OUR 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.

OUR VISION:
Achieve the healthiest population possible, leading the transformation of health care in our region and setting the standard for our nation.
I am honored to present the 2005-2007 Biannual Report for the Department of Medicine. The following pages highlight the tremendous efforts and contributions of our highly dedicated and talented faculty and staff. It is truly a joy to serve as Department Chair to so many committed and talented individuals.

The Department of Medicine at Dartmouth Hitchcock Medical Center strives for excellence at all levels of our mission, including patient care, medical student and resident education, graduate student, postdoctoral, and fellowship training, service, and scholarly work. We have a long history of faculty members who are master clinicians, dedicated educators, and clinical investigators. We have a rich tradition of excellent interns and residents, and superb chief residents. We have also developed strengths in basic and translational research and have successfully enhanced our collaborative interactions with colleagues in other departments at Dartmouth Hitchcock Medical Center and throughout Dartmouth Medical School, Dartmouth College, and the White River Junction VA Medical Center.

Our mandate to excel in patient centered care, scholarly work and research, in conjunction with our deep commitment to our educational mission, is being advanced by our focus on bidirectional translational research and by our proactive contributions to medical knowledge, from outcomes studies to new device technologies to cell and molecular medicine. Our vision means that we have accepted the challenge to translate new knowledge into the best possible comprehensive and cost-effective care to the entire spectrum of patients that we serve, and to accomplish this in a work environment that is supportive and nurturing to faculty, students, trainees, and staff.

We have weekly Medicine Grand Rounds, which are well-attended and serve to advance our educational goals and weekly Morbidity and Mortality Conferences that are tremendously successful and enlightening. The Department has established a highly successful Junior Faculty Development Program which provides support to young faculty members building their research programs.

We offer a well-attended faculty development workshop series to enhance faculty teaching skills, and we hold exciting Department of Medicine Research Days to serve and promote faculty interactions. The relatively new section of Hospital Medicine is growing and thriving. Our own evidence-based medicine database, the brainchild of Dr. Jonathan Ross, is now on our website and easily accessible. Fellowship programs have been established in Endocrinology and in Nephrology and Hypertension, complementing the fine fellowship programs in our other Internal Medicine subspecialties.

Two outstanding section chiefs were recruited to lead the sections of Rheumatology and Pulmonary Medicine, and a research track has been established in the residency program which is attracting outstanding candidates.

The vibrant and collegial nature of our Department is underscored by the continued important educational activities of the Department of Medicine Education Committee; the leadership of the Internal Medicine Residency Program; the greater than 250 ongoing clinical trials by faculty members within the Department; the hiring of over 50 new faculty members into the Department since July 1, 2005; the continued yet orderly expansion of our research and clinical facilities; and the growth of our grant funding, currently at $25 million in direct costs per year.

We are a growing, dynamic department embedded in a wonderfully ethical and vibrant medical center. The challenges and opportunities we face can only lead to increased strength and accomplishments.

Thank you one and all for the privilege of serving as Department Chair.
The Department of Medicine has numerous nationally and internationally recognized research programs encompassing both basic and clinical research. Research funding increased by 16% in Fiscal Year (FY) 2006 to a total of $34 million, and decreased about 10% to $31 million in FY07. The department has approximately 220 active grants and contracts. Approximately 60 of these grants and contracts were new projects and competing renewals.

The decrease in our research funding is the direct consequence of the highly competitive and restrictive grant funding environment. Federal research funding decreased by 18% and state research funding decreased by 49% in FY07. At the same time, corporate funding increased by 42%.

We have implemented several strategies to sustain and build our clinical, basic, and translational research programs. The department has a competitive internal grant program designed to support research that has strong potential of culminating in subsequent external funding. We actively mentor and invest in the research of our junior faculty, fellows, and residents. The department has an ongoing Junior Faculty Development Program, which provides support to young faculty members in building their research programs. To date, 14 faculty have participated in the program, and three have received national grant awards.

Our department promotes research in our education and training programs. We have been active in establishing Dartmouth Medical School’s Program in Experimental and Molecular Medicine (PEMM), a PhD degree granting program designed to train translational researchers. Dr. Murray Korc (Chair, Department of Medicine) serves as Director of the PEMM program and Drs. Michael Simons (Cardiology) and Constance Brinckerhoff (Rheumatology) serve on the PEMM Executive Committee. In addition, 16 Department of Medicine faculty are members of the PEMM program and participate in teaching and mentoring PEMM students.

We offer 12 clinical subspecialty fellowship programs with a total of 51 clinical fellows, as well as numerous research fellowship opportunities with a total of 39 research fellows/associates.

JOHNNY KELLY, MD
Assistant Professor, Pulmonary and Critical Care Medicine, White River Junction Veterans Administration Hospital. Project Leader, Center of Biomedical Research Excellence grant (COBRE). Principal Investigator, VA Merit Review Award, “Stat5 Role in CT Lymphoma Development and Oncogenesis.”

TIM LAHEY, MD
Assistant Professor, Infectious Disease. Principal investigator: NIH RO1 Career development grant “Mechanisms of Regulatory T-cell Suppression of HIV-specific Cellular Immunity.”

COREY SIEGAL, MD
Assistant Professor, Gastroenterology. Principal investigator: Gastroenterology and Colitis Foundation career development grant, “Risk/Benefit Tradeoffs and Risk Communication in Inflammatory Bowel Disease” Recipient, Research Excellence in Gastroenterology and Liver Disease award.
OVERVIEW OF EDUCATION

The Department of Medicine is committed to providing high quality training at all levels of medical education. Medical students, residents, and fellows are integrated into the clinical experience at our two major teaching sites, Dartmouth-Hitchcock Medical Center (DHMC) and the Veterans Affairs Medical Center in White River Junction, VT. Our students and residents also experience the practice of medicine in non-academic, non-teaching hospital settings through rotations and continuity clinics precepted by adjunct faculty in community-based practices.

Clinical teaching is supplemented by ongoing clinical conferences, continuing medical education activities, research seminars, workshops, and journal clubs. The Department of Medicine brings physicians outstanding in their fields to present at weekly Medical Grand Rounds, which are open to both the Dartmouth community and community physicians throughout northern New England.

The goals of Medical Grand Rounds and our Mortality and Morbidity Conference are to disseminate advances in knowledge and clinical practice, explore pathophysiological mechanisms that contribute to disease onset and progression, increase the practice of evidence-based medicine, promote an understanding of the psychosocial aspects of illness behavior, highlight the art and science of clinical reasoning, understand the value of outcomes analysis, and recognize the impact of regulatory, ethical and socioeconomic considerations on health care delivery. Both activities operate in a supportive and positive learning environment that promotes collegial interaction, and provides medical students, resident staff and faculty excellent role models in the educational process. Both activities are part of the larger continuing medical education program at DHMC and Dartmouth Medical School (DMS) that aims to constantly facilitate the processes by which physicians and trainees strive for the highest levels of clinical and personal growth while engendering a commitment to lifelong learning.

We are constantly evaluating and critiquing our training and mentoring programs and engaging in innovative educational initiatives to more finely tailor our programs to produce stellar clinicians, researchers, and clinical educators.

The Department of Medicine Education Committee (DOMEC), Chaired by Hugh Huizenga, MD (VA Inpatient Clerkship Director), is instrumental in forwarding the education mission of the department. DOMEC holds bimonthly meetings and an annual retreat where educational leaders in the department focus on issues and innovations in our education and training programs. DOMEC also coordinates an internal education grant program to foster innovation and research in medical education. In the past two years, six projects have been funded supporting program development initiatives in the areas of international health, improved resuscitation training, and computerized simulation, geriatrics education, case-based video instruction, development of a novel clinical research curriculum, and skills development in practice-based learning.

Our Evidence-Based Medicine database, spearheaded by Dr. Jonathan Ross, has grown to nearly 175 evidence-based studies that are summarized in abstract form and provide meaningful quantitative and clinical data concerning important studies that inform the practice of medicine. The idea of the database is to form a curriculum of high quality studies and make them quickly accessible for use in teaching and in clinical care.

We initiated a Clinical Teaching Enhancement program to promote excellence in our teaching attending activities and to assure adequate student-teacher interactions that foster learning in the six competencies. The program provides protected time for teaching. Faculty selected for the program, known as Almy Teaching Attendings, are outstanding clinicians with strong teaching abilities. They spend dedicated time with Dartmouth Medical School students, particularly third-year students, on the inpatient units teaching various aspects of history taking, physical examination, differential diagnosis, acute management, follow-up care, and psychosocial aspects of health care delivery.

The first three Almy Teaching Attendings for this program were selected January 1, 2007: Chris Burns, MD (Rheumatology), Tom Kaneko, MD (Nephrology), and Lisa Furmanski, MD (General Internal Medicine). We have expanded this program to include 3 additional Almy Teaching Attendings for 2007-2008: Richard Zuckerfarrn, MD (Infectious Disease), Ania Toor, MD (Gastroenterology), Bill Kislaw, MD (Endocrinology).
OVERVIEW OF EDUCATION

Setting. The course focuses on patient interviewing, physical diagnosis, patient write-ups, the doctor-patient relationship, and oral presentations.

Dr. David Nierenberg serves as Director of the Scientific Basis of Medicine Program (SBM). Dr. Richard Comi, Section Chief of Endocrinology, serves as Assistant Director for the SBM Curriculum. Thirteen out of seventeen Course Directors/Co-Directors for the SBM courses are Department of Medicine faculty. In addition, faculty members from almost all of our sections participate in SBM as lecturers.

Dr. Comi also serves as the Director of the Year 2 Problem Based Learning (PBL) series.

Several of the Year 4 courses are lead by Department of Medicine faculty. Dr. Donald St. Germain (Endocrinology) leads Advanced Medical Sciences. Dr. Norman Yanofsky (Emergency Medicine) leads Advanced Cardiac Life Support. Drs. Dave Nierenberg and Lionel Lewis (Clinical Pharmacology) lead Clinical Pharmacology and Therapeutics.

Two Department of Medicine faculty serve on the Health Society and the Physician Planning Group (HSP): James Bell, MD (Cardiology) and Jon Lurie, MD, MS, (Hosp. Med.). Six faculty serve as HSP facilitators: James Bell, MD (Card.), Linda Dacey, MD (GIM), Kathryn Kirkland, MD/PhD, DcL, Jon Lurie, MD, MS (Hosp. Med.), Joseph O’Donnell, MD (Hem.Onc.), Roshini Pinto-Powell, MD/GIM.

The Department of Medicine offers three of the eight required medical student clerkships: Geriatric and Ambulatory Medicine, Inpatient Medicine, and Neurology. Outstanding clerkship directors include Drs. Lin Brown, Roshini Pinto-Powell, Deb Peltier, Hugh Huizenga, and Morris Levin.

Last year, the Outpatient Medicine Clerkship was transformed into the Geriatric and Ambulatory Medicine Clerkship. The didactics were modified to have a geriatrics focus. The students are already seeing 40-50% older patients at their sites.

In addition, 31 out of the 48 clinical electives offered by DMS are taught by Department of Medicine faculty. Drs. Joe O’Donnell (Hematology-Oncology), Arnold Katz (Cardiology), and Murray Kore (DOM chair) started a “Scholars in Medicine” program to work with 1st and 2nd year medical students to nurture their interest in Internal Medicine.

Department Chair, Dr. Murray Kore, meets with students during monthly Chairmen’s Rounds that include chalk talk and bedside teaching exercises. Almy Clinic Scholar, Dr. Jonathan Ross, is also a consistent presence for our medical students and residents across the full gamut of clinical teaching forums including Morning Report, M-2 Teaching Rounds, Autopsy Rounds, Journal Club, Morbidity and Mortality Conference, and precepting in the primary care clinic.

RESIDENT EDUCATION

The Internal Medicine residency program had a 100% match for 2006 and 2007 and matched our first candidate this year in the research pathway. The Board pass rate has been 100% for the past two years and the rolling three-year average is also 100%.

Approximately 56% of those completing the program enter subspecialty fellowships with a 99% successful fellowship placement in all IM subspecialties.

The department takes pride in its strong educational conference series. 10-15 hours of educational conferences are offered every week by the Department of Medicine with numerous other subspecialty, clinical and research conferences also available. Conferences and reports include Residents’ Morning Report; Interns’ Report; Medical Grand Rounds; Noon Conference Series (curriculum follows a two-year cycle covering core topics in General Internal Medicine, Geriatrics, all the medicine subspecialties, and featured topics from other specialties such as Rehabilitation Medicine, Ophthalmology, ENT, and Dermatology); Morbidity and Mortality Conference (M&M); Rotational Rounds (teaching and walking rounds); and an Outpatient Didactic Conference. Additional conferences include: Ethics Rounds (monthly at the VA), Autopsy Rounds (weekly at the VA and DMMC), Journal Club (weekly at the VA and DMMC), Clinical Pharmacology Rounds (weekly at the VA), and Radiology Rounds (daily at the VA).

The Internal Medicine Residency Program offers three tracks: Categorical Track (three-year program admitting up to 15 residents per year), Primary Care Track (three-year program admitting up to four residents per year), and Research Track (six- to seven-year program admitting up to two residents per year). The department also has residency programs in Neurology and Dermatology, which are described more fully in the section reports.

CATEGORICAL PROGRAM

The categorical residency training program at DMMC provides residents with a comprehensive and thorough education in Internal Medicine. The goal of the program is threefold:

1) To train internists to care for the sickest, most complex patients across a wide spectrum of disease;
2) To provide the best training possible in General Internal Medicine, which is the foundation upon which all subspecialties are built;
3) To train internists to be lifelong learners who are able to expand their range of competencies as the face of medicine changes.

PRIMARY CARE TRACK

The mission of the Primary Care Track (PCT) of the Dartmouth Internal Medicine Residency Program is to train outstanding general internists with a balanced expertise in the management of complicated inpatient and outpatient medical patients. The PCT provides outstanding and unique opportunities for residents to develop general internal medicine expertise at a tertiary care academic medical center, complemented by training in rural and medically underserved primary care teaching practices.

RESEARCH TRACK

We are proud to sponsor a Research Pathway for candidates interested in a career combining clinical practice and bidirectional translational research. This pathway conforms to the American Board of Internal Medicine’s requirements, and combines a two-year medicine residency, three-year postdoctoral research fellowship, and a one- to two-year subspecialty fellowship. Candidates for this track require an MD/PD combined degree or an M.D. with considerable research experience and achievement.

LEADERSHIP AND PREVENTIVE MEDICINE RESIDENCY

After completing a three-year internal medicine residency, residents have the opportunity to apply to the Leadership and Preventive Medicine Residency, a unique program offered through the Dartmouth Institute for Health Policy and Clinical Practice. This innovative program allows residents from various fields to expand their training, gain knowledge and skills in the measurement of outcomes, the leadership of change, and the improvement of health care systems. Through a combination of coursework and practical projects, residents learn to evaluate clinical micro-systems and take leadership roles in effecting change. This training includes the awarding of a Master of Public Health degree from Dartmouth College.
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Nichole Corry
Joshua Farkas
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Jim James
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Juniors
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Clinical Service
This has been an exciting and productive year for the Cardiology Section. The section has implemented numerous program changes and initiatives that have enhanced patient satisfaction, quality of care, access to services, and overall productivity and efficiency. Our physicians are acquiring skills with new devices and interventions that are expanding our ability to care for our patients. The cardiology section continues to receive outpatient satisfaction scores significantly above the DHMC mean with an overall satisfaction rating of 92% with our providers.

The section of Cardiology offers a full spectrum of clinical cardiac services (excluding heart transplantation), ranging from preventive care to highly specialized interventions. The section is organized into several clinical subsections, all devoted to optimizing patient outcomes by bringing highly trained staff, state-of-the-art technology, and cutting-edge techniques to patients suffering from cardiovascular disease.

INTERVENTIONAL CARDIOLOGY PROGRAM
Director: John F. Robb, MD
Our interventional cardiologists working within the cardiac catheterization laboratories have been expanding their expertise to include new and more complex procedures, such as left main artery interventions, revascularization of total chronic occlusions, device closure of patent foramen ovale, and multi-vessel angioplasty.

CARDIAC CATHETERIZATION LABORATORIES
Director: Craig A. Thompson, MD
The cardiac catheterization laboratory provides the region’s highest level of diagnostic and treatment options in interventional cardiology. The laboratory is staffed 24 hours a day to handle emergency procedures for local patients as well as for those transported from regional community hospitals. We perform more than 5,000 procedures each year, including more than 1,500 cardiac interventional cases. Case volume has been increasing at a rate of 5-10% every year. All rooms are cine/digital capable with digital image processing, pulsed and variable rate fluoroscopy, assuring room flexibility to accommodate various procedures. A recently installed Heartlab system for digital image acquisition and archiving enables all catheterization and echocardiography images to be stored long term and viewed from any location within DHMC.

CARDIAC REHABILITATION PROGRAM
Director: Andre T. Torkelson, MD
The Cardiac Rehabilitation Program is a multi-phased program designed to meet the rehab needs of patients admitted with a diagnosis of myocardial infarction, angina pectoris, or acute coronary syndrome. Some patients with congestive heart failure and cardiomyopathy are seen as well. Phase I begins when the patient is still in the hospital with a thorough assessment of activity tolerance and education about coronary artery disease (CAD) and risk factor modification. Phase II continues with a six-week outpatient group program that provides telemetry-monitored aerobic and resistance exercise. Phase III is a small group maintenance exercise program for patients who would like to be supervised by our staff in the exercise room three days per week. Patients may elect to be seen in our individualized program for follow-up after completing Phase II of the rehab program to monitor/support efforts at risk-factor modification.

ECHOCARDIOGRAPHY LAB
Director: Robert T. Palac, MD
The echocardiography laboratory at DHMC was one of the first in New England to be accredited by the Intersocietal Commission for Accreditation of Echocardiography Labs (ICAEEL) in 1999. The echo lab utilizes state-of-the-art equipment and offers a full range of echo services, including transesophageal, transthoracic, stress, and intraoperative echocardiograms. We provide outpatient, in-patient, adult, pediatric, and fetal echocardiograms, performing over 10,000 cardiac ultrasound examinations per year, including real-time 3D imaging. We also offer mobile echo services at multiple community hospitals in our referral area.

ELECTROPHYSIOLOGY SERVICE
Director: Mark L. Greenberg, MD
The clinical cardiac electrophysiology service provides expert, prompt, and comprehensive services for the gamut of arrhythmia problems ranging from in utero supraventricular tachycardia to pacemaker implantation in the elderly. The electrophysiology laboratory performs about 1,000 procedures annually. Areas of special expertise include: evaluation of syncope (including invasive electrophysiological testing, head-up tilt testing, and implantable loop recorders), atrial fibrillation (including multiple therapeutic modalities such as
THE SECTION OF CARDIOLOGY

antiarrhythmic drug therapy, device implantation, and radiofrequency catheter ablation); ventricular and supraventricular tachyarrhythmias, including curative radiofrequency catheter ablation; prevention of sudden death in patients with left ventricular dysfunction; and management of congestive heart failure with cardiac resynchronization therapy and biventricular pacing/defibrillation.

HEART FAILURE AND CARDIOMYOPATHY PROGRAM
Director: Alan Kono, MD
The Heart Failure and Cardiomyopathy Program is a cardiology-based, multi-disciplinary program offering a comprehensive, specialized approach to the diagnosis and management of heart failure and cardiomyopathies. The outpatient Heart Failure Clinic is now following over 450 patients and continues to grow. The heart failure team provides education and consultation for the referred population and has been very involved in developing guidelines and protocols for the management of heart failure hospital-wide. In May 2006, we held a Heart Failure Symposium that attracted a stellar faculty and more than 100 participants.

INPATIENT SERVICES
Director CVCC and ICCU: Edward Catherwood, MD
Inpatient Services at DHMC Cardiology include the Cardiovascular Critical Care Unit (CVCC) and the Intermediate Cardiac Care Unit (ICCU). The CVCC is a 10-bed unit, expandable to accommodate 18 patients, and equipped to deal with the most complex and intensive of cardiac illnesses such as myocardial infarction, cardiogenic shock, complex arrhythmias, as well as recovery from heart surgery. The Intermediate Cardiac Care Unit consists of 36 beds.

Our inpatient program has grown considerably, with discharges increasing 11% in the last year. The inpatient case mix on the cardiology service is more complex than in previous years, and we have experienced a slight increase in the average length of stay for cardiology patients.

Bed capacity remains a serious constraint. The Section developed a tiered nurse position focused on accommodating patients waiting to be transferred to DHMC for their cardiovascular care. The addition of this position has improved the section’s ability to meet the community’s need for cardiology services by coordinating services and resources more efficiently. Referring physicians have expressed increased satisfaction with the hospital transfer process.

OUTPATIENT SERVICES & OUTREACH CLINICS

SPECIALIZED CLINICS:
Atrial Fibrillation Clinic
Director: Paul Steiner, MD
Adult Congenital Heart Disease Clinic
Co-Directors: David J. Malenka, MD and Michael Flanagan, MD (pediatrics)
Device Clinic
Director: Mark L. Greenberg, MD
Pacemaker ICD Follow-up Clinic
Director: Mark L. Greenberg, MD

Outpatient Cardiology and Cardiac Ultrasound Laboratory services are provided at the main campus in Lebanon, NH, and outreach offices throughout New Hampshire and Vermont. We view our outreach activities as critical to providing accessible cardiology consultation to the region and maintaining strong working relationships with community physicians. We provide many specialized outpatient services including Congestive Heart Failure Clinic, Vascular Clinic, Cardiac Rehabilitation Program, and Pacemaker and ICD follow-up Clinic. In the past year we expanded our outpatient services to include a Device Clinic and Point of Care testing.

The Device Clinic was established to better accommodate the increasing numbers of patients with implanted defibrillators. An RN, trained in the interrogation and programming of implantable defibrillators, sees patients daily. Point of Care testing was established for the benefit of our Coumadin/ Warfarin clinic patients. This new approach relieves patients of having to have labs drawn and then wait to get their medication adjusted. These services are now handled within one nurse visit. Volumes in the Electrophysiology, Catheterization and Echo were all significantly higher than last year. Overall, the Cardiology Section performed 1,500 coronary and 200 peripheral interventions, 2,900 coronary and 450 peripheral diagnostic studies, 1,000 electrophysiology procedures, and 11,000 echocardiographic studies.

Education
FELLOWSHIP PROGRAMS
The Section of Cardiology has three ACCME-accredited fellowship programs: General Cardiovascular disease (12 fellows, four per year, three-year program), Cardiac Electrophysiology (two fellows per year, one- or two-year program), and Interventional Cardiology (two fellows per year, one-year program). In the past two years, we have matched all four general cardiology fellowship slots from our top 10 selected candidates. Our fellows have achieved a 100% pass rate on the ABIM exam in Cardiovascular Diseases and subspecialty areas. Graduates of our training programs are highly competitive for employment opportunities in private practice and academic medical centers.

Fellows in each of the training programs contribute substantially to the operation of the cardiopulmonary labs, inpatient services, and clinics. Each fellow is expected to publish a first author peer-reviewed manuscript prior to graduation from the program. During the past 18 months, cardiovascular fellows have been first or second authors on 15 articles in peer-reviewed journals, 11 abstracts, and 6 manuscripts submitted for publication.

MEDICAL STUDENT EDUCATION
The cardiology section is also active in medical student education with three of the section’s faculty members mentoring in the medical school’s two-year On-Doctoring course and one in the Problem-Based Learning series.

CONTINUING MEDICAL EDUCATION
The Section is very active in continuing medical education. Our Interventional Cardiology service holds regular meetings to perform case review and mortality and morbidity discussions. These meetings are attended by a large number of physicians and other staff.

Dr. Aaron Kaplan organized and chaired the third annual Dartmouth Device Development symposium, bringing together government, industry and academic leaders to debate hot issues in device development. This workshop regularly generates high impact position papers that are published in the leading cardiovascular journals such as Circulation and the Journal of the American College of Cardiology.

Dr. Alan Kono organized Dartmouth Diastolic Discourse, an invitational meeting of thought leaders in diastolic heart failure.

Dr. Jon Wahrenberger organized the annual Dartmouth Cardiology Update symposium that continues to expand in size and visibility.

Research
Advancing the frontiers of knowledge, both in basic science and clinical cardiology, and offering patients access to drugs and devices which may improve medical care is an essential part of our mission. In academic year 2006-2007, sponsored research funding increased 14% from $3.6 million to $4.1 million. The section has 59 active research projects/studies, 11 of which are new and competing research grants. Section faculty hold six NIH R01 grants and two junior investigators in the Section obtained AHA Scientist Development Awards. Areas of research emphasis include...
angio genesis research, cardiology clinical research, cardiovascular imaging, cardiac epidemiology, outcomes and decision-analysis, therapeutic catheterization and devices, echocardiography, and electrophysiology.

THE CARDIOLOGY CLINICAL RESEARCH UNIT (CCRU)
Director: Michael Simons, MD

Since its inception in 1990, the unit has been conducting clinical trials in a wide variety of protocols. In the past year, we conducted 30 trials, including trials of new drug-eluting stents, electrophysiology devices, and HDL raising agents. Dr. Craig Thompson is the leader at Dartmouth of a first-in-man intramyocardial gene therapy trial with human growth factor to promote blood vessel growth/development (angiogenesis) to improve symptoms of angina/chest pain and coronary blockages that were not suitable for catheter-based angioplasty/stenting or coronary bypass surgery. Dr. Kaplan also initiated first-in-man trials of a new biocompatible stent device and presented invited lectures at the annual Transcatheter Therapeutics meeting. The Dartmouth Advanced Imaging Center (DAIC) is comprised of multidisciplinary teams dedicated to the research and development of advanced medical imaging. Specific targets include very early detection and accurate image-based treatment guidance for heart disease and cancer. The DAIC's novel capabilities enable molecular imaging, identification of changes in gene expression at the molecular level, accurate treatment delivery with molecular targeting to maximize benefit and minimize side effects, and new minimally invasive image-guided treatments and cures. Modalities include a new whole body 1.5 Tesla MRI Excite twin gradient cardiac magnetic resonance imaging system, a 3.0 T MRI cardiovascular CT, electron paramagnetic resonance imaging, ultrasound and Positron Emission Tomography (PET), paired with micro-imaging capabilities.

SELECTED PUBLICATIONS


Medical Staff Award for outstanding service to hospital and community.
Dr. Bruce Friedman was re-elected President of the New Hampshire Board of Medicine.
Dr. Armin Helich received the Minnesota Society’s 2006 Mary E. Genumson Award.
Dr. Robert Palac was elected Fellow of the American Society of Echocardiography and was invited to present at the annual Transcatheter Therapeutics meeting.
Dr. Nicholas Shworak served as a grant reviewer for the NIH/NIHHLBI project program review panel. He also sat on the scientific program committee of the 5th International Proteoglycan Conference held in Italy and served as Co-President of the Proteomics Infrastructure Expert Committee for the Canadian Foundation for Innovation.
Dr. Michael Simons served as President of the North American Vascular Biology Organization. He was awarded the Research Career Achievement Award by the AHA-North East and delivered plenary lectures at the Annual Atherosclerosis, Thrombosis & Vascular Biology conference and also at the International Vascular Biology meeting in The Netherlands. Dr. Simons also serves on the Vascular Cell Molecular Biology NIH study section.
Dr. Jan Wahrenberg was elected President of the NH chapter of the AHA.

PROMOTIONS JULY 1, 2006

David J. Malenka, MD, Professor
Nicholas W. Shworak, MD, PhD, Associate Professor
Daniela C. Tirziu, PhD, Instructor of Medicine
Miaoliang Liu, MD, Instructor of Medicine

FACULTY

Section Chief
Michael Simons, MD

Professors
Arnold M. Katz, MD
David J. Malenka, MD
Justin D. Pearlman, MD
Ellis L. Rolett, MD
Michael Simons, MD

Associate Professors
James R. Bell, MD (VA)
John R. Butterly, MD
Edward Calhoun, MD
Bruce D. Friedman, MD
Barbara Rackow Gerling, MD
Mark L. Greenberg, MD
Bruce J. Friedman, MD
Peter T. Holzberger, MD
David J. Malenka, MD
Justin D. Pearlman, MD
Ellis L. Rolett, MD
Michael Simons, MD

Associate Professors
Bruce W. Andrus, MD (VA)
Salvatore P. Cozza, MD
Ebo D. deMunich, MD
Robert S. Foote, MD
Andy Hershowitz, MD
John E. Jayne, MD
Alan T. Kono, MD
William Jeffrey Long, MD
Daniel J. O'Rourke, MD (VA)
Emil M. Polká, Jr., MD
Paul R. Steiner, MD
Carl R. Szot, Jr., MD
Craig A. Thompson, MD
Andrew T. Torkelson, MD
Jon W. Wahrenberger, MD

Research Assistant
Professors
Karen L. Moodie, DVM
Shenwu Zhuang, MD

Instructors
Dmitri V. Baklanov, MD
Miriam Cahill-Yeaton, MSN
Suzanne D'Anna, MS
T. Lindsay D'Anna, PA
James T. DeVries, MD
Joan M. Doody, MS
Michael H. Duong, MD
Cheryl A. Elinsky, PA
Stephen Holdeman, NP
Kelly Houghton-Laffamme, BS
Mary M. Kozubal, PA
Kathleen Ann Martin, MSN
John R. McNeil, MD
Peter A. Monson, MD
Julia V. Montgomery, MD
Jeffrey J. Olson, MD
Rajib S. Sangha, MB, BCH
Arvind Sharma, MD
Jonathan A. Sherman, MD
Daniela C. Tricco, PhD
Stephan C. Trachtenberg, MD
Mary M. Young, MSN

Research Associates and Research Fellows
Thomas W. Chitwood, PhD
Zhiyong Cui, PhD
Qiangwei Fu, MD
Joanna Hamilton, PhD
Sasan Haji Mohammadi, PhD
In Kap Ko, PhD
Anthony A. Lanahan, PhD
Hui Li, MD
MiaoLiang Liu, MD
Masahito Murakami, MD, PhD
Chehom Panthawee, PhD
Julie M. Pauz, PhD
Bin Ren, PhD
John M. Rhorer, D.O., PhD
Anna V. Salikhova, PhD

Cardiovascular Disease Fellows 2006-2007
1st Year
Effin M. Freuehne, MD
Carl W. Meiler, Jr., MD
Mandeep S. Sidhu, MD
Yufeng Zhang, MD, PhD

2nd Year
Timothy C. Ball, MD, PhD
Nicholas H. Laffey, MD
John E. O'Mara, MD
Rayson C. Yang, MD

3rd Year
Roger S. Chan, MD
Robert J. Kim, MD
Dhaval R. Patel, MD
Francis W. Redican, Jr., MD

Graduated June 2006
Jeffrey O. Clayman, MD
Alan R. Opsahl, MD

Graduated June 2007
James M. Frits, MD, PhD

Interventional Cardiology Fellows
Graduated June 2006
Dmitri V. Baklanov, MD, PhD
James T. DeVries, MD
Michael H. Duong, MD

Graduated June 2007
Arvind K. Sharma, MD
Jonathan A. Sherman, MD

Electrophysiology Fellows
Graduated June 2006
Julia V. Montgomery, MD

Graduated June 2007
Rajeev S. Sangha, MD
Clinical Service
The Section of Clinical Pharmacology and Toxicology provides assessment, consultation, and diagnostic testing for plasma levels of drugs and toxicants for inpatient and ambulatory patients with any drug-related problems or toxic-related symptoms (i.e., adverse effects, interactions, allergies, use in elderly patients, use in patients with liver or kidney disease, optimal use of therapeutic monitoring). Our small section is on call 24/7 to provide advice or facilitate emergency transfers and admission of patients with life-threatening acute toxicological emergencies such as serious drug overdoses or poisonings.

Dr. Lionel Lewis has (with Drs. Tet-Kin Yeo and Gregory Tsongalis) initiated a Pharmacogenomics Program that offers a consultation service to patients and physicians at DHMC. Dr. Lewis and Dr. Dave Nierenberg both serve on the DHMC Pharmacy & Therapeutics Committee and two of its subcommittees. Lionel Lewis serves as Director of the Clinical Pharmacology Shared Service within the NCCC. Dr. Nierenberg offers one clinic per month at the Good Neighbor Health Clinic; serves on its Medical Advisory Committee; manages its drug repackaging program; and serves on the Board of Directors of Headrest. In addition, he serves as an elected representative to the DHMC Board of Governors.

Education

CLINICAL PHARMACOLOGY FELLOWSHIP PROGRAM
The Section’s Clinical Pharmacology Fellowship was recently approved for full accreditation by the American Board of Clinical Pharmacology, only the fifth such fellowship program in the country to achieve this status. We are the only fellowship program in the country, and at DHMC, that tracks our fellows’ activities in all six ACGME competency domains using the D-MEDS documentation system. Our fellow, Nandi Reddy, MD, was recruited into the program last year, and a new fellow, Uday Dandamudi, MD will join us in 2007. Our fellowship program provides a sound balance of coursework, clinical work, translational research, and teaching. Our fellow sees patients regularly on the Section’s consult service and also in the NCCC: Phase I oncology clinic monitoring clinical study patients. In the past year, our fellow successfully completed two Phase I clinical trials as a sub-investigator under the mentorship of Dr. Lionel Lewis, and was a co-investigator in multiple other Phase I studies. In addition, our fellow is a tutor for second-year medical students in the Problem-Based Learning series and participates in clinical pharmacology morning reports at the VA Medical Center.

RESIDENT EDUCATION
The section is also very active in other aspects of the department’s graduate medical education. We offer a series of noon conferences (3-4 per year), provide teaching rounds twice per month, offer Clinical Pharmacology / ICU rounds weekly at the VA and biweekly at DHMC. We also teach 4-8 medical residents per year who choose electives on the clinical pharmacology service.

MEDICAL STUDENT EDUCATION
Dr. Nierenberg continues his activities at DMS Senior Associate Dean for Medical Student Education and Director of the Scientific Basis of Medicine Program at the medical school. He leads the Medical Education Committee and serves on the Clerkship Directors Education Committee.

All clinical pharmacology faculty teach in the Year 2 Pharmacology course, Year 2 Problem-Based Learning series, Year 2 Scientific Basis of Medicine, and provide most of the teaching of the 50-hour, Year 4 Clinical Pharmacology course, regarded as one of the most intensive Year 4 required course of any medical school in the country. In addition, Dr. Lewis mentors occasional PhD students in the lab in the area of Pharmacology/Toxicology. Dr. Lewis chairs the Council on Clinical Pharmacology Education within the American Society of Clinical Pharmacology and Toxicology, and is an ex-officio member of the American Board of Clinical Pharmacology Exam subcommittee (ACGP exam questions are electronically & securely maintained at Dartmouth). Dr. Lionel Lewis also serves as a Member of the United States Medical Licensing Examination (USMLE) Step I committee and was appointed Chairman of the Pharmacology Test Item Development Committee for USMLE Step I exam.

Research
The Section of Clinical Pharmacology received $292K in sponsored research funding in academic year 2006-2007, and $736K in academic year 2005-2006. The Section’s research interests include medical education research and a variety of experimental protocols for evaluating new types of medications, especially antineoplastic agents.

The primary focus of Dr. Lionel Lewis’s research is the Phase 1 clinical pharmacology of novel anticancer compounds. Assisted by Dr. Tet-Kin Yeo, Dr. Lewis also studies mitochondrial drug toxicity, using the mtDNA depleted cell line that he engineered. Serving as Medical Director of the newly formed DHMC Clinical Trials Office, Co-Director of the NCCC Phase I Oncology group, and Director of the NCCC Clinical Research Committee, Dr. Lewis plays a critical role in the translational research activities at DHMC.

Honors and Scholarly Work
Dr. David Nierenberg was elected to his second 6-year term on the American Board of Clinical Pharmacology, where he serves on a number of committees and heads the nominations committee. He also serves as an official representative from the American Society for Clinical Pharmacology and Therapeutics to the Council of Academic Societies within the AAMC. In addition, he serves as a reviewer for several journals, and is the Associate Editor for Clinical Pharmacology and Therapeutics. Dr. Lionel Lewis is the North American Editor for the British Journal of Clinical Pharmacology, a member of the Editorial Board of Clinical Pharmacology and Therapeutics, and serves as a reviewer for several journals. He also serves as Chair of the Department of Defense Clinical Experimental Therapeutics Review Panel.

SELECTED PUBLICATIONS
SECTION OF CLINICAL RESEARCH

Clinical Service

Although none of the faculty in the Section of Clinical Research are clinicians, our section is dedicated to research and collaborative initiatives designed to generate information important to improving clinical care and supporting health policy development. Several of our faculty are highly involved in the development of clinical practice guidelines.

Dr. Anna Tosteson has been active with the American College of Chest Physicians’ Work Group on inclusion of resource allocation in developing evidence-based guidelines. In addition, she serves on the Physician Guide Committee of the National Osteoporosis Foundation.

Dr. Gerald O’Connor has been involved in the development of clinical practice guidelines for cystic fibrosis, cardiovascular perfusion, and coronary artery bypass graft surgery.

Education

All faculty in the Section of Clinical Research serve as educators for The Dartmouth Institute for Health Policy and Clinical Practice. The Institute offers the following degrees: Master of Science in Evaluative Clinical Sciences, PhD in Evaluative Clinical Sciences and Master of Public Health.

Dr. Gerald O’Connor serves as Director of Graduate Education Programs and Course Director for Epidemiology and Biostatistics II. Dr. Todd MacKenzie taught Advanced Statistical Methods. Dr. Anna Tosteson directed and co-taught a graduate course in decision analysis and economic evaluation. She also led a module on Topics in Economic Evaluation for the CECS Doctoral Seminar Course.

In addition, Drs. O’Connor and Tosteson serve as mentors for PhD students in the CECS program, supervising directed research activities for these students.

Research

The clinical research section received $1.4 million per year in sponsored research funding for both academic years 2005-2006 and 2006-2007. This does not include the biostatistical support that both Dr. Tosteson and Dr. MacKenzie provide for research projects awarded to Dartmouth colleagues outside the section. Dr. Todd MacKenzie is currently active on 10 research projects, and Dr. Anna Tosteson is active on four research projects in addition to her NIH RO1, “Evaluation of Osteoporosis in the Elderly.”

Dr. O’Connor is Principal Investigator for the The Northern New England Cardiovascular Disease Study Group (NNCDSG), a regional consortium founded in 1987. The consortium is an inter-institutional model for the improvement of medical and surgical care. The NNCDSG maintains an extensive procedure and outcomes data base available for research and quality improvement initiatives. Over the past 15 years, data on more than 170,000 consecutive procedures has been collected and analyzed. The group meets three times a year to review data, plan studies, and improve care.

Honors and Scholarly Work

Dr. Todd MacKenzie served on a Special Emphasis Study Section for NIH/NIDDK.

Dr. Anna Tosteson was a collaborator on a paper presented by Dr. James Weinstein at the 2006 annual meeting of the International Society for the Study of the Lumbar that received an outstanding paper award.

Dr. Anna Tosteson continues to be an active participant in national research endeavors. In 2005/06 she served on three Special Emphasis Study Sections for NIH.

In addition, she completed her two-year term as Secretary-Treasurer for the Society for Medical Decision Making. She continues to serve as a member of the Outcomes and Economic Modeling Committee for the American College of Radiology Imaging Network and also the Editorial Board for the American Journal of Medicine.

PROMOTIONS JULY 1, 2006

Todd MacKenzie, Ph.D. Associate Professor

SELECTED PUBLICATIONS

JOURNAL ARTICLES


Clinical Service
The Section of Dermatology strives to provide caring, high-quality dermatology services for patients, to serve as first-rate consultants, to advance dermatology through research and to train future dermatologists. In 2006, the principle goal of the Section of Dermatology was to fulfill these clinical missions through collaborative and innovative methods of health care delivery. The Section received an overall satisfaction rating of 92% in the 2006 outpatient satisfaction survey. During the past year, we formed a dermatology ambulatory clinical improvement team led by Dr. Shane Chapman to evaluate more efficient methods to deliver dermatology services to our patients. This important project resulted in over 50% improvement in clinical productivity, while maintaining over 90% patient satisfaction. The section, through the work of Dr. James Dinulos, has expanded the shared medical appointment initiative with the addition of Acne Care Events (ACE), for the diagnosis and treatment of adolescent acne; SPOT, for the early detection and treatment of skin cancer; and RASH, for early diagnosis and treatment of acute inflammatory skin disorders. This past year, the section created a resident clinical outpatient service, designed to improve resident educational experience and improve access for referral patients with challenging dermatological diagnoses and those patients with urgent dermatological issues. Dr. Kathryn Zug has continued her collaborative cutaneous T-cell lymphoma clinic with Dr. Pamela Ely from the Norris Cotton Cancer Center and offers state of the art therapy for cutaneous lymphoma patients.

Specialized Services and Interdisciplinary Clinics
MOHS MICROGRAPHIC SURGERY
Director: Antoinette Kore, MD
This service headed by Dr. Antoinette Kore offers controlled excisional surgery for patients with skin cancer. This Mohs micrographic surgery service collaborates closely with surgeons from plastic surgery.

OCCUPATIONAL SKIN DISORDERS AND CONTACT DERMATITIS CLINIC
Director: Kathryn Zug, MD
This nationally recognized clinic serves as a regional resource for patients with occupationally-induced skin disorders and patients with contact dermatitis. Led by Dr. Kathryn Zug, this clinic is a member of the North American Contact Dermatitis Group.

Cutaneous T-Cell Lymphoma (CTCL) Clinic
Director: Kathryn Zug, MD
The CTCL Clinic provides specialized care for patients diagnosed with cutaneous lymphoma. This multidisciplinary clinic was established in collaboration with Dr. Pamela Ely from the Norris Cotton Cancer Center and offers state of the art therapy for cutaneous lymphoma patients.

Genetic Skin Disorders Clinic
Director: James Dinulos, MD
Dr. James Dinulos and Dr. Mary Beth Dinulos from the Department Pediatrics collaborate to diagnose and treat genetic disorders of the skin. Genetic counseling services are provided in this clinic.

Dermatological Cosmetic Clinic
Director: M. Shane Chapman, MD
The Dermatological Cosmetic Clinic led by Dr. Shane Chapman provides cosmetic services including facial rejuvenation utilizing the Intense Pulse Dye Laser.

Dermatology Ambulatory Clinical Improvement Lab
Director: M. Shane Chapman, MD
This specialized clinical setting was developed by Dr. Shane Chapman to create and examine new methods of delivering dermatological care.

Pediatric Dermatology Fellowship
Director: Nicole C. Pace, MD
In 2006, the Section of Dermatology was approved by the American Board of Dermatology for a Pediatric Dermatology Fellowship.

Research
The Section of Dermatology received $325K in sponsored research funding in academic year 2006-2007. The section had nine active clinic trials relating to the treatment of psoriasis, atopic dermatitis, acne. One of the Section’s primary goals is to expand the clinical research program.

Honors and Scholarly Work
Richard Baughman is currently the secretary of the Northeast Health Care Quality Foundation, a physician corporation designated by Medicare as the Quality Improvement Organization (QIO) for ME, NH, and VT. He also serves on the Medicare Carrier Advisory committee for Medicare Region 1. Michael S. Chapman became Vice-President of the New England Dermatologic Society in 2005. Kathryn A. Zug became President of the American Contact Dermatology Society in 2005.
PROMOTIONS JULY 1, 2006
Michael S. Chapman, MD, Associate Professor of Medicine
James Dinulos, MD, Associate Professor of Medicine and Pediatrics

SELECTED PUBLICATIONS

SECTION OF EMERGENCY MEDICINE

Clinical Service
DHMC is the only Level 1 Trauma Center in New Hampshire, and serves as the tertiary referral center for complex trauma patients throughout New Hampshire and eastern Vermont. The Section of Emergency Medicine cares for the entire spectrum of emergency illnesses and injuries. The Section is the base for the Dartmouth-Hitchcock Advanced Response Team (DHART), an air ambulance service that serves both states. The Section of Emergency Medicine provides on-line medical control for DHART and for the area’s ambulance services and FAST squads.

Emergency medicine has been active in several quality improvement initiatives. We recently performed an extensive analysis of patient flow in the emergency department and are in the process of implementing changes that will significantly reduce the length of patient waiting time in the emergency department. We also developed a process to screen for Pneumovax and Influenza vaccine eligibility, so the vaccine can be administered whenever appropriate.

Dr. Katherine Little has been extensively involved with the State of New Hampshire in the development of state-wide protocols and programs relating to domestic violence and sexual assault. Patient volume remained relatively flat during the past year. This was in the context of nine years of constant growth averaging six to seven percent per year. Factors influencing the slowing growth included a mild winter, light influenza season and a rainy spring.

Education
The Section of Emergency Medicine is committed to the education mission at all levels: medical education, graduate medical education, and continuing education.

MEDICAL STUDENT AND RESIDENT EDUCATION
The Section has plans to apply for a residency program in Emergency Medicine and is in the process of preparing the Program Information File for the Residency Review Committee.

The Section provides training in emergency medicine for all of the residency programs at DHMC. We also provide Advanced Cardiac Life Support training for all fourth year medical students and the entire Internal Medicine housestaff.

Drs. Charles Hers, Norman Yanofsky, Patricia Lanter, and Scott Rodi serve as Advanced Trauma Life Support instructors with the Trauma Program and weekly Trauma rounds are conducted in the Emergency Department conference room.

Dr. Lanter assumed the role of Coordinator of Education in emergency medicine for the pediatric housestaff. In addition, she serves as the lead advisor for Dartmouth Medical students interested in careers in Emergency Medicine.

UNDERGRADUATE EDUCATION
Dr. Kevin Curtis developed and implemented a novel course (Bio 81) to teach the fundamentals of clinical research to Dartmouth upperclassmen. Course development was seeded by an internal Department of Medicine Education Committee grant. The curriculum involves three components: direct involvement with ongoing clinical research studies, a comprehensive didactic program, and actual study design.

Dr. Reed Brozen provides a series of conferences in Emergency Medicine for community emergency physicians. He organized two all-day programs this year with attendance of approximately 50 physicians at each conference. Dr. Brozen also taught a Wilderness Emergency Medicine course for medical students.

Research
The Section of Emergency Medicine received $1.3 million in sponsored funding in academic year 2005-2006 and $504K in academic year 2006-2007 for emergency preparedness activities and clinical research. The decrease in funding from 2006 to 2007 is not related to decreased activity, but rather the timing of one-time funding for emergency preparedness supplies.

NEW ENGLAND CENTER FOR EMERGENCY PREPAREDNESS

Honors and Scholarly Work
Drs. Reed Brozen, Sarah Johansen and Scott Rodi have assumed leadership roles in the state chapter of The American College of Emergency Physicians. Dr. Rodi is the current President of the chapter. Drs. Bosen and Johansen were recent presidents and continue to be active.

Dr. Norman Yanofsky continues his regional and statewide EMS activities serving on the New Hampshire Medical Control Board and the New Hampshire EMS Coordinating..
FACULTY

Section Chief
Norman N. Yanofsky, MD

Associate Professors
Reed Brozen, MD
Charles Herr, MD
Norman N. Yanofsky, MD

Assistant Professors
Douglas A. Cedeno, MD
Kevin M. Curtis, MD
Kirk R. Duffy, MD
Robert M. Gougelet, MD
Patricia L. Lanter, MD
Katherine J. Little, MD
Thomas J. Lydon, MD, PhD
Richard A. Marcucci, MD
Nancy Muir Philips, MD
Scott W. Rodi, MD
Richard Taylor MD

Research Assistant Professors
Kerry Fosher, PhD
Kendall L. Hoyt, PhD

Instructors
Stephanie Briggs, MD
John E. Cassidy, PA
Eric Dinnerstein, MD
Edward P. Durling, PA-C
Marcus J. Hampers, MD, MBA
Sarah G. Johansen, MD
Kari Koenig, MD
James P. Mithoefer, PA
Patrick A. Schembri, PA-C

Board. He also serves as the Medical Advisor for Vermont EMS Region 9 and New Hampshire EMS District A-6.

Dr. Reed Brozen is active (and the recent Chair) in the Air Medical section of the American College of Emergency Medicine at the national level. He is currently the Scientific Assembly Coordinator of the Air Medical Physician’s Association Critical Care Transport conference.

Dr. Kevin Curtis continues to serve as a grant reviewer for the Emergency Medicine Foundation.

Kerry Fosher, PhD, serves as the Cross-cultural Competence Project Director at the Culture and Language Center at U.S. Air University/Air War College.

Dr. Robert Gougelet has been named to the new National Advisory Council that advises the Federal Emergency Management Agency (FEMA) administrator on national preparedness and emergency management.

SELECTED PUBLICATIONS

BOOKS

BOOK CHAPTERS

JOURNAL ARTICLES


SECTION OF ENDOCRINOLOGY

Clinical Service
The Section of Endocrinology is dedicated to advancing patient care through a collaborative interactive multidisciplinary approach. In 2006 the section successfully reduced the average wait time for new appointments from three months to four weeks and received an overall outpatient satisfaction rating of 93.4%.

DIABETES PROGRAM
Director: Richard J. Comi, MD
Our Diabetes Program is a multidisciplinary group of established experts in the field of outpatient diabetes care supporting the full range of services, including dietary counseling, insulin pumps, diabetes educational activities, and management of diabetic complications.

INPATIENT DIABETES MANAGEMENT TEAM
Director: Richard J. Comi, MD
In 2006, two nurse practitioners were added to the section specifically to provide consultation for inpatient diabetes management. This team works with providers hospital-wide to manage glucose levels and achieve stable glucose levels and improved hospital outcomes. In addition, this team communicates directly with the primary care team upon discharge to ensure a smooth transition in diabetes management.

INSULIN PUMP PROGRAM
Director: Rita Ketay, RN, MSN, CDE
The Insulin Pump Program educates and trains patients in the use of insulin pumps for the management of Type 2 diabetes. There is an organized regular pump support meeting. All upgrades and new pump requests are seen by a multidisciplinary team.

GLUCOSE SENSOR PROGRAM
Director: Carol French, RD, MS, CDE
The Glucose Sensor Loan Program has loaned a glucose sensor for one-week use to over 120 patients to date since its inception in the summer of 2006. It is our clinical impression that each patient has made a significant change in their self-care of diabetes based on the results of the sensor, which provides their glucose every five minutes and allows graphing back in time for up to nine hours.

NEUROSURGICAL ENDOCRINE PITUITARY TUMOR BOARD
Co-Directors: John H. Turco, MD and Nathan E. Simmons MD (Neurosurgery)
The Neurosurgical Endocrine Pituitary Tumor Board is comprised of endocrinologists and neurosurgeons working together to provide a full range of care for pituitary disorders, including diagnosis, surgery, and post-operative management.

POLYCYSTIC OVARIAN DISEASE MULTIDISCIPLINARY CLINIC
Director: Sophia Oshahl, MD (GYN)
Specialists in the Polycystic Ovarian Disease Multidisciplinary Clinic treat the gynecological and hormonal problems associated with Polycystic Ovarian Disease. Our team includes a gynecologist, an endocrinologist, a nutritionist, and nursing professionals.

THYROID CANCER MULTIDISCIPLINARY TEAM
Director: John H. Turco, MD
The Thyroid Cancer Multidisciplinary Team draws on the expertise of endocrinologists, nuclear medicine specialists, pathologists, pediatricians, radiation therapists, and surgeons to deliver care to patients with thyroid cancer.

TRANSGENDER CLINIC
Director: John H. Turco, MD
The Transgender Clinic offers multidisciplinary health care to patients seeking hormonal and/or surgical reassignment of gender. Our services include initiation and monitoring of hormonal reassignment of gender, primary medical care in preparation for surgical reassignment surgery, and referrals to medical institutions that offer surgical reassignment surgery.

MEDICAL STUDENT EDUCATION
The Section of Endocrinology is very active in the Year 2 DMS Scientific Basis of Medicine (SBM) course series. Dr. Richard Comi serves as Assistant Director for the SBM curriculum. In addition, Dr. Comi is the Director for the Problem-Based Learning course. Dr. Paul Beisswenger serves as the Director for the SBM Endocrinology Course. This course was rated highest by students out of all the SBM courses. Dr. Bill Kinlaw was awarded the “2006 Dartmouth Medical School Distinguished Small Group Leader of the Year Award.”

Dr. Bill Kinlaw also organizes the student and resident month-long clinical elective in Endocrinology. Dr. Richard Comi has been the faculty mentor for the housestaff Journal Club for 2006-2007.
SECTION OF ENDOCRINOLOGY

CONTINUING MEDICAL EDUCATION

The Section has been active in continuing medical education and community education activities, with 12 active research grants, totaling $3.1 million in sponsored funding. In academic year 2006-2007, the section’s faculty included seven principal investigators, with three of our faculty holding secondary appointments in other departments. The Section is engaged in a broad range of research both basic and translational in nature. With three of our faculty holding secondary appointments in other departments such as Physiology, Pharmacology & Toxicology, and Biochemistry, the Section is characterized by strong collaborative relationships across disciplines and also between basic and clinical researchers.

Dr. Donald St. Germain’s lab is studying the physiological parameters and biochemical mechanisms that regulate metabolism and action of thyroid hormones (TH). New insights have been gained into the role of TH and the deiodinases in brain development, reproductive function, growth, thermogenesis and regulation of the thyroid axis.

Dr. Lee Witters’ lab is researching cell and tissue response to stressors, such as availability of oxygen and metabolic substrates like glucose, and how rates of fat and cholesterol synthesis/degredation are regulated. His research focuses on the role of metabolite-sensing functions in both normal organ physiology (e.g., muscular exercise) and pathophysiologic circumstances (e.g., cancer cell survival, diabetes mellitus, obesity/eating behaviors).

Dr. Benjamin S. Szwergold’s lab is studying the role of deiodinases from studies of genetically engineered mice, and oxidized protein degradation products. His lab is studying the role of deiodinases in breast cancer and a potential therapeutic target.

Honors and Scholarly Work

Dr. Murray Korec serves on the editorial boards of several journals (ie. Pancreatology, Pancreas, J. Biological Chemistry) and is a reviewer for the AACR Junior Faculty Awards. He serves on the scientific advisory boards for the Pancreatic Cancer Action Network and the Hirshberg Foundation for Pancreatic Cancer Research, and on the clinical advisory board for the Journal of Molecular & Cellular Proteomics. He participates on numerous National Cancer Institute study sections and review panels, including: Chairman for the Molecular Oncogenesis Study Section, Chairman of the 2006 AACC-PanCAN-Michael Landon Award for Research in Pancreatic Cancer, Ad Hoc Advisor to NCI regarding the description of study section topics, and member of a Special NIH study section meeting (TME). He was an invited speaker at 10 conferences, including three international conferences.

Dr. William Kinlaw was an invited speaker at 7 conferences, including two international conferences.

SELECTED PUBLICATIONS


Continued...
Clinical Service
The Section of Gastroenterology and Hepatology collaborates with many different medical and surgical colleagues within Dartmouth-Hitchcock Medical Center to provide patients with the most comprehensive and coordinated approach to the diagnosis and treatment of digestive diseases. The Section is organized around four Centers of Excellence, which enable our physicians and support teams to provide expert and focused care for all gastrointestinal disorders and integrate clinical expertise with the newest forms of established and experimental diagnostic and therapeutic methods.

INFLAMMATORY BOWEL DISEASE CENTER
Director: Corey A. Stegel, MD
The Inflammatory Bowel Disease Center is dedicated to the comprehensive care of patients with Crohn’s disease and ulcerative colitis. Our team includes adult and pediatric gastroenterologists, surgeons, an IBD nurse practitioner and nurse, and ostomy continuity nurses, and research study coordinators. Our group has become an efficient team to help in every aspect of patient care, support and research.

In addition to extensive experience using both standard and cutting-edge therapies, we have active research protocols for both Crohn’s disease and ulcerative colitis, providing access for our patients to exciting new options for treatment. Our renewed partnership with the Crohn’s and Colitis Foundation of America will provide multiple opportunities for support and educational programs for our patients.

The Endoscopy Center
Director: Stuart R. Gordon, MD
The Endoscopy Center offers routine and advanced endoscopic procedures to diagnose and treat disorders of the gastrointestinal tract without surgery, with less trauma and with less anesthesia. Our physicians are pioneers in using the most advanced endoscopic technologies including endoscopic ultrasound (EUS), endoscopic retrograde cholangio pancreatography (ERCP), and the endoscopic treatment of gastroesophageal reflux disease. Barrett’s esophagus and obesity. Following a study of our clinical practice and institution of efficiency changes, access in the Endoscopy Center has improved to the point where there is essentially no wait time for routine and interventional testing and procedures. A large segment of our clinical activity is centered on colorectal cancer screening with colonoscopy. We can provide unsedated transnasal endoscopy with small-caliber endoscopes as an alternative to standard sedated upper endoscopy of the stomach and esophagus. As advances in diagnostic imaging emerged, we added these technologies to our armamentarium. These include capsule endoscopy for the visualization of the small bowel, small-intestinal JunoScan, high-definition and magnification imaging to better define endoscopic detail.

HOSPITAL DISEASE CENTER
Associate Director: Brian Burk, MD
The Hepatopancreatobiliary Disease Center provides a multidisciplinary assessment and treatment of patients with complicated diseases of the liver, biliary system and pancreas. We hold weekly multidisciplinary review sessions with pathology, a weekly radiology conference, and a bimonthly conference of the liver tumor team where we discuss optimal medical or surgical pathways for each patient.

The Gastroenterology Fellowship is a three-year program that includes 24 months of clinical experience and 12 months of research and elective experience, designed to provide comprehensive clinical, educational, and research experience to prepare postgraduate fellows to enter a wide variety of academic and clinical practice situations.

Approximately half of graduating fellows have pursued academic careers and the rest have entered private clinical practice following their training. Fellows have been extremely productive in their scholarly output, presenting at important national meetings and getting their work published in the leading journals.

MEDICAL STUDENT EDUCATION
Six of the Section’s faculty members are mentors in the two-year, On Doctoring course offered to medical students, representing 21% of all the faculty participating in this course from DHMC. The medical student electives in Gastroenterology and Hepatology are extremely popular. Our sectional ratings as teachers in the Scientific Basis of Medicine course have been consistently excellent.
CONTINUING MEDICAL EDUCATION

All members of the Section are very active in the area of Continuing Medical Education (CME), and we provide an annual gastroenterology and hepatology review course for regional clinicians. Several faculty members are active in national and international continuing medical education programs, being invited to design and present at the important scientific meetings of the national gastroenterology and hepatology societies.

The Section Chief, Dr. Richard Rothstein, serves as the Assistant Medical Director and Assistant Dean for Continuing Education at DHMC. In addition, he has chaired the Department of Medicine’s Grand Rounds Committee for the past 15 years and been an active member of the Continuing Medical Education Advisory Committee at DHMC for the past 16 years. Dr. Rothstein is active in the CME activities of both the American College of Gastroenterology (ACG) and the American Society for Gastrointestinal Endoscopy (ASGE). He serves as Chair of the ACG CME Accreditation Committee and participates on the Education and Announcing Planning Committees. In addition, Dr. Rothstein chairs the ASGE’s New Technology Subcommittee, serves as an Associate Editor of Gastrointestinal Endoscopy, and participates on ASGE’s education, program planning, and NASCO/NOTES Committees.

Dr. Brian Lacy serves on the education and program planning committee of the American College of Gastroenterology.

Dr. Mary Turco serves as Director of the Center for Continuing Medical Education and Director of CME at DHMC. She is on the research committee of the Society for Academic Continuing Medical Education.

Dr. Corey Siegel serves on the National Professional Education Committee of the Crohn’s and Colitis Foundation of America. Dr. Siegel chaired the inaugural Dartmouth–Hitchcock & Crohn’s and Colitis Foundation of America Patient Education Symposium. More than 230 patients attended this first annual symposium.

Research

Our belief that the best clinical care must be integrated and coupled with scientific discovery plays a prominent role in our involvement in research. In academic year 2006-2007, sponsored research funding increased 95% from $404k to $789k.

The Section’s faculty includes nine principal investigators, with 25 funded research projects and studies. The Section has been involved in numerous exciting lines of clinical research. The field of NOTES (natural orifice transluminal endoscopic surgery) is literally at the cutting edge of gastrointestinal endoscopy and our Dartmouth Section is recognized nationally and internationally for its pioneering work in this exciting surgical evolution. Devices and techniques are in development to enable transoral or transanal intra-abdominal surgery without a need for an external incision and scar. Although almost science fiction in concept, pre-clinical and early human clinical experience reports so far suggest that this technology could supplement or replace some laparoscopic and open surgical procedures.

The section is also involved in the evaluation of computer-assisted teleendoscopic surgical endoscopy and wide-angle versus conventional view colonoscopy.

We offer a promising new technique for the treatment of Barrett’s esophagus, a pre-cancerous condition that usually arises from chronic acid reflux. In an outpatient procedure, specialists use a radio-frequency heated balloon to cauterize the lining of the esophagus. Patients are then given medications to control reflux and encourage the growth of new esophageal lining. We are part of a multicenter trial for patients who have low- and high-grade dysplasia.

This less invasive option may provide an alternative treatment option to surgical removal of the esophagus.

The section has many other active clinical studies researching topics such as Polorps prevention, esophageal reflux, cirrhosis, Crohn’s disease, inflammatory bowel disease, 4 and liver research.

Dr. Craig Tomlinson serves as Director of the Dartmouth Genomics and Microarray Laboratory, which is a shared resource providing technologies to Dartmouth investigators that enable profiling of gene expression, miRNA, CpG Island, and CGH on a whole genome scale.

Honors and Scholarly Work

Dr. Lynn Butler is Chair of the Comprehensive Cancer Control Collaboration for the state of NH, part of a national initiative to reduce cancer in each state.

Dr. Corey Siegel was the recipient of the REGAL Award (Research Excellence in Gastroenterology and Liver Disease). Chicago, IL 9/06. He is also a section editor for Inflammatory Bowel Diseases and serves as a journal reviewer for Clinical Gastroenterology and Hepatology and Gastroenterology.

Dr. Richard Rothstein is Associate Editor for Gastrointestinal Endoscopy, and serves as a reviewer for the following journals: The Medical Letter, Diabetes Care, Gastroenterology, Hepatology, Gastrointestinal Endoscopy, Digestive Diseases and Sciences, Alimentary Pharmacology and Therapeutics, Journal of Clinical Gastroenterology, New England Journal of Medicine, Gastroenterology, and the American Journal of Gastroenterology.

Dr. Douglas Robertson received a career development award from the Veterans Administration with funding for three years academic support.

SELECTED PUBLICATIONS


U.S. News & World Report ranked DHMC among the Top 50 nationally for cancer care, digestive disorders, and gynecology.

FACULTY

Section Chief
Richard I. Rothstein, MD

Professors
Marjorie L. Kelley, Jr., MD
Dirk J. van Leeuwen, MD, PhD
Gary M. Levine, MD
Richard I. Rothstein, MD
Hans Foinn, MD
(deceased January 3, 2006)

Associate Professors
Peter B. Anderson, MD
Steven P. Benserson, MD
Lynn F. Butterly, MD
Robert L. Cramer, MD
Stuart R. Gordon, MD
Brian E. Macy, MD, PhD

Assistant Professors
Brian S. Berk, MD
Eileen M. Jane, MD (VA)
Douglas J. Roberts, MD (VA)
Corey A. Siegel, MD
Craig R. Tomlinson, MD
Anita Toor, MD
Mary Turco, EdD

Instructors
Aydin Alkaziwaki, MD
Maria Goreepon Cheng, ARNP
Maria C. Dragnev, ARNP
Anna M. Evans, MS, RN
Tracil O’Shara, FNP

Gastroenterology Fellows
2006-2007
Brian Boulay, MD
L. Campbell Levy, MD
Matt Walton, MD
Krisha Weiser, MD (VA)

Graduated June 2006
Darin Jacobs, MD
Andrew Stone, MD

Graduated June 2007
Andrew Dukowicz, MD
Tim Gardner, MD

Graduated June 2007
Andrew Dukowicz, MD
Tim Gardner, MD

Graduated June 2007
Andrew Dukowicz, MD
Tim Gardner, MD

Graduated June 2007
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Andrew Dukowicz, MD
Tim Gardner, MD

Graduated June 2007
Andrew Dukowicz, MD
Tim Gardner, MD

Graduated June 2007
Andrew Dukowicz, MD
Tim Gardner, MD
SECTION OF GENERAL INTERNAL MEDICINE

Clinical Service

The mission of the Section of General Internal Medicine (GIM) is to provide and coordinate compassionate, high quality health care to adults; develop and implement excellent educational opportunities; and to further understand, expand and improve our knowledge of the health care we offer.

GIM has two practice sites, one at DHMC in Lebanon, NH and the other in Lyme, NH. We also provide physician coverage services for Hanover Terrac Nursing Home. In addition to providing a full spectrum of primary care services, we have developed specific clinical programs to better meet the needs of our patients, including an Anticoagulation Clinic, a diabetes management program, a specific effort to improve immunizations, and an initiative to better inform patients regarding decisions they face and to improve the quality of decisions they make. We also collaborate with the department of psychiatry to formally assess the impact in primary care of decision aids focused in preventive medicine visits. We are implementing and piloting nurse assisted preventive medicine visits. We instituted a single telephone point of contact for patients that greatly improved our phone triage and scheduling processes. We are strengthening our clinical teams and teamwork between Associate Provider and physician in order to provide greater continuity of care. With these efforts, we have seen significant improvement in our patient satisfaction scores. Overall visit satisfaction increased from 81.4% to 84.4% and overall patient satisfaction with their provider increased from 89.5% to 91.9%. Both results above the mean for DHMC.

GIM has been actively involved in institutional efforts and the CMS project to improve preventive care and care for patients with chronic diseases such as diabetes, coronary artery disease, and congestive heart failure. In diabetes care, we are enhancing disease management flow sheets, tracking utilization, documenting key diabetes mellitus (DM) management indicators, expanding patient education efforts, integrating care managers into routine care, and implementing care team initiated follow-up appointments for high-risk DM patients. We have initiated a nurse clinic and an associate provider clinic both dedicated to DM care including medication, lifestyle and diet management. We are in the planning phases for similar efforts addressing congestive heart failure and coronary artery disease.

To improve preventive care, GIM has been leading the development and implementation of the Health History Questionnaire, an electronic patient-reported data questionnaire now being administered to all new patients and patients scheduled for preventive medicine visits. We are implementing and formally assessing the impact in primary care of decision aids focused in preventive medicine decision. Also, we are developing strategies to improve cardiovascular risk utilizing the Robert Wood Johnson Foundation “Trails for Life Project,” which addresses strategies to increase exercise and the Helmut Schumann Fellowship award, which supports development of web-based smoking cessation strategies.

We currently provide adult primary care services to a panel of 20,800 patients (32,000 when weighted for age), which equates to approximately 2,000 patients per MD FTE.

Education

The Section of GIM is very active in both medical student and resident education. There are numerous institutional and national educational leaders in the section. GIM faculty leaders contributing to the DHMC and national educational missions include:

- Dr. Roshini Pinto-Powell: Co-Director of the Internal Medicine Residency, Residency and Program Director for the Internal Medicine Primary Care Track Residency Program.
- Dr. Frances Brokaw: Education Director and Associate Chair for Education, Director of the Inpatient and Outpatient Internal Medicine Clerkships.
- Dr. Adam Schwarz: Education Director and Fellowship Director for Palliative Medicine. GIM faculty are engaged in several innovative education initiatives at DHMC and in the Region:
  - Dr. Frances Brokaw: Education Director and Fellowship Director for Palliative Medicine.
  - Dr. Mark Splaine: Quality Scholars Co-Director, VA National Quality Scholars Fellowship Program; Center for the Evaluative Clinical Sciences - Course for Statistical Measurement and Analysis for Quality Improvement (ECS 126), Course Faculty for the Continual Improvement of Health Care (ECS 117), Co-Chair for Summer Term Operations Curriculum Subcommittee, Member of Long Range Curriculum Planning Committee, ACGME - Facilitator for meetings of the Review Committee Chairs and Staff of the Accrediting Council on Graduate Medical Education; Institute for Healthcare Improvement Health Professions Education Collaborative - Co-founder and member of core faculty responsible for outcomes measurement and extranet development in the Collaborative, Member of Governing Council and Steering Committee.
  - Drs. Furmanski and Bynum are developing a Geriatrics curriculum and Geriatrics resident rotation for Internal Medicine residents.
  - Dr. Adam Schwarz has led an Internal Medicine resident home-care education...
SECTION OF GENERAL INTERNAL MEDICINE

project in conjunction with the Center for Aging, Dr. John Wasson and Dr. Julie Bynum.

- Dr. Roshini Pinto-Powell is working with others as DMS to develop a communication skills curriculum for DMS students. In addition, she has worked with Dr. Deborah Peltier to revise the Outpatient Medicine clerkship to building a greater geriatric curricular focus.

- Dr. Blair Brooks spearheaded the development and pilot testing of an education Education Relative Value Units (ERVU) system intended to measure faculty teaching productivity. The ERVU program is under review for use throughout DHMC. In addition, he was PI on a three-year HRSA supported Community Faculty Development grant that supported community practitioner faculty education throughout the region.

- Dr. Jonathan Ross has utilized Community Faculty Development grant and Almy Scholarship to continue development of an evidence based medicine data base for use by residents, students and faculty. All GIM faculty actively teach. GIM faculty are responsible for supervising DHMC Internal Medicine resident continuity clinics involving over 55 residents. GIM faculty precepted ten fourth-year outpatient medicine clerkship medical students and ten students in the two-year On Doctoring course in May 2006. Many GIM faculty regularly participate as group leaders in the Problem Based Learning series and Health Society and the Physician.

Research

The Section of General Internal medicine received $8.2 million in sponsored funding for research and program development in academic year 2005-2006, and $8.6 million in academic year 2006-2007. The Section had 37 active projects, 10 of which were new and competing grants. The Section’s research activities cover a wide range topics including outcomes analysis, physician practice organization and performance, shared decision making, preventive medicine and chronic disease decision aids, genomics, preventive care, palliative care, faculty development to improve teaching skills, evidence-based medicine, and practice improvement skills.

Honors and Scholarly Work

Dr. Elliott Fisher was elected to the Institute of Medicine. He participated in the JCAHO National Performance Measurement Data Strategy Roundtables. He was also keynote speaker at the NH Citizens Health Initiative Review Panel Presentation, AGSME Design Conference on the Learning Environment, and AHIP 2006 Medical Director Colloquy.

Dr. Harley Friedman served as Co-Chairman of the APDIM Chief Resident Annual Meeting and also sits on the APDIM Program Planning Committee.

Dr. Mark Spline works with the Accreditation Council on Graduate Medical Education, leading a national effort to develop and implement systems-based practice and practice-based improvement in residency curricula. He also directs the VA Quality Scholars program both at the White River Junction VA site and the National program.

Dr. Eric Shirley serves as the Chair of the Clinical Practice Guidelines Council and is a member of the Primary Care Executive Committee for the VA New England Network.

Dr. Mark Spline is an active participant with the IHI Health Professions Education Collaborative.

SELECTED PUBLICATIONS JOURNAL ARTICLES


SELECTED PUBLICATIONS FOR GIM FACULTY AT THE VA


FACULTY

Section Chief

W. Blair Brooks, MD (interim)

Professors

John A. Baron, MD

Associate Professors

W. Blair Brooks, MD

Julia A. Fago, MD

John W. Kirk, MD

Margo Krasnoff, MD

Jonathan Ross, MD

Mark E. Splaine, MD

Richard D. Whiting, MD

Assistant Professors

Elizabeth Bradley, MD

Ann C. Bracken, MD

Charles D. Brackett, MD

Frances C. Brokaw, MD

Julie P.W. Byrum, MD

Linda B. Dacey, MD

Jennifer A. Daly, MD

Ellen H. Eisenberg, MD

Emiline L. Fleming, MD

Harley P. Friedman, MD

Lisa A. Furmanski, MD

Sari K. Galanes, MD

Dawn L. Harland, MD

M. Brooke Herndon, MD

Kelly A. Keffler, MD

Christine R. Medora, MD

DiAnne M. Pellic, MD

Barbara J. Payson, MD

Roshini Pinto-Powell, MD

Lynn S. Schwartz, MD

Adam J. Schwartz, MD

Elaine M. Silverman, MD

Philip H. Wade, MD

Instructors

G. Ryan Berger, MD

Carol E. Bibeau, MD

Vireka K. Brown, ARNP

Chris A. Di Paola, RN

Duc Do, MD

Diane D. Drew, PA-C

James R. Gossett, PA

Kristin L. Hampers, PA

Karen B. Hewitt, FNP

Donna Roxana Janu, MD (VA)

Nancy W. Kree, ARNP

Michelle Heureaux, MD

April Larson, MD

Karen S. Loring, MD

Susan J. Mackenzie, PA

Pamela M. Meub, MSN

Daniel S. Moran, MSN, ARNP

Kerry M. Phelan, PA

Stephen J. Phelan, MD

Alice Roberge, MSN

Anna Schaad, MSN

Heidi L. Smith, MD, PhD

David B. Talmadge, MD

Thomas O. Wansleben, PA-C

Lesley A. Watts, MSN

Veterans Administration-GIM

Professors

Elliot S. Fisher, MD, MPH

R. Peter Mogelnickis, MD

H. Gilbert Welch, MD

Associate Professors

Dominic J. Balastra, MD

Nancy E. Cochran, MD

James A. Geiling, MD

Deborah A. Pelletier, MD

Arthur E. Sauvigne, MD

Lisa Schwartz, MD, MS

Eric A. Shirley, MD

Steven Woloshin, MS, MS

Assistant Professors

Mary Beth Durkin, MD

Gregory W. Froehlich, MD

Hugh P. Huizenga, MD, MPH

Kevin D. Kerin, MD

Robin Joyce Larson, MD

Richard J. Mansfield, MD

Christopher D. Nice, MD

Barbara A. O’Marra, MD

Brenda Stiach, MD

Kerry L. Vrakatitsis, MD

Assistant Professors

Brenda Sirovich, MD

Christopher D. Nice, MD

Richard J. Mansfield, MD

Robin Joyce Larson, MD

Kerry L. Vrakatitsis, MD

Assistant Professors

Brenda Sirovich, MD

Christopher D. Nice, MD

Richard J. Mansfield, MD

Robin Joyce Larson, MD

Kerry L. Vrakatitsis, MD

Assistant Professors

Brenda Sirovich, MD

Christopher D. Nice, MD

Richard J. Mansfield, MD

Robin Joyce Larson, MD

Kerry L. Vrakatitsis, MD
Clinical Service
The Section provides both medical treatment and supportive care to patients with malignant and hematologic diseases. Consultation, education, and interdisciplinary services are offered to patients, families, and their primary care physicians. Care is provided at locations in Lebanon, Manchester and Nashua, NH, in St. Johnsbury, VT and at outreach sites at regional hospitals. The Section is part of DHMC’s Norris Cotton Cancer Center, a comprehensive cancer center designated by the National Cancer Institute that combines advanced cancer research and interdisciplinary cancer care. Patients have access to national cooperative group clinical trials, including Cancer and Leukemia group B (CALGB) as well as Phase I trials developed by the Cancer Center’s clinical therapeutics program.

Hematology Programs:
HEMOPHILIA AND COAGULATION PROGRAMS
Director: Neil Cornell, MD
The Hemophilia Program provides complete clinical and laboratory diagnostic facilities for evaluation and treatment of patients with congenital bleeding disorders and disorders of thrombosis and hemostasis. The program offers advanced diagnostic testing, using both routine and molecular biologic (PCR) techniques. Available treatments include standard modalities as well as advanced and experimental agents. The Coagulation Program addresses the full range of hereditary and acquired diseases of the blood coagulation mechanism including thrombosis and hemostasis.

BONE MARROW TRANSPLANT PROGRAM
Director: Ken Meehan, MD
The Bone Marrow Transplant Program successfully completed an application and received approval to become an Affiliated Transplant Center with the National Marrow Donor Program (NMDP).

ALLOGENIC TRANSPLANT PROGRAM
Director: John Hall, MD
The challenges and complexities of bone marrow and stem cell transplantation have evolved significantly since we performed our first transplant in 1984. Two years ago, our focus was on Autologous transplants and this past year we have grown our Allogeneic program to include both matched related and unrelated transplants. Today, we offer a full-service Stem Cell Transplantation Program that rivals any metropolitan program in the country. Patients come from the tri-state area and with additional insurance contracts we can expect to draw from a national audience.

THE LYMPHOMA CLINICAL ONCOLOGY GROUP
Program Leader: Pamela Ely, MD, PhD
The lymphoma program is a research-based program offering comprehensive cancer care to patients with lymphoid malignancies including relapsed, refractory, and poor-prognosis disease.

Oncology Programs:
FAMILIAL CANCER PROGRAM
Co-Director: Bradley Arrick, MD
The Familial Cancer Program offers comprehensive cancer genetics services, including family history analysis, risk assessment, screening and prevention recommendations, genetic counseling, and genetic testing.

BREAST CANCER
Program leader: E. Dale Collins, MD (Department of Surgery, Plastic Surgery)
As part of the Comprehensive Breast Program at DHMC, the Breast Oncology program provides a full range of services for breast cancer patients, from education and early detection to the most advanced treatments and follow-up care. The program employs a patient-centered, interdisciplinary approach, drawing on the expertise of the many specialists required to deliver care to breast cancer patients.

GASTROINTESTINAL CLINICAL ONCOLOGY PROGRAM
Co-Directors: Marc Pipas, MD and Greg Ripple, MD
The Gastrointestinal Cancer Program provides multidisciplinary review of all gastrointestinal cancer cases arising from the following sites: esophagus, stomach, small intestine, colon, rectum, anus, liver, and pancreas, as well as pyloric and extremity sarcomas.

GENITOURINARY/PROSTATE CANCER
Program leader: John Heaney, MD (Department of Surgery, Urology)
Our comprehensive, multidisciplinary Genitourinary team has a prostate cancer focus, but also has broad expertise in treating cancers of the bladder, penis, testicle, and kidney. The program is a major referral center for second opinions, and reviews patient cases at regular multidesiplinary group meetings.

HEAD AND NECK CANCERS
Program leader: J. Benoit Gosselin, MD, FRCS
The Head and Neck Cancer Program provides comprehensive treatment of cancers of the head and neck region. These include tumors of the oral cavity, pharynx, larynx, lips, nose, sinuses, esophagus, salivary glands, neck, ears, temporal bones, and skull base. The cancer therapy provided is based on state-of-the-art diagnostic modalities and offers the full range of options in advanced oncologic surgical ablative and reconstructive microvascular techniques, radiation therapy, brachytherapy and chemotherapy.

THORACIC ONCOLOGY PROGRAM
Program Leader: James Rigas, MD
The Comprehensive Thoracic Oncology Program is an interdisciplinary, patient-centered program that integrates molecular genetics, pharmacology, immunology, epidemiology, prevention, screening, early diagnosis, staging, therapy and supportive care. Our mission is to reduce lung cancer incidence to improve treatments, and to prolong the vitality of those diagnosed.

MELANOMA
Program Leader: Marc Ernstoff, MD
The Melanoma Program provides full clinical services to patients with melanoma including examination, staging, and treatment of the disease. Evaluation, treatment, and follow-up are coordinated between clinical services including Dermatology, Plastic Surgery, and Medical Oncology, as well as with the referring physician.
NEURO-ONCOLOGY CLINIC

Director: Camil Fadul, MD

The Neuro-Oncology Program includes a group of health care professionals from multiple disciplines committed to providing the best available comprehensive and individualized care to the population of the northern New England area suffering from tumors affecting the nervous system or afflicted by neurological complications of systemic cancer. The group strives to serve as an educational resource for patients, providers, and the community while developing and conducting state-of-the-art research according to the highest ethical standards.

REGIONAL ONCOLOGY PROGRAM

Co-Directors: Marc Gautier, MD, Gautami Bhargava, MD

NORRIS COTTON CANCER CENTER (Manchester and Nashua, NH)

NCCC Manchester treats patients with all forms of cancer within a research-based clinical care environment. It offers specialty programs in Gynecologic Oncology and Familial Cancer (genetic counseling). All chemotherapy is delivered on-site and is prepared in-house by specially trained pharmacists. Patients can also be seen at NCCC Nashua. A wide variety of clinical trials studying new treatments and other research questions are available to patients.

NORRIS COTTON CANCER CENTER NORTH

NCCC North in St. Johnsbury, VT combines a positive environment for cure and recovery with advanced treatment and state-of-the-art technology. The Cancer Center in St. Johnsbury provides convenient oncology care to patients in New Hampshire’s North Country and Vermont’s Northeast Kingdom. Specialty programs offered at this site include Palliative Medicine, Familial Cancer and clinical trials.

We view our outreach activities as critical to providing accessible hematology and oncology care to the region and maintaining strong working relationships with community physicians. We provide traditional outreach services in New Hampshire in Claremont, Lancaster, New London, Rochester, Wolfeboro and Woodsville. In Vermont, we provide outreach services in Randolph.

Education

HEMATOLOGY/ONCOLOGY FELLOWSHIP PROGRAM

Our three-year, ACME-accredited combined Hematology/Oncology Fellowship Program offers the training needed to become eligible for double boarding. The program was founded in 1960 and it has grown considerably in the last decade. Our program provides close supervision and mentoring in both clinical and research fields.

The curriculum is designed to give each fellow a strong foundation in clinical Hematology and Oncology while providing ample opportunities for in-depth study of specific clinical disciplines and development of a career in clinical or basic science research. During the three-year fellowship, 18 months are spent working on designated clinical programs and 18 months are unrestricted so each fellow can pursue personal clinical and research career directions.

RESEARCH

Faculty members in the Section of Hematology/Oncology collaborate with researchers throughout NCCC, interacting across departmental lines to incorporate discoveries in basic research into clinical studies that expand treatment options for cancer patients and hold the potential to transform patient care. Approximately 150 clinical studies are currently available at Norris Cotton Cancer Centers. These include studies developed at Dartmouth Medical School as well as trials funded by national cooperative groups and high-quality industry-sponsored trials. A large proportion of NCCC-initiated treatment studies are peer-reviewed and funded by the National Institutes of Health and the Department of Defense; most others are sponsored by the pharmaceutical industry.

The Section of Hematology/Oncology received $4.3 million in sponsored research funding in academic year 2005-2006 and $2.7 million academic year 2006-2007. Our clinical oncology research interests span a broad range of topics, including immunotherapy, drug resistance, drug mechanisms, drug metabolism, drug combinations and scheduling, regional therapy, multi-modality therapy, adjuvant and neoadjuvant therapies, angiogenesis inhibitors, psychological intervention, new imaging approaches, gene expression, and palliative care.

RENTED AND MEDICAL STUDENT EDUCATION

The Section’s faculty are very active in medical student and resident training. Numerous Hem/Onc faculty serve as teaching attendings and several electives in Hematology/Oncology are available. Our faculty also participate in numerous medical student courses including Scientific Basis of Medicine, On DOctoring, Advanced Medical Science, Hematology seminar courses, biochemistry, and New Directions in Hematology.

 honors and Scholarly Work

Dr. Bradley Avriick is a grant reviewer for NIH. Dr. Thomas Davis serves on the editorial board of the Journal of Cancer Education.

Dr. Konstantin Dragone is a reviewer for Cancer Research, Clinical Cancer Research, Cancer Genetics, Cancer Letters, and Cancer Investigation.

Dr. Marc Ernstoff serves on numerous national committees and scientific advisory boards: the FDA Immunology Devices Panel of the Medical Devices Advisory Committee; Executive Committee of the Cancer and Leukemia Group B (CALGB); Kansierstein Scientific Advisory Board, BioNumerik Pharmaceuticals, Inc.; Intergroup Collective Analysis of Phase II-III Studies in Melanoma; Safety Data and Monitoring Committee for Phase III Pancreatic Study; and Daiichi Pharmaceutical Corp.

Dr. Camilo Fadul serves as a member of the Neuro-Oncology Topic Work Group – Teleconferences, Eastern Cooperative Oncology Group Brain Tumor Committee, and the American Academy of Neurology - Neuro/Oncology Committee.

Dr. Marc Gautier serves on the Advisory Boards of three companies; Berlin, Millennium, and Ortho.

Dr. Peter Kaufman is very involved with the Cancer and Leukemia Group B (CALGB) as an investigator, a member of the Breast Committee, and a cadre member of the Breast Cancer Core Committee. He also serves as an ad-hoc reviewer for Journal of Immunology, American Journal of Hematology, Cancer, Journal of Clinical Oncology, and Cancer Letters.

Dr. Christopher Lowery serves as a grant reviewer for the Netherlands Organization for Health Research and Development and serves on the Department of Defense, and USAMRMC Breast Cancer Research Programs “Concept Award” Review Panel. He is also an abstract reviewer for the American Society for Gene Therapy Annual Meeting, the American Society of Hematology Annual Meeting, and the American Society of Gene Therapy annual meeting.

Dr. Kenneth Mechna serves as a committee member on three working groups (Acute Leukemia, Chronic Leukemia and Plasma Cell Disorder) of the American Society of Blood and Bone Marrow Transplantation. He also serves as a member of the Bone Marrow Transplant Committee for the Cancer and Leukemia Group B (CALGB).

In addition he was elected to Board of Directors of the Northern New England Clinical Oncology Society (American Society of Clinical Oncology affiliate).

Dr. James Rigas served on the Scientific Committee for the 12th World Conference on Lung Cancer, Seoul, Korea, sponsored by the International Association for the Study of Lung Cancer (IASLC). U.S. News & World Report ranked DHMC among the Top 50 nationally for cancer care, digestive disorders, and gynecology.

SELECTED PUBLICATIONS

JOURNAL ARTICLES


Research

Dr. Camilo Fadul serves as a member of the Neuro-Oncology Topic Work Group – Teleconferences, Eastern Cooperative Oncology Group Brain Tumor Committee, and the American Academy of Neurology - Neuro/Oncology Committee.

Dr. Marc Gautier serves on the Advisory Boards of three companies; Berlin, Millennium, and Ortho.

Dr. Peter Kaufman is very involved with the Cancer and Leukemia Group B (CALGB) as an investigator, a member of the Breast Committee, and a cadre member of the Breast Cancer Core Committee. He also serves as an ad-hoc reviewer for Journal of Immunology, American Journal of Hematology, Cancer, Journal of Clinical Oncology, and Cancer Letters.

Dr. Christopher Lowery serves as a grant reviewer for the Netherlands Organization for Health Research and Development and serves on the Department of Defense, and USAMRMC Breast Cancer Research Programs “Concept Award” Review Panel. He is also an abstract reviewer for the American Society for Gene Therapy Annual Meeting, the American Society of Hematology Annual Meeting, and the American Society of Gene Therapy annual meeting.

Dr. Kenneth Mechna serves as a committee member on three working groups (Acute Leukemia, Chronic Leukemia and Plasma Cell Disorder) of the American Society of Blood and Bone Marrow Transplantation. He also serves as a member of the Bone Marrow Transplant Committee for the Cancer and Leukemia Group B (CALGB).
FACULTY

Section Chief
Bradley A. Arrick, MD, PhD (interim)

Professors
Cornelius J. Cornel, Jr., MD
Marc S. Ernstoff, MD
Joseph F. O’Donnell, MD
Leo R. Zacharski, MD (VA)

Associate Professors
Bradley A. Arrick, MD, PhD
Thomas H. Davis, MD
Pamela Ely, MD, PhD
Camilo E. Fadul, MD
Peter A. Kaufman, MD
Christopher H. Lowrey, MD
Kenneth R. Meehan, MD
Raymond J. Perez, MD
Marc J. Pipas, MD
James R. Rigas, MD
Gary N. Schwartz, MD

Assistant Professors
Stefan Balan, MD (VA)
Archana Bhargava, MD
Konstantin H. Dragnev, MD
Gerald Gehr, MD
John M. Hill, Jr., MD
S. Gautami Rao, MBBS
Elizabeth M. Bengtson, MD
Marc Gautier, MD
Gregory H. Ripple, MD
Vivek Samnotra, MD
Frank Schell, MD

Research Associates
Marie B. Bakitas, MS, PhD

As an interdepartmental endeavor, the 6th floor of the Norris Cotton Cancer Center (NCCC) serves as a daily gathering place for faculty and trainees, sponsored by Dr. Mark Israel, NCCC Director.

SECTION OF HEMATOLOGY/ONCOLOGY


Clinical Service
The Section of Hospital Medicine is dedicated to providing excellent inpatient medical care, serving an integral role in the education and mentoring of Dartmouth medical students and Internal Medicine residents, as well as continually developing and supporting a model of highly collaborative care amongst care providers in a tertiary-care setting.

Our Section grew out of the need for dedicated inpatient care and coverage of medical housestaff and non-teaching based teams in 2003. For the past three years, we have continued to manage the needs of the busy DHMC inpatient medical service as well as serve as teaching faculty for our medical residents, interns and Dartmouth medical students on our Inpatient M2 and Medical Consult service.

We continue to serve as staff on a non-teaching Hospitalist service, in which attending staff members care for patients independent of the medicine residents. Due to staffing constraints in this past year, our Medical Consult service in which we provide ongoing care and consultation to surgical and psychiatric services, has been limited in its growth. We have great interest from our surgical colleagues to develop a dedicated inpatient care and coverage of surgical and psychiatric services, has been limited in its growth. We have great interest from our surgical colleagues to develop a dedicated inpatient care and coverage of surgical and psychiatric services to provide ongoing care and consultation to surgical and psychiatric services, has been limited in its growth. We have great interest from our surgical colleagues to develop a dedicated inpatient care and coverage of surgical and psychiatric services, has been limited in its growth. We have great interest from our surgical colleagues to develop a dedicated inpatient care and coverage of surgical and psychiatric services.

We have actively recruited six new faculty and a Physician's Assistant for 2007-2008:
- John Dick, MD
- Coleman Dominik, MD
- Justin Kravitz, MD
- Lien, Le, MD
- Martin Palmieri, MD
- Hilary Ryder, MD
- Cheryl Ellingsy, PA

We have actively recruited six new faculty and a Physician's Assistant for 2007-2008:
- John Dick, MD
- Coleman Dominik, MD
- Justin Kravitz, MD
- Lien, Le, MD
- Martin Palmieri, MD
- Hilary Ryder, MD
- Cheryl Ellingsy, PA

ACCOMPLISHMENTS
We have had a number of important accomplishments in our Section this year:
- Dr. Joseph Petras has been asked to serve as one of three Associate Medical Directors for DHMC.
- Dr. Peter Solberg has been asked to increase his involvement in the development of Information Systems for DHMC and is a critical member of an Information Technology team.
- Dr. Duc Do continues to be involved in patient-centered care around end-of-life issues and has been involved with our nursing faculty and regional conferences.

We have actively recruited six new faculty and a Physician’s Assistant for 2007-2008:
- John Dick, MD
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- Lien, Le, MD
- Martin Palmieri, MD
- Hilary Ryder, MD
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We have actively recruited six new faculty and a Physician’s Assistant for 2007-2008:
- John Dick, MD
- Coleman Dominik, MD
- Justin Kravitz, MD
- Lien, Le, MD
- Martin Palmieri, MD
- Hilary Ryder, MD
- Cheryl Ellingsy, PA

Education
Hospital Medical Faculty serve as the attending of record for residents and medical students in their third year inpatient clerkship. The Inpatient Housestaff Medical Service is organized into teams that include a senior resident, first year residents (interns), and third year medical student. The Hospitalist’s role is to advance the medical knowledge and expertise of the team and teach excellent patient care and coordination.

The Section also has a non-teaching Hospitalist service, which provides patient care independent of Internal Medicine residents. The non-teaching service serves as the foundation of a unique fourth year medical student subinternship directed by Dr. Joseph Petras, where medical students work one-on-one with a Hospitalist attending, providing all the medical care and coordination for their assigned patients. In this new model of medical education, the student gets a personalized educational experience, tailored to meet his/her needs and learning goals. The subinternship offers a truly unique opportunity that only two to three other medical centers in the country offer and has become a highly sought-after elective for fourth year medical students. Students rave about the autonomy and intense learning experiences that result with a medical team consisting of one attending and one student.

In 2005, members of the Hospital Medicine Section began participating in the On Dosing course, a two-year course designed to provide students with an understanding of the role of the physician in a clinical setting. Typically this course has worked with community office-based physicians, but with the growth in the Hospitalist field in the U.S. (now the fastest growing medical specialty), the ability to work directly with a group of dedicated inpatient generalists is a great combination.

Dr. Susannah Clark is developing a medical ethics curriculum on advanced directives for DMS students, and DHMC residents. Dr. Jon Lurie serves a small group leader for Problem Based Learning, Biology 81, and Health Society and the Physician. He organizes and runs didactic series on evidence-based medicine in the Interdisciplinary Clinical Experience course and for the residents’ Journal Club. In the past year he has also given lectures for the residents’ Noon Conference series, the Research Course for residents and fellows, the educational conferences for the Sections of General Internal Medicine and Rheumatology, the Pain Medicine Fellows’ and The Spine Center’s educational conferences, and presented Medical Grand Rounds.

The Section is active in continuing medical education. Dr. Joseph Petras, our institutional expert in faculty development, offers an ongoing series of workshops to faculty on developing skills as teachers. His highly-praised programs are based on his work and training in the Stanford Faculty Development Program.

Research
In academic year 2006-2007, sponsored research funding increased dramatically from $177,367 to $1.4 million.

- Dr. Jon Lurie is the recipient of an NIH career development award to study clinical decision making in lower back pain.
- It is also involved in several research collaborations with the Department of Orthopaedics and serves as the PI for a multicenter clinical study involving the treatment of lumbar spinal stenosis. He has continued his SPORT trial research with a recent publication in the NEJM and continues to be internationally recognized for his expertise in back pain.
- Dr. Stephen Liu has been awarded a junior faculty Development Award by the Department of Medicine to continue his research interests in inpatient quality improvement and care processes. Dr. Liu’s research involves measuring cessation and improvement of glycermic control in hospitalized patients.

Edward J. Merrens, MD
Section Chief

Dr. Gabriele Popp is involved in a recently approved Phase 1 protocol with Dr. Thomas Davis, involving radiochemotherapy and hyperbaric oxygen in patients with head and neck cancer.

Dr. Edward Merrens is involved in a quality Research Grant Program supported study evaluating the safety and efficacy of inpatient anticoagulation with coumadin.

Honors and Scholarly Work
Dr. Jon Lurie received the 2006 Outstanding Paper award at the International Society for Study of the Lumbar Spine Annual Meeting held in Bergen, Norway in June. Dr. Lurie was also an invited panelist at the 2006 AAOS Workforce Symposium and an NIH conference, “Considering Usual Medical Care in Clinical Trial Design: Scientific and Ethical Issues,” held November 2005; AAOS Workforce Symposium held May 6, 2005 in Washington D.C.; and the Medicare Coverage Advisory Committee on spinal fusion Nov. 30, 2006 held in Baltimore, MD.

Dr. Peter Solberg served on the NIH International Collaborative Grants Review Panel.

SELECTED PUBLICATIONS

BOOK CHAPTERS

JOURNAL ARTICLES
The Department thanks Dr. Bryan Marsh for his generous and enthusiastic service as Interim Section Chief. The Department thanks Dr. Ford von Reyn for his 15 years of service as Chief of the Section of Infectious Disease and International Health. Dr. von Reyn established the section in 1988 and grew it into a flagship Section with expertise in HIV, transplantation, pediatrics, infection control, travel medicine, staphylococcal infections, tuberculosis, endocarditis, immunization, and bone and joint infections. Dr. von Reyn has garnered the respect of his colleagues at DHMC for his many contributions as a senior statesman in the Department, and for being an astute clinician who leads by example with altruism and professionalism. He has built an internationally-recognized Section that is known for patient-centered clinical excellence, its commitment to teaching, its regional AIDS education programs, its superb ID fellows, its basic science research and its expanding program of federally and foundation supported HIV/TB research and pediatric care in Tanzania.

Clinical Service

The Section provides both hospital-based and outpatient consultations for the full spectrum of infectious diseases of adults and children. These include complex, chronic, unusual, or antibiotic-resistant infections, HIV infection, osteomyelitis, endocarditis, tuberculosis, M. avium infection, Lyme disease, infectious diseases of transplantation, and tropical diseases. In addition, the Section provides longitudinal care for people living with HIV infection.

We have expanded our inpatient activities and created four separate services: general infectious disease, pediatric, transplant, and HIV/AIDS consultations. This has increased clinical contact time, focused clinical expertise, and increased training opportunities for fellows, residents, and students.

This change was made possible by the addition of two new faculty members, and the result has been improved teaching and significantly increased volumes of inpatient and outpatient consultations. The division of services has been well received. The highly specialized focus has provided opportunities to improve efficiency and enhance quality of services. Faculty report improved job satisfaction, and outpatient satisfaction ratings have improved. Our overall provider satisfaction rating is 93.1%, up from 91.8% in 2005.

Programs

**COMPREHENSIVE ANTIBIOTIC PROGRAM**

Director: Bryan J. Marsh, MD

The comprehensive antibiotic program provides expertise to physicians on the optimal use of antibiotics for inpatients. This program aims to improve quality of care by maximizing the effectiveness of therapy, decreasing antimicrobial toxicity, reducing the emergence of antibiotic resistance, and reducing costs associated with inappropriate therapy.

**DARTMOUTH HIV PROGRAM**

Director: Bryan J. Marsh, MD

The Regional HIV Program is a grant supported program that provides comprehensive multidisciplinary care to persons with HIV in Lebanon, Manchester, Nashua, and Keene, NH, and in Brattleboro, VT (in conjunction with the University of Vermont HIV Program). The program has seen substantial growth and now has over 500 patients in active care.

**INFECTION CONTROL PROGRAM**

Director: Kathy Kirkland, MD

The infection control program is focused on prevention and surveillance of health care-associated infections (HAI). Major initiatives and collaborative efforts during 2005-2007 included the development of unit specific “report cards,” pandemic preparedness planning, and infection prevention activities in the Intensive Care Nursery and the Hematologic Special Care Unit. In response to a possible pertussis outbreak among employees, the infection control unit was provided the opportunity to work collaboratively with Occupational Medicine, the laboratory, clinical departments throughout the medical center, the NH and VT state health departments, and the CDC to contain the spread of infection. At the same time, we conducted several research projects pertaining to the outbreak.

**INTERNATIONAL TRAVEL CLINIC**

Director: Elizabeth Talbot, MD

The International Travel Clinic provides pre- and post-travel advice and immunizations.

**OUTPATIENT PARENTERAL ANTIBIOTIC THERAPY (OPAT)**

Director: Mary Margaret Andrews, MD

OPAT serves as a post-discharge care coordination program for management of long-courses of IV antibiotics for diseases like osteomyelitis and endocarditis. This innovative new program was initiated in 2005 in response to the growing number of patients being discharged early for home antibiotic therapy. OPAT now manages outpatient parenteral antibotics for about 50% of all DH patients on these agents.

**INFECTIOUS DISEASE FELLOWSHIP PROGRAM**

Director: Richard Zuckerman, MD

The 2005-2006 academic year marked the first full year of the Transplant Infectious Disease Program at Dartmouth. Dr. Richard Zuckerman was recruited to establish this subspecialty program and has worked within the Solid Organ and Bone Marrow Transplant Programs to become an active member of the respective teams. Administrative work on infectious disease standard practice guideline helped with National Accreditation of the autologous stem cell transplant program and also with the recent NMDP approval for unrelated stem cell transplants.

**MEDICAL STUDENT AND RESIDENT EDUCATION**

The Section offers electives in Infectious Disease for Dartmouth Medical School students and residents at Dartmouth-Hitchcock Medical Center. Dr. Tim Lahey has taken over as faculty director of the ID elective and has added weekly didactic teaching sessions to the otherwise case-based teaching elective. In addition, student evaluation of the elective has been added and will guide future improvements in this offering.

Dr. Mary Margaret Andrews, Course Director for the Infectious Disease block of the Scientific Basic of Medicine program, made major contributions to the course based on the DHMC hematology oncology residency program.
The New England AIDS Education and Training Center (NEAETC), established in 1988, is one of eleven regional education centers funded by the Ryan White CARE Act and sponsored regionally by the Office of Community Programs at the University of Massachusetts Medical Center. The New Hampshire AETC is based at DMS in the IDH Section and provides ongoing training for providers in NH, VT and portions of ME. The NEAETC offers programs in collaboration with community health centers, hospitals and medical centers, state and local health departments, Ryan White affiliates, Area Health Education Centers (AHEC), professional medical associations, AIDS service organizations, medical and osteopathic schools, and other community agencies. NEAETC provides training and education for nurses, nurse practitioners, physicians, physician assistants, social workers, dentists as well as other health care providers. We offer multiple educational opportunities including clinical consultation and skills building and we provide nurse, physician and social worker continuing education credits (CEU and CME) for many of our programs. Conferences sponsored by the Dartmouth AETC, this year include the annual Advanced Clinical Seminar on HIV/AIDS, Critical Issues in Refugee Health, Providing Culturally Appropriate HIV/AIDS Care for Native Americans, Advanced HIV Training for Nurses, World AIDS Day programs, a monthly AIDS Seminar Series, Motivational Interviewing for Substance Abuse Providers, The Methamphetamine Epidemic (training for pharmacists and dental professionals), and case manager training.

The Section of Infectious Disease and International Health

In April, Dr. Lisa Adams assumed the position of Coordinator of the Global Health Initiative (GHI), a joint initiative of DMS and the John Sloan Dickey Center for International Understanding at Dartmouth College. With the GHI’s emphasis on health program development in Tanzania, she is pursuing several projects that will draw upon the particular strengths of DMS and the other schools (e.g., Tuck Business School and Thayer Engineering School) to support medical education at MUCH in Dar es Salaam, clinical care at Muhimbili National Hospital, and other multidisciplinary health programs aimed at the general population. Key projects of the GHI include establishing a telemedicine consultation service, support to the medical library at MUCH, a project to manufacture and distribute water filters, and a feasibility study of the first Tanzanian pharmaceutical company.

Fogarty Training Grant

The third year of the five-year NIH training grant in HIV/AIDS research, for which Dr. Ford von Reyn is Principal Investigator, saw the graduation of the second Tanzanian fellow from the DSM MPH program (Dr. Patricia Museru) and the continued progress of two Tanzanian PhD candidates. Fogarty fellows have begun to publish papers and submit abstracts on HIV research. In addition, DSM Fogarty faculty gave a one-day advanced level immunology course on selected aspects of the innate and adaptive immune systems to 20 students in Dar es Salaam.

Dardar Pediatric Program

With support from the Foundation to Treat Children with AIDS, the ID & IH Section, in collaboration with Muhimbili University College of Health Sciences in Dar es Salaam, Tanzania, the Dardar Pediatric Program (DPP) will offer comprehensive routine pediatric care to Muhimbili patients. DPP ID & IH faculty anticipate undertaking several operational and clinical research projects in the near future to study optimal diagnostic procedures for tuberculosis, infant feeding practices and HIV immunology to support improved clinical practices. The DPP will also serve as a training center in pediatric HIV care for pediatricians, generalist physicians, nurses, residents and medical students throughout Tanzania.

Pediatric HIV

Dr. Paul Palumbo is the Vice-Chair of the International Maternal Pediatric and Adolescent AIDS Clinical Trials (IMPAACT) network of the National Institutes of Health.

International HIV Consulting

Dr. Bryan Marsh has expanded his HIV work to include international training and HIV program development. In the last year he has travelled to Dar es Salaam by Drs. Adams and von Reyn in the past year to obtain necessary government approvals, hire clinical staff, purchase equipment and operationalize national clinical guidelines in preparation for the clinic opening on May 11th. In addition to providing HIV care and antiretroviral therapy, the clinic will offer comprehensive routine pediatric care to its patients. DPP ID & IH faculty anticipate undertaking several operational and clinical research projects in the near future to study optimal diagnostic procedures for tuberculosis, infant feeding practices and HIV immunology to support improved clinical practices. The DPP will also serve as a training center in pediatric HIV care for pediatricians, generalist physicians, nurses, residents and medical students throughout Tanzania.
Dr. Lahey also collaborates with Dr. Charles R. Wira of the Department of Physiology in a study of the role of regulatory T cells in modulating immune responses to HIV infection in the female reproductive tract, and with Dr. Randolph Noelle in the Department of Microbiology and Immunology on ways of harnessing costimulatory interactions to boost tuberculosis vaccine immune responses in mice. In addition to this basic science work, Dr. Lahey is examining the role of living in rural areas on mortality in HIV infection, and a poster of this work was presented at the XVI International AIDS Conference in Toronto in the fall of 2006. He recently received an Infectious Disease Society of America Astellas Young Investigator Award (only two awarded), which includes a $50,000 stipend (to support work on apoptosis of HIV-specific CD4 cells) and recognition at the national meeting in San Diego in October.

**HIV IMMUNOLOGY**

Dr. Timothy Lahey is investigating the cellular and molecular mechanisms through which regulatory T cells modulate the immune response to HIV infection, and how such interactions can be harnessed to heighten cellular immune responses to HIV infection. For this work, Dr. Lahey was awarded five years of salary support by the National Institute of Health via the K08 Mentored Clinical Scientist Development Award. He also received a $35,000 Henry Heyl Award through the Development Award. He also received a Henry Heyl Award through the Development Award. He also received a Health via the K08 Mentored Clinical Scientist Development Award. He also received a

Dr. Lahey collaborates with Dr. Charles R. Wira of the Department of Physiology in a study of the role of regulatory T cells in modulating immune responses to HIV infection in the female reproductive tract, and with Dr. Randolph Noelle in the Department of Microbiology and Immunology on ways of harnessing costimulatory interactions to boost tuberculosis vaccine immune responses in mice. In addition to this basic science work, Dr. Lahey is examining the role of living in rural areas on mortality in HIV infection, and a poster of this work was presented at the XVI International AIDS Conference in Toronto in the fall of 2006. He recently received an Infectious Disease Society of America Astellas Young Investigator Award (only two awarded), which includes a $50,000 stipend (to support work on apoptosis of HIV-specific CD4 cells) and recognition at the national meeting in San Diego in October.

**TOXIC SHOCK RESEARCH**

Dr. Jeffrey Parsonnet continues to perform research on the epidemiology, pathogenesis, and treatment of toxic shock syndrome (TSS). He continues to have external funding for this research, and full funding of his research needs has been uninterrupted since his arrival at DHMC in 1990. Funding from Procter & Gamble has just been granted for the 2006-2007 academic year. This past year saw completion of an epidemiologic study of risk factors for TSS among Japanese women living in Japan), and a follow-up study is being concluded on Japanese-American women living in California. Dr. Parsonnet has also been involved in several clinical research projects, including a study of daptomycin for treatment of staphylococcal bacteremia and endocarditis. This project has resulted in a paper that has been accepted for publication in The New England Journal of Medicine. Dr. Parsonnet was recently invited a speaker at the annual meeting of the American Society for Microbiology on the topic of superantigen-mediated diseases.

**HERPES SIMPLEX VIRUS (HSV) RESEARCH**

**RESEARCH**

Dr. Richard Zuckerorman is completing analysis of data from his randomized trial in Peru of HSV suppression to decrease HIV level. The data show significant decreases in HIV are attainable with suppression of HSV. This will lead to presentations at international meetings and the submission of multiple publications to peer-reviewed journals. Additionally, it has provided the research team for submission of an R01 grant to the NIH for a Phase III trial to determine if clinical benefit can be garnered from this inexpensive and well-tolerated therapy. Dr. Zuckerorman is currently submitting proposals to support a Tanzania-based study of treatment with acyclovir in pediatric HIV/AIDS to delay HIV disease progression. This is a highly innovative project which is based on very recent discoveries in adult HIV/AIDS.

**PEdiATRIC HIV**

Dr. Paul Palumbo joined the ID/IH Section in October 2006 and will contribute a significant portfolio of research, local pediatric ID clinical care, and national leadership. Dr. Palumbo’s research currently focuses on the development of assays for HIV and TB, characterization of new antiretroviral, evulation of the role of maternal-infant genetics in HIV transmission and natural history, and evaluation of the role of T regulatory cells in infant HIV infection. In addition, Dr. Palumbo is the Vice-Chair of the International Maternal Pediatric and Adolescent AIDS Clinical Trials (IMPAACT) network of the National Institutes of Health.

Dr. Peter Wright joined the faculty in Fall 2007. Dr. Wright will be the third Pediatric ID specialist in the group and will complete the hiring plant established by the most recent ID Section three-year plan. He will be moving from Vanderbilt University, where he has established an extensive research portfolio in vaccine research and also an international presence, and will provide the basis for a new Memorandum of Understanding between MUCHS and Dartmouth College signed this year by academic officials at the two institutions. Dartmouth College signed this year by academic officials at the two institutions.

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FACULTY

Section Chief

Bryan J. Marsh, MD

Section Chief

C. Ford von Reyn, MD

Outgoing Section Chief

(6/1/07)

Professors

Paul Palumbo, MD

C. Fordham von Reyn, MD

Associate Professors

Kathryn B. Kirkland, MD

Bryan J. Marsh, MD

Jeffrey Parsonnet, MD

Assistant Professors

Lisa Adams, MD

Timothy Lahey, MD

Mary-Margaret Andrews, MD

Elizabeth A. Talbot, MD

Richard A. Zuckerman, MD, MPH

Research Associate Professors

Alexander L. Howell, PhD (NR)

Research Assistant Professors

Joyce Adams, MD

Deepthi Saxena, PhD

Richard D. Waddell, DSc

Instructors

John G. Cotter, MD

Joseph H. Eccles, MD

Jose-Mario Fontanilla, MD

Alexander Jennings

Judy A. Pilk, MSN

Lecturer

Lisa A. Furvis, MPH

Fellows

2006-2007

Jose-Mario Fontanilla, MD

Rachel Nors, MD

Ruta Shah, MD

Graduated June 2007

Jennifer Gittens, MD

SELECTED PUBLICATIONS

BOOK CHAPTERS

Parsonnet J, Nania JJ. Infections of Bone, Joints, and Muscles (Chapter 65).


JOURNAL ARTICLES


Clinical Service
The Section of Nephrology and Hypertension manages problems related to renal disease, hypertension, and electrolyte and acid base disorders. In addition, the section provides comprehensive care of chronic kidney disease by providing a full service chronic kidney disease clinic and a spectrum of renal replacement therapies including continuous renal replacement therapy, peritoneal dialysis, chronic hemodialysis, and home hemodialysis.

The Section is actively involved in the renal transplant program and manages donors and recipients pre- and post-transplant. The Section is working closely with Dr. David Axelrod, Section Chief, Transplantation, to develop a collaborative model for both kidney and pancreas transplantation.

CHRONIC KIDNEY DISEASE CLINIC
Director: Brian Remillard, MD
The Chronic Kidney Disease clinic is a disease management program that focuses the resources of physicians, care managers, dietitians, nurses, and fellows on the care of patients with chronic kidney disease in all stages of evolution. The program also aims to extend this model both internally and externally to improve the care of this complex population.

DIALYSIS PROGRAM
Director: Brian Remillard, MD
Currently the Section manages outpatient dialysis units with Fresenius North America. The unit located on campus moved to an off-campus site in late 2007, and treats approximately 100 patients per month. A second satellite unit is located in Lancaster, NH and treats approximately 60 patients. Plans are underway to open a third satellite unit in St Johnsbury, VT in 2008. Additionally the section provides the full spectrum of home dialysis including peritoneal and home hemodialysis.

The Section provides a full spectrum of outpatient hemodialysis (approximately 1,500 to 2,000 treatments per year).

VASCULITIS CLINIC
Director: Clay Block, MD
The Section has started a Vasculitis clinic in concert with rheumatology to address the needs of patients afflicted with complex conditions, such as lupus and Wegener’s disease. This is providing an excellent educational opportunity for renal and rheumatology fellows.

CARDIORENAL PROGRAM
Director: Clay Block, MD
The Section is working with Dr. Alan Koon in Cardiology to develop a cardiac program for both inpatients and outpatients.

SELECTED PUBLICATIONS
Clinical Service
The Section of Neurology provides general neurology services and offers seven subspecialty programs all of which are multidisciplinary in nature. The Section of Neurology fosters strategic clinical, teaching, and research alliances with the departments of Neurosurgery, Psychiatry, Internal Medicine, Oncology, Pediatrics, and Microbiology & Immunology. The Section is in the process of becoming a department at DHMC.

GENERAL NEUROLOGY
General Neurology serves referring physicians by providing a neurological consultation when a diagnosis is suspected or unknown. The general neurologists also provide ongoing neurological care for chronic illnesses when primary care physicians prefer specialty care for their patients. The section provides a full complement of diagnostic services including magnetic resonance imaging (MRI); computerized tomography (CT); neuromuscular electrophysiology (EMG); long-term video and ambulatory EEG monitoring; visual, auditory, somatosensory evoked potentials; digital subtraction angiography, arteriography and myography (with appropriate neurointerventional support). All of the neurologists in the section devote a portion of their time providing general neurology services.

EPILEPSY PROGRAM
Co-directors: Vijay M. Thadani, MD, PhD and Barbara Jobst, MD
The epilepsy program is a multidisciplinary program involving the Sections of Neurology, Neurosurgery and the Department of Psychiatry. Comprehensive care is provided to patients with epilepsy in both the outpatient and inpatient setting. The program is directed by epilepsy specialists and offers state-of-the-art diagnostics and treatment. We have an active epilepsy surgery program. Scalp and intracranial EEG monitoring, MRI, SPECT (single positron emission tomography), PET (positron emission tomography), and neuropsychological evaluations are performed to determine whether the patient has a surgically resectable epileptogenic zone. We are actively involved in the NeuroPace study for the surgical treatment of epilepsy. In connection with the Section of Neurosurgery three patients have been implanted with the NeuroPace device.

While a major focus of the program is epilepsy surgery, expertise in non-surgical management of the patients also occurs within the group. There is an active Women’s Clinic within the epilepsy program that has received a grant through Progesterone to do further research on treatment of women with epilepsy.

The neurology program is recognized internationally as one of excellence due to Dr. Peter Williamson’s excellent work and recruitment of high quality physicians. In June 2006, Dr. Williamson announced that he was stepping down as director and Drs. Vijay Thadani and Barbara Jobst will share the position.

HEADACHE CENTER
Director: Thomas N. Ward, MD
The Dartmouth-Hitchcock Regional Headache Center is a nationally-recognized, comprehensive, headache clinic. Often, when patients are referred to the program they have failed multiple treatments and their condition severely impacts their function and quality of life. The headache program provides a multidisciplinary approach to headache management involving the newest therapies, including botulinum toxin, and has been quite active in research into the pharmacological treatment of headaches. The most common diagnosis for patients treated in the Section of Neurology last year was headache, accounting for 33% of the section’s visits.

Movement Disorders Program
Co-Directors: David J. Coffey, MD and Stephen L. Lee, MD, PhD
The Movement Disorders Program provides care for a wide array of disorders including dystonia, Parkinson’s disease, hemiballismus, chorea, myoclonus and tremors. In addition to longitudinal management of these conditions, we offer specific interventions of various types, from Botulinum toxin injections to coordinating neurosurgical interventions including pallidotomy, thalamotomy, and deep brain stimulation for medically intractable tremor and Parkinson’s Disease. There are now a myriad of treatments for movement disorders. Enhancing clinical care and developing research protocols are both high priorities for our section.

We pride ourselves in the fact that we have numerous interdisciplinary efforts available to meet the needs of our movement disorder patients. Interdisciplinary clinics (neurogenetics, swallowing clinic, hand clinic and others) allow members of the Neurology Section to participate directly with specialists in Gastroenterology, Genetics, Neurosurgery, Neuropsychiatry, Ophthalmology, Orthopedics, Plastic Surgery, Rehabilitation Medicine and others to provide coordinated care of patients who require multispecialty consultations.

In addition to services provided for adult patients, we work closely with our Pediatric Neurology colleagues in treating children with movement disorders, (including Tourette’s syndrome) and neuroendocrine disorders.

CEREBROVASCULAR DISEASE/COMPREHENSIVE STROKE PROGRAM
Director: Timothy G. Lukovits, MD
The Cerebrovascular Disease/Comprehensive Stroke Program is dedicated to the evaluation, treatment, and education of patients with cerebrovascular disease. An acute stroke response team is alerted when patients with acute stroke are still "in the field."

There have been substantial developments in the treatment of cerebrovascular disease over the past decade. Thrombolytic agents such as tissue plasminogen activator (t-PA), a drug that will disintegrate clots, can greatly reduce morbidity and mortality of stroke. New and safer drugs to alter platelet adhesion and thrombosis formation have been developed. Surgical procedures such as carotid endarterectomy are increasingly used for the prevention of stroke. We are one of the few hospitals in this region to use the American Stroke Association-sponsored Stroke Patient Management Tool, an online, interactive assessment and reporting system that tracks critical elements of high quality acute stroke care and secondary stroke prevention. Our high patient volume, excellent database, and cutting-edge technology make this a fertile program for research and education.

MULTIPLE SCLEROSIS
Director: Lloyd H. Kasper, MD
Multiple sclerosis (MS) affects at least 450,000 people in the United States. The highest incidence of MS in the United States is in northern New England. It is estimated that there may be as many as 10,000 MS patients in the New England area, and the incidence of MS is increasing.

Treatment options have progressed remarkably in the condition over the past decade. Immunosuppressants and neuromodulators can dramatically slow the progression of the disorder. High-dose steroids can shorten an MS attack and drugs such as interferon beta 1b, interferon beta 1a, and glatiramer acetate can reduce the number of attacks and long-term damage to the brain caused by MS.

The Multiple Sclerosis Center under the clinical direction of Dr. Lloyd Kasper developed an international and national recognition in MS. The program has had several successful Phase I clinical trials using novel agents to treat MS. In addition to patient care, a major focus of the center is clinical and basic research. To date, the MS center has been involved in nine clinical trials that are either completed, in-progress or pending at this time.

Gregory L. Holmes, MD
Section Chief
NEUROPHYSIOLOGY/NEUROMUSCULAR PROGRAM
Director: Jeffrey Cohen, MD
The Neurophysiology Program is among the busiest and most productive in the Section and is established to achieve excellence in the region. The program provides both diagnostic and therapeutic expertise for neuromuscular disorders. These disorders include amyotrophic lateral sclerosis (ALS), muscular dystrophy, hereditary neuropathies, hereditary neuromuscular disorders, myasthenia gravis, compression neuropathies and diabetics neuropathy. Multidisciplinary clinics occur monthly for ALS patients and muscular dystrophy patients. A multidisciplinary Hand Clinic including Neurology, Orthopaedics, Plastic Surgery, and Occupational Therapy is also offered monthly.

INTRAOPERATIVE MONITORING PROGRAM
Co-Directors: Barbara Jobst, MD and Terrance M. Darcey, PhD
Initiated in 2002, the Intraoperative Monitoring Program offers a variety of monitoring modalities to Neurosurgery and Orthopaedic Surgery beyond the preexisting spinal cord monitoring with somatosensory evoked potentials. Several new techniques (e.g., motor evoked responses, nerve root stimulation, cranial nerve monitoring) are now routinely offered.

Education
Building on the tradition of Dartmouth Medical School the Neurology Section aims to develop dynamic learners: physicians who have the tools, the skills, the confidence, and the motivation to keep questioning, discovering, and building their knowledge throughout their professional lives.

MEDICAL STUDENT EDUCATION
Neurology is a required clerkship at Dartmouth Medical School. Students rotate on both the inpatient and consultative services and receive bedside teaching along with didactic teaching. Drs. Morris Levin and Rand Swenson enhanced the program with the development of a series of case-based videos portraying patients with a range of neurological diagnoses. The project was funded by an internal Department of Medicine Education Committee grant. The series was tailored to emphasize material essential to medical student training following the American Academy of Neurology guidelines. The success of the video series will be evaluated using student surveys and test results.

Neurology faculty also participate in the Scientific Basis of Medicine series for second year medical students. The Neurology faculty also participate in the Scientific Basis of Medicine series for second year medical students. The Neurology faculty also participate in the Scientific Basis of Medicine series for second year medical students.

NEUROLOGY RESIDENCY PROGRAM
Director: Morris Levin, MD
The Neurology Residency Program is an ACGME accredited three-year program following a one-year internship in internal medicine. The program expanded to a full complement of nine residents on July 1, 2006. The curriculum was extensively revamped with an increased emphasis on the core competencies outlined by the ACGME. New courses in neuroscience, research techniques, and problem-based learning were developed.

In addition to bedside and informal teaching, members of the Section of Neurology also participate in the lecture series for Internal Medicine, Pediatric, and Psychiatry residents.

CLINICAL NEUROPHYSIOLOGY FELLOWSHIP PROGRAM
The Section received approval for an ACGME approved Fellowship Program in Clinical Neurophysiology that began on July 1, 2005. This program runs two fellows per year. Plans for an ACGME-approved fellowship in stroke has been deferred until additional faculty members are available.

CONTINUING MEDICAL EDUCATION
Members of the Section of Neurology participate in multiple Continuing Medical Education Programs sponsored by DHMC each year. Section members also give lectures in the lecture series sponsored by the Neuroscience Center at Dartmouth. For 2005-2006 the Neurologists gave over 100 CME talks all over the world.

Research
The Section of Neurology was awarded $3.3 million in sponsored research funding in academic year 2005-2006, and $2.2 million in academic year 2006-2007. Currently neurology faculty are principal investigators on 50 active research projects/studies, five of which are new and competing research grants, covering every aspect of Neurology from headaches to stroke to depression of MS patients.

Ongoing research interests include epilepsy and epilepsy surgery, stroke, headache, movement disorders, multiple sclerosis, Parkinson’s disease, Amyotrophic Lateral Sclerosis (ALS), neuroimmunology, neuropharmacology, neuropsychology, neurosurgery, sleep disorders, memory, dementia and geriatric neurology.

The Section is committed to promoting collaborative efforts in both basic and clinical research and plays an integral role in both the Neuroscience Center and the Center for Immunotherapeutics and Clinical Research at Dartmouth.

Neurology Center draws from strengths in three key areas: Clinical, Cognitive, and Molecular/Cellular/Systems Neuroscience. For investigators, the Neuroscience Center provides an interactive environment that fosters formal collaborations and increased support for research activities as well as increased bidirectional translational research opportunities for basic science and clinical faculty.

The Center for Immunotherapy, directed by Randolph J. Noelle, Ph.D. (Departments of Microbiology and Immunology) is a new program that will coordinate immunology research and clinical trials across a range of diseases and disciplines. Dr. Lloyd Kasper serves as the Co-Director and Dr. Brant Oliver serves as the Director of Clinical Affairs for the new Center. The Center provides a common lab and common clinical trial base that allows physicians and researchers from different disciplines such as Oncology, Neurology, Infectious Disease, and Gastroenterology to interact around some of the same challenges and possible therapeutic solutions.

Dr. Kasper is the Principle Investigator of a major clinical trial evaluating the ability of a novel immunotherapeutic agent, anti-CD154, to treat relapsing-remitting MS. This drug is particularly exciting in that it was developed in the laboratory of Dr. Randy Noelle at Dartmouth Medical School and DHMC is the primary site for evaluating its clinical and biologic efficacy. This trial is funded by the National Institutes of Health (NINDS) and the Immune Tolerance Network (ITN).

Dr. Steven Lee applied for and was awarded a grant to establish an American Parkinsons Disease Association Information & Referral Center here at DHMC. The Center is co-directed by Dr. Lee and Dr. David Coffey.

Honors and Scholarly Work
Dr. Stephen Berman serves on the American Academy of Neurology’s Quality Standards Subcommittee and Therapeutics and Technology Subcommittee. He is also Chief Editor for Movement/Neuromuscular Topics for E-medicine.

Dr. Jeffrey Cohen serves on the Polyeuropathic Task Force and the Executive Committee of the Ethics Section for the American Academy of Neurology. He is an invited examiner for the Part 2 oral boards of the American Board of Psychiatry and Neurology. He also serves on the FDA orphan grant review panel and is an ad hoc reviewer for several professional journals including the Annals of Neurology, Neurology, Journal of the American Nervous System, Clinical Autonomic Neuroscience, and Spine.

Dr. Barney E. Dwyer participated on the review panel for the National Institute on Aging Health and Retirement Survey. Dr. Gregory Holmes serves as President of the American Epilepsy Society in 2006, has served on several NIH study sections, and sat on the Lamicital Advisory Board.
Dr. Timothy G. Lukovits leads the NH Stroke Task Force and also serves on the American Heart Association Board for the Northeast Affiliate.

**PROMOTIONS JULY 1, 2006**

Thomas N. Ward, MD, Professor

**SELECTED PUBLICATIONS**

**JOURNAL ARTICLES**


**CLINICAL NEUROLOGY**

Clinical Service
The Section of Occupational and Environmental Medicine at Dartmouth- Hitchcock Medical Center provides a wide range of services to meet the occupational and environmental health needs of our own employee population as well as the needs of the community workforce. Occupational Medicine physicians work as both clinicians and the public health officers of the employed population.

The section provides Occupational and Environmental Medicine, Preventive Medicine, Hyperbaric Oxygen Therapy, and Population Health. Our services include Pre-Placement Screenings, Federal Aviation Administration, Department of Transportation, and Firefighter physicals; medical surveillance; OSHA-mandated testing and evaluation; and workplace consultation and fitness evaluations. We also manage several critical institutional programs such as DHMC’s Bloodborne Pathogen Exposures and fitness evaluation. The Occupational Medicine model of care to improve management for spine injured workers in the Spine Center was recognized and published by the Advisory Board in a recent best practices manual for hospital-based spine centers.

CLINICAL CONSULTATION
At the Spine Center
The Occupational Medicine model of care to improve management for spine injured workers in the Spine Center was recognized and published by the Advisory Board in a recent best practices manual for hospital-based spine centers.

HYPERBARIC PROGRAM
Director: Jay Buckey, MD
The Hyperbaric Oxygen Program is an outgrowth of the decompression sickness research program began in collaboration with Creare, Inc. by Dr. Buckey. Hyperbaric oxygen therapy provides oxygen under pressure to a patient, and this in turn allows oxygen to reach areas in the body that receive insufficient oxygen. The main clinical use at DHMC is for the treatment of the late effects of radiation therapy (osteoradionecrosis, soft tissue radiodermatitis, radiation cysts, radiation proctitis, and radiation-induced brain necrosis). Additionally, hyperbaric oxygen can be used to treat problem wounds, such as non-healing diabetic foot ulcers, and compartment syndromes. Hyperbaric oxygen can also be used to treat chronic refractory osteomyelitis, carbon monoxide poisoning, decompression sickness, and burns.

Last year the program received approval to purchase a second hyperbaric chamber, which would double patient treatment capability and allow DHMC to compete more successfully with other centers that have larger and more capable wound care centers. The installation of the new chamber is still on hold while space for the new chamber is negotiated.

A major event this past year for the hyperbaric program was the selection of the program to be part of a trial of hyperbaric oxygen as a radiation sensitizer in patients with head and neck cancer. The hyperbaric chamber at DHMC is located within walking distance of radiation oncology, making DHMC one of a limited number of centers that can perform studies of oxygen as a radiation sensitizer. Patients need to be in the radiation suite within 15 minutes of leaving the chamber, which can be accomplished easily at DHMC. If space issues can be resolved, this study could also provide DHMC with an additional hyperbaric chamber at no cost, while DHMC is involved in the study.

HYPERTHERM
Our section is retained by this local company to provide ongoing occupational health and safety consultation as well as provision of clinical services.

HEALTH PROMOTION AND PREVENTIVE MEDICINE PROGRAM
In conjunction with the Health Improvement Program, Occupational Medicine oversees ongoing population-based health promotion programs including annual flu immunization campaigns, smoking cessation, and institutional initiatives to improve employee nutrition and physical activity.

Education
The Section is very active in the CECS graduate program with section faculty participating in CECS course planning and serving as lecturers and preceptors for several courses. Robert McLellan and Carolyn Murray serve as co-directors of the CECS course, ECS 151: Environmental and Occupational Health, which is a required course for the MPH degree with a total of 65 students enrolled.

Dr. Robert McLellan receives CDC funding to study health and wellness in pre-diabetes health care workers. He also serves as a co-investigator in several projects related to the management of an infectious respiratory disease outbreak at DHMC.

Dr. Carolyn Murray is supported by the VA for academic courses and research mentorship focused on improving health care worker safety in the national VHA workforce.

Dr. Jay Buckey has funding from NSBRI and ONR for research on improved bubble detection and sizing technologies for use in decompression sickness (and potentially also during cardiopulmonary bypass). He also has funded research (NSBRI/ONR) in the areas of: oxygen toxicity, use of intranasal scopolamine for motion sickness, use of multimedia computer systems for training about (and treatment of) depression, and countermeasures for the adverse effects of weightlessness.

Dr. Kevin Wallace received pilot grant funding from the Center for Environmental Research
Health Sciences at Dartmouth for his leadership of the Clinical Translational Toxicology Study Group. Dr. Wallace also contributed to the environmental arsenic exposure assessment component of the study of health and wellness in prediabetic health care workers.

**Honors and Scholarly Work**

- **Dr. Jay Buckey** served on American Institute for Biological Sciences (AIBS) panel to review the U.S. Air Force Extreme Environments Protection Program. He also serves on the editorial board of the journal Aviation, Space and Environmental Medicine. He was appointed to Touch the Future Foundation, which is the foundation that supports the Christa McAuliffe Planetarium in Concord, NH.

- **Dr. Robert McLellan** is President Elect of the American College of Occupation and Environmental Medicine and has presented at several national venues on emergency preparedness. He also serves on the editorial board of the Journal of Emergency Medicine. He serves as subcommittee member of the American National Standard Institute. He is Chair of the Occupational Health Advisory Committee, sponsored by Health and Human Services under the auspices of Homeland Security Presidential Directive-7.

- **Dr. Carolyn Murray** was named VA National Quality Scholar, based out of White River Junction VA Medical Center. She was also elected to Board of Directors of the Medical Center Occupational Health Group, American College of Occupational and Environmental Medicine (ACOEM). The Town of Hanover (by town select board) appointed her as Deputy Town Health Officer. She also continues to serve on the Board exam committee of the American College of Preventive Medicine.

- **Dr. Kevin Wallace** and co-editors received a British Medical Association Book Competition commendation for Critical Care Toxicology – Diagnosis and Management of the Critically Poisoned Patient. He served as a reviewer for NIH/NINDS CounterACT grant program and as a reviewer for the American College of Emergency Physicians Clinical Policies Subcommittee and the North American Congress of Clinical Toxicology Abstract Committee. He continues to serve as a member of the American College of Medical Toxicology’s Practice Committee. His other active appointments include: Clinical Associate Professor of Emergency Medicine (Medical Toxicology), University of Arizona College of Medicine; Medical Director of Banner Good Samaritan Occupational and Environmental Toxicology Services; and Clinical Adjunct Faculty, Department of Emergency Medicine (Medical Toxicology), University of Massachusetts Medical School.

**PROMOTIONS JULY 1, 2006**

- Jay Buckey, MD, Professor

**SELECTED PUBLICATIONS**

**BOOKS**


**JOURNAL ARTICLES**


As part of occupational medicine’s employee health improvement program, employees are encouraged to increase activity level by using stairs.
SECTION OF PULMONARY MEDICINE

The Department thanks Dr. Harold Manning for his service as Chief of the Section of Pulmonary Medicine. In addition to being a highly skilled clinician-educator, he has demonstrated excellent administrative skills and leadership qualities.

The Department welcomes Dr. Richard Enelow, who started as the new Chief of the Section of Pulmonary Medicine on July 1, 2007. Dr. Enelow joins us from Yale University School of Medicine where he held an appointment of Associate Professor and served as Acting Chief in the Section of Pulmonary and Critical Care Medicine and Director of the Interstitial Lung Disease Program. In addition, he served as Chief of the Pulmonary and Critical Care Section at the VA Connecticut Healthcare System. He has a national and international reputation in immunological lung disorders, and is a renowned authority on pulmonary interstitial disease.

Clinical Services

The Section of Pulmonary Medicine provides therapeutic and diagnostic modalities for the management of respiratory disorders and complications. The Pulmonary Section is involved in a diverse array of clinical activities. In addition to general Pulmonary clinical work, members of the Pulmonary Section participate in the critical care service, run an ALS clinic jointly with Neurology, work with the Section of Cardiology to manage the growing population of patients with arterial hypertension, and participate in the multi-disciplinary thoracic oncology program and the newly launched Thoracic Oncology Clinic. DHMC is the designated adult cystic fibrosis (CF) center for New Hampshire, and Dr. Worth Parker serves as director of the state’s adult CF program.

In the 2006 outpatient satisfaction survey, the Section of Pulmonary Medicine received and overall provider satisfaction rating of 92.1%.

INTERVENTIONAL PULMONOLOGY PROGRAM

We offer a range of interventional services, including endobronchial therapy (e.g., airway stents, laser debulking of tumors, brachytherapy); endobronchial ultrasound; and tunneled pleural catheters. We are currently recruiting for an additional pulmonologist with interventional skills, and hope to expand our interventional program.

Education

PULMONARY AND CRITICAL CARE MEDICINE FELLOWSHIP PROGRAM

The Fellowship in Pulmonary and Critical Care Medicine is an ACCME-accredited three-year program admitting one fellow per year. Our fellowship program combines superb clinical training with rigorous academic standards. Our goal is to give trainees the best of both these worlds. Upon completion of the three-year fellowship, our graduates are competent to function as subspecialty consultants in clinical pulmonary and critical care medicine; they have extensive experience teaching medical students and residents in both formal and informal settings; and most will have designed and completed at least one research project from hypothesis generation through statistical analysis to writing of a manuscript for submission to an academic medical journal.

MEDICAL STUDENT AND RESIDENT EDUCATION

Members of the Pulmonary Section are currently involved in the first-year medical school Physiology course; SBM Respiration (second year), and Advanced Medical Sciences (fourth year). We also actively participate in the educational programs for Internal Medicine residents (e.g., M2 attending) as well as residents from other departments rotating through the ICU.

CONTINUING MEDICAL EDUCATION

Together with Dr. James Leiter (Department of Physiology) and a colleague from Harvard Medical School, Dr. Hal Manning taught a one week course in Sept. 2006 in Innsbruck, Austria on “Critical Care Medicine: Applying pathophysiological principles at the bedside.” The course is under the auspices of IPOKrT ES, an international organization dedicated to excellence in medical education.

Research

In academic year 2006-2007, sponsored research funding increased 141% from $136K to $327K. Dr. Richard Enelow’s lab is involved in basic research involving mechanisms of experimental T cell-mediated pulmonary disease, mechanisms of chronic inflammatory/fibrotic lung injury, anti-viral T cell effector activities in the lung in influenza and RSV infection, and T cell repertoire aberrations in response to multiple helminous immunizations. Dr. Enelow is also active in several areas of clinical research, including idiopathic pulmonary fibrosis and viral infection in the progression of COPD. Dr. Don Mahler is currently involved in the development of standardized indices of breathlessness funded by Psychological Applications, Inc. He is also the PI at DHMC for the multicenter ECLIPSE study sponsored by GlaxoSmithKline entitled: “A multi-centre three-year longitudinal...”
prospective study to identify novel endpoints and compare these with forced expiratory volume in 1 second (FEV1) for their ability to measure and predict COPD severity and its progression over time."

**Honors and Scholarly Work**

Dr. Hal Manning is a member of the American Thoracic Society (ATS) committee responsible for the ATS consensus statement on dyspnea.

Drs. Hal Manning and Don Mahler are members of the American College of Chest Physicians (ACCP) expert panel on Evidence-Based Medicine and Treatment of Dyspnea.

Dr. Worth Parker received the Robert B. Kerr Award from the New Hampshire Lung Association. The award is presented to an individual who has "consistently demonstrated a professional or personal commitment to furthering lung health in the region for five or more years."

Dr. Hal Manning received the "Distinguished Educator Award" from the DMS class of 2008.

**SELECTED PUBLICATIONS**


**BOOK CHAPTERS**


**JOURNAL ARTICLES**


**OTHER**

Clinical Service
The Section of Radiation Oncology is committed to providing high-quality, state-of-the-art radiotherapy techniques for the treatment of a wide variety of cancers. The section is an integral part of the Norris Cotton Cancer Center (NCCC) at Dartmouth, one of a select group of institutions recognized nationally by the National Cancer Institute (NCI) as a “comprehensive cancer center.”

We participate in numerous multidisciplinary cancer management teams at the NCCC focused on treating specific types of cancer. This new technology greatly enables the treatment of normal tissues.

INTERDISCIPLINARY BREAST CLINIC
The section has been actively involved in the interdisciplinary breast clinic which opened in the spring 2006. The clinic offers coordinated multispecialty appointments integrating clinical trial enrollment, allied health services, social services, and shared decision making into the clinic environment.

MAMMOSITE PROGRAM
The Mammosite Program is an ongoing operation at the breast center. The clinic is now fully staffed and running at 100% capacity.

We are now developing a relationship with Central Vermont Medical Center, coordinating efforts to submit a Certificate of Need proposal for a radiation oncology facility to be situated in Barre, VT, that will service the needs of the population in and around Montpelier and the central Vermont region.

We have also regularly attended and presented at the following regional tumor boards: Cheshire Medical Center, Gifford Medical Center, and the Veterans Affairs Medical Center.

Interdisciplinary Breast Clinic

Education
All physicians in the Section actively participate in the supervision and teaching of medical students, residents, and fellows who periodically rotate through the Section.

Also, faculty participate in formal teaching in several venues. Currently, Dr. Alan Hartford gives introductory lectures on radiation oncology to the second-year class of Dartmouth Medical School.

We have also responded to requests to develop a radiation oncology presence in Bennington, VT with Southwestern VT Medical Center, and we are now developing a relationship with Central Vermont Medical Center, coordinating efforts to submit a Certificate of Need proposal for a radiation oncology facility to be situated in Barre, VT, that will service the needs of the population in and around Montpelier and the central Vermont region.

We are now developing a relationship with Central Vermont Medical Center, coordinating efforts to submit a Certificate of Need proposal for a radiation oncology facility to be situated in Barre, VT, that will service the needs of the population in and around Montpelier and the central Vermont region.

Research
The Section of Radiation Oncology received $118K in sponsored research funding in academic year 2005-2006 and $61K in academic year 2006-2007.

The Section is involved in numerous clinical trials through participation in the American College of Radiology's Radiation Therapy Oncology Group. In addition, the Section has several internally-funded investigator-initiated studies, including:

- A national web-based randomized phase III study of Erlotinib or placebo following concurrent DacTaxel, Carboplatin, and thoracic radiotherapy in patients with inoperable stage III NSCLC.
- A Phase II Trial of Cetuximab, Radiotherapy, and Twice Weekly Gemcitabine in Patients with Adenocarcinoma of the Pancreas.
- Pre-irradiation Sensitization of Glioblastoma Multiforme with Hyperbaric Oxygen.
- Determination of Predictive Markers of Chemoradiation Sensitivity and Resistance of Rectal Tumors.
Honors and Scholarly Work


SELECTED PUBLICATIONS

BOOK CHAPTERS, REPORTS, AND REVIEWS


Hartford AC (Chair, Collaborative Subcommittee, and Principal Reviewer), Guidelines and Standards Committee of the Radiation Oncology Commission in collaboration with the American Society for Therapeutic Radiology and Oncology (ASTRO). ACR Practice Guideline for Intensity-Modulated Radiation Therapy (IMRT). ACR Practice Guidelines 2007.

Zaki B. Palliative and Pain Medicine: Improving Care for Patients with Serious Illness. Techniques in Regional Anesthesia & Pain Management (2005)9;177-183.


JOURNAL ARTICLES


FACULTY

Section Chief
Alan C. Hartford, MD, PhD (Interim)

Professors
Eugen B. Hug, MD

Associate Professors
Walter L. Eaton, Jr., MD
David J. Gladstone, ScD

Assistant Professors
Candice L. Aitken, MD
Alan C. Hartford, MD, PhD
Mohit Kasibhatla, MD
John C. Marshall, MD
Richard W. Plantek, MS
Kelly J. Underhill, MD
Bassem I. Zaki, MD

Instructors
Anna Farns, MD
Paul Mitchell, MD
W. Michael Shea, MD
Roberta Silveira, FNP
Andrew Young, MD
SECTION OF RHEUMATOLOGY

The Department thanks Dr. Lin Brown for her eight years of service as Chief of the Section of Rheumatology. The Section has faced numerous challenges and has established a balanced track record of accomplishments under her leadership. Her tenure as Section Chief is characterized by three very important features: altruism, professionalism, and leadership by example. The Department welcomes Dr. Daniel Albert, who joined us as the new Chief of the Section of Rheumatology on November 1, 2006. Dr. Albert joins us from the University of Pennsylvania where he held joint appointments as Professor of Medicine, Pediatrics, and Clinical Epidemiology and Biostatistics. He has a national and international reputation in the field of targeted therapeutics in rheumatological disorders, and is recognized as a master clinician in his discipline.

Clinical Service

The Section of Rheumatology provides a wide range of diagnostic and therapeutic services to adults and children with arthritis and diseases of the musculoskeletal system. Clinical interests include Lupus, Osteoporosis, Psoriatic arthritis, Fibromyalgia, Crystal-induced synovitis, Rheumatoid arthritis, Sarcoid, Vasculitis along with the study of new drugs to treat Rheumatoid and Psoriatic arthritis. Close interaction is maintained with hand surgeons, orthopaedic surgeons, physical and occupational therapists as well as other subspecialties of medicine in order to provide optimum care.

A multidisciplinary clinic for children with juvenile arthritis and rheumatic diseases is offered in addition to the one-week residential summer camp for children with arthritis called Camp Dartmouth-Hitchcock.

Diagnostic capabilities include aspiration and injection of joint and bursa, vasculitis synovial fluid analysis, biologic agents in the treatment of rheumatic disease and open muscle biopsies.

In July of 2006, the Section began a shared medical appointment program for fibromyalgia patients in order to improve access for the 40 patients who were on the waiting list. Another addition in 2006 was the Vasculitis Clinic that consists of both rheumatologists and nephrologists.

The section has improved access to new patients and overall productivity by utilizing mid-level providers to provide follow-up care of some of our stable patients.

Education

RHEUMATOLOGY FELLOWSHIP PROGRAM

The Section of Rheumatology fellowship program is a two-year ACGME-accredited program that admits one-three fellows per year. The program provides fellows with the skills to diagnose and manage adult and pediatric rheumatologic problems, use diagnostic tests including radiologic techniques, and to interface with associated disciplines including Physical Medicine, Orthopaedics, and Rehabilitation, and provides opportunities for basic science research.

This fellowship addresses a critical problem in modern health care delivery by offering a program which provides excellent clinical training combined with thorough exposure to the basic science disciplines upon which understanding of the pathophysiology of rheumatic disease is based. The breadth of this training is reflected in the ability to train individuals in careers in both academic and non-academic (e.g., industrial, clinical practice) sectors.

A new component to our evaluation system is that the Rheumatology fellows take an American College of Rheumatology in-service exam. In order to improve the quality of the information that we obtain back from the trainees the rheumatology fellowship uses hospital educators/facilitators to get blinded feedback on attending and program feedback.

MEDICAL STUDENT EDUCATION

The Scientific Basis of Medicine’s Connective Tissue and Bone Disease course remains among the highest scoring subjects on the Step 2 of the National Board of Medical Examiners exam. Dr. Lin Brown is a Co-Clerkship Director for the Inpatient Medicine Clerkship and also serves as a preceptor for the On doctoring course.

RESIDENT EDUCATION

The Section of Rheumatology continues to have a presence in the internal medicine residency program with Dr. Chris Burns serving as the rheumatology liaison to the teaching service on a weekly basis. The section also developed and implemented a pre-test on rheumatology knowledge for residents and students rotating through Rheumatology.

Research

The Section of Rheumatology received $1.7 million per year in sponsored research funding in both academic years 2005-2006 and 2006-2007. The section currently has 15 active research projects/Studies. Dr. Daniel Albert has been the lead investigator on multiple clinical trials and has a strong background in clinical research that spans basic studies in biostatistical analysis, through decision and cost-effectiveness analysis, to outcome measures and clinical trials within Rheumatology. He has recently been involved in modeling treatment strategies in rheumatoid arthritis using decision analysis and Markov models. He has also been involved in analyzing alternatives for prevention therapy for osteoporosis in normal individuals and in patients with systemic lupus erythematosus. He holds one patent for the treatment of rheumatoid arthritis.

Dr. William F.C. Rigby’s lab continues with successful funding to examine cytokine messenger RNA regulation.

Dr. Christopher M. Burns received a Department of Medicine grant to observe IL-17 levels in rheumatoid arthritis in response to disease and treatment.

Dr. Constance Brinckerhoff’s research has focused on the role of matrix metalloproteinases in joint destruction in arthritis and in tumor invasion/metastasis.

Dr. Lin Anita Jeromin Brown is involved in fibromyalgia and androgen multicenter studies which are currently under consideration by the FDA. She
and Dr. Hillary White (Department of Microbiology and Immunology) are collaborating on a potential new, novel treatment for fibromyalgia. Dr. Brown is also involved in an ANCA vasculitis and statin project with Dr. Kalyani Eranki.

Dr. Matthew P. Vincenti’s lab continues to examine the regulation of metalloproteinase gene expression during cytokine-induced degradation of cartilage and bone.

Honors and Scholarly Work
Dr. Lin Anita Jeromin Brown: Program Chair for the 2006 NH ACP Annual Meeting in Philadelphia PA.

Dr. Christopher M. Burns: Visiting professor to the Central American country of Belize doing a number of lectures around the country in conjunction with an agency called Omni med.

Dr. William F.C. Rigby: National presence on the American College of Rheumatology’s (ACR) Education Committee, and on the Curriculum Committee for the winter meeting of the ACR.

Matthew P. Vincenti, PhD: Merit Review Award, Department of Veterans Affairs. Regulation of Matrix Metalloproteinase-1 by the NF-κB and ERK Pathways.


SELECTED PUBLICATIONS
JOURNAL ARTICLES


SCHEMATIC OF THE THE C. EVERETT KOOP MEDICAL SCIENCE COMPLEX, a visionary new translational and clinical research facility, to be located on the campus of Dartmouth-Hitchcock Medical Center in Lebanon, N.H.

“The new Koop Complex represents our view of a key element of the future of biomedical science and health care delivery. It is our goal to create an environment to speed the conversion of basic discovery to change in health care practice. The design follows its function. It provides a space for close, physical juxtaposition of research, education, and patient care, and this will hopefully lead to a new era of more thoughtful flow of knowledge from the bench to the bedside to the community and back.”

Dean Stephen P. Spielberg