

FALL 2010

EMORY | health

PATIENT CARE, RESEARCH, AND EDUCATION FROM
THE WOODRUFF HEALTH SCIENCES CENTER



FROM THE INTERIM EXECUTIVE VP



Worldview

On the cover of our issue, two children are learning about how to prevent Guinea worm disease. The photo was taken when Sadia Mesuna and Fatawu Yakubu were 6 and undergoing treatment for the painful disease, which is contracted by drinking contaminated water. For two months each morning at a case containment center in Ghana, health care workers would gently tug emerging worms from the children's bodies, wrapping the worms taut around a stick. During the long process, Sadia and Fatawu lived at the center and were unable to go to school or work. "It feels more

painful than stepping on fire coals or being cut," remembers Sadia of that time.

For the past 20 years, The Carter Center of Emory University has been working to eradicate Guinea worm worldwide, and it is now very close to success—from 3.5 million cases down to only thousands (most of them in war-torn Southern Sudan). It has done so with the help of partners at the CDC, Emory, WHO, UNICEF, and many others. Through this effort, Guinea worm is poised to be only the second disease—after smallpox—ever eradicated.

That goes to show what can happen when global health partners work together, when people with varied expertise come together to tackle an age-old problem like Guinea worm. It also applies to partners who forge unexplored territory like the newly emerging field of bioinformatics, also featured in this issue.

At the Woodruff Health Sciences Center, we are proud to lend support to such issues at home and abroad. We are fortunate to have President Jimmy Carter as a frequent teacher in our classrooms and The Carter Center as our collaborator. We are lucky to have researchers who draw on a worldwide network to bring solutions and innovations to complicated health challenges. I am thankful to lead a center that has the people, partners, and dedication to continually seek to improve people's health whether at the population level or for individuals like Sadia.

S. Wright Caughman

Please share your feedback at evphafeedback@emory.edu.

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PHOTO LOUISE GUBB

Having Guinea worm "feels more painful than stepping on fire coals or being cut. You don't feel like eating anything." —SADIA MESUNA

EMORY | health

PATIENT CARE, RESEARCH, AND EDUCATION FROM
THE **WOODRUFF HEALTH SCIENCES CENTER**

Guinea worm eradication is now within reach, and when—not if—that happens, it will become only the second disease ever to be eradicated and the first to be eradicated without vaccines or medicine.

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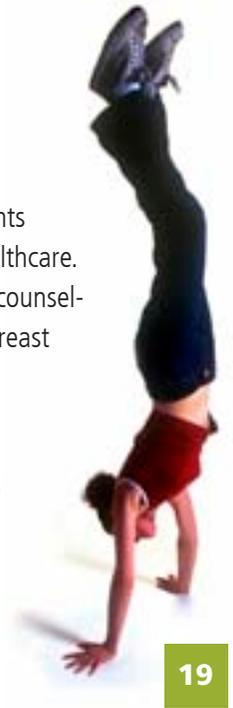


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PHOTO BILLY HOWARD



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What do you think? *Emory Health* welcomes your comments—pro or con—about topics and issues covered in this magazine. Please send comments, letters to the editor, address changes, and other correspondence to *Emory Health*, 1440 Clifton Road, 150M, Atlanta, GA 30322; email rhonda.mullen@emory.edu; or call 404-727-8166.

A president's promise

President Carter made a vow to wipe an ancient and terrible disease from the face of the earth, and **two decades later, he's on the verge of making it happen.**

Jimmy Carter has told the story many times, but it is worth retelling. He and former First Lady Rosalynn Carter had made the long trip from Georgia to a remote village about 50 miles from the capital of Ghana. They had come to Denchira to see firsthand an ancient and unsavory disease called Guinea worm that was wreaking havoc in Africa.

As they arrived, all the villagers who were able gathered under a patch of shade trees to hear what this former President of the United States had to say. Carter began to talk about the causes of Guinea worm, a tropical disease that here in Denchira on this day affected more than 200 of the 500 villagers listening to him.

Among them was a woman, cradling a baby in her arms. Carter approached her to ask the baby's name and to talk with her, but when he got closer, he realized there was no baby. Instead the woman was holding her right breast, swollen to an arm's length, with a Guinea worm painfully emerging from the nipple. Later that same year, the woman would have 11 other Guinea worms break the skin and begin their painful exit from her body.

Then and there Carter made a promise to himself that this horrific disease had to be stopped. He thought, there is no reason that people should go through such suffering from a disease that is so easy to prevent.

Referred to as the “fiery serpent” in the Bible, Guinea worm has been with us always. People contract Guinea worm, or dracunculiasis, when they drink contaminated water containing tiny water fleas (copepods) that harbor Guinea worm larvae. The worms mature in

a person's body, growing up to 3 feet in length, and after a one-year incubation, they emerge through burning blisters in the skin. The worms must be removed manually from the body as they emerge—they are wound around a stick a little each day over the course of one to two months. Often infected people go into water holes for relief from the pain, releasing larvae into the water and starting the cycle all over again.

The Carter Center—founded in 1982 in partnership with Emory University—seeks to improve the quality of life for people worldwide, advance human rights, and alleviate unnecessary suffering. Its health programs look to fill vacuums in global health, areas where no other group is working effectively, and that is where Guinea worm comes in. When the Carters started to identify those vacuums, the biggest gap they discovered in the past 30 years was in the prevention and treatment of neglected tropical diseases. “We adopted them because no one else wanted to fool with them,” says Carter.

The Carters have marshaled a worldwide network of global health organizations, tropical disease experts, and volunteers to tackle not only Guinea worm but also a raft of neglected tropical diseases. The CDC has been integrally involved, as have the WHO and the Peace Corps. UNICEF has drilled deep wells, bringing safe water to some villages affected by Guinea

worm. Emory's Rollins School of Public Health has trained key leaders in the Guinea worm program. Most important, villagers in Asia and Africa have served on the front lines of the Guinea worm showdown. Today, all the leaders of the national eradication programs



Referred to as the “fiery serpent” in the Bible, Guinea worm has been with us always.

By RHONDA MULLEN • Color photos by LOUISE GUBB, Courtesy of The Carter Center, B&W by BILLY HOWARD



The Carters have led the efforts to eradicate Guinea worm disease. Here they lend sympathy and support to a child at Savelugu Hospital in Ghana as a worm painfully emerges through a burning blister in her foot.

Exclusive videos at whsc.emory.edu/Carter

come from in-country, as do many of the staff on the support teams.

When the center undertook the first worldwide eradication campaign of Guinea worm in 1986, there were an estimated 3.5 million cases in 20 countries in more than 23,000 villages in Asia and Africa. With the doors that the President opened and the interest and energy he generated, cases of Guinea worm began dropping precipitously. One after another, the Guinea worm count fell to zero in Pakistan (1993), Kenya (1994), India and Chad (1996), and on to Yemen, Senegal, and Cameroon. Today Guinea worm cases have been reduced by more than 99.9%, and the worm remains in only four countries in Africa: Sudan, Ghana, Mali, and Ethiopia. In fact, Ghana may have already seen its last case, but because of the one-year incubation period, that can't yet be confirmed.

What is known: there are now fewer than 600 uncontained cases of Guinea worm in the world, with the largest chunk of those in Southern Sudan. The challenges there include reaching isolated villages in war-torn areas that are spread over vast distances. The Carter Center has more than 12,000 volunteers in Sudan alone, but safety remains an issue. "In a troubled zone, it is triply difficult to get those last cases," Carter says.

Still he is not discouraged. Despite setbacks and occasional faltering in the program over the past 20-plus years, its steady progress has kept Carter inspired and going. Guinea worm eradication is now within reach, and when—not if—that happens, it will become only the second disease ever to be eradicated and the first to be eradicated without vaccines or medicine.

One village at a time

Jimmy Carter—former President, Nobel Peace Prize laureate, Emory University Distinguished Professor—is at his core a farmer. With two family farms in Georgia, one dating from 1904, the other from 1833, Carter has roots that are deeply embedded in the soil around Plains, population 635.

When he started visiting the farming communities in Africa that were brought to a standstill by Guinea worm, he felt right at home. Carter knew what it means to a community when its farmers are unable to work, when the children are too sick to go to school, when the mothers are too weak to cook the evening meal. The son of a nurse, he knew that health is vital to peace and potential.

And it's not just the people infected with Guinea worm who have Carter's empathy. The threat of river blindness (onchocerciasis) in Africa has caused farmers to move further and further away from the rich fertile bottomland near the river to get away from the black flies that breed in rapidly flowing waters and cause the eye-damaging, even blinding disease. In coffee-producing countries such as

Guatemala, contracting river blindness may be considered an occupational hazard. Fast-flowing streams providing irrigation to nearby coffee farms can be breeding grounds for the black flies that spread the disease.

In endemic areas, people are bitten thousands of times each year, and a small child may be bitten more than 50 times in a single day. The result is that almost everyone in an endemic community can harbor onchocerciasis, which prevents them from working, harvesting crops, receiving an education, or taking care of children.

Following the model developed for the Guinea worm program, The Carter Center has taken on other tropical diseases that are little known in the developed world: river blindness, trachoma, lymphatic filariasis (elephantiasis), snail fever (schistosomiasis), and malaria.

The center's approach is what Donald Hopkins, vice president of the health programs at The Carter Center and former deputy and acting director of the CDC, calls "old-fashioned public health." The Carter Center's expertise, he says, is in providing supplies, mustering experts and volunteers, and managing data, as opposed to laboratory research or digging wells. Carter Center workers stick to what they know. While the intervention tools may vary in the specific disease programs, all involve a village-based, low-cost approach. Take, for example, the pipe filters that protect people from Guinea worm when they have to drink from unsafe water sources. Over the two decades of the eradication program, Carter Center staff have learned that nylon filters work faster and last longer than cotton, and a finely woven metal mesh screen lasts even longer. When war prevented Carter Center workers from



"We don't go into a village with the attitude that we have all the answers."

reaching the people of Sudan with their education interventions for Guinea worm, they still were able to send ahead more than 9 million pipe filters to the inaccessible regions. The filters were assembled by refugees living in Kenya (many of them women) and donated by private, government, and church partners in Norway. By the time workers were able to safely navigate the countryside, the filtering technique had already dramatically reduced the number of cases there.

"When we enter a new country or village, we start with respect," says Hopkins. "We don't go into a village with the attitude that we have all the answers. We have to remember it's not our country. We serve at their pleasure."

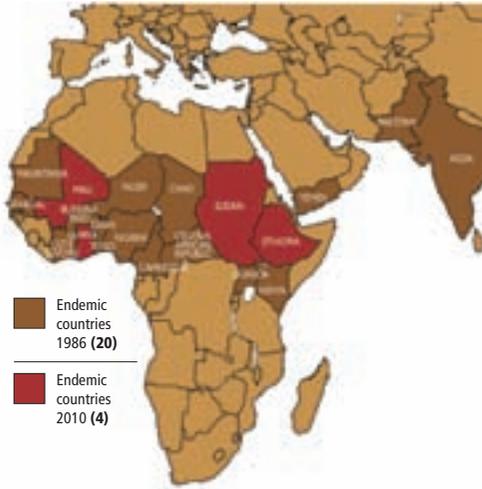
Some in the global health community have criticized the center's decision to focus on individual diseases rather than broad primary health care initiatives. After all, while horrific, Guinea worm is not fatal. Hopkins—and Carter too—take issue with that. "There's a lot of verbiage on how countries need to develop and strengthen their primary health care," Hopkins says. "When a child needs an immu-



PHOTO COURTESY OF ROLLINS SCHOOL OF PUBLICHEALTH

President Carter has used his stature to rally world leaders, health ministers, and global health volunteers to wipe out preventable tropical diseases such as Guinea worm. Above, he comforts Ruhama Issah as a Carter Center worker tends to her worm wound. The only way to prevent Guinea worm disease is to drink safe water. Right, a dam guard checks a water filter for holes while children at a containment center tap a supply of safe water. During treatment, children have to live away from their families in containment centers and are unable to attend school.





WOMEN AND YOUNG GIRLS ARE RESPONSIBLE FOR ALL HOUSEHOLD WATER COLLECTION IN GHANA. For that reason, The Carter Center has enlisted them to help identify new cases of Guinea worm. Every case must be tracked down, contained, and treated for eradication to become a reality.

When the center started its Guinea worm eradication effort in 1986, the disease affected 3.5 million people in more than 20 countries and 23,000 communities in Africa and Asia. More than two decades later, with help from worldwide partners, the disease remains in only four countries, with the majority of cases in war-torn southern Sudan.

To see videos of President Carter discussing his long fight with the worm and his long affiliation with Emory, visit whsc.emory.edu/carter/.

To see related story about Guinea worm in southern Sudan in *Emory Magazine*, visit emory.edu/EMORY_MAGAZINE/.



nization, breaks a leg, or gets bitten by a snake, those are all basic health care needs. But there's an awful lot of talk and precious little action. We don't do good waiting for perfect."

As for Hopkins, he says he'd "rather get something than nothing." Working on single diseases, he argues, can lead to so much more—through health education, improvement in general hygiene, and advocacy for safe water programs. Where appropriate, The Carter Center also combines interventions, such as mass drug administration against several diseases.

The Carter Center's river blindness program, for example, distributes the medicine Mectizan (donated by Merck) to kill the parasite's larvae, preventing blindness and transmission, and as a fringe benefit, de-worming children. Other benefits include mobilizing villages to create better health systems and improved nutritional status.

In general, Hopkins believes that the developed world has fallen well short of its potential in answering health challenges in developing nations. "We can and should be doing more," he says.



The developed world has fallen well short of its potential. "We can and should be doing more."

The realm of possibility

With the help of Hopkins and a cast of tens of thousands, Carter has been after Guinea worm for more than two decades. He's been assisted by kings, presidents, and prime ministers as well as those who have inspired him but remain nameless. On a return trip to Denchira, he was unable to locate the woman who first motivated him to take on Guinea worm. She was no longer living in the village. But he was gratified to see that, thanks to efforts by The Carter Center and the donation of a banker who paid to have a well drilled in the village, the number of cases of Guinea worm in

Denchira one year later was zero.

Those many years ago, Carter never thought it would take this long to bring the cases to zero elsewhere, but he is determined to finish the job. "We are tenacious," he says with a smile.

Failure is not a possibility for more reasons than one. He has made promises to people who've done their part. If he doesn't succeed with Guinea worm now after all this effort, how can he ever hope to succeed with a more complicated disease like malaria?



"Who here has had Guinea worm disease?" President Carter asked children outside Savelugu Hospital in Ghana, and hands shoot up throughout the group. Right, a young boy wears a pipe filter that filters out the microscopic fleas that harbor Guinea worm larvae from the water he drinks.



ANNEMARIE FOYO



Top, a Carter Center volunteer shows children how to use a pipe filter to drink water when they accompany their families to fields far away from community water supplies. The Carter Center is tackling other tropical diseases too. Bottom, l to r, Carter and Western funders see two women who have lymphatic filariasis in Nigeria. Dressed in robes from a Dagumba chief, the Carters visit Tingoli in Ghana to raise awareness for trachoma control. Carter also visits Molujore in southern Sudan, where the largest number of uncontained Guinea worm cases are now concentrated.

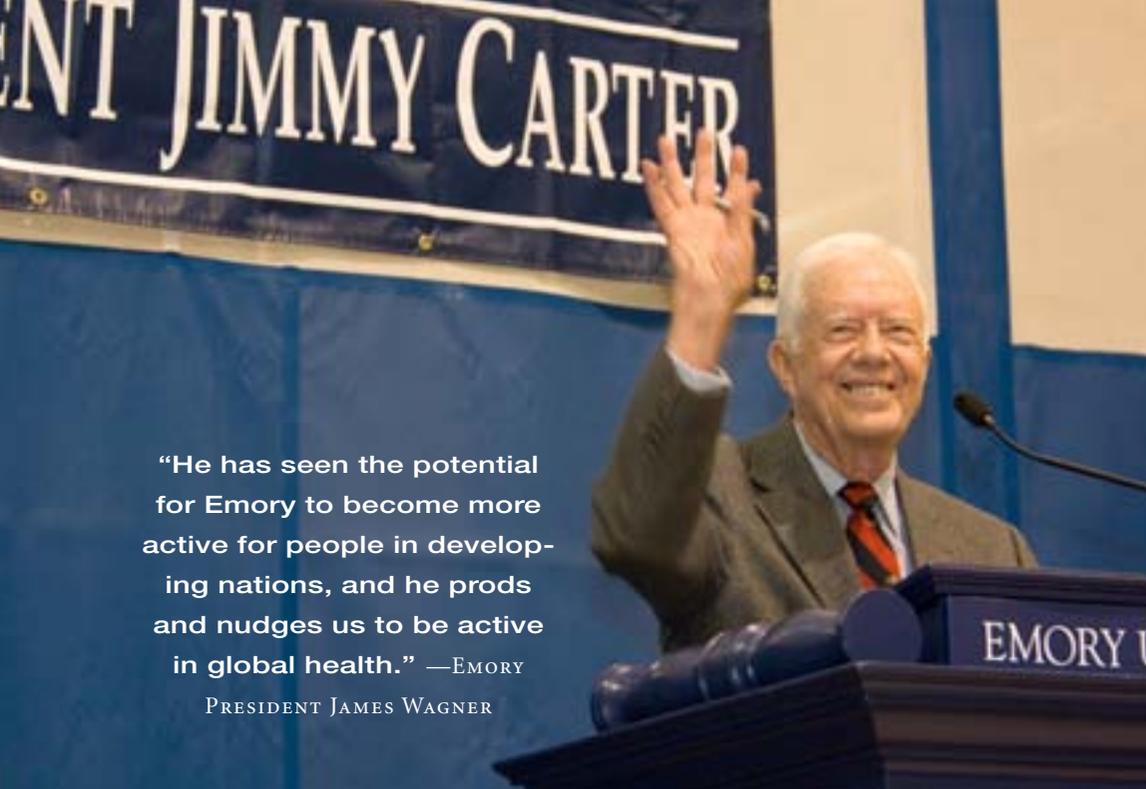
Carter also knows that just one uncontained case of Guinea worm can unleash the scourge all over again. “If you have one case left in one village in a country, that one person with a Guinea worm emerging from her leg can walk into a waterhole and the Guinea worm lays hundreds of thousands of eggs, and you’ll have all the village next to you contaminated,” he says.

As Hopkins told the *Chicago Tribune*, “I’m not going to be satisfied until that last worm is gone. And it’s partly out of fear. Because I know that if this program were to fall apart, Guinea worm could come back.”



At 86, Carter is 17 years Hopkins’ senior. Yet he keeps a more ferocious pace, says Hopkins. “He is inspiring and demanding. He is someone who pays attention to details but who has great empathy with people.”

So with the energy of a much younger man, the tenacity of a world leader, and the patience of a farmer, Carter is fighting to keep his promises to rid the world of the fiery serpent. “My prayer is that I’ll be able to see the last person that has Guinea worm,” he says. “I don’t have a doubt, God willing, that I’ll be able to see that achievement.”



“He has seen the potential for Emory to become more active for people in developing nations, and he prods and nudges us to be active in global health.” —EMORY PRESIDENT JAMES WAGNER

South Korea. Carter had one condition for joining the faculty: that he would not be censored. Laney agreed.

Since then, the connections between The Carter Center and Emory have grown into a rich partnership. Half of the trustees of each institution have to be approved by the other, and faculty experts from both campuses frequently collaborate. “It’s an exciting and valuable binding between a great university and The Carter Center,” Carter says.

Wagner describes Carter’s biggest role as the university’s conscience. “He has seen the potential for Emory to become more active for people in developing nations, and he prods and nudges us to be active in global health. That is one reason we made global health a big part of our strategic plan.”

Carter has been behind the Institute for Developing Nations, a MacArthur award-winning partnership between Emory and The Carter Center that is attempting to transform the way the world thinks about global poverty. He’s been the inspiration for the nursing school’s caregiver education program in Ethiopia. The Humphrey Fellows at the RSPH have him to thank for starting the international program in 1978.

During his affiliation, Carter has not shied away from difficult political questions such as the role of China in Tibet. When he published his controversial *Palestine: Peace Not Apartheid*, Emory offered speakers on both sides of the issue, in Wagner’s words, “a forum where people with violently opposed views could converse non-violently.”

In his annual Emory Town Hall, Carter may have gotten the toughest question yet. What is his favorite fishing stream? “I told them,” he says, with a slight pause. “But I didn’t tell them how to get there.”

Carter, UNCENSORED

Once a year, President Jimmy Carter looks forward to an event on the Emory campus with anticipation and a fair degree of trepidation—the Town Hall. During the annual event, freshmen get to ask the President whatever is on their mind. Seemingly, no subject is off limits, and he has been quizzed on topics from the highly personal (his relationship with his father, questions about his wife) to the highly political (what he thinks of the current President).

“I never know what the question is going to be,” Carter says. “I’ve never failed to answer a question yet.”

Carter is generous with his time, says Emory President James Wagner. Once a month, for the past 30 years, he has met with an Emory president to catch up on developments at each other’s institutions. Carter also meets monthly for wide-ranging conversations with a small group of rotating Emory deans

and faculty members. He has taken his tenure as a professor seriously, teaching in classrooms across the university and the health sciences. He is a fellow and honorary nurse of the Lillian Carter Center for International Nursing (named for his mother), and an endowed chair of mental health is named for Rosalynn Carter in the Rollins School of Public Health (RSPH), recognizing her advocacy of mental health issues.

“President Carter brings a real international political perspective to the campus, and he shares that with all of us,” says Wagner, who traveled with the Carters in 2005 to see outbreaks of trachoma in communities in Ethiopia.

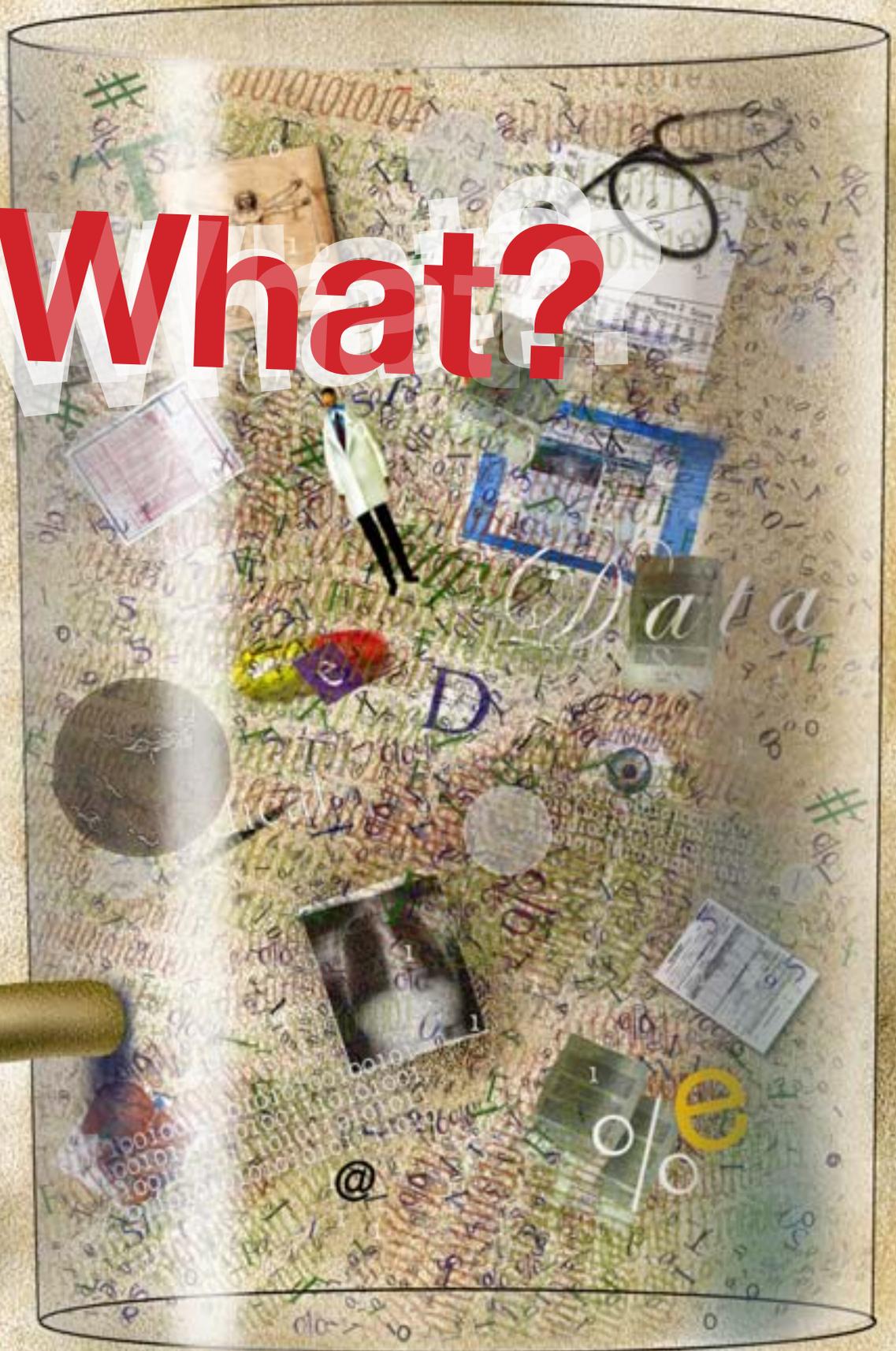
Recently, students in Susan Butler’s Community Needs Assessment class at the RSPH got to visit with Carter. One MPH candidate, Lily Liang, was amazed at how much the President knew about communicable diseases. “What impressed me most,” she says, “was that President Carter shed tears when talking about how poverty deprived people of the rights to a healthy life and dignity.”

Carter was first recruited to Emory by then-University President James Laney, who went on to serve as ambassador to

To learn more about The Carter Center, visit cartercenter.org.

BioWhat?

WHY A SCIENCE
YOU'VE NEVER
HEARD OF IS
CHANGING THE
WAY MEDICINE
IS PRACTICED



You know about the World Wide Web.

THINK INSTEAD about a new generation of the web specifically designed to store detailed medical information from patient records supplied by the best research institutions around the world. Next, think about a Google-like search engine capable of analyzing and comparing all that patient data, as well as radiologic images, pathology slides, genetic information, and even physician notes.

Finally—thanks to some of the most brilliant minds in high-end computer technology—put the whole data collection, retrieval, and dissemination process on what could be described as hyper-drive so that any physician can use it in deciding how best to treat an individual patient.

Now you're getting close to understanding the ever-expanding field of biomedical informatics.

THE EMORY CENTER FOR COMPREHENSIVE INFORMATICS, AT A GLANCE

What it does: The center uses computer technology to analyze and interpret vast sums of biomedical data. Its goal is to advance work in clinical medicine and develop innovative platforms that tap into the expanding field of biomedical informatics.

Local partners: Georgia Tech, Children's Healthcare of Atlanta, Morehouse School of Medicine, the Atlanta VA Medical Center, Georgia Research Alliance, and Georgia Cancer Coalition.

National scope: one of a handful of institutions linked by federal funding to participate in programs aimed at expanding and using the knowledge base created by biomedical informatics.

Current research: molecular makeup and pathology of brain tumors

From helping classify the smallest lesions inside the human brain to reducing the rate of re-admissions for patients leaving the hospital, biomedical informatics is poised to dramatically alter medicine and public health for decades to come.

Researchers, clinicians, administrators, and health officials have barely cracked open the toolbox available to them by expanding the use of computer-assisted biologic, medical, behavioral, and health data. New information resulting from the use of biomedical informatics is coming, at times, at a dizzying pace. And with it, renewed hope for real progress in diagnostic and treatment methods for stubborn killers like brain, ovarian, and lung cancer.

Creating more than electronic medical records

Much of the media attention about biomedical informatics in recent years has focused on electronic medical records systems. Besides reducing medical errors, streamlining the sharing of information among physicians, improving discharge planning at hospitals, and other improvements in quality of care, computer platforms are being built to allow patients to manage their own health care data through PCHs (personally-controlled health records). Still, this barely scratches the surface of what could be achieved with the use of biomedical information technology.

Beyond the work that already has begun with cancer research, biomedical informatics has the potential to advance the treatment for more common conditions (such as asthma and heart disease) by better understanding genetic, environmental, and behavioral triggers for disease.

Deeply connected to the expanding field is the Emory University Center for Comprehensive Informatics. Through a multidisciplinary team approach, the center uses computer technology to analyze and interpret vast sums of data generated within Emory's research and clinical community, as well as research data collected at cooperating institutions around the country. Besides advancing work in clinical medicine, the center works

with the private sector to develop new and innovative platforms to tap into the field.

Leading the effort is Joel Saltz, an Emory pathologist and computational scientist, who is a pioneer in the field. Besides years of study and training, he has a deep personal interest in both math and physics. He was attracted to parallel computing because he saw the potential of computational science to help solve biologic problems faster than with use of conventional resources.

"The intersection of medicine and informatics always intrigued me," he says, "especially if we can make a difference in medical diagnosis and outcomes."

Changing how clinical research is conducted

Not that long ago, cancer researchers kept most of their records on paper and shared them with fellow researchers by sending tissue samples through the mail and notes via facsimile. Clinical researchers relied on local pathology labs to help them determine treatment plans for patients.

Even after the web was up and running, clinicians relied heavily on medical journals, scientific meetings, and other methods of dissemination of research to make critical decisions about how to help patients.

Modern medicine no longer affords such quaint, and slow, research protocols.

The Blue Ridge Academic Health Group, which studies health care initiatives and includes several Emory experts, estimates that a physician would need to read the equivalent of 16 scientific articles per day and review dozens of clinical trials to stay abreast of the latest developments. Even then, it would take an exceptional human brain to store and readily retrieve the information gleaned from those articles to put it to use in diagnosis and treatment.

In reality, determining what that data might mean takes the information processing capabilities of a computer connected to specific data sets containing all that information and—most important—expert help in analyzing and interpreting the data.

Emory oncologist Otis Brawley, chief

medical officer of the American Cancer Society, believes that bioinformatics—especially the use of molecular analysis to identify what is going on inside tumor cells—"is clearly where oncology is going in the years to come."

For more than a century, cancer was defined largely by what a pathologist observed under a microscope, Brawley says. "But as we progressed to the molecular age, we've seen some things in the biopsies of cancer patients that behave like cancer and some things that don't. That's allowing us to redefine cancer, how and when to treat it, and how we might prevent it from recurring."

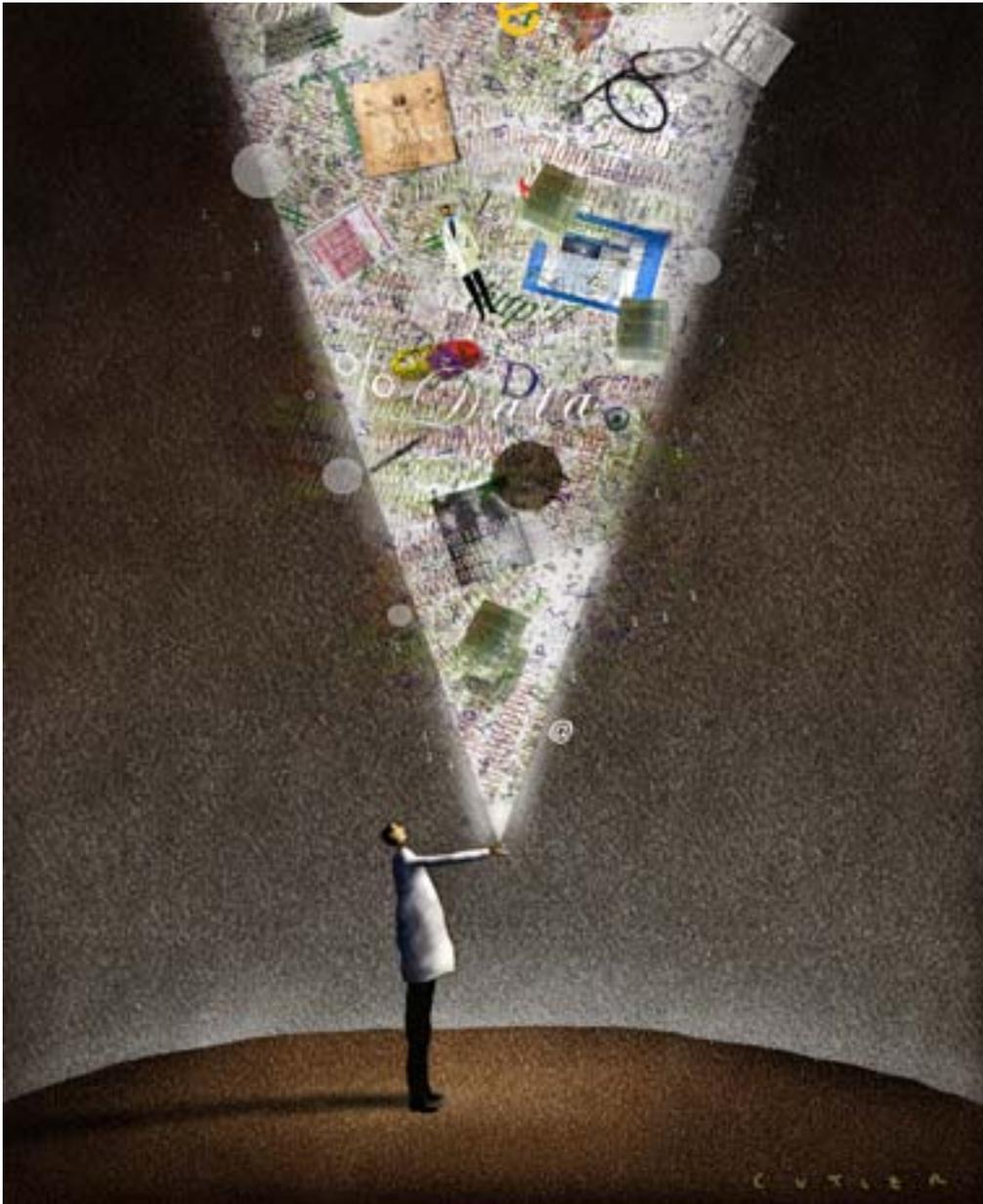
Mining data from the human genome

Cancer informatics got a huge boost in 2003 on completion of the Human Genome Project. The U.S. Department of Energy and the NIH spearheaded the effort to map and identify the human genome and then placed all the assembled information in databases for medical use. That opened the door to link clinical findings and molecular analysis for the first time on a large-scale basis.

Here's a hypothetical example of how biomedical informatics could alter an individual patient's treatment and become the basis for recommendations on how to prevent disease: A 45-year-old patient with colon cancer develops a small tumor less than a year after having polyps removed. His doctor wants to know how many men between 40 and 50 who have had polyps removed are found to have small tumors with the same pathology within 12 months after a colonoscopy.

Using a database of tissue samples and fast, detailed molecular analysis of the tumors could help determine when and how colon polyps of the kind his patient has will eventually become cancerous. That, in turn, could lead to targeted therapies for his patient and, as more data is accumulated, to prevention recommendations for men in their 40s who have a family history of colon polyps.

Saltz believes that virtually every use of biomedical informatics will, in some form, serve to support the cause of better public



health—by improving treatment or helping control costs by providing more information about what works and what doesn't.

Emory's connection to the Cancer Informatics Grid

Saltz came to Emory in 2008 after groundbreaking work at Ohio State University, where his research group helped develop caGrid, the programming infrastructure that enables information and analytical resources to be efficiently and securely shared among

cancer researchers. The open-source information network that caGrid supports is called caBIG (Cancer Biomedical Informatics Grid), a major initiative of the NCI.

Saltz likes to describe the clinical role of biomedical informatics as “helping remove the subjectivity” in dealing with disease by being able to hone in on what types of triggers are causing it, how severe those triggers are, and how to classify them to make clinical care more precise.

Moreover, he says, biomedical infor-

matics opens the door to new categories of disease by using high-end computing, digital imaging techniques, and other tools to identify medical problems before they can be seen, or even predicted, by conventional clinical observation. That's also a good description for the largest—and perhaps the most ambitious—project using biomedical informatics at Emory.

Backed by a \$2.2 million grant, the Center for Comprehensive Informatics was chosen in 2009 as one of six centers for “in silico” (via computer) research on cancer. The first round of the three-year grant has concentrated on molecular, pathology, and brain tumor data obtained through the Cancer Genome Atlas (TCGA) and other sources residing on the caGrid. Emory pathologist Daniel Brat is the principal investigator.

The research uses rich, molecular data sets and links them to digitized pathologic slides and annotated neurologic images. It also correlates detailed information about patient treatments and results. This approach allows brain tumor research to be conducted on a much larger scale and at a much deeper level than ever before, Brat says. Similar work is going on at other centers, using TCGA data available for lung and ovarian tumors—two other forms of cancer that have proven to be stubbornly resistant to conventional therapy.

“The advances in digital pathology alone have been remarkable in just the past few years,” Brat says. “We can scan in a slide at high resolution and use computer-based algorithms to extract patterns and features that the human eye cannot recognize. We already have developed algorithms that show us which regions of the brain are normal and abnormal and others that can discriminate between types of brain tumors. Eventually, this will help us better classify brain tumors and predict their progression.”

Using biomedical informatics to learn more about brain tumors

Patients who agree to participate in the research allow tissue samples, radiographic images, clinical notes, and other details of their diagnosis and treatment to be shared



with the cooperating institutions, which in turn agree to protect patients' identity. Names and other information that would personally identify the patient do not become a part of the record.

The first round of brain tumor research was conducted on glioblastomas, the most common and most malignant of brain tumors. (Sen. Edward Kennedy was diagnosed with this form of brain cancer in 2008 and died of it the following year.)

Using pathology slides and detailed

patient information collected at a dozen institutions nationwide, researchers at Emory discovered—in the space of a few months—what otherwise would have taken years to find out about a range of genetic mutations in some glioblastomas.

Brat believes that correlating this information may allow researchers to target therapies for specific tumor types to keep them from triggering the genetic “on/off” switch that spreads the cancer so rapidly and leads to death. Similarly, researchers may find

that some forms of therapy cause a hypermutation of genes and therefore should be avoided in some patients.

More recently, TCGA has expanded its efforts beyond the initial pilot study of glioblastoma, ovarian, and lung cancer to 20 additional forms of cancer. Brat is leading the national effort on lower-grade gliomas, which should advance the understanding of these diseases through Emory's in silico study too.

One of the goals of this research is to use the same kind of data sets to determine if there is a common genetic mutation that turns some lower-grade gliomas into the more deadly glioblastomas. Brat and researchers at four other centers will be looking for the molecular pathways that control growth of the smaller tumors in hopes of one day generating therapies to prevent the spread of cancer cells.

Compiling and disseminating all this information takes time and demands an unprecedented degree of cooperation. Creating reporting standards and agreeing to computer protocols at the cooperating institutions can be a roadblock, Brat says. Some major research centers may simply choose to go it alone, rather than turn over tissue samples and patient information to a consortium of researchers.

Moreover, as medical information technology firms flock to the field, the issue of guaranteeing the security of personal patient health remains a major concern, especially when that information is, by agreement, to be shared for research purposes.

Saltz understands the seriousness of the patient security issue. He has been personally involved in setting up security measures in the development of both caGrid and caBIG and insisting that cooperating institutions and scientists understand their responsibilities.

“We can accomplish so much more with collaboration than we can individually,” Saltz says. “And we have so much to learn from what is already available to us.”

Mike King, formerly of the Atlanta Journal Constitution, is a freelance writer in Atlanta.

The American Cancer Society chief medical officer interprets what recent cancer statistics really mean to your health

False positives

By KAY TORRANCE

Most likely, you've heard the instruction before. The American Cancer Society (ACS) advises women to get an annual mammogram beginning at age 40. But wait! The U.S. Preventive Services Task Force says otherwise. According to that group, which is an independent panel of 15 health care experts, women don't need a routine mammogram in their 40s, and for women between 50 and 74, the group recommends mammograms only every two years.

Confused? A lot of women are. And Emory oncologist Otis Brawley understands why. As chief medical officer at the ACS, he's on the front lines of the public discourse on cancer guidelines.

There are plenty of ingredients bubbling in the stew of medical news, he says. Sometimes, despite good intentions, the media, doctors, advocacy groups, and government agencies all contribute to making the taste a little bitter when it comes not only to mammography but other cancer diagnostic tests as well.

Otis Brawley (right) explaining the results of a prostate cancer study on CNN



Communication malpractice?

Take, for example, the recent mammography guidelines recommended by the U.S. Preventive Services Task Force. Based on a review of several research studies, its report advises that women in their 40s need an annual mammogram only if they have a family history of breast cancer. The task force even commissioned its own study that showed for every 1,000 women who were screened beginning at age 40, only 0.7 deaths would be prevented and that 470 women would receive a false-positive result and another 33 would undergo an unnecessary biopsy.

“What came out in the media was that women in their 40s shouldn’t have mammograms,” Brawley says. “Communication mis-practice may be communication malpractice.” The ACS’s recommendations also have been misheard at times too. The bottom

of U.S. men who undergo testing for prostate specific antigen (PSA) each year. The American Urological Association and the American College of Radiology would like to see every man aged 50 and older get annual PSA screening.

PSA screening, however, has come under fire. While elevated PSA levels can indicate the presence of prostate cancer, men with a high level may be healthy, and those with low counts may have cancer. The test is known to detect only 3.8% of prostate cancers, which may help explain why the prostate cancer rate has held steady for almost two decades.

“There is a prejudice in the American population that the way to deal with cancer is to find it early,” Brawley says. “Asking the question, ‘Does screening save lives?’ has not been acceptable. I’ve gone before pro-screening urologists and posed the following question:



line? “What we are saying is that mammography is imperfect,” says Brawley. “There are false-positives and false-negatives, but the ACS recommends that women in their 40s get a mammogram.”

While Brawley favors mammograms, he would like the media to move beyond the focus on breast self-exams. “I wish it didn’t exist,” he says.

Why? Done properly, a breast self-exam should take about 20 minutes every month. But studies have contradicted its effectiveness. “That message has been difficult to get out,” Brawley says.

In one study, for example, half of the participants were taught how to properly do a self-exam. The other half were told simply to go see their doctor should they feel something abnormal while showering or dressing. The death rate from breast cancer was the same in both groups, and the biopsy rate in the self-exam group was almost two times higher than in the other group. In other words, two times as many women in the self-exam group went through unnecessary biopsies.

Men too

Likewise, some 30 million men in the United States have heard confusing messages about prostate cancer screening. That’s the number

‘Suppose I had a pill that you take every day for 10 years, and that pill will definitely double your lifetime risk of cancer from 10% to 20% but decrease your relative risk of 3% down to 2.4%.’ The urologists said ‘no,’ they wouldn’t take such a pill, but those numbers match those for screening for PSA.”

The ACS recommends that men 50 and older seriously consider the potential risks of treatment before deciding whether to be screened. Like mammography, prostate cancer screening can produce false-positive results, which, in turn, can lead to unnecessary biopsies. Treatments for prostate cancer may lead to impotence and urinary incontinence without actually prolonging life or enhancing its quality.

The ACS guideline follows last year’s publication of the two largest studies to date on the screening test. A U.S. study showed that over a period of seven to 10 years, screening failed to reduce the death rate in men 55 and older. A European study showed that to eliminate one death from prostate cancer, more than 1,400 men would need to be screened, and 48 additional cases of prostate cancer would need to be treated.

The pathologist who discovered the PSA, Richard Albin, was pleased to see the stand by the ACS earlier this year. “Prostate cancer

may get a lot of press, but consider the numbers: American men have a 16% lifetime chance of receiving a diagnosis of prostate cancer, but only a 3% chance of dying from it,” he wrote in a *New York Times* editorial in the days following the recommendation. “As I’ve been trying to make clear for many years now, PSA testing can’t detect prostate cancer and, more important, it can’t distinguish between the two types of prostate cancer—the one that will kill you and the one that won’t.”

Catch-22

Breast and prostate cancer guidelines are examples of what could be called a health care Catch-22. Doctors want their patients to have all possible information to make informed health care decisions, and the media plays a big part in conveying information to the public.

“But the more information you send, the more you dilute the mes-

sage. We end up diminishing other messages about preventing sexually transmitted diseases, exercise, and diet, and these are things that actually do save lives,” Brawley says. “We spend a lot of time worrying about treatments—there are so many. What we need is comparative effectiveness research on treatments. Unfortunately, these studies are not getting funded.”

What the public hears and gets behind is often what gets funded, he says, noting that breast and prostate cancers are top recipients of research grants. Other less prominent but deserving conditions receive less media attention and thus less funding and attention.

“Nationally, our cancer research effort is \$6 billion a year, and that’s the highest it’s ever been,” says Brawley. “Meanwhile, the surge in Iraq is costing us \$11 billion a month. I really think that we don’t spend enough money on cancer research. It’s kind of a drop in the bucket.”



WEB CONNECTION To get Brawley’s take on mammography and prostate screening tests, visit the American Cancer Society at cancer.org. Brawley is a health contributor to CNN and part of Sanjay Gupta’s Expert Q&A blog along with Emory psychiatrist Charles Raison. To read their advice, visit cnn.com/HEALTH/.

Sensationalizing the statistics

Media coverage of many medical stories often over-promote claims and exaggerate benefits, says Emory oncologist and American Cancer Society chief medical officer Otis Brawley.

“Gone from much of the media these days are professional science writers who really understand the material,” he says. “Recently I talked with a reporter from a major newspaper and had to explain the difference between statistically significant and clinically significant.”

Study results may be statistically significant, he explains, without being clinically so. For example, suppose we have a study showing that taking aspirin can decrease risk

of heart attack in people who have already had one heart attack. Enough patients in the study were found to benefit from aspirin, so the results are statistically significant. But how much does any one person in the study benefit? If the study found only a 2% reduction in the occurrence of heart attack, its results would not be clinically significant. The percentage of reduction for any one person was small enough to lack practical relevance. Statistical significance is important to help researchers interpret data but should be used with care by reporters who don’t really understand what they mean, Brawley says.

Reporters need to know how to read findings of research studies. For example,

this past June, a story about an experimental vaccine to prevent breast cancer grabbed the media’s attention. The headline, “Cleveland Clinic doctor reports a possible vaccine to prevent breast cancer,” appeared in many newspapers and on broadcasts across the country. But dig a little deeper, and the story seems less captivating, says Brawley.

The experimental vaccine was tested only in mice. Although clinical trials in humans may be years down the road, researchers have been curing breast cancer in mice for years but have found few breast cancer drugs that succeed in humans. On average, only one out of every 250 drugs in lab studies or animal models gets approved.

Personal shopper

Beth Kasulaitis got a lesson in how mattresses were made that day. She learned how the memory foam technology in one was developed originally for use in outer space. She saw how another moved air to different areas in response to pressure. “But more than how it was built, I was interested in how it felt,” she says.

Kasulaitis was one of the patient and family advisers recruited to help choose enhanced mattress table pads for the operating room at Emory University Hospital. The pads keep patients comfortable and secure after surgery and help them avoid pressure ulcers that often occur when one is bed-bound.

Getting patients and families involved in nuts-and-bolts decisions like choosing mattresses is a goal of Emory Healthcare. Patient and family advisers help leaders and staff improve the health system even down to the beds. Who better to try out the new pads than the people who are going to use them? Kasulaitis asks.



She herself was in one of those beds just two years ago, recovering from a liver transplant. When she woke up after her transplant, she was delighted to hear, “You made it.”

From that moment on, Kasulaitis wanted to share her experience. “I felt like the people at Emory embraced me and lifted me up,” she says, “and I wanted to make sure that no other patient ever walked through this alone.”

Today she is the lead mentor for liver transplant patients at Emory, serves on the Patient-Family Advisory Council, and volunteers for other transplant organizations. Hospital COO Bob Bachman has dubbed her the “Jiminy Cricket,” or the conscience, of Emory Healthcare. She helps administrators and staff understand the patient’s point of view, evaluates bedside shift change procedures, serves on editorial boards, and once in a while, chooses a good mattress. –Rhonda Mullen

Discover health chart your course

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- Receive a personalized health assessment
- Learn your biomarkers health profile
- Design a personalized health plan
- Collaborate with a health partner to meet your goals
- Restore, optimize and maintain good health
- Help make advances in health knowledge

To start your Center membership, visit our web site at predictivehealth.emory.edu/chd or call 404-686-6190. Read our blog at emoryhealthdiscovery.com and visit our Facebook page.

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Expanding options for kids with cancer

Laura Brown* moves like a typical teenager. She walks normally and even likes to dance on occasion. But when Brown was 8, she was diagnosed with bone cancer and had surgery to remove the cancerous tumor from her femur.

While Emory orthopedic surgeon Shervin Oskouei worked to get rid of Laura's cancer, he also spared her leg by inserting a rod, or internal prosthesis, to make up for bone loss. But this wasn't just any prosthesis. Instead it was an implant that was capable of being lengthened externally with a simple magnet held against the outside of the leg. Over the course of five years, Oskouei regularly saw Laura to expand her prosthesis, finally putting in a permanent implant when she turned 13.

One problem that children may encounter after receiving a prosthetic implant is upkeep. Because the implant must keep pace with the child's bone growth, successive surgeries are often needed to expand it. With every surgery comes an increased chance of infection and bleeding, along with pain and recovery time.

The magnetic implant minimizes this problem. "The implant allows us to make up for bone we have to take out to remove the tumor, and it grows as the

child grows," says Oskouei. "We can put the prosthesis in, and we don't have to go back and re-expand it, which would mean multiple operations, more blood loss, and more chance of infection."

What's more, the noninvasive follow-up procedures after the initial surgery are less painful because the prosthesis can be expanded often and in small increments.

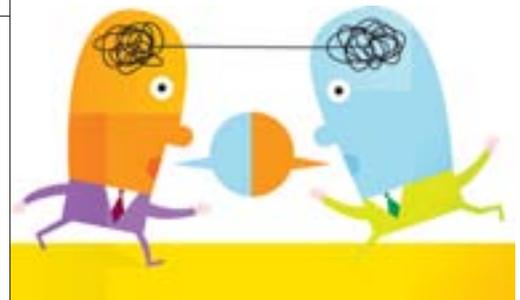
That way the muscles don't get stretched as much as they would during a traditional surgery.

"It's a much more comfortable procedure," says Oskouei, who performed the first expandable tumor implant in Georgia for children with extremity tumors. "In fact, it can be done in the office setting and doesn't require general anesthesia."

Emory's Musculoskeletal Oncology and Limb Reconstruction Center is the only center in Georgia that offers this treatment.

"If I can save a 5-year-old 10 trips to the operating room by the time she's 13, that's pretty awesome," says Oskouei. —Robin Tricoles
**Not her real name*

WEB CONNECTION To see a video about how expandable implants are helping children with cancer, visit <http://bit.ly/orthoimplant>.



Wired: In its 2010 survey, Hospitals & Health Networks has named Emory Healthcare as one of the nation's most wired health care organizations. What that means to patients is an assurance of patient safety, security, privacy, and convenience, says Dee Cantrell, Emory Healthcare's chief information officer. For example, the survey found that 51% of medication orders at Most Wired hospitals were done electronically by physicians. More than half of those hospitals match medication orders at the bedside through bar coding or radio-frequency identification to prevent errors. And Most Wired hospitals have made improvements in sharing information electronically during transitions in care, whether from one caregiver to another, within the hospital, or at discharge.



Hospital swap: In July, Emory Healthcare and HCA announced a shift in their partnership. Emory Healthcare will purchase HCA's ownership interest in Emory Johns Creek Hospital, becoming its sole owner. Likewise, HCA will assume full ownership of Eastside Medical Center in Gwinnett County. Currently the organizations are working to ensure a seamless transition for patients, employees, and physicians. The acquisition of Emory Johns Creek Hospital brings the number of hospitals in the Emory Healthcare system to five.

Knowledge is power *What women being tested for breast cancer mutations need to know*



“Breast cancer runs in my family,” a smartly cropped woman candidly tells the camera. “I wondered if it would be inevitable,” intones another. They join with others to encourage viewers to get a test that will assess their risk for hereditary breast and ovarian cancer.

If history is any indicator, this TV commercial will have its intended effect. When Myriad Genetic Laboratories, the maker of the test, aired a similar direct-to-consumer ad campaign in Atlanta in 2002, testing rates here doubled. And while that is a positive development, many of the women who will respond to the current ad may lack a clear understanding of the capabilities—and limitations—of genetic testing.

That’s why cancer experts believe that it is critical for a patient to receive genetic counseling before blood is ever drawn (to understand whether the test is appropriate for her and what it can and can’t reveal). And after testing, counselors can help inter-

pret the results and discuss options with patients.

Winship Cancer Institute’s high-risk assessment clinic specializes in just such comprehensive counseling. “We construct a detailed family history and talk more specifically about genetic testing in each visitor’s particular situation—whether or not it’s right for them,” says genetic counselor Christine Stanislaw.

“We construct a detailed family history and talk more specifically about genetic testing in each visitor’s particular situation – whether or not it’s right for them,”

— EMORY GENETIC COUNSELOR CHRISTINE STANISLAW

Then, based on an individualized risk assessment, women have the opportunity to understand their options for care. “That’s what really sets us apart,” says Sheryl Gabram, director of the high-risk assessment program. “On a same day visit, a woman can see a surgical oncologist and a genetic counselor, and, if necessary, meet with a medical oncologist to talk in detail about chemoprevention. She can see a gynecologic

oncologist to talk about screening for ovarian cancer, a reconstructive surgeon, a social worker, a pastoral counselor, or dietitian.” Women also receive state-of-the-art breast imaging with digital mammography and if they meet high-risk screening criteria, a breast MRI.

Such expertise will be invaluable for women spurred toward testing by the current ad campaign since the tests are designed for a select group of women.

“The Myriad tests screen for mutations in two specific genes—BRCA1 and BRCA2,” says Toncred

Styblo, surgical director of the breast center at Winship. “Only a small percentage of women carry those mutations. Also different varieties of mutations have different implications for patients in terms of risk. The results are not black and white.”

“Just because you have a relative who has been diagnosed with breast cancer doesn’t mean you are at high risk for these mutations,” says Stanislaw. “At the clinic,

The other side of cancer

we have a model into which we can input the totality of the patient's personal and family medical history, and it will determine how likely it is that the patient will benefit from genetic testing."

If a woman does get tested, she will need professional help interpreting the results. If she tests positive, she can take actions that can help mitigate her heightened risk. Lifestyle changes, enhanced screening, chemoprevention, or risk-reduction surgery can boost her odds of evading cancer.

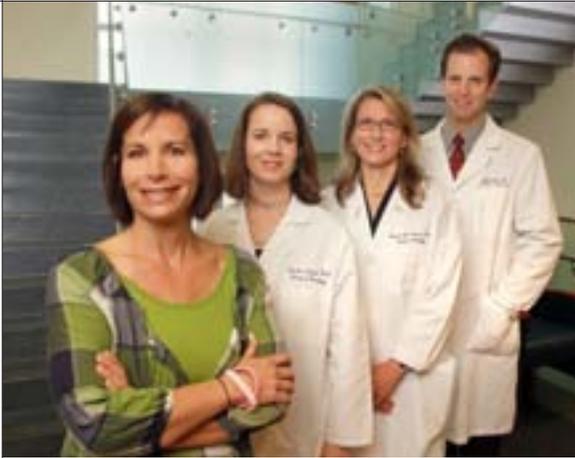
A negative test result, while reassuring, is not a reason to relax ordinary screening. "A negative result doesn't mean you're never going to get breast cancer," says Stanislaw. "The vast majority of breast cancers are random."

About 5% of women will get an inconclusive result. The test may identify changes in the DNA within BRCA1 or 2 but provide insufficient data for one to know if that change is critical for gene function or if it's benign. "That can be a very frustrating result," says Stanislaw. "At that point, you just have to manage based on personal and family medical history."

The bottom line: women need to fully inform themselves about their risk for breast and ovarian cancer. Those at high risk need to seek out specialized counseling because, as Gabram says, "knowledge is power."

—Martha Nolan McKenzie

WEB CONNECTION For more information about breast cancer treatment, visit cancer.emory.edu. To learn about Emory's genetic counseling program and the high risk clinic, call 404-778-7777 or visit emoryhealthcare.org/connecting/healthconnection.html.



The last time Kristen Moss graced the pages of *Emory Health* (winter 2009), she had just finished chemotherapy for an aggressive form of breast cancer, known as HER2. This October, she marked her 22-month anniversary as a breast cancer survivor.

"When all of this started, when I was 40," Moss says, "I had this big fear that I was going to look like a monster for the rest of my life. But my doctors took me apart and put me back together again. By looking at me, you'd never guess that I've had breast cancer. I call them my dream team."

Moss's multidisciplinary team at Emory's Winship Cancer Institute included surgeons Sheryl Gabram and Albert Loskin, who performed a mastectomy and reconstructive surgery, and medical oncologist Amelia Zalnak, who directed Moss' chemotherapy treatments. "Getting these three together was something," Moss says. "We connected medically and personally. We talked about more than my treatment. We talked about life, our kids, our passions. That made them real, reachable, touchable."

Moss also benefited from participation in a clinical trial at Winship. Soon after her cancer was diagnosed, she was enrolled in a

study that tested a combination of chemotherapy drugs formulated for the specific type of tumor she had. As Georgia's only National Cancer Institute designated cancer center, Winship is able to offer patients advanced treatments and clinical trials that are unavailable elsewhere in the state.

Throughout her cancer journey, Moss has had the support not only of her doctors but also of her children.

Her son, McKinley Alden, was the one who shaved her head before she started chemo, spent the night with her at the hospital after her first surgery, and made sure she was eating properly—despite her lack of appetite. Her daughter, Kayley Alden, held her hand during pre-op and accompanied her to Winship for doctors' visits and infusion treatments. In fact, Kayley, 19, a sophomore and music major in college, can still be found at Winship, working as a volunteer, filing records for medical oncology, or offering snacks to patients in the infusion suite.

Moss continues to take tamoxifen to prevent her cancer from coming back, and she returns to Winship every three months to make sure she is cancer-free. "I take comfort in knowing that my doctors are there, ready to help," she says. "Where else could I walk into an appointment and get a big hug? For as awful as it was to have cancer—the pain, the infusions, the baldness—my doctors made it as positive an experience as possible.

"Every once in a while, I wonder what if the cancer comes back, and those bad feelings creep back in," she says. "I let them stay for a moment, then I push them away. I just keep on going." —Rhonda Mullen

It takes 20 to tango



For 15 minutes one Tuesday afternoon, the people begin filing in, one by one, to the dining hall at Emory's Wesley Woods Towers, a residential facility for seniors. The crowd ranges in age from 60 to 92. Some chat with friends while others limber up with light stretching. Some walk unaided. Others have canes. But no matter, every face holds a smile because for the next 90 minutes, they know they will be dancing.

As a spicy Latin drum and guitar beat begins to play, they move onto the converted dining room dance floor, the tables and chairs temporarily pushed to the sides. They are here not only for the socializing but also as participants in a study funded by the Department of Veterans Affairs. Researchers want to see if an Argentine tango-based dance program can improve balance, mobility, and quality of life in those who have problems with low vision and have long passed their senior prom.

Barney Schoenberg, 92, pauses in leading his volunteer partner through the steps. "I've got bad knees, and I can hardly see," says Schoenberg, who has strengthened his weak gait into a powerful walk since he's enrolled in the study.

Today everyone seems to be having a good time. Ed Sporleder, 77, says, "I have not regretted it. It keeps me from getting bored by giving me an activity three times a week, and it teaches me kinematics lessons I can practice between classes." Like Schoenberg, he has reaped the benefits of better balance, improved mobility, and watching his peers improve.

Madeleine Hackney, an Emory researcher at the Atlanta VA Medical Center and leader of this study, finds that tango is an ideal

Researchers want to see if an Argentine tango-based dance program can improve balance, mobility, and quality of life.

dance to build stability and endurance. "Tango is much like walking, with more calculated, precise, and intentional steps," says Hackney. "It may help frail, older people with sensory and motor impairments in terms of balance, gait, and coordination. Tango also incorporates the healthy and safe practice of motor skills that may be impaired by low

vision and other health challenges, for example, Parkinson's disease." Finally, tango has simpler basic steps and less restricted movement patterns than dances like the waltz and foxtrot, Hackney says.

During the activity, she pairs participants with more stable volunteers to increase stability and ensure the safety of all participants.

Schoenberg has had such a good time as a participant that he successfully recruited his wife, Jean, to join the program and meet new people. Sporleder has enjoyed seeing some people who were barely shuffling when they joined the study now walking with coordinated, large steps. Through the dancing, friendships have formed among participants and volunteers alike, who have also found encouragement in each others' progress.

Using a before-and-after comparison of this group who are participating in 20 classes over 11 consecutive weeks, Hackney hopes to show improvement on standardized assessments of walking and balance. Just a few weeks into the study, she already was seeing potential for improvement. An added bonus: the participants are having a great time. —David Knechtle

WEB CONNECTION To see a video about the tango study, visit <http://bit.ly/seniorstango>.

A New View

No matter that Claudia Nance Rollins never sat in a “smart” classroom located in a LEED-certified building. At the time of her death in 1976, those things didn’t exist.

But today, 34 years later, such a building now bears the name of the Rollins family matriarch and mother of former Emory trustee O. Wayne Rollins. The Claudia Nance Rollins Building opened this fall as the new entry point to the Rollins School of Public Health (RSPH). And it’s more than just a pretty façade filled with the latest technologic toys: At 190,000 square feet, the nine-story building more than doubles the school’s existing capacity, creating a spacious new home for faculty who for years have been spread out across the Emory campus.

The new facility’s potential isn’t lost on students, staff, or faculty—all of whom contributed their own wish lists to architects during the planning stage. The building includes ample space for studying and meeting, an open floor plan to allow for interdisciplinary “intellectual clusters” of faculty research, an indoor-outdoor café, two outdoor terraces on the top floor, and three floors of research laboratories. A glass bridge between the new building and the renovated Grace Crum Rollins Building serves as a symbol of continuity and a practical tool for collaboration.

The total price tag for the renovations and new building comes in at \$90 mil-

lion dollars—\$50 million of which was donated by the Rollins family.

“This building will make us one of the largest schools of public health in the United States and the world, and we think we will have perhaps the highest quality physical infrastructure of any school in the United States,” says Dean James Curran.

In a sense, the building is a result and reflection of the RSPH’s continuing success. Over the past 15 years, research funding has more than quadrupled, to \$62 million this past year. In the past 10 years, enrollment has jumped more than 40%. This building enables enrollment and research to advance even further.

Occupants of the building include the Hubert Department of Global Health and departments of Epidemiology and Environmental Health. But they’ll have plenty of company. Emory School of Medicine researchers will use one floor of lab space. Then there’s a 250-seat auditorium and 125-seat case-study room. Both are equipped with videoconferencing technology, so that students learning about public health can talk in real time with researchers around the world.

And learning in the building need not conclude at the end of the day. At the request of students and staff, it will stay open around the clock, seven days a week.



Administrators say that the RSPH has been on an upward trajectory for several years. The new building will only add to that momentum. From the new rooftop balcony, Dean Curran can look out to the world, and the world can look to Rollins. “When you stand on the balcony and overlook a revitalized CDC,” he says, “then you look at Emory University and see the many trees in Atlanta, it makes you feel optimistic about public health, Emory, and Atlanta, and happy to be here.” —Dana Goldman

Claudia Nance Rollins Building, at a glance:

- 190,000 square feet, nine stories
- High-tech capability in all classrooms, including video, web, and other audiovisual channels
- 250-seat auditorium and 125-seat case-study room
- Three floors of research laboratories
- Two outdoor terraces on top floor



To see videos of Dean James Curran talking about the history of the school, its collaborations and programs, and the new building, visit <http://bit.ly/curranvideo>. For detailed information, see the fall 2010 issue of *Public Health Magazine* at publichealthmagazine.emory.edu.

A busy May



What do a glass elevator and airline jet have in common? Emory nurse practitioner Valencia Hawthorne was called into action in both this past May.

The elevator incident may sound like a horror story to anyone with a fear of heights, enclosed spaces, or teenagers. While Hawthorne was chaperoning a prom at a local Atlanta hotel, her elevator got stuck 14 floors up. She was inside with 12 teenagers and four other adults, and firefighters told the group they were unsure how many hours it would take for the rescue. It ended up being more

than two. There was no ventilation or A/C until a firefighter opened a small hole to allow air to come in. And there was no way out. Teens were starting to panic. “Some of them could actually see their parents down below on the street,” says Hawthorne, who works in neurology in the Emory Clinic.

The other adults were anxious as well. “You could tell they were concerned,”

Hawthorne says. “So I

assumed my nurse’s role and tried to handle things.” She assessed the group for claustrophobia and anxiety, got the fire department to hand them water through a small hole, and began distracting everyone with jokes and a sing-a-long. Ultimately, everyone made it out by crawling out through the elevator shaft.

Barely recovered from that adventure, Hawthorne was called into action again a few weeks later—this time on a flight preparing for takeoff. A young passenger was sweating profusely and complaining of headache and chest pain. “We were thinking it could be a

small headache or as bad as an aneurysm. Or, he could have been having a heart attack from the chest pain,” Hawthorne says.

When another medical professional on board suggested aspirin, Hawthorne’s neurology experience kicked in: She warned against aspirin’s blood-thinning properties, in case there was bleeding in the man’s brain. She looked at his pupils, tried to get him to focus, and evaluated how alert he was.

An hour later, the plane departed, but without the ill man. An ambulance took him to the hospital. While Hawthorne appreciated the applause from fellow passengers and the move to a first-class seat, she insists her off-duty help—from elevators to airplanes—is no big deal. “It’s nothing special,” she says. “If there’s a crisis going on, I would love to be the one who can help and assist.”

In early June, she received an unexpected letter from the airline, offering their official thanks and some free travel. She’s thinking about taking another trip—crisis-free—next May. —Dana Goldman

WEB CONNECTION To hear Hawthorne describe her rescue experiences, visit <http://bit.ly/nursehawthorne>.

Unclouding babies’ vision

After cataract surgery, intraocular lenses (IOLs) have become the standard means of focusing the eyes in school-age children and adults. But because IOLs carry a higher rate of complications, ophthalmologists typically have avoided their use in infants.

However, Emory ophthalmologist Scott Lambert wanted to know if the potential complication risks for IOLs in infants could be offset by a significant improvement in vision over time. He is leading a national study involving 12 eye institutes to determine which is better for infants who have had cataract surgery—contacts or IOLs.

M.J. Burkett (above right) and **James Weeks** (above left) are



participants in the trial. After surgery at Emory, both boys received IOLs, glasses, and a supply of eye patches. They continue to return for follow-up four times a year to track their progress.

So far, Lambert and his colleagues have found no difference in vision between those using a contact or an IOL. However, for IOLs, the rate of complications during surgery has been three times higher and in additional surgeries, five times higher.

Funded by the National Eye Institute, the study, now in its seventh year, will span a decade. The ophthalmologists next plan to test the children’s vision when they are 4 to determine if there is a long-term visual benefit to use of IOLs.

An AIDS vaccine that works?



This fall, leading scientists in the AIDS vaccine field gathered in Atlanta for the 10th annual AIDS Vaccine 2010 conference. The conference brought to the forefront the latest progress in developing an effective AIDS vaccine, including recent findings from Thailand that provided the first demonstration of an experimental vaccine lowering infection rates.

While the Thai trial “hasn’t taken us away from the need to generate more basic science knowledge, it did suggest that success wasn’t impossible,” says Eric Hunter, co-director of Emory’s Center for AIDS Research and conference chair. “It’s an exciting time.”



Another encouraging development is the vaccine developed by former Emory microbiologist **Harriet Robinson**, *above left*. Robinson left Emory’s Yerkes National Primate Research Center in 2008 to further develop a candidate HIV vaccine with GeoVax. The vaccine follows the blueprint that she laid out almost a decade ago at Yerkes, where experiments with rhesus macaques showed that a similar vaccine had the ability to control infection by SIV, the simian equivalent of HIV. The 24-week course of vaccination uses two doses of DNA that encode HIV components as well as two doses of a modified vaccinia virus, a benign relative of smallpox that is used as a vaccine vector.

The GeoVax preventive vaccine program, sponsored by the NIH HIV Vaccine Trials Network, is in phase 2 clinical trials in humans. It is recruiting 300 participants who are at low-risk for HIV infection at 15 sites in North America and Peru. The goal of the study is to obtain sufficient safety and immune response data for progression of the vaccine to a placebo-controlled efficacy trial in an at-risk population.

GeoVax also has started its first therapeutic trial, in which the vaccine is given to already infected participants whose bodies have stably suppressed their infection with antiretroviral drugs. The rationale for the study comes from experiments conducted by researcher **Rama Amara**, *above right*, at Yerkes with primates who have been infected with SIV, treated with anti-retroviral drugs, vaccinated, and then taken off the drugs. Usually levels of virus go back to the pre-drug set point once the primate is taken off the drugs, says Amara. If the primate is given a course of immune system-boosting vaccine while still on the drugs, the set point can be many times lower.

“If someone who is infected can control the virus to this degree, he or she might be able to avoid transmitting the virus and take fewer

antiretroviral drugs,” Amara says. “It could really change that person’s life for the better.”

The initial therapeutic trial—conducted by the AIDS Research Consortium of Atlanta—is recruiting a dozen patients who are within a year of HIV infection and have been able to control the virus with antiretroviral drugs. It is targeting patients for an early window of opportunity, after which the pool of viruses may mutate beyond the reach of the vaccine.

Results from recent studies on preventive vaccines with primates suggest that a next generation of vaccines could provide more robust immune protection from infection. For example, Amara and Robinson are collaborating on studies of adjuvants, extra genes that are added to the DNA of the vaccine. One of these extras, GM-CSF, has provided a strong boost to the ability of the vaccine to prevent, not just control, infections. GeoVax has added this vaccine to its pipeline.

Early results of the adjuvant research are encouraging to Robinson. “If GeoVax’s first product fails to win the battle, our reserves will be ready,” she says. —Quinn Eastman

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In 1984, when Charles Hatcher took leadership of Emory’s health sciences center, he had some reservations. As Emory Clinic director, he had known real power, generating millions of dollars to power medical school growth. As chief of cardiothoracic surgery, he had turned Emory’s open-heart surgery program into one of the nation’s largest and most respected. The health sciences center, on the other hand, was a loose confederation of three schools, two hospitals, and a primate center. Despite the reservations, Hatcher took the job and in essence became Atlanta’s first health czar. Among his many career accomplishments, he jumpstarted research at the center and made it easier to access patient care at Emory. Eloquent, always prepared, he made it look so easy—even when it wasn’t.



BILLY HOWARD

All in the timing

Excerpts from the upcoming autobiography of Atlanta's first health czar

Attapulgus, GA, roots

Later, when people asked me where I was from, they would look at me as if I were from Mars. For years, I thought it a handicap to come from such a small town with such a peculiar name. I would realize later how fortunate I was. About 400 people live in Attapulgus now, and about 400 people lived there in 1930, the year I was born, amidst the country's epic slide into the Great Depression. My father's old-fashioned general store sold everything from tuxedos to wagon-wheels. Times were hard, even for my parents. I went to work on a local tobacco plantation when I was five, opening the gate each time a wagon loaded with tobacco barges arrived, making certain that no livestock escaped, then closing it as fast as I could. I remember the camaraderie. I also quickly realized how little my fellow workers earned. It made a good student out of me: I didn't want to grow up to be a farmer.

Setting the curve, early

With his Naval Academy acceptance postponed because he was only 16, Hatcher entered the University of Georgia, the proverbial big fish from the little pond suddenly dropped in an ocean of 20 times as many students as people living in Attapulgus. My inorganic chemistry professor joked I must be the most frightened student he had ever had—amusing, he added, because I had set the curve on the state exams. The war over, the Russian threat not yet emerged, I decided to stay at UGA. After junior year, he was accepted to the University of Georgia School of Medicine, which became the Medical College of Georgia. Military life would wait until assignment to Walter Reed where, still in training, he helped launch the hospital's new open-heart surgery program.

Of perceptions and bourbon

For months on end I was at the hospital before dawn. I rarely got home before midnight. It wasn't all a matter of hard work. I also realized perceptions would play an important role in advancement of my medical career.

Picture me like a duck, gliding across the surface of the pond calmly, but underneath that water, my feet were kicking like hell. I



Faces of Hatcher: as an infant in Attapulgus, in the army where he helped launch Walter Reed's open-heart surgery program, in surgery at Emory, and with his surgical colleagues at Emory.



also made an effort to keep up my appearance. We all worked slavish hours and fairly or unfairly one of the doctors in charge of your future might look at you and judge you poorly if you looked like a slovenly mess. Of course the most important thing is to be a good surgeon, but it also helps to look like a good surgeon.

There were moments that affected me deeply. I joined Dr. Alfred Blalock while he performed an operation to relieve constriction of the mitral valve in the days before open-heart surgery. He slipped his index finger into the left atrium to feel for the adhesions blocking the valve, then carefully instructed me in the insertion of my own finger. I have never forgotten the feeling of having such intimate contact with a beating heart and from that moment I knew cardiac surgery would be a major component of my surgical career.

Blalock, one of the era's most prestigious surgeons, was so confident in his young resident and fellow southerner that when he developed an abdominal tumor, he asked Hatcher to be one of the surgeons. I was thinking to myself, Charlie, you are really hot stuff. Then Blalock said, "I know I'm going to be on a liquid diet. Do you understand that I want to be on a full liquid diet?" "Dr Blalock," I said, "bourbon will be included in your liquid diet." That brought me back down to earth. Instead of being the world's next great surgeon, Dr. Blalock knew I was the most reliable person to see to the bourbon.

The Emory career that almost didn't happen

After serving as chief surgery resident at Hopkins, I was flattered by Dr. Blalock's invitation to remain as faculty and demurred as tactfully as I could. "I've never really thought about staying in Baltimore, because I'm an only child and one day I will be responsible for both my parents." Dr. Blalock said, "Well if you're going to be in Georgia, I would like you to be at Emory."

Emory's chair of surgery politely told Hatcher he had no positions available and did not anticipate any position becoming available. He added that his son-in-law would be joining the department that summer by previous appointment. Although both the Emory president and the chief of cardiothoracic surgery wanted Hatcher, an Emory future appeared unlikely. In Baltimore, Blalock asked

Hatcher to listen in on a phone call to the chair, who protested he had no money, no lab space, and no prospects for Blalock's resident. Blalock said, "Those are details. You work out the details. Charlie will be there on the first of July." In American medicine, prestige equals power. And power had spoken. I left for Emory the following June, and you might say I was looked upon as a rattlesnake that Dr. Blalock had just thrown in the chair's nest.

Arriving in Atlanta, I called cardiothoracic surgery just to check in. The nurse informed me that I was scheduled to operate at 8 a.m. It was only after I completed the surgery that someone mentioned I had just performed Georgia's first total correction of tetralogy of fallot (*the definitive open-heart operation which had largely replaced the surgery perfected by Blalock*).

The following morning, Hatcher went to the VA Medical Center to assist in the hospital's first pericardiectomy and found himself taking charge when the senior surgeon made a potentially lethal laceration. My career could have easily been very different had things played out differently. I could have lost that patient, but I did not. I had learned never to let my emotions show. Everyone on the surgical team keys on the operating surgeon, and until that individual manifests fear and uncertainty, the team can function in a routine fashion. That day the nurses and other doctors whispered amongst themselves that I had ice water in my veins. In truth, I was so relieved by the successful outcome I was tempted to suggest the patient be wrapped in a cashmere blanket and that I be sent the bill.

The Emory Clinic was nine years old, with fewer than 50 doctors. I thought it was huge, and I was delighted with my colleagues. If you were going to be a young heart surgeon, 1962 was an awfully good year to start. Within a short period we were doing things that had never been done before at Emory and Egleston.

Building the WHSC

In 1984, when I became director of the renamed Woodruff Health Sciences Center, I quickly realized decisions would ripple far beyond the university. Renegotiating Emory's first contract with Grady represented perhaps the largest stone tossed into the pond.

In 1985, the newly accredited Morehouse School of Medicine needed access to patients and Grady was the only public hospital in the area. Emory had an exclusive contract, which we had renewed for 29-1/2 years in 1984. Responsibility for all patients at Grady was extremely valuable to Emory. Many felt I was giving away services they had built up for years. But there were also strong reasons to amend



More Hatcher roles: as the surgeon who performed Georgia's first "blue baby" operation; as a father; as a WHSC leader, who faced tough decisions, including closing of the beloved dental school.



the contract. The civil rights movement had produced dramatic changes in the 1960s, the integration of Grady among them. In the early 1980s, Atlanta's leaders were doing all they could to put to rest the demons of the city's past. I certainly was not going to stand in the hospital door, keeping out the city's first historically black medical school.

The Emory dental school presented an administrative problem as soon as I took office. Throughout the nation, not as many people were applying to dental schools. Once the premier dental school in the southeast, toward the end you could make it into the school with a gentleman's C. I felt that if I were going to lose \$2 million a year, I wanted to lose it on something that was a clear-cut plus for the university. Closing a school is certainly the most painful thing any administrator has to do.

Creating a school of public health was probably the most exciting. Though we had expanded our research efforts, we had yet to exploit our greatest asset. Public health was exactly the program to kick-start our relationship with the CDC. We worked it out so the CDC would furnish about 150 faculty to the school at no charge. In turn, more of our graduates have gone on to work at the CDC than anywhere else.

Closing an era

In the early years as head of health sciences, Hatcher had continued to perform surgery. A single event would help me bring to a close my years in the operating room. I had been referred a middle-age man with multi-vessel coronary disease. I concluded the benefits of surgery would be quite limited, even if successful. In six months, he returned very depressed. A professional clown, he was incapable of clown activities. His wife couldn't stand to see him in this state, and ultimately I acquiesced. Post-operatively he experienced ventricular fibrillation and could not be resuscitated. With heavy heart I made the walk to the waiting room, which was filled with his clown friends who had come in full makeup and costumes to cheer up his family. They broke into tears. I too had tears when his wife thanked me for giving him a chance. I realized I could no longer take that degree of emotional trauma. That

would be my last personal effort in surgery.

When I announced my resignation plans as head of health sciences just before my 65th birthday, my friends in administration and the trustees told me, again and again, that no one had even discussed my retirement and that I should be in no hurry to leave. I said, "then my timing is perfect." ☞



ask Stacey

Need an appointment for an Emory doctor quick? Interested in registering for a prenatal class? Want to learn how to protect yourself and your family from flu? Stacey Hammett can help you with that and more.

Hammett is one of the 14 registered nurses who answer 16 phone lines at Emory Healthcare's HealthConnection. A one-stop shop for patients and referring physicians, HealthConnection is available 7 a.m. to 7 p.m. each weekday. **What would you like to know?**

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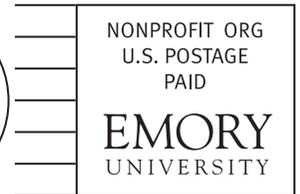
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SYLVIA DODSON'S late husband, James, was always a quiet man—gentle, kind, and compassionate. As Alzheimer's disease slowly stole his faculties, he grew even quieter. Eventually, the words wouldn't come at all.

Acutely aware of the uncertainty and frustration patients and their families endure, Sylvia Dodson is determined to help Emory researchers learn more about the enigmatic disease. She supports Alzheimer's research at Emory School of Medicine and has made a bequest to fund future studies.

"I think my husband would be proud of what I am doing," she says.

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