



DEAN'S MESSAGE: What's On My Mind

ACADEMIC INSTITUTIONS
LIKE OURS HAVE BEEN
DEEPLY AFFECTED BY THE
BUDGET REDUCTION
HITTING THE NATIONAL
INSTITUTES OF HEALTH
(NIH) AND MEDICARE.

What's on my mind this month, as we celebrate the closing of 2013, are the unique challenges we faced this year—from sequestration, to the lack of hospital rate increases, to the Federal Government shutdown in October—and our resolve to remain undeterred in our pursuit of excellence.

On March 1, 2013, we reached a point we never thought we would go: sequestration went into effect, enacting across-the-board spending cuts to the discretionary budget. Academic institutions like ours have been deeply affected by the budget reduction hitting the National Institutes of Health (NIH) and Medicare. These cuts will hurt the biomedical research and healthcare enterprises, they could set back progress in clinical trials of new treatments for patients in dire need of novel therapies and reduce staff needed to give that care, and they threaten to severely diminish the pipeline of young investigators and new research projects required for science to thrive.

additional pressure. The offices of the Department of Health and Human Services, which oversees the NIH as well as the Centers for Disease Control and Prevention, went dark. Grant processing was halted; surveillance of infectious diseases, such as influenza, food-borne illnesses, or other outbreaks, stopped. Government-run programs, including Head Start and WIC (Women, Infants and Children), on which many families rely, were suspended. The closing of all national parks meant many first-time visitors were turned away and events canceled or moved. Among the hundreds affected by the park closures were the families of fallen firefighters who were unable to hold the annual ceremony commemorating the lives of their loved ones at the National Fire Academy—a federally-run park—in Emmitsburg, Maryland.

Despite these sizeable roadblocks, we have persevered, and I continue to urge you to think boldly, strategically and selectively about how you approach and contribute to all of the School of Medicine's key mission areas. Just these last two months, we have accomplished great things. For example:

- In November the **Foundations of Research and Critical Thinking** course began, intended to establish an early research culture in our medical students and serve as the basis for excellent analytical and critical thinking skills, which will be required by our physicians who will need to translate the abundance of data and information collected about a patient into personalized, routine medical care.
- We hosted our first **School of Medicine Festival of Science**, which gave us an opportunity to showcase our incredible work, and receive input and critique from our new external Scientific Advisory Council, composed of five outstanding and distinguished biomedical research scientists.
- I announced the **Dean's Challenge Award to Accelerate Innovation and Discovery in Medicine (ACCEL-Med)**, which will provide seed funding to senior investigators who work together on projects that will tackle “**big science**” questions to improve health and well-being and which are poised for successful large funding from a federal source.
- We also held the ribbon-cutting ceremony for the new **School of Medicine Center for Innovative Biomedical Resources (CIBR)**, a center of excellence for state-of-the-art technologies, equipment and expertise which support biomedical research, clinical practice and health care across the campus.

These activities are just a handful of the new, strategic and bold directions we already have implemented, but I believe that you will develop even more. Take the upcoming break to recalibrate and consider what exciting ideas you want to pursue or projects you plan to accomplish in the coming year. I hope you will return to work refreshed and reinvigorated in 2014. The challenges of 2013 are by no means behind us, but, based on our performance of this last—and a most difficult—year, I am confident we can overcome them, as individual contributors and as an empowered community.

In the relentless pursuit of excellence, I am

Sincerely yours,

E. Albert Reece, MD, PhD, MBA
Vice President for Medical Affairs, University of Maryland
John Z. and Akiko K. Bowers Distinguished Professor and
Dean, University of Maryland School of Medicine



Francis Collins, MD, PhD, Director of NIH

According to an NIH fact sheet, approximately **640 fewer grants** were funded in fiscal year (FY) 2013, compared with FY 2012, **750 fewer patients** were admitted into clinical trials, and an **average 4.7% reduction** to the budgets of **existing grants** has taken place due to the sequestration. Circumstances have become such that NIH Director Dr. Francis Collins donned an uncharacteristic political hat this past summer and sang the “Sequester Blues” on YouTube. Although a lively song,

Dr. Collins' lyrics underscore the vital importance of the biomedical enterprise and the long-term impact that the spending cuts will really have on Americans' health and well-being.

The situation created by the fiscal cliff has led to job losses in certain areas of the health care industry. A recent article in *U.S. News & World Report* cited the sequestration as part of the reason behind employee cuts at Indiana University Health, Vanderbilt University Medical Center and the Cleveland Clinic, among others. According to estimates by the Bureau of Labor and Statistics, hospitals cut 9,000 jobs in May, the worst number of losses in the past decade.

To make matters worse, the 16-day government shutdown in early October put many already living under the constraints of sequestration under



► BY BILL SEILER

Renewed Funding for Vaccine Research

in Response to Emerging Public Health Issues



Karen L. Kotloff, MD

The University of Maryland School of Medicine’s Center for Vaccine Development (CVD) has successfully competed for and received a renewed contract to conduct basic research and clinical studies of vaccines, diagnostics, and therapeutics. Support for this work to combat existing and emerging infectious diseases is provided by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH).

NIAID has designated the University of Maryland’s CVD and eight other research centers throughout the United States as Vaccine and Treatment Evaluation Units (VTEUs). Under the 10-year contract, each institution has the potential to receive funding estimated to be up to \$135 million annually over a seven-year period (new projects will be awarded during the first seven years). The other newly awarded VTEU sites are: Baylor College of Medicine, Houston, TX; Cincinnati Children’s Hospital Medical Center, Cincinnati, OH; Duke University, Durham, NC; Emory University, Atlanta, GA; Group Health Research Institute, Seattle, WA; Saint Louis University, St. Louis, MO; University of Iowa, Iowa City, IA; and Vanderbilt University, Nashville, TN.

“The University of Maryland’s Center for Vaccine Development has long been a partner of the federal government in the clinical evaluation of vaccines. Renewal of our contract is a testimony to our expertise in helping protect people throughout the world against diseases that pose significant public health threats,” says principal investigator, Karen L. Kotloff, MD, Professor, Departments of Pediatrics and Medicine, and head of Infectious Disease and Tropical Pediatrics at the CVD.

According to Dr. Kotloff, the NIAID expanded its required scope of expertise to qualify as a VTEU for this most recent contract competition. “Future projects are likely to use molecular tools that are now available to design better vaccines and to unmask signals that lead to immunity, while avoiding side effects,” she says. As a result, the CVD team has augmented its multidisciplinary collaboration with colleagues at the University of Maryland Institute for Genome Sciences and the School of Pharmacy, both located on the University of Maryland campus in Baltimore.

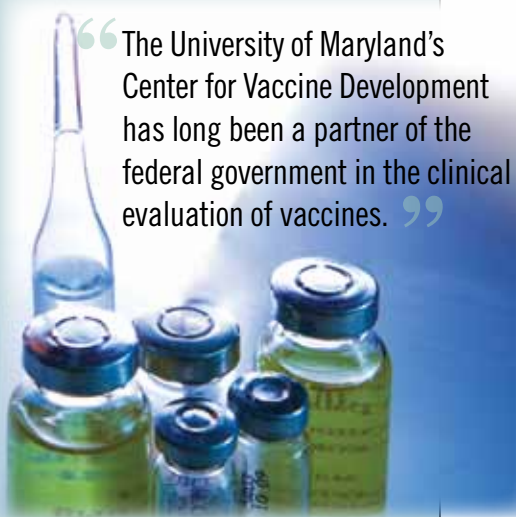
The new VTEU contract has more emphasis on international studies, compared with previous contracts. “This emphasis on global health is a great match for the CVD, because our center has a large geographic reach to facilitate clinical studies in several African and Asian countries as well

as Santiago, Chile,” says E. Albert Reece, MD, PhD, MBA, Vice President for Medical Affairs, University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine. “The Center’s domestic and international staff includes experts in a variety of fields, ranging from molecular biology and immunology, to internal medicine and pediatrics, to epidemiology and biostatistics, positioning the School of Medicine to contribute significantly to the development and testing of novel vaccines and novel vaccine delivery systems.”

From its beginnings in the 1970s, under the directorship of Myron M. Levine, MD, DTPH, the University of Maryland CVD has been an international leader in vaccine development at an academic institution. The CVD has made major contributions to the development of vaccines against a wide range of infectious diseases, including typhoid fever, measles, meningitis, cholera, dysentery, malaria and influenza.

“The CVD pioneered the concept of a single center that houses researchers from numerous scientific disciplines who share the common aim of studying vaccine development from various perspectives,” says Dr. Kotloff. “Under one roof, we have the expertise to study how infection causes disease, which populations may be most severely affected, and the responses to an infection that produce immunity. We also can design and conduct all stages of vaccine development and testing in people, sometimes leading to licensure.”

A strength of the VTEUs is their ability to rapidly enroll large numbers of volunteers into trials. This rapid-response capability is especially important for testing vaccines designed to counteract emerging public health concerns, such as the vaccine against the 2009 H1N1 influenza virus, which has become a component of the seasonal flu vaccine. Over the summer, the VTEUs launched a national, multi-center trial of a vaccine aimed to prevent an especially virulent avian influenza virus, H7N9, which emerged in people early in 2013.



“The University of Maryland’s Center for Vaccine Development has long been a partner of the federal government in the clinical evaluation of vaccines.”

Potential First Effective Medicine to Treat Cocaine Dependence

► BY LARRY ROBERTS

New research published in *JAMA Psychiatry* reveals that topiramate, a drug approved by the U.S. Food and Drug Administration (FDA) to treat epilepsy and migraine headaches, also could be the first reliable medication to help treat cocaine dependence. The study, led by Bankole A. Johnson, DSc, MD, MBChB, MPhil, Chair of the Department of Psychiatry at the University of Maryland School of Medicine and head of the School’s new Brain Science Research Consortium Unit, with support from the National Institutes of Health and Agency for Healthcare Research and Quality, is one of the first to establish a pharmacological treatment for cocaine addiction, for which there are currently no FDA-approved medications.

Addiction affects 13.2 to 19.7 million cocaine users worldwide. Cocaine is responsible for more U.S. emergency room visits than any other illegal drug. Cocaine harms the brain, heart, blood vessels, and lungs and can even cause sudden death. Professor Johnson, one of the nation’s leading neuroscientists and psychopharmacologists, had previously found that topiramate was a safe and effective treatment for alcohol dependence compared with placebo.

Dr. Johnson conducted the research in his previous position with Department of Psychiatry and Neurobehavioral Sciences at the University of Virginia. The study enrolled 142 participants, aged 18 years or older, seeking treatment for cocaine dependence. Following enrollment, participants were randomly assigned into a topiramate group or placebo group. Neither the participants nor the health-care professionals administering the treatment knew who was in which group (double-blinded study).

Using an intent-to-treat analysis, the researchers found that topiramate was more efficacious than placebo at increasing the participants’ weekly proportion of cocaine non-use days and in increasing the likelihood that participants would have cocaine-free weeks. Furthermore, compared with placebo, topiramate also was significantly associated with a decrease in craving for cocaine and an improvement in participants’ global functioning.

The study investigators also observed few side effects due to drug treatment. In general, participants in the topiramate group experienced mild side-effects, including abnormal tingling skin sensations, taste distortions, anorexia, and difficulty concentrating.

“Our findings reveal that topiramate is a safe and robustly efficacious medicine for the treatment of cocaine dependence, and has the potential to make a major contribution to the global health crisis of addiction,” Dr. Johnson said. “However, topiramate treatment also is associated with glaucoma, and higher doses of the drug can increase the risk of side effects; therefore, caution must be exercised when prescribing the drug, especially when given in high doses.”

These results build upon earlier work from Dr. Johnson’s group which indicated that individuals dependent on cocaine, but not seeking treatment, who took topiramate were more likely to experience reduced cravings and preference for cocaine, compared with placebo. The findings of the current study indicate that topiramate may be even more effective in treating people with addiction who actively want to quit using cocaine.

“Because topiramate is the first medication to demonstrate a robust therapeutic effect for the treatment of cocaine or alcohol dependence, its fundamental neurochemical effects provide important clues as to common links in the neurobiological basis of the addictive process in general,” remarked Dr. Johnson. “These findings also add to our understanding of how addiction affects the brain, because it demonstrates the unique concept that dual neurotransmitter modulation, by simultaneously augmenting the inhibitory action of gamma amino butyric acid and inhibiting the excitatory effects of glutamate, can result in therapeutic effects that reduce the propensity to use cocaine.”

Statement of Disclosure: Professor Johnson reported serving as a consultant for Johnson & Johnson (Ortho-McNeil Janssen Scientific Affairs, LLC) the manufacturer of topiramate, from 2003-2008 and currently has no affiliation with that Company, Transcept Pharmaceuticals, Inc. from 2006-2008, Eli Lilly and Company from 2009-2010, and Organon from 2007-2010. He currently consults for D&A Pharma, ADial Pharmaceuticals, LLC, (with which he also serves as chairman), and Psychological Education Publishing Company (PEPCo), LLC. Topiramate is currently available as a generic medicine in the USA, and Professor Johnson has no commercial affiliation with any generic manufacturer of topiramate. Dr. Liu reported serving as a consultant for Celladon Corporation. No other disclosures were reported.

► BY KAREN LANCASTER

USE OF Gowns & Gloves REDUCES MRSA

Healthcare workers' use of disposable gowns and gloves upon entering all patient rooms on an intensive care unit (ICU), versus only in rooms on standard isolation protocol, helped reduce patient acquisition of methicillin-resistant *Staphylococcus aureus* (MRSA) by approximately 40 percent, according to new research co-led by the University of Maryland School of Medicine and the Yale New Haven Health System Center for Healthcare Solutions. While the study did not show statistically significant results for preventing patient acquisition of another common bacteria, vancomycin-resistant *Enterococcus* (VRE), the use of gowns and gloves increased hand-washing frequency among healthcare workers and did not result in any increase in adverse events for patients.

The study, funded by the Agency for Healthcare Research and Quality (AHRQ), appeared online in *JAMA* in conjunction with presentation of the data at IDWeek 2013, an annual meeting of more than 5,500 professionals in healthcare epidemiology and infectious diseases.

Although recent data have indicated that healthcare-associated infections (HAIs) are becoming less pervasive across the United States, HAIs still represent one of the most common complications of hospital care, affecting an estimated one of every 20 patients. Numerous studies have shown that healthcare workers acquire bacteria on their hands and clothing through patient contact, resulting in transmission of bacteria to other patients. Current Centers for Disease Control and Prevention (CDC) guidelines recommend contact precautions (gowns and gloves) by healthcare workers when caring for patients colonized or infected with antibiotic-resistant bacteria such as MRSA and VRE. However, if these infections haven't been detected, gowns and gloves do not have to be worn.

"We set out to find whether having healthcare workers wear gowns and gloves for all ICU patient contact could decrease the acquisition of antibiotic-resistant bacteria such as MRSA without causing any harm to the patient—and the answer was yes," says the study's principal investigator, Anthony Harris, MD, MPH, Professor, Department of Epidemiology and Public Health at the University of Maryland School of Medicine. Dr. Harris, who is also vice president of the Society for Healthcare Epidemiology of America (SHEA), adds: "From a public health perspective, it's important that we evaluate interventions



“From a public health perspective, it's important that we evaluate interventions that may continue to drive these infection rates down, especially as concerns persist about antibiotic-resistant bacteria.”

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The study involved 20 medical and surgical ICUs across 15 states, and examined nearly 92,000 cultures from more than 26,000 patients over a nine-month period in 2012. Participating ICUs were randomly assigned to either the intervention or control group. Healthcare workers in the intervention group were required to wear gloves and gowns for all patient contact when entering any patient room. Healthcare workers in the control group followed CDC guidelines for patient contact, and only wore gloves

and gowns for contact with patients with known antibiotic-resistant bacteria.

While researchers did not find a decrease in VRE, the reduction in MRSA was notable, as was an increase in hand-washing by the healthcare workers upon leaving patient rooms.

The study also sought to determine if usage of contact precautions such as gowns and gloves would adversely impact patients as previous studies have shown, such as increased instances of pressure sores, falls or other unintended physical injury resulting from medical care or hospitalization. However, there was no statistically significant increase in adverse events, and investigators observed a trend towards lower adverse events in the intervention group.

"Infection control studies such as this are important to advance the science and lead to important discoveries that can decrease health care-associated infections," says Daniel Morgan, MD, MS, the study's senior author and Assistant Professor in the Department of Epidemiology and Public Health. "In conjunction with the evolution of hospital cleaning practices, increased hand-washing frequency and other measures, patients in hospitals can be safer than they've ever been from HAIs."

E. Albert Reece, MD, PhD, MBA, Vice President for Medical Affairs, University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine, says, "Studies such as this continue to advance the knowledge and understanding of healthcare-associated infections and how they can be prevented. These results will certainly prove useful in evaluating public health policies and recommendations for how to best protect patients and advance their healing in the hospital setting."



Anthony Harris, MD, MPH



Daniel Morgan, MD, MS

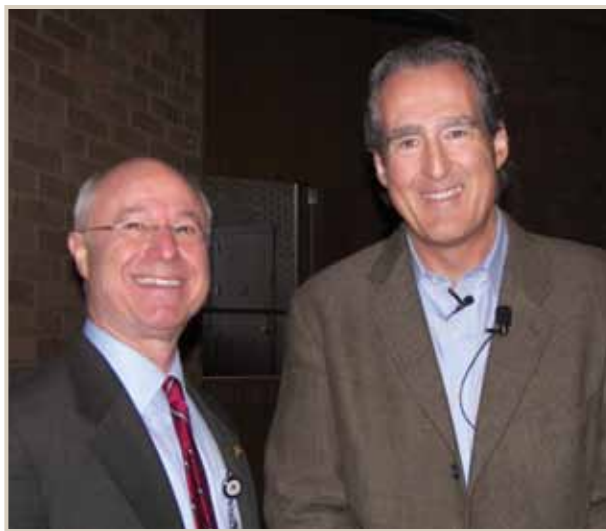
► BY CAELIE HAINES

Nobel Laureate Shares His Love of Science

As part of the Nobel Prize Inspiration Initiative, Nobel Laureate Craig Mello, PhD, came to the University of Maryland School of Medicine on November 4. The Nobel Prize Inspiration Initiative is a global program designed to help Nobel Laureates share their inspirational stories and insights. By taking Nobel Laureates on visits to universities and research centers around the world, and by capturing their thoughts on video, the Initiative seeks to bring the Laureates into closer contact with the worldwide scientific community, and especially with an audience of young scientists. Videos from these Initiative events can be found at www.nobelprizeii.org.

"It's a great program, because it gives those who are just beginning their careers—and even those in the middle of their careers—a way to hear what makes a Nobel Laureate tick," said Steve Projan, Infectious Disease & Vaccine iMED Head for MedImmune, one of the sponsors of the Initiative, along with Astra Zeneca.

MedImmune hopes to become even more involved with the science happening here on campus through a new partnership with the University of Maryland, Baltimore (UMB) that was announced by Bruce Jarrell, MD, Chief Academic and Research Officer, Senior President and Dean of the Graduate School for UMB. "MedImmune scientists and UMB scientists will look at areas of common expertise, with the idea that new discoveries will happen," said Dr. Jarrell. "And the hope that students will get involved in collaborative research at this school that will lead to new corporations—hopefully in Maryland, but even around the country—that will improve the way we care for patients."



Curt Civin, MD with Nobel Laureate Craig Mello, PhD

Dr. Mello—along with Andrew Fire, PhD—discovered RNA interference (RNAi), which, as their Nobel citation says, is "a fundamental mechanism for controlling the flow of genetic information." After his presentation, "A Worm's Tale: Secrets of Inheritance and Immortality," Dr. Mello conducted a Q&A with the audience, which was full of students and scientists from the School of Medicine and other UMB schools, as well as visiting researchers who were on campus for the Ninth Annual Symposium on Translational Research in Molecular Pathology. "Science and biology research right now is so exciting," Dr. Mello proclaimed during his speech. "We can't help but always underestimate living things. It's hard to put words to how amazing they are." So instead he showed a music video of dancing nematode worms that was a big hit with the crowd.

"This is a really exciting day here, to have a Nobel Laureate, especially one who has had such an impact," raved Curt Civin, MD, Professor, Departments of Pediatrics & Physiology; Associate Dean for Research; and Director, Center for Stem Cell Biology & Regenerative Medicine. "His was a really important prize, because this was how we found out, fundamentally, what genes do, in our bodies and in the bodies of all living organisms. How you do that is you knock down or knock out the function of a specific molecule. Nowadays we find all sorts of associations really quickly of genes with disease. But is that just a chance association? Or is that a meaningful, driving association? The RNAi discovery, the inhibitory RNA that Craig Mello and Andrew Fire discovered, was the basis for their Nobel Prize. Now Dr. Mello is inspiring other scientists—namely, today, University of Maryland School of Medicine scientists—to jump on the bandwagon, exploit his discovery, stand on his shoulders and get the next Nobel Prize."



The Class of 2017 Celebrates Their White Coat Ceremony

Medical Family Day was held on November 7, 2013 at the Hippodrome Theater. This special event, which was sponsored by the Whiting-Turner Contracting Company, gives family members of first-year students a glimpse into what medical school is really like for the students. It is capped off by a ceremony welcoming the students to the field of medicine by presenting them with their first white coat. “The White Coat Ceremony is a rite of passage. It symbolizes the beginning of your transition into the noble and privileged profession of medicine,” said E. Albert Reece, MD, PhD, MBA, Vice President for Medical Affairs, University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine.

“It is, however, so much more than a mere ritual for the privileged. For, to whom this great honor and privilege is given, your service, compassion and high ethical standards are expected in return.”

Paige Luneburg, MS-IV, Vice President of the Class of 2014, spoke about what the white coat means to a student. “The White Coast ceremony is an initiation into the ranks of medicine,” she said. “I remember what it felt like three years ago, when I sat where these students are now sitting, so relieved to still be among my classmates after 10 weeks of anatomy.” Student white coats are short, in contrast to the ones worn by certified physicians. “The length discrepancy symbolizes our knowledge level. But as our training persists, the length of our coats will grow. During that journey, you will realize that becoming a doctor isn’t so easy. There will be tears, there will be frustration, there will be fatigue. Most importantly, though, there will be success and the joy that comes from learning how to take care of others.”

CORRECTION

In the Dean’s Message in the November issue of *Somnews*, Scott Thompson, PhD, was mistakenly credited as the Chair of the Department of Psychiatry. He is actually the Chair of the Department of Physiology. We apologize to Dr. Thompson for the error.

Neda Frayha, MD, Associate Professor of Medicine and Assistant Dean for Student Affairs, who was chosen by the students to give the faculty presentation, encouraged the students to never lose sight of that joy. “As long as the physician and patient encounter matters, I think the White Coat ceremony will be a part of our tradition,” she said. “With all the changes in medicine, all the new technology, physicians are still here, because that encounter matters. When a patient is sitting one-on-one with a doctor, they don’t care about any of that other stuff, they just want the doctor to help them get better and feel better. That is the power that you have. Hold on to your passion and your compassion as much as possible as you get older. Even if you have bad days—and you will—you need to find the strength to put on a kind face for the patients for whom you are caring.”

The White Coat ceremony, which started at the School of Medicine in 1997, formally presents first-year students with their white coats, long the symbol of physicians and scientists, after they have completed their first course in medical school—Structure and Development (aka Anatomy). The coats are put on by School of Medicine faculty, to welcome their junior colleagues to the profession of medicine. “It feels good, reaching this first milestone and having the satisfaction of knowing we’ve gotten this far,” said student Zain Moosvi.

Some of the faculty were equally excited, especially Edward Bolgiano, MD, Assistant Professor, Department of Emergency Medicine, who got to put a coat on his daughter Mary. “It’s a very special day,” he said. “It’s hard not to be emotional. At this stage of my career, I was profoundly touched by Dean Reece’s words about what medicine should mean to her generation.”

Once they received their coats, students recited an oath acknowledging their acceptance of the obligations of the medical profession. They also added their signatures to the school’s honor registry, a leather-bound book provided by the Medical Alumni Association that is signed by all our medical students in their first year, in which they pledge to maintain integrity throughout their years in medicine.

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