



## DEAN'S MESSAGE: What's On My Mind



What's on my mind this month is "back to work and back to school," as School of Medicine faculty, staff and students get ready to face the academic year ahead.

This school year also marks the beginning of my 10th anniversary as Dean of the School of Medicine.

As I contemplate the goals we've set for the months prior to the end of 2015, I'm struck by how much we've accomplished during my tenure as Dean: we've expanded our research enterprise to over \$400 million in grants and contracts; grown our clinical practices to over 40 sites, including at 12 affiliated hospitals across the State; implemented a new education philosophy across all training programs; constructed or renovated buildings to house our ever-growing community; established major institutes and centers; recruited, promoted and awarded endowed professorships to some of the best faculty in the world; completed our most ambitious Development campaign to date; and launched a bold strategic vision plan, **Vision 2020**, in response to the Recession and in the midst of Sequestration. If I attempted to list all of our milestones here, this column would easily fill the pages of a textbook! Needless to say, the last decade has certainly been an amazing time in the history of the School.

However, none of these achievements happened simply by chance. It was unquestionably due to the collective efforts of extraordinary faculty, staff and students. Despite obstacles, both internal to our organization and outside it, we prevailed as a result of our relentless perseverance.

Shortly after joining the UMSOM, I realized that I wanted to propel the School's already remarkable research portfolio to truly exceptional levels. At that time, the completion of the Human Genome Project was relatively new, and the field of genomics was the topic of the day. Convinced that we could truly stand apart from our peer institutions by establishing ourselves as a major hub for genome-based research, we successfully recruited a team, led by **Claire Fraser, PhD**, to start the Institute for Genome Sciences (IGS). Looking back, it was one of the best decisions that we made, and today the IGS is internationally renowned for its innovators and leaders in the field of genome sciences.

Another success that came early in my tenure was my partnership with **Robert Chrencik, MBA, CPA**. After he was appointed in 2008 as President and CEO of UMMS, Mr. Chrencik and I worked together to establish the core value of "The Power of Partnership." We both quickly recognized that our incredible clinical enterprise could only grow if the UMSOM and UMMS were fully aligned. The synergy between the School of Medicine and Medical System has become a well-recognized brand across the country.

Several years ago, when we contemplated how we could update the medical school curriculum to keep pace with the ever-changing landscape of medical science, we established the Foundations of Research and Critical Thinking course. We wanted to promote and instill a culture of inquisitiveness, and teach our students the value that biomedical research has in patient care. Although we recognized that this new requirement would add to the rigorous workload of our medical students, we knew that the course would be vital to creating a new generation of academically-trained physicians and physician-scientists.

There are many more examples that I could share with you, but I will save those for the State of the School Address next month!

What ties our successes together is that we refused to remain paralyzed when challenges surrounded us. We didn't just curl up in the fetal position, or simply blame the economy or our politicians, and tell ourselves that our goals were impossible. We understood that we needed to take advantage of the road blocks before us, and use them to navigate a new path—a strategic, disruptive and innovative path.

Our journey over the last decade reminds me of this quote by Marcus Aurelius:

**"The impediment of action advances action. What stands in the way becomes the way."**

When I think about Marcus Aurelius' quote, I wonder why shouldn't we think big? Why shouldn't we set far-reaching goals? Why shouldn't we aim to get the most NIH dollars available, or become the number one medical system in the country? Why shouldn't we strive to be the very best academic institution amongst our peers? The Steve Jobs, Helen Kellers, Thomas Edisons and Elijah Saunders of the world never limited themselves—why should we?

The center spread of this issue is devoted to two feature stories about ambitions and research. One celebrates the **fearlessness of the young**—our incredible students who participated in the Summer Research Program. The other highlights the **new recruitment award program**, geared to attract the very best and the brightest to join the ranks of the outstanding investigators we already have. I hope you read both and use their messages to help inspire your work.

My first nearly 10 years at the School of Medicine have been incredible, but I fully expect us to achieve even more in the next 10 years. We've succeeded because we didn't look at challenges and back away, but forged ahead. We made difficult choices and, in the current vernacular, "we owned them." I encourage you to look at the speed bumps in the road ahead not as obstacles to slow you down, but jumping off points from which to soar.

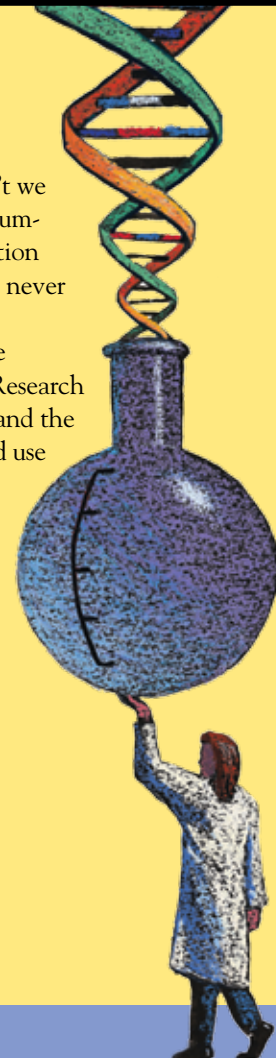
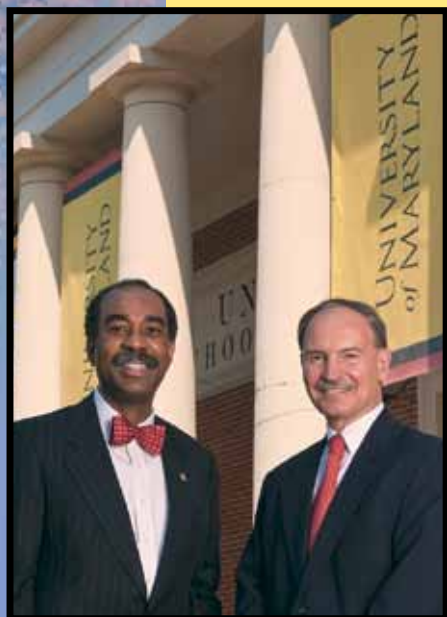
In the relentless pursuit of excellence, I am

Sincerely yours,

E. Albert Reece, MD, PhD, MBA

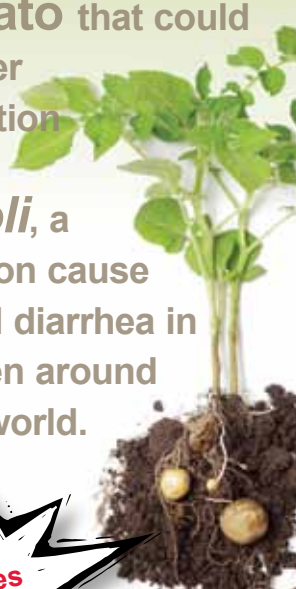
Vice President for Medical Affairs, University of Maryland

John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine



### Point of Pride

In 2000, School of Medicine researchers announced development of an **edible vaccine** in a **genetically engineered potato** that could deliver protection from ***E. coli***, a common cause of fatal diarrhea in children around the world.



This makes us proud!

# Building a Research



By Emily Malinowski and Julie Wu

## Summer Research Program Encourages Innovation in Students

### Undergraduate and Medical Students Showcase Research Skills

It's hard not to admire the bright, young researchers who were chosen for this year's Summer Research Training Programs at the University of Maryland School of Medicine (UMSOM). The umbrella of programs ran for 10 weeks, from the end of May through the end of July. The group of 87 undergraduate and medical students conducted studies along many different lines of research, including, but not limited to cardiovascular disease, diabetes and obesity, and invasive brain cancer. The students showcased their research in an all-day Summer Research Forum, held on July 31, 2015 at the University of Maryland, Baltimore (UMB) SMC Campus Center.

The group included UMSOM medical students who had won awards for the Office of Student Research's flagship PRISM program (Proposed Research Initiated by Students and Mentors). UMSOM and national medical students who had won fellowships from the UMSOM SPORT program (Summer Program in Obesity Diabetes and Nutrition Research Training) also were part of the 2015 class.

In addition to the medical students, a number of undergraduate students participated in the summer programs. These included students enrolled in STEM tracks at UM College Park (UMCP) who won fellowships for the UM Scholars program, which is funded by the MPowering the State Initiative (a partnership between UMB and UMCP). In addition, undergraduates competed nationally and were selected for the UMSOM's Mid-Atlantic Nutrition Obesity Research Center (NORC) and Greenebaum Nathan Schnaper Intern Programs (NSIP).

"We had a phenomenal group of students this year, and we believe that their work will influence scientists, researchers, and other students on our campuses as well as others," says **Greg Carey, PhD**, Assistant Professor in the Department of Microbiology & Immunology, and Director of Student Summer Research and Community Outreach in the Office of Student Research at the School of Medicine.

For the PRISM program, students and mentors teamed up to win a research award, based on the format and evaluation process of an NIH grant proposal. For the other programs, students were first competitively selected to a respective program, based on the quality of the projects they proposed in their applications, curiosity about a particular topic, and their ability to communicate—in writing and orally—about their research interests. These students then went through a mutually-selective matching process with UMSOM faculty members who served as their mentors.

Benjamin Fink, an undergraduate at College Park who participated in the NORC program, cites this mentor-mentee relationship as a valuable part of the experience. His mentors this summer were **Amber Beitelshees, PharmD, MPH**, Assistant Professor in the Department of Medicine, and **Simion Taylor, MD, PhD**, Professor in the Department of Medicine, and Director of NORC. Fink describes Dr. Taylor as "one of the godfathers of obesity and nutrition." He goes on to say, "meeting these scientists and forming relationships with them was the best part of the entire experience."

Under the mentorship of Drs. Beitelshees and Taylor, Fink studied the transport of sodium and glucose in patients receiving treatment for diabetes.

He was among the 32 students selected to give an oral presentation about his project during the Student Research Forum.

Medical student Aimee Sutherland also worked on a project related to diabetes and obesity. She participated in SPORT under the mentorship of **Michael Miller, MD**, Professor in the Department of Medicine, and Director of the Center of Preventative Cardiology. Over an eight-week period, Sutherland worked with patients who have metabolic syndrome, a cluster of conditions that include high blood glucose, high blood pressure and high cholesterol. She wanted to determine the best diet for those who have or who are at risk for heart disease.

As an undergraduate, Sutherland studied dietary macronutrients. Being selected for the SPORT program allowed her to build on the skills she developed in college—something that, as a medical student, she might not have been able to do until later in her career. "It's an accomplishment that wouldn't have been possible without this program and my mentor," Sutherland says.

Now, she hopes to continue her research after the summer ends.

Sutherland was not the only student drawn to the summer programs because they allow students to combine their interests with scientific work. Arjun Adapa's decision to study science was influenced largely by his lifelong love of music.

"As a kid, I was really into music, and I believe that there is a connection between music and science. Both define the human experience," he says. "I chose science because it allows me to explore the human experience even further."

Arjun is a jazz saxophonist and a senior in Bioengineering at College Park who was accepted into the UM Scholars Summer Research Program. He had the opportunity to work with a team of three mentors, including **Anthony Kim, PhD**, Assistant Professor in the Department of Neurosurgery; **Graeme Woodworth, MD**, Associate Professor in the Department of Neurosurgery; and **Jeffrey Winkles, PhD**, Professor in the Department of Surgery. Drs. Kim, Woodworth and Winkles are investigating the use of focused ultrasound and nanotechnology to treat invasive brain cancer.

To more effectively eliminate malignant cells that cannot be surgically removed, drugs need to be delivered to the tumor site. However, drug delivery is limited by the small spaces between brain cells. Focused ultrasound can enlarge these spaces, which allows clinicians to inject anti-cancer drugs, encapsulated in nanoparticles,



Sutherland





## Recruitment Award Aims to Promote Collaboration and Fill HSF-III

WITH CONSTRUCTION of the new SOM Research Building, HSF-III, moving ever closer towards completion, many faculty members may be wondering who will get priority consideration to work in this premium space. The state-of-the-art facility will house the School of Medicine's most promising research teams—with a strong emphasis on teamwork.

Establishing a research powerhouse may require current faculty to look inside as well as outside the University of Maryland for collaborators. Thus the "Special Transdisciplinary Recruitment Award Program (STRAP) Initiative" was born.

In line with the goals of Vision 2020 and ACCEL-Med, the STRAP Initiative is intended to expand the SOM research portfolio and funding base by providing incentives to multiple academic units that wish to jointly recruit well-funded new faculty. All potential recruits must have three or more NIH grants (R01s, PPGs or Center grants), or equivalent level of funding, along with an excellent track record of publishing, teaching, and a history of mentoring students and trainees.

Any possible new hires would need to work in a key emphasis area, thereby complementing the research of the SOM's already robust portfolio. These areas include brain science, cancer biology, genome/microbiome sciences, imaging science, infectious diseases and HIV/AIDS, transplantation, heart and vascular science, regenerative science, diabetes and cardiometabolic diseases, pharmacogenomics/nutrigenomics, oxidative stress and inflammation, and kidney disease and hypertension.

"Preferably, we'd like to see a clinical department and a basic science department, a program, a center, or an institute working together to bring a well-established scientist or physician-scientist on board," 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. "These recruitments would not only strengthen existing collaborations between our current senior investigators, but help each academic unit to fulfill their Vision 2020 research goals and metrics."

As part of Dean Reece's charge to all SOM Chairs and Directors to answer



"Big Science" research questions using innovative and strategic approaches, each academic unit is expected to reach certain targets by the end of fiscal year 2020:

- Clinical departments should have  $\geq 25\%$  of faculty (assistant professor and above) NIH-funded, and an overall department funding rate of \$250,000 per full-time faculty
- Basic science departments should have  $\geq 75\%$  of faculty (assistant professor and above) NIH-funded, and an overall department funding rate of \$350,000 per full-time faculty
- Centers, programs and institutes should have  $\geq 75\%$  of faculty (assistant professor and above) NIH-funded and an overall funding rate of \$650,000 per full-time faculty

In addition to receiving premium space consideration in HSF-III, academic units that qualify for STRAP incentives may have the opportunity to have the Dean's Office co-fund these new recruitments, along with contributions made from the reserves of academic units. Other STRAP bonuses include doubling the normal DRIF allocation for the first three years of the recruitment, and giving credit towards units' individual Vision 2020 goals. Although preference will be given to proposals that include a clinical department, all are strongly encouraged to apply.

Dean Reece has appointed a committee to review the incoming STRAP proposals for eligibility and Dean's Office support. The committee, led by **Louisa Peartree, MBA**, Senior Associate Dean, Finance & Resource Management, and **Terry Rogers, PhD**, Assistant Dean, Research Affairs and Professor, Department of Biochemistry & Molecular Biology, will accept applications on a rolling basis, with the first deadline being December 30, 2015.

Those interested in applying should submit a letter of intent to Ms. Peartree and Dr. Rogers before September 30.

"The School of Medicine is dedicated to conducting exemplary biomedical research to improve the health and well-being of the citizens of Maryland and beyond," says Dean Reece. "Only when basic, translational and clinical researchers work together can we truly hope to achieve the ambitious goals of our strategic vision plan."

Questions? Contact Louisa Peartree or Terry Rogers for more information, or to receive a copy of the STRAP Initiative RFP.

The summer research programs inspire some of the undergrads to attend medical school or obtain an advanced degree in research, and give the medical students a new and deeper appreciation for basic science research.

directly to the diseased tissue.

Adapa spent his summer determining how successfully nanoparticles could be injected to a specific area of the brain after focused ultrasound treatment.

In addition to working on their projects, students were required to attend scientific lectures. This gave them a chance to meet faculty conducting leading-edge research, to meet the other summer students, to familiarize themselves with their peers' work, and to gain experience in participating in discussions about research. Both undergraduate and medical students participated.

"The lectures just increased the number of interactions we all had with each other," says Adapa. "These interactions created a diverse academic environment that the College Park campus cannot offer."

Other students praised the program for allowing them to form connections with new people and realize their personal goals.

"In medicine, there are so many different fields, and it's hard to get a grasp on everything out there," says medical student Dong "Jake" Kim, who participated in the PRISM program. "The Summer Research Program exposed us to things we normally wouldn't have time to learn about, or even knew existed."

With his mentors, **Carolyn Cronin, MD, PhD**, and **Michael Phipps, MD, MHS**, both Assistant Professors in the Department of Neurology, Kim

examined strategies to improve feeding tube protocols for stroke patients. This is important because difficulty swallowing is a common symptom after a stroke. Although having a surgical feeding tube may be necessary, patients are often left using this device for much longer than necessary.

"This project will help to improve the quality of many lives," Kim says. "The work this summer gave me a real sense of accomplishment."

At the culminating event, the Student Research Forum, participants gave oral as well as poster presentations, and had the opportunity share their projects with their fellow students, faculty and guests.

"The students in our Summer Research Program never cease to amaze me with their ability to execute new projects in such a dynamic manner," 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. "We congratulate every one of them for their talent and willingness to contribute to the biomedical research community. I wish them well as they move on to the next steps in their promising careers."

The summer research programs inspire some of the undergrads to attend medical school or obtain an advanced degree in research, and give the medical students a new and deeper appreciation for basic science research. It's just one of the many ways the School of Medicine is training next-generation scientists and physician-scientists. And based on the feedback of Fink, Adapa, Sutherland and Kim, it's a lot of fun, too.



Adapa



Historic Malaria Summit

Front Row (Left to Right):

- Dr. Khine Zar Win, Myanmar Ministry of Health
- Dr. Myaing Myaing Nyunt, University of Maryland Institute for Global Health
- Dr. Nu Nu Tha, Myanmar President's Office
- Dr. Thein Thein Htay, Myanmar Ministry of Health
- Eh Kalu Shwe Oo, Karen Department of Health and Welfare

Second Row (Left to Right):

- Saw Tamala Khin, Karen Department of Health and Welfare
- Dr. Aung Moe Nyo,
- Dr. Tin Myo Win, Myanmar Parliament
- Dr. Nay Lin, Myanmar Parliament
- Dr. Kyaw Zin Thant, Myanmar Ministry of Health

Sai Laeng, Shan State Development Foundation

Back Row (Left to Right):

- Dr. Tom Cullison, Uniformed Services University of the Health Sciences
- Dr. Khoon Philip, Karenni Mobile Health Committee
- Dr. Christopher Plowe, University of Maryland Institute for Global Health
- Brigadier General Tin Maung Hlaing, Myanmar Directorate of Defense Medical Services
- Dr. Aung Thi, Myanmar Ministry of Health
- Dr. Than Win, National League for Democracy
- J. Stephen Morrison, Center for Strategic & International Studies
- Brigadier General Saw Lwin, Myanmar Directorate of Defense Medical Services
- Sahil Angelo, Center for Strategic and International Studies

# Historic Summit Addresses **Malaria** Epidemic in Myanmar

THE UNIVERSITY OF MARYLAND School of Medicine's Institute for Global Health (IGH), recently established under the direction of **Christopher Plowe, MD, MPH**, Professor of Medicine, announced in early August that it will help bring together a diverse array of opposing factions from Myanmar as part of an unprecedented unified effort to eliminate the country's most fatal disease: malaria.

The historic summit on August 3, 2015 in Washington, DC, was convened by the IGH, the Center for Strategic and International Studies (CSIS), and the American Society of Tropical Medicine and Hygiene (ASTMH). Dr. Plowe, along with **Myaing Nyunt, MD, MPH, PhD**, Assistant Professor of Medicine, and Director of the IGH's efforts in Myanmar, have been studying the disease and its impact on this fragmented country for the past two decades.

The meeting included a range of Myanmar groups: both civilian and military government officials; the main opposition party; and the Shan, Karenni, and Kayin ethnic minorities agreed to a concerted, long-term plan to eliminate malaria in Myanmar. The disease is a major problem in Myanmar, formerly known as Burma: about 300,000 people there suffer from malaria every year; in some parts of the country, a quarter or more of the population are infected. In addition, Myanmar faces the grave specter of drug-resistant malaria, and many fear

## New Institute for Global Health Helps Organize Historic Summit to Address Malaria Epidemic in Myanmar

that the disease may become untreatable in the near future even by the most advanced drugs.

"This is a remarkable achievement, a historic landmark for global health and for Myanmar," Dr. Plowe said of the meeting. "Instead of waiting for political reconciliation before we start eliminating malaria, Myanmar society is coming together to tackle this urgent problem—and in the process, it is building political bridges."

Dr. Nyunt said the agreement typified the kind of progress possible when public health leads the way. She noted that many of the groups are building new trust in each other. "This is science diplomacy at its best," she said. "Malaria elimination is getting out ahead of politics in Myanmar. Maybe we can help build relationships across political lines that will lead to progress in other areas."

The agreement comes at a historic time for Myanmar. Over the past five years, the country has seen a gradual opening as the long-term military government has allowed increasing political and social freedoms. The country is due to have national elections in November, which many hope could lead to further social and political changes.

In recent years, Myanmar has seen a rise in drug-resistant malaria, rendering treatments less effective. Experts say these parasites could spread to surrounding nations and on to Africa, endangering millions. Drs. Plowe and Nyunt say that if the alliance is as effective as it could be, it has a good chance of eliminating drug-resistant disease.

The alliance is a landmark for the Institute for Global Health, which was created in July. The Institute is focusing on vaccine research and development, as well as the prevention and treatment of malaria, a disease that infects about 200 million people a year and kills more than half a million, mostly children in Africa. An expert on malaria, Dr. Plowe is also currently the president of the American Society for Tropical Medicine. IGH joins two other institutes at the school, the Institute for Human Virology (IHV), and the Institute for Genome Sciences (IGS).

"Drs. Plowe and Nyunt have been doing important work for years in the battle against malaria, in Myanmar and elsewhere," 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. "Their work here underscores their commitment to the cause, and I am sure it will help save many lives, in Myanmar and beyond."

# somnews

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