

September 29, 2010

**Annual Report for 2009-10**  
**Department of Medicine**  
**Boston University School of Medicine**  
**Boston Medical Center**

The Department of Medicine completed a very successful academic year in 2009-10. As outlined below, the department's clinical and research programs substantially increased in both size and quality. The training programs successfully competed for a diverse and outstanding group of trainees, both in the department's residency program as well as the subspecialty fellowships. In addition, a number of enhancements in the department's administrative structure and personnel have contributed to improvements in efficiency and service to our patients, faculty, staff, and trainees. Recruitments to key leadership positions included: Jerrold Ellner, M.D., Chief of the Infectious Disease Section and Avi Spira, M.D., Chief of the Section of Computational Biomedicine. The following report summarizes achievements in Clinical Care, Research, Education, Administration, and Faculty Development.

**Research Activities**

For the academic year 2009-10, progress and achievements in research have been quite noteworthy. **The department's research grant funding was over \$149 m in the 2009-10 academic year- an increase of 25% compared to 2008-09 and 42% compared to 2007-8.** These figures do not include faculty at the Boston VA or Roger Williams Medical Center. **The funding per research faculty FTEE increased by 41% to over \$1.07 m per FTEE.**

In March 2009 the Evans Center for Interdisciplinary Biomedical Research was established with a mission of using multidisciplinary approaches to enhance novel basic discoveries related to disease. The Center has organized Affinity Research Collaboratives (ARCs) and research forums, such as Biomarkers for Disease, Protein Trafficking and Neurodegenerative Disease, Sex Differences in Adipose Tissue Remodeling, Inflammation, iPS-Driven Tissue Regeneration, Mitochondria in Disease, and evaluation of the Microbiome in human blood (see: <http://www.bumc.bu.edu/medicine/evansbiomedicalresearch>). Each of the ARC's was established through a peer-review process and were provided with pilot funding for new research initiatives through the Evans Center. In addition, the Evans Center worked with the Molecular Medicine Graduate Program to enhance its curriculum, including new interdisciplinary courses in nanomedicine and biomolecular core technologies. The Evans Center also worked closely with Drs. Bennett (Director, BU Nanoscience Center) and Faller (Director, Cancer Center) to secure a NCI-funded Cancer Nanotechnology Training Center (R25). A total of 143 faculty are participating in ARC's, nearly half of whom are from outside the Department of Medicine. In addition, 15 faculty are participating in ARC's in the formative stages.

In 2009-10, the department established a new section - **Computational Biomedicine**, that is designed to conduct research and training in the derivation and analysis of biomic information. This section has been established with state of the art DNA and RNA sequencing facilities and computational resources. Four new faculty have been successfully recruited to Computational Biomedicine in the past few months.

In September, 2008, we established three instrumentation cores, Analytical, Animal, and Cellular Imaging. In the past year, use of these cores by faculty and staff has dramatically increased to include more than 76 PI's from in and outside the Department of Medicine with a total of 7800

hours. Last year the Analytical Core established two new initiatives, the High Throughput Molecular Screening (HTS) service and Immunohistochemistry service. Four pilot screens were completed in the past year by the HTS core and nine new screens have been initiated for the upcoming year. A total of 19 grants were submitted using the HTS core resources, two of which have been awarded, and we are awaiting scores on 14. Four additional infrastructure and instrumentation grants were also submitted. In addition, the staff in the HTS core have begun collaborating with private companies to examine potential therapeutic compounds.

The department funded 16 pilot grants in 2009-10 in collaboration with the Clinical Translational Sciences Institute, The Boston Older Americans Independence Center (Pepper Center), Wing Tat Lee Fund of Boston University, and the Center for Nanotechnology and Nanobiotechnology. The department has also awarded bridge funding to seven faculty, two of whom have already received peer-reviewed grant funding.

The Vice Chair of Research office in collaboration with the Evans Center for Interdisciplinary Biomedical Research coordinated research symposium on Hypertension featuring speakers throughout the world and honoring the career accomplishments of Dr. Haralambos Gavras.

During the past year, two new Evans Scholars were appointed: Drs. David Felson and Richard Cohen. The Evans Scholar Award was established to recognize and support the research activities of distinguished senior faculty in the department. In addition, the department established three Evans Junior Faculty Research Merit Awards to recognize Assistant Professors with exceptional promise as independent investigators. The 2009-10 recipients of the Evans Junior Faculty Research Merit Awards were Drs. Gerald Denis, Tuhina Neogi, and Ravi Jasuja.

### **Clinical Activities**

The Department of Medicine's clinical activities continued to grow substantially during 2009-10. Despite a slowing in the growth of new clinical faculty, the **department's faculty increased wRVU's to 669,224 – a 6.4% increase compared to 2008-9. Over the past four years, the department's total wRVU's have increased by 35%.** This growth is attributable to an increase in the number of providers, increased productivity by individual providers, and to improvements in documentation and capture of clinical charges.

The department's revenue cycle management continued to be a major focus of operational improvement during the past year. As a consequence, collections have increased by over 20% from April prior year, charge denials decreased to 14%, the net collection rate has exceeded the target of 95% and days in Accounts Receivable were reduced on average from 63.9 to 39.9. We anticipate continued improvements in these metrics over the next several months as upgrades to the General Ledger System and Billing/Scheduling Systems (Atlas Project) are implemented.

Department faculty deliver inpatient care at Boston Medical Center (BMC) and ambulatory care at four BMC sites: the Doctor's Office Building (DOB), the Preston Family Building, the Yawkey Ambulatory Care Center (YACC), and the Moakley Building. Additional sites of care include the Commonwealth Medical Group (CMG), a satellite practice on Commonwealth Avenue adjacent to the BU Main Campus; and a number of affiliated neighborhood health centers. The department opened a new CCU/MICU in the East Newton Pavilion and completed several upgrades to common space at BMC.

Upgrades to the quality of the ambulatory space in the DOB (Rheumatology Clinic) and Preston Family Building (Cardiology Renal clinics) were made during the past year. Intensive planning is

underway for move of the department's ambulatory practices in Primary Care, Women's Health, Renal, Pulmonary, Allergy, Infectious Diseases, and Rheumatology into the Shapiro Ambulatory Building in February of 2011.

Ambulatory Care: The ambulatory practice of the department continued to grow during 2009-10. Overall, **Ambulatory visits (280,000) increased by 12% over the preceding year.** Eleven of the department's 15 ambulatory practices grew by at least 8% over the past year. Ambulatory visits to see physicians increased by 15% over the past year.

A major focus of the department's ambulatory practice has been to increase access for new patients and to increase ambulatory workload. The ambulatory clinics experienced remarkable growth in both of these areas: **new patient visits increased by 23% and outpatient e/m wRVU's increased by 42%.**

The ambulatory practices are working to improve access to care for new patients, patient satisfaction, and overall operations and quality of care delivery. Improvements in patient flow through streamlined scheduling processes, improved customer service through better telephone access and improved performance of the Electronic Health Record (Logician). Clinical practice dashboards were created for each practice, as well as an individual provider dashboard to report coding, RVU and volume trends. The capacity and aesthetics of the CMG practice site have been improved during the past year- a Polysomnography Laboratory will be opening there in summer of 2010.

Inpatient Care: The Department of Medicine's Inpatient Services continue to see nearly half of all of the admissions to BMC. The number of discharges from the Medical service for the 2009-10 academic year was 8,015. Despite the high volume, the medicine service continues to work efficiently with an average length of stay of 4.10 days.

Improvements in teaching and supervision by Attending physicians have been a major focus of the Department of Medicine. Attending schedules have been modified so that attendings are available and present daily for morning rounds. Attendings also attend daily interdisciplinary rounds. As a consequence of an extensive series of investigations aimed at improving outcomes on the Medical Service, ward attendings will be rounding with the house staff twice per day, barriers to transfer to the MICU/CCU have been reduced, a Procedure Team was established, and coordination of care with referring physicians was improved.

The Department of Medicine instituted a Quality Council to address issues of Patient Safety and to promote best practices. The focus of the committee during the 2009-10 academic year has been to review University Health Consortium mortality data and identify systemic opportunities for improvement. Additionally the Quality Council has continued to work with BMC IT and the Internal Medicine Residency Program in developing improved systems for communication with Primary Care Providers during hospital admissions. Lastly the Quality Council has begun work with the BMC Data Warehouse in reviewing Ambulatory Quality Data and developing systems for process improvements within the clinic practices. Each section within the Department of Medicine has also implemented metric driven quality plans to insure that we are achieving best practice and delivering high quality care to our patients.

### **Educational Activities**

The Department of Medicine's educational programs continue to thrive, with engaged medical students, a diverse and highly qualified group of trainees in the residency and internal medicine

subspecialty fellowship programs, and committed and talented faculty mentors, who model excellence in research and clinical work.

Medical Student Education: The 2009-10 academic year is the second year of the new model for the core Medicine rotation, comprised of Medicine 1 and Medicine 2. . All 3<sup>rd</sup> year students participate in the 8-week inpatient rotation, Medicine 1. This is the last transition year for the new Medicine 2, a 4-week Ambulatory rotation, with both 3<sup>rd</sup> and 4<sup>th</sup> year students participating. In 2010-11 year, Medicine 2 will focus primarily on 4<sup>th</sup> year students. The Ambulatory portion of the curriculum was restructured and formalized.

This year, Dr Thomas Barber joined Dr Warren Hershman, the Director of Student Education, as Clerkship Director for Medicine 2, and has taken the lead in the development of the Medicine 2 rotation. He has taken the lead in ensuring high quality education for students in the ambulatory setting. The role of the Evans Student Educator/Associate Clerkship Director was developed and fully implemented over the past year, and data is being collected to measure the impact on the students. These faculty members spend dedicated time each week meeting in small groups with students on the inpatient service, reviewing physical diagnosis skills, discussing cases with an emphasis on critical thinking, case presentation skills, and reviewing the students' write-ups and progress notes. The Evans Student Educators serve as leaders and key participants in the education and evaluation of small groups of 3<sup>rd</sup> and 4<sup>th</sup> year students on the core Medicine inpatient rotations, providing specific feedback regarding their performance, advice and guidance. These interventions promote the development of strong clinical skills through small group learning activities and enhanced teacher-student relationships.

Residency Program: The Internship Match for the 2010-11 PGY 1 class was successful– 41 categorical, 14 preliminary and 5 Primary Care positions. We were particularly pleased that 8 BUSM students matched in our program. There are 39 women in the incoming class, and 5 underrepresented minorities. Additionally, the residents applying for fellowship training following the completion of residency were extremely successful in the Fellowship Match.

The residency program successfully completed a site visit by the Residency Review Committee in May, 2010.

Building on our experience over the past two years, a novel model for resident schedule development was devised, to be implemented in the 2010-11 academic year. The 3+1 model increases the time residents spend in the ambulatory setting, and eliminates the tension between the inpatient service needs, and the requirements of attending continuity clinic. This new scheme required a complete redesign of the precepting model in the primary care and subspecialty clinics, more closely linking faculty preceptors with the residents and the patients, and a new model for curriculum delivery via lectures and case discussions.

New curriculum: In the 2009-10 academic year, we implemented the Academic ½ Day, a three-hour morning block dedicated to didactic and skill building sessions for all residents on their Ambulatory Long Block. The innovative EBM curriculum implemented during the last academic year was integrated into the Academic ½ Day, along with physical diagnosis skills, professional development workshops and communication skills sessions.

Senior Resident Academic Day: All of our PGY 3 residents participated, presenting either a talk, poster of their original research or clinical vignette.

Grant Funding: In 2009-10, the Primary Care Training Program was awarded the second year of the HRSA Title VII grant, to continue to develop curriculum focused on the care of medically underserved patients and Primary Care.

Drs Jackson and Alford developed and implemented an OSCE for medical residents addressing the diagnosis and management of prescription drug abuse in the ambulatory setting, funded by the National Institute on Drug Abuse, and presented nationally. They have recently been awarded a third grant to expand this project further. BUSM is also represented in the Massachusetts Consortium, a NIDA Center of Excellence, developing a model curriculum in Prescription Drug Abuse. Dr Jackson is the site leader for these initiatives.

Fellowship Programs: All Internal Medicine subspecialty fellowship programs continue to recruit high quality candidates, and are fully accredited.

### **Faculty Development and Diversity Activities:**

Under the leadership of Dr. Emelia Benjamin as Vice Chair of Faculty Development and Diversity and Dr. Karen Freund as Chair of the Faculty Development and Diversity Committee, the Department has expanded its efforts to nurture a vibrant and diverse faculty. In April 2010, a full-time Director of Faculty Development and Diversity, Dr. Peter Cahn, joined the Department to coordinate the efforts to meet the faculty development goals outlined in the strategic plan.

Mentoring: <http://www.bumc.bu.edu/facdev-medicine/mentoring/>

Dr. Benjamin and Dr. Sharon Levine convened a Mentoring Task Force composed of 19 faculty members from across all three schools on the Boston University Medical Campus. Through consultations with visiting experts and review of the academic literature, the Task Force drafted a proposal for a structured, longitudinal Early Career Leadership Program.

- The program will create a cohort of 16 assistant professors from throughout BU Medical Campus and provide them with resources, peer support, and mentorship to complete an academic project.
- The program has received approval from the Provost and will solicit applications for its first class in fall 2010 and begin meeting in January 2011.

Seminars: <http://www.bumc.bu.edu/facdev-medicine/seminars/past-seminars/>

During 2009-2010, the Department hosted twelve lunchtime seminars on topics from academic advancement to e-mail management. Evaluations at seminars demonstrate consistently high satisfaction. Slides from most seminars are available at the FDD website. Three of the speakers came from outside BUMC:

- Janet Bickel, a leadership coach and member of the ELAM Consultation Alliance
- Dr. Beverly Brown, chief development officer for the Center for Integration of Medicine and Innovative Technology
- Dr. Daniel O'Connell, clinical instructor in Department of Psychiatry and Behavioral Sciences at the University of Washington Medical School.

During 2009-2010, the Faculty Development and Diversity Committee awarded funds to the following faculty:

<b>Recipient</b>	<b>Program</b>
Thomas Barber	<u>American Academy on Communication in Health Care ENRICH course</u>
Peggy Chou	<u>Alliance for Academic Internal Medicine</u>

	<u>Executive Leadership Program</u>
Andrea Coviello	Frontiers of Clinical Investigation Symposium
Francis A. Farraye	Boston University Pocket MBA for Physicians
Alan Farwell	Boston University Pocket MBA for Physicians
Craig Gordon	Harvard Macy Program
Naomi Hamburg	<u>AAMC Early Career Women Faculty Professional Development Seminar</u>
Andrea Kronman	<u>AAMC Early Career Women Faculty Professional Development Seminar</u>
Sandra Looby-Gordon	AAMC Minority Faculty Career Development Seminar
Katherine Lupton	McMaster University Workshop “How to Teach Evidence Based Clinical Practice”
Reiko Matsui	The Aging & Healthy Lifespan Conference through the American Federation for Aging Research
Flora Sam	AAMC Mid-Career Women Faculty Professional Development Seminar
Daniel Simpson	<u>American Academy on Communication in Health Care ENRICH course</u>
Margaret M. Sullivan	Boston University Pocket MBA for Physicians
Muhammed Syed	Academic Hospitalist Academy: Essential Skills Program
Renda Soylemez Wiener	<u>AAMC Early Career Women Faculty Professional Development Seminar</u>
Xuemei Zhong	<u>AAMC Early Career Women Faculty Professional Development Seminar</u>

Website: <http://www.bumc.bu.edu/facdev-medicine/>

- As the result of focus groups with representative faculty members, Dr. Cahn revamped the Faculty Development and Diversity website to provide more robust content in a more accessible format. He added separate portals for researchers, clinicians, and educators that collect the most relevant resources on a single page.
- A new section devoted to professionalism highlights the Department’s code of ethical conduct. [See <http://www.bumc.bu.edu/facdev-medicine/key-documents/professionalism/>]. He has also provided dynamic content through a regularly updated blog and Frequently Asked Questions page.
- The revamped site has drawn 342 unique visitors and over 5,000 page views since its launching in mid-April 2010.

New Faculty: <http://www.bumc.bu.edu/facdev-medicine/key-documents/joining/>

- The Department hosted two orientations for newly hired faculty over the past year. The two-hour events featured presentations by departmental leadership and opportunities for small-group interaction.
- Attendees received a self-evaluation tool developed by members of the Faculty Development and Diversity Committee to help map their academic advancement. They also learned about an onboarding document available on the website that contained a comprehensive outline of the necessary steps to begin clinical and research activities.

- Finally, the Director of Faculty Development and Diversity worked with the Chair of the Department to draft a welcome letter sent to all incoming faculty. The letter points new members of the Department to on-line resources and assigns them a liaison in their section to facilitate the transition to Boston University.

Awards: <http://www.bumc.bu.edu/facdev-medicine/awards/>

- The Department added two annual awards to recognize outstanding citizenship and exceptional junior faculty mentoring. They join existing departmental awards in research mentoring and special recognition teaching that are decided by an awards committee based on nominations.
- Faculty, fellows, and residents also receive recognition through four awards voted on by housestaff.

	<b>Research Mentoring</b>	<b>Special Recognition Teaching</b>	<b>Outstanding Citizenship</b>	<b>Junior Faculty Mentoring</b>	<b>Hospital-based Faculty Teaching</b>	<b>Community-based Faculty Teaching</b>	<b>Fellow Teacher of the Year</b>	<b>Ariel Weisman Resident Teaching</b>
2009	Rebecca Silliman Ramachandran S. Vasan	Lewis Weintraub Jay D. Orlander	George Rosenthal	Kenneth Albrecht	John J. Ryan	Jessie Gaeta	Themy Dumlao Peter Grayson	Jana Montgomery

Diversity: <http://www.bumc.bu.edu/facdev-medicine/diversity/>

- An interest group of Lesbian, Gay, Bisexual, and Transgendered faculty began monthly meetings in February 2009. They continue to develop ideas for making the Department more welcoming of sexual minorities, improving patient care, and building outreach to the community. To that end, the Department contributed \$1,000 to the Gay Men's Domestic Violence Project, a non-profit organization based in Cambridge.
- The Department of Medicine hosted two diversity dinners in the last academic year to discuss how to recruit, retain, advance, promote and create a vital work life for a diverse faculty.
- The Vice Chair and the Director of Faculty Development and Diversity convened a focus group of female junior faculty to brainstorm ideas for supporting women on the faculty.

#### Resources

- The Director of Faculty Development and Diversity maintains a library of books and CDs of materials relevant to professional growth. It includes 25 titles on topics ranging from grant writing to leadership skills. The complete list is available on the website, and over a dozen faculty checked out items from the library over the past year.
- In December 2009, the Department also sponsored membership in Parents in a Pinch backup childcare service. In just a few months, faculty used the service 15 times.

#### Departing Faculty

For the first time in the history of the Department, departing faculty members are asked to participate in completely anonymous exit interviews. The confidential conversations reveal trends that can help stem faculty attrition. The Director of Faculty Development and Diversity reports general trends each quarter to the Department leadership.

#### Faculty composition

The department has 372 full-time faculty, of whom 44% are women and 8.3% are under-represented minorities.

#### Fair Expectations for Faculty and Trainees

The department's faculty have instituted a set of **“Fair Expectations”** for faculty and trainees to more clearly articulate departmental standards of behavior, professionalism, integrity, and respect (<http://www.bumc.bu.edu/facdev-medicine/files/2010/05/FairExpectations100405.doc>). These efforts are intended to fortify the sense of community in the department and to realize our collective commitment to the highest values of academic medicine.

#### Summary

The 2009-10 academic year was one of extraordinary accomplishments by the faculty and trainees of the department. I am reminded on a daily basis of the extraordinary privilege of working with such talented and creative individuals in this department. The unflagging sense of community, generosity, and excellence among the faculty in our department is a source of inspiration and gratitude. These qualities will serve us well as we seek to meet the challenge of providing leadership in discovery, clinical care, and education in the years ahead.

David Coleman, M.D.