



# University of Chicago Cancer Research Center

## *In the News: Our Members in the Media*

The University of Chicago Cancer Research Center (UCCRC) publishes this newsletter periodically to provide its members, University of Chicago Cancer Research Foundation members, and other associates with informative articles or press releases regarding cancer and research by our members. If you wish to include a media story in the next issue, please e-mail us at [pbutera@medicine.bsd.uchicago.edu](mailto:pbutera@medicine.bsd.uchicago.edu).

AUGUST 10, 2009

## Dr. Rowley Receives Nation's Top Civilian Honor

### Medical Center News Office July 30, 2009

Janet Davison Rowley, MD, a pioneer in demonstrating that cancer is a genetic disease, will receive the 2009 Presidential Medal of Freedom the White House announced Thursday. President Barack Obama will award the Medals of Freedom, the nation's highest civilian honor, to Rowley and 15 others at a ceremony Wednesday, August 12.

The Medal recognizes "an especially meritorious contribution to the security or national interests of the United States, world peace, cultural or other significant public or private endeavors." First established in 1945, the medal was reinstated by President John Kennedy in 1963 to honor distinguished civilian service in peacetime. Among the ten previous recipients affiliated with the University of Chicago are scientist James Watson, economists Gary Becker and Milton Friedman, and historians Hanna Gray and John Hope Franklin.

Rowley receives the award for her discovery of recurring chromosomal abnormalities in leukemias and lymphomas--findings that have revolutionized how cancer is understood and treated.

"These outstanding men and women represent an incredible diversity of backgrounds," said President Obama. "Yet they share one overarching trait: Each has been an agent of change. Each saw an imperfect world and set about improving it, often overcoming great obstacles along the way. Their relentless devotion to breaking down barriers and lifting up their fellow citizens sets a standard to which we all should strive."

"Janet Rowley's work established that cancer is a genetic disease," said Mary-Claire King, PhD, a geneticist at the University of Washington. "She demonstrated that mutations in critical genes lead to specific forms of leukemia and lymphoma, and that one can determine the form of cancer present in a patient directly from the cancer's genes. This changed the way cancer



**Janet Davison Rowley**

was understood, opened the door to development of drugs directed at the cancer-specific genetic abnormalities and created the paradigm that still drives cancer research."

"By showing that unique genetic abnormalities are the root cause of cancer, Rowley laid the foundation for personalized cancer care and targeted therapy," said Richard L. Schilsky, MD, professor of medicine at the University of Chicago and past president of the American Society for Clinical Oncology.

"Janet was a pioneer in what is now called 'translational research,' the direct application of laboratory studies to understanding and treating human disease," added colleague, leukemia specialist Richard Larson, MD, professor of medicine at the University of Chicago. "She opened a window that al-

lowed us to see the genetic basis of the leukemias and other cancers. She has also been a champion of international collaboration for the advancement of science."

Rowley, 84, the Blum-Riese Distinguished Service Professor of Medicine, Molecular Genetics & Cell Biology and Human Genetics at the University of Chicago, has received many honors, including both the Lasker Award and the National Medal of Science in 1998 and, most recently, this year's Genetics Prize from The Peter and Patricia Gruber Foundation. She continues to head an active laboratory that focuses on the connections between genetic changes and cancer, especially leukemia.

Despite the long list of previous honors, she said she was "flabbergasted" when the call came from the White House Monday afternoon. "I was in total disbelief. "When I tried to tell my family I couldn't help crying. I was overwhelmed for 24 hours."

Before Rowley, few scientists suspected that chromosomal aberrations caused tumors. The established view at the time was that abnormal chromosomes were manifestations of generalized chaos within leukemia and lymphoma cells. But Rowley wondered if something else might be going on with those damaged pieces of DNA, and continued to examine thousands of chromosomes from patients.

Her persistence bore fruit. Beginning in 1972, she made a number of remarkable discoveries, including the landmark finding that an abnormally short chromosome associated with chronic myelogenous leukemia (CML).

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## Janet Rowley's Medal of Freedom (continued)

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was not a chromosome deletion, as many scientists had thought, but an exchange (known as a translocation) of segments between two chromosomes.

The next struggle was to convince fellow researchers. "I became a kind of missionary," she said, "saying that chromosome abnormalities were important and hematologists should know about them. I got sort of amused tolerance at the beginning, before the field gained credence."

Prior to this discovery, Rowley had an unusual career path. In 1940, at age 15, she enrolled as an undergraduate at the Hutchins College at University of Chicago, which combined the last two years of high school with the first two years of college. In 1945, she was one of only seven women out of 65 students entering the University of Chicago School of Medicine. In 1948, the day after graduating from medical school, she married fellow student, Donald Rowley. They had four children, all boys. She stayed home to raise them while working part-time with mentally disabled children, including children with Down syndrome, caused by an extra chromosome.

Her scientific career gained traction only in 1962. She traveled with her husband on his sabbatical to Oxford, where she learned newly developed techniques of chromosome analysis. Back in Chicago, at the request of her clinical colleagues, she used these techniques to study the chromosomes of patients with leukemia. For the next decade she labored over the microscope, searching amid the seeming genetic chaos of leukemic cells for consistent chromosome abnormalities. The first such abnormality had just been reported by Peter Nowell and colleague David Hungerford. They found that patients with chronic myelogenous leukemia had an abnormally small chromosome 22 in their tumor cells, which they labeled the "Philadelphia" chromosome.

The next step came in the early 1970's when geneticists perfected the art of chromosome "banding," a way of visualizing segments of chromosomes with more precision. Again, Rowley learned these techniques during a sabbatical in Oxford. They enabled her to discover that chromosomes from leu-

kemic cells not only lost genetic material, they sometimes exchanged it. Early in 1972, Rowley discovered the first such "translocation," an exchange of small pieces of DNA between chromosomes 8 and 21 in patients with acute myeloblastic leukemia. Later that same year, she found that the "Philadelphia" chromosome was also the result of a translocation. In patients with CML, a crucial segment of chromosome 22 broke off and moved to chromosome 9, where it did not belong. At the same time, a tiny piece of chromosome 9, which included an important cancer-causing gene, had moved to the breakpoint on chromosome 22. Because of this transfer from one chromosome to another, important genes that regulated cell growth and



**Presidential Medal of Freedom**

division were no longer located in their normal position on the chromosome. This provided critical evidence that cancer was a genetic disorder.

Rowley and her colleagues subsequently identified several other chromosome translocations that were characteristic of specific malignancies, such as the 14;18 translocation seen in follicular lymphoma, and the 15;17 translocation that causes acute promyelocytic leukemia (APL). Quickly picking up on her lead that specific translocations defined specific forms of cancer, scientists around the world joined the search for chromosomes that either exchanged genetic material or in some cases lost it altogether in a process known as a "deletion." Others used the translocations as road maps to narrow the search for specific genes that were disrupted by chromosome damage, thus opening up the current era of cancer genetics. Rowley's contributions to identifying chromosomal

abnormalities in leukemias and lymphomas have changed the way these diseases are diagnosed and treated. Today, newer techniques can identify the DNA damage within individual cells, offering a much more precise diagnosis of disease--and more effective treatments.

The research leading to the development of the drug imatinib (Gleevec)--one of the most successful targeted cancer therapies to date--stems directly from Rowley's work on the 9;22 translocation. Imatinib blocks the abnormal protein produced by that translocation.

She has also had an impact on the relationship between medical research and public policy. Rowley served on the President's Council on Bioethics, established by President George Bush in 2001, where she advocated for fewer restrictions, including those placed on federally funded stem-cell research.

Rowley's research continues at her lab at the University of Chicago, where she has inspired and generously mentored countless students and post-graduate fellows. Cancer cytogenetics continues to fascinate her.

"We're still working on the leukemias," she says. "There's a lot of evidence that translocations and other chromosome abnormalities aren't sufficient to make a cell malignant. We're looking for the other mechanisms involved."

"I can't think of anyone who deserved the award more or who would accept it more humbly," said colleague Michelle Le Beau, PhD, director of the University of Chicago Cancer Research Center. "Janet has been a mentor for her colleagues as well as her trainees and an ongoing example of scientific wisdom and imagination combined with impeccable professional and personal style."

The Medal of Freedom validates the enthusiasm that still inspires Rowley to bicycle from her Hyde Park home to her laboratory daily at the age of 84. "It's a recognition not of me but of our research," she said. "Our discoveries have had a major impact on the treatment and on the lives of patients with leukemia, especially those with CML."



# Study: Race Gap in African-American Cancer Deaths May Be Partly Biological

**Chicago Tribune**  
July 8, 2009

A new study led by a Chicago-area researcher is reigniting the debate over racial differences in cancer death rates.

The research touches on a fundamental question in medicine: Do genetic and biological factors contribute to African-Americans dying of cancer at higher rates than other patients? Or are the racial disparities wholly explainable by socioeconomic and cultural differences, such as income, access to health care and diet?

Published Tuesday in the Journal of the National Cancer Institute, the study found that African-Americans were more likely than others to die of three gender-related cancers -- breast, prostate and ovarian -- even when they received the same advanced care from the same doctors. The researchers say the survival disparity persisted after they controlled for factors such as education and income.

This study found no statistical link between race and survival for lung cancer, colon cancer, lymphoma, leukemia or myeloma.

The findings suggest that African-Americans' lower survival rates for certain cancers are not entirely due to factors such as poverty and poor health care, said lead author Dr. Kathy Albain, a breast and lung cancer specialist for Loyola University Health System in Maywood.

Instead, she said, the new study indicates that interactions among hormones, tumor biology and inherited gene variations may play a significant role in the survival gap for breast, prostate and ovarian cancers by controlling the metabolism of drugs, toxins and hormones.

"If you stir all that up in a pot," Albain said, "then I think we will have an answer as to why it is that those cancers still have the disparity but none of the other cancers do."

But some researchers criticized the study's methodology and conclusions.

Steve Whitman, director of the Sinai Urban Health Institute in Chicago, said the prevailing view in health dis-

parities research is that socioeconomic factors play the dominant role.

"What happens is, once again, [the study proposes] the problem is not with society, not with social issues, it's not with racism, but with the biology that lies within black people," he said.

Whitman is founder of the Metropolitan Chicago Breast Cancer Task Force, a collaboration of health care organizations, physicians, researchers and advocates working to reduce an alarming disparity in mortality between black and white Chicagoans with breast cancer.

In 2005, the last year for which data were available, the breast cancer death rate for African-American women in the city was 116 percent higher than that for white women, according to Whitman's research.

Albain's study analyzed records of more than 19,000 adult cancer patients in the U.S. who participated in 35 randomized phase III clinical trials and were followed for at least 10 years. The trials were conducted from 1974 through 2001 by the Southwest Oncology Group, a national research collaborative funded by the National Cancer Institute.

African-Americans' risk of dying during the study period was found to be 61 percent higher for advanced ovarian cancer, 49 percent higher for early post-menopausal breast cancer, 41 percent higher for early breast cancer before menopause, and 21 percent higher for advanced prostate cancer.

Whitman argues that the researchers did not adequately control for the socioeconomic status of participants, leading to faulty conclusions.

"They don't have actual measurements of the characteristics of the [study participants], but only of the ZIP codes that people live in, which is totally unacceptable," Whitman said.

"There are still residual social variables in life that make black people different than white people, and they have totally ignored all of that," he added.

But the study's findings made sense to prostate cancer researcher Dr. Rick Kittles, an associate professor of medicine at University of Chicago Medical Center.

"I wasn't surprised that if you control for socioeconomic factors there was this residential difference [between races] for these hormone-related cancers," he said. "There's obviously some biology that needs to be further explored."

At the same time, he said, researchers looking into biological causes need to work closely with social scientists.



**Rick Kittles, PhD**

"I believe that you can't discount social determinants in this equation," he said.

Carole Brown, 51, who is African-American and started chemotherapy for breast cancer Tuesday at U. of C. Medical Center, said she thinks blacks are more likely to get a diagnosis later and die of cancer because they don't have the financial resources to get care.

"A lot of people aren't working and can't get the right insurance," said Brown, a Woodlawn resident who works at O'Hare International Airport as a security coordinator for a caterer but has private insurance. Brown, who found a lump about three months ago, said she did not have a doctor from October through April because she couldn't find a health provider who would accept her insurance.

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## National Cancer Coalition Awards Angel Grant to Dr. Beyer

PRNewswire-USNewswire  
July 30, 2009



RALEIGH, N.C., / PRNewswire-USNewswire/ -- The National Cancer Coalition (NCC) is pleased to announce its recent *Angel Grant* recipients, which include: Dr. Steven Brem of

the H. Lee Moffitt Cancer Center, Dr. Julie Blatt of the University of North Carolina - Chapel Hill, Dr. Jeffrey Taub of the Children's Hospital of Michigan, and Dr. Eric Beyer of the University of Chicago.

Steven S. Brem, MD, is the Director of Neurosurgery and the Division Chief of the Neuro-Oncology Department at H. Lee Moffitt Cancer Center in Tampa. Dr. Brem is utilizing his *Angel Grant* to pursue the development of new anti-angiogenic therapies for pediatric brain tumors.

Julie Blatt, MD, is the Chief of Pediatric Hematology/Oncology at the University of North Carolina at Chapel Hill. Her award furthered UNC's study demonstrating no overall link between autism and cancer in children, as well as a teaching program for childhood cancer survivors and healthcare providers.

Jeffrey W. Taub, MD, is the Director of the Hematology/Oncology Fellowship Program at the Children's Hospital of Michigan. Dr. Taub's grant will be

used to provide a new visible wavelength microplate reader, which is integral to his innovative research and treatment of acute leukemias.

Eric C. Beyer, MD, PhD, is the [Chair of the Committee on Cell Physiology and the former] Chief of Pediatric Hematology/Oncology at the University of Chicago's Comer Children's Hospital. His *Angel Grant* will be used to further his investigations of the biology of pediatric Glioblastoma multiforme (GBM) brain tumors and their treatment.

The National Cancer Coalition implemented its *Angel Grant* program to provide seed funding to innovative projects that benefit and further cancer research, education, and programs. Grants are also awarded to act as a catalyst for scientists to secure additional funding from United States government agencies and other sources. For more information on *Angel Grants* and how to apply, please visit our website at:

[www.nationalcancercoalition.org](http://www.nationalcancercoalition.org) 

## National Survey Again Names Medical Center as 1 of the Best U.S. Hospitals

USNews & World Report  
July 20, 2009

In its annual survey, *U.S. News & World Report* selected the University of Chicago Medical Center as one of the best hospitals in the United States. In the 2009 "Best Hospitals" issue (on newsstands July 21), the magazine ranked 11 Medical Center specialties among the top such programs in the country, up from 10 last year.

Eight programs, digestive disorders (#6), endocrinology (#14), cancer (#17), kidney disease (#17), neurology & neurosurgery (#19), ear, nose & throat (#24), heart & heart surgery (#25), and respiratory disorders (#28), were ranked in the top 30 nationwide. Geriatrics (#34), gynecology (#47) and urology (#48) also scored in the top 50. No Illinois hospital was ranked in more



specialties. "When the stakes are high, you want the best care you can get for someone close to you," said Avery Comarow, health-rankings editor for the magazine.

"These are hospitals that are used to getting the sickest patients."

The rankings are based on a mathematical formula that takes into account (1) the ratio between actual and expected mortality at a hospital; (2) a group of factors such as available technology, patient/community services, procedure volume and nursing care, including Magnet status; and (3) the institution's reputation based on a poll of 200 specialists in each field, averaged over three years. These specialists are asked to list "the five hospitals they consider best in their specialty for difficult cases, without taking location or expense into account (or naming your own hospital)."

According to *U.S. News*, out of nearly 5,000 hospitals evaluated, only 174 met that standard in one or more specialties. Most that did are referral centers, which are accustomed to seeing the toughest patients and conducting bench-to-bedside research that advances the state of the art.

In March, the University of Chicago's Pritzker School of Medicine was ranked 13th in the *U.S. News & World Report* "Best Graduate Schools" issue. Over the last five years, Pritzker has been the fastest rising medical school in the top 50.



### EDITOR'S NOTES:

*This issue of "In the News" highlights the important contributions our members and staff are making in all phases of cancer research and outreach. On pages one and two, we learn that Janet Rowley, MD, has received the highest civilian honor, the Presidential Medal of Freedom. Her discoveries demonstrated the genetic basis of cancer and transformed cancer research and care.*

*Are genetics and biology the dominant factor creating the disparity in cancer death rates between Blacks and White? Or are socioeconomic and cultural differences the real culprits? The story on pages 3 and 6 sheds more light on this debate.*

*Pages 5 and 6 look at the University of Chicago's ambitious effort, The Urban Health Initiative, to remake the delivery of care on the South Side of Chicago. The UCCRC is also working to help improve health in the local neighborhood by educating the public about cancer and the importance of cancer prevention, screening, and participation in clinical trials.*

# If Not the Emergency Room, Then What?

## Chicago Health Initiative Seeks Alternatives for Both Routine, Chronic Needs

By Peter Slevin  
Washington Post Staff Writer  
Saturday, July 25, 2009

CHICAGO -- On the sprawling South Side of one of the nation's largest cities, the logic of health care is haphazard, at best. For tens of thousands of the working poor and the unemployed poorer, the concept of a regular doctor and easy access to affordable care is a fantasy.

Clinics are scattered and family doctors few. Too many patients get too little care until small problems become big ones. Others who are not very sick go straight to hospital emergency rooms, where the care is costly and the wait is often long.



**Semeca Johnson, left, a patient advocate with the University of Chicago's Urban Health Initiative, helps a patients find a primary care "medical home." (By Carlos Javier Ortiz For The Washington Post)**

### Cautious Enthusiasm

To put it simply, there is no health-care system for the 1.1 million residents of Chicago's South Side, said Eric E. Whitaker, a physician and public health specialist who is leading an ambitious and controversial University of Chicago project to remake the delivery of care.

With moral support from close friends in the White House, Whitaker and his Urban Health Initiative team are trying to produce a major expansion of community care that will improve patient health and reduce costs -

- goals central to President Obama's health-care reforms.

Obama, who traveled to Ohio last week to tout the Cleveland Clinic as a model of low-cost collaboration between nurses and doctors, hospitals and clinics, is well-versed in the Chicago experiment. Whitaker, a friend since they met at Harvard 20 years ago, is a frequent White House visitor and participated in the early health-care discussions. He told the City Club of Chicago in April: "I need your help. The president needs your help."

Whitaker was lured to his job as executive vice president of the University of Chicago Medical Center by Michelle Obama and by Valerie Jarrett. Obama, who launched the South Side Health Collaborative in 2005, was leading the hospital's outreach program and Jarrett, now a presidential adviser, chaired the medical center board.

On June 29, Michelle Obama announced \$851 million in federal stimulus grants to upgrade community health centers, saying their work "has never been more important."

Described by Yale University

professor Harlan M. Krumholz as the largest effort of its kind in the country, the Urban Health Initiative seeks to improve health and reduce reliance on emergency rooms by encouraging "medical homes" -- a clinic or doctor's office where patients can turn for routine needs and chronic conditions.

The initiative reinforces local institutions with university doctors and connects people to primary-care physicians and community hospitals. Success will require changes in expectations and behavior from patients and doctors, along with technology and

shoe leather to make it happen and test what works -- and what doesn't.

### 'A System Where People Can Go'

If that sounds similar to the promise and peril of reforms being debated in Congress, it may be because Chicago's quandary is representative of the daunting dysfunction that defines the health industry in many other places.

"We have to create a system where people can go. It doesn't exist and we're trying to build it," said Whitaker, who worked for seven years in a South Side clinic and once ran the Illinois Public Health Department.

Whitaker, who spends much of his time negotiating with doctors, community groups, government officials and university skeptics, calls these the "very early" days in "a decade [or] two-decade experiment."

On the South Side, where distrust of the university is old, especially among African Americans, the urban health project and a broader hospital restructuring have drawn strong criticism. Rep. Bobby L. Rush (D-Ill.), a former congressional opponent of Obama, requested an inquiry in May to determine whether the hospital is dumping some of its poorest patients to save money.

The Illinois College of Emergency Physicians warned hospital trustees in February that plans to shrink the emergency department as part of \$100 million in budget cuts could compromise patient safety. The group said the university, which treats one in 10 South Side residents, appeared to be "shifting UCMC's responsibility to other community hospitals whenever possible."

"We aren't dumping patients. There's no evidence of that. We are trying to deploy resources more effectively," said hospital chief executive James L. Madara. One way to do that is by "making sure you match the expense of the platform to the need of the disease."

(Continued on p.6)

## *If Not the Emergency Room (continued)*

*(Continued from p. 5)*

Many emergency room patients have ailments that could be treated effectively in clinics or in smaller hospitals that are eager for the business, Madara said. An appointment that costs \$100 at a family doctor's office costs the hospital \$1,100, but 27 percent of the patients say they have no regular doctor.

Much of the grumbling, Madara said, can be traced to the nature of change: "There is a resounding chorus of the following phrase: Health care in America doesn't work; don't change anything."

If this is a fight for change, Semeca Johnson is on the front lines. She bears the title of "patient advocate" when she reports to her desk near the emergency room. Her role is to redirect patients who do not need urgent care.

Some show up with pinkeye, a minor rash, an allergic reaction, a broken leg. Some need specialists or a new prescription. An elderly woman with pneumonia needs a hospital bed, but should it be provided by the University Medical Center, a major teaching hospital?

"We just don't have the capacity," Johnson said. On a recent summer morning, one person had been waiting 29 hours for a bed. Ten others had waited at least four hours to see a doctor.

Working the phones, Johnson redirected 15 patients who did not need immediate attention. Among them, five were reconnected with local doctors and five accepted future appointments with specialists.

### **Seeking a 'Behavior Change'**

With the help of university money and doctors, the independent Friend Family Health Center, just five minutes north of the hospital, is expanding into the gap. Last year, the clinic recorded 45,000 patient visits. Managers expect to attract new patients from the emergency room and from two recently closed university-run clinics.

The center aims to persuade patients to return for routine visits and other care, although no-show rates are as high as 50 percent. "People are so

used to going to the emergency department," said Laura Derks, the university's chief liaison to the community clinics. "The behavior change is really hard."

Farther south, the Urban Health Initiative is collaborating with the Chicago Family Health Center, a group of four clinics where patient numbers are rising. More than 40 percent of the roughly 20,000 patients -- 98 percent African American or Hispanic -- are uninsured.

To keep the lights on and pay the staff, the nonprofit center collects money from Medicaid and Medicare, as well as other federal grants, private fundraising and the university. A sliding-fee scale starts at \$10 for a visit and lab study.

"It's all about providing care as close to home as we possibly can," spokeswoman Barbara Tieder said.

Kohar Jones, a University of Chicago family physician, spends four days each week at the clinics, which draw on 27 doctors and four dentists. She speaks of improvements such as patient awareness and clinic and hospital access, calling them a "shift in the way we perceive health and health care."

One conundrum is how to monitor the health of patients distant from the system.

Investigators hope to persuade the city to supply broadband lines to certain hard-to-reach households to see whether connectedness would improve health. The university is deploying doctors and medical students to staff clinics and undergraduates to work at help desks. Some medical school graduates who return to the community will receive a \$40,000 annual bonus for four years.

One of the most nettlesome barriers is the shortage of family doctors, blamed in part on Medicaid's low reimbursement rate. Mishka Terplan, who oversaw a women's clinic recently closed by the university, said doctors sought about \$1 million from Medicaid last year but collected \$100,000.

Addressing Whitaker's project, Terplan said community clinics handling routine cases do not "provide better or worse care" than the univer-

sity hospital. But he worries that patients could fall through the cracks and that some who need advanced care may not receive it.

Whitaker said the university will step in when "there is not capacity in the community." Mindful of how many are watching, he counseled patience: "The tale will be told five years from now, whether all the directions we're going will pay off in the ways I think they will."

Obama and members of Congress will not have the luxury of knowing how the experiment turns out before any legislation reaches his desk. Only the beginnings are clear.

## **Race Gap in African American Cancer Deaths (Continued)**

*(Continued from p. 3)*

The new study contributes to a body of work on cancer disparities, said Adrienne White, vice president for health initiatives and advocacy for the American Cancer Society's Illinois chapter and a member of the society's new African-American Disparity Task Force.

"We recognized that whenever you deal with cancer disparities, or any health care disparity, you have to take into account biologic factors, socioeconomic factors, social-cultural factors and access to care and information," White said. "First and foremost, there is no single simple answer to any of this."

Dr. Otis Brawley, chief medical officer for the American Cancer Society's national office, said the key cause of racial disparities is lack of proper treatment.

"To get rid of the black-white disparity we need to work on simple logistic issues: getting people adequate care," said Brawley,\* who wrote an editorial that accompanied the study.

*\*Editor's Note: Dr. Brawley is a graduate of the University of Chicago Pritzker School of Medicine.*