

THE POWER OF

UNIVERSITY OF MARYLAND MEDICAL SYSTEM & UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

PARTNERSHIP

B E H I N D T H E



2009

< ANNUAL REPORT >

››› **By any measure, the numbers associated with the enterprise created by the University of Maryland Medical System and the University of Maryland School of Medicine are impressive.** Contributing nearly **\$5 billion** in economic impact to the state of Maryland, this collaboration provides more than **37,000** jobs with nearly **\$2 billion** in annual salaries and wages. The Medical System’s 11 hospitals account for more than **2,300** licensed beds, **115,000** annual admissions and net patient revenues of **\$2.5 billion**. For more than two centuries, our joint enterprise has been dedicated to understanding and improving medicine and the science behind it. More than **17,000** physicians and researchers have been trained to share their expertise at local, national and global levels. › Yet it is what happens **Behind the Numbers** that provides the real insights into the success of this partnership. The complete story can be told only through the people who are treated, the professionals who are trained and the communities that are served.

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Our Marlene and Stewart Greenebaum Cancer Center’s strong clinical research program, with more than **201** active trials, is led by Edward Sausville, MD, PhD. Our researchers are working to advance the understanding of cancer and develop tomorrow’s treatments. One such breakthrough is the development of aromatase inhibitors by Angela Brodie, PhD. These drugs are now the standard treatment for breast cancer worldwide. > The University of Maryland School of Medicine provides an unparalleled combination of educational resources to prepare **1,270** students each year for careers as physicians, biomedical scientists and allied health professionals. > Together, the University of Maryland Medical System and School of Medicine directly contribute nearly **5 BILLION** dollars in economic activity to Maryland, generating \$107 million in state and local income and sales taxes. > Johannes Bonatti, MD, has performed **300+** robot-assisted heart surgeries; most were completely endoscopic — without even a small incision. He is one of the world’s most experienced surgeons in using the robot for minimally-invasive heart surgery. > Howard McCray understands what it means to come from a life of street violence. He now helps others find a new way of life. Patients who participate in the Shock Trauma Violence Intervention Project are **3X LESS** likely to be arrested for a subsequent violent crime. > Staff at Baltimore Washington Medical Center’s new Patient Care Building handles close to **100,000** emergency department visits annually. > **1+1=TWINS**, thanks to the Center for Advanced Fetal Care, which is known internationally for the development of advanced techniques in the treatment of complicated pregnancies, including those associated with twins.



201



1,270



5 BILLION



300+



3X LESS



100,000



1+1= TWINS

32 Medical System Highlights

- Baltimore Washington Medical Center
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> Innovative Leaders

*We are pleased to share with you this annual report — a joint effort of the University of Maryland Medical System and the University of Maryland School of Medicine. Each year, our ongoing partnership adds up to an extraordinary number of innovations in patient care, research and medical education. This 2009 report features the people **Behind the Numbers** who illustrate our impact throughout Maryland and the nation.*



E. Albert Reece, MD, PhD, MBA
Vice President for Medical Affairs, University of Maryland
& Dean, University of Maryland School of Medicine

Robert A. Chrencik, MBA, CPA
President and Chief Executive Officer
University of Maryland Medical System

A shared VISION

In 2009, the University of Maryland Medical System (UMMS) and the University of Maryland School of Medicine (SOM) continued to work in partnership to provide excellent health care for the citizens of Maryland and the nation. **We work together to maintain and enhance a world-class health system for all residents of Maryland and beyond.** Our goal is to maximize the resources and expertise throughout our institutions to better serve our patients and their families today and into the future.

THE PARTNERSHIP

UMMS, a private, non-profit health system, consists of 11 hospitals — the University of Maryland Medical Center, the academic “hub” — and 10 community and specialty hospitals throughout the state. These include Baltimore Washington Medical Center, Maryland General Hospital, Shore Health System (Dorchester General Hospital and Memorial Hospital at Easton), Kernan Orthopaedic and Rehabilitation Hospital, University Specialty Hospital and Mt. Washington Pediatric Hospital (jointly owned with the Johns Hopkins Health System).

This fiscal year marked the addition of two new health systems into the UMMS family. Earlier in the year, Chester River Health System joined UMMS, broadening our footprint on the Eastern Shore. At year’s end, we welcomed the beginning of a strategic affiliation with Upper Chesapeake Health System in Harford County (Harford Memorial Hospital and Upper Chesapeake Medical Center) — a collaboration that will allow us to serve even more Marylanders.

Located in the heart of Baltimore City, and in its **third century of service**, the SOM,

a **top-tier research institution**, plays an integral role in patient care at the University of Maryland Medical Center (UMMC). All of the physicians on staff at the UMMC are faculty members of the SOM.

EXCELLENCE IN CLINICAL CARE

The prestigious Leapfrog Group, an independent patient advocacy organization, recently rated UMMC — and its SOM doctors — as one of the **top 26 acute care hospitals in the nation** for quality care and patient safety. UMMC has been on the Leapfrog list of top hospitals for three consecutive years. The School of Medicine continues to rank in the **top 10 percent of the 76 public medical schools and in the top 15 percent among all 130 medical schools** in the nation based on the Association of American Medical College’s ranking of research grants and contract expenditures.

Last fall, our **Marlene and Stewart Greenebaum Cancer Center** was named a **National Cancer Institute-designated cancer center** — a designation shared by a select group of the nation’s top cancer centers that provide important contributions to cancer research and excellent patient care.

These are just a few of the areas recognized for outstanding contributions to clinical care and research.

ECONOMIC IMPACT

With its 15,000 employees, UMMS is the state’s third largest private employer. The Medical System provided a full range of health care services to more than 600,000 patients last year. The School of Medicine has a workforce of more than 4,000 individuals. Its student body includes approximately 1,300 medical, graduate

and allied health students. **Together, the SOM and UMMS generate nearly \$5 billion in economic activity.**

At the Medical System, we are aggressively pursuing the geographic reach, market share growth and scale necessary to maintain financial performance strong enough to ensure adequate levels of capital investment in new facilities and technology. While the growth of hospital admissions in Maryland has slowed overall, we predict an increase in admissions of 3 percent to UMMS hospitals for the coming fiscal year, resulting in operating revenues budgeted at more than \$2.5 billion. Our plans for capital improvements are bolstered by our excellent “A” bond ratings and include a commitment to move forward on a much-anticipated expansion and renovation of our Shock Trauma facility, as well as significant improvements to other system hospitals.

DISCOVERY AND INNOVATION

By its very nature, an academic medical system fosters the types of advancement that occur through the integration of science and medicine. **The strong collaboration between UMMS and the SOM forms a research engine where discovery happens every day**, ensuring the development of superior clinical programs which differentiate us from our key competitors.

In addition, we have invested in areas that extend and improve our patients’ quality of life — including our world-class expertise in minimally invasive surgery, organ transplants, cardiac disease, cancer, genomic sciences, vaccine development and stem cell biology and therapy.

>>>



Celebrating 25 Years

Since its transition from state ownership to a private, non-profit organization 25 years ago, the University of Maryland Medical System continues to grow and thrive, while focusing on the health care needs of Maryland residents. The anticipated benefits of privatization — the ability to develop world-class clinical programs, recruit the best and the brightest employees and access funds to build state-of-the-art facilities with cutting-edge technology — have been, and will continue to be, realized.

“The University of Maryland Medical System and School of Medicine are treasured resources for the state of Maryland. Their partnership enhances the health of people throughout Maryland and beyond by providing the highest quality of patient care, research and medical education.” **Stephen A. Burch, Esq.**, Chair, UMMS Board of Directors

University of Maryland Medical System
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In spite of a difficult financial environment and reduced availability of funding from sources such as the National Institutes of Health, **the SOM had an unprecedented increase of almost 10 percent in federal research funding** — a tribute to the enormous efforts, skill and excellence of the faculty.

Our partnership provides a balanced and integrated environment where clinician-researchers are changing the course of science and medicine daily. We are making extensive investments to eliminate health disparities, particularly in the treatment and prevention of HIV/AIDS and other deadly infections. Such efforts extend beyond our borders to improve health globally, where the SOM is recognized internationally for operating research programs and delivering lifesaving care in 23 countries around the world.

FUTURE PHYSICIANS

In 2009, the School of Medicine graduated 140 new medical doctors who joined the ranks of more than 7,500 living alumni. A significant number, 36 percent, have chosen to continue their training in primary care fields. This past year, we also saw an increase in the number of applications received as well as continued improvement in the academic qualifications of our applicants. We are very proud that more than half of the practicing physicians in Maryland received their training at the SOM or UMMC.

The SOM recently received a full eight-year reaccreditation by the Liaison Committee on Medical Education, which cited among other criteria our strong support of the curriculum, excellent resources and services, strong professional development programs and faculty mentoring efforts.



“The interdependent relationship the School of Medicine and Medical System enjoys is truly the magic behind our success. Leveraging this relationship will have a multiplier effect on our future successes as we work to educate physicians, scientists and allied health professionals, and make discoveries that will impact human health for the better.” **Melvin Sharoky, MD**, Chair, SOM Board of Visitors



University of Maryland School of Medicine

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We take seriously our commitment to training the next generation of leading physicians and scientists, and strive continuously to improve their educational experience. In the future, we hope to leverage our training system so that more of our students may take advantage of our affiliation with the top-tier community and specialty hospitals in the Medical System. We also established several joint degree programs to reflect the diverse interests of our medical and graduate students — allowing them to pursue simultaneously other degrees, such as a Master’s in Public Health, a Master of Science, a Master’s in Public Policy, or an MS or PhD in bioengineering.

LOOKING AHEAD

We believe UMMS and the SOM will continue to serve as a vital resource for Marylanders to receive quality health care, while fulfilling our mission to advance important research and train high-quality health care professionals of the future. Our commitment to work closely together and with our key stakeholders will allow us to continue this progress and create further economic growth and opportunity for the state, the region and the nation.

We hope you enjoy reading about the highlights of our progress of the past year in this annual report.



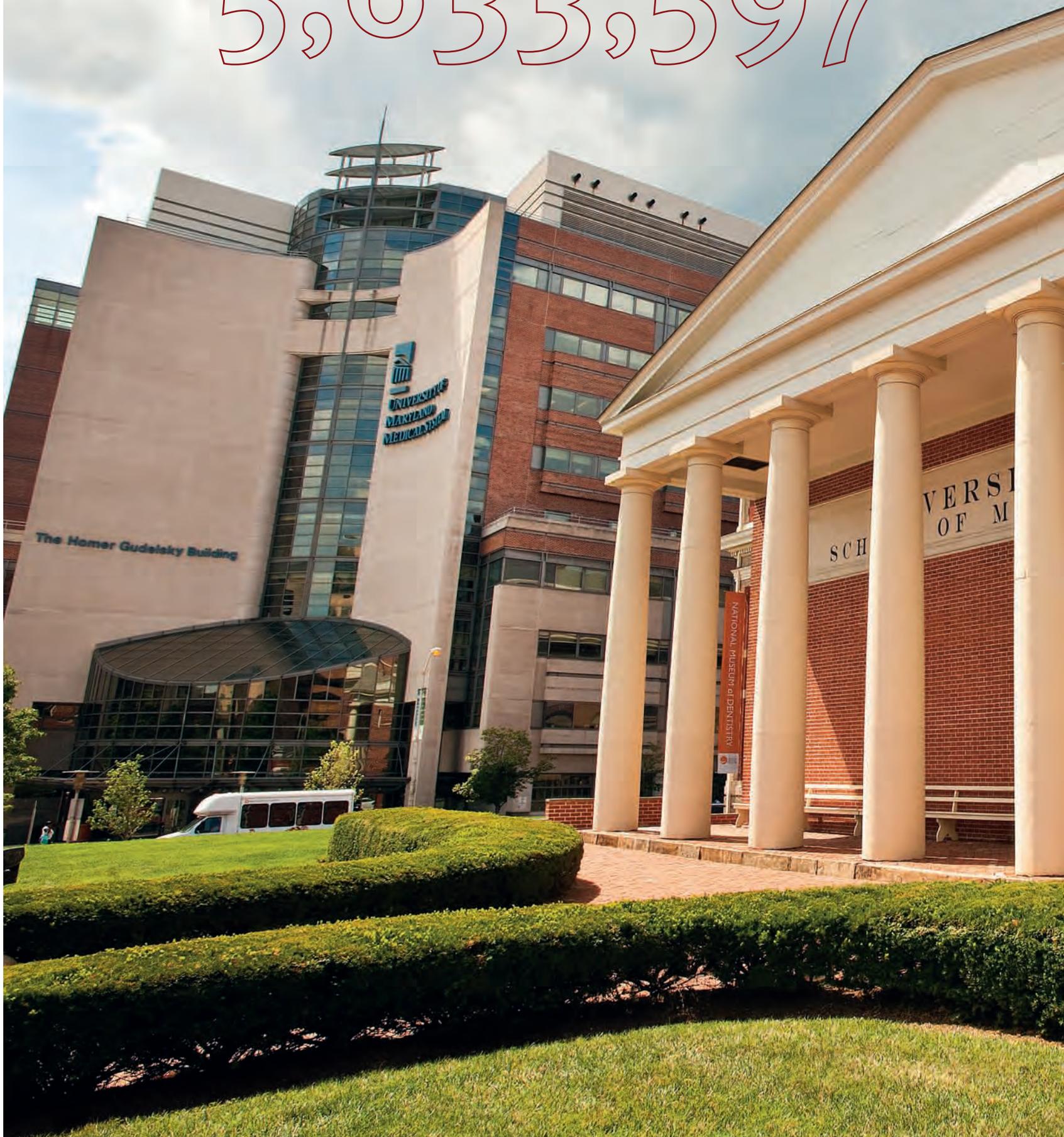
Phase IV Expansion Project

The University of Maryland Medical System is awaiting state approval of the Trauma, Critical Care and Emergency Medicine Expansion project. The project expands the adult and pediatric emergency departments, replaces and expands the ORs for trauma and surgical subspecialty care and adds 64 ICU beds. The seven-story tower is connected to the R Adams Cowley Shock Trauma Center and the Harry and Jeanette Weinberg Building.

Behind *the* NUMBERS

› The estimated population of Maryland

5,633,597





Clinical EXCELLENCE

› › › The University of Maryland School of Medicine and the 11 hospitals that make up the University of Maryland Medical System serve as a nexus for high-quality health care while advancing the practice of medicine. Together, this enterprise provides a full spectrum of care that reaches every part of Maryland and beyond. Serving as a national and regional referral center for trauma, cancer care, neurocare, cardiac care, women's and children's health and physical rehabilitation, the partnership offers scores of other programs that improve the physical and mental health of thousands of people daily.

\$49

› **Cost of airfare** for Ronald Bress to travel from Buffalo, NY to Baltimore



RONALD BRESS searched the Internet for the newest technology in heart surgery and found the University of Maryland Heart Center.

“When I found information on Dr. Bonatti and the da Vinci robot, it was so impressive to me that I thought, ‘There’s another miracle.’ I hope others can learn about the surgery from my experience. This was all worth it.”

Ronald Bress, Buffalo, NY
Robot-assisted triple bypass patient

10

› **Number of blocks** Ronald Bress could walk nine days after surgery

PERSONALIZED CARE WITH EACH PATIENT'S BEST INTEREST AT HEART



HIGH TECH, HIGH TOUCH

One of a very few centers worldwide to offer totally endoscopic coronary artery bypass, the University of Maryland Medical Center has become a leader in performing robot-assisted triple bypass and the first in the world to achieve the triple bypass using an advanced, minimally-invasive heart-lung machine.

The surgery was performed in March by cardiac surgeon and professor of surgery Johannes Bonatti, MD, one of the world's most experienced surgeons in using the da Vinci robot for heart surgery. While technical issues had limited robot-assisted bypass to a maximum of two grafts, Dr. Bonatti and his team overcame these barriers through the development of improved techniques and new instruments. They also used a new type of heart-lung machine, specially designed for robotic heart surgery, that connects to the patient through an artery in the groin.

Key advantages over traditional open heart procedures include no need to split the chest open, no incisions and a quick return to normal activities.

"Most patients who require bypass surgery have more than two blocked arteries," says Bonatti. "Our ability to bypass three vessels now means that many more patients can benefit from this minimally invasive, robot-assisted heart surgery."

The Heart of Collaboration

Mandeep R. Mehra, MD, (left), chief of cardiology, and Bartley P. Griffith, MD, (right), chief of cardiac surgery, are recognized nationally for their expertise in developing new therapies for people with heart disease. Both are also professors at the School of Medicine. By fostering unique collaboration among the Heart Center's many specialists, they ensure that patients have a full range of treatment options, tailored to each person's individual needs. As a testament to



this collaborative approach, for a second year in a row, the center has been recognized as one of the nation's 100 Top Hospitals for cardiovascular care by Thomson Reuters, which provides health care research for businesses and professional organizations. In addition, the Cardiac Care Unit received the Beacon Award for Critical Care Excellence from the American Association of Critical-Care Nurses, which recognizes the top intensive care units in the country.

Heart Center nurses are committed to delivering the highest quality, compassionate care as key members of each patient's health care team. Regular meetings, involving leadership from all inpatient and outpatient cardiology and cardiac surgery units, serve to enhance communications and improve care delivery across the cardiac spectrum.



› Tracy Seneca, RN, Hazel Catherine Whipkey, RN and Jeremy Kirlaw, RN, (left to right) participate in decision-making meetings that advance cardiac care.

2:45am

› A 29-year-old man is **admitted with a gunshot wound**; he leaves later with a new perspective on life

ONCE A VICTIM of violent injury, Howard McCray now helps others find a new way of life through the Shock Trauma Violence Prevention Program.

“I understand what it means to come from street violence. Through this program I’ve become wiser and more mature. As an outreach worker I can give back to other victims of violence and help them make positive changes in their lives.”

Howard McCray

Outreach worker, Violence Prevention Program,
R Adams Cowley Shock Trauma Center



97%

› **Survival rate** for patients admitted to the Shock Trauma Center

KEEPING HEARTS BEATING, SAVING HEARTS FROM BREAKING

AFTER TRAUMA, A SECOND CHANCE

Located at the University of Maryland R Adams Cowley Shock Trauma Center, the Violence Prevention Program works to reduce the frequency and severity of recidivism for violent injury and criminal activity. Committed to Martin Luther King, Jr.'s vision of "The Beloved Community," it focuses on the enhancement of personal strengths, conflict resolution and the development of community relationships. The program has served as a second chance for trauma victims ready to break free from their personal cycle of violence.

Open to any patient admitted to our Shock Trauma Center because of a violent injury, the program has provided substance abuse counseling, job skills training and other support services to nearly 500 trauma patients since its founding in 1998.

In 2009, program founder Carnell Cooper, MD, an associate professor of surgery, was named a CNN Hero for his efforts in the program. "My colleagues said there's really nothing we can do in these situations. I just didn't believe that. Using that scalpel blade to save a patient's life is the first step. The next step is to try to keep them from coming back. In my mind, it's just what I should be doing," he says.



"Nowhere in the world is there a more experienced and passionate team devoted to saving the lives of trauma patients. If a patient gets to us, it's because the odds are not good — but that's why we're here."

Thomas M. Scalea, MD, FACS

Professor of Surgery and Director of the Program in Trauma at the School of Medicine and Physician in Chief, Shock Trauma Center



Fewer Steps to Recovery

Thanks to the opening of the Shock Trauma Outpatient Pavilion at the University of Maryland Medical Center, the road to recovery following traumatic injury literally involves fewer steps for the estimated 15,000 patients expected during the first year. The new facility, which opened in October, with 14 exam rooms, a radiology suite and a treatment room, includes all the trauma specialties involved in follow-up care. The pavilion also brings together two units, formerly known as the Shock Trauma Outpatient Clinic and the Trauma Orthopaedics Clinic, that were separated by one floor and the equivalent of two city blocks. The available telemedicine technology allows physicians to collaborate with colleagues at Kernan Orthopaedic and Rehabilitation Hospital, University Specialty Hospital and other facilities to evaluate trauma patients who cannot easily be transported to the Shock Trauma Center.

8,000

› Children hospitalized annually in Maryland due to asthma

FOR REGISTERED NURSE Jennifer Noyes, working with asthma patients and their families involves a tremendous amount of teamwork and trust.

“Our patients and their families are part of our team. We listen carefully to everything they tell us and we work together to make sure that the learning and treatment are as fun and informative as possible.”

Jennifer Noyes, RN
Pediatric Emergency Department



640,000

› School days missed in Maryland annually due to asthma

TREATING CHILDREN AS THE UNIQUE INDIVIDUALS THEY ARE

HELPING CHILDREN TO BREATHE EASIER

The University of Maryland Hospital for Children's multidisciplinary efforts to combat childhood asthma are aimed at helping patients at every stage of their care. The Pediatric Asthma Program depends on the collaboration of an entire team to be successful.

A pediatric asthma steering committee meets monthly to monitor and review the program's progress, identifying strengths and addressing weaknesses. According to the numbers, the program is working. Just 9.7 percent of patients who came to the emergency department last year with acute asthma were hospitalized, compared to 11.1 percent in the prior year.

"Our approach to managing children's asthma is evidence-based and tied to a quality improvement process," says **Keyvan Rafei, MD**, assistant professor of pediatrics and division head of pediatric emergency medicine. "After an attack, the reality of asthma is clear to a family. It's a unique, teachable moment to make an impact on their attitudes."

Additionally, children in Baltimore City and Prince George's County have access to the Breathmobile, a mobile doctor's office that brings asthma care directly to public schools in these areas.

"Children with asthma are three times more likely to miss school," explains **Mary Beth Bollinger, DO**, Breathmobile medical director and associate professor of pediatrics. "We're addressing this problem by providing free preventive specialty care to children right at their neighborhood schools."



"It is our pediatric specialists' reputation for unqualified excellence that draws patients to us from every corner of Maryland."

Steven Czinn, MD
Professor, Chair and Chief, Department of Pediatrics



Big Outcomes for the Tiniest Patients

With the largest division of neonatology in the state, UMMC also has the best outcomes, including survival of infants born as early as 23 weeks. Premature and at-risk babies are treated by neonatologists whose published research is directed toward many of the serious medical issues facing newborns. Congenital heart problems are among the most common birth defects, affecting more than 25,000 babies in the U.S. each year. The expertise of **Geoffrey Rosenthal, MD, PhD**, newly appointed director of pediatric cardiology and professor of pediatrics, is helping to expand the capabilities and range of services available at our Hospital for Children.

1/2

› A **half-inch incision** through the belly button is all it takes to remove a lifesaving kidney

KIDNEY-DONOR Kristen McLoughlin left the hospital with a tiny bandage covering her navel as the only visible sign of her donation procedure.

“It is a breakthrough for future donors, and will make it easier for them. Having only one small incision that doesn’t leave much of a scar is great.”

Kristen McLoughlin,
Madison Heights, VA
Kidney donor



2X

› Recipients of a living donor kidney typically **live twice as long** as recipients of a cadaver kidney

LEADING THE NATION IN INNOVATION AND TECHNICAL EXCELLENCE



ADVANCING SCIENCE AND DONOR CARE

In April, UMMC became the first hospital in Maryland and only the third in the U.S. to perform a single-port, natural orifice kidney removal surgery through the navel for a living kidney donor. While laparoscopic removal of donor kidneys has become the norm, they typically require three or four tiny openings in the abdomen to insert a camera and instruments, and a small incision to lift out the kidney. The new procedure accomplishes everything through a single opening in the navel.

Transplant surgeon and assistant professor of surgery Rolf Barth, MD, (above, left), led the surgical team during this first procedure. “This is the next advance in organ donation and we are pleased to be able to offer this procedure to patients who are doing a very altruistic thing by donating a kidney,” he explains. “Most kidney donors would qualify for this new approach.”

“The single incision is the next step in promoting safe organ donation,” says Benjamin Philosophe, MD, PhD, (above, right), director, division of transplantation and associate professor of surgery, who participated in this landmark surgery. “The traditional laparoscopic approach has a long track record of minimal risk and quick recovery, but it is likely that the single-port technique will be even better, since there is only one small incision.”

Increasing the Chances for Success



The success of kidney transplantation has resulted in a dramatic increase in the number of patients who are now being considered for this operation. The Living Kidney Donor Transplant Program is leading the way in providing a less invasive surgery for kidney donors. Its surgeons have performed more laparoscopic kidney removals than any other U.S. transplant center. As director of kidney transplantation and clinical research and associate professor of surgery, Matthew Cooper, MD, is especially committed to

increasing the supply of transplantable organs through raising awareness and acceptance of living organ donation. He is heavily involved in research underway to improve the science of transplantation, including the current clinical trials evaluating the safety and effectiveness of transplant medications. Through our research efforts over the past year, current immune-suppressive regimens have undergone significant change to improve recipients' health.

“Anesthesiology plays a crucial role in caring for our surgical and critical care patients. We work closely with our surgical colleagues in adapting anesthesia protocols to meet the needs of patients who are having innovative surgical procedures, such as new transplant techniques.”

Peter Rock, MD, MBA
Professor, Chair and Chief, Department of Anesthesiology



3-5

› Average number of years to wait for a cadaver kidney

1+1

› Equals twins, thanks to the Center for Advanced Fetal Care



WHEN AN ULTRASOUND suggested that one twin was not growing as desired, Natalya Khazan sought a second opinion that saved a life.

“Dr. Baschat gave us the hope we were looking for. I felt like he was fighting for our babies as he would if they were his own kids.”

Natalya Khazan, with twins Ilan, (left) and Dalia, Baltimore, MD

Former patient

3,000+

› Number of **successful intrauterine fetal procedures** performed at the University of Maryland

EXPLORING THE ANSWERS AT EVERY STAGE OF A WOMAN'S LIFE



ADVANCES FOR THE SMALLEST PATIENTS

The newly expanded Center for Advanced Fetal Care offers an array of screening and diagnostic tools, including **highest-resolution ultrasound, fetal echocardiography, fetal MRI and fetal biopsy. It was the first in Maryland to offer fetoscopy, a procedure using a tiny fiber-optic camera to allow doctors to see the baby inside the uterus.**

Now in a newly remodeled location, the center is expanding its services for our smallest patients — unborn babies with complex conditions, such as heart defects, fetal growth problems and chromosomal abnormalities that threaten their survival.

“We have the experience, skill and equipment that it takes to help our patients get the best possible outcomes,” says **Ahmet Baschat, MD**, head of the section for fetal therapy and an associate professor of obstetrics, gynecology and reproductive sciences, pictured above with **Kristin Pfeifer Banko, RN, CCE**. “Through our first trimester screening, we are able to get a very detailed look at the fetus and we can sort out many possible complications.”

Researchers at the Center also are advancing the understanding of fetal growth and development and are testing a new non-invasive fetal monitor that may provide valuable information about changes in an unborn baby's heartbeat and movement over an extended period of time. The team also manages maternal health conditions that may affect the pregnancy, such as diabetes or heart disease.

Continuum of Care

University of Maryland's women's health services provide the highest level of comprehensive care for women of all ages. In addition to offering a healing environment and the latest in treatment options, we emphasize wellness and healthy lifestyles throughout all of the stages of a woman's life. Physicians such as **May Blanchard, MD**, assistant professor and director of obstetrics, gynecology and reproductive sciences, are particularly interested in making available a full range of



well-woman care services to patients who range in age from adolescence through menopause. A wide variety of surgical options are offered, including laparoscopic and larger incision procedures as well as minimally invasive surgeries using the da Vinci robot. The primary goal is coordinated care while offering exceptional services across the continuum to ensure a seamless and friendly experience.

“The support we give to community hospitals is particularly important in a time of uneven distribution of health care. Through face-to-face contact via live video conferencing and the ability to share images and documents, our telemedicine program really takes the collaboration to another level, which ultimately helps the patients.”

Hugh Mighty, MD, MBA
Associate Professor, Chair and Chief, Department of Obstetrics, Gynecology and Reproductive Sciences



175

› Typical training hours logged in the MASTRI Center by general surgery residents

MASTRI FELLOW Erica Hart helps others develop laparoscopic surgery techniques while enhancing her own skills as an educator.

“The MASTRI Center provides a very important environment for all levels of medical professionals interested in acquiring additional expertise in learning and practicing medicine. Through simulation and training, we see improvements in learner skills and confidence and ultimately patient safety and health.”

Erica Hart
Fellow, Minimally Invasive Surgery
General & Laparoscopic Surgery



150-200

› Average number of C-STARS personnel who train annually at MASTRI and Shock Trauma

FACILITATING TRAINING AND RESEARCH TO ENSURE EXCELLENCE IN THE FUTURE



MASTERING MEDICAL TECHNIQUES

One of the first simulation centers accredited by the American College of Surgeons, the MASTRI Center provides cutting-edge training to health care professionals.

The center brings together a diverse group of experts to solve important challenges in surgery, such as how to improve and expand minimally-invasive surgical procedures that enhance patient care. It also supports the training needs of other medical disciplines, including nursing personnel and anesthesiologists, internal medicine residents and fellows and pulmonary medicine professionals.

In addition to its role as a national training model, the MASTRI staff conducts research on a wide range of issues. Its current research is focused on modeling surgical posture and investigating the effects of advanced technology on the operating room environment. The resulting data could open the door to advances such as real-time “fly-through” rehearsals of surgical procedures based on a patient’s specific anatomy and accompanying pathology.

“As surgeons, we are beginning to move from a subjective, apprentice-style learning to a more objective, scientifically rigorous approach to training and acquisition of skills,” says **Adrian E. Park, MD, chief of general surgery and professor of surgery.** “If we can understand what optimal movements and techniques look like, we will make great advancements in protecting patient and surgeon health.”

Collaboration Leads to Combat-Readiness

The U.S. Air Force Center for Sustainment of Trauma and Readiness Skills, or C-STARS, works in partnership with the MASTRI Center and the University of Maryland R Adams Cowley Shock Trauma Center to provide medical team training to military personnel prior to being stationed in hospitals at or near combat locations, including Iraq and Afghanistan.

The military medical professionals come together from across the country for an intensive three-week training program before deployment. The Air Force-developed curriculum, a combination of live and simulation training, serves as a skills refresher and team-building exercise as well as preparation for specific combat-related challenges. Hours spent on MASTRI Center simulation exercises involve such procedures as management and restoration of airways. Quick assessment reviews are so realistic that the medical teams easily forget they are treating dummies, not wounded soldiers.



“While the MASTRI Center attracts a very diverse constituency of health care professionals from multiple disciplines, they share a common goal of acquiring the skills and techniques necessary to become technically excellent in minimally-invasive surgery without ever putting a patient at risk.”

Stephen T. Bartlett, MD
Professor, Chair and Chief, Department of Surgery



36%

› **Percentage of African-Americans** participating in cancer clinical trials at the Marlene and Stewart Greenebaum Cancer Center compared to nine percent nationally

PARTICIPATING IN A clinical trial was a ray of hope for Leon Burns, whose lung cancer is now stable.

“Many of the conventional types of chemotherapy were ineffective against my illness, but through clinical trials, I have been given hope. The success here should serve as a catalyst in addressing this national epidemic of cancer.”

Leon Burns, Silver Spring, MD
Lung cancer patient



33%

› Although mortality rates for specific cancers differ, the overall cancer death rate for African-American men is **33 percent higher** than for white men

PROVIDING INNOVATIVE THERAPIES AND INDIVIDUALIZED CARE TO PEOPLE LIVING WITH CANCER

ADDRESSING RACIAL DISPARITIES IN CANCER TREATMENT

The Marlene and Stewart Greenebaum Cancer Center joined an elite group of U.S. cancer research and treatment facilities when it was chosen as a National Cancer Institute (NCI)-designated cancer center — a distinction shared with a select group of centers across the country.

The NCI bestows this special designation on the nation's top cancer centers in recognition of their scientific excellence and outstanding patient care. The Greenebaum Cancer Center cares for patients throughout Maryland and the region but has a unique commitment to minorities and underserved communities. The Center's high representation by African-American patients in clinical trials was one of the successes noted by the NCI.

Kevin J. Cullen, MD, director of the Greenebaum Cancer Center and professor of medicine and pharmacology and experimental therapeutics, acknowledges this commitment as a distinguishing factor of the center. "African-Americans, here and elsewhere, have a much higher death rate from cancer than white patients with the same disease, and we need to look at the underlying reasons. Their participation in clinical trials provides us with valuable information to better understand cancer in this community and to develop effective treatments," says Cullen. "Our commitment to addressing health disparities among minorities sets us apart from many other cancer centers."



› The team that treated Leon Burns, left, includes Martin Edelman, MD, oncologist and professor of medicine, and Michelle Bedor, CRNP, thoracic oncology nurse practitioner.



‹ Kevin J. Cullen, MD



New Therapies, New Hope

The arrival of H. Richard Alexander, Jr., MD, as professor of surgery and associate chairman for clinical research, brings a renewed focus on developing new therapies for individuals with solid organ cancers. Isolated hepatic perfusion (IHP), first tested in the 1950s and more recently by Alexander at the NIH, involves connecting the liver to a machine, much like a heart-lung machine. By completely controlling the flow of blood to the liver, high doses of chemotherapy drugs can be circulated to that one organ, in concentrations impossible to give safely to the entire body. As part of a clinical trial, researchers are testing this renewed approach 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.

University of Maryland researchers have helped to develop a new radiation therapy technology, called Rapid Arc. It enables Mohan Suntha, MD, professor of radiation oncology, and colleagues to deliver the fastest, most precise targeted radiation therapy available two to eight times faster than conventional methods.



11

› Number of **weeks pregnant** Amy Staritz was when she had a stroke

WHEN AMY STARITZ had a stroke, intravenous clot-busting medicine failed, so interventional radiologists guided a catheter through her blood vessels and applied the medicine directly to the clot — saving Amy and her unborn daughter.

“Dr. Nana Amiridze and the team at the University of Maryland Medical Center saved me as well as my family.”

Amy Staritz, Baltimore, MD
Former stroke patient



60

› **Minutes** a stroke patient has to get to the hospital for the best possible outcome

OFFERING COMPREHENSIVE CLINICAL SERVICES AND REVOLUTIONARY THERAPIES

STROKE READY, 24/7

Setting the standard for stroke care, the Maryland Stroke and Brain Attack Center provides the most advanced and innovative treatments to stroke patients throughout the state of Maryland.

The hub of the center's strategy for acute stroke treatment is the **Brain Attack Team**,SM a highly specialized team that provides rapid evaluation and initiation of treatment for brain attack patients, using the most advanced approaches and technologies. The team offers patients immediate contact by a neurologist with specialized training in stroke care 24 hours a day, seven days a week.

The center recently won recertification as a Primary Stroke Center by the Joint Commission, a designation that requires hospitals to provide excellent patient care, rapid assessment by a multidisciplinary team and the most advanced treatment with clot-busting medications.

"The mission of the Maryland Stroke Center has always been to prevent stroke and improve recovery from stroke through patient care, research and education. The designation illustrates our continuing goal to provide the best quality care for patients," says **Barney Stern, MD**, professor of neurology and director of the clinical stroke program.



"We have many outstanding, talented neurologists here. My goal is to become known as a place where patients come for highly specialized care and where clinical and basic researchers advance knowledge and develop better treatments for neurological diseases."

William Weiner, MD

Professor, Chair and Chief, Department of Neurology
Director, Maryland Parkinson's Disease and Movement Disorders Center



Research Leads to Innovative Treatment



Recognized nationally as a pioneer in the field, cutting-edge research is underway in the Department of Neurology to discover the causes and improve treatment of certain neurologic diseases. One such area is multiple sclerosis. Under the direction of **Walter Royal, III, MD**, associate professor of neurology and anatomy and neurobiology, investigators at the Maryland Center for Multiple Sclerosis are testing the effectiveness of a new oral drug for patients with relapsing remitting MS —

a medication that could eliminate the traditional daily injections or monthly infusions needed to manage the disease. Another example is the work in progress at the Parkinson's Disease and Movement Disorders Center. Earlier this year, the PBS show "Frontline" featured the research of **Lisa Shulman, MD**, professor of neurology, and her colleagues at the center, which focuses on the potential benefits of exercise for Parkinson's patients. The goal of the study, now in its third year, is to discover whether exercising several times a week can help people with the disease improve their walking and balance.





UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

A Tradition of EXCELLENCE *since 1807*

17,000

> Number of students who have graduated from the School of Medicine



University of Maryland School of Medicine



Academic Highlights

The first public medical school in the U.S., the University of Maryland School of Medicine and its reputation for academic and biomedical excellence continue to grow. The past year was exemplary in many ways, with significant accomplishments in clinical care, research, education and community outreach.

INSTITUTE OF HUMAN VIROLOGY

This year marked the 25th anniversary of the identification of HIV as the cause of AIDS. On May 4, 1994, Robert Gallo, MD, professor of medicine and currently the director of the Institute of Human Virology, and his collaborators published a groundbreaking series of four papers in the journal *Science*. The papers demonstrated that a retrovirus they and others had isolated, called HTLV-III, was the cause of a new and deadly epidemic that was just beginning to sweep across the nation and the world: acquired immunodeficiency syndrome, or AIDS.

The discovery of the cause of AIDS led to the development of an assay for detecting the virus in blood samples by Gallo's group, and also to methods for keeping viral infection under control. Gallo's discoveries enabled testing of

patients for HIV, which was a critical early step in treating and controlling the spread of the disease. Early intervention and educational outreach to HIV patients can help prevent the spread of the virus. The discoveries also led to medications to keep patients healthy and delay the onset of AIDS. Today, with adequate intervention and therapy, HIV infection is a chronic, but survivable, disease. Patients now can lead long, full lives.

Gallo's work continues at the Institute of Human Virology, the first research institute in the U.S. to link basic research, population studies and clinical research in an effort to discover new ways to diagnose, treat and prevent viral diseases. Gallo and his team of scientists at the Institute have dedicated years to working toward a vaccine that would prevent the spread of the disease. As one of the major partners in the President's Emergency



Plan for AIDS Relief, the Institute currently delivers life-saving medications and therapies to more than 5,000 HIV-infected people in Baltimore and almost a quarter of a million people living with HIV/AIDS at Institute-supported clinics in Africa and the Caribbean.

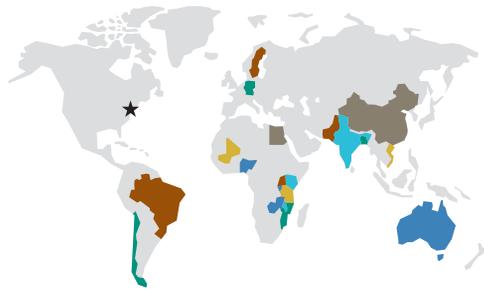


Robert Gallo, MD
Director, Institute of Human Virology



566

> Number of **clinical trials underway** at the School of Medicine



23

> **Countries around the world** in which the School of Medicine has research and/or treatment facilities



**INSTITUTE FOR
GENOME SCIENCES**

The Institute for Genome Sciences this year further established itself as a world leader in genomic studies with its receipt of two major, multi-million dollar projects from the National Institutes of Health (NIH). With a \$20 million award last spring from the National Institute of Allergy and Infectious Disease (NIAID), which is part of the NIH, the Institute created a Genomic Sequencing Center that will serve as a national hub for genetic information on infectious disease. The Institute will use the funding to sequence and analyze the genomes of infectious organisms such as agents of bioterrorism and new or emerging diseases. Emerging diseases are defined as infections that cause a sudden outbreak, such as the 2009 H1N1 flu, SARS or foodborne illnesses.

NIAID designed the Genomic Sequencing Centers program to allow research centers like the Institute, which

is led by **Claire Fraser-Liggett, PhD, professor of medicine**, to respond quickly and readily, in a matter of days or weeks, in the event of a bioterrorist attack or an outbreak of a certain infectious agent. This acceleration of the process of sequencing and analyzing the DNA of infectious diseases could help scientists nationwide speed toward finding cures or vaccines for diseases that threaten lives worldwide.

The Institute also was chosen to become a national resource for another area of genomic research, the study of the human microbiome. The NIH chose Institute researcher **Owen White, PhD, professor of epidemiology and preventive medicine**, to lead a \$9.9 million project that forms the core of the Human Microbiome Project, an initiative of the NIH's National Human Genome Research Institute.

The human microbiome — known as the new frontier for genomics now that the human genome has been sequenced —

consists of all the microorganisms that live on and in the human body.

White, a bioinformatics expert, will spearhead the Human Microbiome Project Data Analysis and Coordination Center, a database system that will analyze, organize and disseminate the genomic information gathered at various sites as part of the Human Microbiome Project. All information will be made available free of charge to U.S. investigators, and scientists will access the information using the database that White and his colleagues are developing. The project will also include community outreach such as training sessions and workshops to familiarize scientists with the bioinformatics system.

The project's goal is to determine how the microbiome interacts with the human genome, causing disease or even improving human health.

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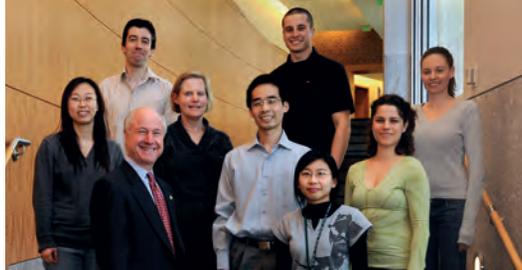


Claire Fraser-Liggett, PhD
Director, Institute for Genome Sciences



3,750

> Marylanders have been **educated by our popular Mini-Med school program** during its eight-year history. Over the years it has expanded to include programs in Baltimore, Western Maryland, the Eastern Shore, Southern Maryland, a Spanish-speaking session in Montgomery County, high school students and youth ages 5-11.



CENTER FOR STEM CELL BIOLOGY AND REGENERATIVE MEDICINE

The goals of the newly created Center for Stem Cell Biology and Regenerative Medicine are twofold: to explore how to manipulate stem cells to allow for better transplantation and transfusion therapies and to understand how stem cells contribute to diseases in order to develop ways to improve conventional treatment and prevention of these disorders.

Curt I. Civin, MD, professor of pediatrics and associate dean for research, and the founding director of the Center for Stem Cell Biology and Regenerative Medicine is a pioneer in cancer research known for developing a way to isolate stem cells from other blood cells, a critical step in studying the cells and transplanting them into patients. Civin recently brought his entire research team with him to the new center from the Johns Hopkins University School of Medicine, including 15 postdoctoral fellows, graduate students and research technicians.

Discoveries from Civin's laboratory are used today in both clinical bone marrow stem cell transplantation and leukemia diagnosis. His studies now focus on the genes expressed in stems cells. By understanding the inner mechanisms of how stem cells work, he hopes to learn how to modify the key properties of the cells



\$173.8

> Millions in the School of Medicine's **endowment**, which includes 49 endowed chairs and professorships



Curt I. Civin, MD
Director, Center for Stem Cell Biology and Regenerative Medicine

1,000,000

› Number of **office, inpatient and outpatient visits** per year, in Maryland alone

in order to increase their therapeutic potential. In addition, his research includes learning how normal stem cells become cancerous.

The Center is taking shape during a new era for stem cell research, now that federal funding restrictions have been lifted. During its first year of operation, emphasis will be placed on building faculty membership for the Center for Stem Cell Biology and Regenerative Medicine.

CENTER FOR VACCINE DEVELOPMENT

The Center for Vaccine Development (CVD), the only university vaccine center in the world engaged in the full range of vaccinology, has earned its international reputation for genetically engineering and testing vaccines against cholera, typhoid and malaria. Led by Myron M. Levine, MD, DTPH, professor of medicine, pediatrics, epidemiology & preventive medicine and microbiology & immunology and director of the Center for Vaccine Development, the Center focuses on infectious diseases that afflict children in less-developed countries, and children and adults in Maryland and the nation. In addition to its research and outpatient facilities in Maryland, the Center conducts clinical studies in West Africa, Southern Africa and Chile, among other sites.

Through funding by the Bill and Melinda Gates Foundation, the Center is



working to develop a “stealth” measles vaccine to protect children under nine months old in measles-endemic areas. In addition, an award from the NIH positioned the CVD as head of a coalition of 16 Mid-Atlantic institutions seeking to develop improved vaccines, diagnostics and therapeutics against smallpox, anthrax, hemorrhagic fever viruses such as Ebola and other agents of bioterror.

The center has been home to one of the National Institute of Allergy and Infectious Diseases’ Vaccine and Treatment Evaluation Units (VTEU) for more than three decades. One of just eight in the U.S. and the only one in the Mid-Atlantic region, the VTEU was recently selected to lead one of the nation’s first studies of an experimental vaccine designed to prevent the 2009 H1N1 influenza virus.

Recruitment of volunteers and testing began in August under the direction of lead investigator Karen L. Kotloff, MD, professor of pediatrics and a researcher in the Center for Vaccine Development.

The clinical trials will also involve co-investigators Wilbur H. Chen, MD, assistant professor of medicine, and Ina Stephens, MD, assistant professor of pediatrics. The 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 results of the studies will help to guide the optimal use of the H1N1 vaccines in the U.S. and elsewhere in the world.

OTHER GROUNDBREAKING RESEARCH

This year, researchers at the School of Medicine sequenced the genome of the common cold for the first time. Their work could lead to new treatments or vaccines for the common cold, known as the human rhinovirus. The researchers, working with colleagues at the University of Wisconsin–Madison, completed the genomic sequences of the known strains of the

› › › ›



Myron M. Levine, MD, DTPH
Director, Center for Vaccine Development



\$377,000,000

› Amount of research grants and contracts the School of Medicine received. Our rich tradition of research support from the National Institutes of Health and other federal agencies as well as from leading philanthropic sources such as the Gates Foundation has helped the school become one of the country’s fastest growing research institutions.



human rhinovirus and have assembled them into a “family tree,” which shows how the viruses are related, with their commonalities and differences. The study’s senior author, **Stephen B. Liggett, MD, professor of medicine and physiology and director of the Cardiopulmonary Genomics Program**, believes that the lack of success in developing effective drugs to cure the common cold is likely due to incomplete information about the genetic composition of the various strains of the viruses.

The researchers also found that the human rhinovirus skips a step when it makes its protein product, a shortcut that probably speeds up its ability to make a person feel sick soon after infection. **Co-investigator Claire M. Fraser-Liggett, PhD, director of the Institute for Genome Sciences and professor of medicine and microbiology**, sees this as a new insight that could have been revealed only through genome analysis. The results of this

discovery may lead to a completely different approach to treating human rhinoviruses and designing new therapeutics.

COMMUNITY OUTREACH

The School of Medicine incorporates into its values the importance of community outreach and service as a key part of its mission. For over 200 years we have been working to provide care to and improve access for the underserved, reduce and eliminate health disparities and provide health education to those in need.

Lack of representation in clinical trials among minorities and rural patients is a serious issue confronting the field of medical research. A new series of community and health professional educational programs hosted by **Claudia Baquet, MD, MPH, associate dean for Policy and Planning, professor of medicine and director of the Program in Minority Health and Health Disparities Education and Research**, approaches the problem in

an innovative way, using outreach and education to attract more minority clinical research participants.

The new statewide educational series is known as the **Maryland Program Advancing Clinical Trials, or MPACT**, and is funded by the **Maryland Cigarette Restitution Fund and the National Cancer Institute**. MPACT is a unique initiative designed to increase community awareness about the importance of clinical trials, the need for diverse and underserved community research participation and their roles in addressing health disparities.

A key goal of the program is to increase willingness to participate in research and encourage informed decision-making on the part of patients, their health professionals, families and communities. The educational programs work to bring top-tier health expertise directly to the communities that need it the most with the hope that close interaction with faculty members will reassure program participants that medical research is a safe way to improve medical techniques for themselves and their families.

Another of our initiatives to **make a difference in our communities is through the Comprehensive Center for Health Disparities Research, Training and Outreach**. Our goal is to reduce and eliminate health disparities through technology and translation of research



Claudia Baquet, MD, MPH
 Director, Program in Minority
 Health and Health Disparities
 Education and Research

29

› Languages in which our students are fluent

advances from bench to clinic and clinic to community. Through a multi-level approach, the center works together with local communities to identify disparities and create specific strategies to eliminate them and improve the access to health care for underserved communities.

By working with community organizations, Area Health Education Centers, local health care providers, historically black colleges and universities, local media, faith-based organizations and health departments we reach underserved populations and support access to quality health care and health care professionals. Through our outreach programs we provide information about available resources to help bridge the divide between urban and rural, affluent and underserved communities throughout our state.

Our video teleconference equipment allows communities to collaborate on important health concerns and training, providing a unique service to the campus and the community by offering community education, conferences, seminars and clinical consultations. These are also avenues to share research-related ideas and results through distance learning that may have an impact on communities across the state of Maryland.

EDUCATION

In response to a changing climate in science and medicine, the School of Medicine has developed a new series of combined degree programs to offer students a variety of career opportunities. The joint degrees enable students to embark on medical, research, business or administrative careers or continue their education as doctoral candidates. **The combined MD/Masters programs are five years in duration.**

Jordan Warnick, PhD, professor of pharmacology & experimental therapies and assistant dean for Student Education & Research oversees the combined degree programs. He explains that having students focus early on the clinical areas and joint degree interests they hope to pursue enhances their attractiveness to residency programs as well as to future employers.

The programs are offered in collaboration with the Department of Epidemiology and Preventive Medicine, the University of Maryland, College Park and the University of Maryland, Baltimore County. The joint degrees already in place for current and prospective students are the MD/MPH (Master of Public Health), MD/MSCR (Master of Clinical Research), MD/MS EPM (Master in Epidemiology), MD/MS BioEng (Master in Bioengineering) and the MD/MPP (Master of Public Policy). They soon will be followed by the MD/MBA (Master of Business Administration) and



the MD/MHA (Master of Health Administration). An MD/MEd (Master of Education) is in the planning stages.

Initial interest has been strong and administrators believe applications to the dual programs will double in the future. **Bruce Jarrell, MD, executive vice dean, believes that combined degrees help to attract students with interests in addition to medicine, creating a more diverse student population.**



1,270

› Students who are actively involved in **community programs** such as HIV clinics, homeless and domestic abuse shelters, nursing homes and local schools



281

› Number of allied health, public health, graduate, medical and MD/PhD students who **graduated** from the University of Maryland in May 2009





UNIVERSITY OF MARYLAND MEDICAL SYSTEM

Where MARYLAND Comes *First*

115,000

› Admissions to University of Maryland Medical System hospitals grew to more than 115,000 this year.

Member Hospital Highlights

With its network of 11 hospitals, the University of Maryland Medical System provides a full spectrum of services from community-based primary care to specialty services all focused on providing the highest quality patient care possible.

BALTIMORE WASHINGTON MEDICAL CENTER

Baltimore Washington Medical Center (BWMC) is a 298-bed hospital providing comprehensive care for families in and around the Baltimore Washington corridor. BWMC impacts the lives of close to 390,000 people each year with medical care and through its community outreach programs, including lectures, health fairs, walking programs, screenings and other events held throughout the region. Its storefront at Arundel Mills Mall also provides information and screenings.

In the latest phase of a \$117 million expansion, BWMC opened a new 111-bed patient tower that includes greater critical care capacity and expanded facilities for some of the medical center's most utilized outpatient services. The building doubles the size of the hospital and helps meet the area's growing demand for health care services, including 100,000 emergency department visits annually.

Sophisticated and welcoming, the building presents a new front door into BWMC, bringing together high-end clinical services in a caring, easy-to-access setting. It includes all private rooms; a 24-bed critical care unit; new locations for The Sleep Center, the Wound Healing and Hyperbaric Medicine Center and Outpatient Infusion Center and three medical/surgical units that serve a variety of specialties. The building also houses the medical center's new labor and delivery unit, scheduled to open in the fall of 2009.

CHESTER RIVER HEALTH SYSTEM

Chester River Health System offers state-of-the-art health care to the residents of Kent and Queen Anne's counties. It includes Chester River Hospital Center, a 57-bed acute care community hospital, Chester River Home Care & Hospice, a home care and hospice agency and Chester River Manor, a 98-bed nursing and rehabilitation center.

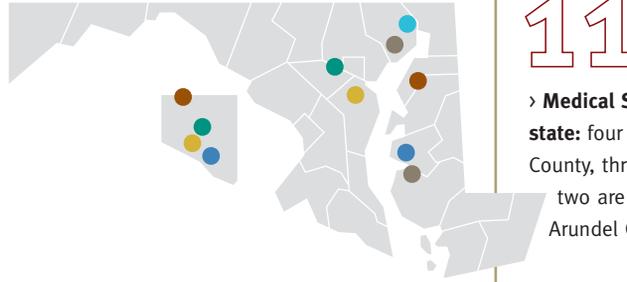


In the first year of Chester River's affiliation with the University of Maryland Medical System, beginning in July 2008, a new business plan was implemented to enhance the hospital's capabilities through new and expanded clinical services, the recruitment of additional physicians and the renovation of the hospital's physical plant. The first of the planned renovations



23

› Programs nationwide to receive accreditation by the National Accreditation Program for Breast Centers. The Aiello Breast Center at BWMC, led by **Cynthia Dragula, MD**, (right) is one of only two such programs statewide and **23 nationwide to receive the accreditation**. The Tate Cancer Center at BWMC provides expert treatment for cancers of the blood, brain, breast, lung and prostate. The American College of Surgeons' Commission on Cancer re-approved BWMC in 2009 as a "Community Hospital Comprehensive Cancer Program."



11

› **Medical System hospitals located throughout the state:** four are in Baltimore City, one is in Baltimore County, three are on Maryland’s Eastern Shore, two are in Harford County and one is in Anne Arundel County.



will be underway this fall with the expansion of the hospital’s pharmacy. Presently housed in approximately 800-square-feet of space, the pharmacy fills more than 150,000 orders annually. The renovations will double the pharmacy square footage and also provide a dedicated IV room and chemotherapy prep room.

Jeffrey L. Johnson, MBA, FACHE, a former Shore Health System executive, was hired as president and chief executive officer. Additional key positions filled included the chief financial officer, chief medical officer, facilities director, fund development director, and marketing and communications director. Key physician recruitments included the specialties of pathology, obstetrics/gynecology, radiology, family practice and emergency medicine services.

KERNAN ORTHOPAEDICS AND REHABILITATION HOSPITAL

Kernan Hospital is a 133-bed rehabilitation and orthopaedic hospital — the state’s largest — for children and adults. **Known for pioneering work in orthopaedic surgery, Kernan performs more than 5,000 medical procedures each year in a variety of specialties.** About 90 percent of surgeries are done on an outpatient basis. Dental surgery, a growing service, is offered to adults and children with special needs.

This past year could be considered the “Year of Technology” for Kernan as many internal systems were automated to enhance the delivery and accuracy of administrative and clinical information. It is the first UMMS hospital to use Portfolio, a state-of-the-art, totally electronic medical records system for inpatients. The system allows physicians and other authorized staff to view patient records at the bedside. All data are immediately accessible as soon as updates are

added. Staff members played an integral role during the new system’s planning and implementation in assessing and suggesting work flow processes to enhance patient care and staff satisfaction.

In addition, the hospital implemented an electronic employee review process, health information management scanning software and eDischarge, a workflow automation tool for patient discharge. This tool increases patient throughput, reduces length of stay, maximizes asset utilization and eliminates workflow bottlenecks by allowing discharge planners to communicate electronically with post-acute care providers, transportation providers and payors. Providers are connected through the Internet, simplifying and expediting the discharge process and reducing costs.

› › › ›



150,000

› Number of **orders** the Chester River Hospital pharmacy fills annually.



All statistics, including bed counts, are for FY09



MARYLAND GENERAL HOSPITAL
 Maryland General is a 242-bed urban teaching hospital serving patients in Baltimore and the surrounding areas. It offers a full range of health care for more than 110,000 individuals annually. In recent years, the hospital has experienced substantial growth in admissions, births, emergency room visits and outpatient visits. It is one of the few community hospitals in Maryland to offer comprehensive specialty inpatient care in obstetrics and gynecology, behavioral health, rehabilitation and renal dialysis.

Construction is underway to improve and expand the hospital's core facilities, including the addition of operating suites, specialty rooms, an intensive care unit and a pharmacy.

As part of its mission to improve the health of community members, during the last fiscal year, Maryland General initiated and participated in more than 14,000 hours of community outreach, serving 15,000 patients through these efforts.

Its Community Health Education Center conducted 28,000 free screenings onsite and at community events, for blood pressure, cholesterol, pregnancy, diabetes and tuberculosis testing.

A new partnership with the Maryland State Department of Health and Mental Hygiene, "Healthy Check Initiatives," included monthly opportunities for state employees to participate in free screenings and classes while at work.

The hospital is the recipient of numerous recent awards and accreditations, including the Silver Award for patient safety from the Maryland Patient Safety Center.

MT. WASHINGTON PEDIATRIC HOSPITAL

Rehabilitation and specialty medical care at Mt. Washington Pediatric Hospital are provided through comprehensive inpatient, outpatient and day-treatment programs. The hospital, jointly owned with the Johns Hopkins Health System, has 56 pediatric

specialty beds and 46 rehabilitation beds. The nurturing environment allows doctors, nurses, therapists and clinicians, all of whom are dedicated to caring for pediatric patients, to help children achieve the highest quality of life with their families in spite of difficult health challenges.

Education and training for patients' families provides them with the knowledge and skills necessary to meet the health care needs of their children, and prepare them for life in the community. All of the hospital's 20 programs and services are performed in a family-centered environment to ensure continuity and cost-effective care.

One example is the Feeding Day Program, which has a coordinated and integrated team approach to develop appropriate treatment plans and ensure their follow-through. The program works with patients and their parents and caregivers over a six-week session to assess and treat feeding disorders and eating problems. Plans are tailored to the unique needs of each child.



14,000

> **Hours of community outreach**
 Maryland General staff participated in last year.

16,000



> **Square feet** in the new Queen Anne's freestanding Emergency Care Center where construction is underway.



SHORE HEALTH SYSTEM

With two hospitals — the Memorial Hospital at Easton and Dorchester General Hospital in Cambridge, Shore Health System is a regional, 192-bed network of inpatient and outpatient services. The system has 2,000 employees, a medical staff with 200 attending physicians, consulting and associate staff members and a robust group of more than 500 volunteers. **Shore Health System meets the health care needs of the more than 100,000 people who live in the growing Mid-Shore region.** The system's strategic plan calls for expanding services and facilities to address the Eastern Shore's future needs.

Included in the plan is the completion of Dorchester General Hospital's emergency department expansion this fall, which will enable the emergency department to more comfortably and efficiently handle the more than 19,000 patients who come to the emergency center every year.

The opening this year of the Edward B. and Mildred H. Freeman Outpatient Center

at the Memorial Hospital at Easton was also in response to the growing demand for outpatient services among its constituents. The new facility includes the Shore Comprehensive Pain Care Clinic, Infusion Center and a Short Stay Unit as well as the newly opened Joslin Diabetes Center Affiliate and the Kidney Transplant Clinic.

The Shore Health System's Joslin Diabetes Center Affiliate is the only diabetes specialty clinic on Maryland's Eastern Shore. It offers a multidisciplinary program, which includes the services of endocrinologists and nurses who are certified diabetes educators and a registered dietitian. Shore Health System's Kidney Transplant Clinic is part of the University of Maryland Medical Center Division of Transplantation. Its staff evaluates and prepares individuals who are candidates for a kidney transplant, offering patients special expertise and care with the convenience of staying in the immediate community.

> > >

EXPANDING OUR REACH

THE QUEEN ANNE'S Emergency Care Center will address the medical needs of the Mid-Shore region. The Center is scheduled to open in 2010, providing county residents with round-the-clock emergency care every day of the year. With approximately 16,000 square feet of space for 11 treatment rooms and on-site diagnostic imaging and laboratory services, the Center will be staffed by University of Maryland School of Medicine board-certified emergency medicine physicians, experienced ER nurses and hospital-experienced radiology and laboratory technicians. Shore Health System will operate the Center. For patients who need treatment only available in a hospital setting, arrangements will be made for seamless transport by ambulance or helicopter to the most appropriate hospital.



> Governor Martin O'Malley (fourth from left) helped break ground on August 17, 2009, in Grasonville.



24/7

> **Hours/days of emergency services** that Dorchester General Hospital provides to residents of the Cambridge area on Maryland's Eastern Shore.

All statistics, including bed counts, are for FY09



UNIVERSITY OF MARYLAND MEDICAL CENTER

The University of Maryland Medical Center (UMMC) is the academic hub of the University of Maryland Medical System. It is a 705-bed, teaching hospital providing primary care and the most advanced specialty care.



UMMC is a national and regional referral center for trauma, cancer care, neurocare, cardiac care and heart surgery, women’s and children’s health and organ transplants. It has one of the nation’s largest kidney transplant programs, one of the most technologically advanced operating room facilities and is internationally recognized for its leadership in developing and performing minimally invasive surgical procedures.

In 2009, UMMC achieved Magnet designation in recognition of the hospital’s nursing excellence. Magnet status is awarded by the American Nurses Credentialing Center (ANCC) to hospitals that meet specific criteria for nursing professionalism, teamwork and the highest standards in patient care. Only about five percent of hospitals across the U.S. have this designation.

The partnership between the Medical Center and the University of Maryland School of Nursing was vital to achieving Magnet designation. Our partnership

promotes innovative opportunities for research, practice and education to advance the practice of nursing.

The Magnet application and review process included a 3,000 page submission and a four-day site visit by the reviewers who interviewed hundreds of nurses and other staff throughout the medical center and received input from patients. A multi-faceted communications campaign in preparation for the site visit was spearheaded by nurses throughout the Medical Center, including a specially-designed logo that proclaimed, “I’ve got Magnetude.”

The Magnet designation comes on the heels of other top honors received this past year, including recognition by *Nursing Professionals Magazine* as a “Top Hospital to Work For” and identification for the third consecutive year by the Leapfrog Group as one of the nation’s best acute-care hospitals for patient safety and quality of care.



5%

> Of the nation’s hospitals hold Magnet designation. At left, **Lisa Rowen, Chief Nursing Officer and Senior Vice President for Patient Care Services** at the Magnet celebration.

> UMMC nurse **Patricia Wilson, RN**, clinical practice/professional development, is all smiles after the Magnet announcement.



UNIVERSITY SPECIALTY HOSPITAL

University Specialty Hospital serves a unique group of patients that require some of the most complex, interdisciplinary medical care available. Located at Baltimore’s Inner Harbor, the 250,000-square-foot facility **provides specialized care services to patients who are critically ill, have multiple complications and/or failures that require continued hospitalization beyond the acute care setting.**

The hospital has 180 beds. The staff specializes in treating patients with brain and spinal cord injuries and slow-healing wounds, as well as other complex conditions.

The primary goal of the hospital’s newest unit — the Comprehensive Pulmonary Rehabilitation Unit — is to improve the quality of life for each lung disease patient by teaching the skills necessary for managing his or her condition to maintain the highest possible quality of life.

For patients dependent on ventilator support, the hospital’s multidisciplinary team, including physicians, nurses and social workers, provides care tailored for each individual patient. Weaning rates for the first three quarters of the year showed increasing improvement: from 28 percent at the beginning of the year to 54 percent at year’s end.

UPPER CHESAPEAKE HEALTH

Upper Chesapeake Health (UCH), includes Harford Memorial Hospital and Upper Chesapeake Medical Center. **It 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. Last year, UCH handled more than 24,000 inpatient admissions, 92,000 emergency department visits and 150,000 outpatient visits.**

In July 2009, UCH and UMMS announced a strategic affiliation that is expected to lead to a full merger by 2013.

It will infuse millions of dollars into the Harford County economy through expanded medical services, job creation and new construction. The affiliation responds 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 partnership will enable UCH to accomplish several key goals in the coming years, including 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. The establishment of a closer relationship with the School of Medicine will help attract physicians to Harford County and expand clinical programs.



150,000

> **Outpatient visits in the last year** at Upper Chesapeake Health, which includes Upper Chesapeake Medical Center (left) and Harford Memorial Hospital (right).

All statistics, including bed counts, are for FY09

The Numbers*

	2009
OUR INCOME	
Tuition and Fees	\$ 20,940,000
State Appropriation	34,800,000
Federal Grants and Contracts	271,733,000
Other Grants and Projects	154,041,000
Gift, Endowment and Other Expenses	13,680,000
Medical Service Plan	210,000,000
Reimbursement from Affiliated Hospitals	113,113,000
Total	\$ 818,307,000
OUR EXPENSES	
Instruction/Training	\$ 80,703,000
Research	381,330,000
Clinical Service	323,774,000
General and Administrative	32,500,000
Total	\$ 818,307,000

**Fiscal Year 2009 figures are unaudited*

SCHOOL OF MEDICINE STATISTICS

Faculty: 2,685

1,209 full-time
249 part-time
1,227 adjunct

Staff: 2,494

Full-time administrative,
research and clinical

Students: 1,270

616 medical
34 MD/PhD
303 graduate
11 genetics counseling
87 medical & research technology
201 physical therapy
18 public health

Post-doctoral fellows: 452

183 clinical fellows
269 research fellows

Residents: 560

The Numbers*

	2009
OUR INCOME	
From services to inpatients	\$ 1,511,181,000
From services to outpatients	747,215,000
These services produced total gross revenue of	\$ 2,258,396,000
Less amounts we had to deduct for contractual allowances to third party payors	(145,611,000)
Less the cost of charity care for persons without the ability to pay for their care and for uncollectible accounts	(242,174,000)
Therefore, our net revenue from patient care services was	1,870,611,000
In addition, our other revenue from operations, including state support, was	67,307,000
Thus, our total revenue from operations was	\$ 1,937,918,000
OUR EXPENSES	
For salaries, wages and fringe benefits to our employees	\$ 947,448,000
For medical supplies, pharmaceuticals and purchased services	805,067,000
For depreciation on our buildings and equipment	118,787,000
For interest costs on our outstanding bonds	36,340,000
All of these operating expenses totaled	\$ 1,907,642,000
OUR NET RESULTS	
Income from operations	\$ 30,276,000
Plus non-operating revenue net of expenses	9,560,000
Less change in market value of financial investments	(93,306,000)
Net income	\$ (53,470,000)
OPERATING EARNINGS BEFORE INTEREST, DEPRECIATION AND AMORTIZATION AVAILABLE FOR REINVESTMENT IN OUR FACILITIES AND PROGRAMS	
	\$ 185,403,000
<i>*Fiscal Year 2009 figures are unaudited</i>	

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In Memorium



1936-2009

CHRISTINE SARBANES, a member of the University of Maryland School of Medicine's Board of Visitors (BOV), died on March 22, 2009, of cancer at her Baltimore home. She was 73. Mrs. Sarbanes will be remembered as a steadfast friend of the School of Medicine, serving four terms on its BOV, from September 1998 until her death. She served as the chair of the BOV's Nominating Committee and honorary chair of the inaugural Fund for Medicine. She was very interested in Davidge Hall, and was delighted to see the university receive funding from the National Parks Service through the Save America's Treasures Program for its conservation. Mrs. Sarbanes was born and educated in England, receiving both her BA and MA degrees from Oxford University. She taught Latin and Greek at the Gilman School in Baltimore and lectured in classics at Goucher College. She was married to former U.S. Senator Paul Sarbanes and actively participated in his political campaigns.

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1928-2009

In Memorium

SYLVAN FRIEMAN, MD, a past chair and member of the University of Maryland School of Medicine's Board of Visitors, died on August 22, 2009, of congestive heart failure at his Owings Mills home. He was 81. Dr. Frieman received his medical degree from the University of Maryland School of Medicine in 1953. He completed an internship at the old District of Columbia General Hospital in Washington, and while serving in the Air Force for two years completed a residency in obstetrics and gynecology at the old Lutheran Hospital of Maryland in 1956. During his career as an OB/GYN, he held a faculty appointment at the University of Maryland School of Medicine, where most recently he was a clinical assistant professor of obstetrics, gynecology and reproductive medicine, and established The Sylvan & May Frieman Scholarship Fund and The Dr. Sylvan & May Frieman Professorship in Reproductive Endocrinology. Dr. Frieman served as past president of the University of Maryland Medical Alumni Association.

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2009



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