Doctoral students, Chuck Perry and Dan Felsing, join the team of a new research center that will develop drugs to alleviate drug addiction.
DEAR ALUMNI, PARENTS AND FRIENDS,

By now many of you know that I have accepted the position of President of the John A. Hartford Foundation in New York City, a role I will begin in May. I cannot find sufficient words to thank my fellow deans – past and present, faculty colleagues, and my staff for their vision, ideas, very hard work, and support.

My time at Northeastern and at Bouvé College has been one of the most gratifying experiences of my career. I am a person drawn to energy and promise, and to building, and I have had the chance to experience all these things here. I fully expect that your expertise and these relationships will greatly serve and inform my future work. Together, since 2011, we have accomplished so much. We increased our annual research funding from $10 million to $33 million currently, and added 144 full-time faculty. We successfully completed 10 accreditation site visits and have launched a strong and sustainable vision for our areas of excellence. Our student metrics have never been stronger and our national reputation continues to soar.

NUCare is the culmination of our collective vision of uniting technology and great science by nurses in the service of elders at home. Nursing has never been more central to the future of healthcare. The complexity of self-management given chronic diseases in the elderly is evident; I fully expect the new Center, and our students, to lead the way.

The complementary Roybal Center relies on the notion that healthy aging comes with behavior change; such change can be accelerated with technology. I feel certain that team-based care, as proposed by both NUCare and our Roybal Center, will give people with chronic illness hope and tangible guidance in living life healthier (see page 12).

Finally, our recently established New England Center for Addiction Research, also featured in this issue, is a terrific collaboration between Bouvé College and the College of Science, and promises to upend the course of addictions through drug discovery and community education. Their important work will ultimately inform both practitioners and policymakers (see page 2).

I will always remember our milestones — Nursing, 50 years; Pharmacy, 50 years at Bouvé; and coming soon: 100 years of Physical Therapy and 50 years of Communication Sciences & Disorders (formerly Speech-Language Pathology & Audiology). Such longevity and excellence are hallmarks of Bouvé.

To our students who give us 100% every day: Keep your restless spirit and take it whenever you go. Follow your passion and always strive for excellence. I will miss you all and will follow Bouvé’s continuing and exceptional progress with pride and admiration.

Sincerely,

Terry Fulmer, PhD, RN, FAAN
Distinguished University Professor & Dean, Bouvé College of Health Sciences
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Unlocking the potential of a lifesaving tool
THE ENDOCANNABINOID SYSTEM is made up of two biochemical switches known as the CB1 and CB2 cannabinoid receptors that are turned on by two types of lipid molecules (AEA, 2-AG). These lipid molecules, in turn, are broken down by specialized enzymes (FAAH, MGL). Research has shown that new compounds synthesized in the laboratory that can turn off the CB1 receptors (CB1 neutral antagonists-AM4113) can be developed as medications for nicotine addiction.
“Everyone knows someone who has a problem with addiction—it can be minor like caffeine or more severe, like cigarette smoking, and it can be combined with alcohol or prescription drugs,” says Professor Ray Booth, PhD, P ’83, program director for the proposed New England Center for Addiction Research and associate director of the Center for Drug Discovery. “Research and development in the Center will seek to more deeply understand the addiction process for polysubstance use involving, for example, cannabinoids (the chemical components of marijuana), opioids, and amphetamines, in order to design drugs to curb addictions and the unproductive and sometimes dangerous behaviors that result. It is clear that various addictions have neurochemical origins in common; thus the Center’s work in one area will cross-fertilize discovery in another.”

The New England Center for Addiction Research is a new initiative announced last fall, a collaboration between Northeastern’s Center for Drug Discovery and the Harvard Medical School/McLean Hospital’s Alcohol and Drug Abuse Research Center. It seeks to address head-on a problem of considerable complexity. Through a consortium of facilities, investigators will have access to a wide array of technologies to conduct imaging studies of brain proteins that could serve as addiction therapeutic targets. Investigators will synthesize novel drug candidates and conduct their preclinical assessment in laboratory animal models. The Center will have a community education and outreach component to share research progress and findings, an effort supported by Bouvé’s Institute on Urban Health Research and Practice.

Booth continues, “The Center will be made possible, in part, by the administrative infrastructure to be provided by Bouvé and the College of Science. Deans Terry Fulmer and Murray Gibson have pledged support for graduate students from the Departments of Pharmaceutical Sciences and Chemistry and Chemical Biology to work together on multifaceted projects addressing the pathophysiology and pharmacotherapy of addiction, and they will operate synergistically with the well-established Center for Drug Discovery. In addition, we will have access to students, who will work for dedicated periods of time in labs on actual co-op assignments. A pending grant application to the National Institute on Drug Abuse would provide funding to help us accelerate our work.”
In the Center, Booth plans to deepen his current research in such neuropsychiatric disorders as schizophrenia and dementia, as well as behavioral disorders including substance abuse, autism, and ADHD. Booth synthesizes drug molecules to target the serotonin neurotransmitter system and assesses their efficacy in laboratory animals as part of the drug development process. The daunting fact is that there are many different serotonin receptors in the brain that interact with each other and other neurotransmitter systems, highlighting the complex interrelationships underlying neurochemical imbalances that may contribute to co-morbidity between mental illness and substance abuse.

Alex Makriyannis, PhD, one of the three principal investigators of the Center grant, is known for producing the first therapeutic candidates that act on the body’s endogenous cannabinoid systems for neuropathic pain and for the treatment of obesity and metabolic disorders. He leads a multidisciplinary project to develop medications for nicotine addiction. He comments, “Our approach for curing addictive disorders is to go through the cannabinoid system, a key center of addiction in the brain. This is a way to produce medications that could alleviate smoking addiction, as well as addiction to opioids and alcohol. The neurobiological commonalities with other addictions can be exploited at the same time.” Finally, simultaneously with the acknowledged serious detrimental effects of the persistent, casual use of marijuana, scientists continue to develop therapeutic medical marijuana applications, which are already demonstrating beneficial effects in the treatment of disorders such as epilepsy.

Makriyannis continues, “We are fortunate in this effort to have George Behrakis as a partner. He is very interested in the development of smoking cessation efforts, and has contributed to this in his home country of Greece. Dr. Behrakis is a visionary leader in the pharmaceutical industry who, with his wife, Margo, established the Behrakis Health Sciences Center.”

The planned community seminars, developed by Wendy Pernal, MS, will in their first year focus on the effects of marijuana use, originating in large part with delta-9-tetrahydrocannabinol (THC, the key active chemical in marijuana), as well as synthetic cannabinoids known as “spice.” Given recent efforts that legalize recreational and/or medical marijuana uses in many states, the public education effort—to

In 2013, nearly half of high school students in Massachusetts reported that at some point they had used illegal drugs; the most commonly used drug was marijuana.
understand clinical and personal consequences of use — is urgently needed. THC in particular adversely affects adolescent brain development, and yet in 2013, nearly half of high school students in Massachusetts reported that at some point they had used illegal drugs including marijuana. Further, adolescents who smoke marijuana are approximately two to four times more likely to have symptoms of cannabis dependence within two years after first use, according to a recent National Survey of Drug Use and Health. Further, evidence has emerged that the use of recreational and prescription amphetamines and opioids, such as oxycodone, morphine, and heroin, actually changes the brain’s physiology over time.

In 2014, the significant increase in both prescription and recreational opioid addiction and overdose deaths led former Massachusetts Governor Deval Patrick to declare a public health emergency. Other New England states have done so as well. The Center will serve as a timely resource for research and information regionally. Booth concludes: “Treatment may always need to be continued on page 6

The new Center will define the neurobiology and potential pharmacological targets involved in addiction, and design and synthesize drugs to treat substance abuse disorders.

Careful work underlies discoveries to alleviate addiction

Ray Booth and Alex Makriyannis, professors in Bouvé College of Health Sciences, and Jack Bergman of Harvard Medical School, along with 20 other faculty scientists are colleagues in the Addiction Research Center. The Center also engages the expertise of 25 postdoctoral fellows and graduate students. The current work of two future scientists’, Chuck Perry and Dan Felsing, demonstrates the complexity of the research and the painstaking dedication it requires.

Various addictions have neurochemical origins in common; thus, it is fully expected that the Center’s work in one area will cross-fertilize discovery in another. This involves a precise, time-intensive process of synthesizing potential drug molecules and then testing their impact on addiction-related receptors in the brains of laboratory animals. Going from step 1 to step 2 is not always a straight path, nor is it quick.

Perry is a second-year doctoral student with a biochemistry undergraduate degree from Syracuse University. “It was the one thing in high school that intrigued me,” says Perry. “Biochemistry, it seemed to me, is about puzzle building. Synthesizing a compound can take a few weeks — one has to purify it, characterize its structure, and then perform in vitro tests to see if it is binding to the addiction receptor of interest; we typically are running many in vitro tests at once on each potential drug.”

Perry and researchers working with him are focused largely on targeting serotonin receptors in the brain, which have been implicated as playing an important role in addiction. From previous research, the lab has already developed a chemical scaffold, or a basic structure, for their molecules that has been found to lead to high affinity for certain receptors.

Given that there are many different serotonin receptors in the brain that interact with each other and other neurotransmitter systems, deciphering them in relation to the molecule being developed is a critical dance. Perry begins with the basic chemical scaffold and performs a series of chemical reactions to obtain a key intermediate molecule, a process that can take a few weeks. The “key intermediate” is important because it then allows him to synthesize a variety of different molecules to target the serotonin receptor. Perry and his team can discover which of these chemical groupings increases the activity of the molecule at a particular serotonin receptor. When identified, the compounds are purified and characterized through analytic techniques such as proton NMR spectroscopy. The next step is testing the efficacy of the new, selected molecule in vivo in animal models.

Perry’s dissertation topic concerns the synthesis and evaluation of novel ligands for the serotonin 5-HT7 receptor.

“It is an exciting target because it is thought to have a role in autism spectrum disorders, and also in addiction. There are no drugs on the market yet that target this receptor,” said Perry.
The assessment of the candidate drug molecules is undertaken in collaboration with student researchers like Dan Felsing, a fourth-year PhD student who conducts molecular pharmacology and *in vivo* neuro-behavioral experiments to evaluate new drug entities to treat addiction. Felsing started his graduate work at the University of Florida, where he studied under Professor Booth. When Booth joined the Center for Drug Discovery at Northeastern in 2013, Felsing decided to join him and continue their research.

After dozens of compounds have been pharmacologically assessed at the serotonin receptor targets, and one compound appears promising, Felsing’s team transitions to laboratory animal models of substance addiction and other neuropsychiatric disorders. If the lead compound is effective, it will block or produce a particular behavioral response, such as indicated by a change in motor behaviors of the animal. The behavioral changes are analyzed from videos.

Felsing’s dissertation, on the serotonin 2C receptor, has clinical implications in several neuropsychiatric disorders, including addiction to drugs and food, and management of obesity. Felsing also investigates molecular mechanisms of tolerance to drugs that are taken for a long period of time for such disorders. “One of the main challenges for me as a doctoral student is dividing my attention in so many directions; sometimes we are waiting for funding to support certain experiments but we need to find a way to get those experiments done regardless of funding. I’d like to consider working for a pharmaceutical company one day so I can see the industrial aspects of taking a new drug from concept to market,” said Felsing.

ALEXANDROS MAKRYYANNIS, PHD, is the George D. Behrakis Endowed Chair in Pharmaceutical Biotechnology and director of the Center for Drug Discovery, a Center for Research and Technical Excellence jointly administered by Bouvé and the College of Science. He is a principal investigator of the Center for Addiction Research. He is also professor in both Chemistry and Chemical Biology in the College of Science and Pharmaceutical Sciences in Bouvé College of Health Sciences.

RAYMOND G. BOOTH, PHD, is program director of the proposed Center for Addiction Research, professor in the Department of Pharmaceutical Sciences at Bouvé and in the Department of Chemistry and Chemical Biology in the College of Science, and associate director of Northeastern’s Center for Drug Discovery. He is also a graduate of the Northeastern School of Pharmacy (BS, 1983) and a registered pharmacist in Massachusetts.

WENDY PERNAL, MS, received her Master of Science in Counseling Psychology at Northeastern University (2013). Previously a graduate research fellow at Northeastern University’s Institute on Urban Research and Practice (IUHRP), she is currently a project manager within the IUHRP. Wendy’s expertise areas include tobacco prevention, urban health, trauma treatment, and women’s health issues.

JACK BERGMAN, PHD, is a principal investigator for the Center for Addiction Research. He is director of Preclinical Pharmacology at the Alcohol and Drug Abuse Center at McLean Hospital and associate professor of Psychobiology in the Department of Psychiatry at Harvard Medical School.

To learn more about supporting the Center and the work of students like Perry and Felsing, please contact Kathy Cotter, director of development, at 617-373-2637 or k.cotter@neu.edu
Nancy Hanrahan, PhD, RN, FAAN, has been named dean and professor of the School of Nursing and associate dean of the Bouvé College of Health Sciences, effective July 2015. Dr. Hanrahan is a national leader in psychiatric mental health nursing and well-known for her work understanding the behavioral health workforce and patient outcomes. Her expertise includes system-level mental health services research using large data and health technology. Dr. Hanrahan is involved with state and national policy initiatives concerning mental health parity, quality measures, and integration of behavioral health and primary care. She also has expertise in the development of health technologies that enhance health behavioral change and health system integration. Dr. Hanrahan currently serves on the National Quality Forum’s Dual Eligibles and Behavioral Health committees, which establish measures to achieve better behavioral health outcomes. Dr. Hanrahan received her bachelor’s degree from the University of Kentucky, Lexington, and her master’s and doctoral degrees from Boston College. She completed a postdoctoral research fellowship at the Center for Health Outcomes and Policy Research at the University of Pennsylvania School of Nursing. While at Penn, she was a faculty member of the Center for Health Outcomes and Policy Research and director of the Health Technology Innovation Incubator, with a focus on nurse entrepreneurs. Her research studies how the organizational traits of patient care environments and nurse staffing impact patient outcomes. She also studies integrated behavioral and physical health nursing models of care. Dr. Hanrahan is an experienced administrator and consultant to behavioral health care systems with expertise in the local and national regulation and reimbursement of behavioral health-trained advanced practitioners. She is the recipient of many honors and awards including a Media Award, Excellence in Leadership, and the Award for Excellence in Research from the American Psychiatric Nurses Association. She was named a Robert Wood Johnson Foundation Nurse Faculty Scholar in 2008. Dean Terry Fulmer remarks, “Nancy is an internationally renowned scholar and a world class educator. We are thrilled she is joining us as dean and know she will have an enormous impact on the school.”

Dr. Hanrahan is a national leader in psychiatric mental health nursing and well-known for her work understanding the behavioral health workforce and patient outcomes.
Elijah Harris, DPT ’14, got an extraordinary opportunity last year when, as a part of his six-year Doctor of Physical Therapy program at Bouvé, he took a 14-week internship assisting the New England Patriots. Bouvé, he feels, prepared him to be part of the healthcare team.

“We worked with consulting doctors, nurses, and technicians to be part of a team to help a player return from an injury. If there’s any breakdown in that unit, the player doesn’t get the most benefit.” After finishing his degree, Harris returned to the team as a seasonal athletic training intern in the spring of 2014, just as the Patriots began their relentless ascent to Super Bowl 2015. Harris says, “This was not an opportunity to take for granted. I did my homework every night so I was up on current practices, who was hurt, and who would need me.”

Harris credits many faculty with helping him obtain his first internship, in particular Dave Nolan, PT, DPT, MS, an associate clinical professor in the Department of Physical Therapy, Movement and Rehabilitation Sciences, and a clinical specialist in the Massachusetts General Hospital (MGH) sports physical therapy department. Nolan has a working relationship with Jim Whalen, the Patriots’ head athletic trainer and Joe Van Allen, their director of rehabilitation. Working directly under Van Allen, Harris carefully studied his intervention techniques and was trained to use some of the most advanced sports medicine equipment and methods. His experiences have cemented his career choice: he plans to apply for a sports therapy residency jointly offered by MGH and Northeastern. Harris notes an important takeaway message from his job with the Patriots: “Be a therapist, a friend, and, above all else, an efficient clinician to help the athletes do what they do best.” Though he once dreamed of becoming an NFL player, Harris has no regrets. Never mind meeting Tom Brady: he got what most Patriots fans can only dream of—a ride on a Patriots’ “duck boat” during the parade honoring their 2015 victory— through the snow-clogged streets of Boston to the cheers of Patriots Nation.

“Be a therapist, a friend, and, above all else, an efficient clinician to help the athletes do what they do best.”
A 1980 Pharmacy graduate, Captain Mark Brouker, PharmD, MBA, BCPS, was drawn to pharmacy when, as a teen, he worked as a clerk in a local drug store. He learned more about the field from his attentive boss, and concluded it offered a steady future career path.

“The three years I spent at Northeastern, after two years at community college, were fantastic,” said Brouker. “There were so many good people who helped me along the way.” After a few years working in a community pharmacy, Brouker joined the military, hoping to have an impact on something bigger than himself. The U.S. Navy helped him complete his advanced degrees, and gave him a unique entry into healthcare leadership. As commanding officer of the Naval Hospital Bremerton, Washington, he was the first-ever pharmacist tapped to run a Navy family medicine teaching hospital. He was also the first pharmacist to serve as a regional chief of staff at Navy Medicine West, where he was responsible for the day-to-day operations of 10 hospitals spanning the west coast of the U.S. to the Indian Ocean, and for coaching 10 hospital commanding officers. The events of September 11, 2001 extended his military career, and by the time he retired as captain in 2013, he had served for 30 years.

“It was a difficult transition to figure out what I wanted to do with the rest of my life,” said Brouker. “I soon discovered that leadership was what I wanted to give back, especially to pharmacy students.” In 2013, he founded Brouker Leadership Solutions, which offers leadership training to international banks, the military, healthcare leaders, scientists, and teachers. He uses stories and an assessment of his own experiences to teach his students, and is especially passionate about healthcare. Brouker is also a leadership development facilitator for Bridgepoint Education, where he coaches faculty members, deans, and senior leaders.

“People coming out of the basic sciences have a lot of knowledge but frequently have not received adequate training on relationship skills that they need to work effectively as part of a team.” Brouker continues, “Pharmacy training prepared me to be what I call a servant-leader: helping the doctor, the patient, and the nurses in the team. Pharmacists are vitally important to the whole operation.”

“I soon discovered that leadership was what I wanted to give back, especially to pharmacy students.”
The Neumeyer Family Scholarship

Dr. John Neumeyer is the Matthews Distinguished Professor Emeritus in Bouvé College of Health Sciences School of Pharmacy. His wife, Evelyn Neumeyer, ED ’78, is an active mentor in the Health Sciences Entrepreneurs program and a Steering Committee member. In 2007, they established the Neumeyer Family Scholarship to support deserving and qualified students majoring in any program at Bouvé. The Neumeyers have renewed their commitment to supporting students with another generous gift to the Scholarship this year. Their philanthropy has inspired the personal and professional lives of many generations of Bouvé students.

The Clive W. and Mona M. Lacy Fund

A gift from The Clive W. and Mona M. Lacy Fund will provide the Northeastern University Speech-Language and Hearing Center with state-of-the-art Auditory Brainstem Response (ABR) equipment. ABR is an objective test that is used to assess the status of the auditory neural pathway up to the brainstem. It is also used to estimate hearing sensitivity in patients who have difficulty with conventional methods of hearing evaluation. The gift provides several computers and related audiology testing-simulation software for use by students. Also included is new audiology counseling software to be used by audiologists and students to help patients make informed hearing-health choices. The Lacy Fund is also a major supporter of the Boston Guild for the Hard of Hearing’s activities at Northeastern, and has made quality hearing health accessible to underserved families. Sandra Cleveland, AuD, CCC-A, the AuD, graduate program director and associate clinical professor, says, “Since 1987, the Lacy Trust has provided financial support enabling families to obtain hearing aids and listening devices. We are deeply grateful for their generosity.”
The Herbert and Marylou Gray Pharmacy Scholarship
Established in 1998, the Herbert (P’55) and Marylou Gray Pharmacy Scholarship has awarded more than a dozen worthy students in the School of Pharmacy with scholarships and recognition. Recently, the Grays made an additional contribution that increased their endowed fund, which in turn has increased the amount awarded. Every March, the scholarship is awarded at the annual School of Pharmacy Scholarship & Awards Convocation. Additionally, the Grays made a generous gift in January 2015 to support Anita Young, EdD, RPh, who oversees the Continuing Education Unit (CEU) program in the School of Pharmacy.

John W. Webb Lectureship
In the fall 2014, Jack Reynolds, interim vice provost for undergraduate education, announced his personal, generous contribution to the John W. Webb Lectureship, which recognizes a pharmacy practitioner or educator who has shown extraordinary dedication to fostering excellence in pharmacy management. The lectureship, established in 1985, honors John Webb, who was the director of the graduate program in Hospital Pharmacy at Northeastern and the director of pharmacy at Massachusetts General Hospital. Reynolds has proposed a fundraising challenge to encourage giving; his goal is to increase the Webb Lectureship Fund to endowment status so that this important program can continue in perpetuity. The 31st Annual John W. Webb Lecture will be held on campus in late October. The Webb lectures are published in the American Journal of Health-System Pharmacy, and the award selection process is administered by the American Society of Health-System Pharmacists. Special thanks are extended to the many alumni and friends, including past Webb Lecture Award recipients and Webb family members, who have contributed to the fund and are responding to the challenge. Currently, the fund has raised 77% of its endowment goal. Individuals wishing to make a contribution should contact Jennifer Trapp at j.trapp@neu.edu or 617-373-8831.

Sponsors kick off anniversary fundraising effort
This year, the Department of Physical Therapy, Movement and Rehabilitation Sciences will celebrate the Bouvé Physical Therapy Centennial Celebration on Saturday, November 7. Last fall, to mark the occasion, fundraising efforts for the PT Centennial Endowed Scholarship were launched with a gift from Orthopedic and Sports Physical Therapy Associates (Gold Sponsor), and Spaulding Rehabilitation Hospital and Bay State Physical Therapy (Silver Sponsors). To find out more about making a gift to the scholarship or for sponsorship opportunities, contact Tracey Geary at t.geary@neu.edu or 617-373-6916. For tickets and celebration events, visit northeastern.edu/bouve/physical-therapy/centennial/.
New NINR program grant supports nursing research in health self-management
Effective and quality management of chronic illness among the growing population 65 and older requires development of innovative methods that assist “aging in place.”

The ability to get up and walk, to hold a glass, to nourish oneself, find companionship, and to comply with life-saving health promotion measures mirrors the aspirations many of us have. Doing so at home and remaining in one’s community becomes more feasible with access to assistive technologies and home monitoring.

A new grant is coupling the School of Nursing’s scientific knowledge about health and well-being with advanced home monitoring technologies offered by the College of Computer and Information Science (CCIS) and is expected to provide long-term solutions to healthy aging in place. A National Institute of Nursing Research (NINR) program grant was recently awarded to Dean Terry Fulmer, PhD, RN, FAAN, and Professor Holly Jimison, PhD, and has established an interdisciplinary team of investigators from the School of Nursing, the Department of Health Sciences at Bouvé College and from CCIS. This grant creates the opportunity for the School of Nursing to establish itself in key research areas of self-management and health, and with the new collaboration with CCIS, to lay the groundwork for a future, permanent center, hopefully with continuing support from the National Institute of Health.

NUCare leaders Left to right:
MARIA DOLCE, PhD, RN, associate professor of nursing
HOLLY JIMISON, PhD, professor of practice, Bouvé and College of Computer & Information Science
BARBARA GUTHRIE, PhD, RN, FAAN, professor of nursing and principal investigator of NUCare
ELIZABETH HOWARD, PhD, RN, associate professor of nursing
CARMEN SCEPPA, MD, PhD, professor of health sciences
MISHA PAVEL, PhD, professor of practice, Bouvé and College of Computer & Information Science
By 2030, 20 percent of the U.S. population will be age 65 or older. Put another way, 78 million baby boomers, born between 1946 and 1964, will join this exclusive club. Added to this startling picture is the unsustainable, economic reality that today one-third of expenditures in healthcare can be attributed to the delivery of care to older adults. The complexity of care for such a cohort living longer — and hopefully healthier — lives is addressed by an initiative called NUCare (pronounced new-care), an apt name for the program because it is new, and it will undoubtedly lead the U.S. in establishing the integration of health and technology within the home.

The strength of research collaboration between Bouvé and CCIS, made possible by NUCare, will produce significant changes for healthcare delivery in the home: nurse investigators will conduct research to establish new health interventions that integrate a variety of technological protocols and confirm their efficacy, which will result in new, best practices. Still another way in which Bouvé and CCIS will impact the future of healthcare is the recently established Consortium for Technology on Proactive Care. Co-led by Professors Jimison and Misha Pavel, PhD, both with interdisciplinary appointments in Bouvé and CCIS, the Consortium focuses on personal health informatics. Several of their projects involve advancing the use of sensors to monitor health in the home and computational modeling to infer diagnostic and treatment metrics. This multi-university effort is where health technology knowledge can be vetted, and tested, and where viable research tools can be applied.

Anyone who has cared for a family member with a chronic illness associated with aging will understand the burden this places on loved ones. Barbara Guthrie, PhD, RN, FAAN, professor in the School of Nursing and now principal investigator of NUCare, and Professor Jimison, co-principal investigator, envision a world in which team-based care — professional care givers, family members, and the adult patient — work together to ensure good health.

Through NUCare, self-management at home will be supported by appropriate technology to provide real-time, tailored information about patient health and patterns of behavior that impact the safety and health of the patient. NUCare will support nurse researchers with training, mentoring, and assistance in generating future funding, as well as with data on which protocols are most promising, cost effective, and scalable. It is expected that NUCare will drive science in many more fields to address issues of self-management to support healthy aging.

To many families, these are new ideas and technology uses. As NUCare research evolves, it will be possible to see several facets in development: the promotion of high quality nursing research in self-management; technology for home monitoring; community-based, participatory design; and coaching and team-based care of families in collaboration with informal caregivers.

Three pilot studies, already underway, illustrate how researchers will examine which components of self-management yield best-practices information. Professor Carmen Sceppa, MD, PhD, with expertise in exercise, nutrition, and healthy aging, is the leader of the Pilot Project Core. She is also Principal Investigator of the Northeastern University site of the Boston Roybal Center for Active Lifestyle Interventions (RALI)— housed at Brandeis University www.brandeis.edu/roybal/. Associate Professor Rachel Jones, PhD, RN, FAAN, serves as the NUCare research mentor in the School of Nursing, with responsibility for promoting interest in, and recruiting people to, NUCare research and activities.

A first pilot study, led by principal investigator Alice Bonner, PhD,
RN, associate professor of nursing, will explore methods to enhance the engagement of older adults and their family members to improve self-management during transitions from hospital to home. The team will examine the use of existing tools such as checklists and mobile phone assessments and prompts to provide feedback about the experience.

Elizabeth Howard, PhD, RN, associate professor of nursing, is principal investigator of a second pilot study that tests the viability of Vitalize 360, an integrative, comprehensive assessment system and wellness coaching program that helps older, low-income adults living in subsidized housing select personal goals and an action plan. Vitalize 360 seeks to promote higher activation levels, increased physical activity, and improved self-reporting of health status.

Maria Dolce, PhD, RN, associate professor of nursing, leads the third pilot study, designed to test the promotion of family-centered self-management of oral health in older adults with chronic conditions. In collaboration with Harvard Dental Center, family members will be engaged as active partners. Findings will provide the basis for a second stage to incorporate innovative technologies such as sensors on toothbrushes, dental floss, and denture containers, as well as the use of mobile phone assessments, reminders, and information.

Beth Israel Deaconess Medical Center, New York University, Harvard, Yale and Boston College are represented in NUCare’s external advisory committee. Findings will be shared iteratively by the nurse researchers with leadership, whose work will have a key role as well in informing medical practice and policy-making.

Professor Jimison and colleagues will examine the problem of social isolation at home. There is a potential menu of software that older adults can select to enable caregivers to develop a socialization metric and thus get a handle on the degree of healthy socialization. “We know that patients are interested in cognitive health, sleep management, and physical exercise,” said Jimison. Thus, the health coaching will include an array of approaches, including computer games, which can be used or integrated by nurse scientists when examining how to develop the best possible intervention.”

Why now? People are living longer and everyone wants to help reduce rehospitalization. Healthcare is moving from a reactive hospitalization-based system to patient-centered health management and, finally, payment systems are changing just in time for practitioners to help older adults stay at home despite the complexity of their chronic conditions. Chronic disease, if monitored well, does not have to significantly interfere with health and well-being. Professor Jimison: “A patient may visit his or her doctor every several months for routine care, but often there is much to do in between. For example, moment to moment throughout the day, an individual must manage heart rate or blood pressure. We expect to be able to take full advantage of new technologies to obtain the health status feedback and to communicate this information to caregivers in a timely way.”

Bouvé College’s NUCare will be the driver of the science in many more fields to address issues of self-management to support healthy aging.

NUCare is focused on research by nurses to determine effective protocols work to deliver care in the home.

Barbara Guthrie, PhD, RN, FAAN, principal investigator of NUCare, is a professor in Bouvé College School of Nursing. Previously, she was the Independence Foundation Professor and Associate Dean for Academic Affairs at Yale University School of Nursing. Prior to Yale, Guthrie held a dual appointment at the University of Michigan as an associate professor in the Division of Health Promotion and Risk Reduction and in Women Studies.

Holly Jimison, PhD, NUCare co-investigator, is professor of practice in the College of Computer and Information Science, and Bouvé School of Nursing. Prior to serving as a technology advisor at the National Institutes of Health, Jimison was an associate professor in medical informatics and clinical epidemiology with a joint appointment in biomedical engineering at Oregon Health & Science University. Her research involved technology for successful aging and scalable remote care.
Assistant Professor Emily Zimmerman, PhD, CCC-SLP, is a recipient of the 2014-2015 Integration of Oral Health and Primary Care Curricular Innovation Awards, supported by the DentaQuest Foundation. Dr. Zimmerman’s grant award will support the development of interprofessional oral healthcare clinical competencies. Teams of dental and speech-language pathology students will complete three simulation case studies and will exchange clinically relevant information to determine how dentistry and speech-language pathology each play a vital role in oral health.

Bilingual infants provide clues to language learning

Recently, on NPR’s “Science Friday,” Professor David Lewkowicz, PhD, described findings from a new study, conducted in Spain, that found babies raised in bilingual households spend more time attending to the mouth of a talker than their monolingual counterparts, suggesting that they lip-read due to the greater challenge of learning two languages. Lewkowicz, director of the Communication Development Laboratory, pointed out that by lip-reading, bilingual babies take advantage of highly salient audiovisual speech and language cues to enhance their comprehension and language development. According to Lewkowicz, people continue to lip-read into adulthood to help them comprehend the speech of others under noisy conditions or when they speak in a different language.

New online option for students in urban public health master’s program

The Master of Public Health in Urban Health has announced a new online component that will allow students to complete the MPH degree online in a part-time format. The new interdisciplinary educational initiative, launching this fall, will expand and extend the program to national and international audiences. Program Director Shan Mohammed, MD, MPH, comments, “This additional learning format allows us to meet the growing demand for competent public health professionals who can help address complex urban health issues through excellence in research, policy and health promotion.” In addition to online courses, students can complete on-campus courses geared toward working professionals. On campus courses meet once a week in the evenings. MPH alumnus, Drew Taylor remarked “Northeastern’s MPH in Urban Health offers the opportunity to explore healthcare and the urban environment from innovative points of view, all while allowing you to follow your individual passion.” For more information, visit www.northeastern.edu/bouve/health-sciences/programs/master-public-health
London-based healthcare course offered

The first-ever Health Sciences Dialogue of Civilizations (DOC) course will be offered this May in London as a part of Northeastern’s International Students Programs. Professor Pauline Hamel, EdD, PT and Valeria Ramdin PhD(c), MS, APRN-BC, CNE clinical instructor, will teach courses on global health communications and healthcare systems, with a spotlight on the National Health Service. Thirty students, who are earning their bachelor of science degrees in either nursing, pharmacy, or health sciences, are currently enrolled. Topics to be explored are health promotion and health literacy programs in the UK as well as British history, culture, and trends and their influence on the development of the healthcare system. The DOC is intended to connect students with their peers in different national and cultural contexts to provide a global experience that enhances their academic studies and training at Northeastern.

INTERDISCIPLINARY PROGRAMS

Interprofessional co-op addresses oral health needs among homeless

The Boston Health Care for the Homeless Program is a patient-centered medical home that provides urgently needed oral and primary healthcare for the homeless population in the greater Boston area. In 2013, with the purpose of improving oral health across the lifespan, Maria Dolce, PhD, RN, CNE, the principal investigator of Innovations in Oral Health and associate professor of nursing, teamed up with Program Director Jessica Holloman, MS, RDH, and cooperative education faculty members to develop an extraordinary interprofessional student co-op. Based at the Boston Health Care for the Homeless Program, Bouvé students are learning about oral health as a central component of primary care, especially for vulnerable populations. The co-op opportunity is supported by generous the DentaQuest Foundation. Students will learn about implementing oral health screening, oral health risk assessment, prevention interventions, and the referral of patients requiring dental treatment.

NURSING

Long-time faculty member Jane Aroian to retire

After 44 years at the Bouvé School of Nursing, Dr. Jane Aroian, a champion of nursing administration, will retire from her faculty position. Currently an associate professor, and the past coordinator of the Nursing Administration Program, Aroian received the Distinguished Faculty Award in 2013 at the School of Nursing’s 50th anniversary for her sustained commitment to service and leadership. Early in her career, after receiving her BSN from the University of Bridgeport, and later an MS in Nursing Administration from Catholic University, Aroian assumed positions as a supervisor for medical surgical units, the operating and recovery rooms, and as an instructor for operating room nurses. Later, she was the director of nursing services at Lourdes Hospital in Binghamton, NY. Her career at Northeastern University began in 1971 as an instructor. She was awarded tenure in 1977. Aroian went on to earn an EdD with a minor in business from Northeastern. She co-founded and directed the Nursing Administration Specialization in the Graduate Program of the School of Nursing; some of her students also earned MBAs from a joint program that Aroian also developed with the D’Amore McKim School of Business. Many of her former students now hold prestigious executive nursing leadership positions in U.S. healthcare institutions. Aroian, along with colleagues, developed and evaluated the Leadership Education Model, an effort to address a gap in the education of nurse leaders described in detail in the textbook, “Educating Nurses for Leadership” (2005, Eds., Feldman and Greenberg). One of her former students, Tiffany Kelley, PhD, RN, MSN/MBA ’08, comments, “Jane has the ability to recognize each student’s full potential often before that student is aware. She knows how to guide students down the necessary path to the next step in their career development. My entire world is different now because of her.”

PHARMACEUTICAL SCIENCES

Supplemental oxygen may increase cancer survival rate

Research published in February in “Science Translational Medicine” by Michail Sitkovsky, MS, PhD, and his team, found that inhaling supplemental oxygen — 40 to 60 percent oxygen as opposed to the 21 percent oxygen in the air — can weaken immunosuppression and awaken anti-tumor cells. The findings could dramatically increase the survival rate of patients with cancer. The Eleanor W. Black Chair of Immunophysiology and Pharmaceutical Biotechnology and founding director of the university’s New England Inflammation and Tissue Protection Institute, Sitkovsky made the crucial discovery in the early 2000’s that a receptor on the surface of immune cells — A2A adenosine receptor — is responsible for preventing T cells from invading tumors and for “putting to sleep” those killer cells that do enter into the tumors. This latest work shows that supplemental oxygen weakened tumor-protecting signaling through the A2A adenosine receptor and virtually wakes up the T cells that then invaded lung tumors. Sitkovsky and Graham Jones, PhD, DSc, professor and chair of the Department of Chemistry and Chemical Biology, are collaborating to design the next generation of this drug, originally developed for Parkinson’s patients.
PHYSICIAN ASSISTANT
Clerkships established at Massachusetts General Hospital

An historic affiliation between Massachusetts General Hospital (MGH) and the Physician Assistant (PA) Program was launched last fall. The initiative seeks to develop an interprofessional team model for inpatient units. The first such PA program invited to participate, Bouvé’s PA students will hold clerkships with advanced practice clinicians. The director of the MGH Hospital Medicine Group, Gene Lambert MD, commented, “We are ecstatic about our new inpatient medicine clerkship with the PA Program at Northeastern. Their program is one of the best in the country; any successful model (for us) will be interprofessional in nature. Well-trained and experienced physician assistants will be critical to the effectiveness and sustainability of these new models.” The rotation is extremely demanding; says student Jon Coveney, PA ’15, "It has been an excellent learning opportunity through one-on-one didactic sessions with MGH physicians while treating complex conditions on a daily basis."

PHYSICAL THERAPY, MOVEMENT AND REHABILITATION SCIENCES
Physical Therapy Program to celebrate 100 years

Bouvé’s Physical Therapy program began with the graduating class of 1915 at the Boston School of Physical Education (BSPE), and provided the framework for today’s Department of Physical Therapy, Movement and Rehabilitation Sciences. This year marks 100 years of physical therapy education at Bouvé, which will be celebrated with special events, programs, and the launch of the Bouvé Physical Therapy Centennial Endowed Scholarship Fund. Department Chair Maura Iversen says, “We are excited to fast forward to the 100th Anniversary. On November 7, in conjunction with Homecoming weekend, we will host tours, a Boston Bouvé brunch, and archives exhibit on campus. That evening, a Centennial Celebration dinner will be held at the Colonnade Hotel, and feature a keynote address by Marilyn Moffat, PT, PhD, FAPTA, professor of Physical Therapy at New York University.” Tickets to the Centennial Celebration Dinner are available online. Order before July 1 and receive an early bird rate of $100 per ticket.

To register and learn more, visit neu.edu/bouve/physical-therapy/centennial, email bouvept100@neu.edu, or call 617-373-4839. Follow us on Facebook and Twitter using hashtag #bouvept100 for updates and to share your stories and photos with other alumni.

KUDOS TO OUR STUDENTS!

COMMUNICATION SCIENCES AND DISORDERS
Jillian Gleason, a fifth year Accelerated Speech-Language Pathology graduate student, ran her second Boston Marathon as a member of Team MR8, on behalf of the Martin W. Richard Charitable Foundation, formed in honor of Martin Richard, who was killed at age 8 in the Boston Marathon bombings in 2013.

COUNSELING AND APPLIED EDUCATIONAL PSYCHOLOGY
Daniella Halperin, a doctoral candidate in the Counseling Psychology Program, received the Spring 2015 Northeastern Provost Dissertation Completion Fellowship, helping her to complete her dissertation research that focuses on non-suicidal self-injury (NSSI). Her project examines psychological vulnerability factors for NSSI, such as anxiety, sensitivity, and distress tolerance to inform prevention and intervention efforts.

NURSING
Alexandra Mullaney, N ’16, together with Professors Mary Mayville, DNP, and Brenda Douglas, PhD, presented her honors project, “Interactive, Online Module for Interprofessional Communication to Promote Patient Safety: Preliminary Findings,” at the National League for Nursing/Elsevier Technology Conference in Nashville, TN.

PHYSICAL THERAPY, MOVEMENT AND REHABILITATION SCIENCES
Amy Donohoe, DPT ’16, (pictured in table of contents) was awarded the Bouvé Elizabeth A Davey Scholarship in May for superior academic achievement, has a strong desire to assist military personnel. She is currently a member of the U.S. Air Force and will graduate this spring with a BS in Rehabilitation Science and earn her Doctorate in Physical Therapy in May, 2016. Amy plans to deploy with the 42nd Aerial Port Squadron for six months and, once back in the U.S., will apply to Air Force Commissioned Officer Training as an active duty physical therapist.

PHYSICIAN ASSISTANT
Elizabeth Coon, a second year student, received a generous financial award from the Augusta Maine Veteran’s Administration for her superior performance during her clinical rotation. The center created the award especially for her.
DIANE LUPEAN, BB ‘65, MBA ’81, entered Northeastern’s Physical Therapy program at a historic moment. She began her studies at Bouvé Boston School, founded by Marjorie Bouvé, which had by then affiliated with Tufts University. When it became the Boston-Bouvé College and relocated to Northeastern, she had just two months to go toward graduation.

Lupean’s professional journey in physical therapy has paralleled the changing field of rehabilitation services. After graduating, she went to Vanderbilt Medical Center in Nashville and later returned to Boston to a position at Massachusetts General Hospital. She later accepted a position at the Mt. Auburn Hospital, where she led the start-up of its first rehabilitation services department. At the same time, Lupean entered Northeastern’s Executive MBA program, which allowed her to continue working full-time and take classes on weekends.

“Healthcare and business were vastly different,” she says. “The fields used totally different languages.” But, she feels the degree prepared her for the business aspects of her career. After successfully implementing the program at Mt. Auburn, and as nursing homes were starting to include acute rehabilitation to accommodate the early release of hospital patients, she became the Area Rehabilitation Coordinator for Hill Haven Corporation, which subsequently became the nation’s second-largest chain of nursing homes. Lupean’s connection to Northeastern has involved serving on The National Council, a group of alumni leaders from across the country. In 1971, Lupean became a member of the Northeastern Corporation, and, in 1977, she joined the Board of Trustees. She knows where Northeastern has been and where it is going; she feels its continued upward trajectory is outstanding.

Though a provision in her will, she has established the Lupean Instructional Technology Fund. Her gift will provide ongoing support for the Goldstein Simulation Laboratories, which she admires for the opportunity it gives students to learn from real-life clinical situations. “Giving brings you closer to an organization and allows you to make an impact in your area of interest,” says Lupean. “A modest amount invested in an endowment grows substantially over time, increasing future spending for the type of research or student support you believe in.”

Legacy gifts have an enduring effect on the Bouvé College of Health Sciences. This inspired philanthropic backing secures the college’s future by providing financial aid to deserving students, recruiting and retaining renowned faculty and scholars, and advancing cutting-edge research. Additionally, this support positions Bouvé as a center of excellence in health professional education, exploration, and service.

By planning your gift, you can make a contribution to Northeastern while also strategically meeting your financial goals. Bequests can have a transformative impact without affecting your lifestyle or cash flow, or your family’s security.

MAKING A BEQUEST
A bequest allows you to make a long-term commitment without changing your current standard of living. You can name Northeastern in your will or living trust by designating a dollar amount or a percentage of your estate.

For more information on this and other gift options, please contact the Office of Gift Planning at 617.373.2030 or giftplanning@neu.edu, or by visiting northeastern.edu/giftplanning.
Upcoming Events

**JUNE 13**
Physical Therapy Centennial CE Program
*2015 ACL Update: From Injury Prevention through Return to Sport*
INFO: David Nolan, Associate Clinical Professor Director, Sports Physical Therapy Residency at d.nolan@neu.edu or 617-373-5268

**JUNE 13**
Northeastern Night at the Pops returns to Symphony Hall
All alumni, friends, parents, and students welcome.
TICKETS: neu.edu/alumni or call 617-373-2656

**OCT 8**
Health Sciences Entrepreneurs Celebrates 10th Anniversary with afternoon panel discussion and dinner.
TICKETS: Eliza Scott at e.scott@neu.edu or neu.edu/hse

**OCT 30-31**
50th Anniversary Celebration for the Department of Communication Sciences and Disorders
TICKETS: Susan Fine at s.fine@neu.edu or 617-373-5751

**NOV 7**
Bouvé Physical Therapy Centennial Celebration in conjunction with Homecoming Weekend
TICKETS: neu.edu/bouve/physical-therapy/centennial, bouvept100@neu.edu, or call Julie Norton at 617-373-4839

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EMILY DRAY, MSN ’16, PATIENCE OKEKE-NWANKWO, N ’88, BRIENNE JOHNSON, MSN ’16, at the Nurses as Entrepreneurs event.

JOY VIOLA and DR. ALFRED VIOLA with scholarship recipient AUYA GELINAS, at the School of Pharmacy Scholarship and Awards Convocation.

BARBARA CRISAFI, ROBERT CRISAFI, P ’53, and Carl LeBel, PhD ’89 at the Health Sciences Entrepreneurs celebration dinner.

Pharmacy students, CASSIE LIN, HAYDEN KUNH, THOMAS GIGLIO, HOANG PHAM receive The Rite Aid Pharmacy Scholarship Award from LOUIS GIANOTTI from Rite Aid.

DEAN TERRY FULMER hosted the “Future of Healthcare” program in Boca Raton. JAMIE HOWES, RN, CAMD ’04, TERRY FULMER, KATHY COTTER, Director of Development, Bouvé, and MAURA IVERSEN, Chair, Department of Physical Therapy, Movement and Rehabilitation Sciences.

ELLEN ZANE, CEO Emerita, Tufts Medical Center, spoke to students, alumni and faculty at the Dean’s Seminar Series.

KATHY COTTER, with Health Sciences Entrepreneurs mentors, JANE MASON and ENNIO CARBONI, CJ ’91, MBA ’93 at the HSE Innovations in Eldercare event.

LEFT TO RIGHT: MARCIA ROBINSON, BB ’62, TRACEY GEARY, Bouvé Development Officer, DREXÉY SMITH, BB ’61, JACK ROBINSON, NANCY HEALEY, BB ’61, PATRICIA NESTORK, BB ’61, LAYNE HACKETT, BB ’61, BARBARA FITZGERALD, BB ’63, at Florida reunion luncheon.
places that have adopted such provisions, some legal questions remain, creating barriers to overdose prevention efforts and paralyzing some programs. The high cost of EVZIO, as well as the rising cost of other existing products, create barriers to use. Meanwhile, more than 60 Americans are dying every day from opioid overdose.

One objection to naloxone is a concern that after it is administered, the caregiver will not follow the best practice, i.e., transfer of the patient to a medical setting for observation and possible referral to treatment. Yet there is evidence that once the victim is revived, witnesses readily call 911. Others assert that naloxone availability could push drug users to take more risks, although similar arguments about contraception and syringe exchange have been repeatedly disproven.

Given the overdose crisis, we need fast, proactive regulatory action to unlock the potential of this lifesaving tool. Such action must go hand-in-hand with engaging at-risk populations, their healthcare providers, and communities in effective drug treatment, supportive services, and interventions that can prevent overdose events from occurring in the first place.

LEO BELETSKY holds an interdisciplinary appointment with the School of Law and Bouvé College of Health Sciences. His research focuses on the use of law to improve health, with special focus on substance use and addiction.
Through the Empower Campaign, the Bouvé College of Health Sciences will build on its momentum of excellence and rise to meet longstanding and emerging healthcare challenges confronting our global community.

Join with us as we pursue this ambitious goal, so that more practitioners of science-based healthcare may be “Bouvé-prepared.”

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MAKE YOUR GIFT AT WWW.NORTHEASTERN.EDU/BOUVE
or contact Kathleen Cotter, Associate Dean and Director of Development, Bouvé College of Health Sciences, at k.cotter@neu.edu or 617-373-2637.