WE TOOK A HARD LOOK AT OUR CURRICULUM FOR THE 21ST CENTURY. AND MADE IT EVEN BETTER.
DEAR FRIENDS,

Albert Einstein once noted, “The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.” At the School of Medicine, the process of our thinking about the curriculum, for both MDs and PhDs, has undergone a transformation. As you will read in this issue, the MD curriculum has evolved over seven years based both on national perspectives on medical education and on BU-specific educational initiatives. Our educational programs more closely reflect our patients’ current health care needs.

The classic model of medical education for the past century (two years of basic science followed by two years of clinical clerkships and electives) has given way to early clinical experiences and the integration of basic science followed by two years of clinical clerkships and electives. Today we are as likely to use small group discussions as large lectures. We continue to teach the core science through small group discussions and Simulation Center until they can skillfully (and confidently) do the procedure rapidly.

Our faculty members are deeply invested in finding ways to present material that facilitates learning: at any given time they are involved in a number of studies on educational interventions, the results of which they present and publish. Students often participate in these studies and sometimes contribute to their design, ensuring that the faculty stays attuned to the student experience and their perceptions.

Dr. Deborah Vaughan, professor of medicine, has significantly modified the histology curriculum and studied the effects of the modifications. She is a true academician and scholar with an intense love of science and teaching and great respect for students. You are probably aware of sequestration and its cuts to Medicare and the budget of the National Institutes of Health, from which we receive hundreds of millions of dollars of grant support. We already have felt the impact of these reductions to our mission of teaching, research, and clinical care: the pace of important research is slowing and we are jeopardizing the careers of the next generation of leaders in science and medicine. We have enacted budgetary adjustments and operational strategies to mitigate the loss of funding as we actively collaborate with our colleagues nationally to let Washington know how devastating the reductions will be to the public health and scientific inquiry.

We greatly appreciate the generosity of the School’s alumni and friends who continue to support our research projects, particularly at times like these when research budgets are endangered. Class of 1965 graduates Douglas and Donna Barnard have contributed to the School for almost four decades, and we are pleased to share their story in this issue.

Thank you for your interest in and commitment to BUMC. With your suggestions, advice, and support, we continue to educate outstanding physicians and make progress in important research.

Best regards,

Karen Antman, MD
Provost, Medical Campus
Dean, School of Medicine
Professor of Medicine
In December 2012, child care services became available on the BU Medical Campus (BUMC). Located on the ground floor of the new medical student residence at 815 Albany Street, the center provides child care slots in the early education program that are available to Medical Campus employees and students, members of the BUMC Residency Programs, BU Charles River Campus employees, and Boston Medical Center employees. The program is run by Little Sprouts, which was established in 1982 and currently has 16 early education schools across Massachusetts and New Hampshire. The Little Sprouts philosophy focuses on teaching children critical social-emotional skills—including problem-solving and independence—through interactive learning and collaborative play to help them develop a lifelong love of learning. Little Sprouts takes a child-centered, individualized approach to education; children are actively engaged in their learning, and their interests, learning styles, and preferences are considered in every day’s planning. The US Department of Education has honored the Little Sprouts program with its Early Reading First, Preschool Centers of Educational Excellence Award for nine consecutive years.

For more on Little Sprouts, visit www.littlesprouts.com. For specific information about the program being offered on the BU Medical Campus, please call 877-977-7688.

“After two decades of exploring child care options for the Boston University Medical Campus, we are pleased to be able to offer this service to members of our community,” said Dean Karen Antman, MD. “Housing the program in our beautiful new student residence is an added plus for the children being cared for and for the students living in the building.”

**BU Elected to Association of American Universities**

The Association of American Universities (AAU) has elected Boston University to membership. A nonprofit organization founded in 1900 to advance the international standing of US research universities, the association consists of the 62 leading public and private research universities in the United States and Canada.

“The decision by the AAU’s current members to add Boston University to their ranks is a tangible validation of the quality and impact of our doctoral research programs and of the research and scholarship of our faculty,” said President Robert Brown in announcing the election to the University community. “This news is a major milestone in Boston University’s history.”

AAU extended the invitation to Boston University following an in-depth review of the University’s research and academic programs by its Membership Committee. “Boston University is an outstanding institution that belongs in AAU by virtue of the strength of its research and academic programs,” AAU President Hunter R. Rawlings said. “AAU universities play an essential role in America’s research enterprise and in educating the nation’s young scientists, engineers, and scholars. Boston University is a welcome addition to the ranks of these leading research universities.”

The other Massachusetts-based members are Harvard University, the Massachusetts Institute of Technology, and Brandeis University. The AAU focuses on issues critical to research-intensive institutions, such as research funding and policy, and the direction and quality of graduate and undergraduate education. You can view the list of AAU’s current membership at www.aau.edu.

Dean Karen Antman, MD, congratulates Class of 2013 AOA inductee Anunita Garg.

Thirty Class of 2013 BUSM students were recognized for their leadership, character, community service, and professionalism as inductees into the national medical honor society Alpha Omega Alpha (AOA). Also inducted was BUSM faculty member Gregory Griftons, MD, associate professor and vice chair of the Department of Otolaryngology—Head and Neck Surgery; and two alumni, orthopedic surgeon Timothy Foster, MD ’16, and dermatologist Kaye Koe, MD ’93. Three housestaff inductees from Boston Medical Center, Jonathan Hatan, MD, Nora Lee, MD, and Victoria Pimentel, MD, were recognized as well. AOA is dedicated to the belief that the medical profession’s quality of patient care is improved by recognizing high educational achievement, honoring gifted teaching, encouraging the development of leaders in academia and the community, supporting the ideals of humanism, and promoting service to others.
Alumnus Appointed to Dean's Advisory Board

BUSD joins forces to meet veterans' health care needs

ANGELA JACKSON, MD, APPOINTED ASSOCIATE DEAN, STUDENT AFFAIRS

The effort provides veterans and their families with health care opportunities and support.

Ann McKee, MD, lectured on chronic traumatic encephalopathy (CTE) and the impact of blast injuries on neuropathology. There have been additional lectures on PTSD, depression, and substance abuse.

In conjunction with Navel Week last June, BUSM and VA-BHS co-sponsored an inaugural PTSD and TBI conference featuring poster presentations on cutting-edge PTSD and CTE research conducted at area medical institutions. Rear Admiral Elaine Wagner and James Kelly, MD, presented “The Naval Response to PTSD and TBI.” With one hundred-plus participants and more than 35 posters, the experience served to foster the Joining Forces educational initiatives and bring together researchers, educational leaders, and students.

BUSD also assists with the dissemination of clinical knowledge through online lecture postings on the Joining Forces Collaborative site.

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Respecting Students

Deborah Vaughan: Teacher, Mentor, Leader

Not much slows down Deborah Vaughan. The longtime BU School of Medicine (BUSM) professor of anatomy and neurobiology joyfully puts in 12-to-14-hour days teaching and advising current students as well as interviewing and selecting students for admission to the School. She also designed and maintained her department’s website for five years before a professional web editor took it over. A veteran of traditional teaching methods, Vaughan welcomes new technologies that advance teaching and learning and leads several School and University committees tasked with determining the best technology tools.

Vaughan has received every major teaching award at BUSM. Her great respect for students is the hallmark of her academic engagement. “I tell new faculty that the first thing you must have is respect for the students,” she says. “Respect for who they are, for their time, and respect for what they are asked to accomplish.”

While diverse learning styles is a relatively new phenomenon in education theory, Vaughan has been adjusting her teaching methods to accommodate students for a very long time. “I am very organized, and when I become too rigid in my teaching presentations to someone who is a random thinker, they can become frustrated,” she says. “I realized many years ago that to be successful with students I needed to try a variety of ways of communicating. Now I work to help other faculty members use the most appropriate methods and encourage them to hone their skills in this way.”

Mark Moss, PhD, a member of the Department of Anatomy and Neurobiology since 1982 and department chair for 15 years, has known Vaughan for a good portion of her academic career. “Dr. Vaughan is the consummate educator,” he says. “Her ability to make subject matter interesting and relevant and to convey information in an efficient and durable manner—coupled with her commitment to the discipline and professionalism—is unparalleled. Her prowess as an educator has been recognized by her colleagues and students with eight teaching awards, including the Stanley Robbins award, the most prestigious conferred by the School of Medicine.”

Vaughan never planned to teach or work in the field of human medicine. “As a child, I wanted to be a veterinarian, but women just didn’t go into that field then,” she recalls. “And frankly, I was from a family where women weren’t expected to aspire to a career.”

As a high school student in Concord, New Hampshire, she trained horses for dressage events and taught equitation. “Once I was asked if I aspired to be a teacher and I said no, but then I recalled that from about the ninth grade, I was teaching horses to perform very specific movements and people the skills to read and communicate nonverbally with the horses,” she says.

Vaughan attended the University of Vermont as an undergraduate in a medical tech program majoring in biology. “While it became apparent that I enjoyed science and research, I didn’t want to go into medicine because I am one of those people who feel uncomfortable around sick people and in hospitals,” she says.

She completed her PhD in biology at Boston University in 1971 and a post-doctoral fellowship in neuroanatomy with Alan Peters, then chair of the BUSM Department of Anatomy. In 1972, she joined an interdisciplinary program project on aging and the nervous system (headed by F. Marott Sinex, chair of the Department of Biochemistry from 1957 to 1977) focusing on neuroscience and connective tissue and the effects of advancing age.

“At that time, aging research was not very highly thought of,” says Vaughan. “Our work was one of the first to apply the rigor of quantitative science to this area, and the project, now focusing on anatomy and behavior, is in its fortieth year of research. We made significant contributions to early aging studies.” Vaughan eventually studied peripheral nerve regeneration under her own National Institutes of Health (NIH) grant, focusing on how advancing age affects the ability of neurons to regenerate peripheral axons.

In 1996, Peters asked Vaughan to direct the histology courses for the anatomy and neurobiology department, which meant giving up her research. “Once I was asked if I aspired to be a teacher and I said no, but then I realized that from about the ninth grade, I was teaching horses to perform very specific movements and people the skills to read and communicate nonverbally with the horses,” she says.

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In 1996, Peters asked Vaughan to direct the histology courses for the anatomy and neurobiology department, which meant giving up her research to focus on teaching—and she’s been engaged by it ever since.
Since “I love to see the student who gets excited by the beauty of medicine— who can go from viewing the vocabulary of black dots to nuclei and cytoplasm when they see something on their computer screen that clicks for them.” She cites the student who hands her a journal article that he or she now understands because of the vocabulary and concepts learned in Vaughan’s class and from her lectures, and the one who recently sent her a link to a website featuring dinner plates with histological designs on them that both agreed were beautiful. Vaughan notes the changes in medical student demographics and medical education. “Twenty-five years ago, our students were mainly male Caucasian with a very intense premedical education that included comparative anatomy, embryology, and physiology,” she says. “With a homogeneous, pre-trained student population, faculty could be laboratory based and lecture on their research, which didn’t necessarily have much to do with the context of the course they were teaching.”

“Now that we have recognized our population of physicians should be a more diverse group socioeconomically, by gender, academic background, race, and religion, we have to be more professional in our approach to teaching. We have to know about different learning styles, about the neurobiology of learning, and how the information we are teaching will be used clinically.” She also emphasizes the richness that comes from having a diverse student population and the effect it has on faculty, students, and—most importantly—the patients who will be cared for by these physicians.

Continually trying of ways to improve her teaching, Vaughan revamped the process by which histology is taught at BUSM. “Back in the mid-90s, we decided to hold labs before lectures so that the students would know the vocabulary and would have invested some time in the material before coming to the lecture,” she says. “They would be familiar with the microscopic images, making them better prepared for the lecture and allowing class time to be spent talking about the clinical relevance of what they had been looking at and studying.”

Vaughan has been a leader in adopting innovative technology that advances teaching and learning. She notes that virtual microscopy, whereby digitalized microscope slides can be manipulated as if in a microscope but are viewed on a computer, has revolutionized histology; any number of students can view slides independently from anywhere, enabling them to study together more easily. “With virtual microscopy, students can take a screenshot, email it to me, and then get their questions answered quickly,” she says. She also cites technologies like the audience response system that offers immediate feedback to faculty on how well students understand their lectures, and Blackboard, the learning management system where faculty can manage all of their course materials online and students can access them anytime. “So many of these technologies involve opportunities for self-study producing lifelong learners, which is what we want our students to be,” she says. She also pioneered the adoption of computer-based examinations for the pre-clerkship years of medical school.

At the same time, she is cautious about technology—students no longer have to attend class as all lectures are videotaped—and worries that they are losing some face-to-face communication skills by missing the facial expressions and body language so important to the practicing physician. “They tend to interact in a virtual way, so my concern is that technology is allowing them to miss out on an important aspect of our complete education. We can’t force them to come to class, so my current push is to encourage our faculty members to make our lectures value added—give them spontaneity, make them interactive, and provide some clinical context that excites discussion.”

What she does must be working, as students rate her very highly. “This is an amazingly well-run course,” writes a student evaluating Vaughan’s class. “I never thought histology would be even remotely interesting, and somehow Dr. Vaughan made the topic not only interesting but relevant to our future practice.” Another writes, “Dr. Vaughan is amazing, and a very devoted and knowledgeable professor.” She is also highly regarded by her colleagues. “Debbie Vaughan is an exceptional person, a true teacher, a wonderful colleague, and an outstanding educator,” says Jarrett Bushmore, PMH assistant professor of anatomy and neurobiology. “Her effectiveness as a professor comes in part because she is willing to work harder than anyone for her students. She is constantly adapting and improving her teaching, and she incorporates new technology and technology that to end. I think what really makes her a first-rate professor is that she fundamentally believes that education is not simply about imparting knowledge, but lies more in challenging students (and colleagues) to be more than they are. She is high and clearly stated expectations of her students—she gives them the tools to achieve their goals and guides them with devotion and unfailing energy. Her students invariably find that over the course of the semester, they are able to achieve at levels they did not think previously possible, and they are better for having taken her course.”

Vaughan credits BUSM with supporting and promoting faculty dedicated to teaching. “This demonstrates a true commitment to the mission of medical education,” she says. When Vaughan is not teaching or mentoring, she is reviewing applications and interviewing potential students. A member of the Admissions Committee for 17 years and an assistant dean of admissions for 10, Vaughan is extremely familiar with the student body. “I know how exceptional our students are, and faculty need to understand the breadth of experience they have and how accomplished they are,” she says. “In all fairness, we also have to be explicit about our expectations and realize that understanding doesn’t come easily and immediately to everyone at the same pace.” She also worked for 10 years with the Admissions Office and IT to develop and implement an automated admissions information management system.

“Over the last decade, BUSM has taken a lead role, at the national level, in advancing a program of holistic review of all applicants, and Dr. Vaughan has been a key member of the leadership team,” says Robert Witzburg, MD, BUSM associate dean for admissions. “She is a role model, and we all have developed great respect for her integrity, her commitment, and her ability to find innovative solutions to complex problems.”

Vaughan is always in great demand. In addition to her many other activities, she serves on the BUSM Student Services and Medical Education Committees, is an advisor in the Academy of Advisors, and chairs the Pre-clerkship Curriculum Subcommittee. She has also served as thesis advisor in the Master of Medical Sciences Program for the Division of Graduate Medical Sciences, has been a Phi Beta Kappa research committee member for 11 students, and serves on the MD-PhD Steering Committee and the Planning Committee for the Neuroscience of Education Program. Her all-University commitments include co-chairing the Teaching and Learning Technologies Governance Committee and membership in the University Committee on Student Life and Policies.

“I have known Debbie Vaughan for 17 years,” says Doug Hughes, MD, associate dean for academic affairs. “She is a luminary who has graciously mentored generations of both medical students and junior faculty. Debbie’s modesty is matched only by her brilliance.”

Vaughan says she has remained at BU for 40 years because she feels she is in sync with the philosophy of the institution: “I love the attitude of doing your best for others, the quality of the students, and my colleagues. This is one very satisfying job, and I thoroughly enjoy it.”

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At Boston University School of Medicine and its Division of Graduate Medical Sciences (GMS), changes in educating future physicians and scientists to accommodate this new reality are reflected in curriculum revisions and enhancement of both the medical and doctoral degrees. Key to these changes is integrating knowledge fields and interdisciplinary approaches to teaching and learning.

The Integrated Curriculum—Preparing 21st-Century Clinicians

> The lifelong practitioner of medicine needs to apply an integrated understanding of contemporary medicine in a professional manner to the care of the individual within the patient’s personal, cultural, socioeconomic, and health care system context.

Clinical Skills Curriculum for Undergraduate Medical Education, Association of American Colleges Task Force on Clinical Skills Education of Medical Students

The explosion of medical knowledge and technology advances, and the re-evaluation of the physician’s role in patient care and the patient’s role in his/her own care has catalyzed the implementation of curricular changes in medical student education. The information and technology physicians must master to prevent and treat disease continually advance, requiring new approaches to preparing physicians for caring for patients.

The changing nature of the nation’s health care system as well as the growing diversity of the US population—which is reflected in the corresponding growing diversity of the medical student population—adds to the need for new educational strategies to provide effective learning opportunities and structures to support lifelong learning.

Traditionally, undergraduate medical education has been divided along the lines of two years of pre-clinical acquisition of discipline-based, basic science knowledge lacking in clinical context, while the third and fourth years are spent in clinical rotations not explicitly linked to previously learned basic science. Medical students could enter their clerkship years with little clinical experience and few clinical skills—not the optimal situation for the students or their patients.

Recognizing these limitations and the shift in teaching and learning theory and practice, BUSM began a curriculum reform initiative more than seven years ago that continues as a dynamic process to offer students learning opportunities to present medical knowledge that is clinically relevant starting on the first week and spanning the four years of their medical education.

“We have worked hard to bring horizontal and vertical integration of the curriculum, incorporating greater clinical experiences and training in the first two pre-clerkship years and reintroducing core basic sciences in the two years of formal clinical training,” says Douglas Hughes, MD, associate dean for academic affairs and professor of psychiatry. “Horizontal integration brings together the traditional disciplines with topics discussed across courses and vertical integration of basic science with early clinical experience and ongoing inclusion of science in the clerkship years.

“The integrated model prepares students to be lifelong learners, increases their understanding of biological principles and their clinical context, promotes teamwork among the different health care disciplines, and better utilizes technology to support learning,” adds Hughes, who is also the Ramsey Professor of Medicine.

The disciplines of gross anatomy, histology, human behavior in medicine, biochemistry, physiology, genetics, neuroscience, endocrinology, and immunology remain the core of the first-year curriculum, but faculty incorporate the clinical relevance of the material with case-based discussions in both lectures and small groups. Direct patient contact is offered in the Introduction to Clinical Medicine course, where students learn interviewing and physical exam skills.

“The clinical exposure first year is fantastic, and the strong focus on clinical skills in addition to the strenuous academic program is part of what drew me to BU,” says Thomas Dohle, a first-year student. “Overcoming my initial discomfort early on with some aspects of patient interaction has made me much more confident. Introduction to Clinical Medicine is my weekly reminder of why I’m going into medicine. It’s easy to get bogged down with the massive amount of information that first-year medical students have to learn, so having a weekly chance to actually interact with patients and develop the interpersonal skills that we will need as physicians is great.”

Introduced in 2008, the second-year curriculum, Disease and Therapy (DRx), treats the pathophysiology and treatment of disease in an integrated, organ-based course along with the continuation of clinical medicine and integrated problems courses. Modules address diseases of the cardiovascular system; lungs, kidneys, joints, and connective tissue; the gastrointestinal system; the endocrine and reproductive organs; skin; and the nervous system and psychiatric disorders; and oncology is taught in conjunction with hematologic and the re-evaluation of the physician’s role in patient care and the patient’s role in his/her own care has catalyzed the implementation of curricular changes in medical student education. The information and technology physicians must master to prevent and treat disease continually advance, requiring new approaches to preparing physicians for caring for patients.

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![Creating the Right DRx](https://via.placeholder.com/150)
The required clerkships in third year are now aligned to maximize continuity and clinical relevance. Pediatrics and ob-gyn are offered back to back, and family medicine and psychiatry overlap as well, while surgery and radiology are linked, as are medicine and neurology. Fourth year remains dedicated to electives, with opportunities for experience with global health programs and underrepresented populations.

"An integrated approach to medical education makes sense on many levels as the models of disease and treatment that we begin to build throughout first- and second-year training are based on an integration of our knowledge of physiology, pathology, pharmacology, microbiology, etc.," says second-year student Justin McCool. "The integrated DP curriculum facilitates building these models by presenting the essential elements of disease and treatment as a complete picture rather than a single piece of a large and complex puzzle."

"To keep a check on how effective the curriculum is at preparing BUSM students for medical practice, certain metrics are tracked. Hughes notes that the first-attempt pass rate for the Step 1 of the US Medical Licensing Examination (USMLE) increased from 90 percent four years ago to 98 percent last year and for Step 2 of the USMLE, students have a 99 percent pass rate on the first try. In the senior survey, graduating students now indicate a much higher satisfaction with their basic science and clinical courses as well as with their overall education and the School. "One of the most important metrics we use to evaluate our medical education program is the survey of residency directors of our graduates about what they are preparing to do at the end of residency," says Hughes. "Our students are performing very well and are highly rated by good doctors as these directors. This is a very positive endorsement of what we are doing."

In addition to curricular changes to create a more cohesive and effective way to teach science, the School has identified faculty and recruited teaching scholars whose major responsibility is teaching and who have the expertise and command of learning theory to best communicate with students. "We now have an educator track along with clinician and research needs and values of this institution. We are training the next generation of scientists: Foundations in Biomedical Sciences (FIBS)." says Shoumita Dasgupta, PhD, codirector of FIBS and an associate professor and the associate director of the Genetics and Genomics Program. "We are in the vanguard," says Hughes. "But we must be vigilant and adaptive, as medical education does not exist in a vacuum. It is a dynamic enterprise."

Training the Next Generation of Scientists: Foundations in Biomedical Sciences

Several years ago Linda Hyman, PhD, associate provost of the Division of Science, "scientific inquiry has become the hallmark of how we ask students to think about these problems," says Hyman. "The imperative behind this undertaking has been to create a curriculum based on the foundational principles that are inherent in our graduate program, give the sense of community in our graduate student body, and have a more efficient interdisciplinary way of teaching and learning." The result is a core curriculum named Foundations in Biomedical Sciences (FIBS).

There are 14 doctoral programs of study in GMS, each with its own independent curriculum. This requires students to have a foundation of knowledge of other disciplines. For example, a student in the Genetics and Genomics Program is required to have a foundation in biochemistry, while students in the Department of Biochemistry need a basic understanding of the principles of immunology and genetics. According to Hyman, the program evaluation opened a debate about what concepts of biomedical science are essential for all doctoral students to know, regardless of what discipline they ultimately choose.

During an 18-month period, the Curriculum Revision Committee met weekly to discuss and determine the structure of the curriculum. "We looked at myriad frameworks, like what the National Institutes of Health organize around, how key textbooks are structured, and what curricular strategies colleagues in our peer institutions were using," says Hughes. "The imperative behind this change was that BU has a graduate science program that is focused on the best training the next generation of scientists: Foundations in Biomedical Sciences (FIBS)."

The FIBS curriculum is an integrated modular program of core modules designed for first-year doctoral students. It serves as a foundation for their doctoral education and encourages students to think in an interdisciplinary fashion by coordinating content across courses, programs, and departments. It also is designed to reduce redundancy in course content, decrease lecture hours, and promote collegiality among doctoral students.

There are four core modules in the first year—three in the fall and one in the spring—along with a choice of three additional modules consisting of discipline-specific electives to take an integrated course in another discipline. The modules begin with biochemistry and biophysics in Module I; the structure and function of the genome and how to access and use it follows in Module II. Module III deals with cellular organization, and Module IV focuses on the mechanisms of cell communication, progressing from individual cells to multicellular organisms. Three optional modules examine human metabolism and the impact its dysregulation has on disease; the study of diseases from the physiological standpoint; and translational genomics looking at technology and how it is utilized in the laboratory.

Each module has two course directors from different disciplines who attend every lecture and evaluate each module at its completion. Their extensive involvement supports greater integration of the critical knowledge graduate students are required to master and a key feature of the program. "Opening the channels of communication has been very important," says Dasgupta. "Previously, courses were offered by a department or by a program with a single course director who operated almost unilaterally to meet the needs of only that program’s students. With the new foundations curriculum, we have a core group of course directors across the disciplines who regularly interact and communicate to address the needs of all of our students as beginning scientists."

"We kept at it until we ended up at a place that reflected the needs and values of this institution." — Karen Symes, PhD

Courses, facilitating adjustments in real time and avoiding missed opportunities for teaching and learning. "We had these separate discipline-based courses that no longer mirrored how science is actually done," says Shoumita Dasgupta, PhD, codirector of FIBS and an associate professor and the associate director of the Genetics and Genomics Program. "Modern science is interdisciplinary. We work in teams and people need to be able to cross disciplines and be familiar with the specific nature of experiments and inquiry within those other disciplines."

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$2.5 Million Addiction Training Grant Awarded by Burroughs Wellcome Fund

Researchers from the BU Schools of Medicine and Public Health have been awarded a five-year, $2.5 million training grant by the Burroughs Wellcome Fund to support specialized, multidisciplinary PhD training for addiction scientists.

Lindsay Farrer, PhD, professor of medicine, neurology, ophthalmology, and genetics and genomics and chief of biomedical genetics at the BU School of Medicine (BUSM), and Timothy Heeren, professor of biostatistics at the BU School of Public Health (BUSHPH), will lead the Transformative Training Program in Addiction Science (TTPaS). Farrer codirects the nation’s largest genetics study of cocaine, opiates, alcohol, and nicotine addiction among Caucasians and African Americans. Heeren is currently studying the effects of maternal cocaine use on child development and the impact of alcohol addiction on HIV treatment outcomes.

“Addictions to smoking, alcohol, and illicit drugs are among the nation’s most critical public health and societal problems,” the proposal summary says. “The genetic vulnerability, environmental exposures, and individual behaviors that contribute to the brain dysfunction and compulsive tendencies that mark addiction make it one of the most complicated diseases to study and treat.”

“Some researchers, especially at Boston University, have developed multidisciplinary collaborations, but training addiction scientists is still in its infancy,” said Joseph Mckee, who also is director of the Brain Banks for BU’s Alzheimer’s Disease Center and the CSTE, which are awarded by Burroughs Wellcome Fund. “Although the presence of abnormal deposits of a protein called tau in the form of neurofibrillary tangles, glial tangles, and neuropil abnormal deposits is characteristic of CTE, it is not specific for these conditions—how genetics influence the risk for developing CTE.”

The report provides specific pathological criteria for the diagnosis of CTE and divides CTE into four stages of disease. “This study extends our knowledge concerning the spectrum of the clinical and pathological abnormalities associated with CTE,” said McKee, who also is director of the Brain Banks for BU’s Alzheimer’s Disease Center and the CSTE, which are based at the Bedford VA Medical Center in Bedford, Massachusetts. “However, further studies are needed to investigate critical aspects of this trauma-induced neurodegeneration, including the incidence and prevalence of CTE, whether the symptoms of CTE are distinctive from other conditions; how genetics influence susceptibility or resistance to CTE; and whether other environmental exposures play an additive role in the development of CTE.”

The coleaders will be supported by a large group of established BU addiction scientists in medicine, psychology, neuroscience, pharmacology, biology, psychiatry, social work, engineering, biostatistics, informatics, health services research, and public health who are already linked through multidisciplinary faculty seminars. The Burroughs Wellcome Fund is an independent private foundation dedicated to advancing the biomedical sciences by supporting research and other scientific and educational activities. Within this broad mission, the fund has two primary goals: To help scientists develop as independent investigators early in their careers, and to advance fields in the basic biomedical sciences that are underdeveloped or in need of encouragement.

TTPaS will prepare investigators to apply diverse approaches to addiction research using tools from bench science, medicine, population studies, statistics, and computational biology.
A recent paper by the PD Genome-Wide Association Study Consortium (PDGC) confirmed that an increased risk for PAH was associated with genetic variants in or near the genes SnCa, ALOX15B, and FCGR3A in patients with PAH. The study was supported by the National Institute of Mental Health of the National Institutes of Health and a grant from the Department of Veterans Affairs.

**Gene Linking Cataracts and Alzheimer’s Disease Identified**

BU SM and BUSH investigators have identified a rare genetic variant that is associated with both cataracts and Alzheimer’s disease. The finding, published online in PLOS ONE, contributes to the growing body of evidence showing that these two diseases, both associated with increasing age, may share common etiologic factors.

Gyungah Jun, PhD, from the departments of medicine, ophthalmology, and bioinformatics at BUSM and BUSH, served as the study’s lead author.

Using the Framingham Offspring Eye Study cohort, investigators looked at brain magnetic resonance imaging (MRI) findings on or after 10 years from the original eye exam and concluded that there was a significant correlation between a quantitative measure of cortical cataract and several Alzheimer’s disease-related measures of brain degeneration, in particular volume of the temporal horn, a brain structure that is progressively involved in the disease.

“Though much work remains to be done, a link between cataracts and Alzheimer’s disease supports the idea of a systemic rather than brain-limited focus on premature aging leading to Alzheimer’s disease,” said Lindsay A. Farrow, PhD, BUSH professor of medicine, neurology, ophthalmology, genetics & genomics, epidemiology, and bioinformatics, chief of the Biomedical Genetics Section, and the study’s senior author.

“This study gives us hope that we are moving toward earlier diagnosis and new treatment targets for this debilitating disease.”

This study was supported by grants from the National Institute on Aging for investigated-initiated projects and the Boston University Alzheimer Disease Center, National Institute of General Medical Sciences, Wellcome Trust, Medical Research Council, Canadian Institutes of Health Research, Alzheimer Society of Ontario, and Ontario Research Fund.

**Pathology of Huntington’s Disease Identified**

A study led by BUSM researchers provides fresh insights into the impact that Huntington’s disease (HD) has on the brain. The findings, published online in Neuron, pinpoint areas of the brain most affected by the disease and open the door to understanding that Huntington’s disease.

Research in Brief

The study, published in Genome Medicine, also demonstrates the potential impact of using genomic technologies to identify new possible treatments for diseases using existing drugs and compounds.

**New Gene Linked to PTSD Identified**

Investigators at BUSM and Veterans Affairs (VA) Boston Healthcare System have identified a new gene linked to post-traumatic stress disorder. The findings, published online in Molecular Psychiatry, indicate that a gene known to play a role in protecting brain cells from the damaging effects of stress may also be involved in the development of PTSD.

The study reports the first positive results of a genome-wide association study (GWAS) of PTSD and suggests that variations in the retinoid-related orphan receptor alpha (RORA) gene are linked to the development of PTSD.

Mark W. Miller, PhD, BUSM associate professor and a clinical research psychologist in the National Center for PTSD at VA Boston Healthcare System, was the study’s principal investigator. Mark Logue, PhD, BUSM research assistant professor of biomedical genetic, and Clinton Baldwin, PhD, BUSM professor of biomedical genetics, were co-first authors of the paper.

Previous GWAS studies have linked the RORA gene to other psychiatric conditions, including attention-deficit hyperactivity disorder, bipolar disorder, autism, and depression.

“Like PTSD, all of these conditions have been linked to alterations in brain functioning, so it is particularly interesting that one of the primary functions of RORA is to protect brain cells from the damaging effects of oxidative stress, hypoxia, and inflammation,” said Miller. “These results suggest that individuals with the RORA risk variant are more likely to develop PTSD following trauma exposure and point to a new avenue for research on how the brain responds to trauma.”

This study was supported by the National Institute of Mental Health of the National Institutes of Health and a grant from the Department of Veterans Affairs.

86 percent of medical school graduates had education debt at graduation averaging $161,290, the highest total to date.

Boston University Clinical and Translational Science Institute. Researchers from the University of British Columbia, the University Medical Center Groningen (Netherlands), and the University of Pennsylvania also collaborated on this study.

“Potentially Key to halting emphysema Progression, Reversing Damage Identified”

A study led by BUSM researchers provides fresh insight into the impact that Huntington’s disease (HD) has on the brain. The findings, published online in PLOS ONE, contribute to the growing body of evidence showing that these two diseases, both associated with increasing age, may share common etiologic factors.

Gyungah Jun, PhD, from the departments of medicine, ophthalmology, and bioinformatics at BUSM and BUSH, served as the study’s lead author.

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Adenosine Receptor’s Role in Regulating High-Fat, Diet-Induced Obesity and Type 2 Diabetes

BSUM researchers have demonstrated that the A2B-type adenosine receptor, A2B2AR, plays a significant role in the regulation of high-fat diet-induced symptoms of type 2 diabetes. The findings, which are published online in PLOS ONE, also identify A2B2AR as a potential target for the treatment of type 2 diabetes.

Diets that are high in fat and cholesterol induce changes in how the body regulates blood glucose levels. Exercise induces an increased production of adenosine, a metabolite produced naturally by cells. A2B2AR, a naturally occurring protein receptor found in the cell membrane, is activated by adenosine. This receptor is known to play an important role in regulating inflammation, which is associated with type 2 diabetes.

A novel link was also identified between the expression of A2B2AR, insulin receptor substrate 2 (IRS-2), and insulin signaling. The results showed that the level of IRS-2, a protein that has previously been shown to mediate the effect of insulin, was impaired in tissues of the experimental model lacking A2B2AR, causing higher concentrations of blood glucose. When A2B2AR was activated in the control group using a pharmacologic agent with a diet high in fat and cholesterol, the level of IRS-2 was upregulated, lowering blood glucose.

“The pharmacologic activation of A2B2AR demonstrated its newly identified role in signaling down to the level of IRS-2, a regulator of glucose and insulin homeostasis,” said Myers. “For the first time, we can measure these differences with a very fine level of sensitivity the different people, which are published online in the New England Journal of Medicine, and the study’s lead/corresponding author. Some people with the disease have more difficulty motor control than with their cognitive function, while others suffer more from cognitive disability than motor control issues.

When studying these differences, the investigators noted that the cell death in the striatum is greatly driven by the effects of variations in the Huntington gene itself, while effects on the cortex were minimally affected by the HD gene and are thus likely to be a consequence of other, unidentified causes.

Importantly, the study showed that some people with HD experienced remarkably less neuronal cell death than others.

“One thing that is just one genetic defect that causes Huntington’s disease, the disease affects different parts of the brain in very different ways in different people,” said Myers. “For the first time, we can measure these differences with a very fine level of detail and hopefully identify what is preventing brain cell death in some individuals with HD.”

This research was supported by the National Institute of Neurological Disorders and Stroke and the Jerry McDonald Huntington’s Disease Research Fund.

MRI Use in Osteoarthritis Studied

A BSUM study shows that magnetic resonance imaging detected a high prevalence of abnormalities associated with knee osteoarthritis in middle-aged and elderly patients that had no evidence of knee osteoarthritic features in X-ray imaging.

Prior studies have shown that only half of those with knee pain will have X-ray evidence of osteoarthritis. This study looked at how far to further evaluate a patient’s knee pain if X-rays don’t show evidence of osteoarthritis. It also looked at whether MRI, in these cases, is of clinical value.

This data demonstrates a very high prevalence of MRI-detected osteoarthritic features in knees with no X-ray evidence of the disease."
Awards

Benjamin Wolozin, PhD, BUMS professor of pharmacology and neurology, and Matthew Nugent, PhD, BUMS professor of biochemistry, ophthalmology and biomedical engineering, have been awarded grants from the American Health Assistance Foundation (AHAF) to study age-related degenerative diseases. This marks the first time in more than a decade that BUMS has received an AHAF grant.

The AHAF is a nonprofit organization that funds early-stage research on Alzheimer’s disease. The foundation seeks to eradicate age-related degenerative diseases by advancing research seeking causes, prevention, treatment, and cures; promoting positive behaviors to combat these diseases; and facilitating the public’s efforts to assist those who are affected.

Wolozin was awarded a two-year, $150,000 grant to research RNA binding proteins (RBPs) in Alzheimer’s disease. RBPs regulate the conversion of messenger RNA into protein through the formation of complexes called RNA granules. Cellular stresses induce formation of a particular type of complex, termed stress granules (SGs). By examining SGs, Wolozin has identified a new consequence of Alzheimer’s disease. In this project he will investigate how these SGs might contribute to the causes of the disease.

Nugent, who was awarded a two-year, $100,000 grant, will research macular degeneration. Excess vascular endothelial growth factor (VEGF), a protein that stimulates blood vessel growth, has been shown to be a major cause of unwanted vessel growth into the retina in wet age-related macular degeneration (AMD), a disease of the retina that is the leading cause of blindness in Americans age 65 and older. The wet, or more elevated, form of this disease accounts for 90 percent of all blindness from AMD. Nugent and his team propose to identify new ways that VEGF activity is naturally controlled by interactions with the protein fibronectin, so that this pathway can be targeted for a more effective treatment for wet AMD.

Honors

Gregory Antoine, MD, BUMS associate professor of surgery and otolaryngology and chief of plastic and reconstructive surgery at Boston Medical Center (BMC), was elected to the National Medical Association (NMA) Board of Trustees. The NMA’s mission is to advance the art and science of medicine for people of African descent through education, advocacy, and health policy to promote health and wellness, eliminate health disparities, and sustain physician viability. Antoine will represent Region 1, which includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Puerto Rico, Rhode Island, Vermont, and the US Virgin Islands. Antoine is the first African American plastic surgeon to head a division of plastic and reconstructive surgery at a nonhistorically black medical school in the US.

Richard Bahayan, MD, BUMS professor and chair of urology and chief of the Department of Urology at Boston Medical Center, was elected president of the Massachusetts Association of Practicing Urologists (MAPU) at the American Urological Association annual meeting. He will serve a two-year term as president and assume responsibility for the association’s operations and activities, presiding over the Board of Directors’ meetings and serving as the society’s chief spokesperson.

Edward Bernstein, MD, BUMS professor of emergency medicine and an emeritus professor of emergency medicine at BMC and vice chair of academic affairs, has been named the recipient of the 2012 Jerome Klein Award for Physician Excellence by a senior committee of BMC and BUMS physicians. Established to honor Jerome Klein, MD, for his 50 years of service to the hospital, the award is given to a physician who mirrors Klein’s commitment as a mentor, leader, teacher, researcher, and clinician. Bernstein has dedicated his career to incorporating public health into emergency medicine with a special focus on interventions to reduce substance abuse.

James Feldman, MD, MPH, BUMS professor of emergency medicine and vice chair for research in the department of emergency medicine at BMC, has been honored with the Mark E. Weinstein, MD, Award by the Metropolitan Boston Emergency Medical Services Council (MBEMSC). Presented at the Twelfth Annual Region IV EMS Awards Ceremony, the award recognizes outstanding dedication and commitment to the Metropolitan Boston Emergency Medical Services Region. Feldman was president of the Massachusetts College of Emergency Physicians from 2008 to 2009 and currently chairs the committee on the Quality of Medical Practice for the Massachusetts Medical Society.

Barbara Gilchrest, MD, BUMS professor and chair emeritus of the Department of Dermatology, has been named a 2012 Charter Fellow of the National Academy of Inventors (NAI). Elected by their peers, this year’s charter fellows represent 98 innovators from 54 universities and non-profit research institutes. This professional distinction is accorded to academic inventors who have demonstrated a highly prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development, and the welfare of society. Gilchrest has clinical and laboratory-based research interests in skin aging and pigmentation and has published extensively based on her pioneering work in these fields.

James A. Hamilton, MD, BUMS professor of physiology, biophysics, and radiology, and research professor of medicine; and professor of biomedical engineering at the College of Engineering, was named a 2012 Massachusetts Academy of Sciences Fellow. Hamilton was elected by his peers to the prestigious community of scientists, engineers, research physicians, and others who are deeply concerned about science and science education in the commonwealth. His work focuses on fatty acid metabolism-related diseases like heart disease, diabetes, and obesity, with the goal of developing novel approaches to treatment. Hamilton also serves as director of the High Field Nuclear Magnetic Resonance (NMR) Spectroscopy and MR Imaging Core at BU.

Terence M. Keane, PhD, BUMS professor and vice chair of psychiatry, was honored with the 2012 Harold Hildreth Award for Distinguished Public Service by the American Psychological Association (APA). Presented at the APA annual meeting, the award is the highest honor for public service given by the APA division of public sector psychologists. Keane was recognized for his contributions toward improving the diagnosis and treatment of post-traumatic stress disorder (PTSD), and his success in spreading this knowledge, which has had an impact on public-sector mental health care delivery. Keane was also selected for the Distinguished Scientific Contributions to Clinical Psychology Award, the highest award for science by the Society of Clinical Psychology of the American Psychological Association. Keane, director of the Behavioral Science Division of the National Center for PTSD and associate chief of staff for research and development at VA Boston Healthcare System, is an international leader in the field of traumatic stress.

Ann Rasmussen, MD, BUMS associate professor of psychiatry and psychotrit and neuroendocrinologist at the VA Boston Healthcare System and the National Center for PTSD, and Jennifer Vasterling, PhD, BUMS professor of psychiatry, clinical investigator, and chief of psychology at the VA Boston Healthcare System and the National Center for PTSD, have been named to a consortium that will investigate better ways to treat and diagnose post-traumatic stress disorder. Draper Laboratory, a for-profit engineering research and development organization dedicated to solving national problems in national security, space systems, biomedical systems, and...
energy, formed this consortium of nationally recognized PTSD experts to improve diagnostic tools and treatment outcomes for the disorder. Rasmusson will lead the selection and development of methods for testing and measuring biomarkers from blood, cerebrospinal fluid, or other sources that characterize the function of an individual’s stress response system, both at rest and when activated by general or trauma-related stressors. Vasterling will lead the effort to integrate neurocognitive data, which includes measures such as memory, attention, and other thinking skills that pertain to brain functioning.

Richard D. Wainford, PhD, assistant professor in the Departments of Pharmacology & Experimental Therapeutics and Medicine, Division of Cardiovascular Medicine, and a member of the Whittaker Cardiovascular Institute at BUMC, has been nominated as a Fellow of the American Heart Association affiliated with the Council for High Blood Pressure Research for his professional accomplishments and outstanding basic science research in the field of hypertension. Wainford was honored with other newly elected Fellows at the High Blood Pressure Research 2012 Scientific Session in Washington, DC. He also was selected as the recipient of the 2012 Dean Franklin Pressure research 2012 Scientific Session. Wainford joined the BUMC faculty in September of 2011. His research focuses on the central neural control of fluid and electrolyte homeostasis and blood pressure regulation. The major goal of his research is identifying the underlying pathophysiology of and potential treatments for hypertension. Current studies concern the role of central G-alpha subunit protein gated pathways in mediating the neural innervation of the kidneys and systemic arterial blood pressure.

Addressing Unhealthy Alcohol Use in Primary Care

(Springer, 2013)

Editor: Richard Saltz MD, MPH, FACP, FASAM

Professor of Medicine & Epidemiology
Director, Clinical Addiction Research and Education (CARE) Unit
Section of General Internal Medicine
Boston University Schools of Medicine & Public Health

While there is a wealth of published information on addiction medicine, the psychological aspects of alcohol abuse, and behavioral medicine with regard to addiction, virtually none of the existing resources were written with the primary care provider in mind. Addressing Unhealthy Alcohol Use in Primary Care is a reference for primary care clinicians who are confronted daily by patients with these problems and who wish to successfully address these issues in their practices. Focusing on the literature and science relevant to practicing providers, this book covers the range of interventions appropriate for this setting. Topics include assessment, brief counseling interventions, pharmacotherapy, referrals to both specialty care and Alcoholics Anonymous (and other self-help programs), psychiatric co-morbidity and other drug use, and other information specific to the needs of the primary care clinician. The vast majority of people with health risks and consequences related to alcohol use receive little to no attention from health care providers, despite the fact that alcohol is a leading cause of early preventable death. This book is a guide to identifying and addressing unhealthy alcohol use in the hope of improving the lives of patients.

From New Hampshire to Hawaii and Canada to Texas, the Class of 2013 Matches for Postgraduate Training

The ceremony tells the story for Class of 2013 members who successfully matched at the hospitals of their choice.

In Memoriam

Kathleen Bennett, MD ’84, assistant professor of medicine in the Section of General Internal Medicine, died November 23, 2012, after a long battle with breast cancer. A BUMC alumna of the Class of 1984 and a member of the BUMC faculty since 1989, Dr. Bennett was a leader in health care administration at the Neighborhood Health Plan, Bostons Medical Center HealthNet Plan, and, most recently, as chief medical officer at Senior Whole Health. She had also a primary care practice at Uphams Corner Health Center, where she’d cared for patients since her residency years. She completed her internship in family medicine at Cook County Hospital in Chicago and her internal medicine residency at the former Boston City Hospital (BCH), now Boston Medical Center, where she served as chief medical resident. After completing her training, she served as assistant program director and later program director for the Department of Internal Medicine residency program and assistant director of medicine at BCH.

Very highly regarded by her patients and colleagues, Dr. Bennett was an excellent clinician, a fierce patient advocate, and a gifted teacher. She graciously shared the story of dealing with her cancer in Grand Rounds for the Department of Medicine, offering a rare and candid perspective of interacting with the medical system as a patient. She is survived by her life partner, Sharon Hanson, her mother, two brothers, and a sister.
“On behalf of the 8,000 BUSM alumni across the country, I congratulate you on the successful completion of your medical education.”
— Jean Ramsey, MD, associate dean for alumni affairs

Brian Currie ’15 spent five weeks in Ecuador last summer in an intensive program that provides health care to poor and medically disadvantaged communities in that country through the Cinterandes Foundation. The non-profit foundation promotes health and provides health care to some of Ecuador’s most disadvantaged communities.

“Beyond the opportunities to rotate through hospitals and regional health clinics, what really caught my attention about this program was the Mobile Surgery Unit,” says Currie. “When it came time to plan my summer, this program was a clear choice—it was an ideal fusion of my fascination with surgery, desire to improve my medical Spanish, and interest in making health care accessible to underserved patient populations.”

“I chose to spend five weeks in the Cinterandes program, thinking this would allow enough time to acclimate to the language and culture so I could make the most of my clinical experiences. However, I discovered during my first week at the hospital that there is a big leap between conversational acumen and proficiency with medical terminology, even after two semesters of medical Spanish electives at Bu. They must have found my stumbling attempts endearing because I soon transitioned from being a lost dog that was permitted to tag along to an active participant. Under their tutelage, coupled with my constant references to a Spanish/English dictionary, I eventually got the hang of it.”

“At the regional hospital I was able to observe approximately eight to 10 different procedures per day encompassing nearly the full spectrum of surgical interventions. One that stands out in my mind was an emergency Cesarean section for a woman who had been in labor for an entire week. My fellow students and I were also entrusted with the postoperative care of our respective patients, which included speaking to their family members. Family and community are very important in Ecuador, and most patients had a constant stream of visitors. Grateful for our efforts, the community center provided us with enormous amounts of food—whether it was a snack between procedures or scheduled meals throughout the day—and a celebratory event on our final night. Their warmth and sincerity was a common theme in many of my interactions with local community members, in contrast to the sometimes stilted and cold formalities we are used to in the United States.”

“To complement the hospital-based surgery experience, I also spent a significant amount of time in the emergency department in a more hands-on capacity, shadowing doctors and interns, assisting with procedures, and suturing patients when necessary. There was one patient who came in following a car accident with a lacerated hand and arm. The cuts were so deep on his hand that his skin was hanging in flaps and his white tendons were bare. While an intern attended to the more serious portions, I sutured much of his hand and arm in the midst of a busy ER at three in the morning.”

Although the clinical exposure was excellent, there was a relative dearth of funding, especially for free service hospitals like this one. Supplies and infrastructure were large issues; compared to how hospitals operate in the US, they managed to function on a shoestring budget. Many commonplace items, whose disposable versions would be routinely discarded here, were sterilized and reused. “Operating out of a modified van, the Cinterandes Mobile Surgery Unit performs procedures in general, urological, gynecological, reconstructive, and ophthalmologic surgery in 17 of the 24 Ecuadorian provinces. The most salient and rewarding portion of my clinical placements was the mobile surgery trip. We traveled to the town of El Guabo and in the span of three days, performed 18 surgeries within the confines of our van. In addition to placing IV lines, applying local anesthetics, inducing general anesthesia, monitoring vitals, and maintaining the surgical suite, I was able to scrub in, assist, and close on my share of the surgeries. My fellow students and I were also entrusted with the postoperative care of our respective patients, which included speaking to their family members. Family and community are very important in Ecuador, and most patients had a constant stream of visitors. Grateful for our efforts, the community center provided us with enormous amounts of food—whether it was a snack between procedures or scheduled meals throughout the day—and a celebratory event on our final night. Their warmth and sincerity was a common theme in many of my interactions with local community members, in contrast to the sometimes stilted and formal manners we are used to in the US. It was the most culturally and clinically enriching experience of my entire trip.”

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Jerry Savory, who is homeless, has had a hard life. The 57-year-old with a salt-and-pepper beard and a broken nose has struggled with alcoholism and drug abuse since he was a teen and suffered from seizures since he was in an accident at the age of 25. And, he’s still recovering from being hit by a car two years ago.

Medical issues like these would spell misery for anyone, but for homeless people, a group whose mortality rate is at least four times that of the general population, the misery is compounded. Savory considers himself lucky, however, in one regard: he is treated regularly at the Boston Health Care for the Homeless Program (BHCHP), which is staffed in part by first- and second-year School of Medicine student volunteers.

“Every time I’ve been here, every time I leave, I am all right,” Savory says slowly, his brow furrowing as he sits in a BHCHP exam room.

Savory was one of several patients examined late one night by BUMS students enrolled in the Homeless Health Immersion Experience, a noncredit, service-learning program started last spring by two medical students interested in gaining early clinical experience and exposure to a vastly underserved population.

“BU medical students don’t really have much experience with the homeless population,” says Raagini Jawa ‘14, who cofounded the elective program with Alec Peniche ’14. “This is a great way for them to understand a different experience and exposure to a vastly underserved population.

“The pilot program was launched last September, Jawa and Peniche have expanded with three medical students who just saw patients’ medical conditions.

The students decided on the BHCHP because their peers were single adults living on the street, in shelters, in transitional housing, or in treatment facilities.

acting as friendly mentors to their less-experienced peers. After each exam, the students presented a patient’s case to Boddy or Cohen, who gave them pointers on technique and explained how homelessness influenced the patients’ medical conditions. Since the full-scheduled program launched in September, Jawa and Peniche have expanded it to include BHCHP-affiliated medical residents who give mini-lectures to students about issues related to homelessness and health care. The cofounders also partnered with the BUMS student-run Outreach Van Project, a mobile unit that serves the homeless population once a week in East Boston.

The Boston Public Health Commission reports that in 2011, nearly 6,650 people were homeless in Boston, and just over half of them were single adults living on the street, in shelters, in transitional housing, or in treatment facilities. James O’Connell, MD, the BUMS assistant professor of medicine who founded BHCHP in 1984, puts the number higher; he believes that 25,000 Bostonians are homeless for some period of time each year. His organization serves more than 11,000 people a year through street outreach or at its Albany Street headquarters, which has a pharmacy, a dental office, an outpatient clinic, and a 104-bed medical respite center.

Hours after closing time for most doctors, Cohen sits in a BHCHP exam room with three medical students who just saw their first patients. “The idea was for you to feel comfortable learning about someone who has a lot of vulnerabilities,” she says. “Knowing how to care for, and care about, the most vulnerable attests to the type of person you are. Many medical students do not want to take care of such people. You will see that it’s an incredibly gratifying experience.” Cohen then asks the students to present their patients’ cases.

Nahiris Bahamon ’15 and Stephanie Donatelli ’15 take turns describing the condition of a 46-year-old male. He’s a self-described alcoholic with neuropathy, acid reflux, arthritis, and a long history of personal tragedy. Both his parents were alcoholics. One brother, a drug user, died of AIDS. Another died of cirrhosis. His firstborn died of SIDS. He has a history of depression and anxiety, and although he’d been sober for two years, he wants to return to detox after a recent relapse.

“He’s very self-aware,” Donatelli says. “We didn’t even have to ask that many questions.”

Cohen laughs. “Your empathy shows, which is very important,” she says. “He elicits that in us.” She discusses the impact personal trauma has on health, the genetics of alcoholism, and the post-traumatic stress disorder the patient likely suffers from because of his child’s death.

“You think that could be someone you know?” she asks. “Or do you think it happened to him because it was going to happen?”

Bhamon reviews the patient’s complicated life history and suggests that “he was set up for failure.” Donatelli agrees, adding that each time he rallied, something beyond his control knocked him down.

Cohen emphasizes the importance of being there for a patient when he falls, as many times as he has, and to look for small victories in his daily life—like the desire to get treatment for alcoholism.

“Hopefully he’ll go into a program and stay,” she says.

Across the hall in another exam room, Savory is pleased to have a warm meal and a place to stay for the next few days. He’s uncan-

ily calm about theilt turns his life has taken and draws from a deep well of faith—something he says his grandmother instilled in him as a kid attending church every Sunday.

This article first appeared in BU Today.
Biomolecular Pharmacology Grad Student Honored by American Physiological Society

Casey Carmichael, a second-year graduate student in the doctoral program in biomolecular pharmacology, has been chosen to receive the 2013 Caroline tum Suden/Frances Helbrandt Professional Opportunity Award from the American Physiological Society (APS). The award is one of three based on abstract submissions offered by the APS for graduate students and postdoctoral fellows. Carmichael was selected by the Women in Physiology Committee from 154 applicants for her work, “A role for Gai2 proteins in the acute neural control of blood pressure.” Carmichael researches under the mentorship of Richard D. Wainford, PhD, an assistant professor in the Departments of Pharmacology & Experimental Therapeutics and Medicine, Division of Cardiovascular Medicine, and a member of the Whitaker Cardiovascular Institute. She is a member of the Laboratory of Cardio-Renal Research, where her work focuses on understanding the central neural aspects of blood pressure regulation to identify the pathophysiology and potential treatments for hypertension.

Francis Kim ‘14 Honored with National Leadership Award by AMA Foundation

Third-year BUSB student Francis Kim has been named a recipient of the American Medical Association (AMA) Foundation’s 2013 Leadership Award. Recipients are recognized for demonstrating outstanding nonclinical leadership skills in advocacy, community service, and education. The award provides medical students, residents/fellows, and early career physicians from around the country with special training to develop their skills as future leaders in medicine and community affairs.

Kim plans to pursue a surgical career that combines clinical practice, research, and health policy; his interests are in health care disparities and quality improvement. While at BUSM, Kim has been active with the American Medical Association and the Massachusetts Medical Society, serving as chapter cochair, authoring several resolutions, and participating in national and statewide community service projects.

As a college student at Harvard University, Kim served as a program coordinator for the Health Leads’ Boston-based STRIVE program, which mentors and advocates for inner-city adolescents with sickle cell disease. While conducting research for his master’s thesis, he served as the Research Fellow in Operation Smile’s weeklong inaugural burns mission trip to Mumbai, India, which provided no-cost reconstructive surgeries to burn patients from the slums of Mumbai. Published in peer-reviewed literature, Kim’s ongoing research focuses on determining effective and sustainable measures to decrease global burn morbidity and mortality.

“We are proud to have students who are committed to community service and to patients locally and globally,” said Dean Karen Antman, MD. “This is a great honor.”

Inaugural Mary T. Walsh Memorial Student Achievement Award

On December 12, Nathan Myers, a third-year student in the Department of Physiology & Biophysics, received the first Mary T. Walsh Memorial Student Achievement Award, established by the department to honor the memory of Dr. Walsh, a 20-year member of physiology and biophysics who died unexpectedly in 2004. A biochemist, Walsh was the soul of the graduate program. She was a student advisor and mentor, and also a protector and friend; her wisdom, patience, and guidance were invaluable to both students and faculty alike.

Recipients are recognized for demonstrating outstanding nonclinical leadership skills in advocacy, community service, and education.

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Casey Carmichael

Francis Kim

Nathan Myers receiving the Mary T. Walsh Memorial Student Achievement Award from David Atkinson, PhD, chair of the Department of Physiology & Biophysics.
Saying Thank You in Person
Annual Dean’s Club Dinner brings leadership donors together

The Dean’s Club Dinner gives Dean Antman the opportunity to personally thank BUMS’s generous donors on behalf of the School. The gathering at the Taj Boston hotel in October brought together many Dean’s Advisory Board members, alumni, parents, faculty, staff, and friends of the School. The Dean’s Club, initiated in 1973 by the BUMS Alumni Association, recognizes individuals who make unrestricted annual gifts of $1,500 or more.

1. Lorraine Witzburg and Associate Dean for Admissions Robert Witzburg ’77 with Marcia Edelson Herrmann ’78 and Dr. Jeffrey Herrmann.
2. Dean Karen Antman and husband, Dr. Elliott Antman.

Giving

Gratitude for Guidance and Support, Alumni Couple Gives Back to BUSM

For almost four decades, BUSM graduates of the Class of 1965 Donna and Doug Barnard have continually given to the School of Medicine. They have also funded a scholarship at the School and recently established a charitable remainder trust to benefit the new student residence on campus.

“Medical school is very expensive now,” says Doug. “We must continue to train good doctors, and if our donations can help in any small way to offset some of this cost, we are grateful. Doctors need to concentrate on being good physicians and not constantly worry about their future because of financial commitments over which they have had no control.”

“To have a student residence is about as good as it can get for a medical student. They can now live on campus, close to class and the hospital. They can enjoy socializing with other students while in an atmosphere where studies are important to everyone.”

The Barnards met each other at the first BUSM social event held for incoming medical students. They got married within the year and had a baby daughter the next.

“Six months later Donna lost her dad and her financial support,” recalls Doug. “My dad was supporting a son at Dartmouth, as he had supported me at Washington & Lee University. He could not afford to support both medical students. They got married within the year and had a baby daughter the next. Seven years after graduation from medical school and with their training complete, Donna entered a three-year oncology and hematology fellowship at BUSM. Following his internship, Doug completed an anesthesia residency at the Chelsea Naval Hospital and then spent a year in Vietnam with the Marines. Upon returning home, he continued as a staff anesthesiologist at Chelsea Naval Hospital, and Donna entered a three-year oncology and hematology fellowship at BUSM.

When we were in trouble financially and emotionally with our own lives, BUSM provided guidance and support for us,” Donna says. “Apparently they saw two struggling young medical students who were willing to sacrifice themselves with a purpose in mind. They gave us the opportunity to succeed.”

“At that point, we still needed financial help. The School was more than willing to work with us and gave us scholarships and loans that allowed us to continue.”

The Barnards have never forgotten what it is like to struggle to achieve personal and professional goals,” notes Dean Karen Antman, MD. “BUMS was there for them at a crucial time in their lives, and they returned that early support many times over in the following decades. The School of Medicine and our students are truly fortunate for the outstanding generosity of this dedicated alumni couple.”

For more information on making a planned gift, contact BUSM Development Office at busmdev@bu.edu or 617-638-4570 or www.bu.edu/supportingbusm

1. Donna ’65 and Douglas Barnard ’65

www.bu.edu/supportingbusm
The Boston University Planned Giving team can help you create a philanthropic strategy that fits your unique interests and financial situation. Once you know all the possibilities, you may discover that you can have a greater impact than you ever imagined.

Ready to start the conversation? We want to hear from you.

Please contact the BUSM Development Office at busmdev@bu.edu or 617-638-4570, or visit www.bu.edu/supportingbusm.

1. Dean’s Advisory Board member Adrienne Penta Lissner and husband, Dan Lissner, dancing to the music of G. Andrew Maness’ Four Guys in Tuxes at the Dean’s Club Dinner in October at the Taj Boston hotel.
2. Howard Green ’85; Joanna Green, DDS; Maria DiChiara; and Alumni Association Director David DiChiara ’84 connecting during the reception prior to the Dean’s Club Dinner.
3. Attending the Dean’s Club Dinner are Sophia Catrambone, Associate Dean for Alumni Affairs Jean Ramsey ’90, and Richard Catrambone ’92.
Dear Alumni and Friends,

Keeping alumni connected to the School of Medicine is the most important mission of the Alumni Association of BUMM. We look forward to getting out and meeting with alumni and friends of the School at receptions in New York City and Washington, DC, in June. We also are pleased to have the opportunity to get together with young alumni—our future leaders—in September. If you live in or are planning to visit any of these places, please check our Calendar of Events for dates, times, and locations. Along with Dean Antman, I hope to see you at one of these events.

As we face major cuts to the NIH budget that will affect our research mission and cuts to healthcare programs that will affect our clinical sites, I would like to thank you for your generosity to the School’s Annual Fund. If you have not already made your gift, please use the enclosed envelope or go to our online contribution site at https://www.bu.edu/alumni-forms/forms/med/BUMMC contribution.html. Annual funds help support School operations and give Dean Antman the flexibility to direct funding to the most pressing priorities. Your gift counts and is greatly appreciated.

Best regards,

Jean E. Ramsey, MD ’90, MPH ’08
Associate Dean for Alumni Affairs
Associate Professor, Ophthalmology and Pediatrics
Vice Chair of Education and Program Director

Our deepest appreciation goes out to alumni for their philanthropic support, and to the alumni and student volunteers listed below who willingly give their time.

Jade Anderson ’16
Roberta Apfel ’62
David Bailen ’67
Frederick Berrien ’68
Erin Brooks ’13
Stacy Brown ’13
Mauro Caffarelli ’15
Nina Capiro ’15
Amada Chu ’14
Matthew Cohen ’13
Liz Dooling ’65
Don Grande ’73
Marcia Herrmann ’78
Arthur Ho ’15
Edward Krukonis ’63
Monica Lee ’15
Sara Li ’14
Kristen Lindgren ’11
Matt McAdams ’15
Rachel Morgan ’16
Prachi Nene ’16
Thiago Oliveira ’15
Burt Perlmuter ’63
Kate Phaneuf ’88
Peter Pochi ’55
Jean Ramsey ’90
Rounak Rawal ’13
Miriam Ruiz ’76
Sunjay Sethi ’16
Graham Snyder ’05
Jasmine Wang ’15
Mitchell Wise ’15
Stephanie Wong ’15
Betty Yang ’15
Jen Xiao ’16

During two full evenings, Phonathon volunteers seeking philanthropic support for the medical school contacted more than 400 alumni across the country. Student volunteers say they are grateful to have the chance to glean pearls of wisdom from graduates as far back as 1942 right up to 2012, in different types of specialties, clinical and academic settings, and parts of the country. In return, alumni get to hear firsthand the positive impact alumni giving makes on the lives of so many.

Alumni Association Honors Two Alumni with Distinguished Alumnus Awards

Robert N. Golden, MD ’79, is dean of the School of Medicine and Public Health and vice chancellor for medical affairs at the University of Wisconsin-Madison. He is also the Robert Turell Professor in Medical Leadership and a professor of psychiatry.

Dr. Golden received his BA cum laude with honors in psychology from Yale in 1975. He completed an internship, residency, and chief residency in psychiatry at the University of North Carolina (UNC). He was a medical staff fellow in the Clinical Pharmacology Section of the National Institute of Mental Health Intramural Research Program. In 1985, he returned to UNC-Chapel Hill, where he served as the founding director of both the Clinical Psychobiology & Pharmacology Research.

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Andrew S. Levey, MD ’76

The university of Wisconsin-Madison.

From 1994 through 2005 he served as chair of the Mental Health Clinical Research Center. Training Program and the Electroconvulsive Therapy Service, and as associate director of the General Clinical Research Center and the Mental Health Clinical Research Center. From 1994 through 2005 he served as chair of the Department of Psychiatry at UNC School of Medicine, and in 2004 he assumed the additional role of vice dean at UNC School of Medicine. In 2006 he became the ninth dean of Medicine, and in 2004 he assumed the role as the inaugural CNDS (National Institute of Diabetes and Digestive and Kidney Diseases)-sponsored Modification of Diet in Renal Disease (MDRD) Study.

Known for his work on clinical prac- tice guidelines in CKD, he led the National Kidney Foundation (NKF) Task Force on Cardiovascular Disease in 1998, chaired two NKF Kidney Disease Outcome Quality Initiative (KDQI) Work Groups, and has led three Kidney Disease Improving Global Outcomes (KDIGO) conferences. He was director of the Tufts Center on Guideline Development and Implementation from 2003 until 2011.

Levey directs the research fellowship-training program in the Division of Nephrology at Tufts and is principal investigator of the division’s 15-year NIDDK grant (T32).

Golden’s research and clinical interests focus on psychobiological and psychopharmacologic aspects of mood and anxiety disorders. He has published more than 200 papers, chapters, and books, and more than 190 research abstracts.

An authority on chronic kidney disease, Levey directs the research fellowship-training program in the Division of Nephrology at Tufts and is principal investigator of the division’s 15-year NIDDK grant (T32).

Andrew S. Levey, MD ’76

He has served on the Board of Regents of the American College of Psychiatrists and is a director of the American Board of Psychiatry and Neurology. His honors include selec- tion as a Ginsburg Fellow of the Group for the Advancement of Psychiatry, a Laufkin Fellow of the American College of Psychiatrists, a Jefferson Pilot Fellow in Academic Medicine, the 1993 Eugene Hargrove Mental Health Research Award, listing in The Best Doctors in America, designation as “Teacher of the Year” by the UNC psychiatry residents on four occasions; the 2003 Mood Disorders Research Award from the American College of Psychiatrists, appointment as the inaugural Stuart Bonard Distinquished Professor at the University of North Carolina at Chapel Hill, and the 2010 Distinguished Medical Alumnus Award from the UNC School of Medicine.

Andrew S. Levey, MD ’76 is the Gerald I. and Dorothy R. Friedman Professor of Medicine at Tufts University School of Medicine and chief of the William B. Schwartz Division of Nephrology at Tufts Medical Center. He received his BA with honors from the University of Chicago. He completed his residency training in intern- al medicine at Montefiore Hospital and Medical Center Residency Program in Social Medicine in New York in 1979, and a fellowship in nephrology at New England Medical Center (now Tufts Medical Center) in Boston in 1981. An authority on chronic kidney disease (CKD), he was director of the dialysis unit at Tufts Medical Center and Dialysis Clinic, Inc. from 1981 to 1990.

His research interests include measure- ment and estimation of kidney function, epi- demiology of CKD, trends to slow the progression of CKD, cardiovascular disease in CKD, nutrition in CKD, and assessment of outcomes in patients treated by dialysis and kidney transplantation. He was the principal nephrologist coinvestigator for the NIDDK (National Institute of Diabetes and Digestive and Kidney Diseases)-sponsored Modification of Diet and Renal Disease (MDRD) Study.

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Orthopedic Surgery and chief, Division of Adult Reconstructive Surgery at New York University Langone Medical Center. An undergraduate at Harvard College, he completed his residency at Harvard Medical School and in 1989 became chief resident of cardiothoracic surgery at Vanderbilt. After a residency in otolaryngology at the University of Illinois, he was the Brigham’s first chief resident of cardiothoracic surgery when he left for Vanderbilt in 2004.

While at Vanderbilt, he built a “hybrid” operating room, combining a standard operating setup with new imaging technologies; the Brigham subsequently built its own in 2008. Byrne’s research focus includes determining which patients are most likely to benefit from major heart surgery when he left for Vanderbilt in April 2013. He served as chair of cardiac surgery at Brigham and Women’s Hospital, a residency in otolaryngology at the University of Illinois. He was the Brigham’s first chief resident of cardiothoracic surgery when he left for Vanderbilt in 2004.

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and served two years at the Public Health Service in Norfolk, Virginia. He remained in the United States Army and served as a captain in the uS Army Reserve. He lived in New York, New York, and was married to the former J.B. Thomas Hospital (Peabody), Lynn Hospital, and Mary A. Riley Hospital in Marblehead. He was a Fellow of the American College of Surgeons and a clinical instructor at Tufts University School of Medicine. He had a master’s degree in bacteriology from the University of Massachusetts and a master’s degree in public health from Harvard School of Public Health. In addition to his wife, George Sherman Upton, Friday, May 17, 2013

BUSM Commencement

Aegonis Arena • Saturday, May 18, 2013

All-University Commencement

Newton Field • Sunday, May 19, 2013

Boston University Reception featuring BUSM Dean Karen Antman, MD, Chicago, IL

Monday, June 3, 2013

Joel and Barbara Alpert Professor of Pediatrics Installation

Heilbrun Lounge • Wednesday, June 12, 2013

Alumni Reception, Washington, DC

Hosted by Dr. and Mrs. Joseph Tailone ’70 • Monday, June 10, 2013

Alumni Reception, Long Island, NY

Hosted by Dr. and Mrs. Guy Motel ’64 • Wednesday, June 19, 2013

BUSM Reception, Los Angeles, CA

Hosted by Dr. and Mrs. John Cohen BUSM (Parents) ’61 Saturday, July 27, 2013

White Coat Ceremony

Talbot Green • Monday, August 5, 2013

Alumni Reunion (Future Leaders)

Taj Boston Hotel • Wednesday, September 11, 2013

BUSM Department of Surgery Reception at the American College of Surgeons 99th Clinical Congress, Washington, DC

October 2013

Annual Scholarship Donor Dinner with Dean’s Advisory Board Members • Thursday, October 24, 2013

Dean’s Advisory Board Meeting

Friday, October 25, 2013

Dean’s Club Dinner

Taj Boston Hotel • Saturday, October 26, 2013

2013 Winner of the BU Metcalf Cup and Prize for Excellence in Teaching

Deborah Vaughan, PhD

BUSM professor of anatomy and neurobiology
Dr. Deborah Vaughan has been selected by the Metcalf Committee to receive the University’s highest teaching honor, the Metcalf Cup and Prize for Excellence in Teaching. The award will be presented at the 2013 All-University Commencement on May 19.

The Metcalf Cup and $10,000 Prize for Excellence in Teaching was established in 1973 by a gift from the late Dr. Arthur G. B. Metcalf to create “a systematic procedure for the review of the quality of teaching at Boston University and the identification and advancement of those members of the faculty who excel as teachers.”

Read about Dr. Vaughan on page 6.