



Brainiacs

MEET THE SEVEN NEUROSCIENCE RESEARCHERS
CHOSEN AS SPIVACK SCHOLARS

Message From The Dean



DEAR ALUMNI, FRIENDS, AND COLLEAGUES,

Boston had an incredibly cold and snowy winter but as the glacier around the Medical Campus receded, academic signs of spring were unmistakable.

On the morning of Match Day (see page 2), faculty announced prizes and honors earned by our senior class members and then further distracted them with their class picture. With the countdown to the noon distribution of match envelopes, we effectively launched our senior class. They did exceptionally well, matching in competitive residencies from Boston to California and Michigan to Texas. As physicians, these graduates are the future of health care delivery and health systems leadership.

Our PhD graduates have already enriched biomedical discovery that may contribute to more effective treatments. Our master's degree graduates leave with a firm scientific knowledge base and commitment to the various medical professions they pursue.

In this issue we highlight the work of one senior and six junior faculty members recently appointed Spivack Scholars. Established through the generosity of Jack Spivack, the School of Medicine's Spivack Center for Neuroscience facilitates the work of a multidisciplinary group of neuroscience faculty members whose work addresses some of the most challenging and destructive neurological disorders.

Alumni celebrating five-year reunions also gather on the Medical Campus each spring. It is truly a pleasure to meet so

many who are part of the School's impressive legacy and to learn from them of the rich history we all share. We celebrate the accomplishments of Dr. Sophia Dyer, this year's Distinguished Alumna Award recipient. Dr. Dyer is the medical director of Boston Emergency Medical Services and played an integral part in the medical emergency response to the Boston Marathon bombings.

We are pleased to profile alumna Ann Cea (MED'67), who has established a \$100,000 endowment for scholarship support. Dr. Cea is the daughter and mother of BUSM graduates and a highly valued member of the Dean's Advisory Board. She has been a consistent student advocate and shares some of her reasons for her commitment to supporting enhancements to BUSM's academic and community environment.

The Dean's Advisory Board meets in the spring each year to discuss the School's priorities and needs. This dedicated and supportive group of highly accomplished professionals provides the School's leadership with wise counsel and vision, and I am deeply grateful for their time, expertise, and invaluable support.

Warmest regards,

Karen Antman, MD
Provost, Medical Campus
Dean, School of Medicine
Professor of Medicine

Boston University **Medicine**

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SUMMER 2015

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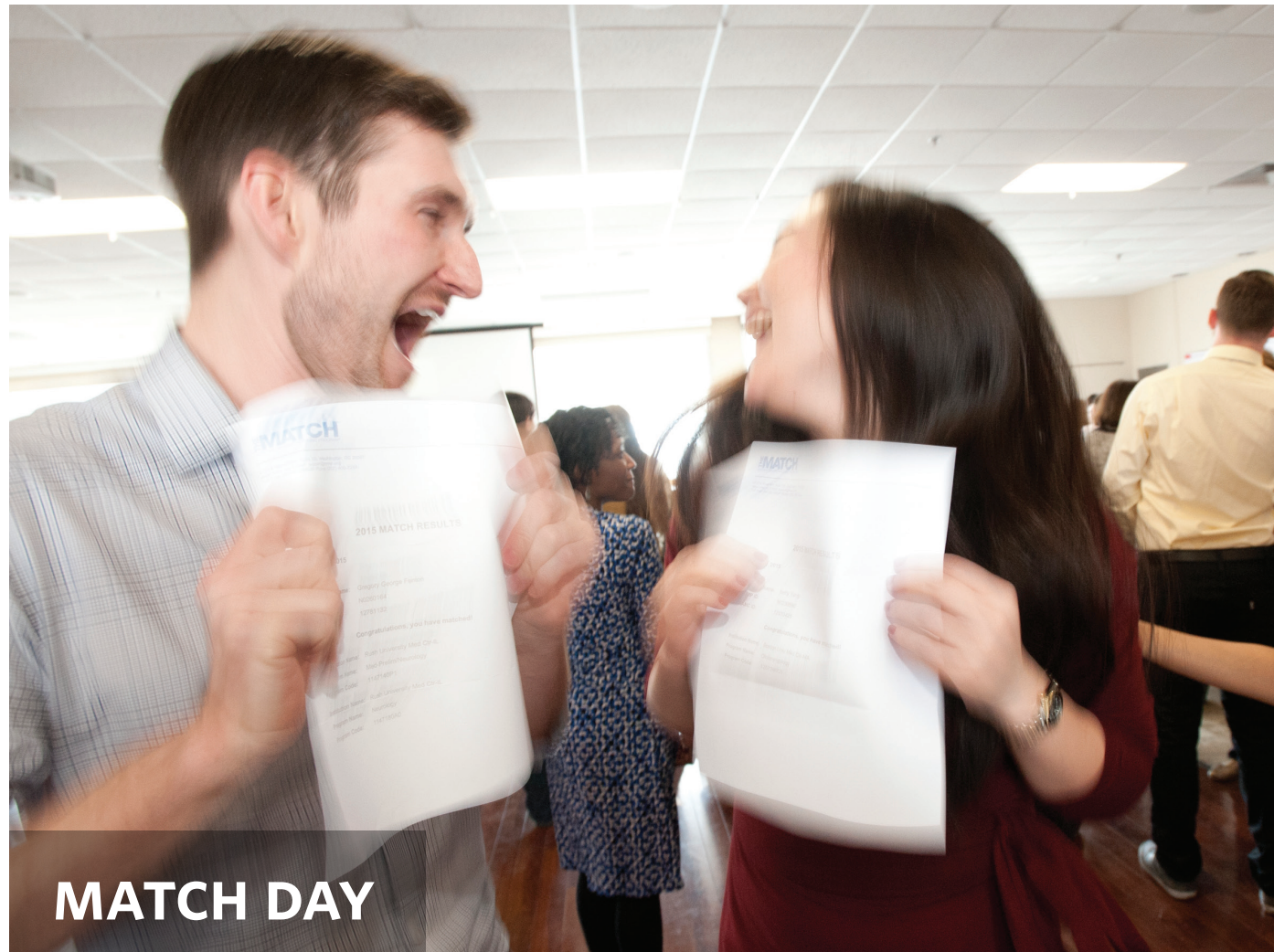
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PHOTO BY FRANK CURRAN

On the cover: Third-year medical student Tripp Leavitt, course manager for the Visual Education in Medicine elective. Photo by Michael D. Spencer



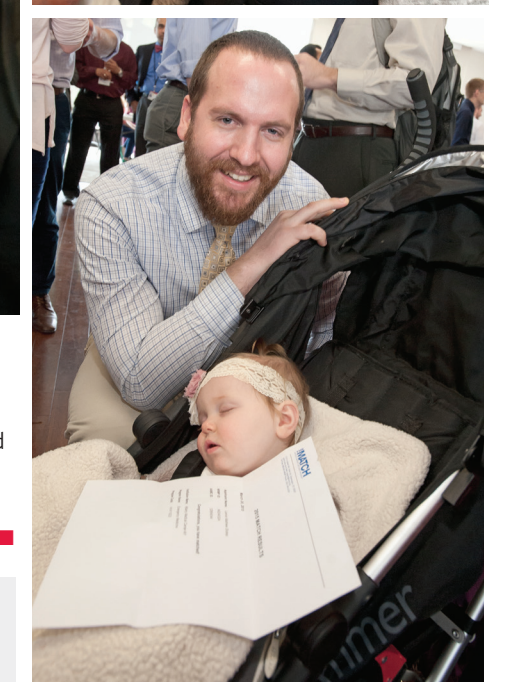
MATCH DAY

The Class of 2015 Reaches a Milestone

On March 20, Class of 2015 members, their families and friends, and BUSM faculty and staff joined together to celebrate Match Day, the nationwide annual rite of passage for graduating medical students.

BUSM fourth-year students and their peers across the nation counted the minutes until noon, when they opened envelopes to learn where they will complete their residencies. "This is really much more exciting than graduation," said John Polk, MD (MED'74), assistant dean for student affairs. "You know you're going to graduate, but you don't know where you're going to spend the next four, five, six years of your life."

BUSM students matched in residencies across the country, with the majority concentrated in five states: Massachusetts (44); California (32); New York (24); Illinois (6—primarily Chicago); and Rhode Island (6—primarily Brown). They marked their new



locations on a map of the country to illustrate geographic diversity.

The Class of 2015 matched in a range of programs: internal medicine (23); pediatrics (12); emergency medicine (10—an unusually high number); family medicine (8); and general surgery (8). Twenty members of the class will remain on the Medical Campus at Boston Medical Center (BMC) and three will train at BMC and Boston Children's Hospital

in the Boston Combined Residency Program in Pediatrics.

"They worked so very hard to get here, and we are so proud of them," said Angela Jackson, MD, associate dean for student affairs. "They are going to be wonderful physicians." ■

For more photos, visit BUSM on Facebook at Facebook.com/BUMedicine.

PHOTOS BY FRANK CURRAN



Members of the Class of 2015 process into Agganis Arena for the start of Commencement exercises.



BUSM Graduates: Influencing Lives Every Day

“There will be few days in your lives as exciting and momentous as this one,” said Howard Bauchner, MD (MED’79), editor-in-chief of the *Journal of the American Medical Association*, who delivered the address at the 168th Boston University School of Medicine Commencement ceremony on Saturday, May 16. Friends and family shouted, cheered, and applauded from the stands of Agganis Arena as newly minted graduates were hooded and received their diplomas.

BU Medical Campus Provost and BUSM Dean Karen Antman, MD, reminded graduates and their families, “Commencement is the end of the beginning of your education. The diploma you get today is really a license to learn. It is a credential that grants you entry to the next stage of your education.

We really hope you have acquired the most important tool of all—the capacity for continued, disciplined inquiry and lifelong learning.”

The ceremony marked the culmination of the academic journey for 144 members of the Class of 2015 receiving the MD; six the MD/PhD; 11 the MD/MPH; four the MD/MBA; and 27 the PhD. “Physicians and scientists can influence many aspects of our daily lives, including the political process. Speak up, use your voice to effect change,” urged Bauchner, a BU professor of pediatrics and community health sciences. He also has served as the vice chairman of the department of pediatrics at BMC/BUSM and assistant dean, alumni affairs and continuing medical education at BUSM.

Bauchner reminded graduates to take time out of a busy day for a few unplanned, unscripted minutes with people important to them, to make note of good things that happen over the course of a day, and to always remember that “relationships will sustain you throughout your life, be they with a mentor, a colleague, a friend, a spouse, or a child. They must be nourished.”

Speaking for her fellow doctoral students, Elizabeth Stanford said, “All of us started this journey because of an end goal; we wanted to improve the quality of lives of others by learning more about our field of interest. This is a new beginning for us, in which all of our dreams are now a possibility due to our education from Boston University. We are now doctors of philosophy!”

Megan Janeway, who will be a sixth-generation physician, spoke on behalf of the medical students with a balance of light-hearted humor and sage advice. “It has truly been a privilege to learn with you and to learn from you. More than anything, it has been a privilege to laugh with you; it has carried us through the last four years. I know that you will push the envelope and challenge the hierarchy to better medicine for your patients.”

“No single profession other than health care can so impact the lives of individuals and their families,” Bauchner said. “Medicine is an extraordinary profession, filled with challenges, disappointments, and anxieties, but the one constant is the ability to influence the lives of individuals every day.” ■

PHOTOS BY FRANK CURRAN



A happy graduate.

2015 FACULTY AWARDS

Commencement ceremonies included the presentation of faculty awards. This year's honorees:

Stanley L. Robbins Award for Excellence in Teaching

Lorraine Stanfield, MD
Assistant Professor of Medicine

Leonard Tow Humanism in Medicine Award

Tracey A. Dechert, MD
Assistant Professor of Surgery

Committee on Faculty Affairs Educator of the Year Awards

Educator of the Year in Preclinical Sciences
Judith D. Saide, PhD
Associate Professor of Physiology & Biophysics

Educator of the Year in Clinical Sciences

Jane E. Mendez, MD
Associate Professor of Surgery

Educator of the Year in Graduate Medical Sciences, Master's Degree Programs

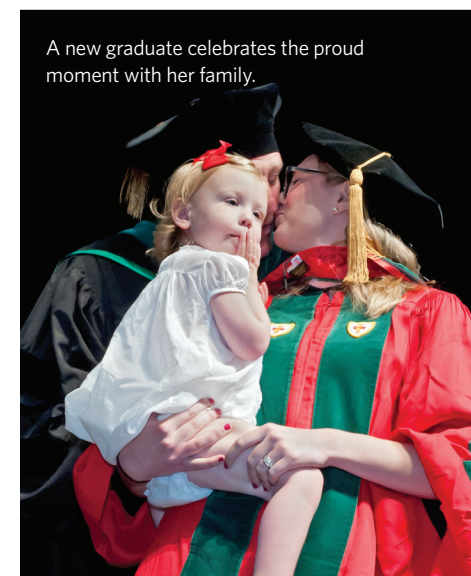
Maryann MacNeil, MA
Instructor of Anatomy & Neurobiology

Educator of the Year in Graduate Medical Sciences, Doctoral Degree Programs

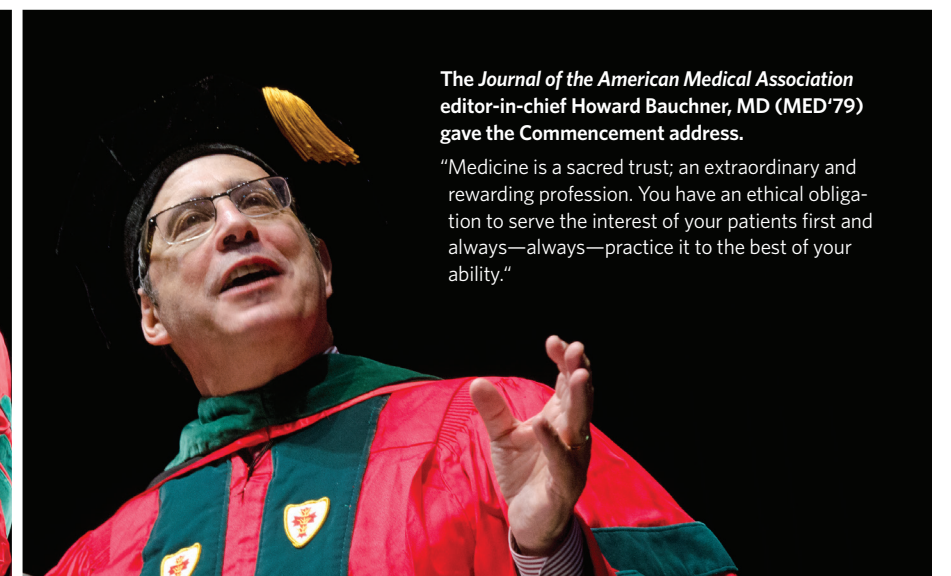
C. James McKnight, PhD
Associate Professor of Physiology & Biophysics



Dean Karen Antman, MD, congratulates the class and their parents.



A new graduate celebrates the proud moment with her family.



The *Journal of the American Medical Association* editor-in-chief Howard Bauchner, MD (MED’79) gave the Commencement address.

“Medicine is a sacred trust; an extraordinary and rewarding profession. You have an ethical obligation to serve the interest of your patients first and always—always—practice it to the best of your ability.”

A Special Day for GMS Graduates

If you want to make a difference, think boldly, out of the box and take a chance. If we learn from our mistakes, they aren't mistakes, they are learning experiences. Over the past two years, our job has been to prepare you for professional success. Until now, your job has been to answer our questions correctly. Now you have a new job. It's time for you to start asking the right questions," Associate Provost for Graduate Medical Sciences (GMS) Linda Hyman, PhD, told graduates at the GMS Commencement on Friday, May 15, at Metcalf Hall in BU's George Sherman Union.

Joining 341 master's degree candidates, faculty members wearing colorful regalia lined the staircase and filed into their seats. "Today is a day of traditions: the organ, the processional, the gathering of your mentors, friends, and family. Today is a very special day. The traditions of today are important. They help us connect the dots, punctuating milestones in our lives."

Three student speakers offered perspective on their GMS experiences and their hopes for their classmates.

According to Peter Foster, who earned a master's in Medical Sciences, "We are all about to embark into a rapidly changing landscape of health care and health policy. Whether you go into research, business, law, medicine, public service, or education, neither you nor

society can continue to survive or prosper simply by implementing what is already known. Somebody is going to have to come up with meaningful new ideas, creative new approaches, and important new discoveries. That 'somebody' is you. We owe it to our future patients, clients, and colleagues to never settle for anything but our very best."

Bianca Bracho-Perez, who received her master's in Medical Anthropology and Cross-Cultural Practices, also shared some thoughts: "GMS allows for and encourages the cross-pollination of disciplines, creating an environment where partnerships grow and innovation flourishes...it is when we open our work to those not in our field that we gain perspective and create the greatest impact."

Michael Hendrickson, a Master of Arts in Mental Health Counseling and Behavioral Medicine candidate, asked, "But what do this diploma and our hoods really represent? To me—and my hope is that this extends to every graduate who crosses the stage today—our diplomas represent not only professional, but personal growth. My hope is that we will each continue to encounter those challenges that make us question everything. For that is when we can grow as clinicians and as individuals." ■

Visit the **BUSM Facebook album** for more of the day's photos at facebook.com/BUMedicine.



Happy GMS graduates.



Members of the Graduate Medical Sciences Class of 2015 master's degree programs, faculty members, and family and friends at Commencement exercises.



We did it! GMS graduates process out of Metcalf Hall at the ceremony's end.

PHOTOS BY FRANK CURRAN

PHOTO BY JAKE HOPKINS



Jennifer Kirshenbaum (LAW'05); Elaine Kirshenbaum (CAS'71, SED'72, SPH'79); David Coleman, MD; Jeffrey Drazen, MD; Daniel Kirshenbaum (CAS'07, MED'11); and Laura Kirshenbaum (LAW'12)

NEJM Editor Delivers Annual Kirshenbaum Lecture

JEFFREY DRAZEN, MD, EDITOR-IN-CHIEF of the *New England Journal of Medicine (NEJM)*, delivered the annual Howard D. Kirshenbaum, MD, Lecture on "The Current State of the Ebola Outbreak." The lecture offered a history of known Ebola outbreaks in central Africa and an overview of the current outbreak in West Africa.

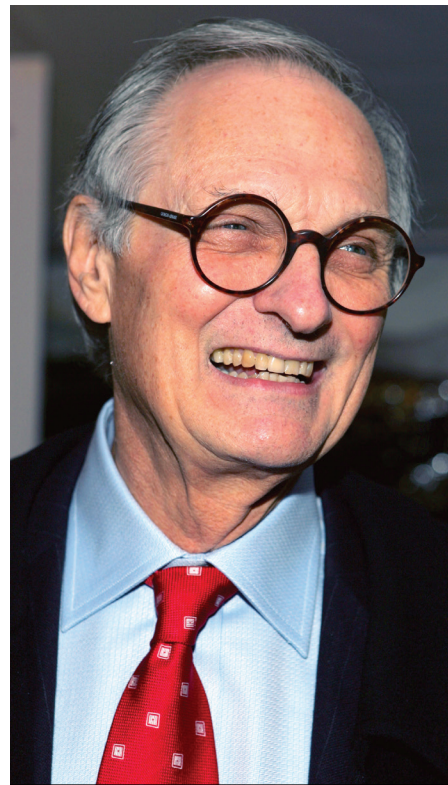
"The current West Africa Ebola outbreak has been more extensive than cases in Central Africa for a number of reasons," said Drazen, also a pulmonologist at

Brigham and Women's Hospital; Distinguished Parker B. Francis Professor of Medicine at Harvard Medical School; professor of physiology at Harvard School of Public Health; and adjunct professor of medicine at BUSM. "Having no previous experience with Ebola, the health care systems in Sierra Leone, Guinea, and Liberia do not have the know-how or capacity to effectively deal with and contain the disease."

Drazen, who referenced several recent *NEJM* articles on the Ebola outbreak, noted the differences between the two regions; the Ebola virus variant or strain evident in West Africa differs from that of the Central African region. He also noted that some of the cultural and behavioral customs in Central African countries with outbreaks—exclusive of burial

rites—carry a lower risk of infection. The West African outbreaks occurred in more densely populated areas with more extensive road networks, making transmission of the virus more likely. Drazen concluded his remarks by encouraging health care workers to volunteer to care for patients in West Africa.

Elaine Kirshenbaum, BU Board of Overseers and BUSM Dean's Advisory Board member, established the lecture in honor of her late husband, the prominent cardiologist Howard Kirshenbaum. "My husband was an exceptional physician and it is an honor to support this lecture in his memory," said Kirshenbaum. "I am honored that Jeff Drazen is this year's lecturer, and I am grateful to BU, which has been here for me." ■



Alan Alda

Communication Workshop BU Scientists Get a Lesson in Telling Their Stories

ALAN ALDA HAS A PASSION—FOR SCIENCE.

Actor Alan Alda, most famous for his roles in *M*A*S*H* and, more recently, PBS's *Scientific American Frontiers*, made a "guest appearance" on the Medical Campus via video recording. The School of Medicine welcomed faculty from the Alan Alda Center for Communicating Science to a one-day workshop to help BU scientists communicate their work more effectively to their colleagues, the public, policymakers, and funders.

The exercises challenged them, through both discussion and practice, to pay close attention to others and be aware of the two-way nature of communication. BUSM is proud to be the first medical school in the country to host the program.

Forty-one scientists from the Medical and Charles River Campuses learned how to communicate their work, connect with their audience, and speak clearly and conversationally about why their work matters by attending two 3-hour workshops on improvisation and message delivery.

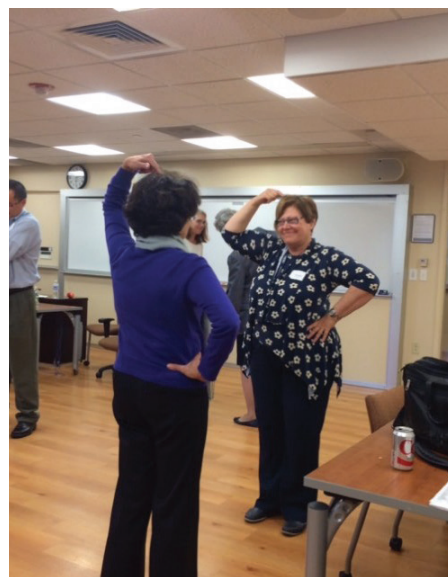
Assistant Dean for Academic Affairs Suzanne Sarfaty, MD, had previously attended a workshop at the Alda Center at Stony Brook University in New York and was eager to bring it to the Medical Campus. "I was so impressed with the thinking behind it and the power of the program," she said. "I knew it would be a valuable experience for our scientists and would enrich the BU community."

During the "Distilling Your Message" workshop, participants explained their

research as though they were pitching their story to a non-scientist TV show producer. The scientists practiced finding common ground with an audience, speaking at different levels of complexity for different listeners, and answering questions about their work. Later, "Improvisation for Scientists" used improv theater techniques to help participants speak more spontaneously and responsively. Isabel Dominguez, PhD, assistant professor of hematology and medical oncology, said she was excited to share the ideas and techniques she learned with her lab colleagues and trainees: "This was a very valuable workshop. It will make me better at explaining my work and training others in my lab to be more effective in telling their stories as well." ■

Alan Alda Center
for Communicating Science

AT STONY BROOK UNIVERSITY



Researcher Carmela Abraham during the improvisation workshop

Training Medical Professionals to Teach

Teaching and Learning is one of several courses Gail March (CFA'73), PhD, plans to offer through the BUSM+ Medical Education Badge Program. As a School of Medicine assistant professor and director of instructional design and faculty development, March knows that many medical students dream of being able to teach one day, but the intensive rigors of their curriculum leave them little time to acquire the skills that would prepare them to do so. The same is often true of doctors and nurses who have developed areas of expertise and are interested in teaching, but lack the requisite background.

While March has run a faculty development program at MED for the past decade, she came to realize that she wasn't reaching everyone, particularly busy health care providers who had dedicated their professional lives to caring for patients and suddenly found themselves asked to teach. This led her to propose and create the BUSM+ Medical Education Badge Program through a Digital Learning Initiative (DLI) seed grant for online innovation in higher education.

The program's first course, Teaching and Learning, will provide health care professionals with a foundation in different learning styles, give them the tools necessary to design an interactive course,

and teach them how to evaluate students.

"It's a very new concept," says March. The program is designed for health care providers of all stripes—including doctors, nurses, chiropractors, and dentists—who are preparing to enter the classroom as instructors. March says the program is also ideal for health care providers already teaching who want to enhance their skills. "We wanted to introduce some new ideas in medical teaching because there have been so many advances in medical technology," she explains.

"There is growing demand for nontraditional professional development programs," says Chris Dellarocas, director of the DLI. "Such programs are typically

short, highly targeted, and do not culminate in traditional degrees, but rather in micro-credentials, such as certificates and badges. Beyond the merits of its excellent content, the MED badge program is especially interesting because it is Boston University's first experiment with badges."

Registrants receive the badge level that corresponds with the number of sessions they complete (up to ten): Competent (5 sessions); Exemplary (7 sessions); or Master (10 sessions). Single sessions are also an option for those not looking to earn a badge.

Each session features a video with tips from MED's leading faculty—including Anna Hohler, MD (MED'98), associate professor of neurology; Robert C. Lowe, MD, associate professor of medicine; and Wayne LaMorte, MD, professor of surgery and School of Public Health professor of epidemiology—on topics such as facilitating small-group learning, developing interactive lectures and presentations, designing multiple-choice assessments, and identifying the neurological basis for the adult learner. Participants will have a week to complete each session, which can be accessed 24/7. Those electing to take all 10 sessions will be given 12 weeks to complete the program.

Registrants receive their digital badges once they've completed the requisite number of sessions, and can use Mozilla's Open Badge infrastructure to create a "backpack" in which to store their new accolades. Or, if they prefer, they can attach them to their electronic portfolio, CV, or social media sites such as LinkedIn and Facebook.



Gail March

March has already heard from interested health care professionals from as far away as India, Armenia, and Russia. She stresses that the program is designed to be useful to fellows, residents, medical students, physician assistants, nurses, physical therapists, and many other health care professionals—especially considering that the sessions count toward required continuing medical education credits.

She also plans to launch three more courses—Curriculum Design, Academic Leadership, and Medical Education Research—covering skills that medical students and professionals want to learn, but often don't have time to pursue in traditional classes.

Visit bu.edu/busmplus for more information on the BUSM+ Medical Education Badge Program. Institutions and schools outside of Boston University registering more than 10 people can email busmplus@bu.edu for discounts. This article appeared in *BU Today*. ■

BOTTOM LEFT PHOTO BY SUZANNE SARFATY, MD

PHOTO BY JACKIE RICCIARDI

Dean's Advisory Board Meeting

The School of Medicine's Dean's Advisory Board held its annual spring meeting on April 30. Dean Karen Antman, MD, opened with an update on the School's new educational initiatives. Director of the Behavioral Science Division of the National Center for Post-Traumatic Stress Disorder (PTSD) and Assistant Dean for Research Dr. Terry Keane delivered a presentation on the pioneering research studies and treatments for PTSD. The Board also heard from Dr. Vasam Ramachandran, chief of the Section of Preventive Medicine & Epidemiology and principal investigator of the Framingham Heart Study, who gave an update on the current state of the study and his vision for the future. The meeting closed with a presentation and tour of the School's "History Hall" led by Associate Dean for Academic Affairs Dr. Doug Hughes. ■

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Above: Dean Karen Antman, MD, and Louis Sullivan, MD (MED'58).
Below: Presenters Vasam Ramachandran, MD, Terence Keane, PhD, and Douglas Hughes, MD.



Keefe Society Dinner

Members of Boston University School of Medicine's Dean's Advisory Board and the Chester S. Keefe, MD Society gathered at the Four Seasons Hotel for the Society's 22nd annual dinner on April 30. Guests met current students in the medical degree, physician's assistant, and combined MD/PhD programs and enjoyed a performance by the student a cappella group The Doctors' Notes. The Keefe Society recognizes donors who have supported the School of Medicine with lifetime gifts totaling \$50,000 or more. Dean Karen Antman, MD, recognized eleven new inductees and welcomed them into the Society. ■



Above: Frank Citrone and Nicholas Citrone.
Below: Christina Snyder (MED'18), Leslie Serchuck, MD (MED'90), and David Swain (MED/PHD'22).



Clockwise from above:

Class of 2015 Keefe Society Members Josh Kessler, MD (MED'99), Burton Korelitz, MD (MED'51), Lois Kessler, Ann Korelitz, Carol Pohl, MD (MED'67), Bob Kessler, Maggie Kessler, and Alan Pohl, MD, with Dean Karen Antman, MD.

The Doctors' Notes

Suzanne Cutler, PhD, Shamim Dahod, MD (MED'87), and Christine Hunter, MD (MED'80).

Clara Zhu (MED'18), Nelya Lashtur (PA'16), John Polk, MD (MED'74), and Robin Chin (MED'18).

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DAB PHOTOS BY JAKE HOPKINS. KEEFER SOCIETY DINNER PHOTOS BY FRANK CURRAN.

Appointments and Honors

APPOINTMENTS

Scott Duncan, MD, MPH, MBA, was appointed chair of the BUSM Department of Orthopaedic Surgery and chief of orthopaedic surgery at BMC effective January 1. Duncan comes to campus from Ochsner Health System in New Orleans, Louisiana, where he served as system chair of orthopaedic surgery and section head of hand and upper extremity surgery.

Duncan is a globally recognized expert and thought leader in the areas of upper extremity trauma; revision carpal tunnel surgery; small joint arthroplasty; and reconstructive surgery of the wrist, forearm, elbow, and shoulder. He frequently presents at medical schools and conferences around the world on topics such as shoulder arthroscopy, hand trauma, thumb injuries, and utilizing iPads and iPhones in an orthopaedic surgery practice. He has served as an international visiting professor of orthopaedic surgery, most recently at the Medical College of Peru in Lima.

A graduate of Harvard University, he earned his medical degree and Master of Public Health in Epidemiology at the University of Washington (UW) Schools of Medicine and Public Health. He also received his Master in Business Administration, Health Care Management, at the University of Texas Southwestern Medical Center. He completed his residency in orthopaedic surgery at the Campbell Clinic, University of Tennessee, and a fellowship in hand and upper extremity surgery and microsurgery at the Hospital for Special Surgery at Cornell University Medical College.

Andrew W. Taylor, PhD, was named BUSM Associate Dean for Research effective January 15. Currently professor and director of research in the Department of Ophthalmology, Taylor joined the BUSM faculty and the Immunology Training program in 2010; he had previously served on the faculty of the Schepens Eye Research Institute and the Department of Ophthalmology at Harvard Medical School. An internationally recognized expert on the role of melanocortins in immunity, he runs a globally renowned vision science research program in ocular immunobiology,

neuroimmunology, and immune privilege, and has served on the National Institutes of Health, Department of Defense, and international foundation grant review panels for vision research. He received his PhD from the Ohio State University, Department of Microbiology, and completed a postdoctoral fellowship at the University of Miami School of Medicine. ■

HONORS

White House Drug Control Policy Director Michael Botticelli has awarded BUSM's Safe and Competent Opioid Prescribing Education (SCOPE of Pain) program a 2014 National High Intensity Drug Trafficking Area (HIDTA) Award for Outstanding Prevention Effort.

Boston Magazine's annual Top Docs issue included 62 BUSM faculty and BMC physicians. Nahid Bhadelia, MD, assistant professor of medicine in the section of infectious diseases, is pictured on the magazine's cover; her work caring for Ebola patients in Sierra Leone is featured.

Dani Carmela Abraham, PhD, professor of biochemistry and pharmacology, was one of six to receive the Massachusetts Neuroscience Consortium Award. Abraham was recognized for her work on multiple sclerosis and the role of the life extension protein Klotho in the limited repair of white matter in the disease. The Consortium awards translational research in neurodegenerative and neuroinflammatory diseases such as Amyotrophic Lateral Sclerosis, Alzheimer's disease, Huntington's disease, multiple sclerosis, Parkinson's disease, neuropathic pain, and treatment-resistant depression.

Daniel Alford, MD, MPH, associate dean of the office of Continuing Medical Education and associate professor of medicine and director of the Clinical Addiction Research and Education Unit at BMC, received the American Medical Association (AMA) Foundation Award for Health Education, established to recognize professional educational activities by practicing physicians and

to encourage health education, particularly regarding drug and alcohol abuse.

Emelia Benjamin, MD, received the 2015 Paul Dudley White Award from the American Heart Association (AHA). Named in honor of one of Boston's most revered cardiologists (and a founding father of the AHA), Dr. Paul Dudley White, the annual award honors a Massachusetts physician who has made a distinguished contribution to the Association's mission of building healthier lives free of cardiovascular disease and stroke.

Robert A. Brown, PhD, Boston University president, was named a fellow of the National Academy of Inventors (NAI). Brown is one of 170 new NAI fellows and one of 414 currently representing more than 150 research universities and governmental and nonprofit research institutions.

Alan Farwell, MD, received the American Thyroid Association's (ATA) 2014 John B. Stanbury Pathophysiology Medal and Distinguished Service Award. A BUSM associate professor of medicine and director of the Endocrine Clinics at BMC, Farwell has served two terms on the ATA Board of Directors, is the founding and current chair of the ATA Alliance for Patient Education, and is editor-in-chief of *Clinical Thyroidology for the Public*.

James Feldman, MD, MPH, BUSM professor of emergency medicine and a physician at Boston Medical Center, has been honored by the Massachusetts Medical Society with its Committee Chair Service Award, which recognizes exceptional leadership and service to the Society, the statewide professional association of physicians.

Thea James, MD, associate professor of emergency medicine and an attending physician at BMC, was named the recipient of the 2014 Schwartz Center Compassionate Caregiver Award from the Schwartz Center for Compassionate Health Care, a patient-founded, nonprofit dedicated to nurturing patient and caregiver relationships to strengthen the human connection at the

heart of health care. James co-founded the Violence Intervention Advocacy Program (VIAP) at BMC as well as Unified for Global Healing, a foundation aimed at improving health outcomes across the globe. James also received the Pinnacle Award from the Greater Boston Chamber of Commerce, which honors business and professional women who have demonstrated excellence in entrepreneurship, management, and lifetime achievement.

Michael Klein, MD, professor of medicine and director of the BMC Electrocardiology Laboratory, received the 2015 Jerome Klein Award for Physician Excellence. Established in 2010 to commemorate Jerome Klein's 50 years of service to BMC/BUSM, the award is presented annually to a physician who mirrors Jerome Klein's commitment and service as a mentor, leader, teacher, researcher, and clinician.

Robert C. Lowe, MD, BUSM associate professor of medicine, has been honored by the Massachusetts Medical Society as the 2015 recipient of the Grant V. Rodkey Award, which recognizes a Massachusetts physician

for outstanding contributions to medical education and medical students.

Rafael Ortega, MD, BUSM associate dean of Diversity & Multicultural Affairs, was chosen by the *Boston Business Journal* as an honoree for the Annual Leaders in Diversity Awards. The award recognizes companies and individuals for their leadership in successfully promoting inclusiveness and opportunity. Ortega, a professor of anesthesiology and attending physician at BMC, received the Corporate Leadership Award for his exceptional work at the Diversity & Multicultural Affairs office.

Vasan R. Ramachandran, MD, professor of medicine and principal investigator of the Framingham Heart Study, was awarded a 2014 Population Research Prize by the American Heart Association (AHA). Ramachandran, also chief of the Section of Preventive Medicine and Epidemiology and Cardiology in the Department of Medicine, was recognized "for brilliantly seizing upon opportunities to translate cutting-edge bench science into an epidemiological context, thereby making fundamental contributions to identifying systemic markers for

cardiovascular risk, both here and in developing countries."

Jean E. Ramsey, MD, MPH (See page 35.)

Robert Saper, MD, MPH, associate professor of family medicine and director of the Program for Integrative Medicine & Health Care Disparities at BMC, has been named co-editor-in-chief of *Global Advances in Health and Medicine (GAHM)*, which includes a peer-reviewed, indexed medical journal offering original research articles as well as multiple online forums. The journal is published six times a year in print, digital, and mobile formats with abstracts in English, Spanish, and Chinese.

Barry S. Zuckerman, MD, BUSM professor and chair emeritus of pediatrics and BUSPH professor of public health, received the Federation of Pediatric Organizations' Joseph W. St. Geme, Jr. Leadership Award, created to recognize a pediatrician who is a role model as a clinician, educator, and/or investigator. Recipients of the award have made broad and sustained contributions to pediatrics that have or will have a major impact on child health. ■

Five BUMC Faculty Members Elected AAAS Fellows

The American Association for the Advancement of Science (AAAS), the world's largest general scientific society and publisher of the journals *Science*, *Science Translational Medicine*, and *Science Signaling*, has named five members of the Boston University Medical Campus (BUMC) community AAAS Fellows:

David Center, MD, associate provost for Translational Research, director of BUMC Translational Research Institute, and chief of Pulmonary, Allergy & Critical Care Medicine at Boston Medical Center (BMC), was elected as a fellow under the Section on Medical Sciences for his contributions to the field of Immunology, particularly the discovery of the first human (IL-16) and virus-derived (HIV-1 gp120) lymphocyte chemotactic factors.

Ronald Corley, PhD, professor of microbiology and director at the National Emerging Infectious Diseases Laboratories, was elected as a fellow under the Section on Medical Sciences for his contributions to the field of immunology, particularly in elucidating innate functions of antibodies and B cells and their roles in accelerating adaptive immunity.

Josée Dupuis, PhD, professor and associate chair of Biostatistics, was elected as a fellow under the Section on Biological Sciences for her contributions to the field of statistical genetics, leading to the discovery and improved understanding of the genetic basis for common diseases.

Katya Ravid, DSc, PhD, professor of medicine and biochemistry and founding director of the Evans Center for

Interdisciplinary Biomedical Research, was elected as a fellow under the Section on Medical Sciences for pursuing interdisciplinary research. Ravid outstandingly combined the fields of hematology and vascular biology, leading to the discovery of transcriptional and cell cycle signatures that govern polyploidy during megakaryocyte/platelet development.

David Salant, MD, professor of pathology and laboratory medicine, BUSM and chief of the Section of Nephrology at BMC, was elected as a fellow under the Section on Medical Sciences for his contributions to the field of immunological kidney diseases, particularly for discovering that the anti-phospholipase A2 receptor is the major autoantigen in human membranous nephropathy.

Snapshots of the Campus



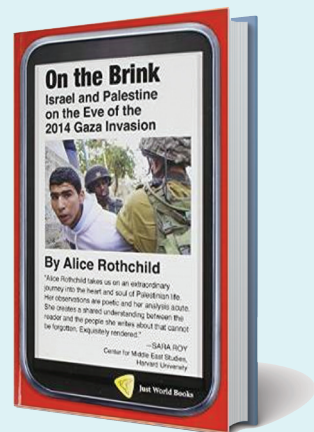
Publications

Fit from the Start: How to Prevent Childhood Obesity in Infancy (Shape Up America, 2014)
Alvin N. Eden, MD (MED'52)
 co-author with Barbara Moore and Adrienne Forman

This book offers critical information on preventing obesity in infancy, including how to avoid overfeeding (with breast and bottle), how to spot excess weight gain and what to do about it, why sleep matters, how to establish healthy sleep patterns, and how and when to introduce solid foods.

Dr. Eden has more than 40 years of experience as a practicing pediatrician and is a clinical professor of pediatrics at Weill Cornell Medical College in New York City. He has authored six child care books, including *Growing Up Thin*, which focuses on treating overweight and obese children.

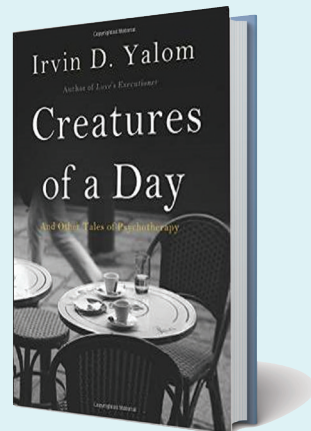
On the Brink: Israel and Palestine on the Eve of the 2014 Gaza Invasion (Just World Books, 2014)
Alice Rothchild, MD (MED'74)



With this compelling collection of blog writing that chronicles a fact-finding and solidarity visit to the West Bank and Israel during the last three weeks of June 2014, physician, author, filmmaker, and activist Alice Rothchild

delivers a lively, honest, heartbreaking collection of reports from the field. She documents the stories and lives that do not make the evening news but are essential to understanding the context in which that news occurs.

Creatures of a Day: And Other Tales of Psychotherapy (Basic Books, 2015)
Irvin Yalom, MD (MED'56)



A collection of stories about his patients' struggles with how to live a meaningful life and cope with its end, *Creatures of a Day* is funny, earthy, and often shocking; it is a radically honest statement about the difficulties of human life but also a celebration of some of the finest fruits—love, family, friendship—that life can bear. We are all creatures of a day. With Yalom as our guide, we can find in this book the means not just to make our own day bearable, but meaningful, and perhaps even joyful.

Dr. Yalom is an emeritus professor of psychiatry at Stanford University and a psychiatrist in private practice in San Francisco. He has authored many books, including *Love's Executioner*, *Theory and Practice in Group Psychotherapy*, and *When Nietzsche Wept*. ■

First-Year Medical Students Receive Stethoscopes Compliments of BUSM Alumni



Nanette Harvey, MD, (white coat) coordinator for medical equipment to first-year students, with Class of 2018 members and their new stethoscopes.

Members of the class of 2018 each received a stethoscope—that symbol of medical practice every physician must possess—on Tuesday, Oct. 28, thanks to the Stethoscopes for Students program coordinated by the BUSM Alumni Association and funded through the generosity of BUSM alumni donors.

"This is a special day for our first-year medical students, as they receive their medical equipment that will serve as their clinical tools for years," said Nanette Harvey, MD, BUSM course director for Introduction to Clinical Medicine and coordinator of medical equipment distribution to first-year students. "When we announced to the class that they would all be receiving their stethoscopes compliments of the School's graduates, they broke into applause. They are so appreciative of alumni generosity."

Harvey also noted that through this plan, the School hopes to alleviate any stress students may experience over the prospect of buying their own equipment.

Along with the stethoscope, the distributed medical equipment included a blood pressure cuff, ophthalmoscope, otoscope, reflex hammer, tuning fork, and a CD of heart sounds. Each student penned a thank-you note to the alum who contributed to the purchase of their stethoscope.

First-year students Gareth Marshall and Tovah Koswosky were thrilled and grateful to receive their equipment. "What makes this gift so meaningful is that it is something we will carry with us for our entire medical careers," said Marshall. Koswosky added that she was especially gratified to receive her stethoscope "from alumni who were in my exact shoes at one time. This makes them present." ■

IN Memoriam



Joseph A. Vita, MD, on November 2 at the age of 58. Director of clinical research at the Whitaker

Cardiovascular Institute, he served as BUSM professor of medicine and senior staff cardiologist in the Section of Cardiovascular Medicine at BMC.

Dr. Vita devoted his career to clinical and translational research in vascular biology with a focus on mechanisms and clinical consequences of endothelial dysfunction. He created vascular testing spaces within the Whitaker Institute as well as at the Framingham Heart Study, where he and his team studied vascular physiology in patients. He was also the principal investigator of a Specialized Center of Clinically Oriented Research (SCCOR) Grant on Vascular Injury, Remodeling, and Repair titled, "Vascular Consequences of Insulin Resistance and Obesity."

His clinical activities included consultative cardiology and rotations as an attending physician in the BMC coronary care unit.

In addition to his own research activities, he devoted a large portion of his time to training physicians and post-doctoral fellows in the conduct of clinical and translational research.

He is survived by his wife Gina Marie (Fantasia) Vita, a daughter, and a son.

To make a donation in memory of Dr. Vita, please contact the BUSM Development Office at 617-638-4570 or busmdev@bu.edu.

PHOTOS BY DAVID KEOUGH (BUSM EDUCATIONAL MEDIA)

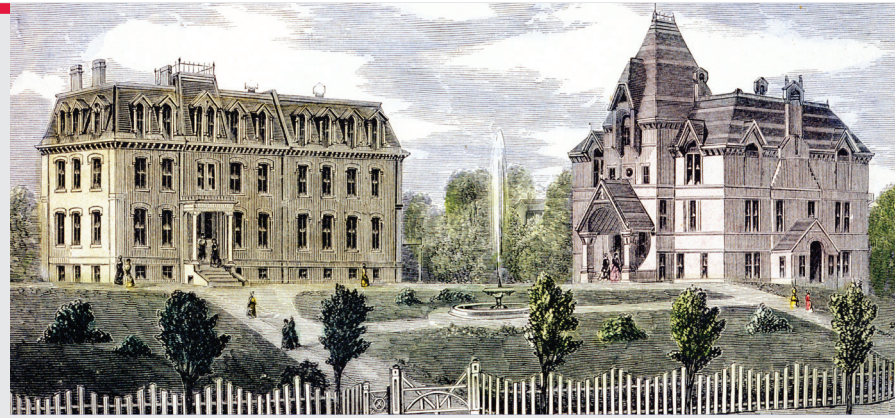
PHOTO BY AMY GOREL

CAMPUS VIEWS

The Medical Campus Grows

From its earliest days when the Medical Campus included the New England Female Medical College (which became Boston University School of Medicine in 1873), and the Massachusetts Homeopathic Hospital (now the School of Public Health) to the present day, the Medical Campus has maintained its presence in the South End of Boston. Still centered on Talbot Green, the Schools of Medicine, Public Health, Dental Medicine, and Division of Graduate Medical Sciences have expanded and flourished to encompass 80 acres.

1876



1890



1915



2014



The Hospital Grows

Boston City Hospital, now Boston Medical Center (BMC), was founded in 1855 and "intended for the use and comfort of poor patients, to whom medical care will be provided at the expense of the city, and... to provide accommodations and medical treatment to others, who do not wish to be regarded as dependent on public charity." BMC, now a 482-bed facility and New England's largest safety net hospital, "is devoted to the proposition that every person, regardless of his or her social or economic circumstances, deserves the best health care."

Early
1860s
Original
Design



Late
1860s
Boston
City
Hospital




Late
1890s
Boston
City
Hospital




2014
Boston
Medical
Center






Camron Bryant, PhD

Bryant aims to improve understanding of the neurobiological mechanisms of addiction and to translate the findings into treatment and prevention strategies in humans.



Narayanan 'Bobby' Kasthuri, MD, DPhil

Using large-volume electron microscopy, Kasthuri makes brain maps to demonstrate how the brain is wired and how this wiring changes as the brain grows.



Karin Schon, PhD

Schon studies the role of aerobic exercise as a way to fine-tune cognitive function and regulate brain health in aging and AD in humans.

Brainiacs

MEET THE SEVEN NEUROSCIENCE RESEARCHERS CHOSEN AS SPIVACK SCHOLARS

BY MARY HOPKINS

PHOTOGRAPHS BY
KELLY DAVIDSON

THE NERVOUS SYSTEM—the brain, the spinal cord, and the sensory organs and the nerves that connect them together and to other parts of the body—is the human body's communication "super highway." Nervous system or neurological disorders can result from genetic defects, physical damage due to trauma or toxicity, infection, or simply aging.

Understanding the structure, function, and factors that affect the nervous system—the basis of neuroscience—is crucial to both preventing and treating neurological disorders. At BUSM, the Jack Spivack Excellence in Neurosciences Awards help fund the research of outstanding BUSM faculty members conducting either clinical or basic research in neurological disorders including Parkinson's disease (PD), Alzheimer's disease (AD), and Chronic Traumatic Encephalopathy (CTE). >

According to the World Health Organization, neurological disorders affect up to one billion people worldwide and kill an estimated 6.8 million people every year. In the United States, approximately 50,000 new cases of Parkinson's disease are diagnosed each year. The Alzheimer's Association (AA) reports that 5.4 million Americans suffer from Alzheimer's disease; by 2050, they believe that number will jump to between 11 and 16 million.

In addition to the \$7 million bequest he made to support The Spivack Center for Clinical & Translational Neuroscience, businessman Jack Spivack established the neuroscience awards in 2013 to recognize and bring needed resources to faculty across multiple disciplines. A founding member of the BUSM Dean's Advisory Board, Spivack has long been interested in how human behavior is influenced by psychological changes in the developing brain. The Spivack Center facilitates interactive, multidisciplinary, and collaborative research that crosses classic institutional boundaries to translate discoveries from science into clinical treatments for brain disorders that profoundly affect human health and well-being from the newborn to the aged.

The seven BUSM faculty members named 2015 Spivack Scholars represent a group of basic science and clinical investigators who work in the context of the causes and treatment of human neurologic, psychiatric, and developmental brain disorders.

● Medical geneticist **Lindsay Farrer, PhD**, is the 2015 Senior Spivack Scholar. A professor of medicine, neurology, and ophthalmology, he is chief of the Biomedical Genetics Section of the BUSM Department of Medicine. He also is a professor of epidemiology

ONE BILLION people worldwide are affected by neurological disorders

6.8 MILLION (estimated) people are killed by neurological disorders each year

5.4 MILLION Americans currently suffer from Alzheimer's disease

and biostatistics at BU School of Public Health and serves as director of the BU Transformative Training Program in Addiction Science and the BU Molecular Genetics Core Facility.

Farrer's research focuses on identifying genetic mechanisms of brain-related diseases to identify new targets for treatment and prevention. In collaboration with laboratories worldwide, Farrer has identified genes causing complex disorders including Alzheimer's disease, age-related macular degeneration, and substance dependence.

"Over the past 25 years, Dr. Farrer has made critically important contributions to understanding the genetic causes of Alzheimer's disease," says David Coleman, MD, Wade Professor and Chair of the BUSM Department of Medicine. "He founded the NIH-supported Multi-Institutional Research on Alzheimer's Genetic Epidemiology (MIRAGE) Study that linked 17 centers in North America and Europe in identifying, phenotyping, and genotyping

The Spivack Center facilitates interactive, multidisciplinary, and collaborative research that crosses classic institutional boundaries.

to complete the genetic structure of the disease through the NIH-funded AD Sequencing Project. His work also has defined genetic risk factors for AD in African Americans and the cellular pathways by which key proteins associated with AD are processed. "Dr. Farrer's work has provided critical insights into the mechanisms of Alzheimer's and the potential strategies to diagnose and treat this devastating disease," adds Coleman.

A Founding Fellow of the American College of Medical Genetics (ACMG), Farrer is project director of the MIRAGE study, co-directs analysis for the Alzheimer Disease Genetics Consortium, and serves on the executive committee of the Alzheimer Disease Sequencing Project. With more than 350 publications on genetic risk factors for neurodegenerative and other chronic diseases, he and his group also have localized genes causing Wilson disease, Machado-Joseph disease, Waardenburg syndrome, hypertension, sensorineural deafness, and osteoarthritis.

"Boston University is home to many highly accomplished and internationally recognized neuroscientists," notes Farrer. "My scientific achievements resulted from joint efforts with many researchers at BU and elsewhere, testifying to the value and importance of collaborative science."

● The six BUSM faculty members named Junior Spivack Scholars study both genetic and environmental factors involved in neurological disorders. **Camron Bryant, PhD**, assistant professor of pharmacology & experimental therapeutics and psychiatry and director of the BUSM Laboratory of Addiction Genetics, uses animal models to determine the genetic basis of behavioral and molecular traits related to substance dependence. Through this research, he aims to improve the understanding of the neurobiological mechanisms of addiction and to translate the findings into treatment and prevention strategies in humans.

Bryant is currently examining the genetic and neurobiological factors that influence the addiction liability of opioids and other substances of abuse by using statistical genetics and analysis of gene expression in the brain to reveal the molecular mechanisms.

"Substance abuse disorders are heritable psychiatric conditions whose genetic basis remains largely unknown," explains David Farb, PhD, professor and chair of pharmacology & experimental therapeutics. "Mammalian model organisms offer a powerful, complementary tool for accelerating the discovery of novel genetic factors and neurobiological mechanisms in humans. Dr. Bryant's research is committed to the development of novel behavioral models across multiple abused substances that most directly gauge the contribution of natural genetic variation and bridging these discoveries with systems-level neurobiology and molecular

more than 3,000 patients with AD and their siblings. This remarkable genetic epidemiologic study showed that the impact of the APOE (alipoprotein E) gene on AD risk and age at onset is influenced by factors such as medications including statins and anti-inflammatory agents, alcohol consumption, and head trauma."

Farrer and his team have identified more than 20 genes that influence the risk of AD and are on track



Lindsay Farrer, PhD

"My scientific achievements resulted from joint efforts with many researchers at BU and elsewhere, testifying to the value and importance of collaborative science."

genetics to validate candidate-functional variants. This multi-pronged approach leverages his ability to make discoveries that could translate to new pharmacotherapeutic avenues for treatment and prevention of addictive disorders."

Bryant also has a longstanding interest in deciphering the neurobiological basis of the "placebo effect," a phenomenon that is thought to be mediated by the reward expectation: "I plan to develop and apply a forward genetic analysis toward Pavlovian conditioning animal models across a variety of conditions that are notoriously sensitive to the placebo effect, including pain, anxiety, depression, and Parkinson's disease."

● Assistant Professor of Physiology & Biophysics and Pharmacology & Experimental Therapeutics **Chris Gabel, PhD**, studies how individual neurons and small neuronal circuits regenerate. A member of the BU Photonics Center, Gabel uses advanced imaging and laser surgery techniques to explore the genetic, molecular, and physiological pathways that enable neurons to regrow after physical damage. His goal is to answer fundamental questions related to the treatment of spinal cord injury and neurological diseases.

"His research employs a diverse and powerful combination of experimental techniques to study the basic biology of nerve damage and regeneration," says David Atkinson, PhD, professor and chair of physiology & biophysics and research professor of biochemistry. "Dr. Gabel has developed a uniquely flexible and powerful experimental system by combining an array of advanced biophotonic techniques with the unique genetic capabilities of the nematode worm *C. elegans*, a powerful model animal with a long history of translational research."

Using a femtosecond laser, Gabel can dissect individual nerve fibers within intact adult *C. elegans* and measure the subsequent nerve regeneration. "For our purposes, *C. elegans*' simple, completely mapped nervous system, small transparent body, and amenable genetics make it an ideal test bed for novel biophotonic techniques and applications," he says. "The results are exciting, technologically driven breakthroughs that are pushing current understanding in regenerative neurobiology and small circuit function. As such, our laboratory is truly cross-disciplinary with engineers and biophysicists working side-by-side with a traditional biologist."

"His efforts have produced a number of vital findings with direct translational impact on treatments for neurological disorders, including the discovery of a beneficial role of caspase protein activity in regeneration, identification of a key calcium regulatory channel, and the ability to enhance regeneration with optical stimulation," notes Atkinson. "He also has identified new molecular modulators controlling lesion-conditioned regeneration. This body of work and his innovative and interdisciplinary experimental techniques have clear relevance to the mission of the Spivack Award."

● The human brain has an estimated quadrillion nerve connections that are responsible for how it functions and grows. **Narayanan 'Bobby' Kasthuri, MD, DPhil**, is one of the leaders in the emerging field of connectomics, or mapping these connections to understand intelligence, memory, and mental disorders. Using large-volume electron microscopy, the assistant professor of anatomy & neurobiology makes brain maps to demonstrate how the brain is wired and how this wiring changes as the brain grows. A Rhodes Scholar with a doctorate in neurophysiology from Oxford University and a medical degree from Washington University,

Kasthuri as a postdoctoral fellow in the Lichtman Laboratory at Harvard developed and collaborated on much of the connectomics technology currently in use. The data set he is presently developing could be larger than any collected to date.

In addition to his work being featured on National Public Radio, Kasthuri has lectured on connectomics at MIT, the Max Planck Institutes in Germany, and the Nieman Foundation for Journalism at Harvard.

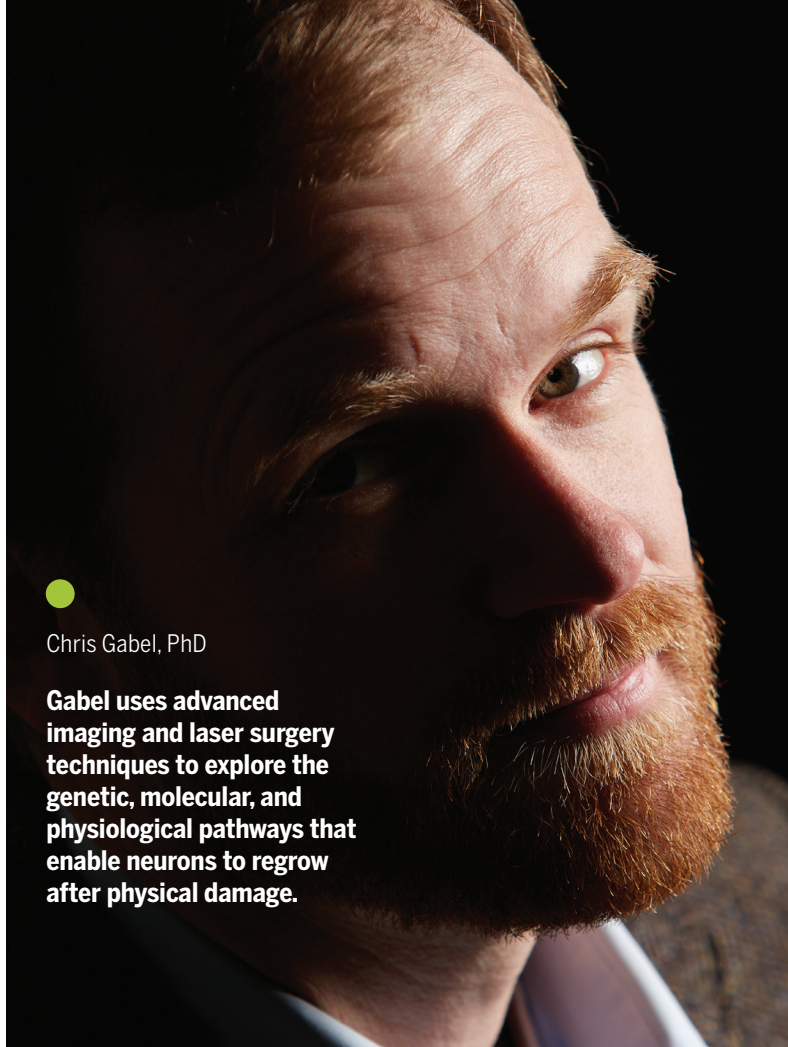
“The Spivack Award is a great honor, and means that the University is willing to support a broad vision of the next generation of brain discovery science and invest in young scientists,” says Kasthuri. “I hope to use the collaborative nature of the Spivack Center to both push the boundaries of what is known about brains in health and diseases, and to bridge the scales over which we study brains from cognition to synapses.”

● A behavioral neurologist who cares for patients with memory and other cognitive and behavioral disorders at the Boston Center for Memory, **Jesse Mez, MD**, is an assistant professor of neurology and associate director of the BU Alzheimer’s Disease Center (ADC) Clinical Core. In this capacity, he helps make clinical consensus diagnoses for ADC participants and provides clinical evaluations for ADC clinical trials. His research applies statistical genetics and the role of genetic factors in families and populations—as well as interaction with environmental factors—to various forms of dementia. He particularly studies the role of genetic and non-genetic factors in atypical clinical presentations of Alzheimer’s disease, and how genetic factors interacting with trauma influence dementia risk.

Mez heads the clinical arm of the NIH-funded UNITE study, which examines the clinical and pathologic correlation of Chronic Traumatic Encephalopathy. Ann McKee, MD, BUSM professor of neurology and pathology, neuropathologist, and director of the BU Chronic Traumatic Encephalopathy Center, is the study’s principal investigator; her work has highlighted the link between brain injury and the neurological disorder CTE most prominently diagnosed in deceased football players. Mez interviews family members and other caregivers of these deceased athletes as well as military veterans.

“As a neurologist with clinical training in aging and dementia and research training in genetics, I try to make connections between genotype, pathophysiology, and clinical presentation,” says Mez. “The research projects we will be conducting over the next year will include questions such as, ‘What are the genetic markers that account for variation in an AD patient’s neuropsychological profile?’ ‘Can including known non-genetic risk factors for AD in disease modeling help us hone in on new genetic markers for AD in African Americans?’ ‘Are there genetic markers that explain why only a subset of individuals with mild repetitive brain trauma go on to develop CTE?’ And, ‘What are the clinical signs and symptoms that best predict CTE pathology?’”

● While exercise is necessary to a healthy lifestyle for all ages, it is especially key for aging populations in order to help mitigate the cognitive and neurological declines associated with the process. However, scientists do not yet fully understand how exercise affects the human brain. **Karin Schon, PhD**, assistant professor of anatomy & neurobiology and director of the Brain Plasticity and Neuroimaging Laboratory, studies the role of aerobic exercise as



Chris Gabel, PhD

Gabel uses advanced imaging and laser surgery techniques to explore the genetic, molecular, and physiological pathways that enable neurons to regrow after physical damage.



Jesse Mez, MD

Mez heads the clinical arm of the NIH-funded UNITE study, which examines the clinical and pathologic correlation of Chronic Traumatic Encephalopathy.

The seven BUSM faculty members named 2015 Spivack Scholars work in the context of the causes and treatment of human neurologic, psychiatric, and developmental brain disorders.

a way to fine-tune cognitive function and regulate brain health in aging and AD in humans. “We know from animal models that aerobic exercise improves functioning of the hippocampus, a brain area important to forming new memories, and that shows profound pathology in AD,” Schon explains. She is examining how the hippocampus responds to exercise training in humans using high-resolution functional and structural MRI, behavioral and exercise physiology methods, and biomarker studies.

A 2005 graduate of BU’s doctoral Brain, Behavior & Cognition program at the Department of Psychological & Brain Sciences, Schon completed her post-doctoral training at BU in cognitive neuroscience and exercise physiology. “This award will allow me to complete my ongoing research project examining the effects of aerobic exercise and fitness on cognitive brain aging using state-of-the-art neuroimaging techniques,” says Schon. “As a Spivack Scholar and junior member of the faculty, I will accomplish broadening my network of colleagues and collaborators and more clearly define my scientific niche as a clinical and translational cognitive neuroscientist both at BUSM and in the broader clinical and translational neuroscience community. I especially appreciate that my scholarly work is being recognized early in my academic career. It tells me, simply put, that my work matters.”

● It’s well recognized that exposure to trauma can lead to the development of psychiatric symptoms, which may become long-lasting and disabling; it also has been determined that exposure to trauma changes brain physiology. **Jeffrey Spielberg, PhD**, assistant professor of psychiatry, studies how brain networks become disturbed in individuals who are exposed to traumatic events and develop pathology as a result, including Post-traumatic Stress Disorder (PTSD) and mild Traumatic Brain Injury (mTBI). Associate director of neuroimaging analysis development in the Neuroimaging Research for Veterans (NeRve) Center and principal investigator of the Motivation & Executive Function in Trauma & Anxiety lab—both located at VA Boston Healthcare System—Spielberg was recruited to BUSM and VA Boston in 2013 from his post-doctoral fellowship at University of California Berkeley, where he worked with a distinguished neuroimaging research group. His earned his doctorate from the University of Illinois at Urbana-Champaign, where he trained at the Beckman Institute.

“Dr. Spielberg’s research suggests that it may be the interplay between mTBI and PTSD that is key to the development of pathology after trauma,” says Terence Keane, PhD, BUSM professor of psychiatry and psychology and director of the Behavioral Science Division of the National Center for Post-traumatic Stress Disorder. “The problems of mTBI, CTE, and PTSD are paramount to the nation at this time, and Dr. Spielberg’s work promises to make outstanding contributions to new knowledge to help us understand how to best provide care to returning Operation Enduring Freedom and Operation Iraqi Freedom veterans.”



Jeffrey Spielberg, PhD

Spielberg studies how brain networks become disturbed in individuals who are exposed to traumatic events and develop pathology as a result.



Jack Spivack has long been interested in how human behavior is influenced by psychological changes in the developing brain.

“I hope to contribute to the important mission of the Spivack Center, which is to shed light on neural circuitry and its contribution to brain-based disorders,” says Spielberg. “As a Spivack Scholar for 2015, I plan to study the way in which neural white matter pathways become disrupted in mTBI and PTSD, specifically in male and female veterans of the current wars. I also will collaborate with others at VA Boston in efforts to understand the genetic basis of individual variation in brain networks as they pertain to mTBI and PTSD.”

“With the support of Jack Spivack, these outstanding researchers can continue discovering and making contributions to the understanding of the human nervous system,” says Dean Karen Antman, MD. “Their work is expanding the horizons of neuroscience research and creating avenues for developing treatments for neurological disorders.” ■

■ New Light Shed on Genetics of Memory Performance

In the largest study of the genetics of memory ever undertaken, an international research team including BUSM scientists has discovered two common genetic variants that are believed to be associated with memory performance. Published in the journal *Biological Psychiatry*, the findings are a significant step towards better understanding how memory loss is inherited.

The Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) consortium was developed to facilitate the study of the entire genome through data pooling from research centers across the world. Nearly 30,000 participants who did not have dementia were included in the study. Each participant completed memory tests, such as word recall, and their entire genome was genotyped. Using sophisticated statistical analysis, the genome was examined for segments that were associated with low memory scores.

The researchers found genetic variants near the Apolipoprotein E gene, known to harbor an increased risk of dementia (especially Alzheimer's disease), were associated with poorer memory performance, mostly so in the oldest participants and for the short story recall. According to the researchers, two additional regions of the genome pointing to genes involved in immune response were associated with the ability to recall word lists, providing new support for the important role immune system dysfunction plays in age-related memory decline. "Interestingly, genetic variants associated with memory performance also predicted altered levels of expression of certain genes in the hippocampus, a key region of the brain for the consolidation of information. These were mainly genes involved in the metabolism of ubiquitin, which plays a pivotal role in protein degradation," explained lead author Stéphanie Debette, MD, PhD, BUSM adjunct associate professor of neurology.

The study was funded by the National Heart, Lung and Blood Institute's (NHLBI) Framingham Heart Study, the National Institute of Neurological Disorders and Stroke, and the National Institute on Aging (NIA).

■ Mobile Device Use Leads to Few Interactions between Mother and Child during Mealtime

Mothers who use mobile devices while eating with their young children are less likely to have verbal, nonverbal, and encouraging interactions with them. These findings, which appear online in *Academic Pediatrics*, may have important implications about how parents balance attention between their devices and their children during everyday life.

The researchers found genetic variants near the Apolipoprotein E gene, known to harbor an increased risk of dementia (especially Alzheimer's disease), were associated with poorer memory performance.

Clinical assessments and research indicate that individuals with alcohol use disorders frequently suffer from severely disrupted sleep.



Mothers with the highest mobile device use were significantly less encouraging toward their children.

BUSM researchers found mothers who used their mobile device the most had significantly fewer verbal interactions with their children than mothers who had no or negligible use while eating. Maternal use of mobile devices was associated with 20 percent fewer verbal and 39 percent fewer nonverbal interactions. Mothers with the highest mobile device use made significantly fewer encouragements toward their children.

"We theorize that mobile device use was associated with a decreased number of maternal verbal and nonverbal interactions through decreased awareness of the child's social cues while the mother's gaze and/or attention was directed at a device," explained corresponding author Jenny Radesky, MD, BUSM clinical instructor in developmental-behavioral pediatrics and a former fellow in pediatrics at BMC.

Funding for the study was provided by the Agency for Health Care Research & Quality and the National Institutes of Health.

■ BUSM Researchers Identify Brain Changes Involved in Alcohol-Related Sleep Disturbances

A review article published online in *Behavioral Brain Research* provides new insight into changes that happen in the brain as a result of chronic alcohol exposure that can lead to disruptions in the sleep cycle. Clinical assessments and research indicate that individuals with alcohol use disorders frequently suffer from severely disrupted

sleep. This can occur when people are actively drinking, when they are going through withdrawal, or when they are abstaining.

"Sleep-wake disturbances can last for months or even years after someone stops drinking, which indicates that chronic alcohol abuse could cause long-term negative effects on sleep," said Subimal Datta, PhD, professor of psychiatry and neurology, who served as the article's senior author.

The researchers hypothesize that chronic alcohol use leads to dysfunction of cholinergic cells (cells that synthesize neurotransmitter acetylcholine) in an area of the brain stem called the pedunculopontine tegmentum, which is involved in regulating many aspects of sleep. As a result of the prolonged alcohol exposure, the activity of chemicals that excite neurons in the brain increases while simultaneously decreasing the activity of a chemical that inhibits this neuron activity. This results in the overactivity of chemicals in the brain and causes a disruption in the normal sleep cycle.

"Identifying the specific mechanisms that lead to change in brain activity will allow us to develop targeted medications, which could help treat people suffering from sleep issues related to alcohol use disorders," Datta said.

This research was funded in part by the National Institutes of Health.

■ Researchers Identify Gene Responsible for Halting Cell Proliferations

BUSM researchers report that a tumor suppressor pathway—called the Hippo pathway—is responsible for sensing abnormal chromosome numbers in cells and triggering cell cycle arrest, thus preventing their progression into cancer.

Although the link between abnormal cells and tumor suppressor pathways, like that mediated by the well-known p53 gene, has been firmly established, the critical steps in between are not well understood. According to the authors, whose work appears in *Cell*, this work completes at least one of the missing links.

Normal human cells contain 23 pairs of chromosomes; the number doubles to 46 as cells prepare to divide. At the end of a normal cell division cycle, these chromosomes produce two identical cells with 23 pairs of chromosomes each. Sometimes, however, errors occur during division and cells fail to divide properly, resulting in giant cells with double the number of chromosomes known as tetraploid cells. Normally, p53-dependent pathways stop these tetraploid cells from proliferating; this response is critical because

Now, the authors have demonstrated that the Hippo pathway also represents the underlying pathway that prevents tetraploid cells from proliferating and causing tumors.

tetraploid cells that escape detection can facilitate cancer development. Recent studies suggest that as many as 40 percent of all solid tumors have passed through a tetraploid stage at some point during their development, thus, there has been great interest in understanding how a cell "knows" it has a tetraploid complement of chromosomes and is in need of tumor suppression.

Using a technique known as genome-wide screening, the scientists systematically depleted every human gene from tetraploid cells in order to discover which ones were important to prevent proliferation. They found that when one specific gene, *LATS2*, was eliminated, the arrested tetraploid cells resumed proliferation, thus demonstrating that *LATS2* was an upstream gene responsible for halting abnormal cell division. The *LATS2* gene activates the Hippo tumor suppressor pathway, the same pathway our bodies use to ensure our vital organs don't grow out of control. Now, the authors have demonstrated that the Hippo pathway also represents the underlying pathway that prevents tetraploid cells from proliferating and causing tumors. "Although more studies are needed to further clarify this critical pathway, this work may help guide the development of new therapies that specifically target tumor cells with abnormal numbers of chromosomes, while sparing the normal, healthy cells from which they originated," explained corresponding author Neil J. Ganem, PhD, assistant professor of pharmacology and medicine in the Shamim and Ashraf Dahod Breast Cancer Research Laboratories at BUSM.

Funding for this study was provided in part by the National Cancer Institute.

■ Study Finds Cardiorespiratory Fitness Improves Memory in Older Adults

Older adults who have greater heart and lung health also have better memory recall and cognitive capabilities. The study, which appears online in the *Journal of*



Gerontology, examines the relationship between cardiorespiratory fitness (CRF), memory, and cognition in young and older adults.

Aging is associated with decline in executive function (problem solving; planning and organizing) and long-term memory for events. CRF has been associated with enhanced executive function in older adults, but the relationship with long-term memory remains unclear.

Researchers found that older adults who had higher cardiorespiratory levels (i.e., were more “fit”) performed as well as young adults on executive function measures. On long-term memory measures, young adults performed better than older, high-fit adults, who in turn performed better than older, low-fit adults. In older adults, better physical fitness was associated with improved executive function and memory. In young adults, fitness had no effect on their memory or executive functions.

These findings demonstrate that the effect of CRF is not limited to executive function but also extends to long-term memory. “Our findings that CRF may mitigate age-related cognitive decline is appealing for a variety of reasons, including that aerobic activities to enhance CRF (walking, dancing, etc.) are inexpensive, accessible, and could potentially improve quality of life by delaying cognitive decline and prolonging independent function,” explained corresponding author Scott Haynes, PhD, assistant professor of psychiatry at BUSM and associate director of the Neuroimaging Research for Veterans Center at the VA Boston Healthcare System.

“More research is needed to explore the specific mechanism of how physical fitness enhances brain structure and function as well as to clarify the impact of specific exercise programs (strength, aerobic, or combined training) or dose of exercise (frequency, intensity, and duration) on a range of cognitive functions,” he said.

This work was supported by the Department of Veterans Affairs, Rehabilitation Research & Development Service, and Clinical Science Research & Development Service. Assistance with participant recruitment was provided by the Massachusetts Alzheimer’s Disease Research Center and Boston University Alzheimer’s Disease Center.

■ **Genome-Wide Expression Changes in Vascular Tissue Due to Infection and Diet Identified**

Findings may lead to individualized treatment for atherosclerosis

Although it has been shown that a diet high in fat and exposure to certain bacteria can cause atherosclerosis (the buildup of fats, cholesterol, and other substances on artery walls which can restrict blood flow), for the first time researchers have identified distinct gene pathways that are altered by these different stimuli. These findings, which currently appear in *BMC Genomics*, suggest that future therapies for this disease may need to be individualized.

For the first time researchers have identified distinct gene pathways that are altered by these different stimuli.

“Atherosclerosis is a common human disease associated with heart attack and stroke. Certain bacteria as well as high-fat diet are associated with an increased risk for atherosclerosis. One of which, *Porphyromonas gingivalis*, is found in the mouth of humans with periodontal disease; another, *Chlamydia pneumoniae*, causes pneumonia.

“Given the prevalence of diet-induced obesity and infection with *Porphyromonas gingivalis* and *Chlamydia pneumoniae* in the general population and the likelihood of co-morbidity of obesity with chronic or recurring infection with these common pathogens, these findings suggest that the development of atherosclerosis in humans is likely more complex and multifactorial than previously appreciated,” explained senior author Caroline Attardo Genco, PhD, BUSM professor of medicine and microbiology. “These findings may explain how specific infections or a high-fat diet may cause atherosclerotic plaques to undergo changes which affect their size and stability and may ultimately lead to a heart attack.”

This study was funded by Boston University.

■ **Study of Former National Football League Players Finds Tackle Football before Age 12 Increased Risk of Memory and Thinking Problems Later in Life**

According to a study published in the January 28, 2015, online issue of *Neurology*, the medical journal of the American Academy of Neurology, former National Football League (NFL) players who participated in tackle football before the age of 12 were more likely to experience memory and thinking problems in adulthood.

The study found that compared with former NFL players who started football at age 12 or later, former players who started before age 12 performed significantly worse on all test measures, even after researchers took into account the total number of years of football played and the age of the players at the time of the tests. For example, those who played before age 12 recalled fewer words from a list they had learned 15 minutes earlier and



Former NFL players who started playing football before age 12 performed significantly worse on all test measures.

made more repetitive errors on a test of mental flexibility compared with those who started playing at age 12 or later. There was approximately a 20 percent difference in the level of current functioning on several measures. Study author Robert Stern, PhD, BUSM professor of neurology, said that both groups scored below average on many of the tests.

“Our study suggests that there may be a critical window of brain development during which repeated head impacts can lead to thinking and memory difficulties later in life,” said Stern. “If larger studies confirm this association, there may be a need to consider safety changes in youth sports.”

Stern also pointed out that because the study focused on NFL players, the results may not be applicable to the general public and more research is needed before policy changes are implemented: “There are tremendous benefits of participating in youth team sports. The goal is to make them safer.”

The study was supported by the National Institutes of Health, JetBlue Airlines, the National Football League, and the NFL Players Association provided participant travel. To view the American Academy of Neurology’s guidelines on concussion, please visit www.aan.com/concussion.

■ **Review Article Offers Evidence on the Biological Nature of Gender Identity**

Due to the widely held misconception that gender identity can be changed, medical care of transgender patients—including surgical and hormonal treatment—has largely been met with resistance by physicians in favor of psychiatric treatment. According to a review article in *Endocrine Practice*, there is now increasing evidence of a biological basis for gender identity that may change the medical perspective on transgender medicine and improve health care for these patients.

Disorders of gender identity affect as many as one in 100 people. Transgender individuals are those who identify with a gender that differs from their natal sex. Different etiologies have been suggested as the cause of transgender identify, however, none have been proven definitively.

The study was led by BUSM researchers, who conducted a literature search and reviewed articles that showed positive biologic bases for gender identity including disorders of sexual development such as penile agenesis; neuroanatomical differences, such as grey and white matter studies; and steroid hormone genetics, such as genes associated with sex hormone receptors. They conclude that current data suggests a biological etiology for transgender identity.

“This paper represents the first comprehensive review of the scientific evidence that gender identity is a biological phenomenon,” said corresponding author Joshua D. Safer, MD, BUSM associate professor of medicine and molecular medicine and director of the Endocrinology Fellowship Training Program. “As such,

it provides one of the most convincing arguments to date for all medical providers to gain the transgender medicine skills necessary to provide good care for these individuals.”

According to the researchers, the article has some limitations due to the small number of individuals studied, thus conclusions should be drawn with caution. Safer recommends that further research should focus on specific biologic mechanisms for gender identity.

There is now increasing evidence of a biological basis for gender identity that may change the medical perspective on transgender medicine and improve health care for these patients.

■ **Study Identifies New Genes and Pathways that Underlie Normal Brain Development and Aging**

The identification of genetic variants that influence the structure of the brain may provide insight into the causes of variability in human brain development. Published in the journal *Nature*, these findings may also help determine the genetic processes that underlie neuropsychiatric diseases.

Portions of the human brain known as the subcortical regions are involved in functions associated with movement, learning, memory, and motivation; alterations to the structure of these regions can lead to abnormal behavior and disease. To investigate how common genetic variants affect the structure of these brain regions, a group of researchers including Boston University School of Medicine analyzed genetic data and MRI scans collected from 30,717 individuals. They found a number of genetic variants that influence the volume of subcortical brain structures, many of which seem to exert their effects through known developmental processes. One genetic variant found to be linked to changes in the volume of the hippocampus, a key region involved in learning and memory, is also associated with schizophrenia.

The neurology working group of the Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) consortium is led by Sudha Seshadri, MD, BUSM professor of neurology and senior investigator at the Framingham Heart Study. “This is another example of the wide range of new scientific discoveries that continue to emerge from the invaluable Framingham

A group of researchers including Boston University School of Medicine analyzed genetic data and MRI scans collected from 30,717 individuals.

Heart Study cohort as well as the many diverse international collaborations BUSM researchers lead and participate in,” said Seshadri. The study is a collaboration involving 30,000 participants and investigators from Australia, the US, Europe, and Asia.

■ **Study Finds Alzheimer’s Drug May Reduce the Urge to Binge Eat**

Researchers have demonstrated that memantine, a neuroprotective drug used to treat Alzheimer’s, may reduce the addictive and impulsive behavior associated with binge eating.

The BUSM study, which appears online in *Neuropsychopharmacology*, also found that the nucleus accumbens, a specific area in the brain responsible for addictive behaviors, facilitates the effects of memantine.

“We found that memantine, which blocks glutamate NMDA receptors, blocks binge eating of junk food, blocks the strength of cues associated with junk food, and blocks the compulsivity associated with binge eating,” said senior author Pietro Cottone, PhD, BUSM associate professor of pharmacology and psychiatry and co-director of the Laboratory of Addictive Disorders.

This research opens new avenues for binge eating treatment, especially since memantine is already approved for other purposes. “Individuals with binge eating disorder have a very poor quality of life and a decreased life span. Our study gives a better understanding of the underpinning neurobiological mechanisms of the disorder,” said co-author Valentina Sabino, PhD, BUSM assistant professor of pharmacology and psychiatry and co-director of the Laboratory of Addictive Disorders.

This work was supported by grants from the National Institute on Drug Abuse and the National Institute of Mental Health, the BU Peter Paul Career Development Professorship, the McManus Charitable Trust, and Boston University’s Undergraduate Research Opportunities Program.



“**Individuals with binge eating disorder have a very poor quality of life and a decreased life span.**”

RESEARCH AWARDS

■ **Departments of Justice and Defense Grants Will Be Used to Improve Forensic Identification**

Catherine Grgicak, PhD, BUSM assistant professor in biomedical forensic sciences, received a \$2.5 million award from the US Department of Justice and the Department of Defense for her research on more accurate analyzation of DNA evidence at a crime

“We are hoping to examine the accuracy and reliability of methods used by forensic scientists.”

scene. Along with colleagues from Rutgers University-Camden and the Massachusetts Institute of Technology, Grgicak is working to develop algorithmic methods and models to aid in complex DNA mixture interpretation, including identifying the number of possible contributors in an evidence sample and determining the strength of a DNA match.

“Through statistical analysis of data, we are hoping to examine the degree of accuracy and reliability of methods used by forensic scientists in order to achieve a more complete understanding of the basis for interpretation,” explained Grgicak. She believes that the continued development of these solutions is expected to benefit the forensic DNA discipline and will lead to the development of new methods or protocols to interpret forensic data from physical evidence.

■ **BU/BMC Receives Grant to Create First Open Access Lung Stem Cell Repository**

BU’s Center for Regenerative Medicine (CReM) and BMC have been awarded a federal grant to establish the first-of-its-kind stem cell repository that researchers across the country can access for free. The five-year, \$2.7 million grant from the National Heart, Lung, and Blood Institute (NHLBI) will help expand and grow stem cell research aimed at developing treatment for diseases affecting the lungs.

CReM’s pioneering research using Induced Pluripotent Stem Cells (iPSCs)—which self-renew indefinitely as undifferentiated cells that become specific adult cell types—has helped create an inexhaustible source of disease, or patient-specific, stem cells. Researchers use these cells to construct disease models in a lab and test potential treatments for a variety of diseases, all without limits that are currently in place for embryonic stem cell research. The Repository, which will be housed at CReM’s new state-of-the-art laboratory on the Medical Campus, will provide access to iPSCs for patients with both normal and diseased lungs. The cells will be expanded, frozen, and shipped to investigators who request them for use in their own laboratories. The grant also will allow CReM investigators to offer training courses on the different methodologies for the generation and maintenance of iPSCs and the proven techniques to differentiate them into adult lung cells.

“This grant will support the widest possible sharing of our cells with the national research community and should provide the most rapid possible path for a national collaboration to develop new disease treatments using this state-of-the-art technology,” said CReM Director Darrell Kotton, MD, who will serve as co-principal investigator of this project. “We feel strongly about the power of collaboration, and

that through our center’s ‘Open Source Biology’ philosophy, we can advance science to heal the world. This grant will help us do just that.”

Funding for this study is provided in part by the National Institutes of Health’s NHLBI.

■ **Seven-Year, \$21 million NIH Grant to Investigate Tuberculosis, Improve Treatment**

Boston Medical Center has been awarded a grant from the National Institutes of Health to investigate why *Mycobacterium tuberculosis* infection (MTB) affects individuals so differently. The grant, worth up to \$21 million over seven years, will allow researchers at BMC, BUSM, and BUSPH to identify the biological factors, or biomarkers, that indicate whether a person infected with the bacteria that causes tuberculosis (TB) is likely to develop symptoms of the disease in their lifetime or will be cured by treatment. The ultimate goal of this research is to develop new tools for more effective prevention and treatment of TB.

“There have been strides in reducing TB mortality rates worldwide, but it remains one of the most deadly diseases and disproportionately affects women and individuals in low and middle-income countries,” said Jerrold Ellner, MD, chief of infectious diseases at BMC and BUSM professor of medicine, who will serve as the study’s principal investigator. “Integrating cutting-edge translational approaches in both

“There have been strides in **reducing tuberculosis mortality rates** worldwide, but it remains one of the most deadly diseases.”

human and experimental models will help us identify the biomarkers of TB infection and disease and ultimately help us target interventions to prevent TB and develop a shorter-course treatment regimen, which are fundamental to ending the disease.”

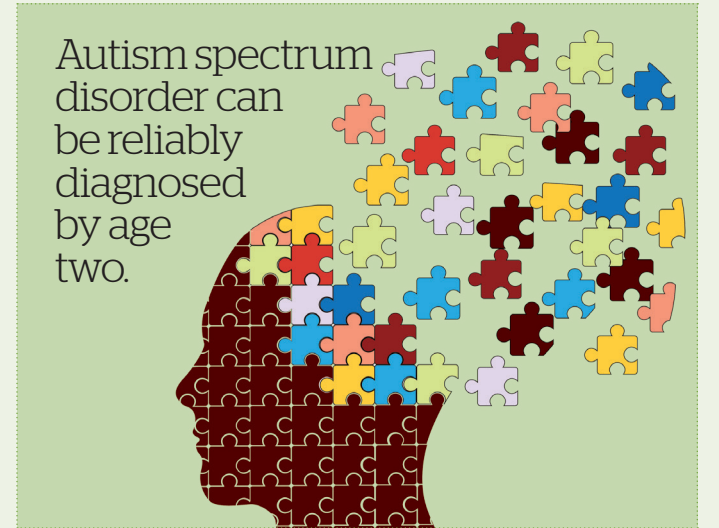
Ellner and colleagues proposed to test high-risk cohorts of households with active cases of TB and the TB cases themselves in South Korea and Brazil—two areas with high rates of TB—in order to determine risk factors for progression to active TB after infection, and early markers of bacteria being eradicated in response to chemotherapy. They also will investigate if some individuals have an immunity to TB that enables them to remain asymptomatic.

This study is being funded by the National Institute of Allergy and Infectious Diseases and will be done in collaboration with researchers at Boston University, Albert Einstein College of Medicine, the Massachusetts Institute of Technology, Seattle BioMedical Research Institute, Rutgers University, and the Nucleo de Doencas Infecciosas in Brazil.

■ **BU Researcher Awarded Grant to Pilot Autism Intervention**

A BU School of Public Health and School of Medicine researcher will lead a \$3 million study aimed at addressing racial and economic disparities in the early identification and treatment of autism spectrum disorder (ASD) among young children. The five-year grant from the National Institute of Mental Health (NIMH) will allow a team led by Emily Feinberg, PhD, RN, associate professor of community health sciences at BUSPH and associate professor of pediatrics at BUSM, to test an intervention at three urban primary care centers: Boston Medical Center, Children’s Hospital of Philadelphia, and

Yale University. Emerging evidence shows that ASD can be reliably diagnosed by age two, and that early screening and intervention can improve outcomes. However, service delivery changes that support early identification and linkage to services “have not kept pace with advances in diagnosis and treatment,” Feinberg said. “Barriers are heightened for low-income and minority children with ASD, and contribute to disparities in age of diagnosis, timeliness of service provision, and access to quality services. Feasible, culturally appropriate interventions are needed to reduce these disparities and improve the developmental outcomes of children with ASD.”



ASD symptoms emerge in early childhood. The Centers for Disease Control and Prevention’s most recent data regarding ASD prevalence (March of 2014) estimates that about one in 68 children is identified with ASD, the central features of which are deficits in social communication and restricted, repetitive patterns of behavior and interests.

■ **\$1.5 Million Grant to Study Non-Alcoholic Fatty Liver Disease**

Mengwei Zang, MD, PhD, associate professor of medicine, a member of the BUSM Whitaker Cardiovascular Institute, and a BMC investigator, is the principle investigator on a \$1.5 million grant to study non-alcoholic fatty liver disease (NAFLD). Awarded by the National Institutes of Health’s National Institute of Diabetes and Digestive and Kidney Diseases, the grant will allow researchers to investigate the molecular mechanisms involved with this common, chronic metabolic disease and to identify novel treatments for the disease.

NAFLD affects more the 71 million Americans—or 25 percent of adults—and develops when excessive amounts of fat build up in liver cells. The disease is most common among those who are overweight or obese, or who have diabetes. While this disease does not have symptoms, hepatic steatosis is an early and reversible stage of NAFLD. If not treated, it can advance to irreversible cirrhosis and hepatocellular carcinoma, which has limited effective therapies.

“This research could provide the rationale for the development of a vitamin A-based intervention for NAFLD, which could have a tremendous impact on the millions of Americans who have this disease,” said Zang.

This research is funded in part by the NIH NIDDK. ■

Campaign

Impact: The Campaign for BU and the School of Medicine

With your help, the next generation of clinicians, medical leaders, and researchers can join us in turning possibility into reality. There are so many ways to have an impact. You can help students receive a cutting-edge education that will prepare them for rewarding careers and give them the tools and resources they need to become trailblazers in their chosen fields. Or, you can help us support our dedicated faculty, who conduct groundbreaking research while bringing excitement to the classroom. No matter your contribution, you can have a hand in advancing medical education and research.

See the impact your fellow donors have made (right), or read more about our campaign at bu.edu/supportingbusm to learn how you can make a difference. ■

Impact by the Numbers

An update on the progress of the seven-year, \$200 million campaign for BUSM:

\$135.3M Raised

\$112.4M Permanently Restricted

\$22.8M Current Use

26 Months Remain in the Campaign

More than **\$13.8M** Raised for Student Scholarships

\$3.18M in School of Medicine Annual Fund Support

1,991 Alumni Participating in Campaign

\$91.6M Raised from Corporations and Foundations

Figures are as of May 1, 2015. Campaign concludes July 1, 2017.

Spotlight on Gifts

Since the start of the campaign, **16** individuals have named the School of Medicine a benefactor as part of their estate planning, **20** Charitable Gift Annuities have been established to support scholarships and research funds, and donors have utilized IRA Charitable Rollovers **48** times to make a lasting impact at BUSM immediately. We are very grateful for these thoughtful and strategic gifts that enhance the living and learning environment for our students and faculty.

The **Kinship Foundation** has selected Assistant Professor of Pharmacology and Medicine Neil J. Ganem, PhD, as a 2015 Searle Scholar. Ganem is one of 15 young scientists—and the first from Boston University—to receive this prestigious, three-year award. The foundation will support his research on the role of chromosomal instability in tumor initiation, progression, and relapse, work that holds promise for the development of new cancer therapies.

The **Hartwell Foundation's 2014 Hartwell Individual Biomedical Research Award** provides Rachel Fearn, PhD, associate professor

of microbiology and one of 12 recipients nationwide, with a three-year grant to support her research on a novel approach to treating respiratory syncytial virus, a common childhood illness that can be serious. The award will also fund a pediatric research fellow to be selected by the medical school. ■

Generous support from alumni, parents, and friends will have an enduring and important impact on the experience of students, faculty, and researchers at the School of Medicine. Learn more about making your own impact at bu.edu/supportingbusm, or contact the BUSM Development Office at 617-638-4570 or busmdev@bu.edu.

Alumna Ann Cea Establishes Endowed Scholarship

When Ann Cea (MED'67) interviewed for medical school (not her BUSM interview) and was told that the school only took four females a year, she knew she was facing a tough environment—but that didn't stop her.

Her father, the late Nicholas Cea (MED'31), had always encouraged her to persevere. "The fellowship and mentoring I received during my training at BUSM helped me harness my innate abilities, inspired me, and gave me an education that cannot be learned from textbooks or lectures alone," Cea reflects.

To recognize her BUSM education and honor her father and her daughter, Kristen Cea Lachance (MED'96), Dr. Cea established The Cea Scholarship in 2014 with a gift of \$100,000 to be paid over five years. The scholarship will support one or more female students during their third and/or fourth year of medical school.

With three generations of the Cea family BUSM graduates, including Dr. Cea's brother, Richard (MED'63), the family has a strong tie to the School of Medicine. "From the time I attended medical school until the present, I have considered myself privileged to have received an education at Boston University School of Medicine," Cea wrote in her endowment letter to Dean Antman. "BU not only



Ann Cea, MD, (left) with daughter Kristen Cea Lachance, MD, and father Nicholas Cea, MD, at Kristen's 1996 BUSM graduation.

identifies those who are outstanding academically, but recognizes others, like myself, who possess characteristics that allow them to develop rapport with people, excel at patient care, and facilitate medical advancement through their leadership."

By her own admission, Dr. Cea lacked assertiveness when she began medical school. With mentors like Dr. William McNary, then associate dean of students, and the late Dr. Elizabeth Moyer, professor of anatomy, she learned to better question situations, express herself, and share her strengths. "I believe students should assert themselves, display exceptional clinical skills, show compassion, and be team players," she says. "Those are the kind of characteristics my father had and my daughter has, and I want whomever receives the Cea scholarship to have them, too."

The scholarship is only the most recent demonstration of Dr. Cea's generosity. A member of BUSM's Chester F. Keefer, MD Society and a Lifetime Member of the Dean's Club, she is a longtime benefactor of the School and has made contributions

to the William F. McNary Student Learning Center, the Aram Chobanian Distinguished Professorship and Scholarship Funds, and the Medical Student Residence. Dr. Cea also is a member of the Dean's Advisory Board.

A radiation oncologist with expertise in mammography and general radiology, Dr. Cea co-founded Rye Radiology Associates in Rye Brook, New York and served as medical coordinator for the New York State Department of Health in the Office of Professional Medical Conduct. A president of the Westchester County, New York Medical Society, she was the first woman elected president of the Medical Society of the State of New York. She is a fellow of the American College of Radiology and the American College of Radiation Oncology and was named "Top Doctor" in the Tri-State Area and "Top Radiologist" by the Consumer Council of America.

"It is an honor to be able to help someone aspire to meet their goals, as my father fostered my education and I did my daughter's," Cea says. ■



education. During Alumni Weekend, Christine Hunter (CAS'80, MED'80) presented during Grand Rounds "Live Long and Prosper: Reflections on a Fourth Aim in Health Care."

Also during Alumni Weekend, it was a pleasure to recognize Sophia Dyer (MED'93) with a Distinguished Alumna Award for her extraordinary work in emergency medicine and for the role she played in the aftermath of the Boston Marathon bombing.

Even our recent graduates are already making their marks: MaryAnn Wilbur (MED'11) and James Yeh (MED'10) were chosen for prestigious *New England Journal of Medicine* editorial fellowships. You can read more about them and their inspiring achievements on page 36 of this magazine.

BUSM continues to evolve and flourish. In my time as associate dean for alumni affairs, I have come to appreciate the strength and commitment of our faculty and student body. Because of alumni like you, BUSM students have a tremendous resource: a community of graduates to help them obtain an outstanding and invaluable education.

We are grateful for your interest and your support. And as always, our door is open! Please come by and say hello.

Jean E. Ramsey

Jean E. Ramsey, MED'90, MPH'08
Associate Dean for Alumni Affairs
Associate Professor,
Ophthalmology
and Pediatrics
Vice Chair of Education and
Program Director
BUSM and BMC Department
of Ophthalmology

DEAR ALUMNI AND FRIENDS,

Coming off a historic winter in Boston that featured more than 100 inches of snow, we welcome the warmth of summer with true enthusiasm. And while Mother Nature may have thrown us a few curveballs, the mission of educating and learning has continued.

One of the great benefits of my involvement with alumni is hearing about the wonderful work they are doing, and sharing their stories to inspire reflections on—and conversations about—issues in health care and medical

CONTACT US

If you have news, announcements, or creative works you'd like to share with your fellow alumni, please write to the BUSM Alumni Association at 72 E. Concord Street, L120, Boston, MA 02118 or email alumbusm@bu.edu.

BUSM Alumni Association on Facebook

[facebook.com/alumBUSM](https://www.facebook.com/alumBUSM)

Alumni Weekend 2015: BUSM Alumni Reconnect, Reminisce



David R. Edelstein, MD (MED'80), Christine S. Hunter, MD (MED'80), and Joseph P. Falco, MD (MED'80) celebrate their 35th Reunion.

Alumni from around the country gathered for a weekend of events that included class reunions and the 140th Annual Meeting and Banquet. Among many highlights, Christine Hunter (MED'80), chief medical officer for the US Office of Personnel Management, spoke about the "Fourth Aim" in providing clinical service (i.e., the care team and the provider's self-care are essential to consider in order to fulfill the demands of today's basic patient care expectations), and James Brust (MED'68) gave his ever-popular lecture on the early history of BUSM.

Attendees also enjoyed student-led tours of the Student Residence and seeing firsthand all the exciting new developments that have taken place in the Instructional Building, such as the state-of-the-art testing center on the 11th floor and the Simulation Lab in the Department of Medicine, the Gross Anatomy Lab, the Alumni Medical Library, and the History Wall featuring significant individuals in the School's extraordinary heritage. ■



1. Alumni Association First Vice President Richard J. Catrambone, MD (MED'92), Incoming President Hellen K. Kim, MD (MED'91), President Margaret M. Duggan, MD (MED'90), Associate Dean for Alumni Affairs Jean E. Ramsey, MD (MED'90, MPH'08), and Dean Karen Antman gather prior to the 140th Annual Meeting and Banquet.



2. Lily M. Young, MD (MED'65) points out her photograph, taken more than 50 years ago, when she was a first-year medical student.



3. Celebrating her 70th Reunion, Marjorie E. Readdy-Sullivan, MD (MED'45) provided insight on her experience as a medical student during the Campus Experience panel of current medical students.

4. Members of the Class of 2005 gather for their 10th Reunion.



5. Margaret M. Duggan, MD (MED'90), right, presented the School of Medicine Distinguished Alumna Award to K. Sophia Dyer, MD (MED'93), in recognition of her extraordinary career in emergency medicine.



6. Medical student event volunteers enjoying the photo booth during the banquet.

PHOTOS BY FRANK CURRAN

Distinguished Alumna Award 2015 K. Sophia Dyer, MD, '93

SOPHIA DYER is an associate professor of emergency medicine at BUSM and medical director of Boston Emergency Medical Services (EMS), Police and Fire, and associate medical director at Boston MedFlight. She also serves at Boston Medical Center as an emergency medicine physician with a specialty in toxicology.

A member of Boston EMS since 1999, she was named the city's first female medical director in March of 2009 and is charged with providing medical oversight to Boston EMS and the Boston Police and Fire Departments. She also is the supervising physician of Boston EMS' Research, Training, and Quality Improvement team.

As medical director, Dyer works to ensure that Boston EMS providers are exceptionally well trained and highly skilled. Her office conducts influential research, manages community outreach and education initiatives, and plays a critical role in preparing

physicians for careers in emergency medicine through the Boston EMS Fellowship Program.

Under her leadership, the department brings cutting-edge pre-hospital care to the streets of Boston and has earned a national reputation for excellence. She is responsible for medical oversight of major public gatherings in the city, and since 2009 has served as co-medical director for the Boston Marathon, where her leadership skills were put to the ultimate test when two explosive devices were detonated in short succession near the finish line on April 15, 2013, with more than half a million people congregated in a one-mile section of downtown Boston. Doctors, nurses, and emergency response teams were already on-site at the finish line, ready to treat runners for exhaustion, dehydration, or the routine type of injuries that can occur in a 26-mile race; instead, they treated victims of explosions. Three people were killed, 264 injured, and more than 20 sustained critical injuries. Dr. Dyer's extensive training and team direction—which brought together hundreds of nurses, physical therapists, physicians, and medical volunteers—are widely credited with so many people being treated so quickly.

Dyer's service to the EMS community at large includes serving as vice chair of the Commonwealth of Massachusetts OEMS Medical Services committee and sitting on the MetroBoston EMS Board of Directors. Her accolades include the Innovation of the Year Award by MetroBoston EMS Council for the Boston EMS Diabetic Program and the Research Group Award.

She has also been honored with the EMS Physician of the Year Award by the Metropolitan Boston Emergency Medical Service Council, the Frommer Award for Excellence in Emergency Medicine from Boston City Hospital, and the Award for Excellence in Academic Emergency Medicine from BUSM. She has authored many medical publications on topics of pre-hospital cardiac arrest, disaster response, and toxicology.

Prior to receiving her medical degree from BUSM, she graduated magna cum laude from the Massachusetts College of Pharmacology and Allied Health Sciences. She completed her internship at North Shore Medical Center and served as chief resident in emergency medicine at Boston Medical Center and as a fellow in medical toxicology/clinical pharmacology at Boston Children's Hospital. She also received a certificate in environmental management from the Tufts University School of Engineering. ■

Barry Manuel Honored by the Massachusetts Medical Society

BARRY M. MANUEL, MD (CAS'54, MED'58), BUSM associate dean for Continuing Medical Education from 1980 to 2014 and professor of surgery from 1982 to 2014, was honored by the Massachusetts Medical Society with its 2015 Award for Distinguished Service to the Massachusetts Medical Society. The honor is given each year to a member of the Society who has made a lasting contribution to the practice of medicine over a lifetime and who has made significant contributions to the goals of the Society.

Manuel was honored with the organization's Lifetime Achievement Award in 2010.

A member of the Medical Society since 1962, Manuel has a long and distinguished record of

service with the organization. The Society's president in 1990-91, he has also been a member of its House of Delegates and Board of Trustees, and served on many of the organization's committees, including the Committees on Administration and Management, Finance, Professional Liability, and Occupational Health, all of which he chaired at various times over the years.

His activity in organized medicine extended to the national level. He was a member of the Board of Governors of the American College of Surgeons from 1979 to 1985; chair of the Board of Governors Committee on Professional Liability; chairman of the Regents Committee on Patient Safety; and president of the College's Massachusetts chapter

in 1982-1983. For six years, he was also a member of the Massachusetts delegation to the American Medical Association.

While at BUSM, Manuel was executive director of the Alumni Association for more than 35 years and was faculty councilor to Alpha Omega Alpha, the National Honor Medical Society, for 23. Throughout his tenure, he has also served as a member or chairman of many medical school committees and as a member of the School's Executive and Dean's Committees. ■



Massachusetts Department of Developmental Services Commissioner Elin M. Howe presents the Dr. Allen Crocker Health Services Award to Jean E. Ramsey, MD (MED'90, MPH'08).

Jean E. Ramsey Honored by the Massachusetts Medical Society and the Commonwealth of Massachusetts

Boston University School of Medicine (BUSM) Associate Dean for Alumni Affairs Jean E. Ramsey, MD (MED'90, MPH'08), was honored by the Massachusetts Medical Society with its Committee Chair Service Award, which recognizes exceptional leadership and service to the Society, the state-wide professional association of physicians.

Ramsey was chosen for her years of service on the MMS Committee on Inter-specialty, which facilitates communication, cooperation, and coordination among the medical specialty societies of Massachusetts, their members, and the Massachusetts Medical Society.

Ramsey also received the 2015 Dr. Allen Crocker Health Services Award from the Commonwealth of Massachusetts Executive Office of Health and

Human Services, Department of Developmental Services, presented annually in recognition of an individual or organization that mirrors the life of Dr. Crocker and his respect for and value of individuals with a disability. Ramsey excels in including individuals with disabilities in her clinical practice, increasing the cadre of people who joyfully and compassionately care for individuals with disability, focusing on individual capability rather than disability, and advocating for equity and social justice.

Ramsey is associate professor of ophthalmology and pediatrics, vice chair of education, and residency program director for the BMC Department of Ophthalmology, and a BMC physician. Board-certified in ophthalmology, she specializes in pediatric ophthalmology and the vision disorder of strabismus.

She served as vice president of the BUSM Medical Honor Society, Alpha Omega Alpha, and is a past president of the Massachusetts Society of Eye Physicians and Surgeons. Her previous honors include the American Academy of Ophthalmology Senior Achievement Award and the Advocacy Award in addition to being recognized by Prevent Blindness America with the Distinguished Service Award for her work in children's vision. ■

PHOTOS BY JAKE HOPKINS

Two BUSM Graduates Chosen for *New England Journal of Medicine* Editorial Fellowships

BUSM graduates MaryAnn Wilbur, MD, MPH (MED'11, MPH'11), and James Yeh, MD (MED'10), have been chosen for prestigious *New England Journal of Medicine* (NEJM) editorial fellowships. With more than 600,000 readers in 177 countries, NEJM is the most widely read and cited general medical journal in the world and has a rigorous peer-review and editing process. The yearlong program involves fellows in the day-to-day editorial activities of the journal, including working on journal articles and pursuing an independent project.

"The fellowships help us inject new ideas into the journal," says Jeffrey Drazen, MD, NEJM's editor-in-chief. "We are interested to hear each fellow's fresh perspective, and we hope their relationships with us continue well after their fellowships end."



MaryAnn Wilbur, MD, MPH
Chief resident in obstetrics and gynecology at Johns Hopkins Hospital, MaryAnn Wilbur served as the case manager

for the Grow Clinic at Boston Medical Center (BMC), BUSM's primary teaching hospital, before being accepted to medical school. "For me, medicine is the perfect marriage of science and advocacy, and BUSM was the natural choice for my medical education," she said. "I had been working on campus at BMC, which cares for the underserved populations of Boston and shares my personal mission." As a co-founder of the BU Advocacy Training Program, Wilbur also completed a Master's in Public Health, "because I recognized the importance of understanding the social determinants of health and wanted a framework on which to build when advocating for marginalized populations."

Wilbur co-authored a number of published articles while a medical student and learned about the NEJM fellowship by fulfilling a BUSM elective at the journal. "NEJM is a prestigious periodical, and I hope to learn more about how editors review medical literature, a key to successful publishing in the future," she says. "I am very interested in the NEJM 'Perspective' articles, which strongly influence the politics of medicine and will help facilitate my career as a physician advocate." After completing the fellowship, Wilbur plans to stay in Boston to focus on women's health while caring for the city's underserved populations.



James Yeh, MD
James Yeh practices urgent care medicine at Brigham and Women's Hospital in Boston and is a hospitalist on the inpatient medicine service.

He completed his internal medicine residency at Cambridge Hospital and is a research fellow in general internal medicine through the Harvard Medical School faculty development program. He also is pursuing a Master's in Public Health in Clinical Effectiveness at Harvard School of Public Health. He has authored and co-authored a number of research articles and book chapters and edited several books.

Yeh serves as deputy editor for the *Harvard Public Health Review* and as an ad hoc manuscript reviewer for the *Journal of General Internal Medicine*, as contributing editor to the *DynaMed EBM Journal*, and was an abstract reviewer for the American College of Physicians Annual Meeting 2010-2013.

"I am interested in evidence-based medicine and knowledge translation, and I hope to gain insights in how a medical journal can help communicating medical research into clinical practice," he says of his NEJM fellowship. He also is interested in understanding the effectiveness of the communication process about drug effectiveness and safety, and in the FDA's regulatory policies and drug risk communication. He has received HMS awards for excellence in teaching and plans to continue in academic medicine and research along with patient care. ■

1974

Alice Rothchild writes, "I went on to do a medical internship at Lincoln Hospital in the South Bronx and an ob-gyn residency at Beth Israel Hospital (now BIDMC) in Boston. After decades of active practice, mostly at Harvard Vanguard Medical Associates, I turned my attention to both medical and human rights issues. I produced a documentary film that premiered last year, *Voices Across the Divide*, www.voicesacrossthedivide.com, and in September 2014 my second book was published, *On the Brink: Israel and Palestine on the Eve of the 2014 Gaza Invasion*." (See page 14.)

CLASS NOTES

1970

Lenore Kola of Westlake, Ohio, writes, "After 39 years, I have retired from teaching at the Jack, Joseph, and Morton Mandel School of Applied Social Sciences, Case Western Reserve University in Cleveland. I will continue as the co-director of the Center for Evidence-Based Practices at Case, a joint program between the Mandel School and the Department of Psychiatry, School of Medicine at Case."

IN Memoriam

1949 • Maurice (Ries) Vanderpol of Needham, Massachusetts, on October 19, 2014, at the age of 92. Dr. Vanderpol was born in Amsterdam, Netherlands. A psychiatrist, he served on the staff of McLean Hospital for more than 30 years and on the board of the Boston Psychoanalytic Institute. He is survived by his wife and two children.

1951 • Bertram Channick of Philadelphia, Pennsylvania, on December 9, 2014. Following medical school, he joined the navy as a lieutenant for the Battalion Surgeon 5th cavalry regiment and served in the Korean War, where he was wounded in action and received the Purple Heart. After his discharge from the Navy, he completed his residency training in internal medicine at Philadelphia General Hospital and was appointed chief of endocrinology at Temple University Medical School. He served terms as president of the Philadelphia Medical Society and Temple University's Medical Faculty Senate and retired from Temple in 2010 as professor emeritus. He was predeceased by his wife of 57 years, Beverly, and is survived by three sons and 10 grandchildren.

1954 • Dr. Robert J. Carey of Arlington, Massachusetts, on November 6, 2014, at the age of 85. Dr. Carey passed away at his home with his family at his side. He was a devoted husband, brother, father, and grandfather, as well as a caring physician to the Arlington community for half a century. Dr. Carey and his wife travelled to Bolivia, Peru, and Ecuador to bring medical care and supplies to underserved populations in those countries for more than 30 years. He is survived by his wife of 60 years, Mary, five children, and 12 grandchildren. ■

Boston University Planned Giving

“Thanks to you, money didn't make this choice for me.”



Tania Torres-Sanchez and her scholarship donor, Sarkis Kechejian (MED'63)

Your Gift Opens Doors at BUSM

Take Tania Torres-Sanchez (MED'16), who fell in love with BU during her interview visit. "I knew that I wanted to be here and work with this patient population," she says. But she also knew that her med school choice might be driven by financial aid, not fit. Thanks to a donor-funded scholarship, "I could come to BU, where I wanted to come," she says. "When I got my BU financial aid packet, I thought 'Oh, good. I don't have to choose between what I want and what I can afford.' That's a great feeling."

To learn more about how you can support BUSM and its students, contact the BUSM Development Office at busmdev@bu.edu or 617-638-4570, or visit bu.edu/supportingbusm



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2015-2016 Calendar

AUGUST 3

White Coat Ceremony and Parents Reception
BUSM Talbot Green

SEPTEMBER 24

**Annual Scholarship Dinner
with Dean's Advisory Board**
Hotel Commonwealth, Boston

SEPTEMBER 26

Dean's Club Dinner
Taj Boston Hotel

OCTOBER 15

Future Leaders/Recent Graduates Reception

MAY 5 & 6

BUSM Alumni Weekend

MAY 13-15

Commencement Weekend
