DIRECTED AT HIGH-SCHOOLERS BELOW THE POVERTY LINE, PROJECT PIPELINE EXPOSES STUDENTS TO RIGOROUS COLLEGE-LEVEL RESEARCH TO FOSTER INTEREST IN THE SCIENCES.

Zwade Marshall, now a first-year medical resident, helped found Project Pipeline with Sam Funt, a fellow member of the class of 2011.
Graduates in the medical school’s class of 2011 were pioneers of sorts, arriving at Emory four years ago as the first students to occupy a new state-of-the-art medical education building and to embark on the school’s new curriculum.

This curriculum incorporates numerous and exciting innovations, reorganizing the way material is presented, exposing students early and often to patients, and continually evolving by incorporating feedback from students and faculty. But perhaps its most revolutionary and powerful feature is a throwback to a simple, old-fashioned idea—that students need exposure to good role models to learn how to be good at what they do and, conversely, that interaction with students is key to help faculty become the best role models they can be.

It’s the 2011 version of the old apprentice system for learning medicine, with the teachers benefiting as much as the learners.

Our faculty have never invested more heart, creativity, or—most important—time in their interaction with students, whether one-on-one or in teams, whether in the classroom, hospital ward, or clinic. And they have never found students to be more of a constant source of joy and inspiration.

Examples include Bridget Spelke and Joelle Rosser, who started a twice-a-month free women’s clinic at the Open Door Community; Sarah Rae Strunk, who spent her five-month Discovery Phase in Rwanda teaching nurses how to provide contraceptive services; Mina Tran, who led a group of students to Saigon to help and learn at an extremely crowded children’s hospital; and Zwade Marshall and Sam Funt, who founded Project Pipeline to interest underprivileged high school students in science careers.

Together, faculty and students are changing others’ lives and finding their own being changed in the process.

Thomas J. Lawley, MD, Dean
Emory University School of Medicine
“I ALWAYS APPRECIATED THE ROLE MY FAC-ULTY MENTOR PLAYED IN DEVELOPING MY CLINICAL THINKING SKILLS. ONLY RECENTLY HAVE I BEGUN TO APPRECIATE THE ROLE HE PLAYED IN MY PERSONAL AND PROFESSION-AL DEVELOPMENT. I HOPE ONE DAY I CAN IMPACT A STUDENT’S LIFE AS PROFOUNDLY AND POSITIVELY AS HE HAS MINE.

Sarah Rae Strunk, class of 2011, now a resident at Brigham & Women’s Hospital, Boston. Her faculty mentor was Joseph Hilinski in infectious diseases.
WHAT WAS NEW ABOUT THE NEW CURRICULUM? A semester was dedicated to what constitutes human health (as opposed to the more traditional focus only on disease). Students had increased interaction with patients in the classroom setting (unlike previous curricula with strict and somewhat artificial divisions between basic science and clinical learning). A systems-based approach to teaching meant that while students were dissecting the heart in anatomy, they also were learning about heart disease, drugs to treat it, the epidemiology behind it, ways to prevent it, and—the most powerful part for many students—its impact on patients’ lives.

Outpatient care was emphasized much more than in past classes, and students spent considerable time with primary care providers in the Atlanta area. A mandatory five-month discovery period during which students did research at the CDC, NIH, here at Emory, across the United States, and around the world seemed so natural to them that they were surprised when it often was the main topic of interest in their residency interviews. And this

1. In the applications phase of the new curriculum, students spend a half day every other week for 12 weeks with a primary care physician like Clyde Partin.

2. Our students are more composed, mature, and thoughtful than ever before,” says Bill Eley (center), dean of medical education. “I think in part it’s because they are learning together in small groups as a cohort and they have more interaction with faculty than ever before.”

3. Students in the class of 2011 had the best residency match in the school’s history.

4. A new tradition began this year, with each student being hooded by the faculty member who had served as their mentor throughout all four years of school.

EDUCATION: MILESTONE FOR A NEW CURRICULUM

Last May, 128 newly dubbed doctors, each hooded by his or her own faculty adviser, tossed their tasseled caps to the sky and made history in the process. The class of 2011 was the first one at Emory to have gone through all four years of the medical school’s new curriculum, which was inaugurated in 2007—and has been tweaked, added to, and subtracted from in a continual process ever since that time, based on regular feedback from students and faculty.
research experience perhaps was the reason, says Bill Eley, dean of education, that this class had the most successful residency match in the school’s history.

Faculty members believe one power of the new curriculum—and one reason the teaching faculty have never been happier—is the most faculty-intensive and supportive small group society system anywhere. Students spend four years working in small groups of eight led by the same faculty member during that entire period. The adviser is a practicing physician who serves as teacher and mentor, available 24-7 and a model of how a good physician handles the medical, logistic, ethical, and emotional demands of patient care.

EVERYTHING I WISH I HADKnown Entering students received A Guide to Medical School Success, a 16-page booklet written by local educators and Emory faculty with advice on topics such as building memorization skills, managing time, setting priorities, and maintaining balance. A recent survey of students suggests that the new curriculum is helping students avoid feelings of burnout and depersonalization that can result in response to the intense process of learning to be a doctor.

PREPARING FOR THE “SILVER TSUNAMI” One of the strengths of the medical school’s new curriculum is its emphasis on experiential learning. As part of a module on aging, for example, students are outfitted with colored ski goggles, arm braces, and heavy backpacks to simulate the loss of vision, strength, dexterity, and mobility that accompanies aging. The students heard from patients, including one with advanced prostate cancer who was coping with his own mortality. They observed one patient (this one an actor) age 10 years a day, changing from a vibrant menopausal 50 to an 80-year-old dying of cancer. They heard family caregivers discuss their struggle to manage a dizzying array of doctors and medications—and how caring for an elderly mom or dad had changed family dynamics. And they were surprised by the wide variety of cases and issues faced by geriatricians at Wesley Woods Hospital, whose Twitter feeds they followed daily.

NEW FIELDS, NEW PHD PROGRAMS The medical school played a key role in developing two new Emory PhD programs that debuted in fall 2011, one in biomedical informatics and the other in cancer biology. The first takes advantage
Along with immunology chair Jeremy Boss, infectious disease specialist Monica Farley co-led the committee that devised the system of placing students in groups of eight with a faculty mentor who remains with them from year 1 to graduation.

Maureen Powers (foreground) in cell biology co-leads the school’s five-month Discovery Phase with Henry Blumberg in infectious diseases.

Geriatrician Jonathan Flacker helps lead a teaching module on caring for the elderly.

By the time he graduated with an MD/PhD in immunology and molecular pathogenesis in 2010, Sean Stowell already had been first or second author on nine published papers. He is now an Emory resident (research track) in laboratory and transfusion medicine.

Faculty members Sheryl Heron and Jason Liebzeit devised a new month-long “capstone” course for fourth-year students to help prepare them for residency training. Titled “Passion, Purpose, and People,” the course runs the month of April and covers areas such as managing patient hand-offs, integrating lab and clinical science, nuances of commonly prescribed medications, leadership skills, palliative care, new restrictions on residents’ work hours, and leading a balanced life. “Students won’t understand the importance of this course till their first day of residency,” says Heron. “Before they start their residency, they don’t know what they don’t know.”

Hospitalist Noble Maleque, one of the school’s small-group advisers, leads discussions on how to talk to patients about death and dying.

Class president Griffin Baum carried the flag for the school’s first class to experience all four years of the school’s new curriculum.
GENETICS RESEARCHER STEPHANIE SHERMAN HAS SPENT MORE THAN TWO DECADES STUDYING CAUSES AND CONSEQUENCES OF DOWN SYNDROME AND HAS AMASSED THE LARGEST DATABASE ON THIS DISORDER IN THE COUNTRY. Sherman hopes that targeted drug therapy will soon become available to improve cognitive learning abilities for those with Down syndrome.
This past year, the School of Medicine rolled out a new five-year research strategic plan and looked back at progress over the past two decades to gain insight into directions for the future. From 1989 to 2009, the school had a 10-fold increase in NIH research funding. Almost every year since the mid-1990s, the school has been either the first- or second-fastest rising recipient of NIH dollars. And today its ratio of impactful scientists—those cited frequently in the literature and those whose discoveries have made them “gamechangers,” as a new recognition program calls them—is dense in relation to the relatively small size (450) of its research faculty.

What are the reasons underlying these successes? It doesn’t hurt, says Ray Dingledine, the school’s research dean, that over the past two decades endowment and donor support enabled major research construction (10 new buildings or major additions) and investment of $1.24 billion in Emory’s research enterprise. But credit also goes to stability of senior leadership, he says, which allowed time for vision to become reality and made possible numerous joint recruitments and pooled efforts among disciplines as well as a collaborative perspective that encourages, incentivizes, and nurtures team science.

**DRUG DISCOVERY: FROM LAB TO CLINIC**

According to a ranking that appeared in a recent *New England Journal of Medicine*, Emory University is the fourth largest contributor among public-sector research institutions to the discovery of new drugs and vaccines—outranked only by the NIH, University of California System, and Memorial Sloan-Kettering. Some of these Emory drugs include 3TC and FTC, which are taken in some form by more than 94% of U.S. patients (and thousands more globally) receiving therapy for HIV/AIDS.

**Brain disorders**—More new drugs, diagnostics, and devices are on the way. This past year, Emory researchers identified a new class of compounds that alter the function of NMDA receptors, critical players in communication between brain cells. This work may lead to new drug treatments for schizophrenia, Parkinson’s, and other

1. **Ami Klin**, Georgia Research Alliance Eminent Scholar and director of the Marcus Autism Center, has a goal of universal screening for autism in an infant’s first year.

2. **Myopia researcher Machelle Pardue** works at the Atlanta VA Medical Center, where research funding totals almost $30 million in areas ranging from diabetes to dementia.

3. **Steve Warren**, human genetics chair, was recently elected to the National Academy of Sciences. He helped pinpoint the gene mutation responsible for fragile X syndrome and identified compounds (currently in human trials) for possible treatment.
disorders. Blocking one variety of NMDA receptor to mitigate brain damage from stroke is the focus of NeurOp, one of more than 50 start-up companies Emory has launched since the 1990s to move drug discovery toward clinical use. NeurOp recently announced a two-year research collaboration with Bristol-Myers Squibb.

Improved transplant drugs—This past summer, Emory clinician-scientists learned of long-awaited FDA approval of the drug Nulojix (belatacept) for prevention of graft rejection after kidney transplants. This is the first time a new class of drugs has been developed for transplant since the 1990s. Belatacept has the potential to improve and simplify the medication regimens of kidney transplant recipients and is also now being tested in experimental clinical trials for liver and pancreatic islet transplant.

Universal flu vaccine—The search for a universal flu vaccine got a boost when Emory Vaccine Center researchers took blood samples from nine patients infected with the 2009 H1N1 virus. Astonishingly, the patients had antibodies against a wide variety of flu strains, including all seasonal H1N1 flu strains from the past decade, the Spanish flu strain of 1918, and a pathogenic H5N1 strain. Some of these antibodies stuck to the “stalk” region of the virus, which changes less than other regions. These broadly protective, stalk-reactive proteins previously were thought to be exceedingly rare, but they were promisingly abundant in these patients, suggesting a way to produce a vaccine for permanent immunity to all flu strains.

Going for the constant—Emory researchers who study virus-like proteins (VLPs) also are focusing attention on components of the flu virus that remain relatively constant from one strain to another. They combined a standard strain of flu with VLPs containing the relatively constant viral protein M2. Used by itself, M2 offers little immune protection. The combination, however, provided a high level of protection to mice exposed to pandemic H1N1 and an H5N1 strain, suggesting that supplementation of seasonal flu vaccines may overcome limits of strain-specific vaccines.

Less pain, more antigens—A $10 million NIH grant will advance technology developed by Georgia Tech and Emory for painless self-administration of flu vaccine using patches with tiny microneedles that...
dissolve in the skin. The ability to painlessly immunize large numbers of people without need for medical personnel would increase the number of people being vaccinated, especially children and the elderly. Better yet, the microneedle patch appears to be more effective at vaccine delivery than traditional syringes because of the large number of antigen-presenting cells that reside in the skin.

**CANCER: NANO-SIZED SOLUTIONS**

**Glioblastoma multiforme**—This most common and primary brain tumor often recurs because cancer cells hide in surrounding brain tissue and survive initial treatment. Mouse studies in Emory’s brain tumor nanotechnology lab show that tiny, antibody-linked particles of iron oxide bind to and kill human glioblastoma cells without causing

4. Clinical pathologist Jeannette Guarner, who specializes in emerging and re-emerging infectious diseases, belongs to Emory’s Milli-Pub Club, whose members have written at least one paper cited 1,000 times in the medical literature.

5. Along with $8 million in funding, Emory’s Alzheimer’s research efforts received renewed designation from the National Institute of Aging as an Alzheimer’s Disease Research Center (ADRC), the highest status in Alzheimer’s research and care. Allan Levey, neurology chair, heads Emory’s ADRC.

6. Biomedical engineers from Georgia Tech and heart surgeons from Emory have developed a device that provides access to a beating heart during surgery. The device prevents blood loss, enhances safety, and reduces costs.

7. Ioanna Skountzou (right) and Chinglai Yang (microbiology and immunology) are working with researchers at Georgia Tech on microneedle skin patches that could be used to deliver flu vaccine.

Above: Construction began this summer on a new five-story building that will provide lab space for 65 Emory researchers and their teams, including many conducting research on diseases in children. A two-story bridge over Haygood Drive will connect the new building to the Emory–Children’s Center, the largest pediatric multispecialty practice in Georgia.
8. **Anita Corbett** (biochemistry) studies details of how molecules move into and out of the cell’s nucleus in response to signals both inside and outside the cell.

9. Georgia Tech and Emory researchers received a recent $10 million NIH grant to advance technology for painless self-administration of flu vaccine using patches with tiny microneedles that dissolve in the skin.

10. Transplant clinician-scientists **Chris Larsen** (right foreground) and **Tom Pearson** (left) were leaders in developing a new class of immunosuppressive drugs with fewer side effects. In June 2011 the FDA approved the first of these—Nulojix (belatacept)—to prevent rejection of kidney transplants.

11. **Gang Bao** (biomedical engineering) heads a first-of-a-kind center in pediatric nanomedicine as well as a center in cardiovascular nanomedicine to develop new diagnostic and therapeutic tools for heart disease.

12. **Stephen Traynelis** (pharmacology) co-founded NeurOp, a start-up company that is developing compounds that selectively target areas of the brain affected in ischemic stroke. The company recently received a $3 million NIH grant and announced a two-year research collaboration with Bristol-Myers Squibb.

13. **Rita Nahta** (pharmacology) studies therapeutic implications of growth factor signaling cross-talk in breast cancer and is identifying new molecular targets against which future drugs can be developed.

14. **Ray Dingledine**, dean of research and chair of pharmacology, was recently elected to the Institute of Medicine. He is best known for contributions to understanding seizure development in brain cells.

Solid tumors—Complete tumor removal is the most important predictor of patient survival. Biomedical engineers at Emory, Georgia Tech, and University of Pennsylvania have developed a handheld SpectroPen that allows surgeons to visualize tumor edges and spot cancer cells in lymph nodes during surgery. The pen detects light from tiny gold particles coupled to fluorescent dye and an antibody that sticks to tumor cells more than normal ones. Investigators hope to begin clinical trials in lung cancer soon, but the SpectroPen already is being used at the University of Georgia College of Veterinary Medicine to treat dogs with naturally occurring tumors.

Head and neck cancer—Emory
and Georgia Tech researchers are coupling gold nanoparticles with antibodies against a growth factor common to this type of cancer. When the nanoparticles travel to cancers in the soft tissues of the mouth and throat, researchers use a laser to apply energy. The gold particles absorb this energy and convert it to heat, selectively killing cancer cells and sparing normal ones. Animal studies of toxicity and efficacy are required before clinical testing can be done in humans.

HEART DISEASE: NEW TOOLS OF THE TRADE  Apica Cardiovascular, a company started by Emory and Georgia Tech to develop a proprietary device that provides access to a beating heart during surgery, recently received $5 million in venture capital funding. The technology attaches a conduit to the beating heart so surgeons can deliver therapeutic devices, such as aortic or mitral valves, without loss of blood that occurs with conventional sutures, thus improving safety and decreasing procedure time and costs. Apica recently was named “start-up of the year” by Emory’s Office of Technology Transfer.

Researchers at Georgia Tech and Emory received a $14.6 million contract from NIH to translate relatively mature nanotechnologies into clinical applications for heart disease. Their goals are fourfold: (1) developing nanoparticle probes to image and characterize atherosclerotic plaques to detect early-stage disease and determine which plaques will grow and rupture; (2) determining presence or levels of protein markers, reactive oxygen species, or micro-RNAs as indicators of the presence and stage of atherosclerosis; (3) using nanoparticles to deliver therapeutic agents in a specific, sufficient, and sustained manner to localized vascular lesions; and (4) delivering patient-specific stem cells to vasculature and heart tissue damaged by atherosclerosis.

WIN-WINS, FOR CHILDREN  Collaboration between Emory and Children’s Healthcare of Atlanta grew this year with establishment of the Emory-Children’s Pediatric Research Center, linking investigators in cancer, transplant, cystic fibrosis, and other areas with pediatricians treating these diseases.

Another new collaboration, the Center for Pediatric Nanomedicine, includes physicians and scientists from Georgia Tech, Emory, and Children’s Healthcare, who are working to develop nanoscale structures to better diagnose and treat diseases and repair damaged tissues.
Tim Buchman directs all critical care medicine in Emory’s hospitals.

Tim Buchman is working to prototype new ways of displaying data routinely collected at the ICU bedside to foresee and prevent sudden deterioration of the patient’s condition.
PATIENT CARE:
MEETING TODAY’S NEEDS, PLANNING FOR TOMORROW

Emory medical faculty provide almost 4 million patient services a year, a substantial proportion of all care in Atlanta, from fetal medicine to geriatrics, from preventive and primary care to some of the most specialized care in the region. They provide this care in the six hospitals and various clinics of Emory Healthcare, the largest, most comprehensive health system in Georgia, and in Emory’s long-term affiliates: Grady Memorial Hospital, the Atlanta VA Medical Center, and Children’s Healthcare of Atlanta, with which Emory shares the largest pediatric multispecialty group practice in the state. And while they are meeting the day-to-day needs of patients, they are also studying ways to improve health care overall, through innovations not only in diagnosis and therapy but in the way health care is provided.

TRANSPLANT MILESTONE  Last March, surgeons at Emory University Hospital performed a hand transplant on a young college student, placing Emory among only four centers to have successfully performed the procedure. Before joining Emory to direct the Emory University-Veterans Affairs Vascularized Composite Allograft Program, the only VA-approved limb transplant program in the country, surgeon Linda Cendales trained at University of Louisville, where she was on the team that performed the nation’s first and the world’s longest surviving hand transplant. The 19-hour surgery at Emory involved connection of numerous structures, including, bones, tendons, nerves, vessels, and skin.

IMMUNOSUPPRESSANTS FOR DIABETES  Pediatric endocrinologist Eric Felner is leading a multi-site clinical trial to study effectiveness of alefacept, an immunosuppressant that attacks a subpopulation of renegade T cells, in controlling type 1 diabetes. This drug has gained FDA approval for treatment of psoriasis, and investigators hope they can use it to deactivate overactive T cells that attack insulin-producing cells in the pancreas.

HEART AND VASCULAR DISEASE  Valve replacement—Catheter-delivered replacement heart valves

1. Physician-scientist Fadlo Khuri leads a study to fingerprint genetic mutations in lung cancer to help personalize therapy for individual patients.
3. Health literacy expert Ruth Parker co-led a recent study of 200 top-selling oral, liquid, over-the-counter medications for children and found that most contained variable and inconsistent dosing directions and measuring devices. Nearly all had directions that did not match what was marked on the measuring device. She believes that current voluntary FDA guidelines on dosing instructions are inadequate.
should be the new standard of care for patients too frail or sick to withstand surgical valve replacement. That’s the conclusion of cardiologist Peter Block, principal investigator of a clinical trial that followed 358 Emory University Hospital patients with severe aortic stenosis. Patients who had replacement heart valves delivered by catheter were more likely to survive a year than patients who were treated without replacing their original valves. During the transcatheter aortic valve implantation, doctors feed the new valve, mounted on a wire mesh on a catheter, into a small incision in the groin or chest wall. When the valve is expanded, it pushes aside the diseased valve, allowing blood to flow normally.

**Repair of aortic aneurysm**—Conventional surgical repair of abdominal aortic aneurysm is not a viable option in about half of patients with this disorder because of the complexity of their disease. With the recent arrival of vascular surgeon Joseph Ricotta, Emory became the only institution in the Southeast offering high-risk patients fenestrated and branched endografts: stents with reinforced openings (fenestrations) or branches that allow the physician to attach arteries that lead to other organs. The endograft is delivered to the site of the aneurysm by catheter. The procedure is safe and effective for high-risk patients, and it requires no incision, reduces hospital stay, and speeds recovery.

**HONING IN ON CANCER**

**Clinical trials**—Emory’s Winship Cancer Institute has the most active clinical trials program in the state, including study of image-guided radiotherapy for painful metastasis of tumors to the spine, new techniques to improve detection of recurrent prostate cancer, and more powerful treatments for patients with recurrent, drug-resistant ovarian cancer. Winship also is leading a myeloma trial in which combination of an antibody engineered to attack a myeloma protein with standard drugs has produced a positive response in 83% of patients.

**Personalizing treatment**—Winship is one of 14 facilities in a National Cancer Institute-endorsed consortium formed to catalog genetic changes in lung cancer. The study’s goal, according to lung cancer specialist and principal investigator Fadlo Khuri, is to establish a fingerprint for each of the genetic
changes or mutations found in as many as 50% of all lung cancers, which will aid clinicians in devising personalized, targeted therapies for individual patients.

KEEPING PATIENTS SAFE  Emory professor of medicine Ruth Parker is known for her work on health literacy. But what if reading isn’t enough? Parker co-led a yearlong study, published in JAMA, of 200 top-selling over-the-counter (OTC) oral liquid medications for children. Most contained variable and inconsistent dosing directions; nearly half had directions that did not match the measuring device included. Medications studied included 99% of U.S. analgesic, cough/cold, allergy, and gastrointestinal OTC oral liquid products with dosing information for children younger than 12. This patient safety issue needs urgent attention, says Parker.

PREDICTING EMERGENCIES IN THE ICU  Tim Buchman, founding director of Emory’s Center for Critical Care, is taking predictive health to the bedside in Emory’s critical care units. While most predictive health focuses on preventing and managing risks of chronic illnesses, Buchman wants to predict and head off immediate threats to life—an abnormal heart rhythm, a sudden increase or drop in blood pressure, or a seizure—before they happen. The body’s capacity for moment-to-moment adaptation in response to changing physiologic demand is the true signature of health, says Buchman. And loss of adaptive capacity—increasing regularity in the face of everyday changes in the immediate environment—signals risk for sudden deterioration. That’s why Emory Hospital uses adaptive support ventilation for patients on ventilators, varying the size of breaths and intervals between breaths while minimizing the work of breathing, just as natural physiology expects. He and his colleagues also are studying waveforms of patients who go on to have a life-threatening event to see whether patterns of heart rate and blood pressure have predictive value for other patients. The goal, he says, is to peer a few minutes into the future, just far enough to prevent disaster and guide the patient back on course.

4. Emory heart patient Glenrose Gay of Vidalia, the first person in Georgia to receive a new aortic valve via catheter, with cardiologists Peter Block and Vasilis Babaliaros. Over the past four years, Emory Hospital has been one of 20 hospitals involved in a clinical trial to test nonsurgical valve replacement. Block and Babaliaros collaborated on the trial with cardiac surgical colleagues Robert Guyton and Vinod Thourani. This procedure is not yet approved by the FDA and therefore is available in only a few centers throughout the country. Approximately 90 patients have received new valves at Emory since the clinical trial started in 2007. The procedure is expected to receive FDA approval in late 2011.

5. Gastroenterologist Jennifer Christie has documented the benefits to low-income patients of having help from patient navigators in getting screened for colon cancer.

6. Hospitalist Sigy Jacob is part of Emory’s hospice and palliative care team who help bridge the gap between emotional expectations of the patient and family and the very real, predictable realities of what medicine can and can’t do.

7. In a historic procedure last March, hand and transplant surgeon Linda Cendales (right) was part of a team that performed a hand transplant on college student Linda Lu. The 19-hour procedure involved the connection of numerous structures, including bones, tendons, nerves, vessels, and skin. Cendales joined Emory in 2007 to lead the Emory-Veterans Affairs Vascularized Composite Allograft Program, the only VA-approved limb transplant program in the country. Emory is one of only four centers to have performed a hand transplant successfully. Cendales was on the team in Louisville that performed the first such procedure in the United States in 1999.
Charles Moore helped create a free clinic for indigent patients at the City of Refuge in Atlanta, a nonprofit operated by the Mission Church with support from the Atlanta Housing Authority.

Faculty and staff from Emory’s schools helped in the free clinic and provide health counseling.
Since its founding in 1854, Emory’s medical school has reached out to help the most needy, serving indigent patients in hospitals and clinics, both locally and globally, and teaching medical students to carry on this work.

SERVING AT GRADY  Emory medical faculty have provided the majority of physician care (currently 85%) at the publicly funded Grady Memorial Hospital for decades. Emory has helped Grady survive tough times (forgiving millions of dollars in debt), enabled it to provide vast amounts of care as Atlanta’s safety net hospital for indigent patients (more than $22 million in uncompensated care by Emory faculty last year alone), and helped bring the hospital national renown in areas ranging from sickle cell and diabetes to trauma care and stroke.

Recently, the school expanded its stroke care team at Grady’s Marcus Stroke and Neuroscience Center, a state-of-the-art neuro ICU led by Emory neurology professor Michael Frankel. Under his long-time leadership in stroke care at Grady, the hospital has hosted major clinical trials in stroke therapies and became the first hospital in the Southeast to offer a round-the-clock stroke team. Frankel currently is leading an NIH-funded study of biomarkers in the blood of stroke patients to determine who is at highest risk for recurrence.

CARING FOR THE HOMELESS  Earlier this year, third-year medical students Bridget Spelke and Joelle Rosser opened a twice-monthly women’s health clinic at the Open Door Community on Ponce de Leon Avenue. The center already had a clinic for homeless

1. Jeremy Hess (emergency medicine) helped found Atlanta Asylum Network, where volunteers help evaluate those seeking asylum in this country, documenting findings of torture and abuse.
2. Emory’s heart and vascular clinic in middle Georgia (Dublin), staffed by cardiologist Martha Smith, is one of 17 such clinics throughout the state.
3. Last year, Mina Tran, class of 2013, helped organize “Transform Vietnam” in which she and five classmates spent three weeks shadowing doctors at a large pediatric hospital in Saigon, where the “waiting room” (outside in the heat) is routinely packed with several hundred children.
4. Gynecologist Lisa Flowers recently launched “HPV Uncensored” at two local high schools. The course drives home the point that human papilloma virus can cause cervical cancer and that sexually transmitted disease is preventable.
men, often staffed by volunteer Emory medical faculty, but nothing comparable for homeless women. Spelke and Rosser get lots of help from their fellow students and from gyn-ob faculty members like Mary Dolan who oversee the students’ work. They provide basic services, including Pap smears, family planning, and diagnosis of sexually transmitted disease, and refer patients elsewhere for services they can’t provide. Students also help the women sign up for Medicaid and other resources. Spelke and Rosser won a start-up grant from the Reproductive Health Access Project and hope to see the clinic continue to grow, involving succeeding generations of medical students.

GOING BEYOND THE BORDERS
This past year, 10 Georgia physicians—Tbilisi, Georgia, that is—who were trained in emergency medicine by Emory physicians two years ago proudly watched the graduation of 10 other emergency medicine residents they themselves had trained. It was the latest of Emory medical faculty’s efforts to help their Georgia counterparts develop a system of modern emergency medical services in which triage, rapid initiation of diagnostic tests, special training for physicians and nurses, and improved referrals and outreach all lead to better care. Established to modernize the country’s health care services and educational programs following the fall of the Soviet Union, the partnership has become one of Emory’s largest and most effective international commitments.

Filling a need in surgery—Emory surgeon Jonathan Pollock will soon be relocating to Africa to train Ethiopian surgical residents under the auspices of the Pan-African Academy of Christian Surgeons. When this site is established and stateside approval and support have been finalized, he will begin directing the Emory Global Surgery Program, one of only a handful of such initiatives in the world, providing research and clinical opportunities for surgical residents and students in the medical school as well as for faculty and students in Emory’s Rollins School of Public Health. In some parts of sub-Saharan Africa, there is only one surgeon for every 2.5 million people.

GETTING YOUNG PEOPLE INTERESTED IN RESEARCH
The medical school has a number of programs to interest local high school students in health science-related professions, including the Winship Cancer Institute’s summer scholars...
program. This program offers high school seniors with an interest in science a chance to work for six weeks with an Emory scientist or oncologist in research. After completing the program, students will have experienced the rich, interdisciplinary nature of biomedical research, says Mary Jo Lechowicz, the Emory hematology-oncology professor who directs the program.

5. Leon Haley is chief of emergency medicine at the publicly owned Grady Hospital, Atlanta’s safety net hospital for indigent patients. The hospital is staffed by close to 700 Emory faculty (full-time equivalent of 270) in addition to more than 360 Emory residents and fellows. Over the past two years, Haley has helped cut approximately five hours off of the length of stay for emergency department patients, while continually increasing the quality of care provided.

6. Nephrologist Steven Gorbatkin is one of some 250 Emory physicians at the Atlanta Veterans Affairs Medical Center. Emory provides virtually all physician care at this facility, which is connected to Emory’s campus via a pedestrian bridge.

7. Neurologist Michael Frankel, a longtime leader in stroke care at Grady Hospital, is heading an NIH study of blood biomarkers in stroke patients to determine who is at highest risk for recurrence. Under his leadership, Grady has hosted major clinical trials in stroke therapies and was the first hospital in the Southeast to have a round-the-clock stroke team.

8. Medical student Shruthi Rereddy is one of many students who volunteer at the Harriet Tubman Free Women’s Clinic at the Open Door Community on Ponce de Leon Avenue. The students get lots of help from faculty members who oversee their work. Together, they provide basic services, including Pap smears, family planning, and diagnosis of sexually transmitted disease, and refer patients elsewhere for services they can’t provide. Students also help women sign up for Medicaid and other resources. The women’s clinic was created by students Bridget Spelke and Joelle Rosser, who received a start-up grant from the Reproductive Health Access Project and hope to see the clinic continue to grow, involving succeeding generations of students.
The work of the Woodruff Health Sciences Center is truly transformative. Our students are transformed by the cutting-edge education and real-world medical practice they experience at Emory University School of Medicine and by their relationships with the passionate and talented faculty who mentor them.

Our faculty are likewise transformed by the experience of interacting year after year with the brightest and most compassionate young people in the nation. But the ultimate transformation brought about by these two remarkable groups of people is one most of us never see firsthand—the impact of their life-saving and life-affirming work on patients and their families, not only in our own health care facilities, but also in those around the region and in some cases around the world.

As our medical students graduate, complete their postgraduate training in the most prestigious training programs in the country, and go on to practice and teach the skills they’ve learned here, they will save and improve lives in the cities where they practice both at home and abroad. Their research will broaden our understanding of disease and pioneer new treatments and cures that will change more lives than they ever touch directly. As the future of our profession, they will have a profound effect on the way we approach health and healing.

Congratulations to the faculty and students of the medical school on another outstanding year of saving and improving lives.

Wright Caughman, MD
Executive VP for Health Affairs
CEO, Woodruff Health Sciences Center
Chairman, Emory Healthcare
Emory’s Woodruff Health Sciences Center

- Emory University School of Medicine
- Nell Hodgson Woodruff School of Nursing
- Rollins School of Public Health
- Yerkes National Primate Research Center
- Winship Cancer Institute
- Emory Healthcare, the largest, most comprehensive health care system in Georgia
  - Emory University Hospital, 579 beds, staffed predominantly by Emory faculty physicians
  - Emory University Hospital Midtown, 511 beds, staffed by medical school faculty and community physicians
  - Emory University Orthopaedics & Spine Hospital, 120 beds, staffed by Emory faculty
  - Emory Johns Creek Hospital, 110 beds, staffed by Emory and community physicians
  - The Emory Clinic, made up of 1,500 physicians, nurse practitioners, physician assistants, and other providers, is 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)
- Wesley Woods Center of Emory University
  - Wesley Woods Hospital, a 100-bed facility with inpatient geriatric care and hospice service
  - Wesley Woods Clinic, providing outpatient primary care for geriatric patients
  - Budd Terrace, a 250-bed skilled nursing care facility
  - Wesley Woods Towers, a 201-unit residential retirement and personal care facility
  - Wesley Woods Health Center (includes Center for Health in Aging, Fuqua Center for Late-Life Depression, dental services)
- Emory-Adventist Hospital, 88 beds, jointly owned by Emory and the Adventist Health System

Hospital Affiliates

- Grady Memorial Hospital, 953 licensed beds, staffed by Emory faculty, residents, and fellows in collaboration with Morehouse School of Medicine, with Emory providing 85% of care
- Children’s Healthcare of Atlanta
  - Children’s at Egleston, 255 beds, Emory campus, staffed by Emory and community physicians, with Emory providing 80% of care
  - Children’s at Hughes Spalding, 24 beds, Grady campus, staffed by Emory, Morehouse, and community physicians, with Emory providing 66% of care
  - Some Emory pediatric faculty also teach and have admitting privileges at Children’s at Scottish Rite, 250 beds
- Atlanta Veterans Affairs Medical Center, 179 hospital beds and 50 nursing home beds, staffed by 250 Emory physicians
FACULTY AND STUDENTS ARE CHANGING THE LIVES OF PATIENTS AND FAMILIES IN PROFOUN RD WAYS—AND FINDING THEMSELVES CHANGED IN THE PROCESS.