

September 19 , 2012

Annual Report for 2011-12
Department of Medicine
Boston University School of Medicine
Boston Medical Center

The Department of Medicine completed a very successful academic year in 2011-12. As outlined below, the department's clinical and research programs continued to grow in size and improve in quality. The training programs successfully competed for diverse and outstanding trainees, both in the department's residency program as well as the subspecialty fellowships. The following report summarizes achievements in Clinical Care, Research, Education, and Faculty Development.

Research Activities

Under the leadership of **Barbara Corkey, Ph.D.**, Vice Chair for Research, progress and achievements in research during the 2011-12 academic year have been quite noteworthy.

Final figures regarding the Department's research funding for 2011-12 are not yet available but funding of new grants through BUSM based faculty appears to have increased and for BMC-based faculty appears to have decreased relative to the 2010-11 academic year.

The department funded **15 pilot grants in 2011-12** 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 also awarded **bridge funding to five faculty**.

Under the direction of **Katya Ravid, Ph.D., D.Sc.**, the Evans Center for Interdisciplinary Biomedical Research (ECIBR) funded Affinity Research Collaboratives (ARCs) that include the Mitochondria Consortium, Protein Trafficking and Neurodegenerative Disease, Sex Differences in Adipose Tissue Remodeling, Obesity and Cancer, iPS-Driven Tissue Regeneration (Boston University iPS Bank), Calcium Homeostasis in Health and Disease, Arterial Stiffness, and the Atrial Fibrillation Initiative. Two new ARCs were introduced this year: Nanotheranostics and Metabolic disease and Adipose Tissue: Studies in Patients Undergoing Bariatric Surgery. (<http://www.bumc.bu.edu/evanscenteribr/the-arcs/the-arcs/>). In addition, two new Pre-ARCs have been introduced: Genomic and Computational Models of Environmental Chemical Carcinogenicity and another on Biomechanics and Osteoarthritis (see: <http://www.bumc.bu.edu/evanscenteribr/pre-arcs/>). During the past academic year, the following achievements of the ARC's are notable: 184 co-PI publications; 48 funded grants involving co-PIs and one PPG (out of 97 applications); and participation by 63 graduate students and 30 post doctoral fellows. From a total of 150 participating faculty, 28 have primary appointments in basic science and other departments at BUSM, 83 in the Department of Medicine, 5 in the dental school, 9 in the School of Public Health, 25 in

departments based at the Charles River Campus, and a total of 25 collaborators are from outside of BU. The ECIBR initiated new interdisciplinary courses in Principles in Nanomedicine and Biological Core Technologies. In addition, the ECIBR worked closely with **Drs. Bennett Goldberg** (Director, BU Nanoscience Center) and **Douglas Faller** (Director, BUMC Cancer Center) to secure a NCI-funded Cancer Nanotechnology Training Center (R25). The ECIBR also worked with Dr. Bennett Goldberg to organize a new mentoring initiative for trainees affiliated with NIH-sponsored T32 training programs in Cardiology and Pulmonary.

In 2009-10, the department established a new section under the direction of **Avi Spira, M.D. - Computational Biomedicine** – the first such section in a Department of Medicine. This new section serves as an important home for research and training in genomic and computational approaches to disease pathogenesis, diagnosis, and treatment. The section's faculty and trainees use high-throughput technologies (i.e., microarray and next generation sequencing) to generate genome-wide data sets that are then analyzed with state of the art computational tools. Over the past academic year, recruitment of new faculty and trainees was completed. The section now has **nine faculty and \$20 million of direct research funding**.

In September, 2008, the department established three instrumentation cores, Analytical Core, Animal Phenotyping Core, and Cellular Imaging Core. In 2010-11, **use of these cores by faculty and staff from in and outside the Department of Medicine dramatically increased from 76 PI's in 2010-11 to over 100 in 2011-12, with an increase in hours from 20,000 in 2010-11 to a total of 40,000 hours. A total of 36 grants were submitted using these core resources of which 17 were funded for a total of over \$35 m.** Four additional infrastructure and instrumentation grants were also submitted. A new departmental **Biostatistics Core was established in 2010-11** under the direction of **Janice Weinberg, Ph.D.** Based on heavy use of this core in the first year, the core was expanded in the 2011-12 academic year. The department also partially supported staffing of the Bioinformatics core and Clinical Research Resources Office of the Clinical Translational Sciences Institute.

The **Research IT office** under the direction of **John Meyers, Ph.D.** completed a major infrastructure improvement project in the 2011-12 academic year resulting in high performance, dedicated storage for research data. This system is compliant with all regulatory requirements for protection of patient privacy and supports research use from basic document storage to high performance computing applications. A second array, optimized for block storage, supports a virtualized server infrastructure.

The department made two Evans Junior Faculty Research Merit Awards to recognize Assistant Professors with exceptional promise as independent investigators. The **2011-12 Robert Dawson Evans Junior Faculty Merit recipients** were **Alex Walley, M.D.** from the Section of General Internal Medicine and **Renda Weiner, M.D.** from the Section of Pulmonary, Critical Care and Allergy Medicine.

Clinical Activities

Under the leadership of **Raj Krishnamurthy, M.D.**, Vice Chair for Outpatient Medicine, the department's clinical activities continued to grow during 2011-12. The **department's faculty increased wRVU's to 725,221- a 1.8% increase compared to 2010-11.** This growth is attributable to increased productivity by individual providers, and to improvements in documentation and capture of clinical activity.

The department's revenue cycle management continued to be a major focus for improvement during the past year. **Charges were unchanged despite increased wRVU's but collections increased by 2% to \$32.78 m (excluding Free Care funds).** Physician coding compliance increased from 75% to 84% in 2011-12 and over coding decreased from 11% to 8%. Payment per wRVU increased slightly to \$45.02 from \$44.54 last year. Accounts receivable increased by 3% and days in accounts receivable increased to 36.6 days from 34.6 days. The net collection rate was unchanged at 94% and charge denials fell from 14% to 12%.

Ambulatory Care: The ambulatory practice of the department continued to grow during 2011-12. Overall, **Ambulatory visits (267,741) increased by 3.3% over the preceding year. The access to care for new patient referrals as represented by the number of new patients seen within 15 days of the request in our department's practices increased to 61% in 2011-12 from 55% in 2010-11.**

The ambulatory practices are working to improve access to care for new patients, patient satisfaction, and overall operations and quality of care delivery. Improvements were made in patient flow by streamlining scheduling processes and better telephone access. A new phone call center in the primary care practice has reduced the phone abandonment rate. A major practice reorganization pilot is underway in the department's primary care practice to create a medical home model.

Due to financial constraints, the Department's off site practice at Commonwealth Avenue (BU Medical Group at Commonwealth Ave) was closed during the past year. BMC has assumed responsibility for building the primary care practice there.

Inpatient Care: **The Department of Medicine's number of discharges from the Medical service for the 2011-12 academic year declined by 7% and the length of stay was reduced by 2% to 4.56 days. The Observed:Expected mortality ratio on the inpatient medical service remained steady at 1.0 during 2011-12.**

Quality and Safety: **Karin Sloan, M.D.** was appointed Director of Clinical Quality for the the department in 2011-12. She has led efforts to create section-specific clinical quality projects as well as continuing to focus on reducing mortality on the inpatient medical service. A QI program for medical residents was also refined during the past academic year.

Educational Activities

Medical Student Education: The 2011-2012 academic year was the fourth year of the new model for the core Medicine rotation, comprised of Medicine 1 and Medicine 2. All third year students participate in the 8-week inpatient rotation (Medicine 1) and fourth year students participate in the advanced rotation (Medicine 2) which is primarily based in the ambulatory setting).

Despite, a restructuring of the inpatient teaching services, student evaluations have remained quite high. In addition to working with attendings and house staff on clinical rotations, the personalized attention and small group learning under the direction of **Warren Hershman, M.D.** and the Evans Student Educators have become a very important and popular component of the medical student rotations. Of special note, over 90 % of students rated the learning of foundational and intermediate level clinical skills- including history taking, exam, differential diagnosis, patient management, patient education and the doctor- patient relationship- as good or excellent, with an average of 96 % of students rating the clerkship in these two highest categories.

Residency Program: The 2011-2012 academic year marked a year of change and significant growth in the residency program office. One of the most prominent changes occurred in the leadership of the program. **Dr. Gopal Yadavalli** was appointed Program Director in September of 2011. Three new Associate Program Directors were appointed in July of 2011 - **Drs. Sheilah Bernard, Catherine Rich and Craig Noronha**. A fourth new Associate Program Director, **Dr. Ashish Upadhyay**, was hired in February of 2012. Most recently, **Dr. Rachel Simmons**, was hired as the fifth Associate Program Director in August of 2012. Additionally, a new Administrative Director, and a new Program Coordinator were also added to the team.

Program Match: The Internship Match for the 2012-13 PGY-1 class (41 categorical, 12 preliminary and 5 Primary Care positions) was highly successful. There are 33 women (57%) and 4 under-represented minorities (7%) in the PGY-1 class. Ten percent of the incoming class entered with advanced degrees (PhD and Masters). Additionally, the residents applying for fellowship training following the completion of residency were extremely successful in the fellowship match.

ITE Results: The PGY-1 and PGY-2 classes remained consistently strong in their 2011 In-Training Exam score results relative to the national pool after experiencing significant increases over the previous four years. PGY-3 results increased dramatically in 2011, causing the program's overall percentile rank to increase to the highest it's been in several years.

Senior Resident Academic Day: All of our PGY 3 residents participated in Senior Resident Academic Day, presenting either their original research or a clinical vignette. Senior Resident, **Tufik Assad, M.D.**, received an award for his presentation on Informed Consent. **Jordana Cohen, M.D.** and **John Sloan, M.D.** both received awards for their posters, respectively, on the topics of: Cinacalcet for the Treatment of Hyperparathyroidism in Kidney Transplant Recipients and Thrombocytosis as a Cause of ST Elevation Myocardial Infarction.

VA Patient Safety Fellow: A new non-standard fellowship in Patient Safety and Quality Improvement was approved in 2011, followed by the first PGY-4 candidate beginning in February of 2012. This clinician educator position promotes collaboration in patient safety and quality improvement activities between the VA clinical, administrative and engineering resource center staff, and resident and student trainees.

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

Graduate Program in Molecular Medicine: The GPMM underwent an intense review process designed to optimize the graduate training experience and to take full advantage of the considerable strengths of the department's research programs. The GPMM will introduce a stronger emphasis on the development of skills and experience in translational research in the coming years. The program continues to improve in selectivity and currently has 60 Ph.D. students enrolled in the program. **William Cruikshank, Ph.D.** became the Director of the program in August, 2012.

Graduate Program in Nutrition and Metabolism: The department's graduate program in Nutrition and Metabolism was started in 2009 under the direction of **Susan Fried, Ph.D.** The program now has 20 graduate students and provides both master's and Ph.D. training.

Faculty Development and Diversity Activities

Under the leadership of **Dr. Emelia Benjamin** as Vice Chair of Faculty Development and Diversity, **Dr. Peter Cahn**, Director of Faculty Development and Diversity, and **Dr. Jane Liebschutz**, Chair of the Faculty Development and Diversity Committee (FDDC), the Department has expanded its efforts to nurture a vibrant and diverse faculty. The guiding vision for their activities has been to foster a respectful, creative and collaborative environment that will support the faculty to reach their full potential and maximize their contributions to the educational, research, clinical, and service missions of Boston University, Boston Medical Center, and the Department of Medicine.

The Early Career Faculty Development Program was launched in January 2011. An interdisciplinary committee selected 18 participants from 32 applicants representing 20 academic departments. The curriculum reflected the input of the BUMC Mentoring Task Force, focus groups, and needs assessment survey.

The FDDC designed a curriculum of **21 one-hour professional development seminars**. Participants received Continuing Medical Education credit. On a scale from 1 to 5 where 5 is excellent, the seminars rated an average of 4.5. The **FDDC awarded 27 grants for professional development (\$15,592) to departmental faculty**. In addition, the Faculty Development leadership developed a Chief Resident leadership training curriculum and Minority Outreach initiative.

The faculty development website was also further augmented to aid faculty in identifying professional development opportunities (<http://www.bumc.bu.edu/facdev-medicine/>). The faculty development program has also worked to build and respect diversity within the faculty community (<http://www.bumc.bu.edu/facdev-medicine/diversity/>).

The following members of the department received awards during the 2011-12 academic year:

Research Mentoring: **Emelia Benjamin, M.D.**

Jr Faculty Mentoring: **Alex Walley, M.D.**

Robert Dawson Evans Special Recognition Teaching: **Anand Kartha, M.D.**

Outstanding Citizenship: **Jason Worcester, M.D.**

Faculty composition: The number of faculty decreased by five to 434 during 2011-12 and two faculty were promoted to the rank of Professor (**Drs. Elaine Hylek and Tom Perls**). **The percent of women faculty was steady at 43% and under-represented minorities declined slightly to 3.5%.** The number of women at senior faculty ranks and the number of under-represented minorities among the faculty are both far below departmental goals.

	Women	Percent	URM	Percent	Total
Instructor	39	62	3	4.8	63
Assistant Professor	101	51	7	3.5	199
Associate Professor	26	35	4	5.3	75
Professor	22	23	1	1.1	95
Total	188	43	15	3.5	434

Summary

The 2011-12 academic year was one of extraordinary accomplishments by the faculty, trainees, and staff of the department. Our research, clinical, and educational programs established new benchmarks of achievement. Our research programs continue to enjoy remarkable external grant support and to provide national models for new research paradigms in departments of medicine. We saw remarkable productivity of the affinity research collaboratives of the Evans Center for Interdisciplinary Biomedical Research and use of the department's research cores accelerated during 2010-11. Our clinical programs increased markedly in volume and access for new patients improved. Inpatient mortality (O:E ratio) remained at 1.0. Our residency program continued to increase in selectivity and the residents continue to perform at a high level on the In Training Examination. The student rotations in medicine continue to receive very strong reviews from the students.

I am reminded on a daily basis of the extraordinary privilege of working with such talented and creative individuals in this department. The faculty, trainees, and staff possess an inspiring sense of community, generosity, and excellence. Although much will be demanded of our profession and of all members of our department in the years ahead,

these qualities will assure that we excel in providing leadership in discovery, clinical care, and education.

David Coleman, M.D.