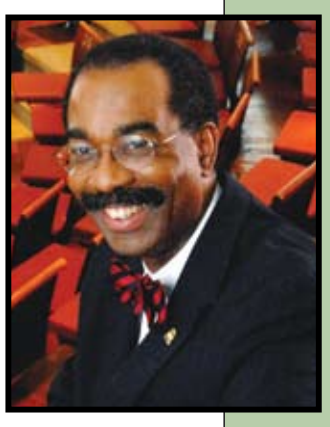
SOMnews
University of Maryland School of Medicine
September 2009 Vol.11 No.1

Dean's Message: What's On My Mind



What's on my mind this month is our tremendous leadership in science and medicine, as evidenced by a number of discoveries and innovations by our faculty, making us **"first"** in many areas. What follows is but a sample of our preeminence in the field, highlighting the impact that we make every day in the lives of so many. We are truly "first among equals."

- Our cardiac surgeons preformed an extremely rare triple bypass heart surgery using robotic assistance. This minimally invasive procedure is an alternative to open-heart surgery for patients with multiple blocked coronary arteries. We are the second in the nation to perform robot-assisted triple bypass surgery and the **first** in the world to achieve the triple bypass using an advanced minimally-invasive heart-lung machine. Johannes Bonatti, MD, professor of surgery, pioneered this approach for cardiac patients.
- Aldo T. Iacono, MD, associate professor of medicine, and his team adapted a small, portable artificial lung, using a newly-approved catheter, so that for the **first** time, patients can be liberated from a ventilator and a traditional, cumbersome lung machine while waiting to receive a lung transplant. Patients can now walk, talk, eat and exercise on a treadmill while waiting for new lungs.
- Similarly, we were the **first** in Maryland and only the third in the United States to perform a single-port, natural orifice kidney removal surgery through the navel for a living kidney donor. During the procedure, surgeons use a single opening in the navel as they manipulate a camera and two laparoscopic instruments to separate the kidney from its attachments in the abdomen. The kidney is then removed through that same opening. Only a tiny bandage is required to close the navel. Rolf Barth, MD, assistant professor of surgery, led the surgical team that performed the single-incision kidney removal. The team included Benjamin Philosophe, MD, PhD, associate professor of surgery, Andrew C. Kramer, MD, assistant professor of surgery, and Eugene J. Schweitzer, MD, professor of surgery.
- Ahmet A. Baschat, MB, ChB, professor of obstetrics, gynecology & reproductive sciences, and his team were the **first** in the US to test the Monica AN24 fetal monitor, which may provide valuable information about changes in an unborn baby's heartbeat and movement over an extended period of time. This small device (about the size of an iPod) measures on the mother's skin, the electrical impulse of the fetus' heartbeat, detected with electrodes similar to an electrocardiogram. The system then uses special software to separate the maternal and fetal heartbeats. It can collect data on fetal heartbeat and uterine activity for nearly 24 hours, much longer than ultrasound. It allows us to see changes in uterine contractions and fetal heartbeat and movement through the day and night, rather than just a snapshot of what's going on at one particular time.
- H. Richard Alexander, Jr., MD and his colleagues are testing for the **first** time a new procedure called percutaneous hepatic perfusion to treat melanoma that has spread to the liver, targeting tumors with a dose of chemotherapy that is 10 times stronger than patients could otherwise tolerate. In this Phase III clinical study, physicians use a specially designed delivery system with catheters and filters to make sure the cancer-fighting drug is applied only to the liver, thereby reducing the risk of damaging nearby organs and minimizing possible side effects for patients.
- Our researchers have begun to solve some of the mysteries of the common cold by putting together for the **first** time the pieces of the genetic codes for all the known strains of the human rhinovirus. Steve Liggett, MD, professor of medicine, and Claire Fraser-Liggett, PhD, professor of medicine, completed the genomic sequences of the viruses and assembled them into a "family tree," which shows how the viruses are related, with their commonalities and differences. This work provides a powerful tool that may lead to the development of the **first** effective treatments against the common cold.
- In addition, our researchers have identified a common gene variant that appears to influence people's risk of developing high blood pressure. The STK39 gene is the **first** hypertension susceptibility gene to be uncovered through a new technique called a genome-wide association study and confirmed by data from several independent studies. Located on chromosome 2, the gene produces a protein that helps to regulate how the kidneys process salt, which lays a key role in determining blood pressure. This discovery, by Yen-Pei Christy Chang, PhD, assistant professor of medicine and epidemiology & preventive medicine, and Alan R. Shuldiner, MD, professor of medicine, has great potential for enhancing our ability to tailor treatments to the individual—what we call personalized medicine—and to more effectively manage patients with hypertension.

> "I would be remiss not to acknowledge the great work achieved by other faculty, complementing the School of Medicine's extraordinary accomplishments which lead the nation and the world in science and medicine."

> "We are truly first among equals."

All of these faculty deserve congratulations for their perseverance, dedication and commitment to excellence. Although I chose to highlight them in this message, I would be remiss not to acknowledge the great work achieved by other faculty, complementing the School of Medicine's extraordinary accomplishments which lead the nation and the world in science and medicine.

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

School of Medicine Leads Early Trials of H1N1 Flu Vaccine

The School of Medicine's Center for Vaccine Development (CVD) was chosen by the National Institutes of Health to lead one of the nation's first studies of an experimental vaccine designed to prevent the 2009 H1N1 influenza virus. The CVD is one of a nationwide network of Vaccine and Treatment Evaluation Units (VTEUs) funded by the National Institute of Allergy and Infectious Diseases (NIAID). The VTEUs will conduct the trial.

The clinical trial will enroll as many as 1,000 healthy adults and children at 10 centers nationwide to evaluate the safety of the vaccine and measure its ability to stimulate immune responses to the H1N1 virus. The research is a first step toward the US government's stated goal of developing a safe and effective vaccine against the H1N1 strain of influenza and making it available to the public before the flu season begins in the fall.

Karen L. Kotloff, MD

"The H1N1 flu outbreak has been declared a global pandemic by the World Health Organization and a public health emergency by the US government," said Karen L. Kotloff, MD, professor, Department of Pediatrics, and a lead investigator at the VTEU and researcher in the CVD. "This virus has the potential to cause significant illness with hospitalizations and deaths during the US flu season this fall and winter. Vaccines have always been a vital tool for controlling influenza. The results of these studies will help to guide the optimal use of the H1N1 vaccines in the US and elsewhere in the world."

"Our Center for Vaccine Development has been home to one of the NIAID's Vaccine and Treatment Evaluation Units for more than three decades," said Dean E. Albert Reece, MD, PhD, MBA. He continued, "Our VTEU is now one of just eight in the country, and it is the only one in the mid-Atlantic region. We're very pleased the NIAID has chosen our top-tier researchers as leaders in the effort to stop the H1N1 pandemic before the 2009 influenza season begins."

All participants in the trial will receive two doses of vaccine three weeks apart. The response after one dose versus two doses will be compared. The trial also will evaluate two strengths of the vaccine to determine which strength is required to stimulate an immune response that is most likely to protect people against the H1N1 flu. The vaccine will be tested in five different age groups. First, researchers will test the vaccine in healthy adult and elderly volunteers. If the vaccines are well tolerated in those groups, then the researchers will begin testing the vaccine in children. Ultimately, as many as 200 adults, 200 seniors and 600 children may be enrolled in the trials.

The H1N1 vaccine

"The response to the vaccine may vary in different age groups," Dr. Kotloff said. "This is because young people have not seen a flu virus like this one before. Older adults might have some immunity to the new H1N1 virus as a result of being exposed to similar flu viruses in the past. As a result, older adults might need fewer doses or a lower strength of the vaccine than younger individuals. Learning the responses of different age groups to the vaccine will not only tell us the best way to use the vaccine in an individual, but we also learn ways to use the vaccine supply most efficiently to protect the greatest number of people."

In addition to Dr. Kotloff, trials at the VTEU will also involve co-investigators Wilbur H. Chen, MD, assistant professor, Department of Medicine, and Ina Stephens, MD, assistant professor, Department of Pediatrics.

School of Medicine researchers will also participate in future studies of the vaccine. Those trials will examine important questions such as how the vaccine works in combination with the seasonal flu vaccine and whether including an adjuvant, which boosts the immune response to vaccines, can make the vaccine work better at lower doses.

For more information on vaccine studies at the CVD, visit www.clinicaltrials.gov, or call 6-6156.

HPV Infection May Be Tied to Poor Prognosis for Blacks with Head and Neck Cancer

Groundbreaking study by researchers at University of Maryland seeks to explain major disparity in survival between blacks and whites

Researchers at the University of Maryland have found that head and neck cancer patients who test positive for the human papilloma virus (HPV) have much better survival rates than patients who don't have the virus, according to a new study in the journal *Cancer Prevention Research*. The researchers also discovered that blacks in the study had a very low rate of HPV infection, and consequently worse survival, which may explain why African-American patients traditionally have had a poor prognosis for head and neck cancer.

"For the first time, we have evidence that the major difference in survival between black and white patients with head and neck cancer appears to be the rate of HPV infection. We found an astounding difference in prognosis between patients who are HPV-positive and those who are HPV-negative," said the study's senior author, Kevin J. Cullen, MD, professor, Department of Medicine, and director of the University of Maryland Marlene and Stewart Greenebaum Cancer Center.

Scott Lippman, MD, chair of the Department of Thoracic Head and Neck Medical Oncology at the University of Texas M.D. Anderson Cancer Center, called the study 'practice-changing.' "Squamous cell carcinoma of the head and neck is one of the fastest growing cancers, and this study gives us a new way to assess prognosis for our patients," said Dr. Lippman, who also is editor-in-chief of *Cancer Prevention Research*, which is published by the American Association for Cancer Research.

Dr. Cullen added, "We need to analyze HPV routinely in specific patients with head and neck cancer, which we're currently not doing. HPV-positive cancer is biologically a very different disease than HPV-negative cancer, and we need to take that into account as we're planning future therapies. Those with HPV-negative disease may not be as well served with our current treatments combining chemotherapy and radiation."

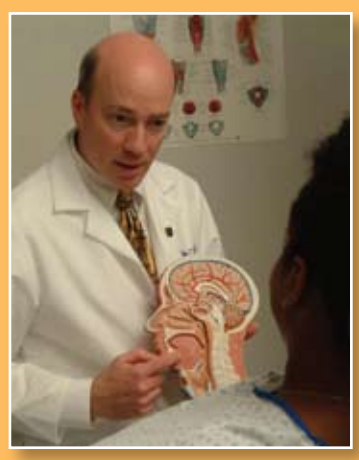
The human papilloma virus is known to cause certain types of cancer and is a major risk factor for head and neck cancer, so researchers were surprised to find that patients with HPV infection had a better prognosis.

Only four percent of black patients with squamous cell carcinoma in the study were HPV-positive, compared with 34 percent of white patients. The median overall survival was more than three-fold higher for whites (70.6 months) than for blacks (20.9 months) who were treated with chemotherapy and radiation. Dr. Cullen says the survival rate at five years for HPV-positive patients was about 85 percent, compared to 35 percent for HPV-negative patients. Survival was similar for HPV-negative patients, regardless of race. The study's findings confirm that HPV infection relates specifically to a type of head and neck cancer: cancer of the oropharynx, which include the tonsils, soft palate and base of the tongue.

"There is currently no consensus on why blacks fare worse with squamous cell carcinoma of the head and neck than whites," Dr. Cullen stated, "but our findings provide the first clue that a critical reason may be biologic rather than related to issues of access to care, lack of insurance or attitudes of health care providers."

> "This groundbreaking study will have a significant impact on how doctors care for patients with head and neck cancer."

"Many researchers at the University of Maryland School of Medicine are conducting important studies relating to racial disparities in diagnosis and treatment," said Dean E. Albert Reece, MD, PhD, MBA. "This groundbreaking study will have a significant impact on how doctors care for patients with head and neck cancer."



Kevin J. Cullen, MD

Cancer experts believe that head and neck cancer, particularly oropharyngeal cancer, is on the rise because of an increase in HPV infection in the oral cavity. Overall, about 25 percent of head and neck cancers are tied to HPV infection, Dr. Cullen says. In comparison, HPV causes virtually 100 percent of cervical cancers, and a vaccine has been developed to help prevent this type of cancer by preventing HPV infection.

Researchers don't yet understand why blacks have a lower rate of HPV infection in head and neck cancers than whites, Dr. Cullen says. There is some evidence that HPV transmission associated with oral cancer may be related to sexual practices, but he says there are probably a number of other factors involved, including possible differences in immunity and how the virus can become integrated into the cell's DNA "that now we just don't understand."

In the study, researchers analyzed data from about 200 patients who had been treated at the Greenebaum Cancer Center and then evaluated another group of 230 patients treated as part of a multi-center clinical trial.

The study was funded in part by the Maryland Cigarette Restitution Fund Program, which uses money from a legal settlement with big tobacco companies for cancer research and cancer screening, education and prevention programs in Maryland. "This is really a wonderful example of how CRF-supported research can benefit Marylanders and all people who are battling cancer," Dr. Cullen said. "We are very committed to helping the Cigarette Restitution Fund fulfill its mission of erasing racial disparities in diagnosis and care."

The research also was funded by grants from Sanofi-Aventis US and the Orokawa Foundation.

Mark Your Calendars!

State of the School of Medicine Address

Dean Reece is set to deliver his annual State of the School of Medicine Address; please mark your calendars and bring a colleague. All faculty, staff and students are welcome!

September 30, 2009

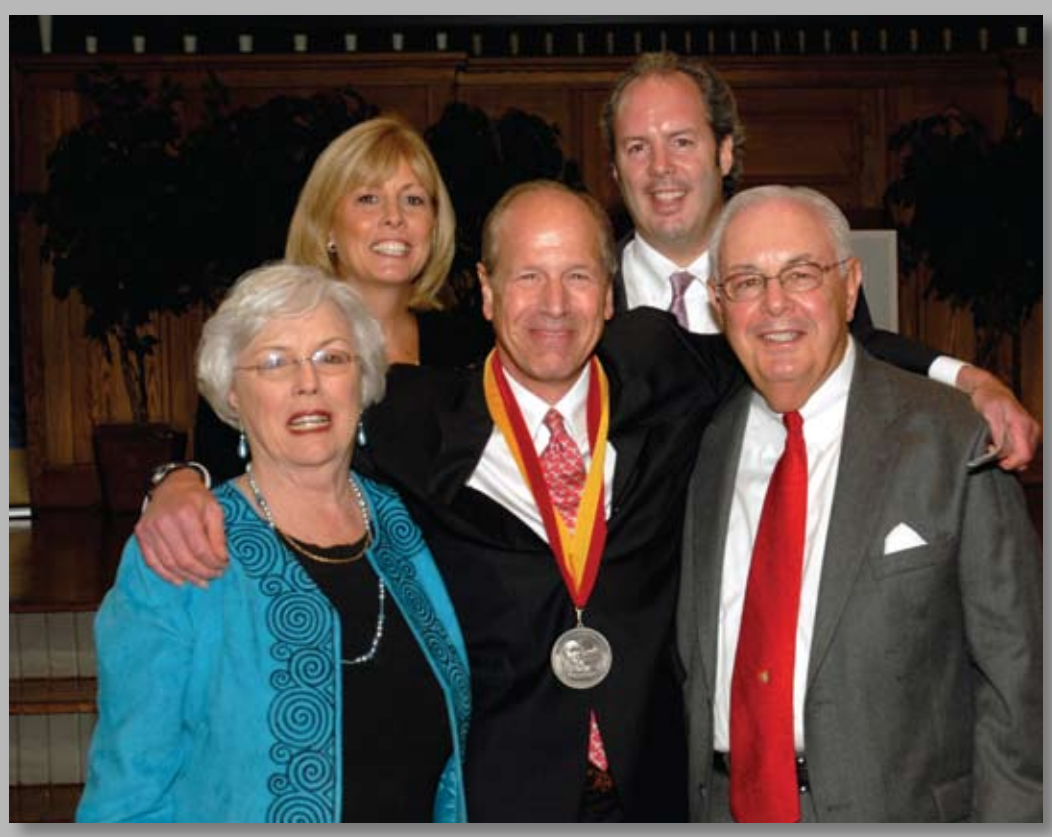
MSTF Auditorium

685 W. Baltimore Street

3:00 pm

Reception immediately following in MSTF Atrium

9/30/09



Bartley Griffith, MD, Inducted as the First Thomas and Alice Marie Hales Distinguished Professor in Transplant Surgery

An investiture ceremony was held June 10, 2009, to recognize Bartley P. Griffith, MD, as the first recipient of the Thomas and Alice Marie Hales Distinguished Professorship in Transplant Surgery. Dr. Griffith has been a professor in the Department of Surgery since 2001. This endowed professorship was funded by Thomas and Alice Marie Hales to illustrate their deep gratitude for Dr. Griffith, who performed a life-saving double lung transplant on Mr. Hales. Dr. Griffith's clinical work focuses on treating patients with the most severe forms of heart and lung disease; his research interests are concentrated on heart and lung transplantation and advancing the use of artificial organs.

The Thomas E. and Alice Marie Hales Distinguished Professorship will be open-ended. The Hales Foundation has funded the first $2.5 million and Mr. and Mrs. Hales will allow further contributions to enhance the value of the professorship. For more information and/or to make a donation, contact Tierra Dorsey, director of Development, at tdorsey@som.umaryland.edu or 6.2846.

Alan Faden, MD, Appointed as Director of New Organized Research Center for Shock, Trauma and Anesthesiology Research


Alan I. Faden, MD

Dean E. Albert Reece, MD, PhD, MBA, has appointed Alan I. Faden, MD, a scientist and physician with extensive expertise in the treatment of brain trauma and other central nervous system injuries, to serve as director of the University of Maryland Charles "McC." Mathias, Jr., National Study Center for Trauma and Emergency Medical Systems, a Shock, Trauma and Anesthesiology Research (STAR) Organized Research Center. Dr. Faden will also serve as a professor in the Department of Anesthesiology as well as the Program in Trauma.

Dr. Faden was recruited from Georgetown University, where he developed a nationally renowned research program in brain injury and served in a variety of clinical, research and administrative roles, including dean of Research. He formerly held professorships in neuroscience, neurology, pharmacology and pediatrics. He will bring more than $7 million in research grants, including four major grants from the National Institutes of Health, and 15 members of his research team to the University of Maryland School of Medicine.

"Dr. Faden not only brings a national and international reputation as a research scientist, but he also will build bridges between basic science and clinical science," said Dr. Reece. "Dr. Faden will actively lead the development of translational research as a two-way street. He will ensure that findings in the laboratory will eventually benefit patients, and challenges in patient care will inspire creative treatment approaches and new prevention techniques that will be tested in the laboratory," said Dr. Reece.

The new Shock, Trauma and Anesthesiology Research Organized Research Center is the only facility of its kind in the United States dedicated exclusively to the study of injury and its complications and prevention. It is a multidisciplinary research and educational center focusing on trauma, critical care and organ support, resuscitation, injury prevention, perioperative clinical outcomes and patient safety.

> "I have long been interested in brain and spinal cord regulation of the heart and blood vessels, which ultimately led to research related to shock and subsequently neurotrauma."

The executive committee of the center will include leaders of the Program in Trauma, the Department of Anesthesiology and other disciplines. According to Thomas M. Scalea, MD, professor and director of the Program in Trauma, "All of us are excited about the launch of the new STAR Organized Research Center and about Dr. Faden in particular, and his ability to harness all the building blocks of research in trauma."

Peter Rock, MD, MBA, professor and chair, Department of Anesthesiology, said, "Dr. Faden is a world-class scientist who has received continuous funding from the National Institutes of Health for years. His work in brain injury and brain trauma are areas we identified as important components of our program, so his research is a perfect fit. He also possesses many outstanding personal qualities, including being collaborative, collegial and energetic."

"With Dr. Faden's recruitment and the creation of the Shock, Trauma and Anesthesiology Research Organized Research Center, the School of Medicine has reaffirmed its longstanding commitment to the study and treatment of head injuries and trauma," said Bruce E. Jarrell, MD, executive vice dean. "Medical understanding of these two areas is advancing rapidly, and Dr. Faden's research will help propel that. The center will play a pivotal role in the future of head injury and trauma research and treatment, not just for civilians but for the military as well. We're confident the STAR Center's work will help the military to protect and treat its soldiers," he continued.

Dr. Faden began his research at the Walter Reed Army Institute of Research, with studies that addressed mechanisms of shock and cardiovascular regulation. "I have long been interested in brain and spinal cord regulation of the heart and blood vessels, which ultimately led to research related to shock and subsequently neurotrauma," he said. "I chose neurology as a specialty because of the remarkable complexity of the brain and the fact that there were few effective treatments at that time. Working to develop new therapeutic approaches for clinical neuroscience has been a goal since residency training." His current research centers on delayed or secondary injury after brain or spinal cord trauma. He is trying to understand biochemical changes that lead to subsequent cell death and tissue destruction as well as how to block such damage. A recent focus has been directed to common pathways that link acute injury processes such as trauma or stroke and chronic neurodegenerative disorders like Alzheimer's disease.

Dr. Faden underscores the increasing interest in traumatic brain injury as a consequence of the wars in Iraq and Afghanistan. "Early medical support in the field and use of body armor now enable soldiers to survive injuries that were lethal in previous wars. Because of that and the marked increase in blast-related trauma, the percentage of soldiers suffering head injury now exceeds 20 percent of those deployed to war zones," he said. At the same time, Dr. Faden notes that sports-related head injuries have become better recognized, with much improved clinical research on high school and college athletes who suffer brain trauma.

Dr. Faden says he looks forward to working with Drs. Rock and Scalea as well as current STAR Center investigators, "to build upon the existing strengths at the University of Maryland and by promoting collaborative research within the School of Medicine and across the schools and university campuses."

Upper Chesapeake Health and the UMMS Establish Path to Merger

The Boards of Directors of Upper Chesapeake Health System (UCH) and the University of Maryland Medical System (UMMS) announced a strategic affiliation that is expected to lead to a full merger by 2013 and would infuse millions of dollars into the Harford County, Maryland, economy through expanded medical services, job creation and new construction. UCH officials said the affiliation is in response to the needs of a growing and aging population in northeast Maryland who want their medical care, including specialty care, to be available close to home.

The affiliation of these two not-for-profit health systems will enable UCH to accomplish several key goals in the coming years. These goals include accessing capital to expand inpatient and ambulatory services and achieving greater cost savings for supplies and equipment by being part of a larger medical system. UMMS' close relationship with the University of Maryland School of Medicine will help attract physicians to Harford County. Such recruitment will help UCH expand programs, especially in light of a projected physician shortage.

Upper Chesapeake Health, which includes Upper Chesapeake Medical Center in Bel Air and Harford Memorial Hospital in Havre de Grace, has experienced significant growth in patient volumes in recent years. Patient demand is expected to continue to grow as a result of the decision by the Base Realignment and Closure Commission to transfer thousands of jobs and create many new ones in Maryland, many of them in Harford County.

Lyle E. Sheldon, FACHE, president and CEO of UCH, noted that the relationship between UCH and UMMS, while always strong, has grown in recent years. Physicians affiliated with UMMS and the University of Maryland School of Medicine now staff UCH's two emergency departments. Further, collaborations between the parties in the areas of cancer and stroke care are expanding.

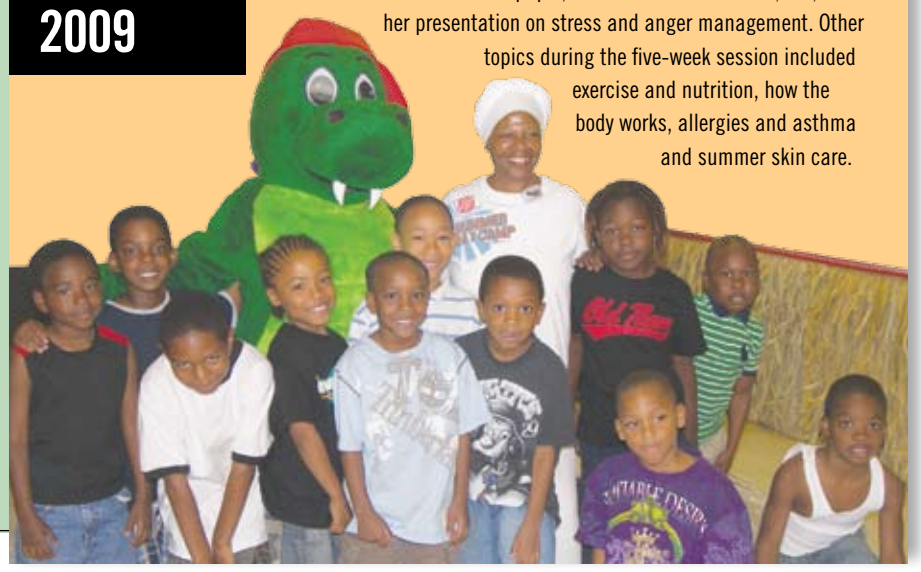
> *UMMS' close relationship with the University of Maryland School of Medicine will help attract physicians to Harford County.*

Robert Chrencik, president and CEO of UMMS, noted that the affiliation with UCH helps further his organization's goal of creating a statewide network of care that encompasses community-based health providers such as UCH, tertiary health providers such as University of Maryland Medical Center, and cutting-edge medical research performed by the University of Maryland School of Medicine faculty. UMMS is expected to play a key role in helping UCH develop new clinical services and expand medical specialties, including some not currently available in UCH's service area of Harford and western Cecil Counties.

Upper Chesapeake Health, a not-for-profit health system, which includes Upper Chesapeake Health Foundation in addition to the two medical campuses, is the leading health care system and largest private employer in Harford County, with 3,000 employees, more than 550 medical staff and 286 licensed beds. UCH also has a partnership with Sheppard Pratt Health System. Last year, UCH handled more than 24,000 inpatient admissions, more than 92,000 emergency department visits and more than 150,000 outpatient visits.

Mini-Med School for Kids 2009

The campers at the Salvation Army Boys & Girls Club in West Baltimore attended another successful Mini-Med School for Kids this past summer! In addition to faculty from the School of Medicine, the children were visited by Truman the Dragon (pictured), mascot of *The Baltimore Times' Kidsville* newspaper, who assisted Gina Perez, MD, in her presentation on stress and anger management. Other topics during the five-week session included exercise and nutrition, how the body works, allergies and asthma and summer skin care.



Legislators Become Medical Students for a Day

Larry Anderson, PhD, (lower center) is encircled by legislators as he explains the importance of using cadavers—a medical student's first patient—in medical education.

Members of the Maryland Legislature and other state officials got a taste of life as a medical student on August 10, 2009. It was all part of Project Medical Education (PME), an initiative of the Association of American Medical Colleges to educate lawmakers and other policymakers about the importance of medical education, its complex funding mechanisms and the essential role of government in providing financial support.

"PME is an event that many medical schools put on during the year," explained Dean Reece, MD, PhD, MBA. "We believe that the more our representatives understand how medical education is conducted in this country, the better we will understand each other and be supportive of each other."

Delegate Jim Mathias, a representative from Maryland's Eastern Shore, attended with his son Trevor, who is a pre-med student at UMBC and hopes to attend the School of Medicine after graduation. Having met many of our medical students when they ventured to Annapolis during the School of Medicine's Legislative Day in January 2009, Delegate Mathias wanted to let them know their message is not being ignored. "I'm very proud that here in the state of Maryland we have the oldest public medical school in America," said Delegate Mathias. "In this very difficult economic time, we want them to know that we are going to muster together to make the decisions that will continue to fund the school and all the good that they do."

State Senator Jim Robey, who represents Eastern Howard County, was excited to learn what medical students go through to become good doctors. "I also wanted a better understanding of how I—as a state senator serving on the budget and taxation committee—can be more understanding of the financing needs of institutions such as this." His favorite part of the day was getting to talk with students about why they chose medicine. "They are here not for themselves but because they want to help other people and better this world."

(L-R) State Senator Jim Robey, Christopher Lynch, Chief of Staff for US Senator Ben Cardin, Charlene Uhl, Budget Analyst, Maryland Department of Budget & Management, and Ruth McDonald, aide for US Congressman Steny Hoyer, take turns examining SIM Man, a life-like human model who helps train medical professionals on such things as taking a pulse, listening to heart beats and breath and finding veins in order to draw blood.

Delegate Jim Mathias attended with his son Trevor, who is interested in a career in medicine. Third-year medical student Kristen Hood accompanied them for breakfast.

As they arrived, the participants were asked to don a white coat, the traditional garb of medicine. Then it was off to class, which started—as the first year of medical school does for all medical students at Maryland—in the Gross Anatomy Lab. Larry Anderson, PhD, professor, Department of Anatomy & Neurobiology, explained the importance of the 10-week anatomy course and explained, while showing the lawmakers one of the cadavers used for study, how important cadavers are to medical education.

Participants then toured medical school labs, classrooms and patient care areas, seeing firsthand the costly technology required to educate medical students and treat patients in the 21st Century. They heard research presentations from faculty, including Karen Kotloff, MD, professor, Department of Pediatrics and Center for Vaccine Development, who is conducting the first trials of an H1N1 flu vaccine here at the School of Medicine. There were also discussions on health disparities, student debt, and the importance of state funding for new facilities like HSF III to help keep the School of Medicine competitive. The day ended with an opportunity to speak with real-life medical students, not only about their futures, but the future of medicine as well.

This was the first of two Project Medical Education sessions scheduled for this year. The second will be held September 14.

2009 PME participants pose with Dean Reece before beginning their day as 'medical students!'

SOMnews

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SOMnews is produced by the University of Maryland School of Medicine, Office of Public Affairs ▲ E. Albert Reece, MD, PhD, MBA , Vice President for Medical Affairs, University of Maryland, and Dean, University of Maryland School of Medicine ▲ Jennifer Litchman, Executive Editor ▲ Heather Graham Phelps, Managing Editor ▲ Karen Buckelew, Caelie Haines, Ellen Beth Levitt, Joan Shnipper, Bill Seiler, and Karen Warmkessel Contributors ▲ Brushwood Graphics Design Group, Design ▲ Submitting information to SOMnews: Please email your submission six weeks prior to the month you wish to see your submission included to Heather Graham Phelps, Public Affairs Manager, at hgraham@som.umaryland.edu. ▲ Printed using environmentally-responsible low VOC inks.

2009 WORLD STEM CELL SUMMIT

Mark Your Calendars!

2009 WORLD STEM CELL SUMMIT

The World Stem Cell Summit is coming to Baltimore!

Don't miss out on this exciting conference!

The 2009 Summit is hosted by the University System of Maryland, Johns Hopkins University, Maryland Department of Business and Economic Development, Maryland Technology and Development Corporation and Maryland Stem Cell Research Fund.

September 21-23, 2009 • Baltimore Convention Center

For more information and registration details, visit http://www.worldstemcellsummit.com/.