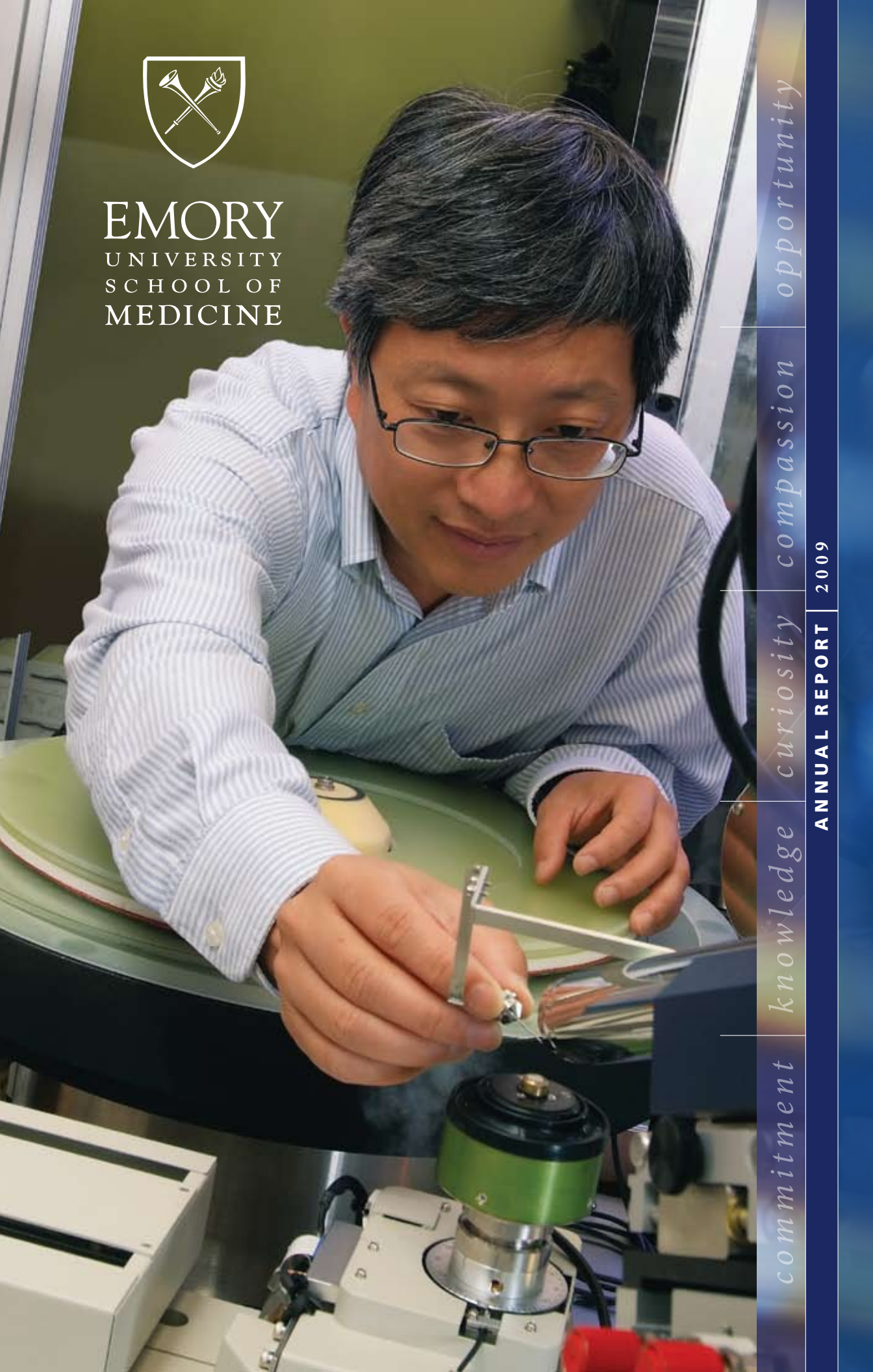




EMORY
UNIVERSITY
SCHOOL OF
MEDICINE



commitment knowledge curiosity compassion opportunity

ANNUAL REPORT 2009



An important component of medical training at Emory is the opportunity to work with underserved patients, whether in local clinics for the homeless or in developing countries around the globe.



FROM THE DEAN

One school of thought

Five words on the cover of this book appear time and again throughout the pages that follow. Taken together, they sum up what we are all about in Emory University School of Medicine, each a different tack to get to the same destination, i.e., service to humanity.

The sense of a shared goal, of being on the same path, of working toward the same end, permeates all we do here and supplies a steady source of joy and optimism even in times of economic challenge.

Take *knowledge*, for example. Our faculty and students have more personal interaction throughout all four years of medical school and are thus learning from each other more than ever before, their relationships mirroring the kind that ideally should exist between patients and their doctors. They are happier and better off for it, and the patients they serve are too.

Curiosity offers another perspective into what excites and inspires. In addition to receiving a record amount of sponsored research support this year, our scientists have the privilege of testing the benefit to patients of research that *started* here, including a new treatment for traumatic brain injury and a DNA AIDS vaccine.

As important as both knowledge and curiosity are, their value dims outside a context of *compassion*. Students and residents who come to Emory do so understanding that they will have the opportunity to learn from a vast range of patients in different settings, including those who are most disadvantaged. They have the opportunity to work with faculty who are concerned not only with pioneering new treatments but also with issues such as improving quality and safety, solving intractable problems pertaining to cost and access, and finding better means of preventing disease in the first place. Together, they are on a mission, headed in the same direction.

Commitment, knowledge, curiosity, compassion, opportunity: Five words, yes, but one school of thought.

Thomas J. Lawley MD

Thomas J. Lawley, MD, Dean
Emory University School of Medicine

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On the cover: Georgia Research Alliance Eminent Scholar **Xiaodong Cheng** is participating in an NIH program to help "road-map" epigenetics, a field examining the influences on DNA that determine whether genes are turned on or off during disease processes.

Students like Pearl Ryder retain the same carefully chosen faculty adviser throughout all four years of medical school, learning from these mentors everything from how to take a patient's history to how to break bad news in a thoughtful, humane way.

knowledge

EDUCATION:

Long-term care of students

A major goal of the new curriculum introduced in 2007 is to create connections between faculty and students that last throughout the entire four years of medical school, “longitudinal” relationships much like those that should exist ideally between doctors and their patients. Based on the kind of students who are attracted to Emory and on what they learn and model from their faculty mentors, these students are expected to grow not just in knowledge during their time at Emory but also in compassion, curiosity, and commitment—and to use these traits wisely in serving their profession and community.

SOCIETY ADVISERS At the heart of the curriculum is a highly popular system of faculty advisers, each faculty mentor paired with eight or nine students. These groupings are designated as “societies” named for historical medical luminaries—for example, Osler, Semmelweis, Lister, Harvey. Faculty advisers who lead these societies in each class are chosen carefully, their salaries underwritten by the medical school so they can relinquish three half-days per week from their regular clinical and/or research duties to spend time with some or all of “their” students.

With steady and intentional access to their mentors, students in each society invariably become caught up in their adviser's work and interests: touring Atlanta's historical sites under the wing of an adviser who is a world-class history buff, visiting a monthly neurologic disease clinic in a nearby mountain community, participating in AIDS walks and other fundraisers, or enjoying a home-cooked meal and chance to practice physical exams on an adviser's 2-year-old.

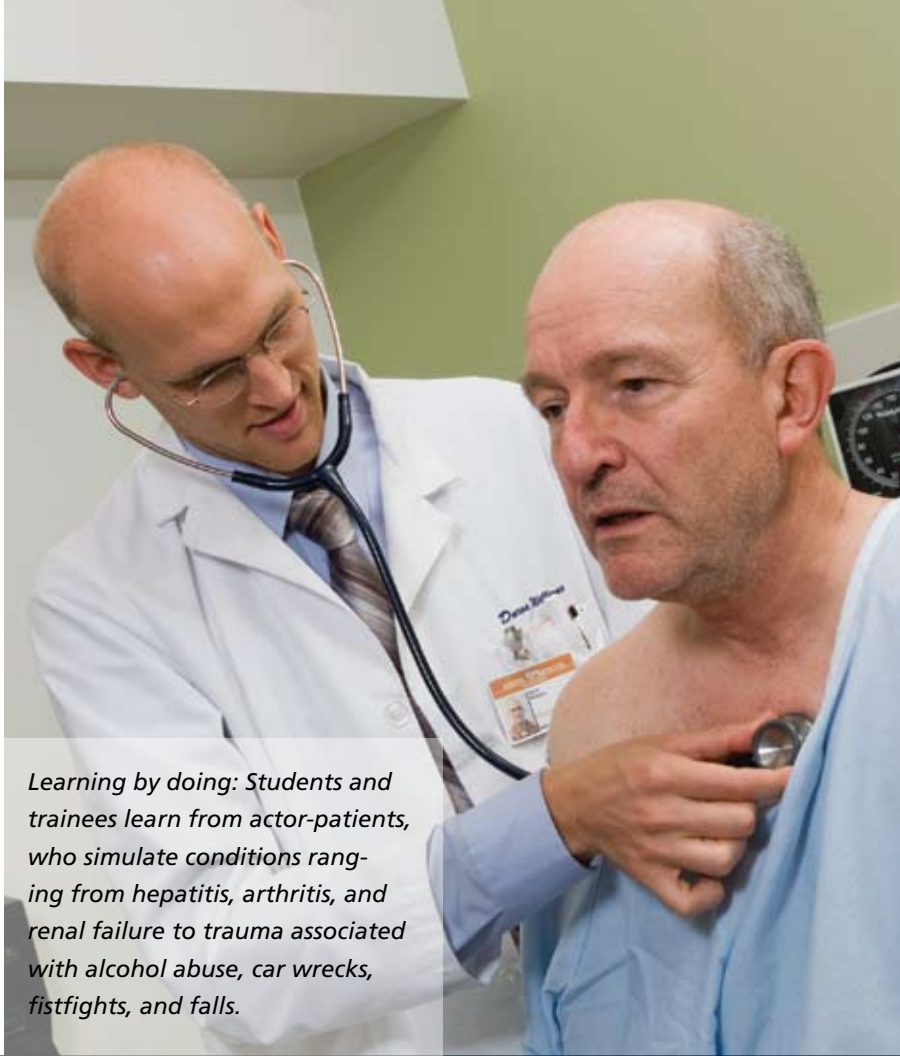
ROAD-TESTED FIRST PHASE As the class of 2011 moves through the new curriculum, all now have completed the 18-month Foundations of Medicine phase, a whole-person approach section that combines clinical medicine and basic fundamentals of science, social sciences, humanities, and public health. This is not my father's or mother's medical school experience, students say.



During the first two inaugural years of Emory's new medical curriculum, students have provided valuable feedback on what they like and what needs tweaking—overall, they have given rave reviews, and the school's applicant yield has increased by seven percentage points in the past two years.



The Coulter Department of Biomedical Engineering, a joint program between Emory and Georgia Tech, inaugurated a joint PhD program with Peking University in Beijing, one of the first national universities in Chinese modern history and a long-time Emory partner. Classes are conducted in English, and a single dissertation satisfies thesis requirements for all three universities.



Learning by doing: Students and trainees learn from actor-patients, who simulate conditions ranging from hepatitis, arthritis, and renal failure to trauma associated with alcohol abuse, car wrecks, fistfights, and falls.

“taught” and “learned.” In the study, which involved four other medical schools, facilitators implemented a curriculum emphasizing the human dimensions of care, such as the need to communicate effectively, show compassion, and build strong relations.

After faculty members in the study had undergone the special training, their trainees (both students and residents) completed a questionnaire designed to evaluate its effectiveness. Students of faculty who were trained in the humanistic model of medicine rated their professors higher in how they demonstrated this type of care, communicated with patients and each other, and inspired students, among other measures. The results were statistically significant and sufficiently robust to suggest practical importance, according to Emory internist William Branch, lead author of the study, which was published in *Academic Medicine*.

CREATING CROSS-DISCIPLINARY SCIENTISTS In partnership with Emory’s Rollins School of Public Health and other entities both in and outside the university, the medical school is co-directing a new PhD program, “Human Health: Molecules to Mankind” (M2M), designed to educate students in both lab and population sciences and to bridge the gap among scientific disciplines. M2M includes four tracks: predictive health, population processes and dynamics of infectious diseases, biomarkers and development of acute and chronic diseases, and genetic environmental determinants of health.



*Much like medical students undergoing their own rites of passage (top), Emory trustee emeritus **Jimmy Williams** (bottom, center) received a white coat to commemorate the naming of the school’s new building in his honor.*

In the introduction-to-neuroscience module, for example, faculty share the classroom with a baseball player, who demonstrates and explains what a center fielder has to do to catch a fly ball or what a batter must consider before swinging at a ball leaving the pitcher’s hand at 95 mph. Students then are sent off to research the anatomic, physiologic, and neurologic functions involved in those cognitive, visual, and physical processes. Who would have dreamed that this game was so biologically complex?

In a teaching module on aging, a 50-year-old patient—in reality, one of many actors involved in medical education—describes her health and particularly the challenges of beginning menopause. The following day, she is 10 years older, in both appearance and the symptoms she describes. By the third class, she talks about being 70. At week’s end, she is 90 and knows she is dying. Students not only study the body, from cellular senescence to why the body needs to age, but they also become highly sensitized to what life is like for an aging person. “I look at the patients I see differently now,” said one student, “and I realize that my grandparents’ house is filled with risks for falling.”

TEACHING THE TEACHERS Ensuring that Emory’s medical training yields compassionate clinicians cannot be left to chance and must be intentional and deliberate. This maxim was reinforced by a recent study on which the medical school took the lead to determine whether “humane” care can be

In addition to learning clinical care in simulation labs and in interactions with actors and real patients, Emory students have diverse research opportunities with partners like Rollins School of Public Health and Georgia Tech. Last year, two Emory



students were among 40 selected nationally by CDC to participate in its applied epidemiology fellowship involving an epi project and field experience and culminating in scientific presentations.



In a teaching module on aging, an actor-patient goes from 50 to 90 over five days. On the first day, at 50, she is going through menopause. On the last day, at 90, she knows that she is dying.



6 *Collaboration between scientist **Don Stein** (top) and clinician **David Wright** (middle) led to NIH funding of a large, multi-center trial of progesterone for traumatic brain injury (TBI), the first new TBI treatment in 30+ years.*

*Work by geneticists like **Christa Lese Martin** (bottom) helps dispel an early misconception that autism is a single disorder rather than a spectrum of disorders resulting from interaction of multiple faulty genes, many yet undiscovered.*

RESEARCH:

Tackling the hard questions

Emory researchers made important advances last year in tackling the hard questions, whether in neuroscience, cancer, or vaccines for flu and HIV. These scientists received more than \$380 million in sponsored research, including awards received by medical faculty at Yerkes National Primate Research Center and the Atlanta VA Medical Center. Thanks to their work, the Association of University Technology Managers ranked Emory 16th among universities in revenue received from commercializing research discoveries.

ADVANCES IN NEUROSCIENCE *Traumatic brain injury*—If results from a phase III clinical trial of the hormone progesterone confirm the positive findings of a pilot study conducted at Emory, where the treatment was pioneered, clinicians will have the first effective medication ever identified for traumatic brain injury (TBI). It's badly needed. TBI leads annually to 50,000 deaths and 80,000 new cases of long-term disability in the United States and has become the "signature wound" of U.S. soldiers serving in Iraq and Afghanistan.

Neuroscientist Don Stein discovered the neuro-protective properties of progesterone more than 25 years ago and persevered with his research, even when many in his field thought he was off track. ER specialist David Wright partnered with Stein in a small NIH trial, conducted at Emory-affiliated Grady Memorial Hospital. The safety findings and stunning clinical results led the NIH to fund the large phase III clinical trial beginning this fall. Wright is lead investigator of the \$14.5 million study, conducted at 17 medical centers in 15 states that will enroll 1,140 patients. If all milestones are met during the first three years, the trial can be extended for three more years with an additional \$14 million.

Autism, one gene at a time—As the only Simons Foundation Autism Research Initiative program in the Southeast, a team from Emory and the Marcus Autism Center, a subsidiary of Children's Healthcare of Atlanta, is responsible for recruiting 150 families with only one child with autism spectrum disorder (ASD). It's part of a multi-center effort to collect clinical



curiosity

A new genomics center sponsored by the Georgia Research Alliance is equipped with "next generation" DNA sequencing instruments that can be used to read 1,000 megabases in a single experiment. For comparison, the entire human genome is just over 3,000 megabases (3 billion letters or DNA base pairs).



Immunologist Rafi Ahmed, director of the Emory Vaccine Center, is one of 72 newly elected members of the National Academy of Sciences. His discoveries in immune memory have laid the foundation for understanding vaccine-induced immune responses.

assessment and genotyping of up to 2,000 “simplex” families by the year 2010. The scientists also are involved with the “multiplex” database organized by the Autism Genetics Resource Exchange (AGRE), identifying families and performing cytogenetic and molecular studies that identify specific chromosomal etiology among AGRE families. Finding genes involved in ASD means enhanced understanding of underlying biological processes: the first step toward developing better diagnostic tests and potential new treatments.

Alzheimer’s—Yerkes/Emory researchers discovered a structural difference in the beta-amyloid protein produced by nonhuman primates, which never develop Alzheimer’s, and humans. When injected into the bloodstream, Pittsburgh compound B (PIB), traveled to the brain of both human and nonhuman primates, but it bound to beta-amyloid only in humans. The finding may help isolate what makes people susceptible to neurodegenerative diseases and suggest new drug targets. The researchers now are trying to create PIB binding sites in transgenic Alzheimer’s mouse models so they will more closely resemble Alzheimer’s as it occurs in humans.

UNDERSTANDING THE IMMUNE SYSTEM Vaccine basics—Emory researchers recently received a \$16 million NIH renewal grant to understand fundamental questions about how vaccines work. The new grant builds on

Arlene Chapman is program director of the Emory-led Clinical Interaction Network (CIN) of the NIH-funded Atlanta Clinical & Translational Science Institute. The CIN serves clinical investigators from Emory, Morehouse School of Medicine, and Georgia Tech.

previous work to analyze the entire human immune response to vaccines, ranging from innate response to development and maintenance of immune memory.

Flu vaccines—Emory is conducting clinical trials of an H1N1 vaccine in its role as one of the NIH’s eight national vaccine and treatment evaluation units (VTEUs). Scientists at Emory’s NIH-sponsored Influenza Pathogenesis and Immunology Research Center are investigating ways to manufacture vaccines more efficiently, using virus-like particles (VLPs) that look like viruses but don’t replicate. Mice immunized with the particles were protected for months against an otherwise lethal H5N1 infection. In mice, the particles appear to deliver several times more potency than other types of vaccines, suggesting that they could offer more bang for the buck in a pandemic demand, especially one in which the poultry industry could be crippled, wiping out the ability to make vaccines in chicken eggs.

HIV/AIDS—A \$13 million NIH grant led by Emory scientists focuses on the role of the “programmed death” (PD)-1 protein in HIV and other chronic viral infections. The grant comes as a result of a seed grant from Concerned Parents for AIDS Research that allowed Emory scientists and their collaborators to discover that PD-1 helps switch off the immune response in chronic infection, resulting in apparent “exhaustion” of the T-cell response. With the new NIH grant, the scientists plan to identify drugs to turn off PD-1, reactivate the immune response, and possibly clear HIV infection in humans, based on their previous work in primates.

INROADS AGAINST CANCER The Emory Winship Cancer Institute received long-awaited designation this year as an NCI cancer center, opening new doors for clinical trials and research funding and helping undergird research initiatives already under way.

Predicting effectiveness of chemo—Clinicians and engineers in the Coulter Department of Biomedical Engineering at Georgia Tech and Emory have developed a method to measure leakiness of blood vessels to predict how well chemotherapy may work. After injecting a contrast agent into rats with six-day-old breast tumors and then measuring the uptake of the agent over three days of imaging, the scientists intravenously injected a standard chemo drug and demonstrated that the variability in uptake of the contrast agent by the tumors provided an accurate prognosis on how well the chemo worked to slow tumor growth. Researchers say this approach may help physicians personalize doses and predict effectiveness more accurately.

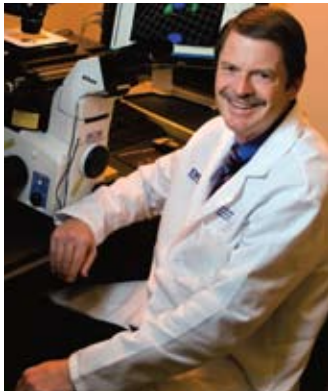
Gene silencing—Colleagues at Emory and Georgia Tech also have developed a set of guidelines to predict which genes have an increased risk of silencing by DNA methylation. The researchers found that human breast and lung cancers have a common pattern of genes vulnerable to silencing, resulting in the inactivation of several tumor-suppressor genes that usually prevent cancer formation. Identifying which genes are at increased risk of

Top: Emory began trials of an H1N1 flu vaccine in August as one of eight NIH vaccine and treatment evaluation units.

Middle, foreground: Richard Compans directs one of five NIH-funded centers to implement NIH’s response plan to pandemic flu.



Emory Winship Cancer Institute researcher Paul Doetsch and colleagues received a \$7.4 million NIH grant to examine the link between colorectal cancer and oxidative stress from sources inside the body, including NADPH oxidase, an immune system weapon that is turned on abnormally in colon cancer cells.



*The recent appointment of Emory pediatrics professor **Paul Spearman** (top) as the top pediatrics research officer for both Emory and Children's Healthcare of Atlanta (which includes Atlanta's three pediatric hospitals) helped leverage the research strengths of both institutions.*

*Bottom: **Young-sup Yoon** (cardiology) led a team using cultured cells from bone marrow to promote regrowth of blood vessels and protective lining of nerves in limbs of animal models for diabetes.*

DNA methylation silencing could provide good markers for diagnosis and risk assessment.

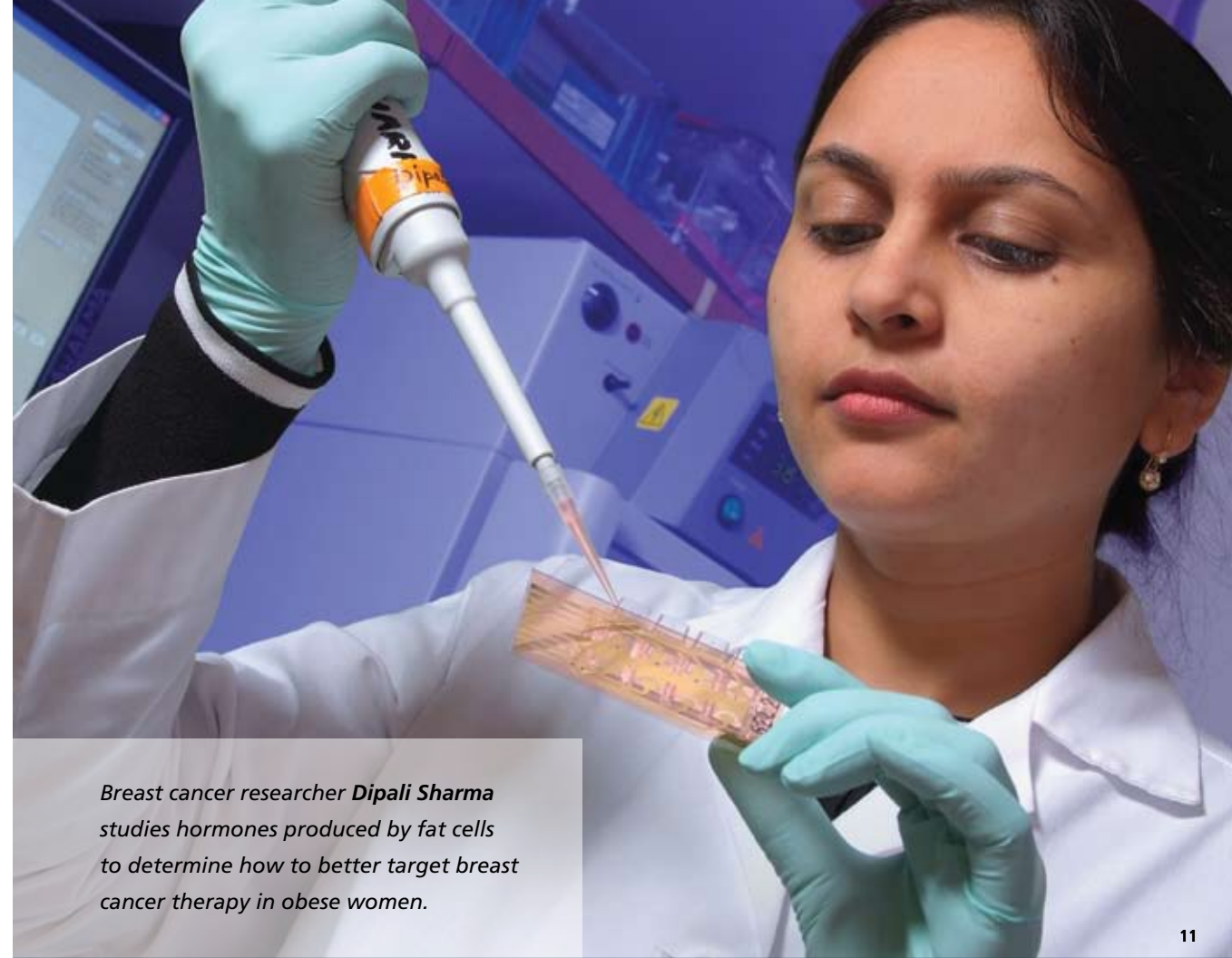
Better quantum dots—Clinical use of quantum dots, tiny luminescent particles made of semiconductors, has been limited by their size and possible cadmium toxicity. Scientists at Emory and Georgia Tech have exploited a property of semiconductors called lattice strain to create quantum dots made mostly of zinc and selenium. The new dots are smaller than previous ones (between 4 and 6 nm wide), making them more likely to be able to pass through the kidneys, meaning reduced toxicity.

Finding pancreatic cancer earlier—Emory researchers have created a diagnostic tool in which a molecule that binds specifically to pancreatic cells is joined to tiny nanoparticles of iron oxide. The iron makes the particles clearly visible under magnetic resonance imaging. The nanoparticles also discriminate tumor cells from regular cells irritated by chronic pancreatitis and could be used to detect tumor margins and metastases during surgery and monitor response to therapy. The researchers now are refining the technology for testing in patients.

HEART AND VASCULAR RESEARCH **Increasing circulation after heart attack**—In an Emory-led multi-center study, patients treated with their own bone marrow stem cells after heart attack had increased circulation within the heart. Investigators now are extending the study to determine if such treatment can reduce long-term complications after heart attack. The study was one of the first to use a preparation of bone marrow cells enriched for endothelial progenitor cells (EPCs), which are thought to replenish blood vessel lining. Patients receiving higher doses of cells had greater improvement in blood flow within the heart than patients treated with lower doses or receiving medication alone. Higher doses also appeared to provide some benefit in cardiac function.

Replenishing vessels in diabetes—Emory researchers also showed that EPCs could restore nerve function in mice with diabetic neuropathy. EPCs can divide into endothelial cells, forming a "patch" for damaged blood vessels. When the cells were injected near the sciatic nerves of the diabetic mice, the EPCs not only appeared to develop into endothelial cells but also restored signal speed and sensitivity to temperature in the nearby sciatic nerves.

PEDIATRIC RESEARCH A consortium headed by Emory expanded its participation in the multi-center, multi-year National Children's Study (NCS), designed to examine the impact of environmental and genetic factors on the health of children in the United States. A recent award of \$28.5 million will allow Emory and its partners to also recruit study volunteers in rural Georgia and Tennessee. This follows a \$25.5 million NCS grant the previous year to collect genetic, biological, and environmental samples from study volunteers in two metro Atlanta counties.



*Breast cancer researcher **Dipali Sharma** studies hormones produced by fat cells to determine how to better target breast cancer therapy in obese women.*

NEW RESOURCES FOR RESEARCH **Genomics**—The new Emory-Georgia Research Alliance Genomics Center is equipped with two "next generation" DNA sequencing instruments with the ability to read more than 1,000 megabases—almost a third of the entire human genome—in a single experiment. The center is one of 13 core facilities supported by Emory's medical school to ensure availability of centralized expertise and resources in specialized areas. Scientists around the world have used DNA sequencing to characterize newly identified bacteria and viruses, track how HIV mutates in response to antiviral drugs, and find genetic differences between healthy tissue and tumor cells.

Bioinformatics—The health sciences-wide Center for Comprehensive Informatics was created a year ago, with recruitment of bioinformatics pioneer Joel Saltz as director and as chief medical information officer for Emory Healthcare. Saltz is leading initiatives to enhance Emory's programs in neurosciences, predictive health, computational and life sciences, transplantation, global health, vaccines, inflammation, regenerative medicine, respiratory health, cardiovascular health, cancer, and clinical trials. He also leads development of Emory's external partnerships in bioinformatics with Georgia Tech, Children's Healthcare of Atlanta, Morehouse School of Medicine, the Atlanta VA Medical Center, the Georgia Research Alliance, and the Georgia Cancer Coalition.



*After simulating heart attack in rats, biomedical engineer **Michael Davis** found that injecting their hearts with microparticles containing a drug inhibiting inflammatory response reduced formation of scar tissue by 70% to 80% and improved heart function by at least 20%.*



Emory Healthcare, which encompasses care from pediatric to geriatric, has an office of care transformation, which invites patients and families to participate in decision-making to improve services and enhance quality and safety.

compassion

PATIENT CARE:

Focus on quality

A new National Cancer Institute designation (the first in Georgia), a new critical care addition to Emory's comprehensive care centers (a new regional resource), and numerous new programs and clinical trials keep patient care at Emory growing in strength and impact, with a continually redoubled focus on improving quality and safety. Emory medical faculty provide care in a variety of venues, including those in Emory Healthcare, the largest, most comprehensive clinical system in Georgia. Add in Emory's affiliations with Children's Healthcare of Atlanta, the publicly owned Grady Memorial Hospital, and the Atlanta VA Medical Center, and these faculty are responsible for more than 3.8 million patient services each year, ranging from fetal to geriatric medicine, from preventive and primary care to the most specialized care in the region.

NCI DESIGNATION Emory's Winship Cancer Institute was awarded National Cancer Institute Cancer Center designation this year, becoming the first institution in Georgia to be so named and one of only 65 NCI-designated centers nationwide. Winship was established in 1937 with a gift from Coca Cola leader Robert Woodruff, who did not want Georgians to have to leave the state to receive the best cancer care available anywhere. Winship will receive \$4.3 million from the NCI over the next three years to grow scientific research and to extend the benefits of that research directly to patients, families, and the general public.

OTHER CANCER INITIATIVES *Cancer imaging*—The Emory Molecular and Translational Imaging Center also joined the ranks of NCI elite, in this case eight NCI-funded in vivo cellular and molecular imaging centers across the country. The \$7.5 million grant is designed to develop, validate, and apply molecular imaging biomarkers to detect cancer earlier and more



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Top: Georgia Gov. Sonny Perdue on NCI designation: "Winship has served as a model in working statewide to address the pressing issues related to treatment, education, and access to care for cancer patients."

Bottom: Carolyn Meltzer leads a team seeking to develop molecular imaging biomarkers to detect cancer earlier.

PATIENT CARE: Focus on quality

Clinicians at Emory worked with engineers at Georgia Tech to develop a robot that can perform simple tasks for patients with neurodegenerative disorders like ALS.



Maria Ribeiro is chief of medical oncology at the Atlanta VA Medical Center, an Emory teaching affiliate with more than 200 Emory physicians.

accurately. Projects range from clinical studies on more accurate diagnosis of prostate cancer to basic research on cancer-seeking magnetic iron nanoparticles, conducted by a multidisciplinary team from Emory Winship Cancer Institute and the departments of biomedical engineering, radiology, biostatistics, pathology, urology, and surgery. Emory's cancer imaging research makes up part of a larger Center for Systems Imaging, which supports scientists across the university who use tools such as MRI and PET.

Atlanta VAMC—The Atlanta VA Medical Center was granted a three-year approval with commendation by the Commission on Cancer of the American College of Surgeons, a designation received by only one in four of all cancer programs at hospitals across the country. The Atlanta VAMC is a teaching hospital affiliated with Emory, and its oncology programs are directed by Emory faculty.

CRITICAL CARE The Emory Center for Critical Care (ECCC) became Emory's newest comprehensive center, joining heart and vascular, cancer, neurosciences, and transplantation as areas of strategic focus and investment. ECCC founding director is trauma surgeon Timothy Buchman. The ECCC is integrating ICUs throughout Emory Healthcare, bringing together clinicians and investigators from diverse disciplines to conduct research to define best clinical practices and inform public health policy. The center also

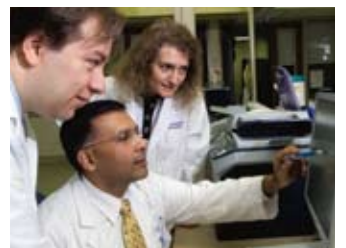
houses Emory's training programs in critical care anesthesiology, surgical critical care, and pulmonary/medical critical care. Plans are being developed to sponsor critical care training for hospitalists, emergency medicine physicians, and neurologists.

NEURODEGENERATIVE DISEASE ALS—Resources for treating patients with amyotrophic lateral sclerosis include various ALS-focused neurology, nursing, and therapy specialists whose efforts are augmented by research to develop assisted-living robotic devices and test new drugs. Emory is one of five national centers selected by the Muscular Dystrophy Association as part of a clinical research network to speed and support ALS research. A clinical trial began at Emory in February to test the drug arimoclomol, for patients with rapidly progressive forms of familial ALS. Arimoclomol has been found effective in a mouse model of ALS even when initiated after the onset of symptoms and was found to be safe and well tolerated in a previous phase II trial that included patients with sporadic (nonfamilial) ALS. The current trial aims initially to recruit 30 ALS patients to evaluate drug safety and tolerability and approximately 50 more thereafter.

Diagnosing dementia—Minutes are all it takes to detect mild cognitive impairment and undiagnosed dementia using a new two-part screening instrument developed by Emory neurologists. The three-minute "Mini-Cog" screening test consists of a simple clock-drawing task and an item-recall test for the patient and a short functional activities questionnaire for a family member or close friend to complete. The inexpensive MC-FAQ screening instrument requires no special training to administer or score and has an 83% detection rate, proving at least as accurate as the complex hour-long formal neuropsychological testing currently in wide use.

HEART AND VASCULAR CARE Predicting heart failure—Emory cardiologists have found that blood levels of resistin, a hormone produced by fat cells, is one of the strongest predictors of new-onset heart failure yet found. In their study, the risk of new-onset heart failure increased by 38% for every 10 nm/ml increase in resistin levels, making the hormone a stronger predictor of heart failure than C-reactive protein and other inflammatory markers linked to heart disease.

Improving angioplasty—Emory cardiologists are testing a "stuttering" modification of angioplasty, which uses balloon inflation to open a narrowed or occluded vessel. The modified angioplasty procedure involves inflating and deflating the balloon several times, avoiding a sudden rush of blood back into the heart after a blood vessel is reopened and thus reducing reperfusion injury.



Top: Emory University Orthopaedics & Spine Hospital was dedicated in February. During its first six months of operation, the hospital received the highest possible Press Ganey patient satisfaction rankings compared with all other hospitals in the country.

Bottom: Emory cardiologist **Javed Butler** (center), who is also deputy chief science adviser for the American Heart Association, developed the Health ABC heart failure model, which uses nine measures to estimate heart failure risk.

The school's Summer Science Academy offers local middle and high school students lab and field experiences on topics such as human anatomy, neuroscience, embryology, environmental biology, and human disease to pique their interest in scientific careers.



Jackie Green (left), a first-year resident at Emory, spent six weeks of her final year in medical school on a "rotation" at the Georgia State Capitol, serving as a health policy intern under Representative Sharon Cooper, who chairs the state's Health and Human Services Committee. Green continued a tradition in which students and faculty get involved to help shape public policy and solve intractable problems.

SERVING IN THE COMMUNITY:

Local and global

An important component of medical training at Emory is the opportunity to work with underserved patients, whether in local clinics for the homeless, at the publicly funded Grady Memorial Hospital, or in developing countries around the globe. Indeed, Emory attracts students and faculty who seek this type of experience and who step out as leaders to help solve problems and improve health for both individuals and populations.

As Grady Hospital, Atlanta's safety net hospital for indigent patients, has struggled to survive in the midst of a devastating financial crisis, Emory erased \$20 million of more than \$60 million in debt this past year that the Grady Health System owed the medical school for services rendered. The contribution came at a time of significant budgetary constraint for the school but fit in with the school's more than century-long commitment to the large public hospital and the patients it serves.

Emory medical faculty provide 85% of the care at Grady, with the remaining 15% provided by Morehouse School of Medicine. Last year, Emory faculty provided more than \$21 million in uncompensated care at Grady. Emory physicians also provided more than \$29 million in charity care at Emory's own clinical facilities in Emory Healthcare.

HELPING THOSE MOST IN NEED For at least the past decade, Emory medical students have coordinated a small weekly medical clinic in the Open Door Community near downtown Atlanta, with supervision from Emory faculty attending doctors. Students and faculty also help out regularly at other free clinics in the city, including the Good Samaritan Clinic started by a medical school alumnus and one hosted by the DeKalb County Health Center.

In a more distant setting, a village called Casse in Haiti, students and faculty have returned each year since 2006 to serve patients in a mobile clinic through Emory Medishare, a student-led organization affiliated with Project Medishare. They bring donated medications and supplies and treat hundreds of patients in just a few days. In addition to providing basic

For three years running, Emory medical students have been chosen to receive highly competitive NIH Fogarty fellowships, allowing them to do research on topics such as tropical medicine in countries like Mali and Brazil.





Medical students and faculty volunteer throughout the year at free clinics in metro Atlanta like Good Samaritan Clinic, which was founded by an alumnus. Twice a year, they travel to Haiti (right) to help run mobile medical and surgical clinics in rural areas.



care, they help educate patients about hygiene and nutrition and conduct research on malnutrition in children under 5.

Emory medical students also work hard to receive NIH-sponsored Fogarty Fellowships, allowing them to spend a year in countries such as India, Mali, and Brazil to do research on global health problems and to work with populations there who are in need. Only about 34 such awards are given each year, but Emory medical students have managed to receive fellowships for three years in a row.



Emory medical students created a "pipeline" program to help high school students at South Atlanta School of Health and Medical Sciences learn about scientific research and about issues affecting public health. The school's principal wrote to say he believes that the program "is in large part responsible for the success story unfolding at South Atlanta."

Last year, internal medicine resident Maura George was part of the care team at publicly funded Grady



Memorial Hospital for a 37-year-old immigrant from Mexico who was dying of untreated diabetes. Knowing he would not survive, the patient's family asked if he could return to them in Mexico. George volunteered to accompany the patient on the bittersweet journey back home, where

he died two days after arrival. "The trip was both heart-warming and sad," says George, adding that it reaffirmed where she wants to practice. George is now an Emory faculty member at Grady.

RECOGNITION FOR SERVICE Emory University was honored last February with a Presidential Award for General Community Service, the highest federal recognition a college or university can receive for its commitment to volunteering, service learning, and civic engagement. Several medical school initiatives were among those in the successful award application, including the Pipeline Program, created by Emory medical students, which helps disadvantaged high school students learn more about science and medicine (careers they might not have previously considered), and Health Students Taking Action Together, also established by medical students, to engage health professional students at Emory and other schools in health issues confronting Georgia.

CONTRIBUTING TO THE ECONOMY Already a major contributor to the biotech start-ups and ancillary businesses that are among Georgia's fastest-growing industries, Emory took new steps this year to help the state move closer to its goal to become a biotech leader. Over the past decade, Emory brought into the state more than \$760 million in licensing revenues from drugs, diagnostics, devices, and consumer products. Its robust product pipeline includes more than 50 products in all stages of development or regulatory approval, with 27 having reached the marketplace and 12 more in human clinical trials.



Radiology professor Ernest Garcia is scientific founder and chief scientific adviser of Syntermed, a company co-owned in part by Emory and Georgia Tech that licenses software to interpret cardiac imaging and generates revenue to support research and teaching.



FROM THE EXECUTIVE VICE PRESIDENT

Another word

To all those words like commitment, compassion, and curiosity that are highlighted in this book, let me add one more: *teamwork*.

Emory University School of Medicine is a key component of Emory's Woodruff Health Sciences Center (WHSC), which also includes schools of public health and nursing, Yerkes National Primate Research Center, Emory Winship Cancer Institute, and Emory Healthcare, the largest, most comprehensive health system in the state, with facilities listed on the page at right.

Without the medical school's context as part of the WHSC, inter-meshed with all those other components, the whole would be highly diminished. The medical school, for example, is at the heart of our efforts to integrate teaching and research with care in ways that maximize benefit to patients; to bridge scientists from various disciplines, both within and outside Emory; to devise and implement new strategies to enhance quality and safety of care in our hospitals and clinics; and to apply new solutions to old problems like those under consideration in ongoing discussions of health care reform.

In recent months, the WHSC has added two new initiatives to a growing list of comprehensive centers already in existence at Emory, in cancer, neurosciences, transplant, and heart and vascular disease. The new Emory Center for Critical Care, charged with standardizing and harmonizing care across all of Emory's ICUs, encompasses a team ranging from physicians and nurses to respiratory therapists, pharmacists, nutritionists, and social workers. And the Center for Comprehensive Informatics aggregates expertise from several disciplines across the university and in partnership with Georgia Tech, Children's Healthcare of Atlanta, Grady Memorial Hospital, CDC, and others.

Clearly, we all are part of a team, with an exciting vision and noble cause. Congratulations to Dean Tom Lawley and to the medical school for its vital contributions to the WHSC as a whole.

Fred Sanfilippo, MD, PhD
Executive VP for Health Affairs
CEO, Woodruff Health Sciences Center
Chairman, Emory Healthcare

The medical school is part of the Woodruff Health Sciences Center, along with schools of nursing and public health, a national primate research center, a cancer institute, and the largest, most comprehensive health system in the state.

Hospitals and clinics

Emory medical students and residents benefit from a wide variety of public and private training facilities, ranging from pediatrics to geriatrics. This includes Emory Healthcare, the largest and most comprehensive health care system in Georgia, and several affiliate hospitals:

EMORY HEALTHCARE

- **The Emory Clinic**, made up of 1,100 Emory faculty physicians, the largest, most comprehensive group practice in the state
- **Emory-Children's Center**, the largest pediatric multispecialty group practice in Georgia (and a joint venture with Children's Healthcare of Atlanta)
- **Emory Winship Cancer Institute**, with almost 300,000 patient services annually and more than 150 ongoing therapeutic trials
- **Emory University Hospital**, a 579-bed adult, tertiary care facility staffed exclusively by 1,093 Emory faculty physicians
- **Emory University Hospital Midtown** (formerly Emory Crawford Long Hospital), a 511-bed community-based, tertiary care center in Atlanta's midtown, staffed by 947 medical school faculty and 537 community physicians
- **Wesley Woods Center**, a geriatric center including a 100-bed hospital
- **Emory University Orthopaedic & Spine Hospital**, a 120-bed hospital staffed by Emory faculty and located 6 miles east of the Emory campus
- **Emory Adventist Hospital**, an 88-bed community hospital located in a suburb of Atlanta and jointly owned by Emory and Adventist Health System
- **EHCA, LLC**, a joint venture between Emory and Hospital Corporation of America, including 110-bed Emory Johns Creek Hospital and 222-bed Emory Eastside Medical Center

AFFILIATES FOR PATIENT CARE, TEACHING, AND RESEARCH

- **Grady Memorial Hospital**, 953 beds, located in downtown Atlanta, staffed 85% by Emory physicians (320 FTEs, 374 residents), in collaboration with Morehouse School of Medicine (15%)
- **Children's Healthcare of Atlanta**
 - Children's at Egleston, 255 beds, Emory campus, staffed by 237 Emory physicians
 - Children's at Hughes Spalding, 24 beds, Grady campus, staffed 90% by 17 Emory physicians, in collaboration with Morehouse School of Medicine (10%)
 - Some Emory pediatric faculty also teach and have admitting privileges at Children's at Scottish Rite, 250 beds, north Atlanta
- **Atlanta Veterans Affairs Medical Center**, 165 hospital beds and 100 nursing home beds, 2 miles northeast of the Emory campus, staffed by 237 Emory physicians



EMORY
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MEDICINE



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commitment

knowledge

curiosity

compassion

opportunity

Five words. One school of thought.

What it all boils down to in the end

is service to humanity.