What’s On My Mind

What’s on my mind this month is the changing academic medical and biomedical research workforce, and how the School of Medicine can position itself to be the institution of choice and an institution of change.

Over the last few months, and in my 2013 State of the School address, I discussed the challenges we are facing in academic medicine: the budget cuts to the NIH, the cuts to Medicare, and the slow economic recovery across the country. I also outlined how the School of Medicine plans to surmount the roadblocks in our path, as well as the launch of our Shared Vision 2020 initiative. We will use aspects of strategic disruptive innovations in education, research, clinical care, and finance and philanthropy in order to displace the barriers to our success. Although previous issues of SOMnews have addressed the difficulties we face as a community, this month I want to reflect on the specific obstacles that our medical, graduate and allied-health students must overcome to realize their goals of becoming the next generation of leaders in health care and biomedical research.

Last year, I gave a lecture in our new required research course for all medical students, Foundations of Research and Critical Thinking, on the importance of academically trained physicians. They are absolutely crucial to the healthcare enterprise, because they are highly skilled individuals, and they have experience conducting biomedical research. I include individuals in graduate programs and allied-health professionals because, together, our students will become the future scientists and clinicians who will dramatically improve human health and well-being.

Numerous articles have been written about the decline of healthcare professionals and doctoral candidates who conduct research in academic settings. One of the primary reasons for this decline is that NIH funding for research and training has remained flat since the early 2000s. Such funding fell precipitously when sequestration occurred last year and, despite Congress agreeing on a national budget, it will take some time to truly recover. Factoring in inflationary costs over the past decade, even during the flat budget period, the 2013 NIH budget of approximately $29 billion was 23 percent below the 2003 level.

Additionally, the number of training grants supported by the NIH—K, T, and F-awards intended for individuals early in their careers—has decreased. However, the years that many graduate students may wait before obtaining a tenure-track faculty position has increased up to 10 years, and the average age at which a physician-scientist may receive his or her first R01 has risen to age 45 years. This is a picture that can be daunting to a young and aspiring scientist or physician-scientist. We wish to change this trajectory for our students by equipping them early, so they can compete sooner and more effectively than their peers.

In the face of the challenges of a declining pool of academically trained biomedical and medical research investigators, the NIH has established two programs to encourage candidates with medical degrees to pursue research careers: the NIH-Lasker Clinical Research Scholars Program, and Opportunities for Collaborative Research at the NIH Clinical Center. The NIH-Lasker program provides up to seven years of independent research support within an NIH laboratory, followed by an additional five years either at NIH or at another clinical research institution. The collaborative program with the NIH Clinical Center offers external physician-scientists the opportunity to partner with NIH clinical investigators.

Other training programs that provide support and mentoring for promising matriculates have already successfully encouraged the research careers of young investigators. For example, in 2012 the American Thoracic Society surveyed three decades of participants in its Parker B. Francis Scholarship program, which supports the career development of clinical and research scientists in pulmonary, critical care and sleep medicine, and found that the majority of former fellows who spent time doing research had received over $1.8 billion in direct research funding, were awarded 212 patents, and nearly half had been Principal Investigators (P.I.) on one or more R01 awards.

The question remains: How will the School of Medicine respond? As many of you know, we held the inaugural Festival of Science at the end of November 2013, during which we highlighted our research for a distinguished external Scientific Advisory Council (SAC). After their visit, the Council members sent us laudatory comments about the robustness of our research enterprise, but also recommendations to help us further improve our research portfolio. One of the SAC’s key recommendations was to leverage training of students and junior faculty to enhance our research enterprise. Already we are making headway.

The Foundations of Research and Critical Thinking course is underway and will provide medical students with the opportunity to conduct meaningful research that can dramatically impact patients they may care for at the Medical Center. Additionally, we will launch a program called the “Research Continuum,” which will engage medical, allied-health and graduate students—along with postdoctoral fellows, trainees and junior faculty—into research centers centered around specific themes, such as inflammation, vaccines, brain science, or cancer biology, working together to develop programs and projects under the direction of an established, well-funded senior faculty member.

The future of health care in the United States will require academically trained medical, allied-health and biomedical research professionals. Their commitment to discovery-based medicine, skills in analytic and critical thinking, and education within an innovative, inclusive environment will be essential to the advancing health and well-being for all citizens. Without this next generation of investigators, we risk losing ground in our pursuit of new treatments for diseases and chronic conditions. Therefore, as an academic medical institution, we must renew our commitment to keep the bar high in training the best medical and research professionals. 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 Alice K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine
Robust partnerships between rural community health education centers and academic health care institutions can make substantial strides toward addressing race-, income- and geographically-based health disparities in underserved communities by empowering both the community and leading University institutions, according to newly published research from the University of Maryland School of Medicine. Claudia R. Baquet, MD, MPH, a Professor in the Department of Medicine, and her team examined 17 years of partnership between the University of Maryland School of Medicine and a rural health education non-profit on Maryland's Eastern Shore, the Eastern Shore Area Health Education Center (ESAHEC). The research team found that rural communities were more willing to participate in clinical trials and biospecimen donations when long-term partnerships were established between University medical centers in cooperation with local community health educational centers. The paper was published in a recent issue of Progress in Community Health Partnerships: Research, Education and Action, a journal published by Johns Hopkins University Press.

"Maryland's Eastern Shore has a rich history of ethnic, racial and cultural diversity in their communities," says Dr. Baquet, who is also associate dean for policy and planning and director of the Center for Health Disparities at the School of Medicine. "The Eastern Shore also represents populations with unique health disparities that are amenable to targeted interventions."

What are those disparities? "Its residents have higher rates of cancer and chronic disease than those who live in urban areas," says Dr. Baquet. "Furthermore, the area lacks public transportation systems to take patients to and from health care. It also has a growing number of older residents who are Medicare-eligible but are not aware of the services available to them."

The researchers envision that this partnership between the ESAHEC and the School of Medicine will become a model for other programs throughout the country, fostering community-engaged research, particularly among rural communities. The partnership is funded by grants from the National Cancer Institute's (NCI) Center to Reduce Cancer Health Disparities (CRCHD) and the NIH's National Institute on Minority Health and Health Disparities (NIMHD).

"Dr. Baquet's research is representative of the kind of study the NCI Center to Reduce Cancer Health Disparities has been promoting since the Center's inception over a decade ago," says Sunny A. Springfield, PhD, CRCHD director. "It's gratifying to see Dr. Baquet's research reflect how a model of mutual inception over a decade ago," says Sanya A. Springfield, PhD, CRCHD's director. "It's gratifying to see Dr. Baquet's research reflect how a model of mutual inception over a decade ago," says Sanya A. Springfield, PhD, CRCHD's director.

"We do have a truly bidirectional partnership," says Jeanne Bromwell, co-author of the article and deputy director and continuing education coordinator at the ESAHEC. "Dr. Baquet respects our role in the community and we very much respect her knowledge and contacts through the School of Medicine. People here often look at academics as outsiders. With our contacts down here, we are able to bring the Baquet partnership to the community in a way that does not make them feel threatened. It is a phenomenal relationship.

The program continues to form bonds between the School of Medicine and its students and the residents and health professionals on the Eastern Shore, in keeping with the School's mission, 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 School of Medicine’s mission reaches well beyond Baltimore, throughout the state of Maryland, the nation and, indeed, the world," says Dean Reece. "We hope that our incredibly valuable partnership with our colleagues on the Eastern Shore will serve as a model for other academic medical institutions across the country, creating a new future for the health of America’s rural residents."

Exoskeleton Walking System for Paralyzed Patients

The University of Maryland Rehabilitation & Orthopaedic Institute is now using a robotic exoskeleton that allows some individuals with spinal cord injuries the opportunity to stand and walk during therapy sessions. The ReWalk system works like a high-tech body suit, providing motorized assistance to help paralyzed patients stand up and move their legs. Therapists work with patients on basic skills such as sitting and standing, before progressing to sitting and standing, and more advanced techniques such as climbing up and down stairs. "We have seen some of our patients with spinal cord injuries make great progress with the ReWalk," said Peter Gorman, MD, Associate Professor in the Department of Neurology at the University of Maryland School of Medicine and Chief of the Division of Rehabilitation at the University of Maryland Rehabilitation & Orthopaedic Institute. "People who thought they would never get out of a wheelchair actually stand and walk while wearing the system."

"While the most obvious benefits are mobility in a standing position, patients also report additional physical benefits, including improved digestion and bowel function, which can be affected after sitting in a wheelchair for months and years."

The exoskeleton uses motorized legs to power movement in the knee and hip. On-board computers and motion sensors adjust for movement. The system mimics natural walking, and patients can work up to functional walking speed. forearm crutches are needed for balance.

Patients with lower-limb impairment have to be able to use their hands, arms, and shoulders, as well as have good cardiovascular and skeletal strength in order to be able to use the system. The University of Maryland Rehabilitation & Orthopaedic Institute is the only provider in Maryland with the ReWalk system.

"The University of Maryland Rehabilitation & Orthopaedic Institute is a national leader in rehabilitation therapy, and this exoskeleton system shows our real commitment to using innovative technologies to help our patients achieve their highest level of functioning," says Michael Jablonover, MD, Chief Executive Officer of the University of Maryland Rehabilitation & Orthopaedic Institute and Clinical Assistant Professor in the Department of Physical Medicine and Rehabilitation at the University of Maryland School of Medicine. The 144-bed University of Maryland Rehabilitation & Orthopaedic Institute is the largest inpatient rehabilitation hospital and provider of rehabilitation services in Maryland. Patients make the transition to rehabilitation after recovering from stroke, traumatic injury, orthopaedic surgery and other illnesses. The Institute is part of the University of Maryland Medical System, a 12-hospital system of academic, community and specialty hospitals. For more information on the University of Maryland Rehabilitation & Orthopaedic Institute, go to www.UMRehabOrtho.org.
Diversity Dinner Supports Funding for Minority Student Scholarships

By Cailie Haines

The University of Maryland School of Medicine held its seventh annual Celebrating Diversity reception and dinner on February 1, 2014 at the Marriott Inner Harbor at Camden Yards. The event was attended by more than 200 guests, who gathered to honor diversity at the School of Medicine, recognize those who have helped elevate the School’s diversity profile, and to raise money for the Dean Emeritus Donald E. Wilson Endowed Scholarship fund and other UMSOM diversity scholarships that provide financial assistance to minority students.

“Tonight we are celebrating the successful strides that the School of Medicine has made concerning diversity throughout its history,” 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. “This institution recognizes and endorses the positive impact that takes place in a healthy and robust environment of diversity. We are committed to recruiting and retaining a talented, culturally diverse faculty, staff, trainees and students. The goal of our medical school is to advance knowledge and skills that will be of benefit to our city, our state, and, indeed, our nation.”

Camille T.C. Hammond, MD, MPH, Class of 2001, and her husband Jason Hammond, MD, were the honorary chairs of the dinner. Speakers included Michael Cryor, Chairman of the Board of Visitors; Danielle Baruch, a fourth-year medical student; and keynote speaker Oxiris Barbot, MD, Commissioner of Health for Baltimore City. "Diversity is a constellation of inputs and outputs that make it easier for individuals and systems to reach their fullest potential," said Dr. Barbot in her speech. "At the individual level, the inputs include formidable experiences, and the outputs include our interpretation and expression of those experiences as a way to structure our lives.”

Ms. Baruch is a perfect example of that. In a heartfelt speech, she thanked the donors who had made it possible for her to attend medical school. "It not only motivated me to excel in school, but it also reinforced my commitment to service, which I have been able to sustain during my years here at Maryland,” she said. Baruch also stressed the importance of diversity in helping patients relate better to their physicians. “We are able to connect and celebrate what we have in common. Our patients play a major role in how we care for them. The dialogue we have, the treatments we use, the relationships we build are all influenced by this.”

“Tonight’s event is an expanding diversity in the graduate studies program, said Dr. Strickland. "The School of Medicine’s CME program’s success is due in large part to our national partners (including the University of Maryland Medical System and Medical Center), and to support from the Dean and the School of Medicine’s leadership," she added. Nancy Ryan Lowitt, MD, EdM, FACP, Associate Dean for Faculty Affairs and Professional Development, who has led the CME program, including the SOM Faculty Development Program, for 16 years. Dr. Lowitt is currently in her third and final two-year term as a member of the ACCME’s Accreditation Review Committee, where she serves as a member nominated by the Association of American Medical Colleges.

"We are proud of our commitment to continuing medical education and hope that we can serve as a model for other academic medical institutions around the nation,” added Richard F. Tischler Jr., PhD, Bowers Distinguished Professor of CME and an Adjunct Assistant Professor in the Department of Surgery at the School of Medicine. Prior to joining the staff of the Office of Faculty Affairs and Professional Development full time in August 2012, Dr. Tischler served as an independent consultant to CME providers, including the School of Medicine, and was a past Director of Accreditation Services at the ACCME.
Students Attend Annual Legislative Day in Annapolis

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; Jay Perman, MD, University of Maryland, Baltimore President, and more than 40 medical students and faculty members traveled to Annapolis on January 23, 2014 to speak with members of the Maryland General Assembly about issues of importance to the University of Maryland School of Medicine.

Senator President Mike Miller, House Speaker Michael Busch, and Senator Thomas “Mac” Middleton, chair of the Finance Committee, all came to speak with the students over breakfast. “This is a special privilege,” said Dr. Perman. “Having these legislators take the time to meet with you is a gift, and you should take advantage of it.”

“It is important for you, as students, and for faculty as well, to get the opportunity to not only visit our legislative leaders, but to share with them how we, as an institution, work,” added Dean Reece. “Many are aware in a broad way of our system and how it works, how medicine works, and about some of the challenges that we have had to overcome.”

In face-to-face meetings with lawmakers from their home counties, students conveyed the importance of loan assistance and scholarship support. The average medical school debt for our graduates is almost $170,000, which is above the national average. Loan repayment programs in Maryland would not only assist students with this debt, but also keep these new doctors in the state when they begin to practice medicine. “I am really thankful to be here, because no one has made me feel before that I could be an asset to my state and especially my county, so it was really great to hear Senator Middleton say how crucial it was for students like us to stay in Maryland,” said second-year student Rupal Jain.

Speaker Busch also spoke of the importance of keeping the state’s talent in Maryland. “They talk about how tough it is to get into medical school—it should be tough!” he said. “We want the best and the brightest to be here. You students sitting here are the top percent of talent in medicine today, and we hope you stay here in Maryland. Our goal is to have the best medical delivery system in the nation. I believe we’re already there, but we can always get better.” he admitted. “We want the students at the University of Maryland School of Medicine to get the best training they possibly can, so they can be on the cutting-edge in the delivery of medicine in Maryland.”

In November we launched the Center for Innovative Biomedical Resources (CIBR) to coincide with the first Festival of Science. CIBR is the administrative home for the UM SOM biomedical core resources. CIBR serves as a center of excellence for state-of-the-art technologies, high-tech instrumentation, and expertise that supports biomedical research, clinical practice and health care in the state of Maryland and the region.

Renovation of nearly 30,000 square feet of space was accomplished with $7.3 million in funding from an NIH grant, made possible through the American Recovery and Reinvestment Act. Newly renovated space allowed physical consolidation of many core facilities into common space, creating a dynamic environment that will enhance and stimulate high impact research through a trans-disciplinary approach.

Historically, our biomedical resource laboratories have existed and functioned as independent facilities. Our goal of CIBR is to function as an administrative home for the UM SOM core resource laboratories. As such, CIBR can support the biomedical resource laboratories through consolidation of administrative tasks such as ordering, billing, tracking and marketing, providing a "big picture" vision for how core labs can work in conjunction with each other. This might allow sharing of equipment and personnel or developing new, collaborative services between facilities. This support will serve to increase cost-effectiveness and promote overall efficiencies of core operations. Ultimately, these changes will ensure that faculty have improved access to state-of-the-art technologies that will accelerate and advance their research, making research grants more competitive.

We anticipate many enhancements will be forthcoming, one of the first ones being a new and improved web-based portal to all of the biomedical resource laboratories. This new website should be launched within the first quarter of 2014. Look for this and many more enhancements to come soon.