

# EMORY | health sciences

Research and Patient Care from the Woodruff Health Sciences Center

SPRING 2008

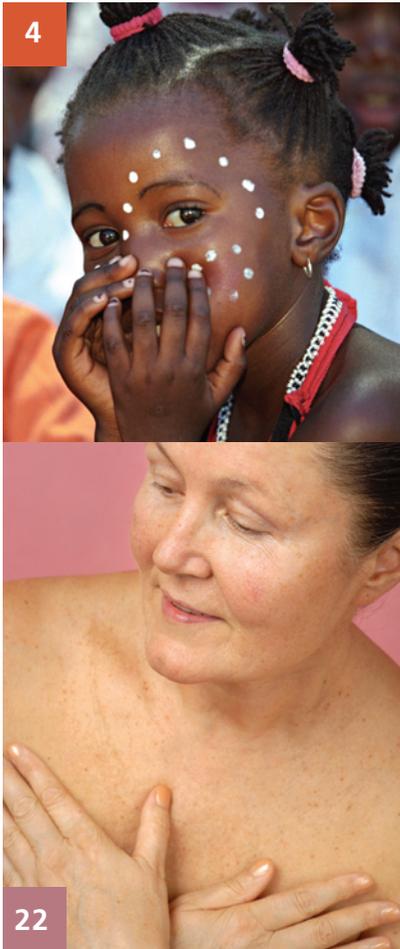


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## LETTERS

### Off to a good start

I would like to congratulate you on the inaugural issue of *Emory Health Sciences*. This is an outstanding, informative publication with relevant articles and good in-depth coverage of the topics. My parents and I are both in the Emory Healthcare system and will benefit from the valuable coverage of the subject material.

As a public relations professional, I appreciate good publications and know the amount of dedication and hard work that goes into each issue. Best wishes for much success with *Emory Health Sciences*.

LINDA LEATHERBURY  
*The Leatherbury Group, Atlanta*

### A refreshing take

Your initial issue of *Emory Health Sciences* exemplified quality biomedical journalism. The articles were crisp, concise, and informative. Refreshingly absent were extravagant claims suggesting that biomedical research efforts and improved treatment modalities are on the cusp of eradicating all known medical problems. Equally refreshing was the absence of thinly disguised sociopolitical agendas often found in university publications. If subsequent issues can maintain the quality of your inaugural offering, *Emory Health Sciences* will be a winner.

DALE E. HUNT  
*Professor Emeritus*

FROM THE EXECUTIVE VP

Vision in action

For the Woodruff Health Sciences Center, vision means more than just looking down the road to improve human health. It means a shared aspiration—and intention—to be a model academic health center others strive to emulate. It means setting meaningful goals and implementing achievable strategies to get there. And it means enlisting the aid of all of our stakeholders—faculty, staff, students, and supporters—to help us transform health and healing.

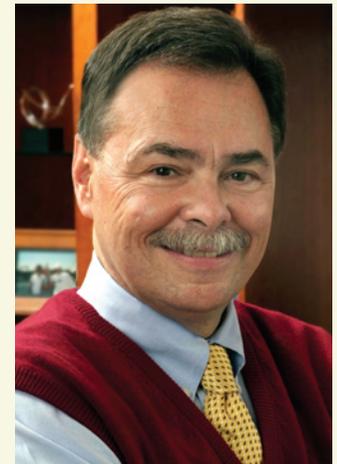
Our vision is necessarily ambitious; lives depend on it. We're committed to high-quality care and innovative approaches to health and healing. We will continue to be global leaders in scientific discovery—both in basic science and in emerging research fields. We offer aligned, interdisciplinary education

programs that produce talented, compassionate, and well-rounded health professionals. We continually evaluate our performance and actively seek opportunities to improve our efforts on behalf of the people and communities we serve. We develop and use cutting-edge technology to enhance all aspects of our performance. And we work to achieve maximum alignment among our academic departments, clinical services, research centers, and education programs.

As passionate as we are about these values—and as outstanding as Emory is—the reality is that no one organization holds all the cards. That's what makes collaboration one of our most pressing priorities. By collaborating with like-minded and complementary local partners (including Georgia Tech, Children's Healthcare of Atlanta, and the Atlanta Veteran's Affairs Medical Center, to name a few) and our partners nationwide (including NIH, CDC, Ohio State University, and others), we enhance our ability to excel by focusing on the things we do best and learning from the best practices of others as we advance toward our vision.

In this issue, you have an opportunity to see that vision in action. For example, our cover story will introduce you to Emory's Global Health Institute, which is allowing us to achieve our vision not only at home but also around the world. This initiative brings all of our strongest assets to bear in the worldwide fight against disease. You'll learn about a drug discovery training program in South Africa, student fellowships in global health, collaborations among Emory and scientists and practitioners in China, India, and Mexico, and efforts to reduce infant mortality in Bangladesh. This issue also features exciting developments in cancer research using some unexpected resources—ant venom and magnolia cones. Learn about a broad collaboration among basic scientists and clinical researchers to combat hepatitis C. And analyze a topic that's on everyone's mind—election year health care politics.

As you'll see in this issue of *Emory Health Sciences*, transforming health and healing is an inspiring and compelling vision, and we all have a role to play in achieving it. Together, we can make it happen. Please share your feedback at [evphafeedback@emory.edu](mailto:evphafeedback@emory.edu).



**As passionate as we are about values—and as outstanding as Emory is—the reality is that no one organization holds all the cards.**

Emory Health Sciences

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FEATURE

IN THIS ISSUE



# THE EYES OF OTHERS

AVIAN FLU

HIV/AIDS

DIABETES

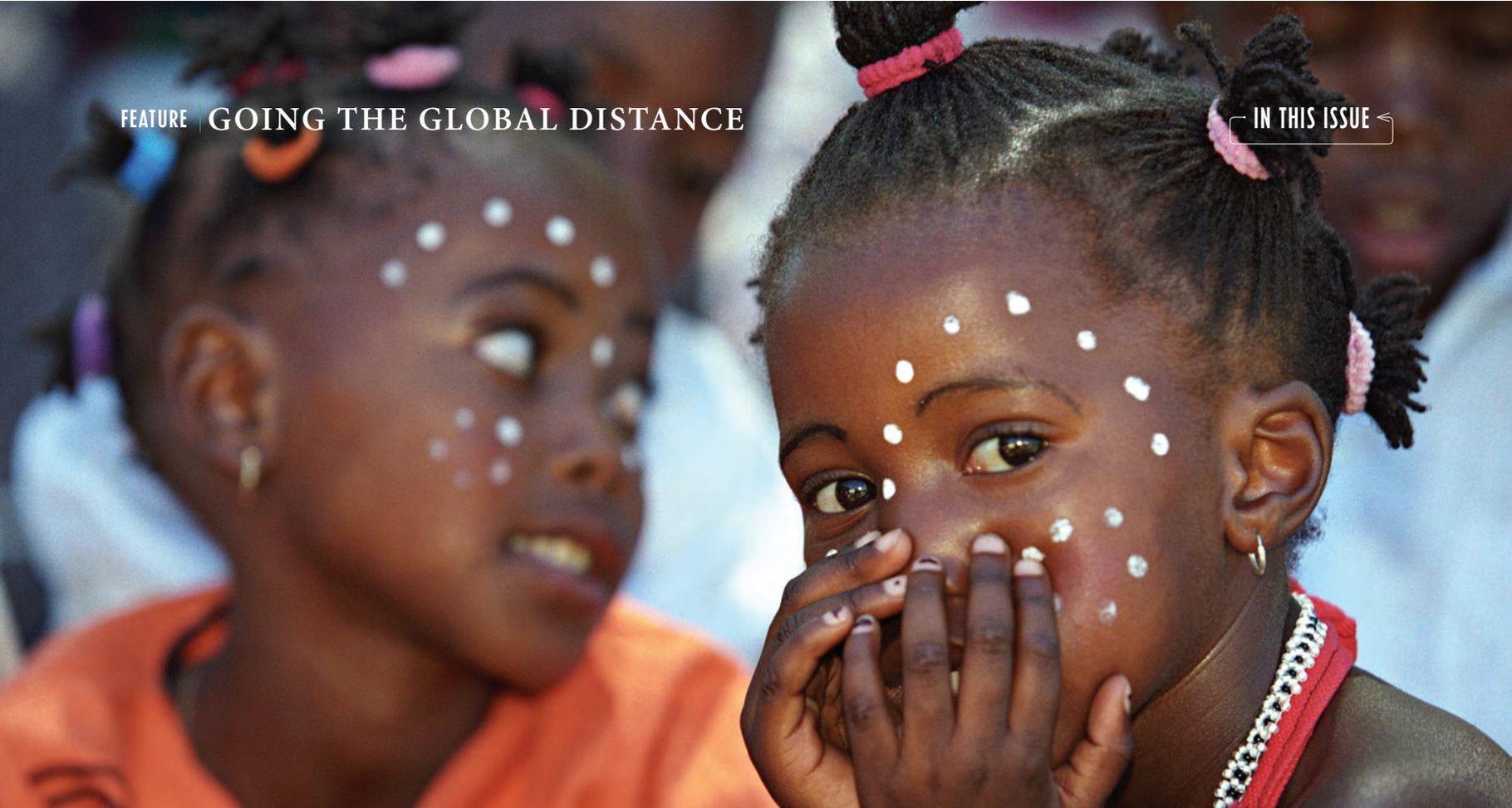


# Where and how does a university begin to improve the world's health? For starters, by seeing through the perspectives of those we want to help.

By RHONDA MULLEN



**Suddenly global health is in**, its visibility raised by high-profile gifts from people like Bill Gates and Warren Buffet and numerous network news specials. Big money is being transferred from some of the world's wealthiest nations to some of its poorest. More students are going into the field to pursue lifelong careers. New institutes are being organized to fill voids in the global health network. And government organizations that focus on global health have taken on new cachet.



DIARRHEA

OBESITY

HEART DISEASE

CANCER

AVIAN FLU

HIV/AIDS

DIABETES

For the people and groups working in the global health trenches, all that's good news. After all, the problems they have been trying to solve have been centuries in the making. In sub-Saharan Africa, HIV/AIDS, malaria, and tuberculosis are ravaging the adult and child populations while measles and diarrheal and respiratory diseases are disproportionately killing children. Injuries from motor vehicle accidents, drownings, and burns are taking their toll as well. Other parts of the world further along in economic development—such as Mexico, Brazil, India, and China—face not only the classic diseases of the developing world but also chronic diseases ironically brought on by adoption of a more affluent lifestyle. As Jeffrey Koplan, Emory's vice president for global health explains it, "They have a double burden. Sometimes in the same family, you'll have some people suffering from diabetes, heart disease, and cancer and others with some of the infectious diseases that

are otherwise conquered in the West."

With renewed attention and an infusion of funds for global health come opportunities that simply weren't there before. Emory University launched its own university-wide effort to make a contribution to global health in January

**Some people face not only the classic diseases of the developing world but also chronic diseases ironically brought on by a more affluent lifestyle.**

2007 and has included global health as a priority in its strategic plan. Since that launch, global health activities have received additional significant funding from the Bill and Melinda Gates Foundation to create CDC-like institutions in low-resource countries, from national governments such as India to support vaccine collaboration in New Delhi, and from in-kind contributions from partners around the world.



DIARRHEA

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According to Koplan, director of Emory's Global Health Institute (GHI) and a former director of CDC, in the first eight months of the GHI's existence, university commitments of \$3 million in funding have been matched by \$3.9 million by partners. His goal is to leverage support for programs by

**Doing global health "well" involves developing and supporting projects that are sustainable, ones that can carry on well beyond our ability to support them.**

bringing in such external support, and he sees the GHI mandate as using these resources "well and efficiently."

Doing it "well" involves developing and supporting projects that are sustainable, ones "that can carry on well beyond our ability to support them," Koplan says. One way the GHI is building in sustainability is through collaboration with strong

partners in the developing world to leverage their breadth and depth of knowledge, human resources, and study opportunities. For example, the GHI has made a moderate investment in establishing a research laboratory in New Delhi, one that was matched with considerable funding from the Indian

government to upgrade and equip laboratories for GHI researchers.

Doing it "efficiently" for Koplan means "making sure our capacity is running at full throttle, that we're doing all we can do and that we take advantage of the resources the university has

invested in us to deliver that last ounce of performance we can get."

Part of that efficiency involves tracking progress, setting deadlines, and measuring results to make sure the institute is meeting goals. Before the institute was formally established, 18 months of planning and input from a broad crosscut of

the university community already had taken place.

“When we started, we already were past jogging speed, cognizant of the pressing need to get the attention of those we wanted to work with,” Koplan says. In short order, the GHI filled out its staff, developed internal programs, assembled an advisory board of world leaders, and started making grants.

One of its first big projects to quickly become known is the International Association of National Public Health Institutes (IANPHI). Funded by the Gates Foundation and shared with the National Public Health Institute of Finland, IANPHI creates, develops, and links public health institutes at the national level with a goal of strengthening infrastructure. In its first year, IANPHI has funded 18 projects, all based on the model of sustainability and partnering.

**“We want to see if we can make a contribution in the long haul. Our contribution is not this year, this month, this week. Our contribution is in decades.”**

Jeffrey Koplan, director, Global Health Institute

Among its long-term projects, IANPHI is providing technical assistance to create national institutes in priority countries where currently none exist. These countries include Guinea Bissau, Malawi, and Ethiopia.

The medium-range projects, three years of duration or less, involve improving labs in Nigeria with the help of the National Public Health Institute of Japan, strengthening labs and surveillance in Mozambique with partners in Brazil, and assisting the Colombian National Institute of Public Health in broadening its role to include chronic diseases as well as measuring the extent of their burden and designing effective interventions. Short-term projects that have been funded include the design of a sustainable training program on disaster management and risk reduction in Iran, a survey of post-flood gastroenteritis in and around Dhaka, and development and execution of a strategic plan for the Uganda Viral Research Institute, including establishment of a computer-based resource

center and library, among others.

To date, the GHI has distributed eight project grants at Emory University. From a drug discovery training program in South Africa to a diabetes intervention in India, read about these on the following pages.

Complementing all these projects is an effort to increase public health knowledge by publishing articles, forming new partnerships, and organize leadership meetings focused on global health. Recent publications have appeared in the British Medical Journal, Emerging Infectious Diseases, Nature, Academic Medicine, and the South African Medical Journal. A website at [www.globalhealth.emory.edu](http://www.globalhealth.emory.edu) draws the information together.

Finally, to begin to make a dent in global health challenges, Koplan believes the GHI has to pay attention to

underlying social determinants. Those range from poverty and environmental contributors to community support and self-determining capacity. “You can decide, I’m going to eat better. I’m going to do that to be healthier,” says Koplan. “But if you can’t buy food that is healthy to eat, you’re living in a polluted

environment, and the water is toxic, then there is a limit to what you can do behaviorally.” Additionally, people in parts of the world embroiled in civil war, such as Iraq or the Congo, think differently about their own and their families’ health than do people in areas unaffected by war.

“We are not so naïve as to think we’re going to have an immediate impact on any of those things,” Koplan says. “From our perspective, we want to see if we can make a contribution in the long haul. Our contribution is not this year, this month, this week. Our contribution is in decades. And our biggest contribution may be educating young people who go and spend their careers working on these issues. Or it might be a drug discovery or a vaccine. There are many ways to contribute and even more reasons to do so.”

#### WEB CONNECTION

To hear Koplan discuss some of the biggest global health challenges, visit [www.whsc.emory.edu/r\\_koplan.html](http://www.whsc.emory.edu/r_koplan.html)



INFANT MORTALITY

MALARIA

TUBERCULOSIS

EMERGENCIES

MEASLES

RESPIRATORY DISEASES

## Across the border

*Global health professor Usha Ramakrishnan wondered whether omega-3 fatty acids, such as the ones found in some fish, could enhance infant growth and development as well as prevent post-partum depression in mothers. With Emory colleagues and collaborators at the Instituto Nacional de Salud Publica (INSP) in Cuernavaca, Mexico, she created a study to answer her questions. The research tracks the mental and physical health of 1,000 Mexican women who take omega-3 fatty acids during pregnancy and the growth and development of their children.*



This study and others in infectious disease and environmental health in Mexico are part of the Partners in Global Health Program, an ongoing collaboration between Emory and INSP. With funding from Emory's Global

Health Institute (GHI), the partners are strengthening their ties through more student-faculty collaborations and an increase in interdisciplinary research across Emory.

For example, Reynaldo Martorell, Woodruff Professor and chair of the Hubert Department of Global Health, led a student exchange to INSP last spring. Known as the Compañeros Project, the exchange derives from the word "partners" in

Spanish and was conceived of by students Kristin King and Maureen McDonald in the Rollins School of Public Health. "We wanted to start a dialogue between students and investigators that could lead to thesis or even career opportunities down the road," says King.

The Compañeros Project offers students an opportunity to learn about the public health system of another country intimately connected to and affected by their own, says Martorell. "The students were most impressed with the community approach to public health that Mexico is putting in place as well as the country's preparation for emergencies and outbreaks, such as flu pandemics." In return, students from INSP came to Emory last October to discuss how to make the exchange program sustainable through grants and other funding.

In a related project, the International Association of National Public Health Institutes (IANPHI) at Emory will support a proposal from national public health institutes in Mexico, Costa Rica, and Panama to assess public health infrastructures in eight Central American countries. In turn, Mexican partners have committed in-kind contributions and will take a leading role in technical assistance. Once infrastructures are assessed, the GHI expects that individual country projects, improved regional collaboration, and sharing of resources will follow. —Robin Tricoles

## Deadly combo

*It's not everyday that WHO classifies a new disease, but it recently has done just that with the co-infection of HIV and tuberculosis.*

Approximately one-third of the world's 40 million people with HIV/AIDS also are infected with TB. Of those, 90% die within months of contracting TB if they are not properly and promptly treated. To compound the problem, finding effective treatments is growing more difficult as various strains of TB are becoming more drug resistant throughout the world.

The Global Health Institute is approaching the challenge from two directions: vaccines and better diagnostic tests. Rafi Ahmed, director of the Emory Vaccine Center and a Georgia Research Alliance Eminent Scholar, is leading research on the interplay between HIV and TB at the cellular level in India to find a cost-effective vaccine to prevent HIV/TB. In Africa, Emory infectious disease expert Henry Blumberg is studying the accuracy of new diagnostic tests for TB in people likewise infected with HIV/AIDS.

The first collaboration brings together Emory scientists and one of India's premier research centers to improve the control of infectious diseases worldwide. Located in New Delhi, the International Center for Genetic Engineering and Biotechnology (ICGEB) is providing state-of-the-art laboratory space for the partners. These groups have formed a new Center for Global Vaccines, where they are concentrating on diseases that disproportionately affect vulnerable populations in developing countries. They already have made significant progress researching vaccines for malaria, hepatitis C and E, tuberculosis, and HIV, as well as HIV/TB co-infection, according to Ahmed.

"In terms of sheer numbers, India now has the largest number of HIV-infected people in the world, and 5.7 million of them have the HIV/TB co-infection," says Ahmed. "The majority of people infected with HIV also have TB, which is endemic in India. Most people get primary TB as children. The majority of them will live a healthy life and die of old age. But when they get infected with HIV on top of the existing TB, their immune

systems become compromised, and the TB reactivates."

A vaccine exists to prevent TB but is effective only in limited circumstances. Emory and ICGEB want to develop a vaccine that can be used more widely and given to those who already have TB.

The collaboration in Zambia shifts the focus to a new generation of diagnostic tests for TB called interferon gamma release assays (IGRAs). In concert with Emory's medical and public health schools, University Teaching Hospital in Lusaka, and the University of Zambia School of Medicine, researchers will evaluate the effectiveness of IGRAs for diagnosing the latent form of TB among people who have HIV.

Although people with latent TB are infected with the organism that causes the active form of the disease, they often don't feel sick, have no symptoms, and are unable to spread TB to others. However, those with latent TB are at risk for progressing to active TB, and HIV co-infection is the greatest risk factor for that progression. Treatment of latent TB, therefore, can markedly reduce this risk. People with active TB show symptoms and can spread the disease through coughing and sneezing.

Historically, countries hard hit by TB and AIDS/HIV have lacked resources in diagnosing and treating latent TB. Instead they have struggled to insure adequate infrastructure for treatment of active TB. However, in high-risk patients, WHO now recommends treatment of the latent form of the disease with the aim of reducing this deadly combo.

The Zambia-Emory Research Initiative builds on work established by the Zambian-Emory HIV Research Program and founded by Susan Allen in the Rollins School of Public Health. For the latest studies, scientists will have access to the largest, longest-standing cohort of discordant couples in the world. Discordant couples include one person with HIV/AIDS and one without. The researchers will be able to compare the effectiveness of these new diagnostic tests for TB in both HIV-positive and HIV-negative partners. They also will be able to test the accuracy of the new tests compared with the older tuberculin skin test, in use for nearly a century and limited by its rate of false negative and false positive results. —RT

## Dancing diabetes away

*Venkat Narayan was on call and unable to sleep the night he made his way to the hospital's medical library. Unsuspecting and bleary-eyed, he was about to find a book that literally would change his life. That was more than 20 years ago, and the book was Fletcher's Clinical Epidemiology.*

"When I read that book, I fell in love with the possibility of medical inquiry coupled with the concept of broad public health," says the Emory professor of medicine and the Ruth and O.C. Hubert Professor of Global Health. "In medical



school, there was a lot of emphasis on memorizing facts, not on asking 'how do you know.' From then on, I began shifting my interest from clinical medicine to epidemiology and diabetes."

Narayan's inquiries have led him to South Asia, the locale he believes is the

best place to begin research and intervention aimed at controlling diabetes worldwide. In India alone, it is estimated that 40 million people suffer from diabetes, and, by 2030, that number will reach 80 million. The people of India, Pakistan, Bangladesh, and Sri Lanka are all at high risk of developing diabetes, according to Narayan, a native of Bangalore.

"These populations have a high risk of putting on fat, very low lean muscle mass, and insulin resistance, all critical risk factors for developing diabetes," says Narayan. "With South Asia's population of nearly 1.5 billion people, 4,800 distinct ethnic groups, and more than 500 tribes, it is the logical place to see if researchers can learn more about diabetes."

Curiously, diabetes is not new to India. Textbooks dating back 3,000 years describe the disease in detail. At least 25 Sanskrit words were used to describe it. "When a language like that has 25 words for a disease, it must have been a big problem," Narayan says.

And it still is, with a rapid and relentless emergence of diabetes in South Asia today. Concerned with the explosive growth of diabetes, Emory's Global Health Institute, along with the Madras Diabetes Research Foundation (MDRF), has established the Global Diabetes Research Center in Chennai, India, which Narayan will lead with V. Mohan of MDRF.

The center will focus on interdisciplinary research and interventions throughout South Asia and other parts of the world. It also will provide innovative educational and research opportunities for Emory faculty and students. Narayan sees the effort as a long-term partnership that will emphasize cultural compatibility and low-cost solutions to prevent and treat diabetes.

MDRF already has years of data on 160,000 South Asian diabetics. Their information will serve as the foundation for several new collaborative studies, including one focusing on the growing prevalence of diabetes in rural southern India. "Rural cohorts are exciting to study because diabetes is just beginning to emerge in rural areas with growing prosperity," says Narayan.

Other studies are examining nutritional intervention during pregnancy to reduce the risk of childhood diabetes and early cardiovascular disease, the effect of diabetes on brain function, and the disease's effect on immune memory and response. Likewise, interventions involving exercise (shown to be an important way to help prevent and reduce diabetes) will take into account cultural norms, sustainability, and affordability.

For example, one intervention will study whether indigenous exercise such as yoga and regional dances may reduce obesity and in turn diabetes. The study will investigate whether this effort will spread through a community via local fitness instructors, both paid and volunteer.

For Narayan and his collaborators, such interventions are the first steps on a long road to curtail the explosion of diabetes and obesity in one of the world's largest populations. But as the optimistic researcher says, it is a good beginning. "Besides," he adds, "how do you know something will work unless you try." —RT

## AIDS out of Africa

*Kate Winskell had no idea that a series of short films about HIV/AIDS would catch on. More than a decade ago—before the predominance of the Internet—she was searching for innovative ways to reduce the spread of HIV/AIDS among young Africans. The old ways of trying to stop the spread of the disease—programs that dwelled on medical facts while ignoring behavioral aspects or educational films that were long, had inaccessible language, and were culturally out of tune—were clearly limited.*

So Winskell, a visiting professor in the Rollins School of Public Health, decided to launch a new kind of communications program with colleagues to prevent HIV/AIDS. Scenarios from Africa began in three French-speaking countries in West Africa: Senegal, Mali, and Burkina Faso. The films took off, being adapted for use in other countries, with people queuing up to be a part of the project. “We had no idea that these films would be used at the other end of the continent,” says Winskell, who learned that Television Trust for the Environment in London had distributed the films to colleagues in Namibia and dubbed them into six Namibian languages. Since those simple beginnings, Scenarios has snowballed, and it now extends to most of sub-Saharan Africa.

Working with hundreds of community organizations in Africa, the organizers invite young people to develop ideas for short films to educate their communities about HIV/AIDS. Top African directors transform the winning ideas (selected by juries of young people, people living with HIV, and specialists in HIV prevention) into short fiction films.

The films are donated to television broadcasters across Africa, dubbed into local languages, and used as discussion tools in communities to educate people. So far, more than 105,000 people from 37 countries, ranging in age from 5 to 24, have taken part in these contests, and Scenarios has produced 33 films. The films have been broadcast on more than 100 television stations in or serving Africa.

A focus only on the audiovisual component of the program, however, falls short of its full impact. “The program is so much more than that,” says Winskell. “It’s a very rich



process about community development, empowering young people to address the epidemic on their own terms, and local organizations having an opportunity to learn from one another and the young people they are serving.”

The contest also motivates young people to search for information in their communities about HIV/AIDS. That may mean visits to local centers or seeking the advice of older siblings. The process allows them to enjoy “the protective cover of fiction,” says Winskell. “It enables them to ask about hypothetical situations that may be related to what they’re experiencing themselves.”

Likewise, the project gives those who are HIV positive an opportunity to be part of a life-affirming project. People living with HIV are often mentors, and they work with the young people to develop scripts. “They don’t need to reveal their HIV/AIDS status, but it’s very empowering for them to be involved in those educational efforts,” Winskell says.

To support the educational efforts of Scenarios, the Global Health Institute is sponsoring three of the project’s team members as visiting scholars at Emory. The first to arrive, Benjamin Mbakwem, founded an AIDS prevention organization in Nigeria for young people to learn small-business management skills and develop HIV prevention tools. At Emory, he has begun to analyze the enormous archive of scripts on HIV/AIDS written by young people during the past 10 years, and he’ll also be a guest lecturer. Classmates here will get a first-hand lesson from a Scenarios veteran on how to help rid Africa of AIDS. —RT

## Not if, but when

*Endemic to southeast Asia, avian flu has been steadily spreading throughout the world, from South Korea to Turkey to Romania, with the latest outbreak occurring just last summer in Indonesia. Of the 106 cases confirmed there, 85 proved fatal.*

As Chinglai Yang sees it, when it comes to preparing for an outbreak of avian flu, the question is how long do we have.

The Emory microbiologist and immunologist says a virulent form of avian flu, such as the H5N1 strain, could cause a pandemic rivaling or even surpassing the pandemic of 1918, which left 20 million dead. What's more, estimates of the 1918 flu strain put fatalities at 5%, whereas today WHO estimates the H5N1 strain to have a fatality rate of 60%.

H5N1's virulence lies in its newness: we would have little if any immunity to it, says Yang. Even a relatively tame pandemic could sicken or kill enough people—healthy ones, too—to cause serious, long-term consequences. Hospitals would be over-burdened,

transportation slowed, and necessities in short supply.

Spurred on by these possibilities, Yang has led an effort to establish an international consortium on avian flu control. It includes a Center of Excellence for Influenza Research and Surveillance (CEIRS) at Emory and the Harbin Veterinary Research Institute (HVRI) in China. The consortium's goal is to develop a universal vaccine against different H5N1 avian influenza strains.

Because CEIRS and HVRI focus on complementary research areas, we can better prepare for a possible avian flu pandemic, Yang says. Emory will work on the molecular virology and immunology components, whereas HVRI will direct its efforts toward avian flu surveillance and the pathogenesis of the disease.

As part of the ongoing collaboration, Emory is training visiting HVRI scientists, while HVRI will provide training to Emory researchers in field surveillance and viral pathogenesis studies.

"Avian flu is an extremely dangerous virus," says Yang, "but the more we start to know about it, the better prepared we will be when it arrives." —RT

## Drug discovery in South Africa

*"To effectively battle neglected infectious diseases of poverty, the transfer of money and technology is not enough," says Dennis Liotta. "It is expertise in the discovery and development of new medicines that is the intrinsic requirement."*

Liotta should know. Working with Emory colleagues, the professor of chemistry has produced several new drugs, including an anti-HIV drug used in the majority of AIDS cocktails today.

To help spread Emory's expertise where it is most needed, the university has launched the South Africa Drug Discovery Training Program. African scientists will train at Emory, working with researchers throughout the Emory campus. They will gain hands-on experience in translating research into health care solutions and subsequently return to their home countries to receive placement in industrial or academic positions. The visiting scholars—six to start—will initially come from South Africa, but scientists from all over sub-Saharan Africa will soon take part in the training.

"By helping shift early-stage drug discovery to South Africa,

this initiative will foster a viable research infrastructure capable of responding to global health care needs," says Liotta. "The fact that several small pharmaceutical companies are beginning to spring up in Africa makes this an ideal time to develop a drug discovery training program."

Liotta and colleagues recently formed iThemba, a start-up biotech company based in South Africa. By developing scientific, economic, and educational alliances with African scientists, industry, and universities, iThemba's goal is to develop affordable drugs to fight the diseases of poverty.

"We believe that we can develop affordable, effective drugs using a combination of relatively low operating costs and socially conscious investments," says Liotta. "This is crucial because, for the most part, there is little incentive for pharmaceutical companies to invest in new medicines to treat diseases that have relatively small markets."

Support for the South Africa Drug Discovery Training Program is coming from both the South African government and the Emory Global Health Institute. —RT

## No accidental tourist

Lynn Sibley will never forget the small wooden coffins for sale in the Bolivian marketplace that she frequented. Perched on top of buses alongside other market goods, the plain boxes were intended to hold the many newborns and infants who died there.

The year was 1980, and the then-pregnant Sibley was visiting Bolivia as a tourist. In everyday life, she was a registered nurse who was considering leaving the nursing profession. But after seeing the coffins, she changed her mind.

"I decided instead to figure out how to get involved and somehow make things better," says the associate professor of nursing at the Nell Hodgson Woodruff School of Nursing.

Sibley (second from right in photo) returned to the United States and gave birth in her home to a healthy son. Fifteen months later, she enrolled in graduate studies in nurse-midwifery at the University of Colorado. She later completed a doctorate in anthropology, a background she believes enhances her understanding of global health and culture. Since then, Sibley has worked with colleagues from the American College of Nurse-Midwives (ACNM) on a program that teaches health care workers in developing countries simple steps that increase the chances of survival of mothers and newborns.

WHO estimates that a woman dies every minute from causes related to pregnancy and birth, making childbirth the leading cause of death and disability for women of reproductive age. Women living in the poorest countries are most at risk. That is why the ACNM takes their program to developing countries such as India and Belize.

With support from Emory's Global Health Institute and the International Center for Diarrheal Disease Research, Sibley is now implementing a similar program in Bangladesh. Home-Based Life Saving Skills equips women and traditional birth attendants, such as family and neighbors, with basic lifesaving techniques they can use without expensive tools and technology. First tested in India, the program has worked so well that now it is taught in six countries: Haiti, Liberia, Afghanistan, and Ghana, in addition to Bangladesh.

There, Sibley and her collaborators are concentrating on pro-



longed labor and birth asphyxia in newborns. Asphyxiation is the leading cause of infant mortality, according to Sibley, occurring when the baby gets inadequate oxygen in utero because of placental rupture, trauma, or prolonged labor.

"We're trying to teach birth attendants how to monitor labor and determine what is considered a normal duration," says Sibley. "That includes recognizing the signs of prolonged labor and knowing how to intervene, if necessary. At the same time, we want to respect the local cultural norms and beliefs."

For example, although hemorrhaging is the leading cause of maternal death globally, some cultures believe that postpartum bleeding is nature's way of cleansing the body after birth. While putting together a training program for birth attendants in India, Sibley was mindful of balancing this cultural norm and others with the health and well-being of the mother by teaching birth attendants to recognize when bleeding becomes life-threatening and the appropriate intervention to take.

Sibley circles back to her experience in Bolivia when she talks about what has become her life's work. "Life and death were so visible there. And death clearly came so early for so many. It made me think a lot about life, death risks, and how people in different places adapt to circumstances. It made me acutely aware of my own privileged existence. Yet, at the same time, I became aware of a kind of poverty in how we sanitize so much in our culture, including death. In any event, it became clear that I could not be a tourist anymore." —Robin Tricoles is a science writer in the Emory Health Sciences Communications office. ●

# More than Magnolias

By SYLVIA WROBEL

“*Magnolia grandiflora*. Fifty million years ago, they ruled the earth. Now they are back from the swamp.” So reads the framed museum poster of a rather lurid magnolia, more plant demon than Georgia O’Keefe, in Jack Arbiser’s crowded office.

“Ah, the magnolia,” says Arbiser, with the exuberance he expresses when speaking of almost any natural product. “Nothing wants to eat it. It’s resistant to insects, fungi, virtually everything. Only God knows what it is about. But we’ve found out a little!”

He’s being modest. Magnolia tea has a long tradition in Eastern medicine, primarily as a treatment for anxiety, but in 2003 the Emory researcher received international attention when he discovered that honokiol, the active ingredient in such preparations and the same substance that allows the magnolia to resist invasion, slows the progression of several human tumors.

One of the mechanisms through which it does this is by inhibiting the growth of the new blood vessels that supply tumors the oxygen and nutrients they need to grow. Arbiser found that honokiol encourages the endothelial cells that make up the walls of these abnormal, rapidly developing blood vessels to self-destruct (a naturally occurring process called apoptosis)

while sparing normal cells. When he inoculated immune-deficient mice with human tumor cells, the mice given honokiol showed fewer new microvessels and had only half the tumor growth found in similar mice not given the magnolia extract.

Arbiser’s first honokiol study focused on sarcomas, tumors arising out of connective tissue. The laboratory then progressed, accompanied by rapid-fire publications, to honokiol’s anti-angiogenesis effects on growth and metastasis of breast and prostate cancers, chronic lymphocytic leukemia and myeloma, and melanoma. (Both a basic scientist and practicing dermatologist, Arbiser often tests compounds against melanoma cells, figuring, he says, that if you can stop the progression of melanoma you can stop almost any kind of cancer.)

Native magnolia trees are only one item in Arbiser’s ever-widening search for compounds. When the brilliant yellow of a turmeric root caught his eye in the farmers market, for example, he carried the unusual plant back to the lab to create an extract.

Recipe: chop, infuse in alcohol, grind, filter, and evaporate. He then tested the extract in mouse endothelial cells to see if it inhibited their growth. Curcumin, the component of turmeric responsible for its color, does. Better yet, it works in a different way from honokial.

Other compounds his team is testing include mate tea extracts, ant venom, and gentium violet (used for a century to treat fungus and thrush seen in babies).

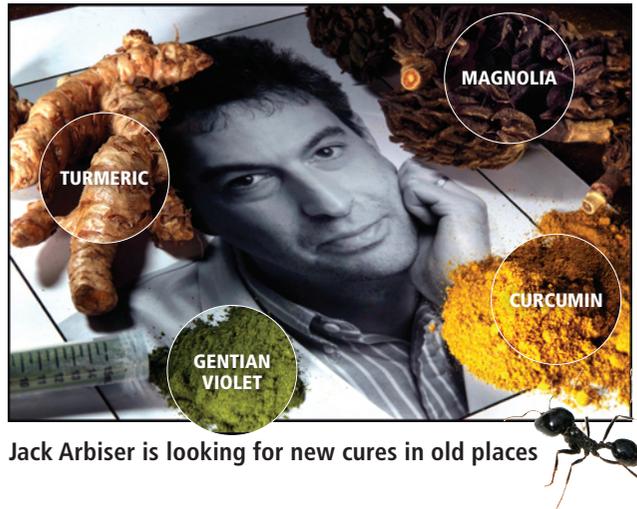
If Arbiser finds some of his research samples almost by chance, his approach is anything but random. It is built on a continually expanding armamentarium of research tools, a powerful hypothesis, and a high-energy commitment to moving rapidly from theory to practical applications.

### Ahead of the times

Arbiser developed an interest in anti-angiogenesis while he was a Howard Hughes Fellow and on the faculty at Harvard, where he worked with Judah Folkman, who first proposed that cancer tumors were dependent on angiogenesis for growth. Although few initially believed Folkman, anti-angiogenesis is one of the most promising fields of cancer research 30 years later.

Arbiser already had investigated signal transduction pathways, including how tumor cells signal for new blood vessels to be built and how chemotherapy affects the process. He began to hypothesize that oncogenes (genes that increase the chance that a normal cell will develop into a cancerous one) work in part by disrupting the balance between factors that stimulate angiogenesis and those that inhibit it. Watching the disappointing failure of the first clinical trial of a protein that had worked to inhibit blood vessel formation in mice with tumors, Arbiser realized that no one compound or drug was likely to succeed in halting tumors through angiogenesis inhibition. Instead, compounds would have to be identified and drugs developed that hit multiple targets.

Ten years ago, he returned to the Druid Hills neighborhood where he had grown up and to the university



Jack Arbiser is looking for new cures in old places

where he had studied organic chemistry. Here at Emory, Arbiser created new tumor cell lines and mouse models and began to use them to test extracts for angiogenesis in endothelial cells.

When he finds such an extract, he identifies the active ingredient and then tests to see

if it will reduce blood vessel growth and tumor size in tumor-prone mice. The next step is to find the mechanism through which the compounds work, identify the precise target, and synthesize new compounds to see if they are even more potent against that target. His goal is to develop compounds that can attack different targets in the cancer sequence.

“Look how easily cancers adapt and become resistant to chemotherapy drugs, just as infections become resistant to specific antibiotics,” Arbiser says. “Merging two or more molecules makes resistance harder.”

And, of course, the ultimate target: making the “theoretical practical,” in Arbiser’s words, by getting discoveries to patients. He has licensed his research on curcumin, and another of his compound discoveries is in the process of being licensed. That means a pharmaceutical company believes in the drug potential of the compounds sufficiently to pay Emory for the right to take them into the drug development process. Arbiser envisions that the drugs to come from these natural products will be able to hit targets along the tumor growth spectrum and will be used together with more traditional cancer treatments, potentially reducing dosage regimens and toxicity of chemotherapy.

In the meantime, Arbiser is continuing to take his angiogenesis research in new directions, most recently discovering its role in leprosy. He and collaborators at Emory have found that different stages of leprosy vary widely in the number of blood vessels contained in the skin lesions, a finding published online in the Archives of Dermatology. A treatment approach using an angiogenesis inhibitor could substantially shorten the length of therapy, he says. ●

A painting of a person's arm with a tattoo of a skull and the words "Bad Blood". The tattoo is rendered in a dark, textured style with red highlights. The person's hand is visible, with red-painted fingernails. The background is a dark, moody green.

*Called the "silent killer" for its stealth, the hepatitis C virus engages the human immune system in a dangerous dance for decades, hiding out in the liver and often identified only after the liver is irreversibly damaged.*

# Secrets of a silent killer

*Emory collaborators are tracking the clues to hepatitis C*

By VALERIE GREGG • Illustrations by SHAWN BARBER

WHY THE IMMUNE SYSTEMS OF SOME PEOPLE CAN OUTWIT HEPATITIS C AND THOSE OF OTHERS CANNOT REMAINS A MYSTERY. But as more people than ever are experiencing liver failure due to the virus, the puzzle has become increasingly important to solve. Called the “silent killer” for its stealth, the hepatitis C virus (HCV) engages the human immune system in a dangerous dance for decades, hiding out in the liver and often identified only after the liver is irreversibly damaged with fibrosis, cirrhosis, or cancer. HCV is the No. 1 reason for liver transplants in the United States. And even transplanted livers can become reinfected, so transplant is not a sure cure. The other treatment—a tough regimen of the antiviral drug ribavirin and the chemotherapy agent interferon—clears the bloodstream of HCV only about 40% of the time. Time is of the essence, says immunologist Arash Grakoui, part of a diverse network of investigators in Atlanta working on some aspect of HCV. These physicians and scientists—from Emory, Grady Hospital, and Atlanta Veterans Affairs Medical Center (VA)—are adding different pieces to the HCV puzzle, working from its genetic and cellular interactions with the immune system to implications for patient care.



**Kim Workowski provides blood and liver samples from her HCV-infected patients.**

Growing numbers of people are learning that they have been living with HCV for years. Many who contracted the disease from blood transfusions before 1989 (when the U.S. blood supply began screening for the virus) are just now falling ill. And worldwide, 170 million people are infected with HCV, four times more than HIV.

“A crisis is on the horizon,” says Grakoui, whose lab at the Yerkes National Primate Research Center at Emory University examines blood samples and liver biopsies from patients referred from collaborating hospitals. “The demand for liver transplant is going to be enormous.”

Injection drug use, tattoos, or breaking of the blood barrier during sex represent the highest risk activities for contracting HCV via contaminated blood in the United States. While the blood supply is safe here, that is not the case in other countries, according to Grakoui. “In Egypt, for example, 20% of the population is infected,” he says, largely due to needle-stick exposures during the schistosomiasis eradication campaign.

Although some of those infected will never feel the disease coming, most eventually will suffer liver damage or failure. The body does offer some red flags, albeit subtle ones, early on.

Abnormal liver enzymes often show up in blood tests during the acute phase of HCV infection—the first three to five months. About 20% to 30% of people spontaneously resolve the infection, but for the rest, interferon/ribavirin therapy is the only option. It’s expensive and often carries severe side effects such as fatigue, depression, and low red and white blood cell counts.

### Uncovering the unknowns

Kim Workowski, an infectious disease specialist at Emory Crawford Long Hospital, collaborates with Grakoui’s lab and provides blood and liver biopsy samples from her HCV-infected patients. The infectious disease clinic where she works serves 1,200 patients with HIV, 15% of whom are co-infected with HCV. The standard

regimen for patients newly diagnosed with HCV is self-injection of interferon once a week and twice daily oral ribavirin (a broad-spectrum anti-viral drug) for 48 to 72 weeks. The clinic also provides social work and mental health support, counselors on site, psychiatry referrals, and nurses who teach patients how to perform weekly injections and assist in the management of medication side effects.

Many unknowns create challenges for studying HCV in human subjects, says Grakoui. “We don’t know when these patients were actually infected, how they were infected, or what dose of virus they were infected with.” The researchers hypothesize that chronically infected people may have an inadequate presentation of HCV antigens to cells of the immune system.

Grakoui studies HCV antigen presentation by using transgenic mice bred at Yerkes that have the same haplotype as some human immune cells from patients exposed to HCV. He hopes to find out exactly what happens to make HCV easy for immune cells to forget. His lab also is investigating changes in antigen-specific or HCV-specific T cells from patients starting therapy with interferon/ribavirin as well as during and after

therapy. Does the phenotype of these cells change? Does their function change?

Supported by a five-year, \$1.25 million grant from NIH, Grakoui's lab is examining samples from Workowski's patients as well as patient samples from the VA, Grady, and Emory in a similar approach. The patients—including those with HCV mono-infection as well as those with HIV co-infection (more than 200 so far)—are analyzed according to whether their HCV infections resolve with therapy or remain chronic. Grakoui hypothesizes that in those who become chronically infected, antigen presentation is inadequate, preventing the right immune cells from being activated. He hopes to find what goes wrong in this process by comparing ongoing samples from patients in each cohort—those who resolve and those who do not.

Macrophages and B cells in the immune system also play a role. "They need to pick up the vital antigens from the infected cell and process them in such a way that they can present them on their cellular surface to T cells," says Grakoui. "This alerts the entire immune system that 'Hey, we have something important here, and we need to work in tandem to take care of it.'"

For example, a subset of killer T cells known as CD8s are needed to prevent an infection from becoming chronic. Chronic infection is the result of T cell depletion. When first confronted by an acute viral infection, CD8 killer T cells proliferate rapidly, produce cytokines to kill infected cells, and lower the viral load in the bloodstream. When things go well, a group of these cells remain to "remember" the viral threat after the pathogen is eliminated, ready to mobilize quickly if the virus reappears or if a person is exposed again. Sometimes this process works with HCV. Much of the time it does not.



Arash Grakoui uses the samples to see why immune cells forget HCV.

### Fixing a faulty memory

Other scientists at Emory are working in concert with Grakoui and Workowski to solve the mystery of HCV. Immunologist Rafi Ahmed, director of the Emory Vaccine Center, studies the ability of the immune system to remember a particular antigen and kill it when necessary. His research has delved into how HCV and HIV immune memory cells are created and how long they survive. He also has developed a new strategy to re-energize T cells that used to have this immune memory but have become "exhausted" in research published in *Nature* (February 2006).

With a \$12.5 million grant from the Grand Challenges in Global Health Initiative, funded by the Bill & Melinda Gates Foundation, Ahmed's team is studying HCV immunology. The aim: to understand why immune cells become exhausted in one type of battle and not in another. They already have found that exhausted T cells express high levels of an inhibitory receptor, whereas highly functional memory T cells had no detectable level of this response.

Likewise, Grakoui's team has shown that an inhibitory response is highly expressed on HCV-specific T cells from

chronically infected people, and he hopes to build on these findings. Because special helper T cells known as CD4s are important in HCV biology, he hypothesizes that people who become chronically infected with HCV have an inadequate antigen presentation to the CD4s.

The Emory collaboration has yielded other findings showing T cell exhaustion in HCV. For example, Henry Radziewicz, a scientist in Grakoui's lab, wrote a landmark article in the March 2007 *Journal of Virology*, showing stark differences in phenotype between the signatures of HCV in the peripheral blood versus blood in the liver.

"Since the business end of this virus is in the liver, you may be missing a great deal of important information if you don't look in the right place—the liver," says Grakoui.

Workowski says that a better understanding of the immune mechanisms of persistent infection will help her treat patients more effectively. "Volunteers provide samples throughout treatment so we can assess if changes in immune markers can help predict treatment

responsiveness. Early predictors of success would be extremely useful because hepatitis C treatment is difficult for many patients to tolerate, and we would like to provide a higher success rate for our patients.

"It's an exciting time for hepatitis C research because several promising new drugs are being investigated," she adds. "We haven't had anything new to offer our patients for a long time. This research will help us study not only the clinical effects of these novel medications and combinations of these agents but also their immunologic effects, both in the blood and the liver."

Grakoui feels lucky to be in a place with investigators from multiple disciplines interested in HCV. "I'm surrounded by a new breed of researcher—the physician/scientist who speaks both languages, basic science and clinical," he says. "They are the people who can take this work from our labs to directly benefit patients." ●

*Valerie Gregg is a freelance science writer in Atlanta.*

## Glossary

**Cytokines**—a group of proteins or peptides that are used in organisms as signaling compounds, allowing one cell to communicate with another

**Haplotype**—the genetic constitution of a person at a set of closely linked genes on a given chromosome

**Macrophage**—cells within tissues that originate from specific white blood cells called monocytes

**Phenotype**—the observed physical, biochemical, and physiologic makeup of a person as determined both genetically and environmentally, as opposed to genotype, the inherited instructions of an organism

**Transgenic**—genetically modified using recombinant DNA technology

## Breasts in 3D



*In a clinical trial under way at Emory, researchers have found that stereo mammography, which presents a 3D picture of the breast, reduces false-positive readings by 49% compared with standard digital mammography.*

**Kudos:** The Emory Breast Imaging Center has earned the Breast Imaging Center of Excellence award from the American College of Radiology. The award recognizes Emory for the highest achievement in breast imaging by earning accreditation in mammography, stereotactic breast biopsy, breast ultrasound, and ultrasound-guided breast biopsy.

**Getting called back for additional tests after a routine mammogram raises anxiety, costs money, and takes time.** But it happens all the time because of the frequency with which false-positives occur. However, a new digital technology known as stereo mammography may reduce significantly the number of women recalled.

In a clinical trial under way at Emory, researchers have found that stereo mammography, which presents a 3D picture of the breast, reduces false-positive readings by 49% compared with standard digital mammography. The standard mammogram presents only a two-dimensional image.

The new technology is also better at finding easily missed lesions, according to the research. The stereoscopic exam reduced the number of missed lesions by 40%.

“Standard mammography is widely considered to be one of the most difficult exams to read because lesions may be disguised by normal tissue,” says radiologist **Carl D’Orsi** (pictured above), director of breast imaging.

Breasts are made up of two types of tissues—fatty and parenchymal. The dense parenchymal tissue can obscure lesions on a standard mammogram. “Everyone has a different mixture of the two,” says radiologist Mary Newell, a collaborator on the study. “The density

of a cancerous lesion is similar to that of parenchymal tissue, and the dense tissue may obscure the cancerous tissue. Essentially, we may be unable to see the forest through the trees.”

Standard mammograms also are more difficult because “we are taking a three-dimensional object—the breast—and making an image of it on a flat piece of film,” says Newell.

By contrast, during a stereo mammogram, two digital x-ray images are taken from two points of view. Each image is displayed on an LCD monitor and then arranged to form a “V” separated by a one-way mirror. The radiologist wears a pair of polarized glasses to view both images at the same time—similar to the experience of a moviegoer at a 3D IMAX film.

So far in this clinical trial, Emory doctors have taken both stereo and standard digital mammograms of 1,093 patients. All the patients are at elevated risk for developing breast cancer. Findings were reported at the annual meeting of the Radiological Society of North America in November.

Because the FDA has not yet approved stereo mammography, it is unavailable to the general public. —Kay Torrance

*To watch a video of stereo mammography, visit [www.emoryhealthcare.org/radiology](http://www.emoryhealthcare.org/radiology). For more information, call Emory Health Connection at (404) 778-7777.*

## The pixilated heart



**Are angioplasties effective long-term? A controversial heart study published in the *New England Journal of Medicine* (April 2007) left many doctors wondering if the gold standard in cardiac treatment was as effective as believed.** But a new look by Emory researchers at a subset of patients from that study confirms that for the sickest heart patients, an angioplasty along with drug treatment is still the best option.

Cardiologist **Leslee Shaw** (pictured above) reviewed data on a subset of heart patients with moderate to severe ischemia—chest pain caused by the lack of blood flowing to the heart—and found a 33% reduction in ischemia in patients who received angioplasty and drug therapy. By comparison, patients who followed a course of only drug therapy had a 19.8% reduction in ischemia.

The larger, original trial—known as Clinical Outcomes Using Revascularization and Aggressive Drug Evaluation

(COURAGE)—enrolled more than 2,000 cardiac patients with a full range of symptom levels. It found no difference in the rates of death, heart attack, or stroke between patients who underwent angioplasty or completed only drug therapy. Patients were followed between 2.5 and seven years. “The take-home message from the main trial was that a percutaneous coronary intervention, or angioplasty, could be deferred,” says Shaw. “Our substudy shows that a perfusion heart scan at one year is a good time to see if there is a need to go to more intensive measures.”

A perfusion scan, using single-photon emission computed tomography, measures blood flow to and from the heart and is more effective than angioplasty at giving a “whole heart health” picture by showing whether the arteries are in good shape, Shaw says. An angiogram shows the extent of blockage in an artery, but since the heart can develop new arteries to work around blockage, a patient can be better off than an angiogram indicates.

But it’s also essential that cardiologists read a perfusion scan properly. “It’s much more advanced and accurate to count the number of pixels lost on a heart scan,” Shaw says, as opposed to estimating the black space, which represents lack of blood flow. “Counting pixels is time-consuming and tedious, and many cardiologists don’t bother. However, it’s

**“Counting pixels is time-consuming and tedious, and many cardiologists don’t bother. However, it’s worth it.”**

worth it,” says Shaw, pointing to a heart scan that seems to indicate 40% to 50% black space. In fact, a closer look at pixels shows a 28% lack of blood flow to the heart.

Numbers are a big deal: When a 5% blockage in blood flow is recorded, medical intervention is usually ordered. —KT

**WEB CONNECTION** To schedule an angioplasty or to refer a patient, see [emoryhealthcare.org](http://emoryhealthcare.org) or call (404) 778-7777 or 1-800-753-6679. To learn more about the procedure, see [www.whsc.emory.edu/r\\_icard.html](http://www.whsc.emory.edu/r_icard.html)

## Kids count

The National Children's Study will follow 100,000 children from birth to age 21 to learn to prevent and treat some of the nation's most pressing health problems, including autism, birth defects, diabetes, and heart disease.

Emory is one of only 22 centers and the only site in Georgia to participate in the landmark study, a collaboration between the U.S. Department of Health, including the National Institute of Child Health and Human Development, the National Institute of Environmental Health Sciences, the CDC, and the EPA.

## Branching out

*Emory is expanding its reach in West Georgia with an affiliation with Clark-Holder Clinic, a multi-specialty health care group based in LaGrange, West Point, and Newnan. The partnership will bring Emory clinical programs, new doctors, and technology to the region.*

## A new power tool for the arteries

**Imagine a miniature device with a rotating blade, small enough to thread through a catheter.** It tunnels to a blocked artery, located with a live x-ray and contrast dye. The blade spins and begins grinding away plaque. As the plaque particles break up, blood flows more freely from the heart to the legs and arms. The body easily absorbs the tiny particles, with no need for further removal of the plaque.

The whole procedure routinely takes only 60 to 90 minutes in an outpatient setting. Patients not only experience significantly improved blood flow but also may avoid the need for more invasive surgeries.

"As we remove the plaque, we often see a patient's foot change color and feel it warm up," says endovascular cardiologist Gregory Robertson, who performs the outpatient treatment at Emory Crawford Long and Emory Johns Creek hospitals.

The hospitals are among the first in the country to offer the treatment to people with peripheral artery disease (PAD). Affecting 8 to 12 million in the United States, PAD occurs when plaque builds up on the inside walls of the arteries, causing pain and numbness, impairing the ability to walk, increasing the chances of getting an infection, and, in extreme cases, leading to amputation. However, the condition can close an artery by 60% before any of these symptoms present themselves.

Another Emory cardiologist, Khusrow

Niazi, was involved in the multi-center research study that first tested the safety and effectiveness of the new technology, which, unlike stents does not stretch the vessel wall. Twenty-four patients at Emory Crawford Long underwent the procedure, which helped the FDA decide to approve the device.

Patients with diabetes or renal failure or who are heavy smokers are the best candidates for the procedure because their blockages lead to heavy, calcified plaque build-up. "It is ideal for patients who have heavily calcified plaque blockages, which other technology cannot remove because the calcification is too hard," says Niazi.

*For more information about PAD, to schedule an appointment, or to refer a patient, contact the Emory Heart & Vascular Center at 404-778-8240.*



### A PAD primer

If diagnosed with peripheral artery disease,

what should you do? Greg Robertson recommends lifestyle changes that could make a difference.

- Stop smoking.
- Eat a low-fat, low-sodium diet.
- Increase exercise under a doctor's care.
- Manage health problems such as diabetes, high cholesterol, and high blood pressure.
- Practice good foot and skin care by examining legs and feet every day and applying moisturizing cream to prevent dry skin.

## Womb effects

Emory researchers are the first to precisely compute the overall amount of radiation that mammograms deliver to the entire body, a finding with important implications for pregnancy. If a woman had a mammogram while pregnant, the radiation dose to the fetus would be miniscule, equal to no more than a couple of days of background radiation naturally encountered. The study is published online in *Radiology* (February 2008).



## Not your normal arm twisting

**Each year, more than 700,000 Americans suffer a stroke, and [the consequences can be devastating—85% of survivors experience partial paralysis and must be retrained in simple daily tasks.**



But a new physical therapy tested by Emory doctors is giving stroke patients significant improvement in the use of their affected limbs. In the EXCITE (Extremity Constraint-Induced Therapy Evaluation) clinical trial, patients had their “good” hand or arm restrained to encourage their use of the affected extremity. They then were tested in daily repetitive tasks such as opening a lock, turning a doorknob, or pouring a drink.

“The basic principle behind constraint-induced therapy is re-teaching a patient to regain use of his or her impaired limb by limiting their use of the good one,” says Steve Wolf, a rehabilitation specialist at Emory. “Often, stroke rehabilitation has focused primarily on teaching patients how to better rely on their stronger limbs, even if they retain some use in the impaired limbs—creating a learned disuse.”

Researchers found that over the course of a year, the constraint-induced group showed a 52% reduction in the time needed to complete a simple task versus a 24% reduction in a control group. They also found a 24% increase in the proportion of tasks performed more than half of the time with the partially paralyzed arm in the constraint-induced group. The control group only showed a 13% increase.

Two years after the start of the constraint-induced therapy, stroke patients with mild to moderate impairments substantially regained use of their upper limb function. They had an improved quality of life with greater participation in social activities and better overall physical function, according to the study.

This research, led by Emory with the participation of seven centers, was the first national, randomized, single-blinded study to test the therapy on patients who previously had not experienced a stroke and who were enrolled within three to nine months after the stroke. It was presented at the 2007 annual meeting of the Society for Neuroscience in November. Previous research on constraint-induced therapy has been confined primarily to chronic stroke patients, according to Wolf. —KT

**WEB CONNECTION** *Emory University recently established a new rehabilitation clinic that offers stroke patients constraint-induced movement therapy. For appointments or to refer a patient, see [www.emoryhealthcare.org](http://www.emoryhealthcare.org) or call 404-778-7777 or 1-800-753-6679. To learn more about care after a stroke, see [www.whsc.emory.edu/r\\_strokecenter.html](http://www.whsc.emory.edu/r_strokecenter.html).*

## Cutting the power to cancer circuits

**Pediatrician Donald Durden compares a cancer cell to a building with too many lights left on.** “Doctors have been trying to treat cancer by turning out the lights in one room at a time instead of going after the transformer box,” he says.

With his colleagues, Durden—a professor at Emory School of Medicine and the Winship Cancer Institute and scientific director of the Aflac Cancer Center and Blood Disorders Service at Children’s Healthcare of Atlanta—has developed a novel anti-tumor compound that goes straight for the circuit board. The strategy is to target one of the most important intercept points for cancer cells, a class of enzymes called PI-3 kinases, which occupy valuable real estate in almost every cell in the body.

“Nature made these enzymes central in controlling growth, differentiation, and survival,” Durden says. “But you can’t hit only one of them. They’re redundant.”

Scientists have found genes that encode a class of PI-3 kinases, causing a mutation in a large number of tumor types

and putting the tumors into overdrive. They also have learned that a single enzyme that opposes PI-3 kinases, called the PTEN phosphatase, is inactivated in a large number of human prostate, brain, endometrial, and breast cancers.

In *Cancer Research* (Jan. 1, 2008), Durden’s team reports that a chemical inhibitor of all PI-3 kinases, modified with a tag that directs the compound to the blood vessels needed by growing tumors, stops the growth of seven types of tumors in mice. The compound, SF1126, is active against prostate, breast, and renal cancers as well as multiple myeloma, neuroblastoma, glioblastoma, and rhabdomyosarcoma. It also sensitizes human tumors in mice to the chemotherapy agent taxotere.

Durden began this work while a faculty member at Indiana University. At the end of 2007, doctors there and in Arizona began to test SF1126 in a phase I clinical trial in people with solid tumors. Another phase I trial for multiple myeloma patients will begin at Winship and elsewhere in 2008. Durden anticipates that SF1126 will enter pediatric cancer trials within one year.

## Using gold to pan for cancer

**The value of gold is going up again as scientists have found a new use for the precious metal.** Using tiny gold particles embedded with dyes, researchers have shown that they can identify tumors under the skin of a living animal. The process may allow doctors to detect and diagnose cancer earlier and less invasively.

Studded with antibody fragments called ScFv peptides that bind cancer cells, the gold particles are injected into mice, where they are able to grab onto tumors. When illuminated with a laser beam, the tumor-bound particles send back a signal that is

specific to the dye, according to scientists at Emory and Georgia Institute of Technology in research published in *Nature Biotechnology* (Jan. 1, 2008).

Shuming Nie and colleagues at the Emory/Georgia Tech Cancer Nanotechnology Center have worked for years to develop light-emitting semiconductor crystals called “quantum dots” as a tool to detect cancer. However, colloidal gold—gold particles in suspension—offer advantages over quantum dots. The gold appears to be nontoxic. Colloidal gold, for example, has been used to safely treat people with rheumatoid arthritis for several decades.

However, the toxicity of quantum dots is still being studied.

Also the gold particles are more than 200 times brighter on a particle-to-particle basis than quantum dots. The researchers were able to detect human cancer cells coated with the gold particles in a mouse at a depth of 1-2 cm., making the particles especially appropriate for gathering information about head and neck tumors.

Nie hopes to adapt the technology for use with abdominal or lung cancers deep in the body and to eventually use the gold to selectively deliver drugs to cancer cells.

### WEB CONNECTION

To see a slideshow about this research, visit [www.whsc.emory.edu/r\\_goldnano.html](http://www.whsc.emory.edu/r_goldnano.html)

Just as the Rosetta Stone first helped translators decipher the code of ancient hieroglyphic writing, more recently a Greek letter has led scientists to crack the code of lung

## The alpha, beta, and zeta of lung cancer

**cancer.** When a key gene called 14-3-3zeta is silenced, lung cancer cells can't survive on their own, Emory researchers report in *Proceedings of the National Academy of Sciences* (December 31, 2007).

That makes the gene a potential target for selective anti-cancer drugs, says Haiyan Fu, who holds dual appointments in pharmacology in Emory's medical school and at the Winship Cancer Institute.

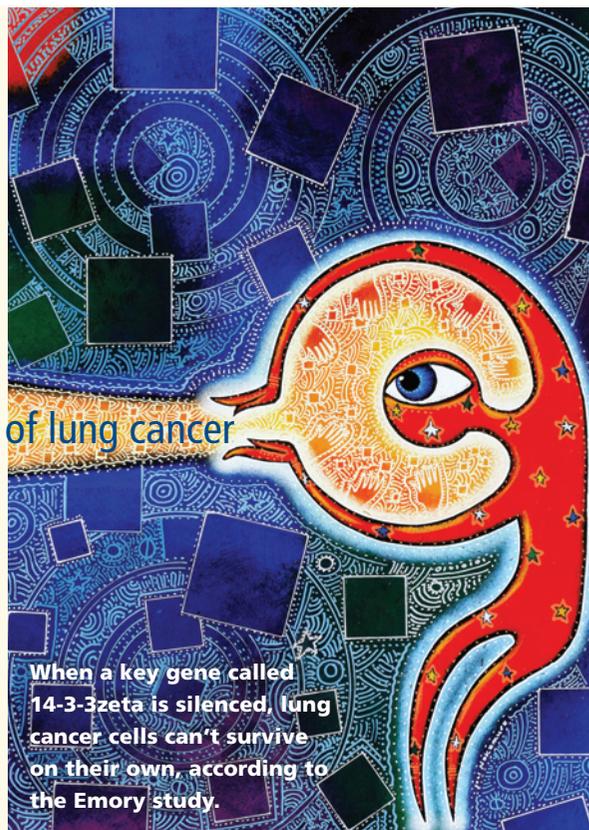
Fu and collaborator Fadlo Khuri, Winship's deputy director of clinical and translational research, chose to focus on the 14-3-3zeta gene because it is activated in many lung tumors. In addition, recent research shows that survival of lung cancer patients is worse if the gene is on overdrive in tumors.

These genes are found in mammals, plants, and fungi. In the human body, they come in seven varieties, each given a Greek letter. Scientists describe the proteins they encode as adaptors that clamp onto other proteins. The clamping function depends on whether the target protein is phosphorylated, a chemical switch that regulates processes such as cell division, growth, and death.

In the Emory study, the researchers used a technique called RNA interference to selectively silence the 14-3-3zeta gene. They found that when it is turned off, lung cancer cells become less able to form new tumor colonies in a laboratory test.

One of the important properties of cancer cells is their ability to grow and survive without touching other cells or the polymers that connect them. With 14-3-3 turned off, lung cancer cells do not grow more slowly. However, they do become vulnerable to *anoikis* (Greek for homelessness), a condition that occurs when non-cancerous cells that are accustomed to growing in layers find themselves alone.

Further experiments showed that 14-3-3zeta regulates a set of proteins called the Bcl2 family that control programmed cell death, and its absence upsets the balance within the family.



## A model multiple myeloma center

Winship Cancer Institute and Associate Professor Sagar Lonial have received the 2007 Multiple Myeloma Research Consortium (MMRC) Center of the Year Award. The award recognizes the efforts of a consortium member institution and its principal investigator in advancing research and drug development for multiple myeloma.

"From my perspective, this award is the culmination of building a research program in multiple myeloma and a credit to our team," Lonial says. "We have so many people, such as research coordinators, nurse practitioners, data managers, and doctors, focused every day on myeloma, so this is a credit to them."

The MMRC brings together 13 leading academic institutions to accelerate treatments for multiple myeloma, an incurable but treatable cancer of the white blood cells, also called plasma cells. There are about 20,000 new cases of multiple myeloma each year, making it much less common than breast, colon, or lung cancer.

The consortium essentially creates the framework for myeloma trials conducted by its member institutions. It provides a universal contract between pharmaceutical companies and member institutions, but it does not fund studies. "Essentially they bring like-minded institutions and companies to the table all at one time," Lonial says. "They make it a lot easier."

Under Lonial's leadership, Emory has opened eight clinical trials in multiple myeloma research since joining the MMRC in 2004.

## The biology of depression

**In prescribing antidepressants, psychiatrists in the past have had to rely on trial and error to see which worked, and the outcomes were less than impressive. Up to 30% of patients found the first treatment they got to be ineffective, and only about 40% recovered completely.**

But in 2007, Emory researchers began a project as one of only two Centers for Intervention Development and Applied Research (CIDAR) funded by the NIH that year. Its goal: to pinpoint successful treatment options for patients with major depression. Its approach: to identify predictors of response to commonly used and effective treatments.

Now in 2008, the scope has expanded further with additional NIH funding that allows the scientists to follow the predictors of relapse. In other words, not only will they determine what treatment depressed people need—whether a particular antidepressant or talk therapy—but also the predictors of relapse in patients who initially exhibit response.

Psychiatrist Boadie Dunlop, director

of the CIDAR operations core, believes this project is “perhaps the most important biologic study of depression ever undertaken. It will give us solid data about the biology of depression, potentially changing the way the field of psychiatry practices.”

Why the large claims? The time is right for such work, according to Dunlop. Technologic advances such as brain scans, stress system measurements, and gene mapping give scientists new tools to study depression. Also enough of the basic work has been done to give researchers a greater level of confidence in knowing where to look.

“There have been many studies of first-episode or never-treated schizophrenia,” says psychiatrist Charles Nemeroff, principal investigator of the

Emory CIDAR, “but there are virtually no studies of first-episode or never-treated depression.”

The researchers are amassing data from brain scans, blood samples, genetic mapping, and stress hor-

mones to develop a complete picture of patients’ responses to medication and cognitive behavior therapy. In the first 12-week phase of treatment, patients

are randomly assigned treatment with



either antidepressant medication or talk therapy. At the end of that time, if they aren't better, they are given the alternate treatment. Beyond that, Emory will offer the patients treatment at no cost for a total of two years. In all, the study will enroll 600 patients in the six-year study.

Helen Mayberg, one of the world's leading experts on functional brain imaging and mood disorders, will complete a baseline functional MRI scan of each participant before, during, and after treatment. “The idea is that people who get better on drugs have

**WEB CONNECTION** For more information about the CIDAR study or to enroll, call 404-778-6663 or visit [emoryclinicaltrials.com](http://emoryclinicaltrials.com).

a different scan pattern than those who get better with therapy," she says. "Identifying scan patterns that will reliably predict poor outcome to either treatment is also extremely important."

Joseph Cubells and Elisabeth Binder are working on the genetic piece of the depression study. Binder has identified specific variations in the DNA sequence of certain genes

that encode proteins involved in the stress response, which may predict who is more likely to respond to antidepressants. For the CIDAR project, the team will measure stress hormone levels of the participants before and after treatment. If the stress response goes up, it's

a likely predictor the patient will relapse, hypothesizes Cubells.

In another area of study, Michael Owens will examine how many transporters—the sump pumps of the brain—need to be blocked for optimal response. Transporters pump out excess transmitters that are released every time the brain sends a signal to keep the connections

between neurons clear and ready to receive another signal. Although scientists don't know why, these drugs that block transporters turn out to be effective antidepressants. Owens and his team will give healthy volunteers varying doses of various antidepressants,

followed by a PET scan, to determine how many transporters are blocked.

Ed Craighead, principal investigator of the second grant that will look at predictors of relapse, also oversees the cognitive-behavioral therapy portion of CIDAR. He has co-written a widely used textbook on cognitive behavior therapy with his Emory colleague and wife, Linda Craighead.

All of these approaches lead to the ultimate goal—a way to treat patients based not on a hit-or-miss prescription but instead on solid predictors of response. Then the field of mental health will have the same tools on which other branches of medicine—cardiology, oncology, infectious disease—have long relied. —Rhonda Mullen and Martha Mackenzie

**Although scientists don't know why, these drugs that block transporters turn out to be effective antidepressants.**

## Go to the Source

*Emory Health Source*, a monthly e-newsletter from Emory Healthcare, features new treatment options, information on staying healthy, and research advances to improve health. It also offers a list of seminars and free registration to patients on a variety of topics from cardiology to nutrition to vision. To subscribe, call HealthConnection at 404-778-7777 or register online at [www.emoryhealthcare.org](http://www.emoryhealthcare.org).

**Emory Health Source**  
 News the consumer can use every day  
 March 2008

**MARCH 2008 EVENTS**

**In This Issue**

- 2008 ING Georgia Marathon: Final Training/Race Day Information
- Emory Bariatrics Receives Level 1 Accreditation From American College of Surgeons
- Nutrition Tips: How to Stay Hydrated

**2008 ING Georgia Marathon: Final Training/Race Day Tips and Pitfalls**

If you're planning to participate in the 2nd Annual ING Georgia Marathon (26.2 miles) or Half Marathon (13.1 miles) Sunday, March 30, 2008 (start time: 7 a.m. at Centennial Olympic Park), you're entering the homestretch.

According to **Kenneth Mautner, MD**, a physician at the Emory Sports Medicine Center, there's a lot you can do to prepare in the final month before the race.

**ING Training Seminars: Tips From the Experts**

EMORY HEALTHCARE, an official sponsor of the 2008 ING Georgia Marathon, is sponsoring two ING training seminars conducted by Emory Sports Medicine physicians. Seminars are open to the public, including people not running the marathon.

**Saturday, March 1 IVF Seminar**  
 Join us for a FREE informational seminar on infertility and in vitro fertilization, presented by the Emory Reproductive Center.

**Saturday, March 1 ING Marathon Seminar**  
 Marathon/half-marathon and running tips will be discussed by Emory Sports Medicine physicians.

**Tuesday, March 4**

## Almost the real thing

**"My chest is killing me."**

**"Sir, does it hurt when you breathe?"**

**"Yes." Gasp. "All the time."**

**"On a scale of one to 10, with 10 being the worst, how bad does it hurt?"**

**"It's 10-plus."**

The medical team evaluating this injured construction worker springs into action. The leader calls for someone to take the patient's vitals. A nurse reads off num-

bers from the monitors, and another nurse records them on a flip chart. A doctor listens through a stethoscope.

team leader. They haven't had that class yet. These healers are third-year medical students and fourth-year nursing students at Emory who are participating for the first time in a joint simulation training exercise. They met just moments before when they were presented with this scenario. Their patient, a construction worker who has earlier been evaluated in this same simulation suite for a broken leg, is a life-like

mannequin who breathes, is fitted with monitors, and can be programmed to present actual health symptoms. For this exercise, a facilitator reads the patient's lines from a script. This experience is being repeated in adjacent simulation suites in the School of Medicine and the Nell Hodgson Woodruff School of Nursing. Today, 213 students from both schools are training in the all-day event. More than 60 nurse educators from Emory Healthcare and Grady Health System and faculty from both the nursing and medical schools completed their own two-hour training as facilitators to work with the students.

Although many people assume that medical and nursing professionals train together as part of a team, this isn't necessarily so, says Barbara Kaplan, coordinator of the Charles F. and Peggy Evans Center for Caring Skills. "They train independently in their respective disciplines, and their first interactions are typically in the hospital emergency department or clinic."

Why is team training a good idea?

"It reduces medical errors and improves patient care," says

Douglas Ander, director of the Emory Center for Experiential Learning.

Back in the training suite, a nursing student has fitted an oxygen mask over the construction worker.

**"This is going to be a little uncomfortable. I apologize,"** she says.

**"Let's start the oxygen at,..."** The team leader hesitates. **"Let's say 0.5 liters."**

The instructor reading the script gestures with his thumb up to help her out.

**"1 liter?"**

He gestures more broadly.

**"5 liters? 10?"**

He leans in and whispers, **"12."**

**"12,"** she repeats, and the team is off for the next hurdle.

At the end of 20 minutes, the simulation is over, and it's time to debrief. "This is an important step," says Ander, who has been watching in the wings. "In real life, debriefing is when health care workers can learn the most about the care they just delivered."



bers from the monitors, and another nurse records them on a flip chart. A doctor listens through a stethoscope.

**"It sounds crackly,"** she reports.

**"What's going to happen to me?"** groans the patient.

**"We're going to take care of you, sir,"**

says the doctor leading the group. Then she turns to her team. **"I suspect a heart attack. Someone call cardiology."**

The call is in process when a nurse chimes in: **"He's stopped breathing."**

**"He's stopped breathing? He's stopped breathing. Okay, what should we do?"**

The team member designated as the runner suggests oxygen, but he doesn't know the proper amount. Neither does the

mannequin who breathes, is fitted with monitors, and can be programmed to present actual health symptoms. For this exercise, a facilitator reads the patient's lines from a script.

This experience is being repeated in adjacent simulation suites in the School of Medicine and the Nell Hodgson Woodruff School of Nursing. Today, 213 students from both schools are training in the all-day event. More than 60 nurse educators from Emory Healthcare and Grady Health System and faculty from both the nursing and medical schools completed their own two-hour training as facilitators to work with the students.

Although many people assume that

Like the other training groups, these two teams relocate to a classroom to critique their performance and talk about what they learned. They talk about what went well, what they could have done better, what was hard.

**"We may have spent too much time talking before we started."**

**"You did a good job of being verbal, thinking out loud."**

**"We forgot to look for allergies."**

**"It was a little chaotic."**

**"We shouldn't have said 'tombstoning' in front of the patient."**

The facilitator wraps up the session. What is the take-away? These students have gotten a taste of what it's like to be in an actual clinical setting. They've learned to speak up when something starts going wrong. They've managed to work together

as a team rather than getting caught up in a hierarchy. They've gained capacity and confidence.

**"This takes away some of the awe, doesn't it?"** the facilitator says. **"You realize that there is no mystery to it. You organize yourself, and you implement."**

She looks around the room. **"You did a good job. Give yourself a hand."**

—Rhonda Mullen

## Expanding the field

### In Ghana, current mental health care delivery is modeled purely on Western approaches to psychotherapy.

But health experts wonder if an approach drawing on local cultural beliefs in traditional healing might be more effective. Bridget Piggue, a doctoral student in Emory's Candler School of Theology, is exploring that question in research that has taken her to Ghana to visit local healers and traditional healing sites. Her findings will contribute to an Emory course on religion and healing in Africa beginning fall 2008 and are made possible by a field scholars program sponsored by Emory's Global Health Institute (GHI).

The GHI Field Scholar Awards enable students across the university to participate in short-term global health field projects. Typically, these projects target populations in low- and middle-income countries, but they also are available for U.S.-based projects with underserved populations. Launched in 2007, the Field Scholar Awards program has expanded recently to include two new opportunities. Team Field Scholar Awards will give students an opportunity to work with fellow students and faculty mentors on self-initiated global health projects, and Partner-site Field Scholar Awards will enable multidisciplinary teams to work on pre-

selected projects in collaboration with a GHI partner organization.

These awards build on a long Emory tradition of helping students pursue field studies in global health. In Emory's Rollins School of Public Health, between 45 and 55 students each summer participate in research projects ranging from family planning in India and AIDS prevention in Rwanda to safe water in Kenya. The projects provide a testing ground for students, helping shape the next generation of health advocates and policy-makers.

The GHI is expanding this testing ground to include students from the entire university. "There are so many other disciplines involved in global health, such as economics, anthropology, theology, education, law, journalism, and business," says Suzanne Mason, who coordinates the GHI learning programs. "We want to enable students from across Emory to get involved."

Awards for 2007 went to nursing, physician assistant, and theology students who traveled to Nigeria and Costa Rica to complete clinical rotations, to Bangladesh and Botswana to study birth control methods and safe sex, and to Ghana to research the effects of media on mental health.

**WEB CONNECTION** To learn more about field scholarships in the GHI, visit [www.whsc.emory.edu/r\\_globalhealth.html](http://www.whsc.emory.edu/r_globalhealth.html). To read about field experiences of RSPH students, visit [www.whsc.emory.edu/r\\_fieldexperience.html](http://www.whsc.emory.edu/r_fieldexperience.html).

## Strategically placed

**During the week, David Stephens has one meeting after another.** His schedule has multiplied since becoming the first vice president for research in the Woodruff Health Sciences Center (WHSC). But every Friday afternoon, he carves out a little piece of nirvana and ventures back to his laboratory. There, for several hours, he directs the infectious disease research that first sent his career on its trajectory.

Stephens' new charge is to ramp up multidisciplinary and interdisciplinary research across WHSC and craft a strategic vision for research. And his laboratory, housed at the Atlanta VA Medical Center, is where he finds inspiration. His research focuses on defining the molecular basis for virulence of bacterial meningitis and ways to prevent this devastating infection, both in this country and globally. His research has been part of successful efforts to introduce and assess new vaccines to prevent meningitis.

When Stephens came to Emory in 1982, it was the potential for collaborative research, especially with the CDC, that attracted him. Ten years later, he was named director of the medical school's division of infectious disease. (The program in infectious diseases at Emory now receives half of all infectious disease fellowship applications in the country.)

Since then, Stephens has added a host of credentials to his resume. A fellow of the Infectious Diseases Society of America, he has served on NIH, VA, CDC, and FDA review panels. He has chaired the FDA National Vaccine Advisory Committee and served as a liaison member of the Health and Human Services National Vaccine Advisory Committee and as a senior scientific consultant to the Meningitis and Special Pathogens branch at the CDC. Most recently, he was executive associate dean for research in the School of Medicine. These many years later, he sees potential for even more research across disciplines and between partners. "There was a real need for this position," Stephens says. "This is the next step in our evolution as a research institution."

In approaching this broad mandate, Stephens already has put together a research advisory council to help develop a strategic plan and to be a sounding board for ideas. Among its pri-

orities, the council is looking at ways to increase pediatric research collaborations with Children's Healthcare of Atlanta, and it is developing a better system for research metrics. "Success in research goes beyond dollars and rankings," Stephens says.

In his first year in this role he expects to spend more and more time promoting research across

WHSC and the university and "the translation of bench to bedside," as he describes it. He hopes to develop further the relationships with the Georgia Research Alliance and the Georgia Cancer Coalition partnerships of Georgia research universities, industry, and state government that promote the state's technology discovery by attracting eminent scholars to Georgia universities, creating centers of research excellence, and converting research into products, services, and jobs.

And Stephens is reaching out to more partners who will enhance the reach of research in the WHSC. He recently visited Vanderbilt University to gauge interest in collaborating on predictive health. Emory already has launched a Predictive Health Institute with Georgia Tech that promotes a model of health care focused on maintaining health rather than treating disease. The institute covers not only the traditional fields of medicine, public health, and nursing but also areas such as anthropology, ethics, human behavior, health policy, law, business, and religion.

With yet another set of partners, Stephens is building the infrastructure needed to support and enhance research. He is principal investigator on a Clinical and Translational Science Award of \$31 million from NIH to Emory, Morehouse, and Georgia Tech.

Should any of the researchers working in other health sciences centers have a question, they'll always know where to find their go-to man on a Friday afternoon. —Kay Torrance



**David Stephens sees his new position as VP for Research as the next step in Emory's evolution as a research institution.**

## Comprehensive health care in the U.S.? The 2008 presidential election will predict how far we'll go.

By KENNETH THORPE

**The 2008 presidential election in the United States has again elevated the issue of health care reform to center stage.** Reform proposals are proliferating in the states as well as nationally. Virtually all candidates running for President have outlined their plans for reforming health care.

The renewed interest in health care reform reflects the continued deterioration of several key measures of the performance of the U.S. health care system. Since 2000, the nominal cost of private health insurance has doubled. During the same period, the number of Americans without health insurance has increased from 38.7 million to 47 million in 2006. Objective measures of the quality of health care provided to chronically ill patients are also of concern because such patients receive only about 56% of clinically recommended preventive health care, according to a study published in the *New England Journal of Medicine* in 2003.

The problems plaguing the American health care system are not new. What is new is the flurry of activity around health care reform at the state level. In the absence of federal leadership during

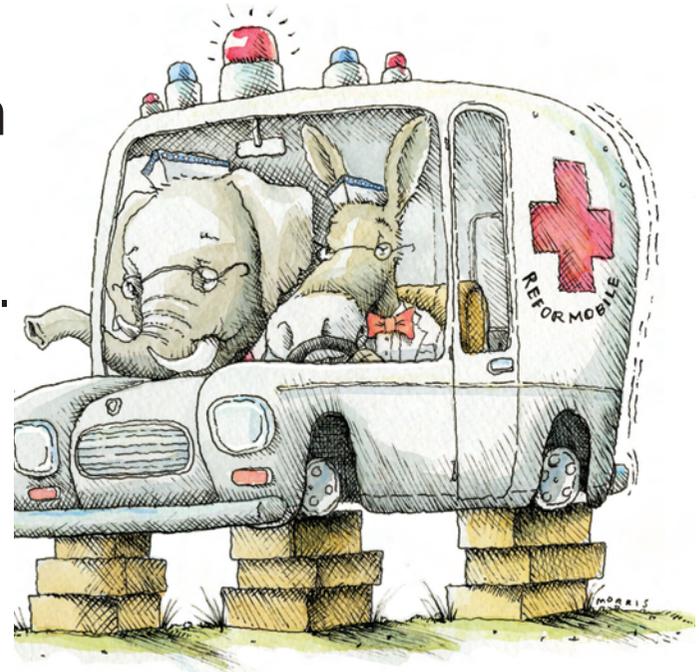
the past seven years, two states—Vermont and Massachusetts—recently have passed comprehensive health care reform plans. Massachusetts passed a mandate requiring all residents of the state to have health insurance. Health plans offered through the state's insurance connector offer comprehensive benefits. People can purchase a low-cost sharing or a higher-cost sharing version of these plans (premiums differ by about \$35 per month). The law contained certain exceptions for those earning more than three times the U.S. poverty level, allowing them to apply for a waiver from the requirement and remain uninsured if the state insurance connector deems the cost of insurance unaffordable.

Vermont passed a broader set of reforms that redesigned delivery of health care to chronically ill patients, accelerated diffusion of health information technologies to primary care physicians, and created new programs on prevention and public health initiatives. In addition, the Vermont legislation required that the percentage of the population with insurance increase

from 90% to 96% by 2010. Several other states—including California, Pennsylvania, and Illinois—are contemplating similar reforms.

The health care reform proposals advanced by the Democratic presidential candidates this year differ significantly from those of the previous two election cycles. Republican presidential candidates are floating health care reform proposals as well during the primary phase. One key difference between past and present plans is that virtually all them have proposed reforms that go beyond health financing reforms designed simply to cover the uninsured. The broadened focus represents a new political strategy and direction to make health care more affordable, improve the quality of care, and reduce the number of uninsured.

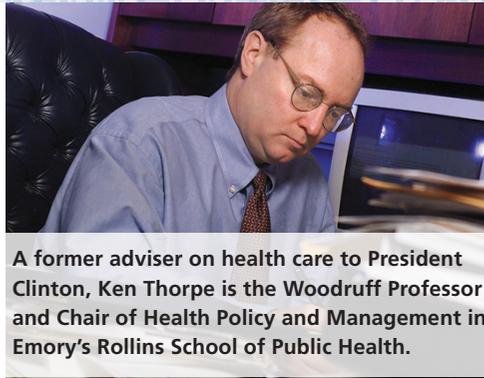
Perhaps the most important reason underlying these more comprehensive reforms concerns the strategy of how to politically proceed with comprehensive health care. More than 250



million Americans have some form of private or public health insurance coverage. Of this total, approximately 200 million receive coverage through their employer. Those with health insurance are concerned primarily with the affordability of coverage, a topic largely ignored during the past two presidential cycles. Another key consideration is that adults with health insurance vote. During the 2004 mid-term elections, 96% of voters had health insurance, leading to the recognition that 85% of Americans were already insured and their main concern was the affordability of health care. This recognition has played an important role in shaping Democratic health care proposals.

The U.S. health care system is built to deliver health care services to acutely ill patients requiring episodic care. As a result, chronically ill patients receive only a portion of the preventive and maintenance care recommended by physicians. In light of these facts, the Democratic presidential candidates have developed specific proposals to modernize the delivery of health care to more effectively prevent and manage chronic illness. These proposals include payment reform proposals to assure that chronically ill patients receive all clinically recommended preventive services. The annual payments to primary care physicians or multi-specialty clinics would cover the expected costs of treating patients with chronic illnesses such as diabetes throughout the year.

A second major difference in the



**A former adviser on health care to President Clinton, Ken Thorpe is the Woodruff Professor and Chair of Health Policy and Management in Emory's Rollins School of Public Health.**

Democratic plans of 2008 is the focus on universal coverage. Senator Clinton has called for a requirement that individuals acquire health insurance. Under her proposal, people could receive coverage either through their place of employment or by purchasing coverage through the same plans that are offered to federal workers—the Federal Employees Health Benefits Program. Senator Obama's plan would establish a national health insurance exchange—similar to one created in Massachusetts—that would allow employers and individuals to purchase coverage with federal financial assistance for low- and moderate-income families. While Obama's plan calls for all children to have coverage, it falls short of requiring adults to do so. Instead, his campaign proposes federal subsidies to reduce the cost of insurance, with the expectation that most uninsured people would purchase health insurance.

The Republican plans have been more modest and moved in a different direc-

tion. None of the leading Republican candidates advocated universal coverage. Senator McCain, destined to be the party's nominee, would eliminate the current favorable tax treatment of employer-sponsored insurance, and in its place, he would provide federal tax credits of \$2,500 per individual and \$5,000 per family to purchase health insurance.

I estimate that the number of newly insured under the most aggressive Republican proposal is well under 10 million. Moreover, the thrust of these proposals expands coverage in the individual (non-group) insurance market.

The outcome of the 2008 presidential election, along with the Congressional elections, will play a key role in deciding how comprehensive health care reform will be. We may see virtually no changes or, at the other extreme, broad structural changes in health care delivery and universal coverage. Many of the states, tired of waiting until the issue is resolved at the federal level, are going ahead with development of their own approaches. No matter the details, the push for broader, more comprehensive reforms of the American health care system is bound to continue to mount. The outcome of the 2008 elections will go a long way toward predicting how fast reform will be.

### For additional reading on this topic, Thorpe recommends

E McGlynn et al., "The quality of health care delivered to adults in the United States" *New England Journal of Medicine*, 2003: 348: 2635-2645.

KE Thorpe, "Vermont's Catamount Health: A Roadmap For Health Care Reform?" *Health Affairs*, November/December 2007: 26(6): w703-w705.

[www.nga.org/Files/pdf/0707HEALTHREFORM.PDF](http://www.nga.org/Files/pdf/0707HEALTHREFORM.PDF)

[www.massresources.org/pages.cfm?contentID=81&pageID=13&Subpages=yes](http://www.massresources.org/pages.cfm?contentID=81&pageID=13&Subpages=yes)



## A picture is worth....

Emory's Global Health Institute (GHI) and gallery owner Robert Yellowless are teaming up to bring the faces of global health to the Emory campus. With the support of Yellowless, founder of Atlanta's Lumiere Gallery, the GHI has launched the first university-wide global health

student photography contest. The competition encourages students conducting global health projects to examine the culture and people with whom they are working to foster cultural sensitivity. The five winners will receive a \$500 cash prize.

In addition, Yellowless has helped establish a global health photo gallery in GHI offices at 1599 Clifton Road. The gallery features photographs (including the one above) by Atlanta photographer and former Emory staffer Billy Howard from his portfolio taken in Bangladesh, Nicaragua, Mexico, and Ghana. Howard's photography has been exhibited internationally and is part of the permanent collections of the Library of Congress, the High Museum of Art, The Carter Center, and the CDC.



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