FY10: 150
- FY11: 100
- FY12: 150
- FY13: 200
- FY14: 250

Maxillofacial Surgery Gross Professional Revenue

- FY09: $500K
- FY10: $1M
- FY11: $1.5M
- FY12: $2M
- FY13: $2.5M
- FY14: $3M

Maxillofacial Surgery OR/OSC Cases

- FY09: 50
- FY10: 100
- FY11: 150
- FY12: 200
- FY13: 250
- FY14: 300
INTRODUCTION
The Section of Pediatric Surgery includes the surgical subspecialties of Pediatric General and Thoracic Surgery, Pediatric Urology and Pediatric Neurosurgery. Transition is the hallmark of health care and 2014 proved to be a year of marked change for the Pediatric Surgery Section in personnel, responsibilities and activities. In July of 2014, Dr. Daniel Croitoru assumed the responsibilities of Section Chief from Dr. Laurie Latchaw who had served in this position for the past 15 years. After almost eleven months without a practice manager Maria Scopelliti, MHA was recruited from Geisinger Medical Center to become the new Practice Manager of Pediatric Surgery.

PATIENT CARE
Providing outstanding surgical care to the children that we serve remains the primary mission of the section. This is the 15th year that the Pediatric Surgery Section has provided outreach clinics in the Manchester/Bedford, NH area. Dr. Latchaw, Pediatric General Surgery, and Dr. David Chavez, Pediatric Urology, both perform outpatient pediatric surgical procedures which were transitioned from the Manchester ASC to the Elliott Rivers Edge Outpatient Surgical Center. Dr. Chavez continues to be the only pediatric urologist in the region. Dr. Croitoru, Pediatric General and Thoracic Surgery, also provides outreach clinics at the Bedford Children’s Hospital at Dartmouth-Hitchcock (CHaD) facility especially for patients with chest wall malformations including pectus excavatum and pectus carinatum. Dr. David Bauer, Pediatric Neurosurgery, continues to be the only pediatric neurosurgeon in the region.

PEDIATRIC TRAUMA PROGRAM
This year the American College of Surgeons re-verified the Pediatric Trauma Program as a level II Pediatric Trauma Center. This continues to be the only ACS designated Pediatric Trauma Center in northern New England. Dr. Latchaw is the Pediatric Trauma Medical Director and Lindsay Baldini, RN was recruited this year to be the Pediatric Trauma Program Manager. Dr. Latchaw also continues to serve on the New Hampshire State Trauma Committee as the only pediatric surgeon representative.

CHEST WALL DEFORMITY PROGRAM
Dr. Croitoru continues to provide a comprehensive program in chest wall deformities in both Lebanon and the Manchester/Bedford clinic and has evaluated over 400 patients with chest wall malformations since joining the faculty in the Department of Surgery. Dr. Croitoru is nationally known as an expert in Minimally Invasive Pectus Excavatum Repair and is the only surgeon performing this procedure in the region.

MINIMALLY INVASIVE SURGERY, ROBOTIC SURGERY AND IMAGE GUIDED SURGERY
The surgeons in the Section of Pediatric Surgery continued to provide minimally invasive techniques when appropriate for treatment of abdominal, thoracic, genitourinary, and intracranial operations in pediatric patients of all sizes and ages. Dr. Chavez continues to provide the only pediatric urology robotic program in northern New England. Dr. Bauer was one of the first surgeons to utilize the Center for Surgical Innovation (CSI) which is the first center in the United States with both intraoperative MRI and CT scan capabilities for image guided resection of brain and spinal tumors.

MULTISPECIALTY CLINICS
Pediatric Brain Tumor Clinic, Pediatric Epilepsy, Pediatric Spasticity Program, Spina Bifida Program and Noggin Clinic
These multidisciplinary clinics, as part of CHaD, continue to serve children with brain tumors for follow-up care, children with seizure disorders that may require operative intervention, children with cerebral palsy having debilitating spasticity and dystonia, as well as children with spina bifida. Dr. Bauer and Scott Lannon, MSN, Pediatric Neurosurgery, participate in these multidisciplinary clinics.

EDUCATION
Medical education of patients and families, as well as present and future healthcare providers, continues to be of primary importance to the Pediatric Surgery Section. The Division of Pediatric General and Thoracic Surgery continues to be one of the core surgical programs at CHaD.
teaching services for third-year Geisel Medical students, and also offers a sub-internship for fourth year medical students at Dartmouth-Hitchcock Medical Center (DHMC). All of the divisions actively participate in residency training programs for their respective specialties mentoring residents in their surgical and pediatric training.

Dr. Croitoru was an invited speaker discussing chest wall malformations in the orthotic treatment of pectus carinatum at the New England Chapter of the American Academy of Orthotists and Prosthetists and serves as a reviewer for the *Journal of Pediatric Surgery*. Dr. Bauer, Pediatric Neurosurgery, was an invited speaker at a conference on intraoperative imaging techniques. Dr. Chavez, Pediatric Urology, presented a lecture on pediatric genitourinary emergencies at the New England section of the American Urology Association. Dr. Logan, Pediatric Urology, presented a lecture on pediatric voiding dysfunction at the Northeast Nurse Practitioner Conference, as well as a lecture on pediatric urology topics at the Franklin Pierce Physician Assistant program.

**RESEARCH**

Dr. Croitoru continues to participate as a primary investigator in a national pediatric anesthesia database comparing methods of postoperative analgesia for patients undergoing pectus excavatum repair. Dr. Croitoru also mentored Dr. Andrea Stroud, General Surgery resident, in research Rural vs. Urban Treating Trauma Centers: Different Mechanisms, Similar Outcomes presented at the Canadian Association of Pediatric Surgery meeting in September 2014. Dr. Logan, Pediatric Urology, published a paper on voiding dysfunction related to adverse childhood experiences and neuropsychiatric disorders in the *Journal of Pediatric Urology* and presented a poster on the experience of teaching and learning clean intermittent catheterization for parents of newborns with spina bifida. She is also performing research on the nursing research infrastructure with Gay Landstrom, PhD (c), NEA-BC Chief Nursing Officer of DHMC. Dr. Bauer, Pediatric Neurosurgery, has mentored residents and published research on postoperative mycoplasma hominis infections after neurosurgical intervention in the *Journal of Neurosurgery*, pediatrics, and surgical manifestations of thoracic arachnoid pathology in the *Journal of Neurosurgery*, spine.

**LOOKING AHEAD**

The section is actively recruiting in pediatric general and thoracic surgery for succession planning as Dr. Latchaw prepares for retirement, as well as for a pediatric general surgeon with research interest to increase the academic profile of the section and department. The section is also continuing to actively recruit a second pediatric urologist.

The coming year will continue to place challenges on healthcare and especially in the pediatric surgical subspecialties where reimbursement remains a critical concern. The American College of Surgeons has adopted the American Pediatric Surgical Association guidelines of Optimal Resources for Children’s Surgical Care in the United States and in 2015 will institute a verification process similar to the verification that currently is in place for trauma centers in the United States. The Section of Pediatric Surgery along with other pediatric surgical subspecialties and pediatric anesthesia providers at CHaD are actively working to assure that Dartmouth will be verified as an advanced center for pediatric surgical care.

**FACULTY**

**PEDIATRIC GENERAL AND THORACIC SURGERY**

Daniel P. Croitoru, MD  
Associate Professor of Surgery and Pediatrics

Laurie A. Latchaw, MD  
Associate Professor of Surgery and Pediatrics

**PEDIATRIC NEUROSURGERY**

David F. Bauer, MD  
Assistant Professor of Surgery and Pediatrics

Scott M. Lannon, MSN  
Instructor in Surgery and Pediatrics

**PEDIATRIC UROLOGY**

David R. Chavez, MD  
Assistant Professor of Surgery and Pediatrics

Bridget A. Logan, PhD, NP-C  
Instructor in Surgery and Pediatrics
INTRODUCTION
The Section of Plastic Surgery is committed to continuous improvement in the work we do and services we provide to our patients, their families, and each other. We are constantly engaged in looking at ways to improve our work and provide better care for our patients. Leaders from the group have been invited to present their work for the Value Institute, various Grand Rounds and other educational forums. We are looking into the future to find more ways to improve and share this work throughout the institution and beyond.

PATIENT CARE
Over the past year, we have worked to design new interdisciplinary clinics which our patients will benefit greatly from and provide care to those less fortunate in various trips to third world countries. We continue to find ways to meet patient demand while balancing financial stewardship, and looking at ways to cut expenses and work more efficiently. We have recently started an interdisciplinary clinic for our hand patients in which we have occupational therapists offering joint appointments. The interdisciplinary nature of these visits makes them convenient and well received by patients. We continue to collaborate regularly with various specialties such as General Surgery, Dermatology, Otolaryngology, Orthopaedics, and others.

EDUCATION
We are currently training three plastic surgery residents. Jeffrey Wu, MD is our third-year resident. Dr. Wu is currently planning to enter an academic practice upon completion of his training in June. Tamara Dawli, MD is our second year resident and she is currently looking for fellowships to further her training when she graduates in 2016. Nickolay Markov, MD joined our section as a first-year resident. Our residents continue to be an integral part of our program and our faculty members enjoy engaging with them in regular lecture sessions and grand rounds, as well as in day-to-day patient care.

RESEARCH
Carolyn Kerrigan, MD continues to collaborate with researchers from Memorial Sloan-Kettering to develop outcome measures for women undergoing breast surgery. She has also focused on clinical outcomes of needle aponeurotomy for Dupuytren’s and utilizing patient-reported outcomes in common hand problems as a bedside diagnostic tool.

Mitchell Stotland, MD has been exploring perceptual response to facial difference; the effect of isolated muscle paralysis on emotional processing, and is involved in a new project evaluating a novel approach to total ear reconstruction.

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 is 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).

Dale Vidal, MD is the Co-PI on a grant submitted to the Arthur Vining Davis Foundation to allow for the Patient Support Corps, a program that partners students with patients facing difficult medical conditions. She also supports several junior faculty members as a mentor on sponsored research developmental awards.

FACULTY HIGHLIGHTS
Dr. Stotland is currently on an extended leave while he helps outfit a new state of the art pediatric hospital in Doha, Qatar. In the meantime, we have two new faculty members joining our section in 2015. Dr. Joseph Shin joins us as the new Chief of Pediatric Plastic Surgery and Director of
the Craniofacial Program. Dr. Michael Matthew will join us in July and his practice will focus on hand surgery.

Dr. Kerrigan is a trustee of the American Society of Plastic Surgeons and an evaluator of examiners for the American Board of Plastic Surgery. Since the start of eD-H, she has become more involved in advancements of the Electronic Medical Record (EMR), recently leading and collaborating with clinicians who seek to create patient-care surveys to optimize patient and provider time during their visit.

As Chief of the Section of Plastic Surgery, Professor of Surgery at the Geisel School of Medicine at Dartmouth, 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 continues as the Chair of the Curriculum Committee for the Masters of Health Care Delivery Science Program at Dartmouth. This role allows Dr. Vidal the ability to effectively shepherd new advances in health care delivery, oversee quality improvement efforts in the use of health information technology systems, and development of novel clinical and translational methodologies.

Many of our faculty members have been involved in care path development. Drs. Vidal, Freed, Kerrigan, Nigriny, and Emily Ridgway have collaborated to redesign their Breast Reconstruction Care Path, focusing on standardizing practices within the clinic setting. Dr. Nigriny is currently developing a pilot program in telehealth to improve access and convenience for patients with plastic surgery needs. Regionally, we are exploring new partnerships with Keene, New London and southwestern Vermont to provide reconstructive services for patients in those areas.

**FACULTY**

**PLASTIC SURGERY**

**Alison E. Evans, APRN**
Instructor in Surgery

**Gary L. Freed, MD**
Assistant Professor of Surgery

**Carolyn L. Kerrigan, MD, CM, MSc**
Professor of Surgery and The Dartmouth Institute

**John F. Nigriny, MD**
Assistant Professor of Surgery

**Emily B. Ridgway, MD**
Assistant Professor of Surgery

**Joseph M. Rosen, MD**
Professor of Surgery and Radiology

**Mitchell A. Stotland, MD, CM**
Associate Professor of Surgery and Pediatrics

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

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**Plastic Surgery Gross Professional Revenue**

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**Plastic Surgery OR/OSC Cases**

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INTRODUCTION
The mission of the Section of Solid Organ Transplantation and Hepatobiliary Surgery is to improve the lives of patients with advanced organ failure and complex liver disease through innovative, integrated medical and psychosocial care, education, research, and engagement with public policy development. Over the past 22 years, following the first kidney transplant at Dartmouth-Hitchcock Medical Center (DHMC), the section has experienced tremendous growth in both its volume and in the clinical programs. The section is actively involved in both clinical and outcomes research, national leadership roles within the major transplant organizations, and education for medical students, residents, and fellows.

PATIENT CARE
Kidney Transplant
Our program has continued to expand transplant services to patients living in northern New England. We have expanded services in the Dartmouth-Hitchcock (D-H) Manchester clinic to better serve patients living in the southern part of the region. Patients can now be seen at D-H Manchester through all phases of their transplant care. The program is actively involved in direct patient outreach through dialysis unit visits, local transplant education, and cooperative relationships with referring providers across New Hampshire, Vermont, and northern New York. We are opening clinic evaluation and follow-up in Exeter, NH.

The D-H Transplantation Program continues to grow with an emphasis on excellent outcomes and improved patient quality of life. Through active participation in national living donor exchange programs, and, most recently, the use of novel therapies to decrease antibody levels to permit selected cross match positive transplants, we are bringing state-of-the-art transplant care to our patients. Led by Dr. Christopher Simpkins, these programs expand opportunities for donation and contribute to significant reductions in waiting times and wait list mortality. We have now completed our first ABO incompatible transplants. Our transplant rate is now two to three times faster than the average in our region and in the nation.

Pancreas Transplant
D-H has the largest pancreas transplant program in New England. Unique in the region, pancreas transplant recipients are managed without corticosteroids improving quality of life and reducing complications. Immunosuppression is limited to two medications (tacrolimus and mycophenolate mofetil) and is well tolerated by our patients. We have performed over 80 pancreas transplants in the past seven years and are pleased that our first pancreas recipient is doing well.

Autoislet Transplantation
In cooperation with the Sections of General Surgery and Gastroenterology, we have initiated a program of Total Pancreatectomy and Autoislet Transplant for patients with disabling chronic pancreatitis (TPIAT). Patients are offered a laparoscopically assisted total pancreatectomy. Next, in cooperation with Massachusetts General Hospital (MGH), we isolate their islets from the pancreas, reinfuse them into the liver, and substantially reduce the incidence of post-pancreatectomy diabetes. To date, we have completed a total of 22 procedures. We are pleased that all patients have experienced significant reductions in pain and have minimal insulin requirements. Through the combined efforts of Drs. Timothy Gardner, David Axelrod, and Kerrington Smith, DHMC has emerged as the leading center in New England for TPIAT.

Liver Transplantation and Hepatobiliary Surgery
At D-H, we offer state-of-the-art care for patients with hepatocellular carcinoma, cirrhosis, or end-stage liver disease in our multidisciplinary liver care center. Here surgeons, hepatologists, oncologists, and interventional radiologists participate in a shared medical appointment providing timely, integrated care on a weekly basis. Liver care has now expanded to include the evaluation and postoperative care of liver transplant patients in cooperation with MGH where Dr. Axelrod also practices. This integrated program allows for seamless continuity between the northern evaluation team and the liver transplant programs. Led by Transplantation and Gastroenterology/Hepatology, the program has seen and evaluated over 400 liver patients.
EDUCATION
The Transplantation Section remains committed to the education of students, residents, fellows, patients, and the community. Currently, fourth-year surgical residents spend three dedicated months on the transplant service participating in all aspects of the service. We also train nephrology fellows, urology residents, medical students, and have recently developed a new transplant medicine rotation for the internal medicine residents. Michael Chobanian, MD, Medical Director of Transplantation and Dr. Simpkins have each won awards for outstanding resident teaching.

For our patients, the section continues to conduct outreach sessions and has sessions planned in Manchester, Portsmouth, and Nashua, NH. These sessions bring together health care professionals, local nephrologists, and transplant patients in community sessions designed to promote an understanding of transplant.

RESEARCH
The Transplantation Section has been active in research. An investigator-initiated research program, led by Drs. Richard Zuckerman and Chobanian have focused on immune reconstitution in immunosuppressed patients, with a specific focus on regulatory T cells. Dr. Axelrod has been funded by the National Institutes of Health (NIH) to examine strategies to decrease disparities in access to transplantation and improve immunosuppression selection. Section research has recently been presented at the American Transplant Congress, the American Society of Nephrology, and the Winter Meeting of the American Society of Transplant Surgery. Dr. Axelrod serves on the editorial boards of the American Journal of Transplant and Liver Transplantation. Dr. Richard B. Freeman is a member of several NIH study sections.

FACULTY HIGHLIGHTS
Members of the D-H faculty are active in the national transplant community. Dr. Axelrod serves as the Associate Counselor for United Network for Organ Sharing (UNOS) representing Region 1 on the national Membership and Professional Standards Committee. He also created and directs the American Society of Transplant Surgeons Leadership Development Programs. Dr. Freeman, Chair of the Department of Surgery and member of the Transplantation Section, is the past-President of the International Liver Transplant Society in recognition of his long standing commitment to developing the art, science, and policies that govern liver transplantation in the US and abroad.

LOOKING FORWARD
We anticipate continued growth in all aspects of the Transplantation Program. We continue to focus on improving patient outcomes and enhancing our ability to provide timely local care to patients in northern New England. We have embarked on expanded outreach and clinical activities in the southern region to ensure access to efficient care for patients in this area and expanded cooperation with referring providers. We have received funding from a local foundation to support a novel mobile technology based patient follow-up program.

FACULTY

TRANSPANTATION SURGERY
David A. Axelrod, MD
Associate Professor of Surgery, Community and Family Medicine and The Dartmouth Institute

Michael C. Chobanian, MD
Associate Professor of Surgery and Pediatrics

Richard B. Freeman, Jr, MD
Professor of Surgery

Christopher E. Simpkins, MD
Assistant Professor of Surgery

Transplantation Gross Professional Revenue

Transplantation OR/OSC Cases
INTRODUCTION
The Section of Urology has become a regional leader in the delivery of tertiary and quaternary service in oncology, lower and upper urinary tract reconstruction, incontinence, and complex stone disease through the development of relationships with the primary care and urological community. The minimally invasive approach to the treatment of prostate cancer, upper urinary tract malignancies, and stone disorders is an example of the section’s ability to adopt state-of-the-art technology in the delivery of genitourinary surgical care.

PATIENT CARE
The growth in the volume of renal surgeries and cystectomies performed at Dartmouth-Hitchcock (D-H) suggests that the comprehensive genitourinary oncological initiative is resonating with referring physicians. Our high risk bladder cancer pathway continues to evolve; ensuring consultation and treatment to a population of patients whose prognosis is dependent on time-sensitive intervention.

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. Our faculty provide state-of-the-art surgical care to our prostate cancer patients with the aid of the da Vinci robotic surgical platform. Most nephrectomies and nephron-sparing nephrectomies are now performed with the aid of robotic-assisted techniques. Dedicated PSA/prostate biopsy, hematuria, and metabolic stone clinics represent models of efficient, patient-focused care for common genitourinary problems.

The section is expanding its community integrated urology program. We now have established relationships with Alice Peck Day, Springfield, Valley Regional, and New London hospitals, providing on-site primary urologic care with the ability to expedite the delivery of more complex treatment at Dartmouth-Hitchcock Medical Center (DHMC). The successful recruitments of Marie-Claude Bettencourt, MD and Einar Sverrisson, MD signal a commitment to providing community-based urology in our region.

2014 saw the successful recruitment of Florian Schroeck, MD, a fellowship trained uro-oncologist and recognized health service researcher, as Section Chief at the White River Junction VA Medical Center (WRJ VAMC) and colleague at the Norris Cotton Cancer Center and The Dartmouth Institute (TDI).

EDUCATION
Dartmouth urology is a five-year residency program with affiliations at the WRJ VAMC and Concord Hospital. The revamped block emphasizes the clinical strengths of the Dartmouth program — surgical mentoring based on a core urological syllabus, without sacrificing the importance of investigative scholarly activity. Elective flexibility allows residents to gain experience in renal transplantation, urogynecology, and clinical research. Residents experience pediatric urology at the junior and senior levels, receive supervised independence in the senior year at the WRJ VAMC; our chief residents oversee two adult services at D-H.

Changes made to the third-year surgical core curriculum allow medical students exposure to subspecialty surgery, and has resulted in an increase in fourth year sub-internships and a number of successful urology matches by Geisel students.

FACULTY
In 2014 we recruited three full-time faculty members, each providing care at one of our affiliated institutions in addition to their responsibilities at DHMC. Dr. Schroeck was awarded The Richard Dow award to expand his research on cost effective surveillance of patients with superficial bladder cancer. E. Ann Gormley, MD completed her term as president of the New England Section — American Urological Association (AUA) and was honored by the Accreditation Council for Graduate Medical Education (ACGME) for her outstanding performance as a residency program director. John Seigne, MD, who serves on the AUA Superficial Bladder Cancer Guidelines Panel, was honored by DHMC as the director of the best Continuing Medical Education course for his work with the Northeastern
Genitourinary Oncology Symposium and the Journal of Urology for his superlative work on manuscript review. Vernon Pais, MD the New Hampshire representative to the New England Section of the AUA, and a panelist on the AUA Stone Disease Guidelines Panel, served as co-scientific program director for the annual NE AUA meeting and is enrolled in the TDI Masters program. Elias Hyams, MD serves as co-chairperson of the DHMC Robotic Committee. All faculty serve as reviewers for the major urologic journals.

RESEARCH
Residents and faculty presented in excess of 20 abstracts at this year’s annual AUA and NE-AUA meetings, authored ten articles published in peer-reviewed journals and four chapters in major textbooks and topic-oriented periodicals. Collaborating with Ryan Halter, PhD at the Thayer School of Engineering on an National Institutes of Health funded grant investigating the use of electrical impedance technology in the accurate diagnosis and staging of prostate cancer, Drs. Hyams and Seigne are engaged in applied research activity. Dr. Pais and his resident collaborators continue to expand our knowledge of stone epidemiology and the efficient algorithm for surgical intervention. Working with investigators at the WRJ VAMC, faculty and residents have initiated novel evaluative studies in urethral stricture disease and using the VA Informatics and Computing Infrastructure database. Levi Deters, MD was awarded third place in the New England Resident Essay Contest for his work elucidating the role of ultrasonography in the management of ureteral stones.

LOOKING AHEAD
The challenges presented by a maturing urological workforce in a rural environment accentuate the need to develop collaborative and innovative programs with our critical access partners. At the same time, we continue our goal of providing expert, tertiary genitourinary resources to the entire region. We would like to congratulate Vernon M. Pais, MD on his promotion to Associate Professor of Surgery.

Urology Gross Professional Revenue

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Urology OR/OSC Cases

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FACULTY

UROLOGY

David Barrett, MD
Clinical Professor and Instructor in Surgery

Marie-Claude Bettencourt, MD
Assistant Professor of Surgery

William Bihrlle, MD
Associate Professor of Surgery

E. Ann Gormley, MD
Professor of Surgery

Kelley Hamill Lemay, APRN
Instructor in Surgery

Elias S. Hyams, MD
Assistant Professor of Surgery

Anne K. McGowan, PA-C
Instructor in Surgery

Vernon M. Pais, MD
Associate Professor of Surgery

Florian R. Schroeck, MD (VA)
Assistant Professor of Surgery

John D. Seigne, MB, BCh
Associate Professor of Surgery

Einar F. Sverrisson, MD
Assistant Professor of Surgery
INTRODUCTION
The members of the Section of Vascular Surgery continue to deliver patient-centered value based vascular care through innovation, research, and education. The remarkable achievements of the section have been delivered in a time of tremendous change and uncertainty in the health care system. Despite these challenges we have been successful in maintaining a busy clinical volume, reducing our cost for delivering care, remaining at the forefront of vascular research, and continuing to provide outstanding training for future vascular surgeons.

CLINICAL
Our clinical volume has remained stable. Over the last year we saw 5,573 patients in the ambulatory clinic, performed 523 procedures in the interventional suite, and 1,044 procedures in the operating room. We continue to develop highly specialized programs in vascular care. These include a regenerative medicine program for critical limb ischemia, and a branched fenestrated endovascular aneurysm repair program.

The Vascular Regenerative Medicine Program includes clinical protocols and trials to utilize autologous stem cell and gene therapy to treat patients with critical limb ischemia. To date we have participated in six clinical trials using either autologous stem cells or gene therapy to treat patients with limb threatening ischemia who have limited or no options for lower extremity revascularization. Richard Powell, MD has served as the national or international Principle Investigator for these trials.

The Branched/Fenestrated Endovascular Aneurysm Repair Program is led by Mark Fillinger, MD. This program has assumed a nationally-recognized role training vascular surgeons in branched/fenestrated endovascular aneurysm repair. This technique allows for a minimally invasive approach to repair thoracic-abdominal aneurysms that would otherwise require extensive open surgery with a much higher associated morbidity and mortality. This center is one of only a handful in the country capable of repairing complex thoracoabdominal aneurysm through a minimally invasive endovascular approach.

In order to better provide vascular care throughout our region, our section has developed a regional vascular surgery program that most recently includes a partnership with Dr. Nicholas Garcia and Exeter Hospital to provide onsite and telehealth vascular surgery coverage. Dr. Garcia is the only Vascular Surgeon at Exeter and acts as their Chief Physician Executive. In addition to this new partnership with Exeter, our ongoing regional coverage includes vascular surgeon Laurence Young, MD at D-H Nashua Clinic and William Tanski, MD at D-H-Concord Clinic as well as outreach programs in Cheshire Medical Center in Keene (Eva Rzucidlo, MD), Brattleboro Memorial Hospital in Brattleboro, VT (Daniel Walsh, MD), and the White River Junction VA Medical Center (WRJ VAMC) (David Stone, MD, Philip Goodney, MD, and Brian Nolan, MD). These programs allow patients to be cared for locally while having any needed procedures performed in an appropriate hospital commensurate with the complexity of the care they require.

QUALITY IMPROVEMENT/ VALUE BASED CARE
As technology in vascular surgery evolves, expense has assumed an increasing concern in caring for patients with complex vascular disease. The Section of Vascular Surgery has adopted process improvement methodologies to improve efficiency and eliminate waste while maintaining quality in the care we deliver. Many members of the section, including residents and fellows, have obtained formal training in process improvement methodology through the Dartmouth-Hitchcock Medical Center (DHMC) Value Institute. Members of the section have participated in numerous value improvement projects that include:

1. Thoracic Endovascular Aneurysm Repair (TEVAR) project, which is a vendor pricing negotiation led by Dr. Stone and Practice Manager Gretchen Rutherford to address the impact of high cost requisite
stent grafts necessary for TEVAR procedures. This work was a continuation of our initial effort from the prior year’s Endovascular Aneurysm Repair (EVAR) process improvement project which improved patient flow through the clinic, streamlined instrument use and addressed escalating costs of implantable endografts, resulting in an annualized savings of > $400,000.

2. Nurse Clinician Teri Walsh created and acts as Coach for the Committee for High Achieving Medical Practice (CHAMPS), an internal collaborative team which meets weekly with the mission to identify and solve section issues that improve patient care. Example projects: AVS Summary completion 40% to 96%, Vascular Lab flow and internal communications.

3. The Superficial Femoral Artery (SFA) Stent Project is work led by Research Resident Dr. Kalei Walker to address how to make complex endovascular cases financially self-sufficient.

The section continues to participate in quality improvement projects as part of the Vascular Study Group of New England (VSGNE), a consortium of 30 New England hospitals that track key outcomes and processes of vascular health care, and develop regional Quality Improvement (QI) projects. As part of this effort, the Section is able to benchmark its outcomes against others. Successful QI projects have included the increased usage of statin and antiplatelet medication perioperatively, increased use of patching during carotid endarterectomy to reduce restenosis, reduction of reoperation for bleeding after carotid endarterectomy, and better selection of patients for surgery by more accurate preoperative risk assessment. This regional quality effort, which originated at DHMC, has morphed into the Society of Vascular Surgery Vascular Quality Initiative, a national collaboration of now 280 hospitals in 45 states that have organized 15 regional quality improvement groups, functioning like the VSGNE for regional quality improvement, and using a shared national data registry housed in the SVS Patient Safety Organization.

EDUCATION
The Vascular Surgery Fellowship and Residency Programs are led by Program Director, Dr. Fillinger and Assistant Program Director Dr. Rzucidlo. This year marks the graduation of our second vascular resident Thomas Simone, MD who has taken a position with General & Vascular Surgery Associates in Pittsburgh, PA. Kristina Giles, MD, has assumed a position at the University of Florida. Replacing Dr. Simone as chief resident in vascular surgery is Courtney Warner, MD from the Geisel School of Medicine at Dartmouth. Our chief fellow in vascular surgery is Claire Griffin, MD who completed her general surgery training at the University of Florida Gainesville.

New additions to the Section include Jennifer Peri, MD, our PGY-1 resident who graduated from Columbia University and Bjorn Sukow, MD our first year fellow who completed his general surgery training at the University of Utah.

RESEARCH
All members of the section are involved in research. The Basic Science Program is led by Dr. Rzucidlo. We are currently graduating our fourth PhD candidate from the lab. Our lab is investigating the role of several proteins in the vascular remodeling process. We use in vitro and in vivo models to determine the molecular mechanisms which control vascular smooth muscle cell phenotypic change and how these changes affect the other layers of the artery in the remodeling process. From our work in the lab investigating the role of adiponectin (cardioprotective hormone made by adipocytes and vascular smooth muscle cells), we are now undertaking a human trial to determine the role of adiponectin in predicting outcomes in patients with peripheral vascular disease.

The section has a remarkable track record in outcomes research lead by Drs. Goodney and Nolan. Dr. Goodney, along with co-investigators Drs. Cronenwett, Nolan,
and others, were awarded a $300,000 R21 grant from AHRQ (R21HS021581-01A1) to develop and implement a health information technology tool to help surgeons and patients choose whether or not to proceed with asymptomatic carotid surgery.

The section is actively involved in many clinical trials. This work is supported by two full-time clinical research nurses and a Research Coordinator. The section currently participates in 39 clinical trials that include aneurysm device trials, carotid stenosis trials, proteomic/genomic trials, as well as gene therapy and stem cell trials. The section also participates in several National Institutes of Health sponsored clinical trials including Center for Rural Emergency Services and Trauma (CREST), CREST-2 and BEST CLI. Several members in the section serve as national or international Principal Investigators for these trials. Dr. Powell will be the National Principal Investigator for a new trial examining autologous stem cell treatment for critical limb ischemia. He is also the National PI for the international AnGES 0206 pivotal clinical trial evaluating the use of HGF gene therapy in patients with critical limb ischemia. In addition, he is the National PI for the recently completed SuperNOVA trial evaluating the outcomes of the Innova stent in the artery in patients with symptomatic peripheral vascular disease. Finally, Dr. Powell is also a member of the executive committee of the NHLBI funded BEST trial that compares lower extremity bypass to best endovascular therapy in patients with CLI and has been funded for $25,000,000 over the next five years. Dr. Fillinger is the National PI for the Pythagoras Trial evaluating a novel endovascular graft to treat aneurysm patients with highly angulated infrarenal aortic neck anatomy.

We would like to congratulate Philip P. Goodney, MD on his promotion to Associate Professor of Surgery and David H. Stone, MD on his promotion to Associate Professor of Surgery.

AWARDS

Jack Cronenwett:
Stakeholder Council of Medical Device Epidemiology Network of FDA

Mark Fillinger:
President-elect New England Society for Vascular Surgery

Philip Goodney:
Director for the Center for the Evaluation of Surgical Care at Dartmouth-Hitchcock; Interim Co-Director of the VA Outcomes Group; Chair of the Research Advisory Committee for the Society for Vascular Surgery’s national Vascular Quality Initiative; Research Advisory Committee for the Vascular Study Group of New England

Richard Powell:
Secretary for the New England Society of Vascular Surgery

Eva Rzucidlo:
Editorial Board Journal of Vascular Surgery, Chair Video Committee Society for Vascular Surgery, SYNERGY grant awardee

David Stone:
E.J. Wylie Traveling Fellowship Award from the Society of Vascular Surgery to investigate the cost of endovascular aneurysm repair abroad in capitated systems of healthcare award of operational excellence from the Value Institute recognizing EVAR Care Path quality improvement/cost reduction work; Chair of the Issues Committee for the New England Society for Vascular Surgery

Daniel Walsh:
Distinguished Reviewer, Journal of Vascular Surgery; Past President, Vermont Medical Society; Secretary/Treasurer of the Eastern Surgical Society

FACULTY

VASCULAR SURGERY

Jack L. Cronenwett, MD
Professor of Surgery, Community and Family Medicine and The Dartmouth Institute

Mark F. Fillinger, MD
Professor of Surgery

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

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

Richard J. Powell, MD
Professor of Surgery and Radiology

Eva M. Rzucidlo, MD
Associate Professor of Surgery and Pediatrics

Carey B. Stillman, APRN
Instructor in Surgery

David H. Stone, MD
Associate Professor of Surgery

Daniel B. Walsh, MD
Professor of Surgery

Robert M. Zwolak, MD, PhD
Professor of Surgery

VASCULAR RESEARCH LAB

Mary Jo Mulligan-Kehoe, PhD
Associate Professor of Surgery

DARTMOUTH-HITCHCOCK MEDICAL CENTER DEPARTMENT OF SURGERY ANNUAL REPORT 2014
Surgical Research Laboratory

Mission
The Surgical Research Laboratory (SRL) is a 10,000 sq. ft. research laboratory and experimental animal operating room (OR) facility designed to perform a wide array of in vitro and in vivo translational research studies (including sophisticated surgery and imaging techniques) for improved understanding of disease processes including identification and facilitation of new medical and surgical devices, techniques and therapeutics.

Faculty and Administration
Immediate supervision and oversight of the SRL rests with Department of Surgery (DoS) Chair, Richard B. Freeman, MD, FACS. The Dartmouth College Provost Office, the Geisel School of Medicine, the Dartmouth College Center for Comparative Medicine and Research, the Norris Cotton Cancer Center, and the Thayer School of Engineering are key research partners, supporters and administrative collaborators of the SRL. The full-time SRL support staff includes three veterinarians, one veterinary technician, two PhD research associates, a senior OR manager, two senior bench laboratory managers and two part-time administrative grant/financial managers. Seven DoS professors have dedicated laboratory space in the SRL. More than 25 DoS/D-H/Thayer School surgeons and faculty performed research in the SRL in 2013–14. Twelve graduate students and post-doctoral fellows have a research home in the SRL and more than 50 Dartmouth and non-Dartmouth undergraduates engaged in SRL research projects in 2013–14.

Facility
Basic Research
The basic science component of the SRL (six bench laboratories) includes a complete array of molecular biology instrumentation and techniques including cell culture; DNA microarray; proteomics array; northern, western, and southern blots; ELISA; RT-PCR; autoradiography; etc.

Pathobiology and radiation activity
SRL Director, P. Jack Hoopes, DVM, Ph.D., is our resident veterinary pathologist and has a graduate degree in radiation biology. Dr. Hoopes has 20 years of experience performing morphologic and morphometric pathology studies in rodents and large research animals. Histologic preparation and staining/labeling techniques including histochemistry, immunohistochemistry, in situ hybridization, and laser dissection is available through the Department of Pathology, histopathology laboratory. This laboratory is located one floor beneath the SRL, in the same wing of the Borwell building.

Image Analysis and Quantification: SRL laboratories developed and maintain an automated/computer based image analysis system. The Macintosh based system encompasses a variety of light microscopes, color scanners, digital cameras, color printers and analysis software. Combined with the use of image quantification software (NIH Image J, PhotoShop, IP Lab, Matlab), this system is especially useful for quantifying the size, shape, number and color (Grey scale) of microscopic and gross tissue and radiological images. It is also very useful in co-registering two or more imaging modalities (i.e. radiography: histopathology) to better determine the resolution and sensitivity of individual imaging modalities used in treatment planning or assessment. The SRL contains several fluorescent microscopes and has recently added whole animal fluorescent imaging capabilities.

Surgical Research
A six room state-of-the-art experimental animal operating facility, which includes a lead lined radiation suite (dedicated cine-fluoroscope/angiography unit and clinical ultrasound), performs an extensive area of animal based experimentation (all commonly used large research models) including pigs, rabbits, sheep, and spontaneous canine tumors (pet dogs treated with curative intent and long-term follow up). SRL surgical and imaging techniques include state-of-the-art animal anesthesia delivery and monitoring. The facility contains seven permanent and two mobile operating microscopes, suitable for conventional and microsurgery applications.

Animal Imaging Resource
The SRL staff [Moodie, Strawbridge, Kane and Hartov (Thayer image reconstruction engineer)] in collaboration with the Center for Comparative Medicine and Research (Director Hoopes) and the Norris Cotton Cancer Center, oversee the small animal imaging shared resource. This rodent imaging facility includes MRI, CT, PET, ultrasound, fluoroscopy/angiography and bioluminescence/fluorescence imaging instrumentation. Instrumentation currently available for large animal imaging includes MRI, CT, and PET. Clinical ultrasound and fluoroscopy/angiography imaging is performed dedicated in the SRL OR suite. The SRL staff also has expertise in the technical aspect and use of endoscopy, laparoscopy, and radiation therapy (linear accelerator) treatment planning. Taken together, research animal based imaging and surgery...
technology and instrumentation is at the forefront of the national research effort in this area.

Center for Surgical Innovation (CSI)
The National Institutes of Health (NIH)/Dartmouth-Hitchcock supported CSI is now open and in use for patients and experimental large animals. This facility, one of fifteen in the USA, is a two-room OR facility for clinical patients, and selected research animal subjects, which includes built-in intraoperative MRI, CT, and bi-planar fluoroscopic/angiography technology. The D-H facility is the only one in the USA and Canada to be dual-fitted for animal-based surgical research and clinical patients. Ex vivo and animal subjects are being studied using the center. At least seven animal CSI grants are pending or funded.

Large Animal Intensive Care Unit
An NIH G20/facility grant for construction and development of large animal post-procedural intensive care unit recently received a fundable priority score. This facility will use remote, noninvasive medical and physiologic monitoring (IR imaging, computer chip) of post-surgery/ procedure animals.

SRL RESIDENT AND NON-RESIDENT FACULTY (50 ACTIVE DARTMOUTH FACULTY USERS)
Active, Resident SRL Faculty:
D. Roberts, MD, K. Samkoe, PhD, K. Moodie, MS, DVM, B. Pogue, PhD, E. Chen, MD, PhD, E. Rzucidlo, MD, R. Singer, MD and P.J. Hoopes, DVM, PhD.

Four of these faculty members (Drs. Pogue, Samkoe, Roberts and Hoopes) have primary or adjunct appointments at the Thayer School of Engineering.

Active, Non-resident DOS Faculty:
S. Lollis, MD, T. Trus, MD, C. Erkmen, MD, M. Stotland, MD, R. Powell, MD, M. Zegans, MD, C. Chapman, MD, D. Miller, MD, J. Rosen, MD, R. Freeman, MD, J. Paydarfar, MD, B. Gosselin, MD, J. Saunders, MD, R. Knapp, MD and, J. DeSimone, MD.

Active, Non-DOS D-H/Geisel Faculty:


Funded research projects include:
- Antibody and non-antibody directed iron oxide nanoparticle breast and ovarian cancer treatment (NIH NCI U54, ACS/NCCC internal, NIH SBIR awards)
- Use of dual receptor antibody imaging to assess drug uptake
- Resident training for emergency life support techniques [Dartmouth-Hitchcock Medical Center (DHMC)]
- Assessment of pO2 in stroke (NIH)
- Assessment of spine surgery techniques using real-time MR/CT imaging (Synergy)
- Assessment of image guided ablation of liver metastases using real-time MRI/CT imaging (NIH)
- Assessment of novel esophagectomy techniques (DOS)
- Assessment of vascular microbubbles in altered barometric pressure simulator (NASA)
- Novel antibody treatment of cornea infection (corporate)
- Assessment of glucocorticoid treatment in traumatic wound heating (corporate)
- Stereotactic radiation ablation of lung cancer (NCCC)
- Development of iron/iron oxide nanoparticles (NIH U54, foundation award, industry: Micromod/Aspen)
- Noninvasive microwave imaging and heating techniques (ACS/NCCC internal award)
- Electron paramagnetic resonance assessment of O2 levels in radiation tissue damage (NIH Po1, U19 award, DOD award, Robert W. Crichlow Career Development Award)
- Radiation innovation and development research (NIH P30 award)
- Assessment of novel electrocautery technology (Salient/ Medtronic Inc)
- Photodynamic therapy: treatment efficacy and mechanism (NIH R01, Po1, and K01 awards)
- Use and development of fluorescence and near infrared (NIR) in cancer imaging, diagnosis, and treatment (three NIH R01 awards)
- 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-NCI P01 and R01 breast cancer imaging 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: OPUS-KSD Inc.)

• Novel treatment of spinal cord injury (industry: Thompson MIS Inc)

• Use of novel preservation methods to improve transplant organ health (industry: Somahlution Inc.)

• Novel techniques for the treatment of glaucoma (industry: Euclid Systems corporation)

• Optimizing cardiopulmonary care during cardiac arrest. (Industry: Zoll Medical Corporation)

• Identification of immune effects associated with protein glycosylation (industry: Merck/Glycofi)

• Novel cardiovascular stent imaging (Concord Biomedical Sciences and Emerging Technologies)

• Novel endoscopic administration of small bowel wall bulking agent for weight control (industry: Fractyl Inc)

• Ocular implant Lantanaprost for Glaucoma Rx (industry: Euclid Ocular Systems)

2013–14 PUBLICATIONS
SRL faculty with dedicated laboratory space (Hoopes, Pogue, Mulligan-Kehoe, Rzucidlo, Roberts, Moodie, Samkoe, Chen, and Singer) combined for 73 peer-review publications and more than 32 full-length published proceeding papers in 2013–14.

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

• Animal surgery training (all Dartmouth researchers who perform surgical techniques)

• Head and Neck surgical training (oral, skull-base, throat)

2013–14 GRANT AND CONTRACT FUNDING
Twenty-six funded research grants (22 PIs) have benefited from services provided by the SRL in the 2013–2014 year. The SRL continues to be the central research facility for an NCI Center of Cancer Nanotechnology Excellence (CCNE) grant awarded in 2010 (ending in 2015). Ten CCNE faculty and staff and eight graduate students, representing more than 50% of the total CCNE award, are associated with or benefitted by the SRL. Work is proceeding towards a breast cancer clinical trial, which will be directed by Dr. Sroka, DOM radiation oncologist.

FACULTY

SURGICAL RESEARCH LABORATORY

Ryan J. Halter, PhD
Adjunct Assistant Professor of Surgery

P. Jack Hoopes, DVM, PhD
Professor of Surgery and Medicine

Imad S. Khan, MD
Research Associate in Neurosurgery

Karen L. Moodie, DVM
Research Assistant Professor of Surgery

Keith D. Paulsen, PhD
Professor of Engineering and Surgery

Alicia A. Petryk, PhD
Research Associate in Surgery

Brian W. Pogue, PhD
Research Associate in Surgery

Kimberley S. Samkoe, PhD
Research Assistant Professor
“True teachers are those who use themselves as bridges over which they invite their students to cross; then, having facilitated their crossing, joyfully collapse, encouraging them to create their own.”
—Nikos Kazantzakis

The residents and faculty of the Department of Surgery made our Surgery Clerkship in 2014 a valuable and highly regarded learning experience for the students of the Geisel School of Medicine at Dartmouth (GSM). The awarding of the resident teaching award by the graduating class of 2014 to Michael Hill, Chief Resident 2013–2014, was evidence of the deep commitment our surgery residents have to our students.

Our Clerkship Co-Director, Dr. Andrew Crockett, was awarded Fellowship into the Dartmouth-Mosenthal Surgical Society. He joins other excellent surgical faculty and students of Geisel who share a commitment to the welfare of patients, scientific curiosity, and a passion for teaching and lifelong learning.

The 2014 Arthur Naitove Surgical Scholar award is presented by the Department of Surgery and is based on an Honors performance, and evidence of participation in efforts to “better the greater good.” This was awarded to fourth year GSM student Thomas Desmarais, who is training at Washington University in St. Louis, MO, in vascular surgery. Mr. Desmarais was instrumental in developing a curriculum for the Surgery Interest Group to include interactive learning sessions with objectives and hands-on skills training in the simulation center. As such, his legacy has continued beyond his graduation to benefit future students interested in surgery.

The Clerkship experience is comprised of two surgical rotations, at least one of which is on a general surgical service, over an eight-week period. The surgical subspecialties of ENT, Orthopaedics, Urology, Community Surgery, Pediatric Surgery, Neurosurgery, and Plastic Surgery who joined our core general surgical services in 2013 were successful in providing an even richer opportunity to explore the breadth of the discipline of surgery. We continue to provide a multidisciplinary experience in partnership with pathology and palliative care. Student evaluations of the Clerkship reflect the strength of the varied and effective learning environment that our Clerkship offers. While emphasis is placed on facilitating a deep understanding of surgical principles of care during the Clerkship, we have taken the opportunity to highlight and teach a critical part of our job as surgeons in our commitment to patients, which is the patient education and thoughtful discussion that surrounds the process of obtaining informed consent.

Often the best measure of an educational program is the attraction of learners to the field of surgery. The Class of 2014 graduated with 31% of the students entering an acute care field; Anesthesia (8%), Emergency Medicine (9%) and Surgery (14%).

In 2015, the Department of Surgery will continue to foster a culture of learning by providing diverse learning opportunities for students, residents, and attending surgeons. Many more of our faculty have been engaged in direct teaching and assessment of the students over the last year. Through our important work of caring compassionately for our patients and sharing these skills and experiences with our students, we are “facilitating their crossing” to become competent and dedicated well-rounded physicians.
In July 2014, two new residents, Mackenzie Asel, MD (Washington University in St. Louis School of Medicine) and Dan Filitis, MD (Boston University School of Medicine) joined our program. They were selected after a very competitive match, as the Program received over 400 applications for our two spots.

Kathryn Zug, MD has been Program Director since November 2010. M. Shane Chapman, MD has been Section Chief of Dermatology since 2011. Both were graduates of our program. We added two more faculty members, Julianne Mann, MD (Pediatric Dermatologist, Geisel Graduate) and Jeffrey Shornick, MD (another graduate of our residency program).

The Dermatology Residency Program trains six advanced dermatology residents, two residents at each of the three levels of residency training. A Dartmouth-Hitchcock (D-H) joint fellowship in Dermatopathology (with the Department of Pathology) graduated a fellow last year.

Our residents receive their training through the D-H and the White River Junction VA Medical Center (WRJ VAMC). Residents benefit from a rich array of dermatological cases, from the general dermatology clinic, busy and challenging consult service, and specialty clinics at D-H and the WRJ VAMC. Nancy Burnside, MD joined our program as Director of Dermatology at the WRJ VAMC in 2014. Dr. Burnside came to us after 15 years of dermatology service at Brown University.

The Dermatology Residency Training 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
  Dr. Zug attending
- Cutaneous Lymphoma Clinic (interdisciplinary with hematology/oncology) Dr. Zug and Frederick Lansigan, MD attendings
- Dermatology-Rheumatology Clinic (interdisciplinary with rheumatology) Dr. Torti and Lin Brown, MD rheumatology attending
- Laser and Cosmetic Dermatology Clinic Dr. Chapman attending
- Melanoma Clinic
  Dr. Chapman attending
- Mohs and General Dermatologic Surgery Clinic Paramarz Samie, MD, Director and attending
- Pediatric Dermatology Clinic Nicole Pace, MD and Julianne Mann, MD, attendings
- Vulvar Dermatology Clinic (interdisciplinary with GYN) Lynette Margesson, MD and Debra Birenbaum, MD, OB/GYN attendings

Residents quickly flourish in their clinical decision making skills because of their continuity clinic experience that begins in the first year and continues throughout their three program years. Residents benefit from graduated responsibility and increased complexity of patients over the years.

All residents are well aware of the six Accreditation Council for Graduate Medical Education competencies:
1. Patient care
2. Medical knowledge
3. Practice-based learning and improvement
4. Systems-based practice
5. Interpersonal and communications skills
6. Professionalism

Curriculum is based on these competencies, and residents are taught and evaluated with respect to these core competencies.
The educational conference schedule within the Dermatology Residency Training Program remains robust. Conferences include a noon conference on most days of the week (clinical slides, didactic lectures, journal club, and dermatopathology practical sessions at the microscope) and Melanoma Tumor Board. Dermatology Grand Rounds occurs twice a month as well as a monthly interdisciplinary Cutaneous Lymphoma Tumor Board.
The Dermatology Residency Training Program hosts visiting professors who present lectures in their areas of interest. The visiting professor participates in Grand Rounds and interacts with residents and faculty.
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.

2014 RESIDENT PRESENTATIONS
- **Castanedo Tardan, MP.** “Quality of Life in Patients with Dermatologic Diseases: From Evaluation Tools to Interventions”. Presented at Dermatology Grand Rounds, Dartmouth-Hitchcock Medical Center, Lebanon, NH, February 5, 2014.
- **Collins, L.** “Skin cancer screening: A review of the current recommendations”. Dartmouth-Hitchcock Medical Center, Section of Dermatology, Lebanon, NH, Grand Rounds Lecture.
- **Knackstedt, T.** “The Effects of Aging on the Skin”, Aging Resource Center, Dartmouth-Hitchcock Medical Center
- **Knackstedt, T.** “The Nonsurgical Management of Lower Extremity Skin Cancer”, Dermatology Grand Rounds, Dartmouth-Hitchcock Medical Center
- **Knackstedt, T.** “The Vascular Reaction Pattern”, Internal Medicine Noon Conference, Dartmouth-Hitchcock Medical Center

2013–2014 RESIDENT PUBLICATIONS
A listing of our residents’ publications can be found on page 60 of this report.

2014 RESIDENT RESEARCH PROJECTS
- **Asel, M.** Breast Cancer with Cutaneous Metastasis: An Innovative Treatment Approach in an Unusual Patient Demographic (accepted by AAD for Gross and Microscopic Symposium).
- **Castanedo Tardan, MP.** April 2014, MD Investigator - Laboratory of the Department of Occupational and Environmental Dermatology - Skåne University Hospital in Malmö Sweden - Mentor: Prof. Magnus Bruze Tested a 100 personal care products made in the USA to look for the presence and quantity of 2 allergenic preservatives: methylisothiazolinone and formaldehyde. Testing was performed using: Chromotropic Acid Method for the semi-quantitative determination of formaldehyde, and High-Performance Liquid Chromatographic Method (HPLC) for the quantitative determination of both formaldehyde and methylisothiazolinone.
- **Knackstedt, T.** "Malignant Herpetiform Papules: Cutaneous Metastases of Papillary Renal Cell Carcinoma Mimicking Genital Herpes Simplex Infection” Gross and Microscopic AAD.
- **Paul, J.** Esophagitis Dissecans Superficialis with Concomitant Bullous Pemphigoid (MSC)
- **Paul, J.** Imiquimod 5% Cream for the Treatment of Lentigo Maligna: Case Series (MSC and FS).

2014 RESIDENT ABSTRACTS AND PRESENTATIONS
- **Castanedo Tardan, MP.** "Quality of Life: Evaluation Tools for the Patch Testing Clinic”. To be presented at 12th Congress of the European Society of Cutaneous Allergy and Contact Dermatitis - Barcelona, Spain, June 26, 2014.
- **Collins L., Knackstedt T., Gangar, P., Kerrigan, C., Scherer, E., Samie, F.** “A Visual Assessment Tool For Linear Scars on the Face” To be submitted for American College of Mohs Surgery Annual Meeting 2015
- **Knackstedt, T., Pace, N.** “Malignant Herpetiform Papules: Cutaneous Metastases of Papillary Renal Cell Carcinoma Mimicking Genital Herpes Simplex Infection” Gross and Microscopic AAD.
2014 RESIDENT QUALITY IMPROVEMENT PROJECTS

- Asel, M. Same-day versus separate-day preoperative consultation for Mohs surgery (IRB-approved, enrollment yet to begin).

- Collins, L. Global Aim Statement: We aim to improve new patient referrals in the dermatology clinic. The process begins with the patient and the process ends with an appointment. Working on the process we expect to improve patient experience, be more efficient with clinic time, decreased back log of new patients, staff satisfaction and referring physician satisfaction. It is important to work on this now because of continued increase of patients, continued growth as a practice and to deliver excellent patient care.

- Filitis, D. HGF-CMET on Melanoma Research Paper

- Filitis, D. VA – Systemic Medication/Patient spreadsheet

- Haitz, K. Consult Central nurse triage system

- Haitz, K. Preceptor Scheduling Analysis & improvement

- Haitz, K. Resident Laser competency checklist and quiz

- Knackstedt, T. Jun 2014, Resident Information Systems Expert (RISE) Office of Graduate Medical Education - Dartmouth-Hitchcock Medical Center
  1. Provided input for work flow and policy development regarding the use of clinical information systems.
  2. Created education content and modules.
  3. Primary trainer of residents in the electronic health record.
  4. Key communicator and department liaison regarding changes to the electronic health record.

- Knackstedt, T. Mohs Surgery Care Path Building a Stronger Practice: Valuing Patient and Referring Provider Preferences

- Knackstedt, T. Yellow Belt Certification October 2014
The General Surgery Residency Program trains 20 categorical general surgery residents, including four residents at each of the five levels of residency training. In addition, twelve more preliminary surgical residents participate in the General Surgery Program prior to entering other training programs.

Residents benefit from a rich array of surgical cases. As the Dartmouth-Hitchcock Medical Center (DHMC) continues to grow, surgical cases have continued to increase in number, and also in complexity as measured by case mix index and severity of injury for trauma patients. All incoming categorical and preliminary interns are issued iPads to allow seamless access to EPIC, the platform for our fully integrated electronic medical record.

The Program draws on the strengths of a committed departmental faculty and a growing array of resources. Dartmouth-Hitchcock’s new Patient Safety Training Center contains our center for laparoscopic simulations as well as training in basic surgical skills and advanced training in clinical scenarios.

The Program includes a weekly “academic half-day.” This half day of education includes didactic and interactive case-based learning in clinical and basic surgical sciences. The didactic curriculum is based on The Handbook of Surgical Critical Care for PGY 1-2 residents and the SCORE Curriculum for the PGY 3-5 residents. The American College of Surgeons SCORE Curriculum is available as a resource as well for all residents. The 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. 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 and for research purposes.

The Department of Surgery participates in the American College of Surgeons National Surgical Quality Improvement Program (NSQIP). Expertise in epidemiology and statistical analysis is available by dedicated faculty in the Department of Surgery. Data from the Trauma Program is submitted to the National Trauma Data Bank (NTDB), and national data is available for review which is encouraged.

The Program consists of rotations at DHMC, the Veteran’s Administration Medical Center, and a rotation at Concord Hospital (a large community hospital) for second and third-year residents.

**RESIDENCY**

**Established**
1946

**Prerequisite Training**
4 years medical school

**Residents per year**
4

**Program Description**
5-year clinical program, training in general surgery as well as subspecialties including thoracic, transplant, vascular, pediatrics. Opportunity for research time after PGY 3 year.

**FELLOWSHIP**

**Minimally Invasive Surgery Fellowship**
1

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**Paul H. Kispert, MD**
Program Director
Assistant Professor of Surgery and Anesthesiology

**Kari M. Rosenkranz, MD**
Associate Program Director
Associate Professor of Surgery

**Karen G. Lee**
Program Coordinator

**Kathy L. Stender**
Program Coordinator

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DARTMOUTH-HITCHCOCK MEDICAL CENTER DEPARTMENT OF SURGERY ANNUAL REPORT 2014
surgical residents. This rotation at Concord Hospital allows us to take further advantage of the robust clinical volumes and increasing case complexity occurring in southern New Hampshire as well as to expose our residents to community practice.

The teaching conference schedule within the Program remains robust. Available conferences include GI Tumor Board, Trauma Rounds, Surgical Seminars, Surgical Grand Rounds, Morbidity & Mortality conference, an interdisciplinary Gastrointestinal Disease Conference, a monthly Journal Club, as well as service-specific conferences. The Program hosts many visiting professors who present at Grand Rounds and interact with residents and faculty.

The General Surgery Residency Program is an academic program that encourages and supports resident research and teaching. Residents are encouraged to participate in clinical and/or basic science investigation. Three funded positions are available for residents to participate in full-time research activities usually for one or two years between the third- and fourth-years of training. Research is strongly encouraged of all residents. Many of our residents have elected to pursue a master’s degree through The Dartmouth Institute, a nationally recognized program providing leaders in health care with comprehensive training in outcome research. Residents in the Program have been highly productive. Their work has led to numerous scientific presentations at national and regional meetings and multiple peer-reviewed publications. Our residents continue to receive teaching awards annually from the Geisel Medical School students for their excellence in teaching. Several have also received the Gold Humanism Award from the Geisel School of Medicine at Dartmouth.

Fellowship programs in minimally invasive surgery and vascular surgery are supported by the Department. There is also opportunity for residents to obtain fellowship training in critical care after the third year of surgical training. At our center, approximately 80% of our trainees match to highly competitive fellowships and 20% opt to go directly into practice.

Surgical training is changing. We have used the Flexibility in Training option through the American Board of Surgery to allow our trainees to spend additional time training in one area of interest to enhance their preparation for fellowship training.

The General Surgery Program at DHMC is a rural academic medical center committed to providing superior training to our residents in a professional environment. Our environment is outstanding for individuals who are committed to their training and enjoy the multitude of outdoor activities this region offers.

FACULTY

CONCORD GENERAL SURGERY RESIDENCY PROGRAM DIRECTOR

Joseph P. Meyer, MD
Adjunct Associate Professor of Surgery
NEUROSURGERY RESIDENCY TRAINING PROGRAM

The Neurosurgery Residency Program has been an approved training program since its inception in 1947 by Henry Heyl, MD, later the editor of the Journal of Neurosurgery. With a mission to provide the highest level of academic and clinical teaching, the program has proudly graduated neurosurgeons who have been successful across a wide range of endeavors. Over the past 25 years, more than half have gone on to academic positions.

The Neurosurgery Residency Program trains seven residents, one at each level of training. The seven-year curriculum begins at PGY-1 with rotations in general surgery, neurology, critical care, and neurosurgery. 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 12-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 at Dartmouth-Hitchcock Medical Center (DHMC). 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, Topic Review, Neuro-Oncology Tumor Board, 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 Washington Neuroradiology & Neuropathology Review. Each resident, during their training, attends the Woods Hole RUNN course. Residents actively present and publish their research and clinical investigative work. During 2013-2014 the program was responsible for 52 publications. Recent residents have won the Shulman Award for the best resident paper at the AANS/CNS Pediatric Section meeting, the Gildenberg Award for the best resident paper at the AANS/CNS Stereotactic and Functional Section meeting, the CNS Walter Dandy Research Fellowship, a CNS Travel Award, a CSNS Socioeconomic Fellowship, the Best Paper at the New England Neurosurgical Society Annual Meeting, multiple National Institutes of Health awards and the Retzius Neuroanatomy competition.

State-of-the-art facilities at DHMC, the major teaching hospital of a health care delivery system covering Northern New England, include dedicated neurosurgery and neurophysiology laboratories, the Simulation Center, the Advanced Imaging Center, and the Center for Surgical Innovation, comprised of two operating rooms with intraoperative 3T MRI, CT, robotic radiography, surgical robotics, and angiographic capability. The Dartmouth Institute for Health Policy and Clinical Practice, the Norris Cotton Cancer Center, and the Biomedical Engineering Program at the Thayer School of Engineering provide outstanding educational and investigational opportunities for residents in our program.

RESIDENCY
Established
1947
Prerequisite Training
4 years medical school
Program Description
7-year program includes rotations in Neurology, Critical Care, Neuroradiology and Neuropathology, one year of independent research/training and five years of clinical neurosurgery culminating in a one year Chief Resident experience
Residents per year
1
The Residency Program in Otolaryngology-Head and Neck Surgery at Dartmouth-Hitchcock is designed to provide residents with education in the comprehensive medical and surgical care of patients with disorders that affect the ears, the upper respiratory and upper alimentary systems, and the head and neck.

The Program includes the core knowledge, skills, and understanding of the basic medical sciences relevant to the head and neck; the upper respiratory and upper alimentary systems; the communication sciences, including the knowledge of audiology and speech therapy; and the chemical senses, allergy, endocrinology, and neurology as they relate to the head and neck area.

The Program also includes the clinical aspects of diagnosis, therapy (medical and/or surgical), and prevention of diseases, neoplasms, deformities, disorders and/or injuries of the ears, the upper respiratory and upper alimentary systems, the face, the jaws, and other head and neck systems.

Following completion of the Program, residents will be prepared to care for patients of all ages with medical and surgical disorders of the ears, the upper respiratory and upper alimentary systems and related structures, and the head and neck; to carry out diagnostic evaluations of patients with otolaryngologic disorders; and to carry out the surgical and nonsurgical management of otolaryngologic disorders, including rehabilitation and referral to subspecialists when appropriate.

As a vital adjunct to the acquisition of the required medical knowledge and patient care skills, the resident will acquire the skills needed to practice medicine in a complex medical system. The interpersonal and communication skills needed for such a practice, as well as expertise in systems-based practice, are continually emphasized and evaluated throughout the residency. Proper professional behavior is fostered as the resident masters the essential skills of practice-based learning that will prepare him or her for a lifetime of learning.

Our residents are quite active in medical student and intern education. They participate and present papers at the New England Otolaryngological Society meetings three times per year and have each presented papers and posters at national meetings.

Our Program is a relatively new residency program. The Accreditation Council for Graduate Medical Education granted approval for Otolaryngology to start a new residency program in July of 2008. The Program is now fully populated with five residents, and we graduated our first resident in June 2012. Our first three graduates entered practice in general otolaryngology. Dr. Jack Russo is our current chief resident and will be our first resident to pursue fellowship training – he successfully matched into the Head and Neck Oncology and Microvascular Reconstructive Surgery Fellowship at Icahn School of Medicine at Mount Sinai.

Of special note, Kathy Stender joined us in 2014 as our new residency program coordinator and has been an outstanding addition to the team.
The Residency Program in Plastic Surgery trains three residents, one per academic year in a three-year program. The program was awarded a five-year cycle effective May 23, 2013 based on an Accreditation Council for Graduate Medical Education (ACGME) site visit in September, 2012 and just received notice of continued annual accreditation under the ACGME Next Accreditation System (NAS) on February 6, 2015.

Dr. Gary L. Freed, Jr., MD, PharmD has taken over as Program Director effective July 1, 2013. Dartmouth-Hitchcock (D-H) 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 discussion series which are based on the core curriculum established by the American Board of Plastic Surgery.

The Program supplements the experience at D-H with a dedicated burn rotation at LAC/USC Hospital in a burn unit within the plastic surgery division. Additionally, exposure to private practice settings 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 faculty is led by Dale Vidal, MD. Dr. Vidal is an institutional and national leader in shared decision making. This is bolstered by her activity in The Dartmouth Institute where she also is a faculty member and teaches in the newly formed masters program for healthcare delivery science. Dr. Vidal presents at national and international meetings, most recently the international meeting in Sweden.

Dr. Carolyn Kerrigan has assumed leadership roles in the institution to continue to develop improvement initiatives. Dr. Kerrigan acts as a mentor for those sections developing care paths. She continues to provide hand surgery with innovative approaches to efficiency and patient centered care.

Dr. Joseph Rosen continues his diverse roles as plastic surgeon at the White River Junction VA Medical Center (WRJ VAMC), as well as at Dartmouth-Hitchcock Medical Center (DHMC). Dr. Rosen has steadily increased his activities in international health. He has participated in multiple trips to Haiti and continues to organize a two week trip to Hanoi, Vietnam. This trip is unique in the scope and inclusiveness. Dr. Rosen has accumulated a multitude of plastic surgeons, nurses, scrub technicians and also included surgeons of other specialties including orthopaedics, anesthesiology and vascular surgery. This trip has occurred annually for over 15 years.

Dr. Emily Ridgway has continued to develop a comprehensive care-path for breast reconstruction. This was an immense effort that has helped to streamline and improve the experience of patients with breast cancer that also choose to have reconstruction.

Dr. John Nigriny has taken on the challenge to integrating the concept of telemedicine into the practice of the plastic surgeon. He has participated in local efforts and is developing this concept for the plastic surgery section. He continues to have a diverse and busy plastic surgery practice.

Dr. Freed continues as the residency program director and has participated in several courses in adult education for faculty. He continues to make changes in the educational structure of the residency program to achieve the best educational experience for our residents. The section will add a new surgeon in the spring.

Dr. Joseph Shin. Dr. Shin is a craniofacial surgeon and most recently the section chief at Montefiore — Albert Einstein Medical Center in New York. We are excited to add another senior surgeon to our ranks.

The graduates of the program have been successful in pursuing fellowship positions. Abhishek Chatterjee, MD, was accepted into the Breast Oncology Fellowship at UPENN, and Tomasz Kosowski, MD to two separate cosmetics fellowships; The Miami Breast Center with Dr. Roger Khouri and then to Atlanta, GA with Dr. Mark Codner.

**RESIDENCY**

**Established** 1990

**Prerequisite for Combined Program**
4 years medical school

**Program Description**
6-year training beginning with 3 years of general surgery followed by the independent program (This path will be replaced with a 5-year integrated program in 2016.)

**Prerequisite for Independent Program**
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
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. Our residents enter urology with one year of general surgery training. The 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 faculty at DHMC and the White River Junction VA Medical Center (WRJ VAMC) in White River Junction, VT., and nine faculty at Concord Urology 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. 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.

Residents spend six months at the WRJ VAMC and six months with Concord Urology in Concord, NH. While at the WRJ VAMC, 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. Urology grand rounds, research meetings, journal club, urodynamic case conferences and combined conferences with radiology and obstetrics and gynecology 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. Residents may do a three month research rotation but the goal is that all residents will publish and present throughout their residency.

The residents in the Section of Urology again had a productive year with many presentations regionally and nationally. In February 2014 Drs. Paholo Barboglio and Erik Pattison presented posters at the Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction in Miami. Dr. Kevin Koo was awarded a scholarship based on an essay that he wrote on socioeconomics to attend the AUA Joint Advocacy Meeting in Washington, DC in March 2014.

All of our residents submitted to the Surgical Trainees Advancing Research Symposium at DHMC in the spring of 2014. Three of our residents, Drs. Rachel Moses, Koo and Pattison, were chosen to present and Drs. Pattison and Koo were awarded prizes.

In May 2014 we had five residents, Drs. Lawrence Dagrosa, Johann Ingimarsson, Barboglio, Koo and Moses, who made 11 presentations at the American Urologic Association’s annual meeting in Orlando. The usual acceptance rate for posters and podium presentations is approximately 30% with our program having an acceptance rate exceeding 80%.

Dr. Dagrosa’s abstract on “Routine imaging following PCNL: Should we be screening for silent obstruction?”

UROLOGY RESIDENCY TRAINING PROGRAM

E. Ann Gormley, MD
Program Director
Professor of Surgery

Bonnie Haubrich
Program Coordinator
was chosen as the best abstract for stone disease. Dr. Dagrosa was invited to present at the Plenary Session which was attended by approximately 4,000 urologists. He also had a poster highlighted in the Take Home messages.

Dr. Koo had a poster that was chosen as the best poster of that session.

Dr. Ingimarsson in addition to his presentations represented the New England Section in the Senior Resident Debate and won his debate on testosterone replacement.

Dr. Barboglio in addition to his presentations was a member of the New England Section Resident Bowl team. The New England team defeated teams from three other sections to win first prize in this annual quiz game.

Dartmouth-Hitchcock Urology had an excellent showing at the New England Section of the American Urologic Association annual meeting in October in Newport, RI. Eight of our nine residents were first authors and two recently graduated residents also presented work that they had performed at DHMC. The following were first authors on one or more presentations:

Dr. Levi Deters
Dr. Benjamin Herrick
Dr. Elizabeth Johnson
Dr. Paholo Barboglio
Dr. Johann Ingimarsson
Dr. Erik Pattison
Dr. Lawrence Dagrosa
Dr. Joseph Yared
Dr. Rachel Moses
Dr. Kevin Koo

Dr. Levi Deters was a finalist in the resident essay contest. This marks the third year in a row that a Dartmouth resident has been a prize winner in the essay contest.

A number of residents are now preparing their presentations for the American Urologic Association’s annual meeting in New Orleans, LA in May.

In June we honored our two Chief Residents, Drs. Benjamin Herrick and Elizabeth Johnson. Dr. Herrick has joined a private practice group in Greensboro, NC. Dr. Johnson has joined a private practice group in Duluth, MN. Both Drs. Herrick and Johnson successfully passed Part I of their American Board of Urology exam in July.

We also welcomed our new residents in June. Drs. Eric Raffin, a graduate of Drexel University College of Medicine, and Annah Vollstedt from the University of Iowa started their internships in General Surgery. Drs. Zita Ficko and Koo joined us in July as first year urology residents.

Bonnie Haubrich, our residency coordinator, and the faculty reviewed approximately 250 applications for our program for 2015. We interviewed 36 candidates in October and November. Urology has an early match and we are delighted to match Lael Reinsatler, MD from Medical College of Georgia, and Gina Tundo, MD from University of Buffalo State University of New York.

A listing of our residents’ publications can be found on pages 65 and 66 of this report.

FACULTY

DHMC RESIDENCY PROGRAM
William Bihrle, MD
Associate Professor of Surgery
Section Chief of Urology

John D. Seigne, MD
Associate Professor of Surgery

Vernon M. Pais, MD
Associate Professor of Surgery

Elias S. Hyams, MD
Assistant Professor of Surgery

David R. Chavez, MD
Assistant Professor of Surgery and Pediatrics

Florian R. Schroeck, MD
Assistant Professor of Surgery

Einar F. Sverrisson, MD
Assistant Professor of Surgery

Marie-Claude Bettencourt, MD
Assistant Professor of Surgery

CONCORD RESIDENCY PROGRAM
Veronica Triaca, MD
Adjunct Associate Professor of Surgery
Concord Program Director

David F. Green, MD
Clinical Associate Professor of Surgery

Scott J. Fabozzi, MD
Clinical Assistant Professor of Surgery

William F. Santis, MD
Clinical Assistant Professor of Surgery

Paul M. Snyder, MD
Clinical Assistant Professor of Surgery

Ronald L. Yap, MD
Clinical Associate Professor of Surgery

Tom Jackson, MD

Scott Mitchell, MD

Brian Marks, MD
VASCULAR SURGERY RESIDENCY TRAINING PROGRAM

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 a 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 most recent fellow is Bjoern D. Suckow, MD, MS from the University of Utah general surgery program. Dr. Suckow had worked extensively on several research projects mentored by Dr. Philip Goodney prior to matching with Dartmouth-Hitchcock.

Our most recent graduate of the fellowship program, Dr. Kristina Giles, MD, has gone on to academic practice at the University of Florida, joining our other fellowship graduates Adam Beck, MD, Salvatore Scali, MD and Catherine Chang, MD.

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 seventh year. Our program had its first site visit in 2009 and achieved full five-year reaccreditation by the ACGME. Our most recent resident joining the Program is Jennifer L. Perri, MD, PGY-1, who comes to Dartmouth-Hitchcock from Columbia University. Samuel T.A. Simone, MD, graduated on June 25, 2014 and accepted a private practice position with General & Vascular Surgery Associates in Pittsburgh, PA. Karen L. Walker, MD, MS is in her research year and has received two grants; her first from The Hitchcock Foundation — investigating if serum adiponectin levels can predict vascular surgery outcomes, and her second from SYNERGY — investigating immune senescence in patients awaiting kidney transplantation. Both the residency and fellowship programs have robust training with regards 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 National Institutes of Health 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 L. 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 over 40 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 and dissections, to branched-fenestrated aneurysm repair of abdominal aortic aneurysms and iliac 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. Simulator training sessions are part of regularly scheduled Monday conferences as well to ensure dedicated time and good faculty availability. Vascular laboratory training includes dedicated, supervised case review to complete the requirements for credentialing as an MD reviewer. The residency has weekly joint conferences with the General Surgery Residency.

Training Program, as well as patient simulation experiences built into the training program.

The Vascular Programs at Mary Hitchcock Memorial Hospital have been very successful academically. Residents and fellows have produced numerous scientific presentations at regional, national, and international meetings, numerous peer-reviewed publications, and awards at our national meeting in multiple 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.
After more than five years of planning and hard work, Dartmouth-Hitchcock Medical Center’s Center for Surgical Innovation (CSI) opened in February, 2014. Conceived as a surgical suite in which investigative intraoperative studies could be carried out in an environment outside the usual constraints of space, time, and resources that characterize today’s typical clinical operating rooms, the twelve thousand square foot CSI facility is comprised of two extremely large operating rooms (think racks of computer hardware and teams of biomedical engineers just beyond the surgical field) equipped with intraoperative 3-tesla MRI (iMR), intraoperative 64-slice CT (iCT) and, in the not too distant future, additional robotic imaging capabilities. The number of operating rooms with intraoperative imaging around the world is approaching 100, but Dartmouth’s facility is the first with higher field-strength MR and the only one with both iMR and iCT available for the same surgery. Funding for the $20,000,000 facility was achieved with an National Institutes of Health (NIH) grant award, matched by funds from the Thayer School of Engineering, the Geisel School of Medicine at Dartmouth, and Dartmouth-Hitchcock Medical Center.

Intraoperative MRI was originally developed primarily as a means to facilitate completeness of resection in intracranial tumor surgery. Such completeness of resection has been repeatedly demonstrated to be associated with improved patient outcome. Intraoperative MRI’s deployment world-wide has been toward that end, and at Dartmouth this has to date been its most common clinical application. Of the 16 cases so far performed in the CSI, nine have been for intracranial tumor in either the adult or pediatric patient population. Tumor histology has included low- and high-grade glioma, juvenile pilocytic astrocytoma, hypothalamic hamartoma, and meningioma. Rather than finding an unintended remnant of residual tumor on postoperative MRI and facing the choice of an additional surgery, iMRI enables assessment of what has been accomplished prior to surgical closure and refinement of the resection as indicated. With this intraoperative capability, resection can be both safer and more effective.

A major underpinning of the CSI has been a recognition of the potential applicability of such intraoperative capability to a much broader range of surgical procedures. Utilization by all surgical specialties is envisioned. Collaboration between Neurosurgery and Orthopaedics in surgery of the spine, of course, is very much already a reality at Dartmouth-Hitchcock Medical Center (DHMC). This is especially true in the CSI. The first spinal surgery in the CSI was performed by Dr. Souhail Mirza, Chair of Orthopaedics and Medical Director of the CSI, and Dr. David Bauer, pediatric neurosurgeon. This progressively myelopathic young girl with chondrodysplasia punctata, a rare skeletal dysplasia, and status post prior surgery for upper cervical instability, underwent a C7 and T1 anterior vertebrectomy for spinal cord decompression, ceramic cage placement anteriorly, and posterior fixation and fusion from C1 to T6. iCT provided a precise means of fixation screw placement and iMR confirmed adequate spinal cord decompression. Six months later, she is doing great and is symptom-free. Additional CSI pediatric spine surgeries have been for ganglioglioma and for osteoblastoma, Dr. John Braun from Orthopaedics participating in the latter.

Dr. Scott Lollis, another of our spine specialists, is utilizing the full potential
of the suite to perform both animal and human surgeries. Unique in the world in this capability, the CSI has all of the design specifications (such as separate air-handling facilities) to enable this and pass all regulatory requirements. Together with Songbai Ji, DSc, and others from the Thayer School of Engineering, Dr. Lollis is extending the application of Dartmouth’s long-standing research program in surgical co-registration (as in image-guided surgery) to surgery of the spine. Technology development for non-fiducial registration of the spine has progressed from phantom to large animal and now to clinical trial, with three patients operated upon to date.

In addition to the advanced types of surgery that such intraoperative imaging-equipped operating rooms enable, this type of translational development is the special mission of the CSI. Long before any NIH funding made this facility possible, some kind of intraoperative imaging capability had long been sought by Professor Keith Paulsen from the Biomedical Engineering program at Thayer and his investigative colleague, Dr. David Roberts. As part of an NIH-funded team developing computational brain modeling technology for image-guided surgery, Paulsen and his surgical colleagues were updating preoperative MRI data to account for brain deformation, displacement and resection during surgery but lacked a gold-standard to assess those computations and validate the non-MRI image-guidance update. Passing on far less capable iMRI implementations in prior years, the team was well rewarded when the current vision was embraced by NIH and the Dartmouth academic community.

Today’s CSI and the cases being performed there exemplify an academic orientation in which the highest quality clinical surgery is being performed, in a setting in which tomorrow’s technologies are being developed. John Peiffer who has directed and overseen the facility’s construction, Michael Pearl (advanced MRI technician), a special team of remarkable operating room nurses and technicians, surgeons from multiple specialties, a dedicated anesthesia cohort willing to work through the challenges posed by an MRI-environment, and a campus-wide host of biomedical engineers and scientists are working side-by-side in the kind of truly multidisciplinary, productive, innovative and collegial manner that so characterizes DHMC.
The Dartmouth-Hitchcock Center for Telehealth (CTH) was established in 2012 to advance telehealth programs at D-H and across the region. Taking a population health and value-driven comprehensive approach to health care, the CTH integrates clinical telemedicine consults with innovative education, quality improvement, and collaborative approaches to best practice care. Under the direction of medical director Sarah Pletcher, MD, the CTH has been awarded $10.1 million through 13 grant awards since its inception. The CTH currently offers 19 specialty telemedicine clinical services to regional locations, including “virtual clinics,” and has gone live with direct to patient web video encounters, otherwise known as “virtual visits.” The CTH also has 24/7 consultation services like telestroke and teleneurology in place in several northern New England hospitals.

The D-H Department of Surgery plays a significant role in these programs and their success. In January 2015, the CTH partnered with D-H’s vascular surgery section to provide Exeter Hospital with expanded vascular services, utilizing both on-site surgeons and 24/7 telehealth presence. The D-H vascular team is directed by D-H Vascular Surgery Section Chief Richard J. Powell, MD. They provide Exeter with additional daytime coverage on weekdays for emergency and elective vascular procedures and, utilizing telemedicine, provide enhanced consultation, support, and triage on nights and weekends.

In 2014, the CTH launched a virtual visit clinic for neurovascular patients, which is directed by D-H neurosurgeon Robert J. Singer, MD, FACS, and funded by a grant from the private Missy Project foundation. One 55-year-old patient with a family history of aneurysms had a virtual consult with Singer two weeks after her primary care physician diagnosed her with a six-millimeter anterior communicating artery aneurysm. Five days later she was on his surgical schedule and Singer performed a coil embolization on her brain aneurysm. Singer noted that seeing the patient virtually improves access to initial clinic time and subsequent surgical scheduling because he has the flexibility to do virtual consults from his office.

The CTH also continues its partnership with several surgeons in D-H’s Department of Surgery. Dermatology Section Chief M. Shane Chapman, MD, is in his second year of providing monthly telemedicine dermatology consults for patients at Weeks Medical Center in Lancaster, NH.

Eric Martin, MD, from the section of General Surgery, is providing educational workshops for the Center for Rural Emergency Services and Trauma (CREST), a collaborative program of 17 critical access and community hospitals based at D-H. This past year, he participated in ultrasound and airway workshops and was a frequent presenter at CREST’s monthly joint Emergency Department and Trauma case conferences. Additionally, he will be performing site visits to some CREST member hospitals this year to help build relationships for the Trauma service.

Over the next two years, as it continues to expand its regional telehealth network, the CTH will deploy telemedicine equipment and services across 13 counties in rural New Hampshire and Vermont. Forty-two health care sites — 19 in Vermont and 23 in New Hampshire — will receive telehealth technology systems thanks to the CTH’s USDA grant.

“By providing timely access and multiple levels of connected care through telemedicine, we hope to see improved patient outcomes throughout northern New England,” said Dr. Pletcher.
Simulation-based education has become a more integrated part of the General Surgery residency training program in the last year. Dr. B. Fernando Santos, a minimally-invasive fellowship-trained general surgeon has taken on the role of leading the General Surgery simulation curriculum. Each week, there is a dedicated two hour simulation session where residents are taught various surgical skills under faculty guidance. The curriculum is designed with emphasis on the PGY-1 and PGY-2 years, but also has more advanced modules appropriate for PGY 3-5 residents. These sessions cover a spectrum of skills including suturing and knot-tying, central line placement, chest tube insertion, laparotomy and wound closure, flexible endoscopy, fundamentals of laparoscopic surgery, hand-sewn and stapled gastrointestinal anastomoses, advanced laparoscopic suturing, laparoscopic ventral hernia repair, laparoscopic common bile duct exploration, and ultrasound for surgeons.

The curriculum is designed to provide residents with direct teaching by faculty in a supportive and safe learning environment outside of the operating room. In order to ensure the maintenance of skills and accountability, residents are then tested on these skills at the end of the year. Verification of proficiency is directly linked to clinical privileges for certain components of the curriculum such as the Fundamentals of Laparoscopic Surgery (FLS). Residents who fail to meet proficiency requirements in FLS face the possibility of having their privileges restricted during laparoscopic cases. So far, there has been excellent compliance with the curriculum due to strong support from the Program Director and the Chair of Surgery, as well as very positive feedback from the residents.
The robot simulator has enhanced robotic training and research at Dartmouth-Hitchcock Medical Center (DHMC) within Urology and other surgical fields. Urology residents in particular have been assigned a curriculum on the simulator and will be tracked on skills through their training.

The simulator will allow for a more robust training experience by enabling trainees and new faculty to hone their skills outside the operating room. For research purposes, the simulator is being used for study of baseline skills and learning curve for robot surgery among medical students and trainees, which will improve our understanding of how best to train individuals in robotic surgery.

In the operating room, the da Vinci Xi system with dual console will enhance the quality of care, quality of training, and efficiency of care. The dual console will allow for simultaneous 3D vision of the operative field and a more integrated teaching experience between surgeon and trainee. Additional tools availed on the Xi system such as advanced energy instruments and ‘Firefly’ or indocyanine green injection for delineation of renal vasculature will enhance our ability to care for patients with state of the art technology. Finally, the streamlined docking approach with the Xi will improve OR efficiency to decrease set up and turnover times. For Urology in particular, we will continue to expand our high volume of robotic surgical treatment of prostate, kidney and bladder cancer as well as urinary tract reconstruction, for both adult and pediatric patients.

We are pursuing a second Xi system to allow for expansion of robotic surgery into other surgical disciplines including pancreatic and colorectal surgery.
The Arthur Naitove Distinguished Teaching Award
Christopher E. Simpkins, MD

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 2014 recipient of the Arthur Naitove Distinguished Teaching Award is Dr. Christopher E. Simpkins.

The Surgical Chair’s Award
Joseph A. Paydarfar, MD

Each year, the Chair of the Department has the opportunity to acknowledge the contribution of an individual, or several individuals, through the Chair’s Award. The Award is intended to recognize an individual’s accomplishments which have especially reflected the ideals or goals of the Department. The 2014 Surgical Chair’s Award recipient is Dr. Joseph Paydarfar.

The Harmes Surgical Scholar Award
Stefan D. Holubar, MD

The Harmes Surgical Scholar Award is awarded annually to a faculty member at the Assistant or Associate Professor level in the Department of Surgery. The annual financial award is provided over three years to facilitate career development by strengthening individual professional skills; enhancing contributions to the academic, clinical, and administrative programs of the Department; improving the regional and national visibility of Dartmouth-Hitchcock Medical Center; and increasing each individual’s sense of professional competence and satisfaction. The Harmes Scholar named for 2014 is Dr. Stefan D. Holubar.

The Richard Dow Award
Florian R. Schroeck, MD

The purpose of these two research awards is to provide protected time for up to two early career Department of Surgery (DoS) faculty members to develop research programs that will lead to independently funded careers in clinical, translational, or basic Surgical Sciences. These awards are patterned after NIH Mentored Research Scientist Development Awards (K01). The ultimate goal of these awards is to stimulate career development is surgical research.

The Robert Crichlow Award
Christina V. Angeles, MD
The Department of Surgery Care Path Awards
The Enhanced Recovery Surgical Pathway

L to R, Back row: Raphael Louie, MD, MPH; Cheryl Bromley, RN; Terry Leblanc, RN, MBA; Srinivas (Joga) Ivatury, MD, MHA; Stefan Holubar, MD, MS; John Seigne, MB; Karina Newhall, MD; Heather Blunt, MLS; Nancy Heffernan, Patient Family Advisor; Tobias Reiss, RN.

Middle row: Emily Nicolai, MS; Toni Walker, RN; Cynthia Patalano, RN; Helen Skeist, Physical Therapist.

Front row: Lawrence Dagrosa, MD; Nicole Batulis, MHA; Hillary Ackerman, RN; Jennifer Moulton, RN

The Department of Surgery Care Path Awards
Management of Non-Operative Traumatic Spine Fractures

L to R: Deb Sweetland, OT; Eric Martin, MD; Deb Fournier, APRN; Scott Lollis, MD; and Adam Pearson, MD

Not pictured: Hilary Hawkins, RN and Wanda Handel, CNS
**Axelrod, David**
- Transplant Registry-Healthcare Claims Database
- Choosing Immune Suppression in Renal Transplantation by Efficacy and Morbidity

**Barth, Richard**
- D0928: A Study to Evaluate the Use of Supine MRI Images in Breast Conserving Surgery
- D0929: A Prospective Study of Partial Breast Adjuvant Radiation Therapy after Resection of Borderline and Malignant Phyllodes Tumors
- D12052: A Randomized Phase II Study of the Effects of a Low Calorie Diet on Patients Undergoing Liver Resection
- DMS 9801: Prospective Study of Adjuvant Radiation Therapy After Resection of Borderline and Malignant Phyllodes Tumors (Training Grant AI07363)
- E1609: A Phase III Randomized Study of Adjuvant Ipilimumab Anti-CTLA4 Therapy Versus High-Dose Interferon α-2b for Resected High-Risk Melanoma
- ECOG 1697: A Phase III Randomized Study of Four Weeks High Dose IFN-α2b in Stage T2bN0, T3aN0, T4aN0, and T1-4 ,N1a, 2a,3 (microscopic) Melanoma
- W1008: Multicenter Selective Lymphadenectomy Trial II (MSLT-II)
- A Phase II Multicenter Randomized Trial of Sentinel Lymphadenectomy and Complete Lymph Node Dissection Versus Sentinel Lymphadenectomy Alone in Cutaneous Melanoma
- Image-Guided Surgery in Non-Palpable Breast Cancer with Coregistered Supine MR

**Bauer, David**
- Natural History of Asymptomatic Chiari I Malformation in the Pediatric Population

**Bihrlle, William**
- Management of Upper Urinary Tract Injuries
- Ureteral Injuries VA

**Burchard, Kenneth**
- A Comparison of Central Venous and Arterial Ionized Calcium
- The Utility of Hematuria to Predict Intra-Abdominal Injuries in Adult Trauma Patients

**Chapman, M. Shane**
- A 10-Year, Post-Marketing, Observational, Registry to Assess Long-Term Safety of HUMIRA (Adalimumab) in Adult Patients with Chronic Plaque Psoriasis (Ps)
- A Multicenter, Open Registry of Patients with Psoriasis Who are Candidates for Systemic Therapy Including Biologics
- A Phase 3, Multi-Site, Open-Label Study of the Long-Term Safety and Tolerability of 2 Oral Doses of CP-690,550 in Subjects with Moderate to Severe Chronic Plaque Psoriasis
- A Phase 3B, Multicenter, Randomized, Placebo-Controlled, Double Blind, Double-Dummy, Study of the Efficacy and Safety of Apremilast (CC-10004), Etanercept, and Placebo, in Subjects with Moderate to Severe Plaque Psoriasis
- A Phase 3b, Randomized, Double-Blind, Active Controlled, Multicenter Study to Evaluate a “Subject-tailored” Maintenance Dosing Approach in Subjects with Moderate-to-Severe Plaque Psoriasis – “PSELLLAR”
- ADACCESS
- AN2728-AD-301
- Celgene AD-001
- Photodynamic Therapy with Levulan™ and Blue Light for the Treatment of Actinic Cheilitis
- Skin care behaviors among melanoma survivors and their families
- UNITE

**Chen, Eunice**
- The Role of Hypoxia and Hypoxia-Inducible Pathways in the Pathogenesis of Head and Neck Diseases
- Tissue Hypoxia and Post-Radiation Complications in Patients with Breast and Head and Neck Cancers

**Cronenwett, Jack**
- Abdominal Aortic Aneurysm Quality of Life Study

**Davies, Louise**
- Patient Narratives
- SQUIRE Revision
- VA: Thyroid Nodule Registry: Algorithm Development

**Fillinger, Mark**
- Evaluation of the GORE Conformable TAG® Thoracic Endoprosthesis for Treatment of Acute Complicated Type B Aortic Dissection
- An Evaluation of the GORE Conformable TAG® Thoracic Endoprosthesis for the Primary Treatment of Aneurysm of the Descending Thoracic Aorta
- ANCHOR: Aneurysm Treatment Using the HeliFX™ Aortic Securement System Global Registry
- Clinical Outcomes of the Snorkel Technique to Treat Juxtarenal Aortic Aneurysms
- Evaluation of the GORE® TAG® Thoracic Branch Endoprosthesis in the Treatment of Proximal Descending Thoracic Aortic Aneurysms
- Dartmouth-Hitchcock Medical Center Experience with Management of Thoracic Aortic Pathology
- Endurant Stent Graft System US Clinical Study-A Prospective, Single-Arm, Non-Randomized, Multi-Center Clinical Study
- Evaluation of the GORE® EXCLUDER® Iliac Branch Endoprosthesis for the Treatment of Common Iliac Artery Aneurysms or Aorta-Iliac Aneurysms
• Evaluation of the GORE™ Conformable TAG® Thoracic Endoprostheses for Treatment of Traumatic Transection of the Descending Thoracic Aorta

• GREAT Global Registry for Endovascular Aortic Treatment Outcomes Evaluation

• Multicenter Evaluation of Aortic Aneurysm Wall Stress and Associated Risk Factors for Rupture

• Post Approval Study Evaluating the Long-Term Safety and Effectiveness of the Endurant Stent Graft System — ENGAGE PAS

• PRESERVE – Zenith Iliac Branch System Clinical Study

• Prospective, Multicenter, Single Arm Safety and Effectiveness Trial of the Endologix Fenestrated Stent Graft System for the Endovascular Repair of Juxtarenal and Pararenal Aneurysms – Ventana IDE Pivotal Trial

• Proximal Abdominal Aortic Aneurysm Anatomic Characterization Study, PA4CS

• The Pythagorus Trial: Prospective Aneurysm Trial: High Angle Aortofemoral Bifurcated Stent Graft

• SSB 11-03

• The Role of Wall Stress Distribution in Abdominal Aortic Aneurysm Expansion and Rupture

• Use of the Zenith® Dissection Endovascular System in the Treatment of Patients with Acute, Complicated Type B Aortic Dissection

• Zenith Low Profile TAA Endovascular Graft Clinical Study

• Zenith TX2® Thoracic Aortic Aneurysm (TAA) Endovascular Graft Post-Market Approval Study

• Zenith® Fenestrated AAA Endovascular Graft Clinical Study

Freeman, Richard

• Surgical Outcomes Assessment Program Database Version 2

Goodney, Philip

• BEST-CLI Trial

• Diabetes Meds & Vascular Surgery

• Understanding the Diffusion of Vascular Technology in Veterans

• VA: Mechanisms of Failure in Non-Operative Treatment of Diverticulitis in Veterans

• VAPOR Study: Vascular Physician Offer and Report Trial

• VAPOR Focus Group

• Leveraging Health IT to Avoid Unnecessary Asymptomatic Carotid Revascularization

• Understanding Variation in Treatment Intensity with Lower Extremity PAD

Gormley, Elizabeth

• Outcomes of Electrocautery Fulguration for Vesicovaginal Fistulas

• Same Day Surgery Program for Pubovaginal Fascial Sling in Woman with Stress Urinary Incontinence

Herrick, Benjamin

• VA: Trends In The Management of Urethral Strictures Among VA Patients

Hill, Courtney

• Taste Acuity and Obesity in Pediatric Tonsillar Disease

• Visualization of the Glossopharyngeal Nerve in Tonsillectomy

Holubar, Stefan

• N1048: A Phase II/III Trial of Neoadjuvant FOLFOX, with Selective Use of Combined Modality Chemoradiation Versus Preoperative Combined Modality Chemoradiation for Locally Advanced Rectal Cancer Patients Undergoing Low Anterior Resection with Total Mesorectum

• Outcomes After Colorectal Surgery: A Single Surgeon Single Institution Retrospective Experience

Hoopes, Jack

• VA Program of Veterinary Care

• The Use of Latanoprost Implants As a Slow Release Mechanism in Regulating Ocular Pressure

• Dartmouth Center of Cancer Nanotechnology Excellence

Hyams, Elias

• Practice Patterns in the Management of Clinically Localized Prostate Cancer in New Hampshire

• Readmission following Urologic Surgery

Kerrigan, Carolyn

• Breast QOL

• Validation of the BREAST-Q

Laycock, William

• Bariatric Surgery Outcomes in the Elderly Patients

Logan, Bridget

• CIC in Newborn Spina Bifida

Lollis, Stuart

• Extradural Decompression for Chiari Malformation

• Magnetic Resonance Elastography in Hydrocephalus

• Outcomes After Nonoperative Management of Odontoid Fractures

• Risk Factors for Infection in Cranial and Spinal Neurosurgery

McDaniel, Martha

• Culture and Compassionate Medicine

Newhall, Karina

• Is Angiography Equivalent to Duplex in Determining Degree of Stenosis Preoperatively in Patients Undergoing Carotid Endarterectomy?

Nolan, Brian

• Dartmouth CLI Registry to Collect Information from Standard of Care Visits and Quality of Life Questionnaires in Patients with Critical Limb

• Quality of life in People with Abdominal Aortic Aneurysms

Pais, Vernon

• DHMC Urinary Tract Stone Data Base

• Dusting Vs. Basketing Protocol

• Natural History of Residual Stones — Retrospective

• Papillary Plaque Material
- Twenty-Four Hour Urine Parameters in Pregnant Patients with Stones: Comparison Between Stone Forming and Non-Stone Forming Women During the Intra- and Post-Partum Periods
- Validation of the Wisconsin Stone-QOL

Paydarfar, Joseph
- A Comparison Of Transoral Robotic Surgery (TORS) With Traditional Treatment Modalities for Oropharyngeal Cancer
- CT Image Model of Upper Airway
- Intra-operative Image Guidance for TOS
- Safety and Feasibility of Outpatient Parotid Surgery
- VA: Observational Study of Swallowing Function After Treatment of Advanced Laryngeal Cancer
- Improving Transoral: A Comparison of Transoral Robotic Surgery (TORS) with Traditional Treatment Modalities for Oropharyngeal Cancer

Powell, Richard
- SCAFFOLD: GORE Carotid Stent Clinical Study for the Treatment of Carotid Artery Stenosis in Patients at Increased Risk for Adverse Events from Carotid Endarterectomy
- A Phase IIB Pilot Study to Confirm the Feasibility and Tolerability of a Modified Dosage Regimen of AMG0001 in Subjects With Critical Limb Ischemia
- AnGes 0206 Study: a Phase 3 Double-blind, Randomized, Placebo-controlled Study to Evaluate the Safety and Efficacy of amg0001 in Subjects with Critical Limb Ischemia
- CREST 2 Study: Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial Protocol
- DANCE Trial: Delivery of Dexamethasone to the Adventitia to Enhance Clinical Efficacy After Femoropopliteal Revascularization
- SuperNova: Stenting of the Superficial Femoral and Proximal Popliteal Arteries and the Boston Scientific INNOVA Self Expanding Bare Metal Stent System
- Understanding Peripheral Restenosis: Genomic and Proteomic Determinants of Vascular Intervention (PREDICT-PVI) Superficial Femoral Artery (SFA) Study Arm and Vein Graft (VG) Arm
- Carotid Revascularization Endarterectomy vs. Stenting Trial (CREST)

Von Recklinghausen, Friedrich
- Comparison of Urban and Rural Level I/II Trauma Centers
- Trauma Database

Roberts, David
- ALA-induced PpIX Fluorescence During Brain Tumor Resection
- Diagnostic Performance of Fluorescein as an Intraoperative Brain Tumor Biomarker: Correlation with Preoperative MR, PpIX Fluorescence and Histology
- DMS 0711 Co-registered Fluorescence-Enhanced Resection of Brain Tumors Stage I: Correlation with MR and Biopsy
- Novel Hyperspectral Imaging Technique For Estimation of Multiple Optical Biomarkers Intraoperatively
- Preoperative, Intraoperative and Postoperative Image Analysis of Brain Deformation
- Coregistered Fluorescence-Enhanced Resection of Malignant Glioma

Rosenkranz, Kari
- Complete Blood Count and Liver Function Tests as Routine Screening in Early Stage Breast Cancer: Value Added, or Just Cost?
- Correlation Between Perioperative Use of Steroid and Increase in Incidence of Local Recurrence or Metastases Following Local Excision of Primary Breast Cancer
- Z1102: Impact of Breast Conservation Surgery on Surgical Outcomes and Cosmesis in Patients with Multiple Ipsilateral Breast Cancers (MIBC)

Rzucidlo, Eva
- Harvest: Pivotal Study of the Safety and Effectiveness of Autologous Bone Marrow Aspirate Concentrate (BMAC) for the Treatment of Critical Limb Ischemia Due to Peripheral Arterial Disease
- New Insights into the Human Prostacyclin Receptor: Critical Determinants of Ligand Binding and Activation
- Open versus Endovascular Popliteal Artery Aneurysm (OVERPAR) Repair Trial
- Patient Preferences and Treatment Outcomes in Interventions for Varicose Veins
- Serum Adiponectin Level and Lower Extremity Revascularization Outcomes
- Novel therapeutics in the Treatment of Intimal Hyperplasia

Samie, Faramarz
- Forehead Reconstruction
- Mohs Preop Consult
- Patient Satisfaction Following Mohs Surgery and Reconstruction
- Squamous Cell Carcinoma Arising in Hypertrophic Lichen Planus
- Visual Assessment of Linear Scars on the Face after Repair of Mohs Micrographic Surgery

Samkoe, Kimberley
- Tissue Sparing

Saunders, James
- Facial Nerve Outcome in Surgically Treated Acoustic Neuroma Patients
- Genetic Etiology of Hereditary Hearing Loss in Rural Nicaraguan Families
- Socioeconomic and Health Risk Factors for Hearing Loss in Nicaraguan Families
- Suppurative Otitis Media in African Children with HIV

Schroek, Florian
- VA: Optimizing Care for Veterans with Bladder Cancer
Seigne, John
- A Phase II Study of Recombinant Glycosolated Human IL7 (CYTI07) after Completion of Standard FDA Approved Therapy with Sipuleucel-T (Provenge®) for Patients with Asymptomatic or Minimally Symptomatic Metastatic Castration-Resistant Prostate Cancer (mCRPC)
- A Pilot Project to Investigate the Ability of Atomic Force Microscopy to Identify Malignant Cells in the Urine
- CALGB 90203: Randomized Phase III Study of Neo-Adjuvant Docetaxel and Androgen Deprivation Prior to Radical Prostatectomy Versus Immediate Radical Prostatectomy in Patients with High-Risk, Clinically Localized Prostate Cancer
- CALGB 99904: Adjuvant Androgen Deprivation Versus Mitoxantrone Plus Prednisone Plus Androgen Deprivation in Selected High Risk Prostate Cancer Patients Following Radical Prostatectomy, Phase III
- ECOG E2805: ASSURE: Adjuvant Sorafenib or Sunitinib for Unfavorable Renal Carcinoma

Siegel, Timothy
- Gwis-Templeton reflection rounds: Sustaining Spirituality-based Competencies in Medical Education

Simmons, Nathan
- DuraSeal Exact Spine Sealant System Post-Approval Study
- RCT of iMRI for Transsphenoidal Resection of Pituitary Macroadenomas

Simpkins, Christopher
- The Cost-Effectiveness Of ABO Blood Group Incompatible Kidney Transplantation For ESRD

Singer, Robert
- Blood Sample Bank of Patients with Cerebral Aneurysms for Genetic Analysis
- Translational Research in Cerebrovascular Diseases

Smith, Kerrington
- DHMC Pancreas Cancer Database
- Pancreas Cancer Direct Xenograft Program at Dartmouth-Hitchcock Medical Center

Stone, David
- iCAST Iliac Stent Pivotal Study
- Depression, a Potential Novel Risk Factor for Peripheral Vascular Disease

Stotland, Mitchell
- Eye-Tracking Analysis of Facial Difference

Venkatraman, Giridhar
- Development And Implementation of a Dartmouth Frailty Index in Perioperative Services

Vidal, Dale
- Comprehensive Breast Program Intake Database
- Contact Dermatitis After Exposure to 2-Octylcyanoacrylate
- CPG Styles Study: A Study of the Safety of the Contour Profile Gel Breast Implants in Subjects Who are Undergoing Primary Breast Augmentation, Primary Breast Reconstruction or Revision
- De-identified Data from Patient Support Corps
- Integrating Decision Support in the Care of Women Facing Adjuvant Treatment Choices for Early Breast Cancer
- The Patient Support Corps: Promoting Caring Attitudes Through Service Learning

White, Brent
- CAH Acute Abdomen Transfer Database

Zegans, Michael
- Conjunctival Microbiome Study
- Mycotic Ulcer Treatment Trial
- Standardization of Uveitis Nomenclature (SUN)
- The Steroids for Cornea Ulcers Trial

Zug, Kathryn
- A Pilot Study to Develop Optical Mark Recognition Technology to Enhance Patch Test Data Collection and Analysis
- Allergic Contact Dermatitis in Pediatric Patients: 2005-2012 Epicutaneous Patch Testing Results from the North American Contact Dermatitis Group
PUBLICATIONS

Dermatology


Haitz KA, Patel A, Baughman R. Periorbital Subcutaneous Emphysema Mistaken for Angioedema after Dental Crown Preparation. JAMA: Dermatology. 2014 June 18


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Morris L, Sikora A, Tosteson T, Davies L. The Increasing Incidence of Thyroid Cancer: The Influence of Access to Care. Thyroid July 2013; 23(7): 885-91


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Fu J, **Koo K**. Non-uremic Calciﬁphylaxis with Acral Necrosis. The Lancet Diabetes & Endocrinology 2014; 2(1): 90


**Surgery**

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Jacobs BL, Schroek FR, Hollenbeck BK. Intensity-Modulated Radiation Therapy for Prostate Cancer. Letter to the editor. NEJM Feb 2014; 370: 679


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