COMMUNITY BENEFITS REPORT | 2022

Improving lives *and* providing hope

EMORY | WOODRUFF HEALTH SCIENCES CENTER

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Inquiries should be directed to:
Office of Diversity and Inclusion
201 Dowman Drive
Administration Building
Atlanta GA 30322
Telephone: 404.727.9867 (V)
404.712.2049 (TDD)

ON THE COVER: A nursing student hones her skills in the simulation lab in the new Emory Nursing Learning Center. Photo Steve Nowland

PHOTO KAY HINTON

QUICK STATS

HOSPITAL CAMPUSES
11

OUTPATIENT LOCATIONS
147

INPATIENT BEDS
2,796

PHYSICIANS
3,477

EMPLOYEES
32,003

STUDENTS + TRAINEES
6,136

Ravi Thadhani, MD, MPH
Executive Vice President for Health Affairs, Emory University

Executive Director, Woodruff Health Sciences Center

Vice Chair, Emory Healthcare Board of Directors

FROM THE EXECUTIVE VICE PRESIDENT

Within Emory's Woodruff Health Sciences Center (WHSC), our team talks a lot about improving lives and providing hope. It's our shared vision, our core purpose, our true north. We have the incredible good fortune of seeing that purpose fulfilled in our daily work—of knowing that, no matter our job description, we all contribute to making a meaningful difference for the people we serve. This superb publication, Improving Lives and Providing Hope: Community Benefits 2022, allows you to share this inside view by introducing you to some of the real people whose lives have been immeasurably improved by WHSC's people and programs.

As they have been for decades, the most critically ill patients in the region were referred to our facilities in 2022—patients whose complex cases had all too often depleted both their finances and their spirits. We responded in kind, providing more than $148 million in compassionate, cutting-edge care to the poor, the uninsured and underinsured, children and seniors, our heroic veterans, and many others in need. You'll read their stories in this report, along with the stories of some of the thousands of others who benefited last year from our extraordinary work in education, research, and patient care throughout Georgia and around the world.

Truly, the stories and accomplishments highlighted in this report are inspirational and humbling. I am honored to be a member of the Woodruff Health Sciences Center family, and I am grateful to all the faculty and staff, students, and friends who make it possible for us to continue improving lives and providing hope.

SUSTAINING A VISION FOR THE COMMUNITY

Robert W. Woodruff—the health sciences center's namesake and longtime leader of The Coca-Cola Company—dedicated his life to supporting the community, and his legacy lives on in the work this report describes.

Charity care in Emory Healthcare

Emory Healthcare provided a total of $148 million in charity care in fiscal year 2022. The term "charity care" includes two categories: (1) indigent care for patients with no health insurance, not even Medicaid or Medicare, and no resources of their own and (2) catastrophic care for patients who may have some coverage but for whom health care bills are so large that paying them would be permanently life-shattering.

Charity care is but one piece of the total community benefit of the Woodruff Health Sciences Center (WHSC), which includes Emory Healthcare. Other ways in which WHSC impacts the community—including bench to bedside research that transforms patient care and education of the next generation of health care providers—are detailed later in this publication.

The box below details the charity care provided at individual Emory Healthcare facilities. In addition to charity care, Emory Healthcare provides many other services to help improve access to care, advance medical knowledge, and relieve or reduce dependence on taxpayer-funded community efforts. This total for Emory Healthcare was $265 million in fiscal year 2022. Examples of what this total includes:


PHOTO ANN BORDEN

- **$192 million shortfall** between Emory Healthcare's cost to provide care to Medicaid patients and Medicaid reimbursement
- **$44 million in costs** to Emory Healthcare for the Georgia provider tax, which supports that state's Medicaid budget and helps maintain payment levels for all Medicaid patients
- **$29 million for activities** such as discounted/free prescription drug programs; programs and contracted services for indigent patients; in-kind donations to organizations such as MedShare; transportation services; blood drives; subsidized continuing care, nursing home care, and home care; sponsorship of selected health awareness events; and educational programs for the public, future professionals, and patients.

CHARITY CARE TOTALS Fiscal Year 2022

Emory University Hospital and Emory University Orthopaedics & Spine Hospital	$42,574,067
Emory University Hospital Midtown	$48,716,702
Emory Rehabilitation Hospital	$1,164,858
Emory Saint Joseph's Hospital	$14,418,656
Emory Johns Creek Hospital	$6,294,028
Emory Clinic	$21,555,134
Budd Terrace skilled nursing facility	$1,549,719
Saint Joseph's Medical Group (ESA)	$601,478
Emory Decatur Hospital/Emory Hillandale Hospital/ Emory Long-Term Acute Care	$11,355,046
Total	**$148,229,688**

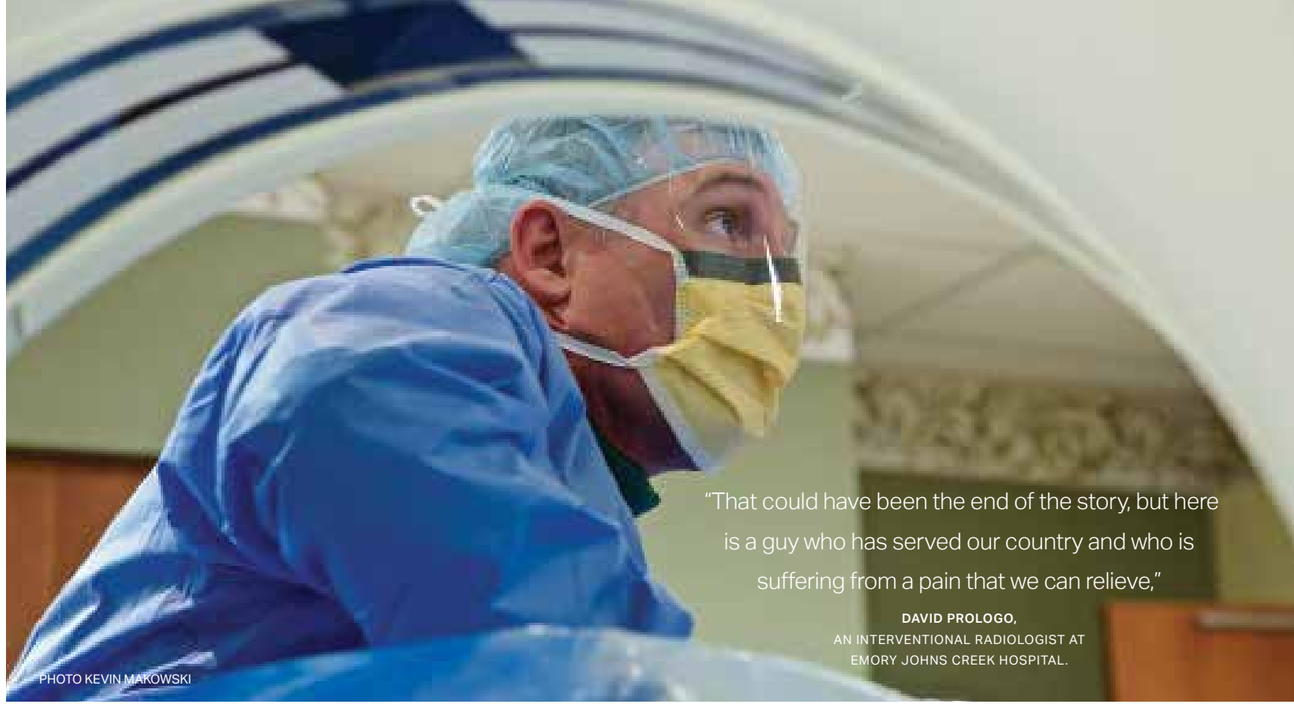

PHOTO KEVIN MAKOWSKI

Two WHSC programs provide free health care to migrant farm workers and their families in South Georgia, pictured at left.

Emory physicians like David Prologo, pictured above, will often find ways to help their patients even if they are unable to pay for the treatment.

Freeing a veteran of pain

Joe Williams (not his real name), a 26-year US Air Force veteran, was serving in Afghanistan as chief master sergeant when he developed osteonecrosis, a condition in which blood flow is disrupted to a particular area, in this case his ankle. His joint deteriorated to the point that he was brought back to the US to have his leg amputated below the knee. Williams was fitted with a prosthetic and redeployed, but he suffered from a common postamputation problem—residual limb pain, or pain in the part of the limb that remains after amputation. That pain made it impossible to wear his prosthetic for more than short periods at a time.

After Williams returned to the US, he sought help to relieve his constant and debilitating pain. He had surgery, which was unsuccessful. He tried having various devices implanted into his spine. No relief.

Finally, in an online search, Williams found David Prologo, an interventional radiologist at Emory Johns Creek Hospital. Prologo works in one of the few centers in the country that performs cryoneurolysis—an innovative treatment that freezes nerves to prevent them from sending pain signals to the brain. The procedure is highly effective and minimally invasive, involving only needles guided by a CT scan.

Prologo and his colleagues in Emory Interventional Radiology offered what Williams needed. Unfortunately, Williams' insurance would not cover the cost of the treatment. "That could have been the end of the story, but here is a guy who has served our country and who is suffering from a pain that we can relieve," says Prologo. "So the CEO of our hospital, Marilyn Margolis, agreed that we could do his case pro bono."

During the past year, Williams, now 46, underwent two cryoneurolysis procedures and an arteriogram—all free of charge—and he has finally found the relief he's been seeking. "He continues to get better every day," says Prologo. "In fact, he's back to hiking, which he loves, and he's about to participate in a jiu jitsu tournament. His is an amazing story."

PHOTO JACK KEARSE

Uncompromising patient care

Emory Healthcare is the most comprehensive academic health system in Georgia. It is comprised of 11 hospitals, the Emory Clinic, and more than 140 outpatient locations. The Emory Healthcare Network, established in 2011, is the largest clinically integrated network in Georgia, with more than 3,400 physicians concentrating in 70 different subspecialties.

Emory Healthcare providers and care teams consistently receive accolades for their quality of care and patient outcomes. The *US News & World Report*, for example, has ranked Emory University Hospital as the No. 1 hospital in Georgia and in metro Atlanta for the11th year in a row. Emory Saint Joseph's Hospital is currently No. 2 and Emory University Midtown Hospital is No. 5. The Georgia Hospital Association gave Emory Healthcare, Emory University Hospital Midtown, and Emory Saint Joseph's Hospital top patient safety and quality awards. Emory Clinic became the first ambulatory or outpatient practice in Georgia to receive the prestigious Magnet recognition, which is the gold standard for nursing excellence. It is the fifth Emory Healthcare entity that has achieved Magnet recognition, with the others including Emory University Hospital, Emory Saint Joseph's Hospital, Emory Johns Creek Hospital, and Emory University Orthopaedics & Spine Hospital.

Filling the gap left by AMC closure

The Atlanta community was dealt a harsh blow when the WellStar Atlanta Medical Center (AMC) closed in November 2022—a time when local health systems continued to struggle with the lingering effects of the COVID-19 pandemic and ongoing workforce shortages. The AMC (formerly known as Georgia Baptist Hospital) was a Level I trauma center, meaning that it provided the highest level of trauma care. AMC's closure left Grady Memorial Hospital—which is already strained—as the only hospital in the Atlanta metro area with that designation.

Emory Healthcare, working with state and local officials, immediately stepped up to the plate to fill the gap left by the closure. At Grady, where many Emory physicians practice and where many Emory medical residents and fellows train, nearly 200 new beds have been added. Emory University Hospital Midtown has added two mobile units outside its emergency department to help handle the influx of patients following AMC's closure. The hospital is also hiring additional staff, including some former AMC employees. Emory Hillandale Hospital received $12 million from DeKalb County to expand its emergency department, renovate its intensive care unit, and improve its emergency imaging services. It also plans to develop a hospital-based violence prevention and trauma recovery pilot program to serve as a model for hospital-based violence interruption programs for Georgia hospitals.

"Emory Healthcare is actively engaged with elected officials and regional health leaders to formulate additional solutions that will serve the long- and short-term needs of our community and health care systems. Leveraging the resources and expertise from multiple systems, leaders, and agencies is essential to ensuring our solutions are integrated, holistic, and future-focused," said David S. Stephens, former interim executive vice president for health affairs, in a message to WHSC.

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>
> **DAVID S. STEPHENS,** FORMER INTERIM EXECUTIVE VICE PRESIDENT FOR HEALTH AFFAIRS

Immediate care for cancer patients

When patients with cancer have symptoms or side effects—such as acute pain, bleeding, high fevers—that require immediate medical care but are not life-threatening, they typically visit the emergency room, where they run the risk of being exposed to a host of pathogens. In April 2022, Winship Cancer Institute opened the Rollins Immediate Care Center of Winship to give cancer patients an alternative to the ER.

At the center, patients can see oncologists, oncology nurses, and nurse practitioners who are trained to deliver specialized triage, diagnostics, and treatments that are often unique to patients with cancer. While the emergency room, and hospitalization, may still be needed for oncology patients with more serious and complex issues, an immediate cancer care center can address less serious issues related to cancer that still need pressing attention.

"Our patients at Winship deserve immediate care from oncology-trained experts," says Sagar Lonial, chief medical officer of Winship. "We want our patients to take comfort in knowing that Winship is there when they need us most."

The design of the center was guided by input from patients, nurses, physicians, and research staff. It provides nine exam rooms and four treatment rooms. It is located on the fourth floor of the Emory University Hospital Tower, adjacent to Winship's Phase I Clinical Trials Unit and Winship Cellular Therapy Unit. A second immediate cancer care facility is also planned for Winship Cancer Institute at Emory Midtown, a new 17-story facility slated to open in 2023.

Emory Addiction Center opens

Two years after launching the Addiction Alliance of Georgia, partners Emory Healthcare and the Hazelden Betty Ford Foundation opened the Emory Addiction Center. Made possible by almost $10 million in donations from public and private community partners, the center advances the goal of confronting the state's addiction and overdose epidemic through addiction-related clinical

care, education, and research. The center, located at Wesley Woods, offers outpatient and intensive-outpatient addiction treatment and co-occurring mental health care for adolescents and adults.

The new center's multidisciplinary treatment team includes board-certified addiction psychiatrists, child psychiatrists, addiction counselors, and psychologists. Its outpatient services—provided both virtually and in-person—include individual and group therapy as well as medication-assisted treatments and family support. Patients will be referred to Hazelden Betty Ford's national system of care and other treatment centers whenever a higher, residential level of care is needed.

Treating PTSD

About one in 11 adults in the US will be diagnosed with post-traumatic stress disorder (PTSD), with about 8 million living with the condition. PTSD might develop after a person experiences or witnesses traumatic events, and symptoms include chronic anxiety, intrusive memories, and trouble sleeping.

An Emory–Georgia Institute of Technology research team demonstrated that an existing, commercially available device—a handheld stimulator called gammaCore used to treat migraines—could be repurposed to treat PTSD. The pilot study led to the device, which works by noninvasively stimulating the vegus nerve, receiving a Food and Drug Administration (FDA) Breakthrough Devices Program designation. When held to the side of the neck along the vagus nerve, the device can decrease sympathetic function and symptoms of PTSD. This helps to reduce the "fight or flight" response and other symptoms of PTSD.

The largest HIV self-testing program

An Emory-led collaborative project funded by the Centers for Disease Control and Prevention will implement Together TakeMeHome (TTMH), a national HIV self-testing program designed to increase awareness and diagnoses of HIV infections in the US. HIV testing is a proven strategy for HIV prevention and a key first step in the continuum of care, yet still, too many people are unaware of their HIV status. TTMH addresses common barriers to testing, such as stigma, privacy concerns, and cost by offering free HIV self-tests through mail delivery.

"Testing is a critical entry point for HIV prevention and treatment services, especially for people most affected by HIV," says Travis Sanchez, professor at the Rollins School of Public Health and executive director for the program. "Together TakeMeHome leverages proven HIV prevention strategies by allowing people to get tests delivered directly to their doorsteps and gives people who otherwise might not have tested an opportunity to know their status."

In 2023, TTMH will begin distributing a free HIV self-test to people who enroll through its website. Orders will be processed through Amazon and mailed in discreet packages to all 50 states and Puerto Rico. Emory researchers will evaluate the program by assessing who used the tests, how many new diagnoses were made, and how many began HIV treatment or pre-exposure prophylaxis.

Reaching underserved populations

The Nell Hodgson Woodruff School of Nursing is establishing the Emory in MOTION mobile health program, which will provide two nurse-led mobile health units serving South Georgia and the Atlanta area. The program will take health care to underserved communities as well as allow Emory nursing students from diverse backgrounds to gain clinical experience while providing care.

Emory in MOTION will work with the Ellenton Migrant Farmworker Clinic, a long-standing clinical partner in Moultrie, Georgia, to purchase and staff a nurse-led mobile health van providing care to the area's migrant farm workers. In Atlanta, Emory in MOTION will work with several partners to establish nurse-led teams providing mobile care to communities in need. Partnering organizations include Boat People SOS, Atlanta Harm Reduction Coalition, the Mexican Consulate, the DeKalb County Board of Health, and the Gwinnett, Newton and Rockdale, district public health departments.

PATIENT STORY

PHOTO JACK KEARSE

Grief, Joy, and Proton Therapy

Jacynta Williams had just delivered premature twins—one of whom died—when doctors at the Winship Cancer Institute found a mass between her lungs and sternum. Her pregnancy, with its corresponding growth factors such as hormones, had apparently promoted the growth of the tumor, which was called a thymoma.

"It's a rare tumor and patients tend not to be symptomatic until the thymoma is very large," says Seth Force, a Winship cardiothoracic surgeon. "There's a little bit of misunderstanding of these tumors, and some physicians think they are benign when that's not the case. They will grow and metastasize and spread."

In Williams' case, the tumor was Stage 3 and rested near her heart. After undergoing chemotherapy and surgery, she still needed radiation, but this could scar her heart, lungs, or coronary arteries.

Thankfully, there was another option close to home. The Emory Proton Therapy Center had just opened for patients who needed targeted, precise doses of radiation. It's the only proton therapy center in Georgia and among just a few in the Southeast. Williams was one of the first patients to receive treatment there.

For specific cancers—like brain tumors, lung cancers, head and neck cancers, and prostate cancers—proton therapy represents the most effective and advanced treatment available. It uses accelerated subatomic particles to concentrate radiation on the targeted area.

For Williams, the treatment was life-saving. She rang the bell at the Proton Therapy Center signaling the end of her treatment on May 22, 2019.

Transformational discovery

Emory is one of the nation's leading research universities, setting a record for NIH-sponsored research funding in fiscal year 2022—$944.5 million. The Woodruff Health Sciences Center (WHSC) accounted for 95 percent of that total, or $899.5 million, which supports research in Emory's schools of medicine, public health, and nursing, as well as Winship Cancer Institute and Emory National Primate Research Center. That is an increase of more than $52 million over last year's total for WHSC.

Part of that boost is thanks to a massive end-of-year spending package passed by Congress that included $1.5 trillion in fiscal year 2022 omnibus appropriations, which included a total of $45 billion for National Institutes of Health (NIH)—an increase of $2.03 billion, or 4.7 percent. This increase marks the seventh consecutive funding increase for NIH and reflects strong bipartisan support for the agency.

New facilities and centers

Three new facilities promise to boost an already robust research enterprise within WHSC. The Health Sciences Research Building II (HSRB II)—one of the biggest projects ever for the Emory campus—will house laboratories for 130 principal investigators and 1,000 scientists from across specialties. They will be supported by the most cutting-edge technologies available on campus, including interconnected computational and experimental "lab neighborhoods," digital experiential platforms, new core instrumentation, and an innovation zone for start-ups. The coworking environment is designed to support scientist-entrepreneurs in taking their discoveries from lab to market and to foster collaborations among scientists, all with the goal of solving the biggest health problems of our time.

The Nell Hodgson Woodruff School of Nursing's (SON) new Emory Nursing Learning Center contains an Innovation Hub, designed to foster collaborations among students, faculty, scientists, Emory Healthcare nurses, and technology and industry experts to design and test a host of ideas. Among them: phone apps, patient care devices and sensors, artificial intelligence (AI) and machine learning programs, and nursing workflow systems.

> "The hope is to use AI in a new way so we can better see in an area where traditionally we have flown blind."
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> **RISHIKESAN KAMALESWARAN,** ASSISTANT PROFESSOR, WALLACE H. COULTER DEPARTMENT OF BIOMEDICAL ENGINEERING

The R. Randall Rollins Building brings the facilities at the Rollins School of Public Health (RSPH) up to 500,000 square feet. The new building is designed to promote collaboration and idea exchange, enhancing the research mission of the school.

Elsewhere on campus, other research centers have been established or are expanding. Building upon the fundamental and critical research and work conducted by the Global Diabetes Research Center at RSPH, the WHSC and Emory University established the Emory Global Diabetes Research Center (EGDRC). The EGDRC will expand its multipronged approach to address the problem of diabetes and its associated complications through integrating innovative investigations into the causes and cures for the disease.

The Emory/Georgia Tuberculosis Research Advancement Center (Emory/Georgia-TRAC) was established to investigate a disease that, despite the availability of an effective antibiotic treatment, killed approximately 1.5 million individuals and was responsible for an estimated

PHOTO STEPHEN NOWLAND

PHOTO KAY HINTON

10 million new cases in 2020. Emory/Georgia-TRAC will harness Emory's deep infectious diseases expertise as well as tap into the complementary strengths of other institutions, including the University of Georgia, Georgia State University, and Morehouse School of Medicine.

Next generation research

If you want to glimpse the future of health care, peer into some WHSC laboratories where scientists are making the discoveries that will transform tomorrow's medical landscape. Here's a look at just some of the research being conducted within the WHSC:

Using AI to unravel the mysteries of sepsis

Emory researchers are investigating the use of artificial intelligence (AI) to forecast therapeutic effectiveness and outcomes for patients with sepsis, a syndrome that claims one in five lives around the world and has until now been a black box for rapid diagnosis and treatment. In the US, more than a quarter of a million people each year succumb to sepsis, which occurs when the immune system responds to an existing infection by turning on itself instead of fighting the germs.

The research team will mine sensor-generated data streams for physio-markers that may be able to predict the onset of sepsis, inform treatment options, and support the discovery of subtypes of sepsis. "The hope is to use AI in a new way so we can better see in an area where traditionally we have flown blind," says Rishikesan Kamaleswaran, who leads the study. Kamaleswaran is an assistant professor in the Emory–Georgia Tech Wallace H. Coulter Department of Biomedical Engineering. "By using existing and routinely collected physiological data in intensive care units, we hope to generate robust machine learning algorithms that can more accurately phenotype sepsis patients and improve outcomes with more personalized treatments."

Approaches using machine learning have focused largely on predicting sepsis from electronic medical records, which Kamaleswaran says suffer from a host of problems. "The data are not timely, significant portions are missing or wrong because of the manual process of entry, and the information often reflects individual and institutional biases, which all make it difficult to devise a treatment plan that can be replicated someplace else."

The study will tap into expertise from different disciplines, including mathematics, computer science, and medicine, to develop sophisticated tools that can analyze the data, identify patterns, and prescribe a course of action. "We will contribute significant knowledge about the role and utility of complex physiological interactions that are abundantly available in clinical practice but seldom used for clinical decision-making," he says.

Using a 'tractor beam' to treat pediatric cancer

Emory University provost and biomedical scientist Ravi Bellamkonda received the NIH Transformative Research Award for his crosscutting work using electrical fields to treat a particularly aggressive pediatric cancer. The grant supports a project to use low-voltage electrical fields to induce cancer cells to migrate out of the tissues they have invaded: a strategy he calls a "tumor tractor beam."

The approach could be particularly valuable for diffuse cancers, indicating that the malignant growth has spread to multiple areas. Bellamkonda's team will test the strategy with a type of pediatric tumor that arises in the brainstem and is not amenable to surgery.

"Our lab is interested in asking the difficult question—how do we deal with a tumor that has already spread in a sensitive organ like the brain?" says Bellamkonda. "What's exciting is that our team hopes to design safe, low-voltage electric fields to induce tumors to relocate to areas more convenient for our clinicians to treat or remove them. This is especially important in patients who cannot avail of existing interventions, such as kids."

Exposure to racism linked to brain changes

In a recent study, Emory Healthcare neuropsychologist Negar Fani looked at the brains of Black women who reported having experiences with racial discrimination. The study, which is the first of its kind, identified associations between discrimination, brain white matter integrity, and incidence of medical disorders in Black women.

Through the use of MRI scans, the study found evidence that experiencing racial trauma or discrimination affects brain pathways that are important for self-regulation. The disruption of these pathways can shape behaviors such as eating and substance use, which in turn, can impact health.

Findings from the study help shape public policy. "If racial discrimination leads to poor health outcomes via damaging effects on the brain, then greater attention can be paid to eliminating these interactions on a systemic level," says Fani. "In primary care settings, racial trauma should be assessed in health screening tools and similarly be targeted in psychotherapy by mental health providers."

PHOTO STEPHEN NOWLAND


PHOTO PATRICK HEAGNEY


PHOTO JACK KEARSE

Neuropsychologist Negar Fani, above left, uses MRI scans to study the effect racial discrimination has on brain white matter.

Emory researchers conducted various studies and clinical trials involving the COVID-19 vaccine. They are taking what they've learned to develop point-of-care diagnostic tests for other diseases.

Expanding at-home diagnostic testing

Two years ago, researchers at the Emory School of Medicine (SOM), Georgia Tech, and Children's Healthcare of Atlanta answered a call from the National Institutes of Health Rapid Acceleration of Diagnostics program (RADx) and led a national effort to validate at-home diagnostic tests for COVID-19. The consortium was charged with selecting and testing the most promising COVID diagnostic tools and guiding them quickly through the development and commercialization pipeline. Along the way, that initial mission expanded, including testing diagnostics for the different COVID variants that have emerged. Today, at-home tests for COVID-19 are available in every drug store.

Spurred by their success, the researchers at SOM and Tech are forming a new diagnostic center to accelerate the invention, development, and translation of point-of-care diagnostic tests of all types. "We'll take the best of everything we've been doing with RADx and apply it to new technologies," says Wilbur Lam, a professor in pediatrics and in biomedical engineering, and one of the project leaders.

The idea is to focus on patients and end users as well as local and regional inventors developing the technologies, including faculty and student researchers at Emory and Georgia Tech.

"We can serve as an independent assessor for diagnostics in other areas of need in our community, our world," said Greg Martin, another RADx project leader, identifying one area particularly relevant in Georgia and the South: "The NIH has identified maternal health as a key area of need, because we in the US simply don't perform as well in maternal health as other developed countries. This is a huge opportunity for making improvements."

For example, there are opportunities to vastly improve infection surveillance and screening in a timely and safe way for the mother and the unborn child and to screen for other potential problems, such as postpartum hemorrhage—is the mother at clinical risk for excessive bleeding during delivery? "We can build better point-of-care diagnostic tools for doing these assessments in the home or the clinic," Martin said.

The genetic basis of autism spectrum disorder

Just like humans, some monkeys find it easier to "fit in" when they are in social situations. By studying spontaneous social behaviors of free-ranging juvenile rhesus macaques, researchers at the Emory National Primate Research Center (ENPRC) have shown that, similar to humans, the macaques' social behaviors display significant genetic influences, or heritability. The findings on atypical social behaviors displayed by some juvenile macaques could lead to better models to study the genetics of autism-related behaviors. In the US, approximately one in every 44 children are estimated to meet the diagnostic criteria for this developmental disability.

Researchers observed free-ranging juvenile macaques interacting with other members of their social groups at the ENPRC field station. They evaluated more than 200 juvenile macaques' behavior using several tools including an adapted version of the Social Responsiveness Scale, a questionnaire health care professionals widely use as a screening tool for autism spectrum disorder (ASD) in children.

"Right now, autism researchers don't really have a good animal model," says Mar Sanchez, professor of psychiatry and behavioral sciences at SOM and the division chief of Developmental and Cognitive Neuroscience at ENPRC. "The field station provided us a unique opportunity to study natural behaviors among a large group of juvenile macaques as they grew up in a social environment.

"The macaques we studied did not have autism." Sanchez continues. "Rather, they sometimes displayed behavior combinations similar to those used to diagnose ASD in children. In addition to observing typical behaviors in macaques' interactions, such as social grooming, we also identified animals exhibiting combinations of repetitive behaviors and solitary play, which are more like the diagnostic criteria for ASD. This gives us hope rhesus monkeys may be able to serve as animal models for better understanding the development of disorders of social behavior, which in turn could lead to the development of interventions and treatments for the disorders."

Advancing climate change research

A university-wide initiative will strengthen and support Emory's academic response to the global climate crisis. The Emory Climate Research Initiative draws together faculty with diverse expertise to advance climate-related research and curricula across the institution, focusing on areas where Emory can make unique contributions to humanity's efforts to understand and mitigate the impacts of climate change.

"The aim of the new initiative is to help Emory rise to the opportunity and confront the challenges of our current moment—to lead in climate change research and teaching nationally as well as serving as a regional anchor institution for our shared response," says Provost Ravi Bellamkonda, who established the initiative. "Emory has immense potential as a research leader and a living laboratory for climate solutions that integrate scholarly excellence and innovation. Our community has already made substantial contributions in this field, particularly in understanding human health impacts and environmental justice issues, and I believe we are well-positioned to accelerate our progress going forward."


PHOTO JACK KEARSE

Training tomorrow's leaders

The Woodruff Health Sciences Center (WHSC) educates the clinicians and scientists who go on to improve the health and the lives of people in Atlanta, in Georgia, and around the globe. Its academic programs are consistently ranked near the top. In 2022, *US News & World Report* ranked the Nell Hodgson Woodruff School of Nursing (SON) No. 2 in the nation and the Rollins School of Public Health (RSPH) No. 4. Of the School of Medicine's (SOM) five academic programs, the physician assistant program was ranked No. 5 in the nation, the physical therapy program No. 8, and the school has the first genetic counseling training program in the state.

In today's world, various members of the health care team must be able to work together to treat and prevent disease. Toward this end, the WHSC established the Office of Interprofessional Education and Collaborative Practice (IPECP). The office will foster collaboration among interprofessional, interdisciplinary teams working seamlessly across education, research, and clinical care to treat and prevent disease.

"The Woodruff Health Sciences Center already has a strong foundation in IPECP," says Beth Ann Swan, who is professor, associate dean, and vice president for academic practice partnerships at SON, and co-director of the Office of IPECP. "With this foundation, this new office provides unprecedented opportunities to synchronize all aspects of interprofessional education and practice to lead and accelerate the design and implementation of transformed team-based care delivery models. There is an urgency to radically shift the care paradigm by creating a culture of collaborative educational practice."

PHOTO JACK KEARSE

The Office of IPECP is but one example of how the schools within the WHSC are adapting to the future needs in the health professions. Here's a look at a few things going on in each school.

Nursing

The SON has been recognized as a Center of Excellence by the National League for Nursing for creating environments that enhance student learning and professional development.

"Today's students must be equipped for the current needs facing the health of the nation and be prepared for the increasing integration of technology throughout the health care industry in the coming years," says Dean Linda McCauley. "We aim to not only address the critical shortage of nurses but make sure our students are uniquely qualified to lead the future of nursing."

Those students will now enjoy a new facility in which to hone their craft. The Emory Nursing Learning Center (ENLC) features an Innovation Hub designed as a space to nurture new ideas to meet rising health care challenges, the Center Well Home Health Lab replicating a small apartment, and one of the most extensive simulation and skills labs in the state of Georgia. The simulation labs include mock telehealth, clinical, and hospital settings with high-tech equipment.

PHOTO STEPHEN NOWLAND

Nurses train in the state-of-the-art simulation lab in the new Emory Nursing Learning Center.

The SON has responded to the nursing shortage that has plagued the country for years with several innovative programs. The school's novel Psychiatric Mental Health Nurse Practitioner (PMHNP) program was created as a response to the nation's mental health crisis and will directly address the shortage of qualified mental health professionals. The program's curriculum will enable advanced practice nurses to develop exceptional clinical and leadership skills while acting as advocates for patients and their families.

With a generous grant from the Robert W. Woodruff Foundation, the SON is expanding its nurse residency program at Emory Healthcare and creating a nurse fellowship program for continued nursing education. The residency program provides the support of an experienced nurse known as a nurse preceptor for new SON graduates as they transition into clinical practice at Emory Healthcare. The fellowship program for continued nursing education is available for recent SON graduates who have chosen to work at Emory Healthcare as clinical staff nurses.

Working nurses also have access to advanced practice degree and certificate programs as well as continuing education opportunities through the Emory Nursing Experience, a partnership with Emory Healthcare nursing education.

Medicine

The education curricula for all SOM programs are in the process of being revised to keep up with increasing demands on clinicians and scientists to solve the health challenges of today and tomorrow.

In recognition of the critical role medical residents play in the health care system and the need for wellness support, SOM recently launched an innovative program of "well-being check-ins" for all first-year residents, and the school hired a dedicated psychologist. SOM has


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PHOTO SUPPLIED BY M1 SCAVENGER HUNT TEAM


PHOTO KAY HINTON

Graduating medical students celebrate Match Day, when they learn where they will be training for residency, above.

First-year medical students went on a scanvenger hunt in the Health Sciences Research Building II while it was still under construction, top right.

Public health students begin their academic career with a day of service as an introduction to the broader public health mission, above.

hired a new associate dean of student success who will be responsible for the development and organization of a student support office that fosters a safe, healthy, and supportive learning environment for all students.

The SOM is actively recruiting learners, faculty members, and staff from underrepresented in medicine (UIM) groups. FY 22 saw the largest percentage of UIM students across all degree programs in SOM history. And the SOM has more than 30 certified implicit bias facilitators who engage with session participants to explain the impact implicit bias has on workplace decision-making, the concept of microaggressions, and how to mitigate bias in research, education, and practice.

Public Health

The RSPH received a transformative $100 million gift from the O. Wayne Rollins Foundation which will be used to establish two endowed funds: the Rollins Fund for Faculty Excellence and the Rollins Fund for Student Success. The Rollins Fund for Faculty Excellence will focus on recruiting and retaining distinguished senior faculty leaders dedicated to addressing the world's most pressing public health challenges and provide early career support for gifted junior faculty members. The Rollins Fund for Student Success will expand the school's ability to provide financial support and valuable career-enhancing experiences to the nation's most promising students through the Rollins Earn and Learn work-study and global field experience funds. The fund will also allow the school to support increased student interest in public health spurred by the global pandemic.

Students and faculty can now enjoy the new R. Randall Rollins Building, which brings 10 new classrooms to the school, as well as multiple areas for studying, training, and congregating. It also features a significant amount of space devoted to training public health practitioners in support of the school's service mission.

Fueling the economy

The Woodruff Health Science Center (WHSC) has an annual $13.7 billion economic impact on the local economy, stemming from employment, construction, innovation, and more. With 32,000 employees, WHSC helps make Emory the largest employer in metro Atlanta.

Four major new buildings in the WHSC have either opened or are on the way to opening. The Nell Hodgson Woodruff School of Nursing (SON) opened the doors to a new Emory Nursing Learning Center, a $20.6 million, 70,000-square-foot facility featuring state-of-the-art simulation and professional development space located in Decatur. The Rollins School of Public Health (RSPH) opened its third building, the R. Randall Rollins Building, bringing the school's footprint to 500,000 square feet. The 17-story, 450,000-square-foot tower that will house Winship at Emory Midtown is slated to open in 2023. And in one of the biggest projects ever for the Emory campus, the 350,000-square-foot Health Sciences Research Building II (HSRB II) features "lab neighborhoods," digital experiential platforms, and an innovation zone for start-ups.

WHSC brings in 95 percent of all the research funding of Emory University, $899.5 million out of a total $944.5 million. Key health sciences research centers funded by the National Institutes of Health include the Emory Winship Cancer Institute, a National Cancer Institute–designated center; the Emory Vaccine Center, one of the world's largest vaccine research centers; the Emory Center for AIDS Research; the Georgia Clinical & Translational Science Alliance; the Influenza Pathogenesis & Immunology Research Center; the Alzheimer's Disease Research Center; and the Chemical and Biology Discovery Center.

WHSC is a national leader in technology transfer. Emory currently manages more than 1,800 technologies, which has led to the formation of 130 companies and more than 65 new products in the marketplace, some of which—like the discovery of several HIV drugs—have offered major health and societal benefit.


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PHOTO JACK KEARSE


PHOTO STEPHEN NOWLAND

Engaged with the community

The Woodruff Health Sciences Center (WHSC) is committed to contributing to the local community with an intentional focus on addressing health disparities and the social determinants of health. Here, the university's resources in scholarship, service, research, spirituality, and medicine are targeted to foster healthy communities. Here are a few examples of WHSC community outreach.

Providing care to migrant farm workers

WHSC is home to two migrant health programs—one led by the Nell Hodgson Woodruff School of Nursing (SON) and the other by the Physician Assistant program in the School of Medicine (SOM).

Both programs provide free health care to farmworkers and their families in South Georgia, a population that often lacks access to even basic medical care. Farmworkers are among the poorest of all workers in the country. The programs' pop-up field clinics meet a critical public health need while giving clinical teams experience in treating a wide range of conditions—everything from health screenings for patients who have never received any sort of clinical care to women in labor or workers with serious acute illnesses.


PHOTO PHYLICIA FAIR

Although the work can prove long hours for the clinical students who provide much of the care, it is why many choose Emory—in order to get the field experience and give back to the community that needs it most.

Faith-based nursing program

A nursing program at Emory Saint Joseph's Hospital is designed to improve patient access and continuity of care through a faith-based approach. The Congregational Health Ministries program connects patients discharged from the hospital with nurses who ensure they are able to access the health resources needed to keep them on the road to recovery. In addition to helping patients navigate postdischarge health needs, such as ensuring medication adherence and timely follow-ups with outpatient providers, the nurses also connect with the patients on a spiritual level.

"The Faith Community Nursing program has provided our most vulnerable patient population a personal connection to the heart of our health care system once they are discharged home," says Rebecca Heitkam, director of the program. "Our nurses bridge the gaps that define most transitional care management teams; but what distinguishes our program is our commitment to support patients with their spiritual and emotional needs as well as their physical and resource allocation needs. If each of our faith community nurses does one small thing, and each small thing meets the needs of one vulnerable population in one community, the potential for impact is incredible."

Closing the advantage gap

Emory has several programs to help prepare high school students from disadvantaged backgrounds for entry into health professions. Emory Pipeline Collaborative (EPiC) is a federally funded program that focuses on increasing students' academic achievement, college readiness, social support (mentoring), and health career awareness. Each year, students from five Atlanta public high schools are paired with Emory undergraduate mentors. Graduate-level students prepare a curriculum that includes reproductive health, mental health, and public health. The students join the program in the 10th grade and commit to returning during their 11th and 12th grade years.

The Health Professionals Readiness Education program (HealthPREP) is an eight-week program by the SOM and Rollins School of Public Health to facilitate the entry of qualified students from disadvantaged backgrounds into health-related graduate and professional schools. HealthPREP's curriculum is well-defined with an integrated approach to learning, focusing on the core science curriculum needed to apply to health graduate and professional schools for medicine, physician assistant, anesthesiology assistant, genetic counseling, physical therapy, and public health.

The Summer Science Academy at the SOM offers high school students from traditionally underrepresented backgrounds in medicine an opportunity to develop a better understanding and appreciation of science by exposing them to an educational environment that is conducive to learning, motivating, challenging, and fun.


PHOTO ANN BORDEN

PHOTO BETH JANSA

High school students in the Summer Science Academy tour a simulation center to see how mannequins are used to train health care workers, left.

Students and faculty from the SOM and SON provide free care to farm workers in South Georgia, above. Emory Healthcare dontated masks to school children, right.

Donating masks to local schools

As COVID-19 cases continued to surface throughout Atlanta in 2022, protecting school children, teachers, and staff during in-person learning in the classroom remained a top priority. To assist, Emory Healthcare provided thousands of high-quality face masks to the DeKalb County School District and Atlanta Public Schools, thanks to a generous donation.

Vogmask donated 10,000 masks to Emory Healthcare as a part of its program to provide reusable consumer masks to communities that may otherwise not have access. Emory Healthcare, in turn, worked with its community partners to distribute to those most in need of protective face masks. Multiple mask sizes were donated so everyone could receive face masks that fit well, especially young students.

VALUE TO THE COMMUNITY

Emory's Woodruff Health Sciences Center benefited the community in a variety of ways in fiscal year 2022.

COST OF CHARITY CARE PROVIDED BY EMORY HEALTHCARE	**$148 MILLION***
FINANCIAL AID PROVIDED TO STUDENTS FROM TUITION INCOME	**$39 MILLION**
EMORY HEALTHCARE INVESTMENT IN WHSC TEACHING AND RESEARCH	**$101 MILLION**
WHSC INVESTMENT IN RESEARCH UNRECOVERED FROM SPONSORS	**$173 MILLION**
UNREIMBURSED CARE PROVIDED AT GRADY HOSPITAL	**$25 MILLION**
INVESTMENT OF EMORY MEDICAL CARE FOUNDATION SERVICES AT GRADY HOSPITAL	**$62 MILLION**
OTHER COMMUNITY BENEFITS	**$214 MILLION†**
TOTAL	**$813 MILLION**

**In addition to providing charity care, Emory Healthcare conducts ongoing community health needs assessments (CHNAs) for its hospitals as part of its continued commitment to the health and well-being of community members. The reports assess the needs of the communities served by the hospitals using quantitative data and input from individuals representing the broad interest of the communities. Using the CHNAs, Emory Healthcare develops strategies to outline plans to address the identified health needs of the communities it serves. Through these strategies, Emory Healthcare strives to improve the overall health of communities while providing the best possible care to its patients.*

†This includes the following:
Costs to Emory Healthcare for the Georgia provider tax, which supports the Medicaid budget and helps maintain payment levels for all Medicaid providers—$44 million
Shortfall between Emory Healthcare's cost to provide care to Medicaid patients and Medicaid reimbursement—$192 million
Discounted/free prescription drug programs; programs and contracted services for indigent patients; in-kind donations to organizations such as MedShare; transportation services; flu shots; blood drives; subsidized continuing care, nursing home care, and home care; sponsorship of selected charity health awareness events; and educational programs for the public, future health professionals, and patients—$29 million

Based on expenditures of $7 billion in FY 2022, the WHSC has an estimated economic impact on the metro area of $13.7 billion.

Woodruff Health Sciences Center of Emory University

Office of the Executive Vice President for Health Affairs
Emory University School of Medicine
Nell Hodgson Woodruff School of Nursing
Rollins School of Public Health
Emory National Primate Research Center
Winship Cancer Institute of Emory University
Emory Global Health Institute
Emory Global Diabetes Research Center of the Woodruff Health Sciences Center
Office of Interprofessional Education and Collaborative Practice (IPECP)
WHSC Office of Well-Being (EmWELL)
Emory Healthcare, the most comprehensive health care system in Georgia

- Emory University Hospital, 791 beds, including 82 at Wesley Woods
- Emory University Hospital Midtown, 550 beds
- Emory University Orthopaedics & Spine Hospital, 120 beds
- Emory Rehabilitation Hospital, in partnership with Select Medical, 66 beds
- Emory Saint Joseph's Hospital, 410 beds
- Emory Johns Creek Hospital, 144 beds
- Emory Decatur Hospital, 451 beds
- Emory Hillandale Hospital, 100 beds
- Emory Long-Term Acute Care, 76 beds
- Emory University Hospital Smyrna, 88 beds
- Emory Clinic, 3,324 physicians, nurse practitioners, physician assistants, and other providers, with offices throughout the city and state
- Emory Specialty Associates, an outreach physician group practice organization with locations throughout the city and state
- Emory Wesley Woods Campus (includes Emory University Hospital at Wesley Woods, Wesley Woods Towers residential and personal care apartments, and Budd Terrace, a 250-bed skilled-nursing care facility)
- Emory Healthcare Network, a network of physicians and hospitals formed to improve care coordination and quality outcomes and to control costs for patients and the community

HOSPITAL AFFILIATES

- Grady Memorial Hospital, 953 licensed beds, staffed by 834 Emory faculty and 409 residents and fellows, in collaboration with Morehouse School of Medicine, with Emory providing 80% of care
- Children's Healthcare of Atlanta
  - Children's at Egleston, 330 beds, Emory campus, staffed by Emory and private practice physicians
  - Children's at Hughes Spalding, 24 beds, Grady Hospital campus, staffed by Emory, Morehouse, and private practice physicians
  - Children's at Scottish Rite, 319 beds, staffed by Emory and private practice physicians
- Atlanta VA Health Care System, 363 authorized inpatient hospital beds, including 78 community living center beds, a 61-bed domiciliary, 88 psychiatry beds, 52 surgery beds, and 12 compensated work therapy beds. Staffed by 301 Emory physicians

PHOTO STEPHEN NOWLAND

EMORY

WOODRUFF HEALTH SCIENCES CENTER

1440 Clifton Road, NE, Suite 100
Atlanta GA 30322
whsc.emory.edu

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