A Time for Transformations
2012 and Beyond
Across Johns Hopkins Medicine, change is unfolding at an unprecedented pace.

At Johns Hopkins Medicine today, the excitement is palpable. The energy...boundless.
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Our Promise

Since its inception more than 120 years ago, Johns Hopkins has united unmatched scientific discovery, the best clinical care and exemplary medical education, all in the name of human health and well-being.

The Promise of Medicine is our promise to humanity to continue providing the most innovative discoveries and the most collaborative and compassionate care available. By continually pushing boundaries, we are eliminating mystery surrounding disease and redrawing the lines of treatment and possibility.
Innovating Medical Education
The School of Medicine’s Genes to Society curriculum, which has dramatically altered the way tomorrow’s doctors are prepared, has become the model for a new medical school in Malaysia, which Hopkins has helped to establish. p. 4

Building Better Patient Care
An ambitious building plan, one of the largest in the nation, is nearing completion, providing state-of-the-art facilities that complement ongoing efforts to advance family- and patient-centered care. p. 14

Extending the Reach
New strategic partnerships and advances in technology are vastly expanding the reach of Hopkins medicine, within the community, across the region, and around the globe. p. 24

Speeding Discovery
Through innovative research collaborations, Hopkins scientists are working across disciplines—and harnessing the latest breakthroughs in biotechnology—to speed the discovery of medical treatments . . . and cures. p. 36

Our Brand, Our Strength
As Hopkins forges ahead in an ever-changing health care climate, it remains focused on enhancing its global reputation as a pillar of modern medicine, research and discovery. p. 46

On the Horizon
Hopkins leaders look to the future—of patient care, science, medical education and health care reform—and tell why Hopkins Medicine has what it takes to lead the way in innovation. p. 48
Medical education today is at a crossroads. And Johns Hopkins, which set the standard for medical training a century ago, is once again leading the way with the recently developed Genes to Society curriculum—grounded in our ever-expanding understanding of the human genome. By radically integrating every aspect of medical education, the program takes a more holistic approach to health care. Officially rolled out in fall 2009, Genes to Society is already becoming the new model for medical schools around the world, including one in Malaysia.
From Genes to Society: A Bold Leap in Medical Education

Pioneering program takes a systems approach to preparing tomorrow’s doctors.

Developed in consultation with dozens of faculty members, students, and researchers, the Genes to Society program will produce physicians who can better serve each patient through personalized medicine, says David Nichols, vice dean for education. “It is novel in the country in that it takes a systems approach to understanding all the levels of the human being,” says Nichols, “from the genes, molecules, cells and organs of the patient on one end, to the familial, community, societal and environmental components on the other ends.”

Dean/CEO of Johns Hopkins Medicine Edward D. Miller describes the curriculum as “a stunning break with the past.” He says, “No longer are students learning to ‘fix’ patients when body parts break down. As most of us discovered after leaving medical school, patient care is a lot more complicated than that.”

Genes to Society puts students in extensive contact with patients from their very first day at Johns Hopkins. “That clinical experience will act as a coordinator of the subject matter they’re learning in the classroom,” says Nichols, “so they’ll be able to integrate the two.”

This more holistic approach has been exported to Malaysia, where Hopkins helped to start a medical school, along with a 600-bed teaching hospital.

By covering all levels of human health—from genes, molecules, cells and organs at one end, to familial, community, social and environmental components at the other end—Genes to Society is unique to medical education, says Nichols.
David Nichols in the Armstrong Medical Education Building.
Harnessing the Full Power of Learning

The impressive glass façade of the Anne and Mike Armstrong Medical Education building stands as a fitting symbol of the transformation taking place within. The four-story building, adjacent to the Johns Hopkins Outpatient Center, opened in fall 2009 in concert with the launch of the Genes to Society curriculum.

“We realized that harnessing the full power of learning 21st-century medicine would not be possible without a new physical environment,” says David Nichols, vice dean for medical education. “This building was designed with the intellectual and scientific needs of the next generation in mind.”

The Armstrong Building is a powerhouse of the latest digital communications technology, featuring everything from virtual reality simulations to MRI images, CT scans, surgical videos and other reference tools ready and waiting at students’ fingertips.

In the sunlight-filled 100,000-square-foot structure, classrooms are designed for maximum flexibility, with projection capabilities on all four walls and mobile podiums for instructors. There are large lecture halls, intimate learning studios and private study areas.

To foster collegiality among students and faculty, one entire floor of the new building is devoted to the Colleges Advisory Program, which teams exceptional faculty with small groups of students. Through both clinical instruction and informal meetings, each faculty mentor will work with the same students until they graduate.
In the well-equipped operating rooms of the Johns Hopkins Simulation Center, medical students train daily in the fine art of patient care—often substituting plastic for flesh.

“We want the younger generation of medical students to know that this is a safe place where you can make mistakes,” says Elizabeth “Betsy” Hunt, center director.

The Simulation Center offers the latest in cutting-edge electronics, interactive simulation and hands-on rehearsing of emergency codes. In the mock OR, students practice surgical techniques on “Sim Man,” a plastic mannequin whose vital signs can be altered in response to student efforts by Hunt, who sits in a nearby observation booth. The center also includes 12 glass-fronted “exam” rooms. From a nerve center in the central hallway equipped with computer monitors, faculty can view—and later critique—encounters that take place between students and actors portraying patients.

“Our hope,” says Vice Dean for Education David Nichols, “is that simulations will lead to patients who are safer and happier, and that it lowers the cost of care.”

Practicing on Plastic in the Simulation Center

Practicing on “Sim Baby,” under the watchful eye of Simulation Center Director Betsy Hunt (far right).
Beyond “Sick” vs. “Healthy”

The Genes to Society curriculum moves beyond the long-held educational model, which generally classifies people as “sick” or “healthy,” and redirects the discussion to, “Why is my patient at risk, and what can I do to prevent or delay the onset of the problem?”

One way to broaden the view for students is through “horizontal strands,” says Patricia Thomas, associate dean for curriculum. “We have faculty tracking every event in the new curriculum and ‘tagging’ it to see if there is an additional opportunity to teach behavioral medicine or public health or health economics as part of that topic.”

Eight intersession courses, each one-week long, are devoted to patient-centered topics that aren’t typically “owned” by any one department, notes Thomas. “You take something like global health, or pain care, or substance abuse … these can be addressed as a public health problem that crosses disciplines and is solved by those disciplines working together.”

She continues, “The curriculum emphasizes that wherever you go, you have to realize that you are part of a team.”

Medical students can pick from eight intersession courses that are not typically “owned” by any one department, notes Patricia Thomas, associate dean for curriculum.
I t’s clear to the fresh medical student when a doctor is talking over a patient’s head,” notes Melissa Dattalo, a resident in primary care at Johns Hopkins Bayview Medical Center. “But by the end of medical school, we have forgotten how lonely and frightening the hospital can be.”

Hopkins cardiologist Roy Ziegelstein is determined to change that. He is course director and architect of TRIPLE (Transition to Residency and Internship and Preparation for Life), a key component of the Genes to Society curriculum. The two-week course, which medical students take in the spring of their final year, teaches them how to see illness through their patients’ eyes.

“As doctors, we’re involved with so many very moving and emotionally draining things,” Ziegelstein says. “The pace can be so fast that we can’t—or don’t—let ourselves face things that we’ve learned from those emotional encounters with patients.”

One portion of the course has students “adopt a patient”—spending several hours observing their hospital experience and talking with them about their worries and frustrations. Piloted in 2007, TRIPLE has received national recognition: a $200,000 grant from the Arthur Vining Davis Foundation for advancing humane and caring attitudes.

The TRIPLE course, designed to give medical students a patient’s-eye view of health care, has received national recognition for advancing humane and caring attitudes.
“Why not have an institution that’s equally committed to addressing health disparities as they are in delivering health care?”

The Johns Hopkins Medicine vision for cultural diversity is coming to life through the work of Brian Gibbs, associate dean for diversity and cultural competence. Gibbs, who coordinates institution-wide efforts to make Johns Hopkins Medicine a more diverse and inclusive place, is building a culture he hopes can serve as a model for peer organizations.

In his two years at Johns Hopkins, Gibbs has developed initiatives to address health care disparities in the community, such as an urban health radio program, as well as a residency program to train physicians to care for the needs of inner-city populations. He works closely with diversity leaders across Johns Hopkins Medicine, including Beverly White-Seals, director of Hopkins Hospital’s Office of Workforce Diversity, to help support the recruitment and training of a diverse and culturally competent workforce.

To meet the ambitious goals set in the Johns Hopkins Medicine Vision 2020 Plan, Gibbs will continue to lead the institution in recruiting and retaining the most talented people, fostering a culture in which everyone feels that their contributions are valued and providing better medical care through respect for patients’ backgrounds and beliefs. His work is augmented by diversity initiatives started by others throughout the enterprise.
From his perch in a ninth-floor office that overlooks the medical campus here, Mike Weisfeldt may be sitting atop the best diversity story in medicine. His department is a national pacesetter: 20 percent of his house staff members qualify as underrepresented minorities, as do 15 percent of fellows in clinical/research training. “Twenty percent is very high,” he says. “It was 3 percent when I arrived in 2001.” The national average was at 13.5 percent in 2009.

The picture for women has also brightened: 50 percent of assistant professors are women, as are 30 percent of associate professors and 20 percent of professors. “This is up 15 percent from several years ago” Weisfeldt says. “I’d like to think this clearly reflects our efforts in recruitment of women for faculty development.”

“We’ve still got a long way to go,” says Weisfeldt, “but it’s obviously going in the right direction.”

One out of every five residents in internal medicine are underrepresented minorities, making this primary care division a national pacesetter.

During her first week on the job, Hopkins resident Sara Keller prepares for a solo visit to a patient.
The Johns Hopkins Hospital, with its two new clinical towers, the Sheikh Zayed Tower and The Charlotte R. Bloomberg Children’s Center, coupled with ongoing breakthroughs in clinical care and medical research, are pushing Johns Hopkins Medicine to ever-greater heights in patient- and family-centered care.
In their efforts to improve quality of life for patients with ALS, Lora Clawson and Nicholas Maragakis carry out a clinical trial protocol. ALS sufferers increasingly benefit from closeness to clinical trials through Johns Hopkins’ ALS Multidisciplinary Clinic. “The breadth of our human studies is exceptional—drug therapy, genetics, even stem cells. And the benefits are real,” says Maragakis.
Towerimg Expectations

High-tech new building puts the focus on personalized care for patients and their families.

Now that the Sheikh Zayed Tower and The Charlotte R. Bloomberg Children’s Center are officially part of The Johns Hopkins Hospital, the $1.1 billion project ushers in Johns Hopkins Medicine’s commitment to a new era of health care that prizes patient-and family-centered care, innovative research and an engaging medical education that’s grounded in human diversity.

Over the course of the largest hospital construction project in the country, an estimated 900 workers were on the job site daily, guided by an army of architects, engineers and some 10,000 drawings. Six years after breaking ground, the unparalleled facility is poised to accommodate multiple medical disciplines, meet the highest standards in patient care and safety, and accelerate the “bench-to-bedside” application of new discoveries. Some 65 percent of Hopkins Hospital patients will use the new state-of-the-art quarters—and, finally, everyone will have a private room.

Now that Johns Hopkins Hospital has taken ownership of the building from the general contractor comes the labor-intensive process to ready the building for patients and staff. “Ownership is an important milestone in the journey to becoming a hospital,” notes Sally MacConnell, vice president of facilities. And that launched an incredibly complex transition plan for moving patients, staff, equipment, medications and furniture; training 9,000 personnel in dozens of new procedures and processes; and preparing for new financial responsibilities.

Four years in development, the plan to move into the new buildings took the work of hundreds of medical center staff who teamed up in dozens of work groups to create a massive matrix of tasks and a coordinated timeline for their completion.

“Ownership is an important milestone in the journey to becoming a hospital.”
—Sally McConnell, vice president of facilities, the Johns Hopkins Health System
When the 355-bed Sheikh Zayed Tower opens in April of next year, it will house Hopkins’ Heart and Vascular Institute, with cardiologists, cardiac surgeons, interventional radiologists and vascular surgeons working as a team on breakthrough innovative treatments.

Neurology, neurosurgery, intensive care, pathology, surgery, critical care and emergency services will also be located in the tower. Flexibility has been built into the design since day one so the tower can support both current and future technologies and techniques.

In a high-tech environment, patients will receive the pinnacle of patient- and family-centered care—care that defines 21st-century medicine at Johns Hopkins.

Every detail—from the location of nurses’ workstations to artwork in the public spaces—has been considered from a patient-centric perspective. To ensure patient safety and the efficient delivery of care, two high-tech plans are in the works: centralizing medical images in a universal electronic database, accessible in an instant through handheld devices, and developing an infrared tracking system for hospital personnel and supplies.

“If we want to keep Hopkins at the forefront of patient care, medical education and research, we need to bring our buildings and infrastructure up to a level commensurate with the excellence of our faculty and staff,” says Edward D. Miller, dean and CEO of Johns Hopkins Medicine.

“With this new building, we hope to make Hopkins the model academic medical center for the next century.”

—Edward D. Miller, M.D., dean of the medical faculty and CEO of Johns Hopkins Medicine

—Ronald R. Peterson president, The Johns Hopkins Hospital and Health System and executive vice president, Johns Hopkins Medicine

Seeing Green

Landscaping and nature are a key part of the design of the new buildings, which will feature a series of connected gardens, including a meditation and healing garden off the lobby of the Sheikh Zayed Tower. A courtyard with a fish pond and water jets will be located outside of
Heading Off Problems Before They Arise

Redonda Miller knows that under her watch as vice president for medical affairs, the emphasis placed on quality and patient safety will have to increase.

“Third-party payers are demanding that we show them what they are getting for their money, and so the hospital is going to be under greater scrutiny to show that we deliver care in a safe, efficient, quality-driven manner,” says Miller, who succeeded Beryl Rosenstein. “In fact, even the way we credential physicians may have to change.”

In her role she oversees medical staff affairs, hospital epidemiology and infection control, medical records and the pharmacy.

“With this position, I hope to impact change from a more global perspective in addition to one-on-one with patients in my practice,” says Miller, a 1992 graduate of the School of Medicine. “It’s a problem-solving position and that makes every day different.”

Miller, who earned her MBA from Hopkins in 2004, is well equipped for the challenge. As vice chair for clinical operations in the Department of Medicine, she led several multidisciplinary teams that dramatically improved a number of core measures, including fighting pneumonia and post-hospitalization congestive heart failure among patients.

She’s looking forward to strengthening and expanding collaborations among hospital departments and professions to improve patient care.

“I’d like to head off problems before they arise and be proactive regarding various regulatory issues. That may mean having a seat at the table where policy is made by being very involved in our state organizations and by providing feedback to policy organizations on what does and doesn’t make sense.”

Miller draws on her extensive background at Hopkins—as student, administrator and faculty member—to inform her decision-making.

“Every time you take a broader position, you have the chance to impact that many more patients,” she says. “I now have the opportunity to impact the clinical care of patients who come to The Johns Hopkins Hospital and to make a difference in their care from behind the scenes. I can’t wait.”

“I have the opportunity to impact the care of all of the patients who come to The Johns Hopkins Hospital and to make a difference in their care from behind the scenes.”
“The Best, Bar None”

When The Charlotte R. Bloomberg Children’s Center opens its doors in April of next year, this world-class facility will further advance the Children’s Center’s position as a leader in pediatric care, research and training,” says George Dover, center director. “And because it will be so closely linked to the adult tower and our research facilities, our hospital will be more comprehensive and more innovative than any freestanding children’s hospital now, or ever.”

Patients and their families will be immersed in a calming environment where their care and comfort are a priority. The carefully constructed layout features spacious lobbies and waiting rooms with small private alcoves where doctors can meet with families. Decentralized workstations keep nurses close to their patients. In some patients’ rooms, doctors can review charts and lab data on flat-screen monitors.

Since rooms are large enough to accommodate medical equipment and changing levels of care, patients can remain in the same room throughout their stay—and amenities like daybeds and sleep chairs make it comfortable for parents to spend the night.

The 12-story, state-of-the-art tower will house emergency, surgical, interventional, critical and acute care for infants and children. In addition to 205 private patient rooms, there will be a 45-bed neonatal intensive care unit, a 40-bed pediatric intensive care unit and 10 surgical suites. In the pediatric research unit, investigators and clinicians will work together to translate discoveries into treatments and cures.

“We’re elevating our physical environment to match the quality of our staff and the medicine they practice,” Dover says in summarizing the new project. “Our hospital will be the best children’s hospital in America, bar none.”

“We’re elevating our physical environment to match the quality of our staff. Ours will be the best children’s hospital in America.”

—George Dover, M.D., Director of the Johns Hopkins Children’s Center
Pediatric patients will have their own retreat in the new Charlotte R. Bloomberg Children’s Center—two stories of it, in fact. The family of Julia Scott Clayton Baker, a Baltimorean by marriage and devotion, is bringing some of the outside in to them. In what Hopkins architects dub “the Great Escape”—an enclosed playroom on the building’s top two levels—patients will be able to leave some worries behind and delight in a sunlit expanse of “nature” with a simulated beach and garden, and a real playground.

Meanwhile, young patients who venture outdoors will be captivated by an open-air courtyard, which features a tranquil garden nestled in one corner. Named to honor Sara Wilhide, who died in 1989 at the age of 3 after undergoing two cardiac surgeries at Johns Hopkins Children’s Center, “Sara’s Garden” will be drawn from what had been her favorite book, The Little Prince. It will capture interactive elements from the children’s story, such as volcanoes, a water pump, birds in flight and stars that light up when brushed. “Sara would have loved it,” says her father, Steve.
A Sight to Behold

In the Wilmer Eye Institute’s Robert H. and Clarice Smith Building, more than 14,000 patients annually receive sight-sparing operations.

It’s a magnificent sight to see—even before you step inside. The Wilmer Eye Institute’s research and surgical building stretches seven stories tall, its glass exterior reflecting the image of the historic Wilmer dome. Strategically positioned at the corner of Broadway and Orleans Street, the Robert H. and Clarice Smith Building and Maurice Bendann Surgical Pavilion opened in summer 2009.

Even more impressive than the structure’s appearance is its breakthrough role in transforming patient care and research at Wilmer. One entire floor of the 207,000-square-foot structure serves as a state-of-the-art surgical center, complete with pre-and postop areas and six ultramodern operating rooms. The Maurice Bendann Surgical Pavilion is fully loaded with high-tech tools for performing routine eye surgeries as well as treating eye trauma injuries, tumors and congenital deformities. Scans can be beamed directly by computers into the operating suite so doctors can reference images throughout surgery. For the most complex procedures, an image-guided system enables surgeons to view the inner eye in three-dimensional detail during operations.

With increased space and a well-thought-out floor plan that maximizes efficiency, the surgical pavilion enables Wilmer to perform approximately 50 percent more operations annually.

“Because everyone—surgeons, nurses, staff—are right next to each other, each operation takes much less time. As a result, the experience is far more patient friendly,” says Peter McDonnell, Wilmer Institute director.

The top five floors of the new Smith Building increase Wilmer’s dedicated research space by 60 percent—fostering collaboration and speeding the hope for new cures to vision loss.
Jennifer Elisseeff, who recently moved her 37-person biomaterials and tissue engineering lab to Wilmer, is among a cadre of promising biomedical engineers who have relocated their labs to the Robert H. and Clarice Smith Building. Collaborating with Wilmer’s Oliver Schein, Elisseeff has focused on developing biomaterials that can repair and rebuild the cornea. Now she plans to expand such work to other parts of the eye, including the retina, and to other diseases, such as glaucoma.

Biomedical engineers in other Wilmer labs are working to focus the power of nanotechnology on creating new drugs and gene therapies for patients with age-related macular degeneration and Fuch’s dystrophy. The implications are far-reaching, since technologies and treatments for vision problems can be applied to other diseases.

Says Wilmer director Peter McDonnell, “Thirty percent of this building is already dedicated to exploring biomedical engineering solutions to vision problems—and, five years from now, the whole world will know about and benefit from the biomedical engineering solutions developed here.”
With the passage of the new health care reform law, Johns Hopkins Medicine leaders have been laying the groundwork to make Hopkins health care delivery a model for the future. By forging new affiliations with hospitals across the region and around the world, harnessing the latest technology to better manage patient records, and reaching out to improve the lives of community members, Johns Hopkins Medicine is dramatically extending its impact of excellence.
At Suburban Hospital, one of the newest additions to the Johns Hopkins Medicine family, Emergency Department Clinical Director Gretta Cuccia leads a team that scrambles to find hospital beds for patients.
**When They Need It, Where They Need It**

New affiliations across the region will allow patients to move transparently through the Hopkins health care system.

“As we prepare for the inevitable changes resulting from health care reform laws and other market forces, it is imperative that we do so in a thoughtful, effective and strategic manner,” says Edward D. Miller, dean of the medical faculty and CEO of Johns Hopkins Medicine.

The goal: to create systems of care with broader geographic networks and a wider range of facilities and locations, so that patients can get health care when they need it, where they need it, says Steve Thompson, who in his role as senior vice president of Johns Hopkins Medicine worked tirelessly to make the system more coordinated.

Toward that end, he and his colleagues pushed to secure several important acquisitions. First, in summer 2009 came the addition of the Suburban Hospital Healthcare System in Montgomery County, Maryland. A year later, Hopkins Medicine officially acquired the Washington D.C.-based Sibley Memorial Hospital, a 328-bed acute care facility in northwest Washington. Both acquisitions significantly expand Hopkins Medicine’s reach to include the Washington, D.C., area.

Most recently, in April of 2011, Hopkins integrated Florida’s All Children’s Hospital & Health System, a 259-bed freestanding pediatric hospital in St. Petersburg, Fla. These agreements build on earlier local affiliations—with Anne Arundel Medical Center in 2007 and with Greater Baltimore Medical Center in 2008.

In response to expansion and the complex demands of the current health care climate, Hopkins Medicine has created a new operational structure, which will streamline decision-making processes across the enterprise: JHM 3.0. “The structure will provide a strong new foundation to solve problems, align goals and implement new ideas, all while remaining true to Hopkins longstanding tripartite mission,” says Miller.
Suburban Hospital
Bethesda, MD

All Children’s Hospital
& Health System
St. Petersburg, FL

Sibley Memorial Hospital
Washington, D.C.
As president of Johns Hopkins HealthCare, Patty Brown notes that the old, hospital-centric mode of health care delivery has shifted: Today, a vast majority of patients never see a hospital bed. Through its contractual relationships with managed care organizations—notably the US Family Health Plan (USFHP), for military members and their families, and Priority Partners, which serves Medicaid patients—JHHC must be in the business of managing health, says Brown, not just illness.

With her colleagues at JHHC, she has implemented systems to assess the risks of a population (diabetes or obesity, for example), to anticipate the health needs of the population (nutrition counseling and adherence to medication), and then—and here’s where Brown is truly progressive—to go into the community for solutions and interventions (bringing grocery stores to low-income neighborhoods.) Such efforts are paying off. By identifying and treating low-income Marylanders struggling with kidney dialysis, for instance, Priority Partners has cut these patients’ emergency department visits in half—lowering the cost per patient from $10,297 to $5,485.

Of course, real reform depends, partly, on robust information systems. To this end, Brown chairs Chesapeake Regional Information System for Patients, a regional health information exchange that strives to create a comprehensive clearinghouse that would store personal health records of consenting individuals. With such a tool, delivery quickens, tests don’t get repeated and critical information is readily available.

“We’re good at identifying the health issues of a population, and we have the data. We can design interventions.”

—Patty Brown, president of Johns Hopkins HealthCare
Assistant Professor Carlton Haywood, himself a sufferer of sickle cell disease, is pushing to improve communication between doctors and patients—crucial to improving care for many who suffer from the excruciating illness. In February 2008, Hopkins Hospital opened an infusion clinic especially for SCD, through efforts led by Sophie Lanzkron and colleagues. The goal: to improve quality of life and head off health complications.
Neighborhood Matters

For the thousands of East Baltimore residents employed by The Johns Hopkins Hospital and Health System, going to work means an easy commute.

Growing up just blocks from The Johns Hopkins Hospital, Kelvin Jones watched his mother come home from work each evening, most often with a smile on her face. “A lot of people hate what they do,” he says “but I never saw that attitude from her. She works in human resources at Johns Hopkins and it always seemed like a nice environment. She enjoys what she does.”

Jones was so impressed by his mother’s experience that, as a high school student at Patterson High School, he opted to spend three summers at Hopkins Hospital working as a student intern. After he graduated in 2008, he became a full-time employee and now works in the Department of Radiology, in patient transport services. “A lot of people see me walking to and from work in my uniform, and I get a lot of recognition from them,” says the 18-year-old. “They tell me that it’s good that I’m doing something with my life. It makes me proud.”

Jones and his mother, Armentia Berryman, are just two of the 2,687 people living in the East Baltimore community who are employed by The Johns Hopkins Hospital and Health System. These community residents make up 21 percent of the hospital and health system workforce.

Jones eventually aims to pursue an undergraduate degree in engineering, and he will soon start laying the groundwork by taking general studies courses at Hopkins Hospital through classes given in the Phipps Building by Baltimore City Community College. That opportunity is made possible through a program for union employees jointly sponsored by Hopkins Hospital and 1199SEIU United Healthcare Workers East.

Barbara Edwards, workforce education manager at Hopkins, says she doesn’t know of any hospital that offers the magnitude of rudimentary education that Hopkins does through the Skills Enhancement Program—23 classes in subjects as diverse as math, Spanish and medical terminology. “It speaks volumes about Hopkins’ commitment to its staff,” says Edwards. “And it helps employees recognize their untapped potential.”

“People see me walking to and from work in my Johns Hopkins uniform, and I get a lot of recognition from them. They tell me that it’s good that I’m doing something with my life.”

—Kelvin Jones, Patient Transport Services Department
Translating Health

Each Wednesday night at the “Spanish clinic,” held at the East Baltimore Medical Center (EBMC) at 1000 E. Eager St., patients receive medical help in Spanish and pay as little as $5 per visit. The primary care facility, run by Johns Hopkins Community Physicians (JHCP), is just one part of Hopkins’ effort to bring affordable care to uninsured immigrants.

The city’s Hispanic population has grown to roughly 20,000. And, up to 54 percent of the state’s low-income Hispanics do not have medical coverage, according to the most recent Maryland Health Care Commission report.

Barbara Cook, former president of JHCP, has volunteered at the clinic since it opened a year ago. The bilingual family physician has treated patients for problems ranging from intestinal parasites to diabetes. “The patients’ primary concern is staying healthy so that they can work,” she says.

EBMC plans to expand the weekly walk-in service into a full-time primary care program by hiring a Spanish-speaking medical team. For now, physicians often use medical interpreters who work for Johns Hopkins Medicine International. Each month, community interpreters serve as many as 1,200 requests—60 percent of them for Spanish speakers.
As the debate over health care reform swirls, Steven J. Kravet is confident that primary care will provide solutions and that Johns Hopkins will be a driving force.

As director of Johns Hopkins Community Physicians, Kravet is responsible for the largest primary care group in Maryland. With more than 30 locations across the state, JHCP has more than 450,000 patient appointments annually.

“When I was coming on board,” says Kravet, “I saw the opportunity to further maximize [our] integration into Johns Hopkins Medicine. Doctors completing training now are eager to fill multiple roles. Some want to teach, some want to do research. To retain the best doctors at Hopkins, we need to give them options to fulfill these passions.”

Kravet’s recent research findings—which have been incorporated into national platforms for revamping the health care workforce—show that increasing the proportion of primary care doctors would reduce hospitalizations, ER visits and surgeries. “Everybody is talking about how the system needs to be fixed and how we are going to pay for it,” he says. “Doing this makes so much sense.”
In light of recent seismic shifts in the health care landscape and Johns Hopkins Medicine’s rapid expansion, it became clear to the institution’s leaders that a unified, electronic medical record system was in order, one that would allow clinicians throughout the enterprise complete access to patients’ records, regardless of where they’ve received care within the health system. With that in mind, in 2013, Johns Hopkins Medicine will launch Epic, a software system that will integrate medical records across the enterprise into one central database. (Various hospitals within the health system currently have independent records.) Once the unification of the electronic medical record system is complete, a process that will take roughly three to five years, all of Hopkins Medicine’s specialists, primary care physicians and clinicians will be equipped with the same powerful tool.

Epic will also bring together the health system’s clinical and patient billing systems, and it will allow patients themselves to access certain parts of their medical records online, enabling them to become more active participants in their medical care.

The endeavor comes at a pivotal point in the health system’s history, when rapid growth, financial challenges, regulatory obligations and health care reform demand a fundamental shift in medical and administrative practices.

“This all means that we need to move in a direction that requires more coordination and integration of the care we provide our patients and the information that our providers need,” says Ronald R. Peterson, president of The Johns Hopkins Hospital and Health System and executive vice president of Johns Hopkins Medicine. Epic is one profoundly important step toward achieving that aim.

For the Record

In 2013, Epic, a powerful new electronic medical record system, will make it possible for providers across the enterprise to track a patient’s health.
Since its creation more than a decade ago, Johns Hopkins Medicine International (JHI) has swiftly grown to become a worldwide leader in raising the standard of health care abroad.

Over the past several years, JHI has steadily added to its existing portfolio and now maintains collaborations with more than a dozen medical institutions across four continents. Since 2001, the organization has guided most of them through more than 10 successful Joint Commission International accreditation surveys—raising the quality of health care in those regions and developing Hopkins expertise into a consulting line that’s now part of nearly every agreement.

By assuming operational management of these hospitals and putting Hopkins-appointed leaders in place, JHI can play a hands-on role in enhancing every aspect of health care, from deciding budget priorities to improving customer service and patient safety.

All net profits generated by International’s clinical and administrative services flow to Hopkins Medicine in Baltimore—funding that is particularly important now that traditional lines of funding are threatened and “basically all flat at best,” says JHI CEO Steve Thompson. He adds, “International’s role in the financial health of Hopkins Medicine is to ensure that Hopkins entities achieve their financial goals.”

But most important to Thompson is the role that JHI plays in helping Hopkins to improve the health of the community—and the world. “Everything we do—whether it’s in Bethesda, Md., or Abu Dhabi—it all has to have a strong anchor in the Hopkins Medicine,” he says.

“If Hopkins Medicine is to ensure that Hopkins entities achieve their financial goals.”

—Steve Thompson, CEO of Johns Hopkins Medicine International
The first facility in the United Arab Emirates to be managed by Johns Hopkins Medicine International, Abu Dhabi’s Tawam Hospital provides a case study in how International bolsters clinical care in the organizations and regions it serves. In the first three years of the management agreement, signed in 2006, Tawam:

- Introduced new services, including pediatric hemodialysis, neonatal universal hearing screening, ECHO stress testing, intravenous thrombolysis for acute stroke patients, interventional nephrology and an epilepsy monitoring unit
- Won reaccreditation under Joint Commission International
- Introduced the comprehensive unit-based safety program to several services
- Implemented the Patient Safety Net adverse event reporting system
- Migrated to an electronic patient record
- Expanded Tawam’s care to the community by introducing a well-baby clinic, an anticoagulation clinic, a sleep lab, a dermatology clinic, three fetal anomaly clinics, a fetal diabetic clinic, a multiple pregnancy clinic and others

With Hopkins experts as on-the-ground leaders, Johns Hopkins Medicine International now manages nearly 1,000 beds in three United Arab Emirates hospitals—part of more than 20 long-term strategic management and consulting relationships in the Middle East, Latin America, North America, Europe and Asia.
When it comes to medical research, truly, no scientist is an island. While Hopkins Medicine has long fostered an environment encouraging collaboration among its talented individuals, the past two years have seen an even greater emphasis on bringing people together.

“Researchers across Hopkins have been busy building bridges and tearing down walls,” says Stephen Desiderio, director of Hopkins’ Institute for Basic Biomedical Sciences (IBBS). The result: new ways of thinking that are hastening the discovery of medical treatments and cures.
Stem cell biologists Nicholas Christoforou and Candace Kerr confer in an ICE laboratory, designed to promote research synergies.
Avi Kupfer brings expertise in how T-cells “talk” to each other to the six-investigator Hopkins team.
Unlocking the Mysteries of T-Cells

The immune system’s cornerstone is key to illnesses ranging from cancer to AIDS.

Perhaps one of the most exciting examples of team building currently under way at Hopkins Medicine is a large, multidisciplinary immunology project involving six top scientists. It’s funded by a five-year $10.3 million NIH grant awarded in September 2008—the largest basic immunology award ever received by Johns Hopkins.

Together, six Hopkins investigators will carry out five distinct yet inter-related projects to develop a deeper understanding of T-cells, one of the cornerstones of our immune system because they are critical to the onset of so many different diseases—from AIDS, to cancer, to the H1N1 flu.

“Basically, we’re trying to develop an overall view of how T-cells sense their environment to direct their outcome,” says pathologist and team leader Jonathan Schneck. Early work has been promising. Steve Desiderio’s lab, for example, has recently found that a protein called TFII-1 is critical for regulating calcium fluctuations in a cell, and now he’s looking into the exciting possibility that the duration and extent of calcium fluxes might be a key control mechanism in T-cell activation.

“One of the big mysteries with T-cells is how similar external signals can lead to different responses in T-cells,” says Desiderio. He’s working with teammates to develop TFII-1 proteins that can be chemically manipulated to see if he can change signal outcomes.

While the cross-disciplinary project focuses primarily on basic immunological problems, says Schneck, “it can directly lead to more defined translational questions in the near future, like: Can we develop a better vaccine for cancer or infectious disease? And, how do you suppress an ‘unwanted’ immune response in the case of organ transplants or stem cell therapy?”

The cross-disciplinary basic science project “can directly lead to more defined translational questions in the near future, like: How do you suppress an ‘unwanted’ immune response in the case of organ transplants or stem cell therapy?”

—Hopkins pathologist Jonathan Schneck
The sequencing of the human genome, combined with rapid advances in computing power, helped usher in a new era of big science: high-technology, high-output projects with high expectations. Such projects are especially useful in drug discovery, as robotic machines can rapidly screen hundreds of thousands of potential therapeutics against an assortment of proteins to find the next big thing. Unfortunately, points out Hopkins neuroscientist Min Li, perhaps the most important group of drug targets—ion channels—just happens to be one of the worst suited to large-scale screenings.

With the opening of Hopkins’ new Ion Channel Center, a $20 million dollar initiative launched in September 2008 and put together through the dedicated teamwork of eight Hopkins researchers, that worry may be a thing of the past.

Ion channels are gatelike proteins that sit on the surface of cells and funnel charged particles (such as sodium or chlorine ions) across the membrane, creating electrical currents. In addition to being involved in neurological disorders like epilepsy or schizophrenia, they are also associated with cardiovascular problems, cystic fibrosis, even bladder control. In fact, about one-quarter of all drugs currently target ion channels.

“The problem is that they only work when they’re in a cell that’s fully alive and happy,” notes Li. “Also, individually they put out a fairly weak electric signal, so it’s hard to measure changes in the confines of a large screen. This has become a big bottleneck in both basic research and pharmaceutical studies.”

The Ion Channel Center has set a goal of improving the technologies to assay these finicky proteins and, together with other NIH Network Screening Centers, will eventually screen 3,000 ion channels with a library of 500,000 small molecule drugs to catalog their effects. All the results will be publicly available. The center and its talented brain trust will also be available to researchers at Hopkins and elsewhere to answer their individual ion channel questions. Says Li, “We consider ourselves the ultimate enabler.”
The Road to Progress

Launching the Ion Channel Center at Hopkins (along with industrial partners Corning and Aviva), as part of the NIH’s Roadmap to Medical Research, required the dedicated efforts of eight Hopkins researchers, all experts in some facet of ion channel biology: neuroscientist Min Li, Joel Bader in computational biology, Michael Caterina in biological chemistry, Philip Cole in pharmacology, Takanari Inoue in cell biology, Peter Maloney in physiology, Gordon Tomaselli in cardiology and David Yue in biomedical engineering. The NIH Roadmap is an initiative aimed at enabling research institutes like Hopkins to carry out the kind of large-scale projects normally the domain of industry and government.

In addition to being involved in neurological disorders, ion channels are also associated with cardiovascular problems, cystic fibrosis, even bladder control.
An Entrepreneurial Environment

The school of medicine’s Institute for Basic Biomedical Sciences (IBBS) moved into its new home in spring 2008 as the anchor tenant in the Rangos Building, the first state-of-the-art life sciences facility planned for the 31-acre Science + Technology Park on the northern edge of the East Baltimore campus. Roughly 200 university investigators will use the space to conduct transitional research on human diseases such as cancer, kidney disease, HIV and hepatitis C.

IBBS has leased one-third of the building, which it shares with two other Hopkins-born ventures: Cangen Biotechnologies, which is developing noninvasive tests for early detection of cancer; and Biomarker Strategies, which is creating a solid-tumor cell-testing system to improve the diagnosis and treatment of cancer. Howard Hughes Medical Institute, a national nonprofit medical research organization, is the fourth tenant.

“To my knowledge, this is the first time Johns Hopkins has put a significant chunk of researchers from the clinical departments [together] with basic scientists who are working on the most recent discoveries,” says Myron “Mike” Weisfeldt, physician in chief at Hopkins Hospital. “Industry people and clinicians literally share the same conference rooms, lunch room and hallways,” he says. “They talk to each other, collaborate. And hopefully this will make for a productive, entrepreneurial environment.”

Constantine Lyketsos directs Hopkins’ Alzheimer’s Treatment Center, which has brought together projects and expertise previously spread over three campuses.
Hopkins’ Memory and Alzheimer’s Treatment Center, which opened in fall 2008, is something of a phoenix—having risen, not out of ashes, but from a welter of clinics, patient units and research projects across three departments and as many campuses. “We kept bumping into each other while Alzheimer’s explodes as a public health problem,” says Constantine Lyketsos, director of the center. Yet with ample clinic space now available on Hopkins’ Bayview campus and funding freed up, the value of sharing what’s best became amazingly obvious.

While the center still spans Hopkins Hospital, Bayview Medical Center and the Copper Ridge Institute in Sykesville, it now pools expertise. Diagnosis, therapy, dementia care—as outpatient, intermediate or long-term—and experience in educating caregivers continue but without duplication.

The benefits to research are clear. “If you see enough patients under clinical care—our objective for next year is 1,000—a substantial number enter studies, raising our ability to find cures,” explains Lyketsos.

What Lyketsos calls “little pieces of added value” are typical. For example, when an Alzheimer’s diagnosis is especially difficult, center clinicians apply advanced imaging techniques originally developed for research. Working with radiologists, they’ve developed a dementia-specific protocol for the 3 Tesla MRI scanner. The scanner’s high magnetic field strong-arms needed resolution into images—enough, for example, to detect microbleeds that underlie some dementia. Combining this with more traditional PET scans brings a new capability to expose brain damage. Combined MRI and PET make diagnosis more trustworthy.

“If you see enough patients under clinical care, a substantial number enter our studies, raising our ability to find cures.”

—Constantine Lyketsos, director of Hopkins’ Memory and Alzheimer’s Treatment Center.
Speeding Discovery

Over the past several years, scientists at Johns Hopkins achieved an impressive range of research breakthroughs that hold promise for improving human health.

A sampling:

- Identified a common genetic alteration in the CNTNAP2 gene that is associated with autism when inherited by sons from their mother—one of the strongest genetic links to autism susceptibility found to date.

- Showed that corneas from older donors share similar transplant success rates as those from younger donors, a finding likely to expand the donor pool and cornea availability.

- Reported that the blood pressure drug Losartan appears effective at slowing the enlargement of the aorta in children with very severe Marfan syndrome.

- Developed the first experimental “stuffy nosed” mice with inflamed nasal tissues—not unlike those suffered by the 31 million Americans who live with chronic sinusitis—allowing researchers to better study the condition and to develop new therapies.

- Discovered that the chemical marks on DNA are similar among family members and can change as we age, which may contribute to increased age-related and familial risk of susceptibility to diseases such as diabetes and cancer.

- Found that nevirapine, an antiretroviral drug already widely used in the developing world to prevent the transmission of HIV from infected mothers to their newborns during childbirth, also can substantially cut the risk of subsequent HIV transmission during breast-feeding.

- Developed a scientifically proven method for reducing the deadly infections associated with central line catheters, virtually eliminating them wherever it’s used; the checklist protocol is now being implemented across the United States, state by state, and several other countries.

- Established a human cell-based system for studying sickle cell anemia by developing a stem cell line containing the mutation that causes the disease and demonstrating a faster and more efficient method of reprogramming cells that might also speed the development of stem cell therapies for other conditions.

- Developed a blood test to sequence cancer genomes that have since resulted in sequenced genomes for head and neck, pancreatic and child brain cancer.
Ronald Cohn
Director
The Johns Hopkins Hypotonia Center

**Hopkins’ Nobel Laureate**

Hopkins molecular biologist Carol Greider was awarded the 2009 Nobel Prize in Physiology or Medicine for her 1984 discovery of telomerase, an enzyme that is critical for the health and survival of all living cells and organisms—and is therefore crucial to today’s breakthroughs in research on cancer and aging.

Cohn, whose expertise spans pediatrics, neurology and genetic medicine, says “It really does make you a different kind of physician if you always keep the same tempo as you think about scientific questions of why does it happen, how does it happen, and how can we explain it.”

Whether Ronald Cohn is in the lab or seeing patients, the work he does, he says, is interconnected.

As director of Hopkins’ Hypotonia Center, the first of its kind in the world, Cohn treats hundreds of patients with decreased muscle tone. Back at the bench, he investigates the molecular roots of muscle deterioration.

“After seeing my patients, I often come back having an idea for my lab,” says Cohn, recent recipient of a $1.5 million New Innovator Award from the National Institutes of Health. “It really does make you a different kind of physician if you always keep the same tempo as you think about scientific questions.”

Cohn is currently looking to hibernating squirrels for clues. How do the furry animals emerge from months of immobility without atrophy or muscle loss? Better understanding the molecular mechanisms involved, he believes, will yield insights into how to treat and even stop muscle wasting in acquired conditions such as aging and disuse—as well as in a variety of inherited muscle disorders.
With any successful organization, one of its most valuable assets is its reputation, its brand. Starting with the opening of The Johns Hopkins Hospital in 1889 and four years later the School of Medicine, the revolutionary Johns Hopkins model brought together the best minds to not simply practice medicine but to transform it. Ever since, Johns Hopkins Medicine, its faculty and employees have built and cemented a far-reaching reputation for cutting-edge research, innovative medical education and excellent patient care. “We safeguard and strengthen our brand not merely to protect it today,” says Dalal Haldeman, vice president for marketing and communications, “but because this asset is pivotal for our future.”

“Stewardship of our name equity and brandmark is a responsibility we all share.”
—Edward D. Miller, M.D., dean of the medical faculty and CEO of Johns Hopkins Medicine
“Science today requires much more sophisticated infrastructure than ever before. It will be institutions like Hopkins Medicine, which can put together the technology and core resources no single investigator or lab can ever possess, that will succeed.”

Edward D. Miller, Dean and CEO, Johns Hopkins Medicine

“Health care reform needs to be more than just insurance reform. I see it as an opportunity for the Johns Hopkins Health System to exhibit leadership by implementing smarter ways of delivering health care services more broadly while maintaining the highest standards of quality.”

Ronald R. Peterson, President, The Johns Hopkins Hospital and Health System
Executive Vice President, Johns Hopkins Medicine

“The legacy of Johns Hopkins Medicine is an uninterrupted history of discovery, innovation, and advancing the frontiers of medical science. As we look ahead to the wonderfully exciting and truly revolutionary advances that our new understanding in genetics, biology and the basic sciences are bringing about, we remain confident that Johns Hopkins will continue to play a vital role in defining the very highest standards in research, medical education, and patient care.”

Ronald Daniels, President, The Johns Hopkins University