DukeMed MAGAZINE

VOLUME 4
ISSUE 2
FALL/WINTER 2004

ADVANCES IN RESEARCH, EDUCATION, AND PATIENT CARE AT DUKE

Taking action against **aortic disease**

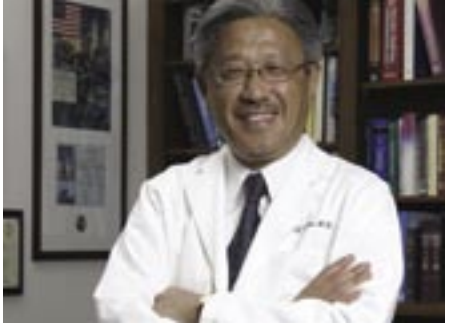
What's next in **prostate cancer care**

Controversies in medicine: **Antidepressants for adolescents**

PLUS: Earn CME credit for reading our Clinician Q&A

STRETCHING THE LIMITS

Advances in arthritis treatment put patients back on track



Changes and continuity

It has been less than a year since I first visited Duke while interviewing for the job as chancellor for health affairs. Looking back, I still clearly recall the sight that greeted me after I stepped off the Jetway into Raleigh-Durham International Airport: a billboard for Duke Medicine that read, "The Future of Medicine, Delivered Today." That bold statement made a lasting impression on me, and I am honored to have been given the opportunity to help Duke fulfill that vision for its patients.

I knew Duke from a distance for many years before becoming chancellor in July. I had always greatly admired and respected the medical center and health system for its first-rate patient care, education, and research, and thought it fortunate in its excellent leaders, including Chancellor Emeritus Ralph Snyderman, MD.

Now that I have had a chance to get to know Duke for myself, I have been truly impressed and inspired. Not only is Duke among America's best academic medical centers, its people are among the most devoted, proud, and committed to excellence. To me, they embody the true meaning of Duke Medicine.

I have had a long journey to Duke, arriving by way of Shanghai, Hong Kong, Montreal, San Francisco, and Boston. Having lived in many different places throughout my life, I have always striven to adapt to each new environment by learning about its history, traditions, and culture—and Duke is no exception.

Over the past year, I have read a great deal about my new home and had many conversations with individuals on campus, throughout the health system, and in the community. In the course of learning about Duke's proud past and exceptional accomplishments, I was particularly struck by the words of James B. Duke, founder of Duke University, in the Indenture of Trust establishing The Duke Endowment.

He wrote: "I recognize that [hospitals] have become indispensable institutions, not only by way of ministering to the comfort of the sick but in increasing the efficiency of mankind and prolonging human life. The advance in the science of medicine growing out of discoveries, such as in the field of bacteriology, chemistry and physics, and growing out of inventions such as the X-ray apparatus, make hospital facilities essential for obtaining the best results in the practice of medicine and surgery.

"So worthy do I deem the cause and so great do I deem the need that I very much hope that the people will see to it that adequate and convenient hospitals are assured in their respective communities, with especial reference to those who are unable to defray such expenses of their own."

To help meet the needs he saw, Mr. Duke left in his will instructions that $4 million be used to establish a medical school, hospital, and nurses' home at Duke University—the "capstone" of his vision for a "network of hospitals so located . . . that they . . . would be adequate and accessible to all who might need," as his attorney put it.

In the coming year, 2005, Duke will celebrate the 75th anniversary of the opening of those medical institutions in 1930. We will also bring forth a strategic plan to guide the future of medicine at Duke for the next five years.

As we look to the future, it seems to me that our fundamental goals remain much the same as those mentioned by James B. Duke many decades ago. We still seek to advance the quality and span of human life by making new discoveries and bringing new inventions from the lab to the bedside. We still seek the "best results" for our patients by adopting the latest evidence-based care practices, and by setting and meeting high standards for quality and safety. We still work to ensure that our health system meets the needs of patients in the different communities we serve, and we still continue Duke's tradition of giving special attention to the needs of those who have difficulty accessing or affording health services.

I am proud to be part of an institution with such a long history of excellence and service. It is my goal and privilege to carry on those traditions as we embark on the future of medicine at Duke.

VICTOR J. DZAU, MD
PROFESSOR OF MEDICINE
CHANCELLOR FOR HEALTH AFFAIRS,
DUKE UNIVERSITY
PRESIDENT AND CEO,
DUKE UNIVERSITY HEALTH SYSTEM

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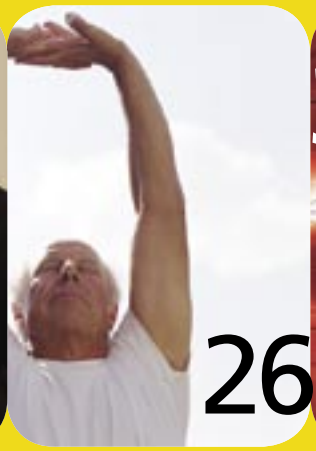
VOLUME 4, ISSUE 2, FALL/WINTER 2004

Dzau's early days

Duke's new chancellor for health affairs took office July 1—and hasn't slowed down since.



Stretching the limits

Advances in arthritis treatment put patients back on track.
Plus: Arthritis care for kids

Working on the highway of the heart

Often overlooked until disaster strikes, aortic disease is starting to get the attention it deserves.

Fighting the man's cancer

Duke's prostate cancer team offers men more options than ever before.

The great CME experiment

We thought our clinician readers might like a little extra credit for reading *DukeMed Magazine*.

So, in this issue, we are offering an opportunity to earn up to 1.0 Category 1 credit toward the AMA Physician's Recognition Award for reading our Clinician Q&A feature, "Use of Opioids for Outpatient Pain Management," by Anne Marie Fras, MD, assistant clinical professor in the Duke Department of Anesthesiology and interim director of the Division of Pain Management.

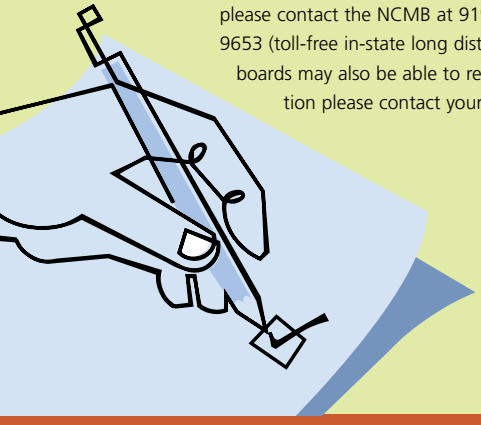
The article—and full instructions for claiming credit—can be found on page 54.

Is it a great experiment? Only you can tell us. Let us know whether you think we should offer a CME opportunity again—and what topics would be of interest to you.

Drop us a line via e-mail at dukemedmag@mc.duke.edu or write to Editor, DukeMed Magazine, DUMC 3687, Durham, NC 27710.

A reminder from the Duke Office of Continuing Medical Education that you may also be able to receive self-claim credit for reading *DukeMed Magazine*:

> Physicians licensed by the North Carolina Medical Board (NCMB) must complete 150 hours of practice-relevant continuing medical education (CME) every three years in order to be relicensed. Up to 90 of the 150 required hours for NCMB relicensure can be "self-claim" credit for physician-initiated activities such as practice-based self study, consultations with colleagues, teaching, M&M conferences, journal clubs, and reading clinically relevant articles in *DukeMed Magazine*. The North Carolina Medical Board even provides a form that can be downloaded from its Web site for your use in tracking physician-initiated activities: Visit www.ncmedboard.org/cme1.htm.
>
> For additional information regarding CME credit for NCMB relicensure, please contact the NCMB at 919-326-1100, 919-326-1109, or 800-253-9653 (toll-free in-state long distance). Physicians licensed by other state boards may also be able to receive "self-claim" CME credit; for information please contact your state medical board.



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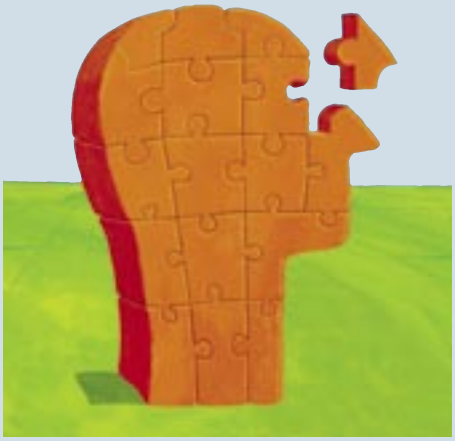
WILL MCINTYRE

from the dean

A thoroughly modern medical education

by R. Sanders Williams, MD
Dean, Duke University School of Medicine
Vice Chancellor for Academic Affairs



SINCE THE 1960s, Duke has offered medical students a curriculum different from that of every other American medical school. In effect, the Duke curriculum has compressed into one year the material dealing with basic medical sciences that is customarily taught over two years at other schools, so that our students may begin clinical rotations in the second year. This accelerated schedule demands an extraordinary intensity of effort and a high capacity for rapidly processing massive amounts of information.

Surviving these pressures, however, has earned our students a reward of inestimable value—a full year of focused scholarship and original research on a specific topic under the guidance of a faculty mentor. This has been followed by a fourth year of clerkships in clinical subspecialties, in which students reestablish direct contact with patients at a stage of greater intellectual maturity.

Compared to other schools, we have brought students into intensive contact with patients earlier in their medical school experience, and we have provided greater opportunities for focused scholarship and individual creativity. In this manner, we also have balanced the almost impossibly broad task of providing some familiarity with the full span of medical knowledge with opportunities for deep and focused exploration of a small domain of medical knowledge in which the student pushes the limits of current understanding. This unique approach to medical education has accomplished precisely what we have declared to be our overarching goal—sending our students out to become leaders and scholars of American medicine.

This year we are rolling out to current medical students the final product of the first major overhaul of Duke's curriculum in 40 years, completing a process that has occupied scores of faculty, students, and administrators for many thousands of hours since 2000. This monumental effort has been led by Ed Buckley, MD, professor of ophthalmology, with direct oversight by Vice Dean Edward Halperin, MD, and major contributions from educational professionals such as Colleen Grochowski, PhD.

The distribution of activities across the four years remains fundamentally unchanged, but many new and interesting features are now included. In the first year, the traditional subdivisions of basic medical sciences are gone, replaced by three building blocks: Molecules & Cells, Normal Body, and Body & Disease. This change reflects the increasing unification of biological sciences driven by conceptual revolutions in molecular biology and genomics.

In the second year, the canonical clinical clerkships are now punctuated by week-long intersessions that bring the class back together to systematically cover certain topics we have deemed essential for all students. In addition, students may now select specialized two-week clinical experiences during the second year to help guide their subsequent choices for residency training.

The third year—a signature element of the Duke medical experience—has been defended as a time dedicated to independent study and research, against all intrusions recommended by well-intentioned faculty wishing to add didactic material that otherwise cannot be covered in the first, second, or fourth years. Students will devote at least 10 months to their chosen third-year project, ultimately producing a thesis, and may elect longer periods for research.

New elements of the fourth year include a required sub-internship and critical care rotation, as well as a new Capstone Course. This latter innovation, which covers topics such as essential internship skills, patient safety, medical ethics, and professionalism, brings the class back together for four weeks devoted to final preparation for the paths they will follow after graduation.

As dean, I have watched the curriculum reform process proceed with great admiration for our faculty and students who have created this marvelous new plan. My personal contributions have been limited largely to a nudge here or a cheer there. This revised curriculum is truly a product of faculty genius, not an administrative mandate. As this plan goes live for our current students, I am confident that we have retained what was best of the unique Duke tradition, while engrafting new features commensurate with a 21st-century perspective.

To read more on the new Duke curriculum, visit development.mc.duke.edu/medAlum/AlumniNewsletter_Fall2004.pdf

Special access

Getting in to see a Duke specialist is getting easier

With over 1.1 million outpatient visits annually, Duke's Private Diagnostic Clinic (PDC) stays busy—sometimes too busy to suit its patients. In recent years, in fact, new patients often had to wait weeks for an appointment.

"IT WAS PRETTY OBVIOUS that we had an access problem," says Theodore Pappas, MD, executive medical director for the PDC, Duke's faculty practice. "Frequently people would call and couldn't get an appointment, and even our own primary care physicians were having trouble referring patients in. We thought the situation was unacceptable."

That's why the PDC recently launched an effort to overhaul the scheduling process and whittle appointment wait times down to no more than a week. The project is ongoing, but has already scored successes. Today, many Duke specialty clinics routinely offer patients an appointment within seven days (see box).

Hitting that target hasn't been easy. Long waits were practically built into the system, Pappas points out. "Because Duke is an academic institution, many of our divisions were organized around research and education, with clinical care carved out of the remaining time," he says. "Now that we've evolved into a health system, we need to provide better service—both to stay competitive and because we have a responsibility to meet the needs of the communities we serve."

Becoming more patient-friendly requires a culture change, says Bill Gable, the PDC's administrative director for operations. "We uncovered several artificial barriers to access, such as scheduling templates that varied from doctor to doctor." Now, templates are being standardized, and appointment coordinators have improved access to the doctors' schedules. If a patient needs to be seen for a hand injury, a hernia, or a heart murmur, for example, the schedulers can pull up a list of physicians who treat the problem and schedule the patient with the next available doctor.

"In the past, if the scheduling system said we were booked, community physicians sometimes called around to get the consulting physician's approval to override the system," Gable says. "We wanted to give our schedulers the ability to offer an appointment the first time patients or referring physicians called."

Some divisions are also hiring more faculty to increase availability. For example, Cardiology has recruited 11 new faculty members since last July, in addition to revamping scheduling, according to Michael Cuffe, MD, vice chair for clinical affairs in the Department of Medicine. "They're now providing less than one-week access," he says. "It's been a dramatic change." Other divisions are rapidly following suit, he adds: "By next summer, we hope to offer one-week access for most types of appointments across our department."

If patients want to see a particular physician, they may still have to wait, says Pappas. "We're guaranteeing the service, not the individual. But if there are 10 other Duke specialists who treat the same problem, we as a group can commit to see that patient within a week." Some clinics will be unable to offer a seven-day turnaround due to financial or logistical constraints, he adds. "But if the next available appointment in those clinics is in 50 days and we can move it to 30, that will be better for everyone."

So far, things seem to be moving in the right direction. "Improving access is a very difficult problem," says John Anderson, MD, medical director for Duke University Affiliated Physicians. "There's still a lot of work to be done, but it is getting better. We're encouraged to see the efforts being made to improve service for patients and referring physicians."

Those efforts will continue, PDC leaders pledge. "We're working with several additional services now to offer new appointments in seven days, and plan to have more online next year," says Gable. "We see this as part of an ongoing commitment to improve access to Duke clinical services."

PDC, PDQ

DUKE PRIVATE DIAGNOSTIC CLINIC **(PDC)** services now offering appointments within seven days with the next available physician include:

- **Orthopaedics**
- **General Surgery**
- **Cardiology**
- **Ear, Nose, and Throat**
- **Pediatric Cardiology**
- **Urology**

To make an appointment, physicians call 1-800-MED-DUKE, patients call 1-888-ASK-DUKE.

Brodhead says "I do"

TODAY WE SOLEMNIZE MY NEW UNION. *Let's do it right. Do I, Richard, take you, Duke, to be my chosen life? I do.*

Forsaking all others, will I do everything in my power to further the aims of this university? I will.

As we pursue these goals, will I work to promote the welfare of every member of the Duke community . . . every single person whose labor and devotion make this place thrive? Yes, I will.

With wit and a charming smile, Richard H. Brodhead, PhD, said these words to a crowd of over 1,700 people in Duke Chapel September 18 to mark the ceremonial beginning of his tenure as ninth president of Duke University.

> "Others have given us this great place. Let's see what we can build together."
>
> President Richard H. Brodhead

Brodhead, who succeeded Nannerl O. Keohane on July 1, was formerly dean of Yale College and the A. Bartlett Giamatti Professor of English and American Studies at Yale University. An expert in American literature, he earned his bachelor's, master's, and doctoral degrees from Yale before joining that university's faculty. "As you may know, I had a deep attachment to my former school, having spent my whole adult life there, and when the news broke that I was leaving, not everyone took it well," Brodhead told the crowd at his inauguration. "A student I knew put her dismay this way: 'See, it was like Dean Brodhead was married to Yale—and now we learn that he's leaving us for someone younger and more athletic.'"

Brodhead went on, in a more serious tone, to outline his thoughts on what Duke is and what it can become: "I was lured here by the spectacle of a school that has established itself in the top rank of research universities and professional schools but that habitually connects the pursuit of knowledge with the search for the social good."

While committing to build intellectual strength in every field, Brodhead presented several initiatives that he believes Duke should concentrate on to continue to impact society—including global health.

"Duke medical researchers are already active from Tanzania to Singapore to Honduras and back to the Carolinas and are working on virtually every health challenge a growingly populous, growingly interdependent world will face," he said. "In my dream, Duke would be the place where people from around the world come to learn and contribute to a growing understanding of our shared health future; and no student would leave without a deeper understanding of this dimension of our common lot."

Other areas touched upon included the need for continued investment in faculty, maintaining Duke as a place of self-discovery and self-enlargement for undergraduate and graduate students, and recruiting financial support "to assure that this school never closes its doors to a worthy applicant."

"I know that whatever I will do will be accomplished with your partnership and help," he told the crowd. "Others have given us this great place. Let's see what we can build together."

Read more at http://www.duke.edu/inauguration/.

A gift for global health . . .

A NEW DUKE CENTER will seek to improve the health of people throughout the world through research, education, and service. The Hubert-Yeargan Center for Global Health was established this fall with $4 million from The Yeargan Charitable Foundation Trust of Garner, N.C., and $2.5 million from the Hubert Family Trust of Atlanta.

The center, directed by G. Ralph Corey, MD, will further expand a research and education program on HIV infection, malaria, and tuberculosis originally started by Duke in Tanzania in 1986. The initial program and additional sites in Tanzania, Brazil, China, Thailand, and Kenya have provided research and training opportunities to more than 200 physicians, while giving more than 40 foreign physicians opportunities to participate in clinical care and research at Duke.

. . . And a grant, too

IN AUGUST, DUKE RECEIVED A $4 MILLION NIH GRANT to study infectious diseases that plague AIDS patients in Tanzania. The award, one of the largest of its kind ever given, will be used to improve detection, prevention, and understanding of diseases that often co-infect HIV/AIDS patients, such as tuberculosis, meningitis, and cervical cancer, according to principal investigator John Bartlett, MD.

Much of the grant will help create a medical research infrastructure in a region of northwest Tanzania where about 10 percent of the population have HIV/AIDS. The investment in equipment, laboratory space, and training will enable scientists in Tanzania to continue research independently after the grant ends.

For details visit www.dukemednews.org.

New radiation oncology clinic takes the cake

DUKE RADIATION ONCOLOGY staff at a September open house had the rare opportunity to dig into their new digs, thanks to a fancy cake decorated to resemble the redesigned Radiation Oncology Clinic (above).

The new clinic, located at the rear of the Morris Cancer Building, has 12 exam rooms instead of the previous six, two pediatric waiting rooms, a dedicated MRI for treatment planning and hyperthermia, an additional Computerized Tomography (CT) Simulator for treatment planning, five new linear accelerators, a patient education room, and expanded space for staff workrooms and breakrooms.

Of course, as Department of Radiation Oncology chair Christopher Willett, MD, reminded those gathered at the open house, "While this is a wonderful building, what is truly important is the people inside."

Guess that would make the new facility just the icing on the cake.

20 percent leap in NIH funding sets 30-year record

DUKE UNIVERSITY SCHOOL OF MEDICINE RANKED #5 among medical schools nationally in funding from the National Institutes of Health (NIH) in fiscal year 2003, according to the federal agency's latest figures. With a total of $305.4 million received, the school saw a funding increase of more than 20 percent—the highest among the nation's 20 top-ranked institutions.

The fifth-place finish marks the highest ranking Duke has received since 1973, says Dean R. Sanders Williams, MD, who calls NIH funding "critical to Duke's ability to play a transformative role in the advancement of human health and biomedical science."

The Department of Medicine received more funding than any other at Duke with more than $100 million and a fifth-place finish nationally. The Department of Surgery won more NIH funding than any other in the nation with $42 million in awards. Other medical school departments among the nation's top 10 included anesthesiology, biology, biostatistics, pediatrics, pharmacology, psychiatry, public health and radiology and radiation oncology.

Genomic information: public or private?

SHOULD HARD-WON ADVANCES in genomic knowledge become public territory or remain proprietary? As federally funded institutions and private corporations pour billions of dollars into developing new genomics-based products and services, it's become a pivotal question—one a new center at Duke will be working to answer.

The Duke Institute for Genome Sciences and Policy's Center for Genome Ethics, Law, and Policy (GELP) received a $4.8-million NIH grant to support its new Center for the Study of Public Genomics. The interdisciplinary center is one of four nationwide to receive funding as a Center of Excellence in Ethical, Legal and Social Implications from the NIH's National Human Genome Research Institute.

The Duke center will gather and analyze information about the role of publication, data and materials sharing, patenting, database protection, and other practices that may affect the flow of information in genomics research.

"The incentive of intellectual property rights can stimulate investment in genomic research, but it can also be an impediment to information-sharing that could more quickly bring about practical benefits for the public," says GELP director Robert Cook-Deegan, MD. "We hope that providing better data about information flow will lead to better policy in this arena."

"Over the past 10 to 20 years there's been a real bashing of heads over public versus private approaches to genomic innovation," adds IGSP director Huntington Willard, PhD. "With its virtually unique combination of strengths in laboratory research, public policy, and business, this is exactly the kind of issue Duke is equipped to address."

To read an overview of the new center published in Duke Law Magazine, visit http://law.duke.edu

Big building for big ideas

DUKE'S NEWEST CAMPUS LANDMARK opened this August after two years of construction—the $97-million, 322,000-square-foot Center for Interdisciplinary Engineering, Medicine, and Applied Sciences (CIEMAS). The facility expands the Pratt School of Engineering's partnership with the School of Medicine, providing laboratories for collaborative research in health care, genomics, and biotechnology, among other fields. The complex features the Jim Wyngaarden Hall of Honor, named after the former chairman of medicine at Duke and chief of staff of Duke Hospital, who was appointed director of the National Institutes of Health in 1982.

Missing persons

THE SULLIVAN COMMISSION ON DIVERSITY in the Healthcare Workforce, a national blue-ribbon panel formed in 2003 to address the under-representation of minorities in health-related fields, recently released its report *Missing Persons: Minorities in the Health Professions*. The report calls for a variety of systemic changes to make health care education and training more attainable for minority students, including shifting from student loans to scholarships; reducing dependency on standardized tests for admission to medical, nursing, and dentistry schools; and expanding the role of two-year colleges.

The Commission is administered by Duke University School of Medicine as part of a $3.6 million grant from the W.K. Kellogg Foundation.

The report is available online at www.sullivancommission.org

Fishing for a good science idea

SCHOOLTEACHER TREVA FITTS knows where she'll be fishing to keep her fifth graders interested in science. After a 15-minute tour of Duke's zebra fish facility with graduate student Richard Roberts this summer, she was ready to go back for more. "This is awesome," she said. "I can definitely see using this information in my classroom. This would be such an interesting way to teach our students about ecosystems and animal adaptations."

The fishing trip was part of a weeklong series of idea-boosting tours and discussions for Fitts and a dozen other elementary and middle school teachers sponsored by BOOST (Building Opportunities and Overtures in Science and Technology). A partnership between Duke University Medical Center, Durham Public Schools, and the North Carolina School of Science and Mathematics, BOOST reaches out to underrepresented minority students and their teachers to promote their interest in science.

According to Brenda Armstrong, MD, director of admissions for the Duke School of Medicine and program director for BOOST's multiyear grant from the Howard Hughes Medical Institute, underrepresented minorities comprise nearly 25 percent of the U.S. population, but less than 9 percent of physicians. "Our ultimate aim is to inspire these students to make positive contributions in science by pursuing careers in medicine and related fields," she says.

In addition to the Summer Science Immersion program for teachers, BOOST works with fifth- and sixth-grade classes throughout the year by providing speakers and mentors.

For more information, visit www.duke.edu/~dbc4/boost

Not your typical health plan

MORE THAN 4,000 Duke faculty, staff, and their family members have signed on for a program that just might redefine health care in this country.

The program, called Duke Prospective Health, was introduced by Duke leaders earlier this year as a means of identifying health risks and preventing diseases and chronic conditions such as hypertension and diabetes before they occur. Described as a "pioneering program" by the *Wall Street Journal*, it is offered to individuals participating in two Duke-sponsored health plans.

The seeds of the program were planted several years ago, when then-Chancellor for Health Affairs Ralph Snyderman, MD, began championing prospective health care as a way to apply advances in genomics and evidence-based medicine to predict and prevent disease on an individual level.

In 2002, Duke partnered with the Centers for Medicaid and Medicare Services to test the approach by operating a care model that tracked the health of patients with particular risk factors such as diabetes, hypertension, high blood pressure, or cigarette smoking. One set of patients was given assistance in creating and sticking to a personalized health plan. Patients in this group received a health plan based on their own risks and behaviors, as well as coaching on making and maintaining needed lifestyle changes. Patients in the control group received traditional care without specific strategic health planning.

The initial results were so good that Duke expanded the model to offer prospective health to its employees. "The program is designed to bring individuals and physicians together in a more proactive way to improve the delivery of health care services instead of waiting for people to become sick before seeing a doctor," says Peter Jacobi, MD, medical director for Duke Prospective Health. "The first step is to raise awareness of health risks as well as available resources. Then we can provide the support to help people make the necessary changes to maintain or improve their quality of life."

The program offers a robust Web site where participants can create their health plans, receive daily health tips, track their progress, and find educational links. More intense interventions are focused on patients at risk for heart conditions, diabetes, obesity, and tobacco-related illnesses, says Jacobi. "These are important health issues where we have evidence that early intervention makes a difference."

With a goal of reaching 10,000 participants in its first year, the program has the potential to greatly improve the health of the workforce and, in turn, reduce health care costs for employees and employers nationwide, leaders say.

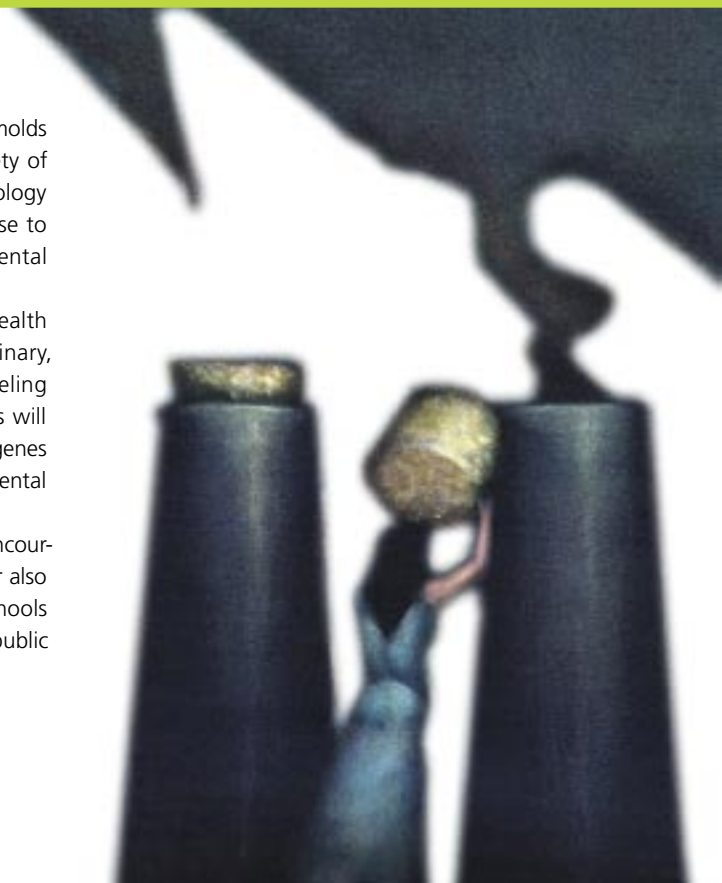
For more information, visit www.dukeprospectivehealth.org.

Exploring environmental health hazards

AIR POLLUTION, ANIMAL WASTE from commercial operations, pesticides, the molds and bacteria that flourish after floods: North Carolinians are exposed to a variety of potential environmental health hazards. Duke's new Center for Comparative Biology of Vulnerable Populations will explore the link between such hazards and disease to explain why certain people develop disease when challenged with environmental agents, while others remain healthy.

Launched with $2.6 million from the National Institute of Environmental Health Sciences and an additional $1 million in university support, the multidisciplinary, cross-campus center will provide training and laboratory facilities for unraveling how interactions between genes and the environment lead to disease. Facilities will include a DNA analytical facility capable of screening the activity of thousands of genes and an inhalation toxicology facility for controlled laboratory testing of environmental exposures.

The center team will apply its findings both to medical advancements and to encourage shifts in environmental policy, says director David A. Schwartz, MD. The center also will include a strong community outreach effort to educate North Carolina schools and other groups about environmental health. In turn, environmental issues of public concern to North Carolina residents will serve to guide new lines of research.



A Duke connection

The Physician Liaison Program gives every community physician a personal contact at Duke

DR. EDWIN FUENTES'S PATIENT came into the office with back pain, but still hoped to go on vacation later that day as planned. When an ultrasound showed a life-threatening abdominal aortic aneurysm, though, Fuentes knew the man needed a trip to the operating room instead—and fast. So the Danville, Virginia physician called his best connection at Duke: physician liaison Christine Sasser-Perry.

"Chris put me in touch with all the right people right away," recalls Fuentes. "When the patient arrived the team was waiting for him and rushed him up to the OR. His aneurysm actually burst while he was on the operating table, but because he'd gotten there in time they were able to save his life."

Fuentes had referred patients to Duke before, but says the personal service from a physician liaison helped him with the process. "The transfer went beautifully," he says. "Chris definitely made it easier."

Making things easier for physicians is the whole point of the Duke Physician Liaison Program—although, fortunately, most of their interactions are not nearly so emergent. Launched in 2002, the program deploys two liaisons—Sasser-Perry and Phyllis Fowler—to some 150 medical practices a month to offer information and practical assistance to regional clinicians.

"The program works along the lines of the pharmaceutical representative model," says director Alan Millikan, who developed the program. "But instead of marketing pharmaceuticals, our goal is to build better relationships between Duke and community physicians by meeting with doctors in a meaningful way to see how we can serve them better. We want physicians and other providers in the community to see Chris and Phyllis as a resource—someone they can call with any question or request. We promise to get them answers and solutions quickly."

The liaisons share information about new and existing clinical services at Duke, let doctors know about CME opportunities and clinical trials, help coordinate patient referrals and appointments, and act as ombudsmen to resolve complaints and concerns.

Importantly, both liaisons have clinical backgrounds and a deep knowledge of Duke. Sasser-Perry was a nurse in the Duke Emergency Department for 11 years, while Fowler spent 15 years as an ICU and ER nurse at Durham Regional Hospital, part of Duke's Health System. "We have a good understanding of clinical processes and can give clinicians detailed information about new services," Sasser-Perry explains. "And being so familiar with the Duke system, we can quickly help them access almost any information or service they might need."

"We also understand how busy our referring physicians are," adds Fowler. "We're careful to respect their time. We're on page 24 hours a day, and we are committed to helping them get the answers they need in a timely way."

Nandini Lahiri, MD, a family medicine practitioner in Apex, North Carolina, has appreciated the service. "I think many of us in the community would like to send patients to Duke but sometimes it's difficult to get an appointment," she says. "Our liaison helps us arrange appointments whenever we ask her. She's also helped us understand what Duke offers—she told us about the specialty services at Duke's new clinic near Southpoint Mall, and even brought a new Duke cardiologist based in Raleigh by the office to meet us and tell us about his practice. It's been very helpful to us."

On the road again: *Duke physician liaisons Christine Sasser-Perry (left) and Phyllis Fowler hit the highway almost every day to bring information and assistance to regional physician practices. Fowler covers territory north of I-40, including Raleigh and southern Virginia, while Sasser-Perry visits clinicians south of I-40 from southern Wake County into South Carolina.*

Duke physician liaisons are available to help regional physicians 24 hours a day, 7 days a week. For assistance with a specific need or to request a visit to your practice, page ***919-970-8008****.*

Rankings roundup

DUKE RANKED HIGH in this year's *U.S.News & World Report* lists of the nation's top graduate and professional programs and best hospitals. Three educational programs showed up in the top 10 lists of their peers: The Physician Assistant program retained its first-place ranking, and the Duke School of Medicine maintained its position as fourth among the nation's research schools (preceded only by Harvard, Washington University, and Johns Hopkins). The Physical Therapy program ranked #10. The Duke School of Nursing was ranked #29 in the nation. Its nurse anesthesia program maintained its position as #6 and its geriatric nursing program ranked #8.

On the magazine's Honor Roll of best hospitals, Duke University Medical Center ranked sixth in the nation. Others rounding out the top six included Johns Hopkins, the Mayo Clinic, Massachusetts General Hospital, Cleveland Clinic, UCLA Medical Center, and the University of California-San Francisco Medical Center (tied for #6).

The rankings of 177 medical centers, winnowed from 6,012 hospitals across the country, highlight 17 specialties. Duke was ranked in 16:

3rd	Heart & Heart Surgery
4th	Geriatrics
6th	Cancer
6th	Gynecology
7th	Urology
7th	Respiratory Disorders
8th	Orthopedics
8th	Digestive Disorders
8th	Eyes
9th	Kidney Disease
9th	Rheumatology
11th	Psychiatry
15th	Hormonal Disorders
18th	Neurology & Neurosurgery
21st	Pediatrics
27th	Ear, Nose and Throat

For more information, visit www.usnews.com

Duke is one of five top American medical schools featured in the new book *U.S.News Ultimate Guide to Medical Schools*.

Nursing school aims for PhD

School leaders believe a new doctorate program could send it into the top tier

CHANGES KEEP COMING at the Duke University School of Nursing. With a successful new bachelor's degree program and a new dean (see page 80), school officials are now proposing another ambitious initiative: establishing a PhD program.

Nationwide, Duke's is the highest-ranked nursing school without a PhD program, and officials say the program could help boost the university's smallest school into the nation's elite. The initiative also recognizes that nursing education, while still focusing on professional training, can play an important scholarly role in the study of human care.

"The idea of a doctoral program in nursing is still relatively new," says nursing professor Elizabeth Clipp, PhD, who co-chairs the proposal steering committee along with professor Ruth Anderson, PhD. "They first appeared in the 1970s, and started to flourish only in the 1980s. These programs have proven that nursing research generates valuable knowledge and empirical information."

If approved by Duke University's Academic Council and Board of Trustees, the PhD program would start in fall 2006 with four to six students in a 54-credit, four-to-five-year program.

The program would focus on "Trajectories of Chronic Illness and Care Systems"—addressing one of the critical health care issues facing the U.S., which currently has more than 100 million citizens living with chronic illness. The program would also build on the school's already strong ties with other researchers across the university, and help Duke address a growing shortage of PhD nursing faculty nationwide.

The proposal was seconded by new nursing dean Catherine Gilliss, DNSc, who arrived at Duke Oct. 1. Gilliss praised the faculty and former dean Mary Champagne for bringing the proposal to fruition. "I'm excited about what this will mean for the school," she said.

This article originally appeared in the Duke Dialogue.

A-Mazing treatment for A-Fib

A NEW TREATMENT for recalcitrant atrial fibrillation (A-Fib) uses microwave technology to block the irregular electrical signals responsible for the heart arrhythmia.

Thoracoscopic Maze (or MicroMaze) is a minimally invasive variation of the Cox-Maze, developed by Duke surgeon James Cox, MD, around 1990 to treat A-Fib. In the original Maze procedure, small precise cuts are made into the atrial wall, creating a maze around the areas in which abnormal electrical signals are traveling. Scar tissue created by these cuts permanently blocks the abnormal paths and form a single maze-like route for the electrical impulses to travel from the top to the bottom of the heart. But Cox-Maze requires the surgeon to open the sternum and place the patient on cardiopulmonary bypass, so it was usually performed in conjunction with another open-heart procedure, such as coronary artery bypass surgery (CABG) or valve replacement.

By contrast, MicroMaze is a video-assisted thoracoscopic surgery (VATS) performed through six small incisions (<1mm each) on the side of the chest. A flexible microwave probe placed on the surface of the beating heart heats the desired locations, creating lesions in the atrial wall without cutting. Scar tissue forms around these lesions in the months following the procedure. During MicroMaze, the surgeon can also staple off the left atrial appendage, significantly reducing the risk of ischemic events, stroke, or blood clots.

Appropriate candidates for thoracoscopic Maze include any adult with atrial fibrillation and no prior history of chest surgery, especially those at high risk for embolic events. Performed in conjunction with other cardiac procedures (such as CABG or mitral valve replacement), MicroMaze adds only 15 or 20 minutes to the surgery. Most patients are released the day after the two-hour procedure and can return to work within the week. About 70 percent of patients are cured by MicroMaze.

Duke is one of only four U.S. medical centers currently offering the procedure, which is fully FDA-approved and Medicare-reimbursed. Among the handful of surgeons nationwide with expertise in the unusual technique is Sinan Simsir, MD, who performed the world's first six MicroMaze procedures at the University of Massachusetts before coming to Duke this year. Because MicroMaze has only been in use for about two years, says Simsir, long-term outcomes are not yet available. However, he adds, "If my dad had chronic A-Fib, I would recommend it for him."

In the minimally invasive thoracoscopic Maze procedure, a flexible microwave probe placed on the heart's surface creates lesions that later scar over, blocking irregular electrical signals.

Don't let the bedbugs bite

THE BEDBUGS ARE BACK! No, it's not a reunion of an obscure '60s rock group. It's the tiny insect—once associated with cheap motels and dirty boarding houses—that is checking into upscale hotels and pristine homes in a number of states. DDT wiped the pests out in the 1950s, but experts believe they're hitching rides in the suitcases of international travelers and becoming bedfellows with their favorite source of food—humans.

These apple seed-sized nocturnal nuisances reside not only in mattresses and box springs, but also in the cracks and crevices of the room they infest, including behind and beneath baseboards, beneath area rugs, between carpeting and walls, and even in the folds of curtains and drapes. Since they only come out at night, it can be difficult to figure out exactly what's bugging you while you sleep. They leave red welts reminiscent of fleabites, but one of the bedbugs' calling cards is a smell in the room often described as "sickly sweet."

Duke pediatric dermatologist Neil Prose, MD, first became aware of the bedbug's reappearance two years ago when he saw a 10-year-old girl with itchy red sores on her feet. A biopsy revealed that she had been bitten by an unknown insect. Her mother went on a nighttime raid, captured a few of the perpetrators among the girl's bedclothes, and found an exterminator that got rid of them. The experience prompted Prose to coauthor an article about the recurrence of bedbugs for *Pediatric Dermatology* [manuscript accepted].

Changes in pesticide practices may be contributing to the bedbug explosion, Prose says. DDT is outlawed, of course, and exterminators are turning more toward ridding homes of insects with gel baits, which don't attract bedbugs, instead of sprays. In addition, exterminators more often apply narrow-spectrum insecticides that target specific infestations.

Although they can harbor pathogens, there's no evidence that bedbugs transmit disease. Secondary infections are not uncommon, anemia occasionally occurs in those with numerous bites, and allergic reactions are possible. And thinking about them makes most people's skin crawl.

Are you scratching yet?

A new weapon against breast cancer

A NEW BREAST CANCER DRUG called lapatinib inhibited tumor growth in nearly half of women who took it for eight weeks in a national Phase I clinical trial. The results are quite encouraging because lapatinib is one of the first drugs to elicit a response in women whose tumors did not respond to at least two traditional therapies, including trastuzumab (Herceptin), says oncologist Kimberly Blackwell, MD.

Trastuzumab is the frontline drug used to treat women whose tumors overproduce a growth-regulating protein called Her-2. The drug blocks the Her-2 receptor on cancer cells and inhibits its signaling, thereby shrinking or stabilizing the tumor. But nearly one-third of tumors with Her-2 over-expression do not respond to trastuzumab, and 59 percent of the patients in this trial had progressed through three or more traditional cancer drugs.

Lapatinib represents a new type of therapy because it targets not only Her-2 but epidermal growth factor (EGFR). "Blocking the action of two growth factors has a more profound effect on inhibiting cell growth than blocking a single growth factor, and we think this dual action is responsible for the positive effects we're seeing," says Blackwell. The study was funded by GlaxoSmithKline, the maker of lapatinib.

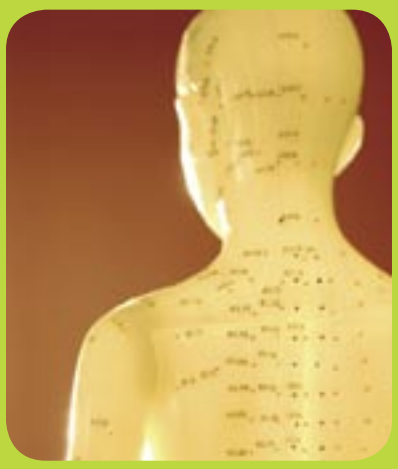
Acupuncture fights nausea, vomiting, pain after breast surgery

IN THE FIRST SUCH CLINICAL TRIAL OF ITS KIND, Duke researchers have found that acupuncture is more effective at reducing nausea and vomiting after major breast surgery than ondansetron (Zofran), the leading medication. In addition, patients who underwent the 5,000-year-old Chinese practice reported decreased postoperative pain and increased satisfaction with their postoperative recovery. In conducting the trial, the researchers also demonstrated that the pressure point they stimulated possesses previously unknown pain-killing properties.

About 70 percent of women who undergo major breast surgery requiring general anesthesia experience postoperative nausea and vomiting (PONV), says anesthesiologist Tong Joo (T.J.) Gan, MD, who led the trial. These adverse side effects are important factors in determining how soon patients can return home after surgery.

In the trial, Gan employed an electro-acupuncture device in which an electrode—like that used in standard EKG tests—is attached at the appropriate point. Instead of actually breaking the skin with the traditional long slender needles, the electro-acupuncture device delivers a small electrical pulse through the skin. Electro-acupuncture enhances or heightens the effects of traditional acupuncture and is more convenient in a busy operating room, Gan says.

The electro-acupuncture was applied at the sixth point (P6) along the pericardial meridian, which is located two inches below the bottom of the palm of the hand and between the two tendons connecting the lower arm with wrist. According to Chinese healing practices, there are about 360 specific points along 14 different lines, or meridians, that course throughout the body just under the skin. Recent research suggests that acupuncture stimulates the release of endorphins, the body's natural painkillers, Gan says.



Interestingly, low-frequency modulation of the electro-acupuncture device appears to release one type of endorphin that produces analgesia of slower onset but longer duration. When higher frequencies are used, the body appears to produce another type of endorphin that provides rapid analgesia, but of shorter duration.

Study results appeared in the September 22, 2004 *Anesthesia & Analgesia*.

Surgery sans transfusions

Duke University Hospital opens North Carolina's first center for patients seeking surgery without the use of blood products

WHEN DERL G. STALLARD recently underwent surgery for nose and sinus cancer, he and his family were able to concentrate on his recovery instead of worrying about violating their religious beliefs.

As Jehovah's Witnesses, the dentist from Maggie Valley, North Carolina, and his family chose Duke University Hospital (DUH) because the surgery could be performed without using blood products.

"This means a great deal, not only for me and my family, but for literally thousands of those who would appreciate it because of our religious beliefs," says Stallard. "Jehovah's Witnesses go anywhere across the country seeking medical attention where we feel there is the skill and the ability to do surgery without blood."

While bloodless health care services are primarily requested by people for reasons of faith, others are increasingly choosing this health care alternative because of concerns about blood-borne diseases such as Hepatitis C or HIV, personal preferences, or other health benefits associated with transfusion-free medicine and surgery.

To help meet those needs, DUH became one of the few tertiary care medical centers in the nation to offer a formal program for the use and advancement of bloodless or transfusion-free surgery with the opening of the Duke Center for Blood Conservation (CBC) September 1.

"We offer patients a number of treatment options to eliminate the need for blood transfusions," says anesthesiologist Steven Hill, MD, who co-directs the CBC with Jeffrey Lawson, MD, PhD, a general and vascular surgeon. Blood conservation techniques involve optimizing red blood cell production before surgery, as well as using alternative surgical techniques to decrease blood loss during surgery.

"We now have a variety of medications to increase the production of red blood cells, boost blood volume, reduce bleeding, and enhance blood clotting," Hill explains. These may include the use of surgical devices such as a beam coagulator (which clots blood during surgery) and techniques such as electrocautery (cauterizing behind the incision) to help reduce blood lost during surgery. Hemodilution, a process that involves drawing off, then reinfusing the patient's own non-stored blood at the end of his or her surgery, is another important clinical strategy within the transfusion-free medicine and surgery program.

Patients requesting blood conservation services through the CBC will meet individually with members of the care team, including a physician, to discuss the available options.

The concept of blood conservation and avoiding transfusion is gaining broad appeal not only among patients but among medical professionals because it is simply good medicine, says CBC program manager Pam Pennigar, a nurse practitioner. Benefits of bloodless surgery include faster recovery times, shorter hospital stays, reduced costs, and better management of the increasingly scarce resource of donated human blood.

For more information about the Duke Blood Conservation Center or to make an appointment, call Pam Pennigar at 919-668-2467 or 1-866-500-4515, or call 1-888-ASK-DUKE.

New sub-q heparin more convenient

THREE STUDIES led by Duke Clinical Research Institute cardiologists have shown that the ease and convenience of a newer formulation of the blood-thinner heparin, called enoxaparin, appear to make it the drug of choice for treating patients with suspected heart attacks. Enoxaparin has comparable and sometimes better mortality outcomes than the older formulation, found the researchers.

However, they said, the studies' results did not provide clear-cut evidence of superiority of enoxaparin. Additionally, they stressed that based on their results, patients should not be switched from one formulation to the other during the course of treatment.

Unfractionated heparin is given intravenously and requires continuous monitoring to ensure proper blood levels of the drug. Enoxaparin is given by subcutaneous injection in fixed dosages and does not require blood level monitoring.

The results on nearly 22,000 patients were published in three reports in the July 7, 2004 *Journal of the American Medical Association.*

Use statins early and often after MI

PATIENTS SUFFERING from acute coronary syndromes should be treated with cholesterol-lowering drugs known as statins early and aggressively, according to an international clinical trial involving investigators at the Duke Clinical Research Institute, the University of Texas Southwestern Medical Center, and the Brigham and Women's Hospital.

The benefits of statins in reducing the risk of heart attacks have been demonstrated in patients with stable coronary artery disease or those at risk for a future heart attack. However, the current trial was one of the first to examine the benefits of giving patients statins in the hospital shortly after treatment for their heart attack symptoms.

Physicians have traditionally taken a less aggressive approach to lowering cholesterol in their heart patients after discharge from the hospital, researchers said. Typically, physicians have tried to lower cholesterol levels by beginning with dietary approaches and then slowly adding or increasing the use of statins, they said.

"The results of the current trial, as well as two previous trials, suggest that an early and aggressive use of statins can reduce the long-term incidence of heart attacks, death from heart attack, stroke or readmission to the hospital for a cardiac event," says Duke cardiologist Michael Blazing, MD. He presented the results of the trial in Munich at the annual scientific sessions of the European Society of Cardiology meeting in late August.

Decaf with dinner, diabetics

PEOPLE WITH TYPE II DIABETES who have trouble controlling their blood glucose levels should consider eschewing caffeinated drinks, according to Duke researchers who found a strong correlation between caffeine intake at mealtime and increased glucose and insulin levels in that population.

The researchers examined how oral caffeine capsules affected carbohydrate metabolism in 14 habitual coffee drinkers with Type II diabetes. Although they found that caffeine did not affect fasting levels of blood glucose or insulin in comparison to placebo, they did find significant effects on both following a meal.

Diabetics do not metabolize glucose as efficiently anyway, and if caffeine is further impairing their metabolism of meals, they ought to consider avoiding it altogether, says James D. Lane, PhD, lead author of the study published in the August 2004 *Diabetes Care*.

Protein at the heart of cardiovascular disease in diabetics

DUKE RESEARCHERS BELIEVE that increased levels of a receptor and an inhibitory protein in the heart may explain why heart patients with diabetes are at a much greater risk of cardiovascular disease or heart attacks than patients without diabetes.

The researchers found that while levels of the protein, called Gαi, gradually increase with age, this increase is almost twice as high in diabetic patients. The finding is important, the researchers said, because elevated levels of this receptor protein can lead to dilated cardiomyopathy, in which the heart loses its ability to pump blood effectively throughout the body. Untreated, this condition often leads to congestive heart failure.

"Beta-blockers, which have been quite effective in improving the heart function of patients with congestive heart failure, would seem to be a likely candidate to reduce the risk of heart disease in people with diabetes because these drugs have been shown to decrease cardiac Gαi levels," says Duke pharmacologist Madan Kwatra, PhD, principal investigator of the study published in the Aug. 26, 2004, *Diabetes*. "That class of drugs is already very well understood and has very few side effects."

In collaboration with Duke endocrinologist Mark Feinglos, MD, the researchers will soon begin a study to measure levels of Gαi in the blood cells of the patients with Type II diabetes.

Cardiac risk minimal for migraine patients using triptans

CARDIAC STRESS TESTS are not necessary for first-time users of the class of migraine drugs known as triptans, even though concerns have been raised about the drugs' possible relationship with cardiac disease, according to Duke researchers who have analyzed data on the drugs' effects.

Clinicians prescribe triptans such as Imitrex and Zomig to patients with severe migraines who do not respond to first-line treatment with non-steroidal anti-inflammatory drugs (NSAIDS). Migraines are caused by abnormal nerve activation and inflammation. Triptans interfere with these processes and can relieve the pain and other symptoms associated with migraine. However, studies have shown that these drugs can constrict blood vessels in the heart, which could be hazardous to people with heart disease.

Individuals who exhibit signs of cardiac disease should not use triptans, said the Duke scientists. However, patients without known cardiac disease and who otherwise would not be considered for an evaluation for cardiac disease do not need exercise testing simply to screen them prior to starting triptans. The research is featured in the July 2004 issue of *Headache*.

"Migraines are under-diagnosed and under-treated. Over-stressing cardiac risk or adding an unnecessary test may be a roadblock for some patients," says David Matchar, MD, director of the Center for Clinical Health Policy Research at Duke University Medical Center and senior author on the paper. "The risk of cardiac disease in a person with no signs of disease is sufficiently low that any reduction in the likelihood of a heart attack is far outweighed by the substantial likelihood of continued suffering from debilitating migraines."

Another consideration is that most migraines occur in individuals at low risk for cardiac events. "Migraines are most commonly found in younger women, who are considered a low-risk group for heart disease. Twenty to 30 percent of migraine sufferers are women between ages 25 and 30," Matchar says. "After menopause, when a woman's risk of heart disease increases, the rates of migraine drop by two-thirds."

Full-body CTs: Buying peace of mind?

THE GROWING POPULARITY of voluntary full-body CT scans among consumers raises the concern of many in the medical community. Using CT as an early disease-detection procedure may actually increase health risks and possibly have other negative consequences.

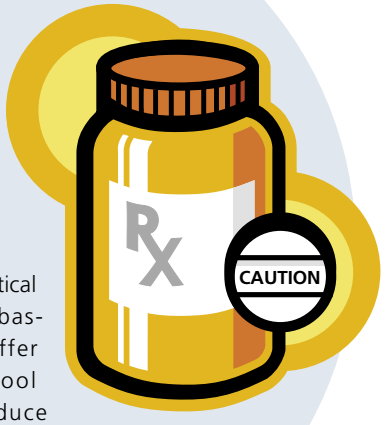
Even though a scanning facility may be in a convenient location and the scan may only take a few minutes, consumers need to be educated about the potential downsides of voluntary total-body scanning, which can subject the body to far greater levels of radiation than a standard X-ray.

"If you're feeling well and have no symptoms of disease, you probably don't want to expose yourself to radiation therapy unnecessarily," says Duke radiologist Nancy Major, MD. "There are some very sensitive organs that would be getting exposed to this X-ray: the thyroid gland, the lens of your eye, gonadal tissue, just to name a few that are very radiosensitive."

Patients also should understand that the information they're given at the end of the studies may not alter what will ultimately happen to them. Since comparative studies have not yet been done, it's not known if patient outcome will improve by, say, diagnosing a malignancy before it becomes symptomatic.

On the flip side, the scan may identify something that turns out to be benign—after expensive tests and doctor visits that may not be covered by insurance. Along with generating a lot of anxiety, "sometimes what they find, you could have lived with forever and not have spent a cent," Major notes.

Doing a full-body CT scan on someone with no symptoms of disease is, in effect, selling peace of mind, usually to affluent consumers and at a steep price, Major says. She recommends not having a full-body CT scan unless a physician orders it.



Watch your Rxs for the elderly

MANY AMERICANS OVER AGE 65 hold prescriptions for drugs considered potentially risky for elderly patients, according to a new study by Duke researchers. The finding emphasizes a need for greater awareness among physicians about the risks presented by commonly prescribed medications as people age and for additional measures to monitor prescription drug use, the team said.

The Duke researchers found that over the course of a year one in five elderly Americans whose benefits were processed by one of the largest pharmaceutical benefits managers in the U.S. filled a prescription for at least one drug classified as a "drug of concern" according to established criteria known as the Beers list. Of those claims, half were for drugs with potential for severe adverse effects in older people—including the antidepressant amitriptyline (Elavil, Endep, Vanatrip) and antianxiety drug diazepam (Valium), the researchers reported in the Aug. 9, 2004, *Archives of Internal Medicine*.

Mark Beers and a team at the University of California Los Angeles developed the Beers list by culling opinions from a panel of experts. The list named 28 medications or classes of medications considered inappropriate for use in elderly patients. The panel deemed 14 of those 28 medications to have potentially severe adverse outcomes when taken by older people. *Archives of Internal Medicine* published a more recent update of the Beers list, including 48 medications or classes of medications to avoid in adults age 65 or older, in their Dec. 8, 2003, issue. [The article is available online at http://archinte.ama-assn.org/]

Pharmaceutical claims databases could offer a useful tool to help reduce the problem by screening prescriptions and issuing patient-specific alerts when physicians prescribe inappropriate drugs or drug combinations, says Lesley Curtis, PhD, a member of the Duke Center for Clinical and Genetic Economics and lead author of the study. Physicians' compliance with the guidelines might also be improved by bolstering the clinical evidence for the risks presented by particular drugs when taken by older patients, she adds, noting that the elderly are rarely included in the clinical trials that generate information about drugs' side effects.

Seething begets C-reactive protein

OTHERWISE HEALTHY PEOPLE who are prone to anger, hostility, and mild to moderate depressive symptoms produce higher levels of a substance that promotes cardiovascular disease and stroke, Duke researchers have discovered.

The substance, C-reactive protein (CRP), has garnered considerable attention for its role in both promoting and predicting cardiovascular disease and stroke in initially healthy people. It is produced by the liver in response to inflammation, and inflammation has recently been shown to underlie the plaque that forms inside arteries as they clog.

The Duke study is the first to link this combination of negative psychological attributes with higher levels of CRP in people without traditional risk factors for heart disease, says psychologist Edward Suarez, PhD. In earlier studies, Suarez found that people who are prone to anger, hostility, and depressive symptoms respond to stress with increased production of the stress hormone norepinephrine. Scientific evidence suggests that an increase in this stress hormone activates the inflammatory arm of the immune system and triggers the expression of genes that cause chronic, low-grade inflammation. This inflammation is characterized by high levels of CRP, he said.

The Duke study demonstrates that anger, hostile behavior, and depressive symptoms could account for why apparently healthy individuals have higher CRP levels and are thus at increased risk for cardiovascular disease and stroke. Suarez said his findings could also explain why people with mild to moderate symptoms of depression are at increased risk for cardiac events and early death—a link that has been clearly established but without an underlying mechanism to explain why.

Results of the study are published in the September 2004 Psychosomatic Medicine.

First stop for globetrotters

FOR YEARS RALEIGH-BASED WRITER Elaine Neil Orr longed to revisit her native Nigeria. But as a kidney-pancreas transplant recipient on immunosuppressive medication, Orr couldn't risk receiving a booster for yellow fever, a live virus vaccine. "I was always convinced that the dream of returning to the land of my birth and youth kept me alive through my health crisis," Orr says. "But receiving a yellow fever vaccination could kill me."

So Orr turned to the Duke International Travel Clinic for help. Clinic nurse Karen Angelichio coached Orr on ways to repel mosquitoes, the vectors for yellow fever as well as malaria, and to avoid visiting during the rainy season, when mosquito populations soar. After making two trips to Nigeria without problems, Orr completed a recently published memoir about her youth, *The Gods of Noonday: A White Girl's African Life*.

Americans make an estimated 45 million trips to international destinations each year, 20 million of them to rural settings or developing countries. Staying healthy during foreign travel requires more than vaccinations—before departure, general and destination-specific information about health and safety issues helps globetrotters cope during their visit and return home disease-free. If a patient does catch a bug, however, clinic medical directors Ralph Corey, MD, and Daniel Sexton, MD, are certified in tropical and travel medicine and knowledgeable about numerous diseases not seen in this country.

A new-patient visit involves reviewing the traveler's medical history, along with providing individualized educational materials, general information about safety, security, and health issues, and prescriptions for necessary medications. Trip-specific required vaccinations can be administered during the initial visit, and it's important to consider receiving the recommended vaccinations as well: Foreign governments require immunizations to prevent travelers from carrying a disease into their country and are not necessarily concerned with illnesses travelers may contract during their visit. It's also essential to bring your standard U.S. immunizations up to date before embarking on any foreign travel, Angelichio says.

Preventive measures are especially crucial when people have to travel on short notice and don't have time to receive all the immunizations. And for certain diseases, notably malaria, there are no existing vaccines, so everyone traveling one of the 100+ countries where malaria occurs should take antimalarial medications with them. Malaria, caused by four species of the Plasmodium parasite and transmitted by mosquito bites, remains the most prevalent serious infectious disease worldwide. Plasmodia that are resistant to chloroquine, the long-used preventive therapy, have developed in several regions, including the Indian subcontinent, so it's vital that patients take the right antimalarial medication for the area being visited.

Duke also has an International Travel Clinic for children and an International Adoption Clinic, both directed by pediatric infectious disease specialist Emmanuel Walter, MD. One of only three in the country, the Adoption Clinic offers pre-adoption counseling and review of any medical records, photographs, or videotapes the prospective parents have received, and consultation or complete primary care services once the child arrives here.

The overall greatest risk to globetrotters is traveler's diarrhea, so knowing what foods and beverages to avoid and what actions to take if symptoms develop is key to avoiding dehydration and the need to seek out medical care. And the leading cause of death in international travelers under the age of 55 is something that no medication can prevent—vehicle crashes, largely due to poor road conditions and vehicle maintenance. About 750 Americans die and 25,000 are injured in vehicle crashes abroad each year. Travel Clinic personnel can discuss ways to reduce these risks. Travelers can also check the Web site of the Association for Safe International Road Travel (http://www.asirt.org/) for country-specific information.

For appointments at the adult International Travel Clinic, call 919-668-3190; for the pediatric clinics, call 919-620-5374.

For more information visit dukehealth.org (search under "International Travel Clinic.")

Dzau's early days

DUKE'S NEW CHANCELLOR FOR HEALTH AFFAIRS HITS THE GROUND RUNNING

BY MINNIE GLYMPH

Victor J. Dzau, MD, has been Duke's chancellor for health affairs for just under six months, but it sometimes seems he's already packed in enough activity to keep a regular Joe busy for six years. In the office by 7 a.m., wrapping up paperwork at home late in the evening, between whirlwind trips to Boston (where his wife is completing her term as president of a busy nonprofit organization) and the occasional jaunt to Washington for an NIH meeting or Berlin to pick up a research prize, he's held hundreds of meetings with people inside Duke and out and absorbed enough data about the medical center and health system to stuff several filing cabinets.

But what seems to have impressed the Duke community most about their new chancellor is not just how well he has gotten to know the sprawling and complex Duke health enterprise in such a short time, but the fact that he's already begun the Herculean task of moving the institution forward in new directions. A famously quick study with "extraordinary creative energy," as his Harvard mentor Eugene Braunwald, MD, puts it, Dzau has already created significant new leadership positions, forged strong working relationships across the university, helped plant the seeds for a major campus-wide initiative in global health, and sketched out early priorities for a strategic plan to guide Duke medicine over the next five years.

"I've had several administrators and faculty members come up and tell me how impressed they are with how quickly and effectively Dr. Dzau has advanced on the field," says Charles B. Hammond, MD, former chairman of the Department of Obstetrics/Gynecology, who served as vice chair of the search committee that recruited Dzau. "It's clear he's already making a major impact."

"Life is about people and family," says Dzau, shown here with his wife of 31 years, Ruth. Mrs. Dzau is currently president of Second Step, a nonprofit charitable organization in Boston that provides transitional programs and housing for women and children who are victims of domestic violence. The Dzaus have two daughters: Merissa, a 2004 graduate of the University of Rochester, and Jacqueline, who entered medical school at Duke this fall.

TAKING THE REINS

Chancellor Emeritus William Anlyan, MD, once compared the process of changing chancellors to "handing over the reins of a horse at full gallop"—and the Duke medical enterprise does resemble a thoroughbred in superbly synchronized stride. There's the educational component, with dozens of programs training some 2,500 residents and students in the health professions and biological sciences. There's the research engine, among the nation's top five in National Institutes of Health funding. And there's the health system—three hospitals and far-flung physician practices and community health services that handle a combined 62,000 inpatient admissions and 1.6 million clinic visits each year. To successfully jockey such a complex organization over the myriad hurdles facing academic medical centers today requires a deep understanding of the needs and goals of each component—and the ability to coordinate their activities to move the institution forward as a whole.

It's a big job, one that demands an exceptionally multitalented, multitasking leader. After longtime Chancellor for Health Affairs Ralph Snyderman, MD, announced that he would step down in June 2004, a 14-member search committee drew up a long list of requirements for his successor and scoured the country and beyond for someone who could meet them all. After a seven-month search, during which the committee considered over 100 nominees—including some of the country's most successful leaders in academic medicine—the field narrowed to one: Victor Dzau of Harvard. His appointment was announced April 27, 2004, by then-Duke President Nannerl O. Keohane and Richard H. Brodhead (who became president July 1).

"All of us believe that Victor Dzau combines a remarkable breadth of professional experience with the personal qualities and vision needed to lead one of the world's great academic medical centers," Keohane said at Dzau's introduction ceremony. "His impressive experience and balance as a physician-scientist, and as a strategist and leader in Boston's competitive health care arena, will serve Duke extremely well."

The search committee, led by Duke trustee emeritus Roy J. Bostock, recommended Dzau enthusiastically and unanimously, adds Hammond. "We considered some amazing people, but in our opinions Dr. Dzau had stronger capabilities in more areas," he says. "He had a proven track record as an administrator, educator, scientist, and practitioner, yet he seemed young enough and vibrant enough to tackle a job of the breadth and scope Duke offered.

"He also combined the strong academic background needed to understand and chart the direction of the medical center with the business savvy to manage the financial and strategic complexities of the health system.

"There aren't a whole lot of people like that in the country."

THE ROAD TO DUKE

Blending business and academics comes naturally to Dzau. Born in Shanghai, China, in 1947, Dzau is the son of a businessman who owned a chemical manufacturing company and taught chemistry at the university level. When Dzau was a young child his father's factory was closed and its assets taken by Mao Zedong's government. The family fled to Hong Kong, where Dzau spent the next 13 years.

Dzau became interested in science and medicine at an early age, through his father's influence and his own observations of health care during the illnesses of his grandparents, who died of tuberculosis and stroke. "I learned early on how gratifying it can be to help people and care for

the sick," he says. "It was also apparent to me that medicine had a tremendously long way to go. That is probably one of the reasons I'm doing what I do now—to keep that fundamental commitment to care for the sick and relieve suffering, to improve care through advances in research, and perhaps through good leadership and good management to create a much better system."

Dzau's family saved money to send him overseas for better medical training than was available in the colony, and he earned both bachelor's and medical degrees from McGill University in Montreal, Canada. From there, Dzau moved to yet another country: the United States, which would grant him citizenship in 1990. After completing a medical internship at Cornell and residencies and fellowships at Harvard, he joined the faculty at the latter school, eventually becoming chief of vascular medicine and atherosclerosis at the prestigious Brigham & Women's Hospital (BWH). He then crossed to the West Coast, taking on a variety of leadership positions at Stanford, including the chief of cardiology and chair of medicine.

In 1996 Dzau returned to Harvard to become the Hersey Professor of the Theory and Practice of Physic—the oldest endowed professorship in medicine at Harvard, established in 1791—as well as chair of medicine, physician-in-chief, and director of research at BWH and a senior leader of Partners HealthCare system, a vast concern that includes BWH, Massachusetts General Hospital, and community hospitals and clinics.

Over the years, Dzau has thrown himself with enthusiasm into everything academic medicine has to offer. A dedicated researcher who even now stops by the lab at least twice a week, Dzau has four NIH grants supporting his efforts to develop gene- and cell-based therapies for cardiovascular disease, and is passionate about supporting other scientists as well: At BWH he created a Research Council to spark collaborations, provide practical and financial support for fledgling research programs, and strategize new directions for research, among other efforts. An award-winning teacher, he helped found the Academy at Harvard Medical School to support educational innovation, and is known for inviting medical students to share their perspectives at meetings. A clinician who made house calls during his early years of practice, Dzau has guided care delivery systems with thousands of physicians and created new programs to improve care for the underserved.

"Maybe I can be described as a multitasker," he says (putting it mildly). "But I find that exciting. An institution like Duke isn't uni-dimensional, it's multidimensional, and thinking multidimensionally and creatively about how you can move the institution forward is what it's all about. That's what I found so attractive and compelling about coming to Duke. The high standards it holds as an academic enterprise, the high quality of care it provides, the innovative education—all make it among the best American medical institutions today. I want to bring synergy to all these pieces so that the whole becomes even greater than the sum of its parts."

"Maybe I can be described as a multitasker," says Dzau. "But I find that exciting. An institution like Duke is multidimensional, and thinking multidimensionally and creatively about how you can move the institution forward is what it's all about."

A MAN WITH A PLAN

Dzau has lost no time in pursuing that goal, and with good reason. "We are going to face difficult times ahead," he predicts, citing a host of challenges facing health care—health inequalities, a growing number of uninsured, rising costs and dwindling reimbursements, increased competition between providers, cutbacks in research funding, unacceptable levels of medical errors and safety problems. "We can't rest on our laurels—we have to be efficient and be prepared for the future. We have to do the right thing early and well to benefit our patients.

"So we are engaging in a strategic planning process to determine what we want medicine at Duke to look like in five years and beyond. I want to create a shared vision and shared goals among the medical and nursing schools, health system, physician practices, and so forth so that they come together and see themselves as one—and as part of the larger university as well."

Toward that end, Dzau has immersed himself in learning about medicine at Duke. "One thing that has impressed me is the tremendous amount of time he has taken to meet and talk with as many people as possible—leaders and staff in the medical center and the health system as well as in the community," says William J. Fulkerson, MD, CEO of Duke University Hospital and vice president of Duke University Health System (DUHS). "He has really reached out to sample a very broad base of opinions to help get the knowledge he needs to make the best and fairest decisions."

"Victor and I both came here as relative strangers to Duke, but we share an immense enthusiasm for what we've found here and for the opportunities that lie ahead," says Richard H. Brodhead, PhD (left), who became president of Duke University July 1.

With the goal of proposing a comprehensive plan by spring 2005, Dzau has simultaneously begun orchestrating the planning efforts—forming a core planning group, directing organizational and market assessments, and creating working groups across the institution. In his first appointment as chancellor, he also created a new, high-level strategist position, hiring Molly O'Neill, former executive director of specialty care development for Partners HealthCare, as chief strategic planning officer for DUHS (see page 62).

EARLY PRIORITIES

As in-depth planning gets under way, Dzau has already outlined several early priorities. One major goal, he says, is to create greater integration within DUHS. "Just buying other hospitals does not make us a health system," he points out. "We need to continue thinking together about how to deliver the right care in the right place at the right time."

Patients should be able to expect the same top-quality care across the system, Dzau believes. Toward that end, he charged DUHS leaders with forming a Systems Alignment group to share best practices and learn from each other. He has also emphasized the need to create shared information systems and to adopt system-wide, measurable standards for quality and safety. (In October, Karen Frush, MD, was appointed as DUHS's first patient safety officer; she will report directly to Dzau.)

At the same time, Duke will be thinking strategically about which services to build in various locations. "We need to think aggressively about how to encourage more patients to come to Duke," he says. "We need to understand the population demographics, disease burden, and unmet needs in Wake County, for example, and then decide what services and specialists we need there."

Such network planning is a simple matter of economic survival, he points out. "I've seen this in Massachusetts, where the competition is so intense that some hospitals couldn't make a profit margin. And five years later it makes an acute difference, because those hospitals aren't able to invest in better operating rooms, CT scanners, or programs for the community. We want to make sure we have enough resources to do our job and to reinvest in improving patient care, which is our fundamental purpose."

Dzau's experience leading academic health care systems in the competitive California and Boston health care markets should prove valuable in achieving that goal, says Fulkerson. Dzau was part of a group that worked out the merger of the Stanford and UCSF health systems, and also oversaw mergers and specialty care development at Partners, which started five years earlier than DUHS. "Victor brings a perspective on systems integration from a more mature health

system," Fulkerson says. "We're already one of the great academic medical centers, but he believes with strategic planning we can take Duke even further. It's very exciting."

ACADEMIC ASPIRATIONS

As Dzau told faculty members at a recent meeting, "We want to have ambitious goals and bold aspirations in terms of both the clinical and the academic enterprise." And he believes those efforts will go furthest when pursued in tandem.

He points to five core endeavors at Duke—inquiry, discovery, translation, adoption, and service—which President Brodhead recently characterized as a "continuum that links the most abstruse research with practical improvements to actual lives."

"As a university and as a medical school making great discoveries, we have an obligation to think about how we can do good for society by translating those advances into diagnostic methods and therapies that benefit man," Dzau says. "But society hasn't made it easy for us to do that, with all the barriers surrounding commercialization, conflicts of interest, et cetera. We need to clear the pathway."

Dzau says he will make a priority of strengthening translational medicine over the next few years, looking at ways to partner with industry and become more entrepreneurial. "Some may say that's walking away from the fundamental academic values of a university, and indeed it should not be something we do solely to make money," he stresses. "We should do it to improve health care and do social good. And there is often no way to bring discoveries to patients without taking the commercialization route."

Dzau knows whereof he speaks: He has helped create two companies based on technologies developed in his lab. One, Corgentech, is shepherding development of a coronary artery bypass graft that has been genetically modified to help prevent atherosclerosis; the therapy is currently in clinical trials.

As a researcher, he says, "I understand the challenges investigators face, and I am committed to working with [medical school dean] Sandy Williams and [provost] Peter Lange to build the kind of environment that lets science flourish. Duke has excellent basic and clinical researchers, and the distance between the two is shorter than any other place I've seen. But I do think we need to bring scientists together, and together with researchers in fields such as the humanities and social sciences, to think about our future opportunities—where the frontiers of science lie and how we can prepare ourselves to reach them.

"The Institute for Genome Sciences and Policy and CIEMAS [Center for Interdisciplinary Engineering, Medicine, and Applied Sciences] are great examples of this," Dzau adds. "I think we can create additional opportunities to capitalize on Duke's interdisciplinary strengths, perhaps in areas such as systems biology and regenerative medicine."

Dzau has brought "fresh energy and keen insight" to such discussions, says dean R. Sanders Williams, MD. "Victor clearly shares my passion for advancing the ability of our faculty to make truly notable discoveries relevant to human biology and disease, and to pioneer new diagnostic, preventive, and therapeutic measures as applied to patients—'clinical firsts' in his terminology. We are still in a planning stage with respect to the signature programs that will characterize the Dzau Era at Duke, but I'd say everyone can be entirely confident that some inspiring and creative new initiatives will emerge."

"Victor clearly sees our responsibilities both inside and outside the walls of the medical center," says William Fulkerson, MD, CEO of Duke University Hospital (left). "In the short time he's been here, he has already begun working with community leaders to identify ways Duke can be an even greater positive force here in Durham."

"Addressing health disparities is one of the defining issues of our time. How can you have a country with such enormous wealth, such amazing technologies and medicines, and yet have so many people who don't have access to it?" Dzau says. "If you translate it to the rest of the world, the discrepancy becomes even more apparent."

GOING GLOBAL

Dzau believes one of Duke's chief advantages in pursuing interdisciplinary efforts is having its medical center on the same campus as the rest of the university. And he is determined to make their intellectual connection as close as the physical. "We're on the same campus, we should be doing things together," he says. "Sandy Williams has done a lot to reach out and build those bridges, and we're working with Richard Brodhead and Peter Lange to think about opportunities for closer interaction."

Indeed, says Brodhead, "From our first days, Victor and I have had a closely consultative relationship—we meet every week and talk even more often. We both understand that the health system and the university are essential to each other's success, and we're committed to building a highly productive partnership. Besides, we like each other and like testing out ideas on each other."

One big idea is already gathering steam—creating a university-wide initiative to address global health disparities. In his inaugural speech, Brodhead described global health as crucial area in which Duke has a special opportunity to lead (see page 5), and Dzau has joined him in championing the issue.

"Addressing health disparities is one of the defining issues of our time," Dzau says. "How can you have a country with such enormous wealth, such amazing technologies and medicines, and yet have so many people who don't have access to it? If you translate it to the rest of the world, the discrepancy becomes even more apparent."

Dzau thinks Duke can do much to address such discrepancies, both at home and abroad. In fact, the responsibility begins right outside Duke's doors, he believes. "We have 90 percent of the market share in Durham," he says. "As the principal provider of care, we have a tremendous obligation to do the right thing for our citizens.

"We have people across Duke who are already doing wonderful work to address disparities globally and locally. We have a health system, we have a medical school, we have resources, we have young people who are passionate and compassionate—we ought to bring this all together and think about ways in which we can make a difference."

MAKING A DIFFERENCE

Dzau, Brodhead, and Lange began that process in September with a panel discussion on global health during the presidential inauguration. That summit was followed by a two-day campus visit from Paul Farmer, MD, a Harvard physician, Duke alumnus, and MacArthur "genius" grant recipient who has devoted himself to improving health care for the poor in Haiti and other communities. His story is the subject of *Mountains Beyond Mountains*, a book by Pulitzer prizewinner Tracy Kidder that was required reading for incoming freshmen at Duke this year. During his visit, Farmer met with leaders from across Duke and the Durham community to share ideas and information about current global health activities under way at Duke and Harvard.

Dzau and Farmer have known each other for several years—in fact, as chair of medicine at BWH, Dzau was Farmer's boss. Over the years, Farmer says, he came to think of Dzau as "one of the world's great medical visionaries."

"Victor was very sensible in making sure that basic science remained central to the research vision of our department," Farmer says. "But he also looked beyond that to say, 'What are the cutting-edge fields, and how can I strengthen them as department chair?'" For example, he says, Dzau helped develop divisions of women's health and pharmacoepidemiology as well as a Center for Genetics and Genomics.

In 2001, Dzau proposed that Farmer and his colleague Jim Kim, MD, start a Division of Social Medicine and Health Inequalities to create a sustainable framework for training, research, education, and service. In particular, Dzau wanted to create a pathway for training the next generation of young physicians to redress health inequalities, so that the work would outlast its founders.

"I was very surprised," says Farmer. "Here is a titan of biomedicine, a renowned researcher, an astute leader, a famous educator . . .. Social medicine and health equity were not on the front burn-

er of any other American teaching hospital, and I thought it would fall out of the purview of what he felt was central. I was wrong. I didn't know these things were so dear to him, but over the last few years, as we've become close friends, I've seen that these humane values may be the ones he cherishes most of all."

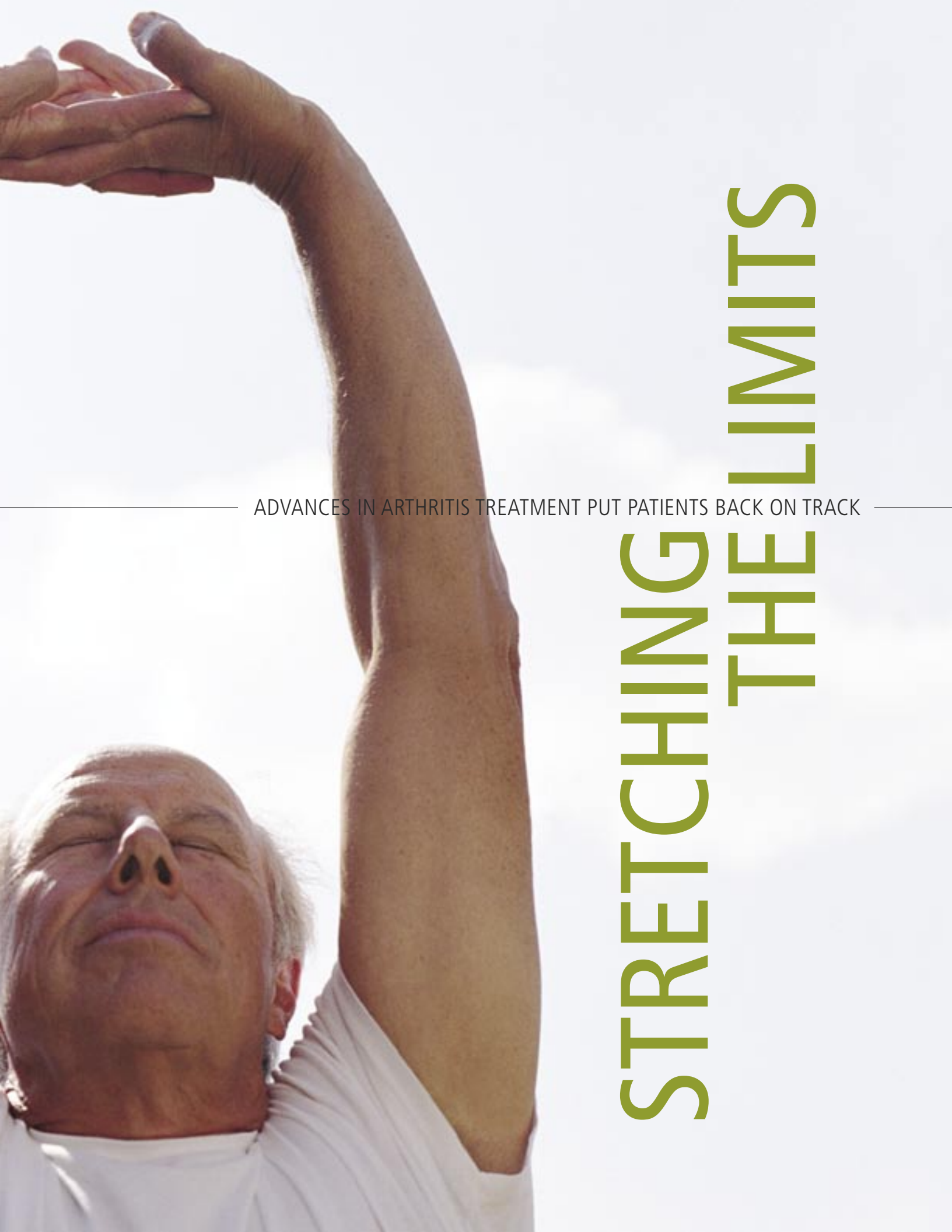
THE REAL BOTTOM LINE

As Dzau begins the balancing act that is the chancellorship of medicine at Duke, he faces a host of tough decisions—from how to shape the care delivery system, to how to grow research, to how to balance humanitarian efforts with those that pay the electric bills. And he thinks it's important to make plain the values by which he will weigh those decisions.

"We do run a business," he says. "We don't have infinite resources, and we need to be efficient and look at the bottom line. But our decisions can't be driven by the bottom line itself. If we don't keep reaffirming our value system and communicating to people why we are doing things, there is every reason for them to second-guess our decisions. That's why we need to keep reminding ourselves why we're here—which is the fundamental reason we went into medicine, to do the right thing for our patients.

"Health care may be a business, but it's a compassionate business." □

In the spring Dzau will present a strategic plan to guide development of the medical center and health system over the next five years. While details are being discussed, the ultimate aim is clear: "I want to create a common vision and shared goals among all the components of medicine at Duke," says Dzau, "so that the whole becomes greater than the sum of its parts."



STRETCHING THE LIMITS

ADVANCES IN ARTHRITIS TREATMENT PUT PATIENTS BACK ON TRACK

BY CAROL KRUCOFF

Rapid strides in research and treatment are yielding new strategies to relieve pain, improve function and slow—or even stop—disease progression. At Duke, physicians are leading the push to improve treatment—and working to address the national shortage of rheumatologists so more patients can get the care they need.

A generation ago physicians had little to offer people with arthritis besides painkillers, and sufferers were often sent to bed to "save their joints." The wear and tear of osteoarthritis was considered an inevitable part of aging, and rheumatoid arthritis was viewed as a chronic disease that progressed inexorably to disability.

But today, arthritis care has dramatically changed. Instead of rest and resignation, the new message is action and early, aggressive treatment. New and highly effective drugs are available, with more on the horizon. Exercise—once taboo—is now encouraged as one of the best ways to relieve pain and restore function. Psychological interventions and relaxation techniques can enhance the quality of life for people with arthritis and possibly even slow the disease process. And researchers, including many at Duke, are fast identifying new ways to prevent arthritis or pinpoint it early on, so pain and joint destruction can be averted.

"Many people still have the misconception that, short of joint replacement, we can't really do anything about arthritis except treat the symptoms," says Duke rheumatologist Virginia Byers Kraus, MD, PhD. But those outdated notions are rapidly being replaced by "a more holistic view that offers numerous opportunities to take action," she adds.

"With the self-care practices and medical treatments available now, there's a lot we can do to help people feel better and lead productive, vigorous lives."

A COSTLY AND GROWING HEALTH PROBLEM

Arthritis literally means joint inflammation and refers to more than 100 different diseases that affect the joint and surrounding tissues, such as muscles and bones. The leading cause of disability in America, arthritis affects approximately 15 percent of the total U.S. population—about 40 million adults—and is projected to strike more than 59 million by 2020. Already, musculoskeletal conditions consume an average of 3 percent of gross domestic product in developed countries. This is the financial equivalent, notes Kraus, "of a chronic, severe recession."

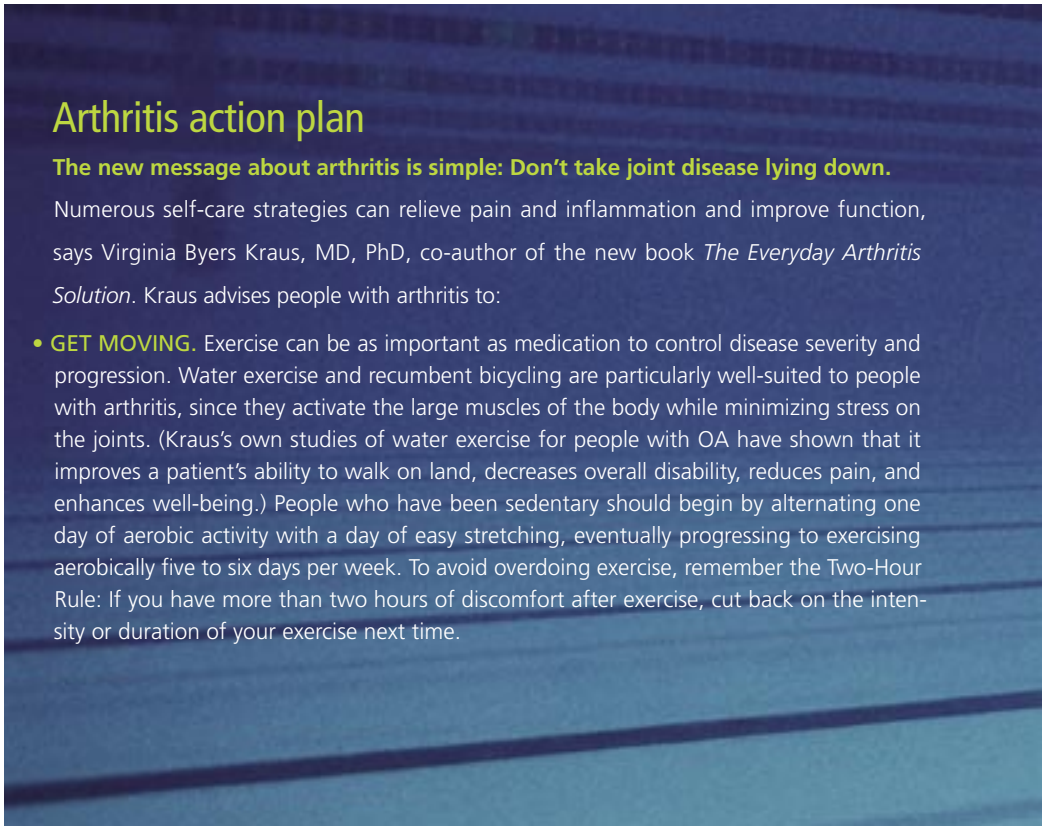
Osteoarthritis (OA) is the most prevalent form of the disease, affecting up to 70 percent of people in their 60s and 70s. "OA consumes a major proportion of health care dollars, ranking among the top three health care problems in the developed world," Kraus says. "With increasing longevity of the population, it becomes even more important to find ways to decrease the clinical and financial impact of OA."

Sometimes called "degenerative" arthritis, OA gradually erodes the cartilage that cushions joints, causing microfractures in bone, stretching of surrounding tendons, joint inflammation, and associated pain and swelling. This process results from a combination of environmental factors, including trauma, occupation, and lifestyle, as well as hereditary traits, such as gene mutations that affect cartilage components. Rather than one disease, "Osteoarthritis is now thought to be the final common pathway of a number of pathologic processes," says Kraus. "The challenge of the next decade is to define and classify the subsets of OA, including defining the genes that predispose people to various forms of the disease, and to devise specific therapies based on specific causes." Kraus is currently leading several studies aimed at mapping genetic predisposition to arthritis, detecting early osteoarthritis, and improving treatment.

A major problem with current treatment is that, all too often, by the time OA is diagnosed, irreversible damage has occurred. "OA progresses through distinct stages visible with X-rays, but these changes occur relatively late in the process," Kraus says. "Cartilage is invisible on X-ray, and that's where the process begins." Other imaging techniques—such as MRI and ultrasound—have the potential to detect disease earlier and are in the process of being validated, but are not yet commonly used in clinical practice. "We need better tools so we can intervene at earlier stages," she says, "and prevent joint destruction."

One potential tool for early diagnosis is a thermal scanner sensitive enough to detect temperature differences of a tenth of a degree Fahrenheit. Kraus used this device in a recent study of 91 people with clinical hand osteoarthritis, and found that the finger joints are warmer than average—a sign of inflammation—in the first stage of osteoarthritis. In the future, she says, checking for changes in joint temperature with thermography could help evaluate the effectiveness of osteoarthritis treatments.

To further help clinicians identify early signs of the disease, Kraus is searching for new biochemical markers of OA in body fluids. As chair of the Osteoarthritis Biomarkers Network, funded by a $4.6



Arthritis action plan

The new message about arthritis is simple: Don't take joint disease lying down.

Numerous self-care strategies can relieve pain and inflammation and improve function, says Virginia Byers Kraus, MD, PhD, co-author of the new book *The Everyday Arthritis Solution*. Kraus advises people with arthritis to:

- GET MOVING. Exercise can be as important as medication to control disease severity and progression. Water exercise and recumbent bicycling are particularly well-suited to people with arthritis, since they activate the large muscles of the body while minimizing stress on the joints. (Kraus's own studies of water exercise for people with OA have shown that it improves a patient's ability to walk on land, decreases overall disability, reduces pain, and enhances well-being.) People who have been sedentary should begin by alternating one day of aerobic activity with a day of easy stretching, eventually progressing to exercising aerobically five to six days per week. To avoid overdoing exercise, remember the Two-Hour Rule: If you have more than two hours of discomfort after exercise, cut back on the intensity or duration of your exercise next time.

The leading cause of disability in America, arthritis affects about 40 million adults, and is projected to strike more than 59 million by 2020.

million grant from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), she leads a group of scientists at five institutions, including a Duke team identifying biomarkers they hope will be much more specific indicators of joint degeneration than are currently available.

THE OBESITY CONNECTION

Obesity has long been recognized as a major risk factor for OA, "but the reason was thought to be purely mechanical—that overloading the joints with excess weight wears them down," says Farshid Guilak, PhD, director of orthopedic research. "Yet surprisingly, if that excess weight is muscle, not fat, it doesn't carry the same risk of OA." To try to solve this and other puzzles about OA, Guilak, Kraus, and several other Duke colleagues began meeting weekly over lunch back in 2002. The result was a proposal that netted the multidisciplinary team a five-year, $7 million grant from NIAMS to carry out a broad range of laboratory experiments as well as a clinical study. "Our focus is on uncovering the mechanisms that govern the interplay among biomechanical factors, inflammation, and cartilage destruction," notes Guilak.

Unraveling the link between obesity and arthritis plays a central role in the research. "There's a large literature on how obesity relates to inflammation and how inflammation relates to arthritis," Guilak says. "But no one had put together the two pieces to explore how obesity relates to arthritis." Emerging evidence indicates that obesity is a mild inflammatory condition linked to a number of diseases, such as atherosclerosis and some cancers, he notes. "What we now think is that, in addition to the mechanical load obesity imposes on joints, it also causes a systemic failure," he says. "Fat cells produce circulating molecules, called cytokines, which can put the body in a heightened state of inflammation. We want to see if this predisposes people to OA changes."

The clinical portion of the research will study 280 overweight patients with osteoarthritis of the knee to determine how lifestyle-based weight management and/or coping skills training impact pain, biomarkers of inflammation, physical disability, and psychological distress. "We're exploring a variety of interactions, including whether teaching people coping skills can actually alter underlying biological factors," says co-principal investigator Francis Keefe, PhD, a pain specialist (see page 33).

- **EAT RIGHT.** Proper nutrition, including eating at least five fruits and vegetables a day, may help relieve arthritis symptoms and prevent the disease from getting worse. Eat appropriate portions from a well-balanced diet to avoid excess pounds that can exacerbate arthritis.
- **REACH AND MAINTAIN A HEALTHY WEIGHT.** Ideally, keep your Body Mass Index under 25.
- **TAKE SUPPLEMENTS.** Those that have been shown to potentially benefit joint health include selenium (the amount in a standard multivitamin), calcium (1,200 mg/day) and vitamin D (400 IU/day). A multivitamin, plus a calcium supplement, should suffice.
- **REVIEW YOUR PRESCRIPTIONS WITH YOUR PHYSICIAN.** In an era of uncertainty about pharmacologic treatments for arthritis—with the popular pain medication rofecoxib (Vioxx) recently withdrawn due to concerns about increased cardiovascular risk, and experts still evaluating the risks and benefits of other drugs in its class—it's important to regularly review your prescription drug regimen with your physician.
- **ADOPT A HEALTHY ATTITUDE.** Taking a "can-do" approach to arthritis and thinking positively can lead to improvements. [See page 33.]

The Arthritis Rehabilitation Program at Duke's Center for Living offers a specialized treatment plan, which may include aquatic exercise, such as the Arthritis Foundation aquatic class and land-based exercise. Medicare and insurance companies reimburse much of the cost. Call 919-660-6659.

Virginia Kraus, MD, PhD

Thermal scanning holds promise for detecting osteoarthritis before joint changes are apparent on X-rays—the current clinical standard for diagnosing the disease. In a study using a scanner sensitive enough to detect differences of a tenth of a degree Fahrenheit, Virginia Kraus, MD, PhD, showed that the temperature of finger joints is proportional to the severity of osteoarthritis. Finger joints are warmer than average—a sign of inflammation—in the first stage of the disease, when X-rays produce inconclusive findings. As symptoms increase in severity, joints tend to cool. Images, from left, show mixed-temperature, warm, and cool joints.

In the laboratory, Guilak and colleagues are testing isolated pieces of pig cartilage to see how the tissue is affected when placed under pressure in the presence of different biochemical and immune factors. "We've shown that mechanical stresses on the matrix of cartilage cells in the knee—such as occur in normal exercise—can help rebuild the matrix," Guilak says. "However, we've also shown that inflammation can interfere with this process, causing cartilage to lose its ability to build new matrix."

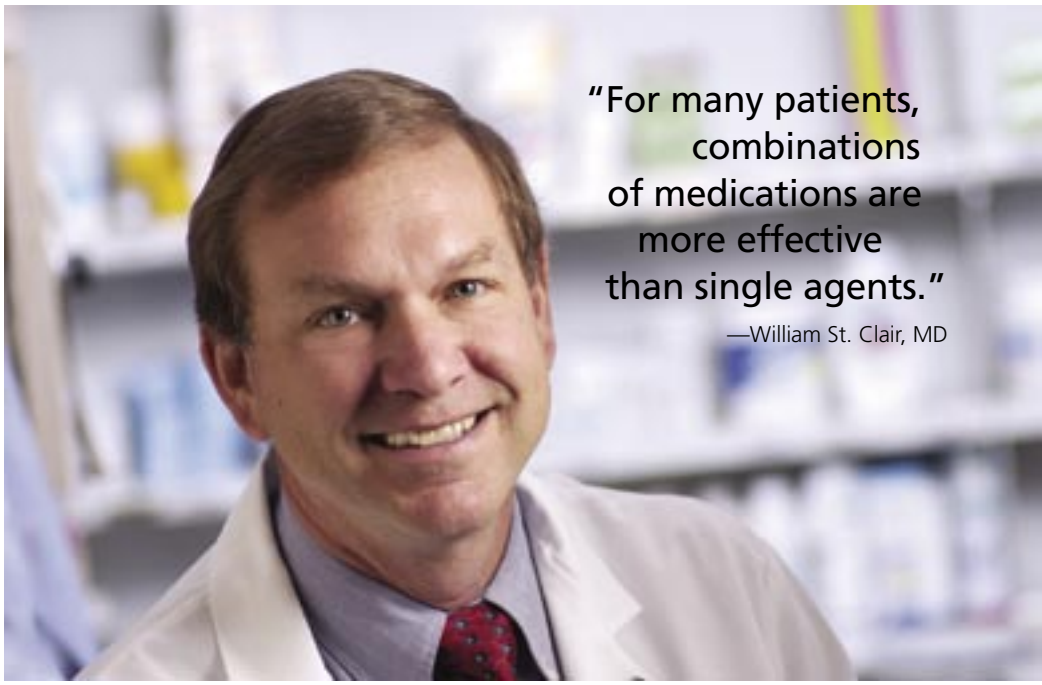
In a related experiment, the scientists are attempting to build cartilage outside the body that could be used to replace damaged cartilage. "We're using liposuction waste from plastic surgery," notes Guilak, who recently proved that the connective tissue of fat cells can be engineered into adult stem cells, which can then be reprogrammed to make cartilage. "Since this would be the person's own tissue, there would be no rejection and no disease transmission," he says.

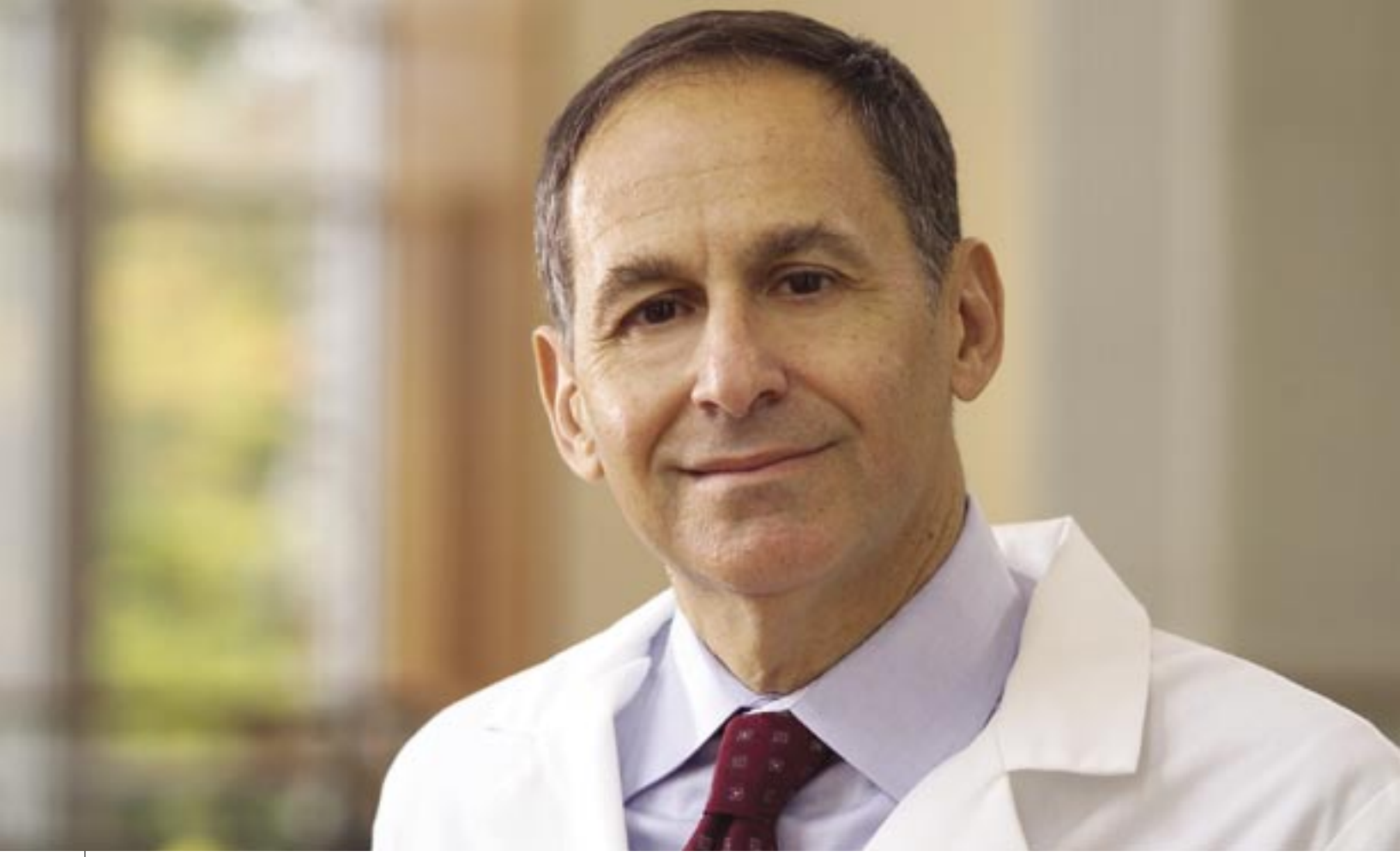
To help uncover the role of genetics in osteoarthritis, the team will perform three parallel studies with mice. "Several genetic mutations in collagen, which is a building block of cartilage, give rise to premature onset of osteoarthritis and we don't understand why," says co-principal investigator Lori Setton, PhD, associate professor of biomedical engineering. "Our working hypothesis is that compromised joint cartilage low in collagen type XI is mechanically weaker, making it more susceptible to the normal wear and tear of everyday life."

In all of their experiments, the team will collect blood samples and work with Kraus to identify predictive biomarkers for OA. At the end of the five-year project, Setton says, "We hope to have a better understanding of the mechanism of osteoarthritis, with the ultimate goal of identifying a preventative treatment that could protect cartilage from erosion."

RA RX: EARLY, AGGRESSIVE TREATMENT

When people begin noticing morning stiffness in their joints, often around midlife, "Many just assume this is what it's like to get older," says David S. Pisetsky, MD, PhD, director of the Duke Arthritis





"The data clearly show that the earlier you treat rheumatoid arthritis, the better the outcome. With early, aggressive therapy, we can actually arrest the disease in many people."

—David S. Pisetsky, MD, PhD, director of the Duke Arthritis Center

Center. But for more than 2 million Americans—mostly women—their stiffness, swollen joints, and aching actually signal rheumatoid arthritis. By the time they finally see a physician and are diagnosed, a unique opportunity to slow—or even stop—the disease may have passed.

"The data clearly show that the earlier you treat rheumatoid arthritis, the better the outcome," Pisetsky says. "With early, aggressive therapy, we can actually arrest the disease in many people."

This early assault represents a revolutionary approach to RA, a complex autoimmune disease in which the body's defense systems attack healthy joint tissue, causing inflammation and subsequent joint damage. "We used to have a limited number of therapies, often with toxicity involved," Pisetsky says, "so we parsed them out over time."

The picture began to change about 10 years ago with the widespread use of disease-modifying antirheumatic drugs such as methotrexate (Rheumatrex, Trexall) early in the course of the disease. These drugs are "well tolerated at the doses we use for RA," according to Pisetsky. Anti-tumor necrosis factor (TNF) agents such as infliximab (Remicade), approved in 1999, were another major breakthrough, says E. William St. Clair, MD, who led trials of infliximab at Duke. Still, anti-TNF therapy only partially controls disease activity in most patients, he notes, and non-responder rates are as high as 40 percent.

Indeed, "For many patients, combinations of medications are more effective than single agents," St. Clair says. He recently conducted a major study showing that treatment with infliximab plus methotrexate halted joint damage, as measured by X-ray images, while more patients treated with methotrexate alone continued to worsen. Patients who received the combination also reported greater reductions in disability.

Treatment effectiveness depends on timing as well. "There appears to be a period of time early in the course of RA when it is uniquely responsive to therapy," says Pisetsky, who is researching this "window of opportunity" hypothesis. "We are trying to determine if such a window exists, and if so how long it is open?"

RA is one of several autoimmune disorders that will be examined as part of a recent $3.4-million federal grant

"Children just stop doing things that hurt. And because they say they're fine they often go undertreated."

—Laura Schanberg, MD

Arthritis care for kids

Many people think of arthritis as a disease of aging, but it's surprisingly common in children as well. The most common form, Juvenile Rheumatoid Arthritis (JRA), affects an estimated 150,000 children in the United States, causing pain, stiffness, swelling, and even growth disorders.

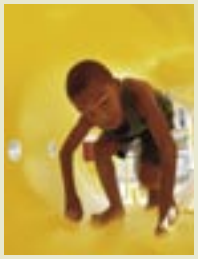
Children with arthritis tend to complain less than adults about their symptoms, however—and that can lead to subpar treatment, says Laura Schanberg, MD, co-chief of Duke's division of pediatric rheumatology.

In a recent Duke study, children with JRA kept diaries reporting their daily levels of pain, activity, and stress. "One thing that became clear is that children with arthritis, even when treated, have more pain than we realize," says Schanberg. "In clinic children typically report low levels of pain. In their diaries the children said they experienced pain on more than 70 percent of the days, and 31 percent said their pain was severe."

The study also found that even low levels of pain (2 or 3 on a scale of 10) caused children to cut back on social activities. "Adults tell physicians about their symptoms and complaints," Schanberg says. "Children just stop doing things that hurt. And because they say they're fine they often go undertreated."

As three of the four pediatric rheumatologists in the Carolinas, Schanberg and her colleagues Deborah Kredich, MD, and Egla Rabinovich, MD, are devoted to making sure children with arthritis receive the tailored treatment they need. One of their first priorities is to bring the child's pain and other symptoms under control—and new medications are making that much easier, says Schanberg.

In addition to NSAIDS such as ibuprofen and disease-modifying anti-inflammatory drugs such as methotrexate, the team now uses newer biologic agents, in particular tumor necrosis factor-blockers such as etanercept, infliximab, and adalimumab.



Duke has used infliximab to treat JRA based on the drug's effectiveness in adults, and found it particularly successful in treating inflammatory eye disease, a common condition in children with arthritis. Trials of other promising biologic agents for systemic-onset JRA—a highly inflammatory form that often causes rash and fevers—will begin in the next few years, Schanberg says.

Since their research has shown that JRA flare-ups may frequently be mood- and stress-related, treatment combining medication and stress reduction may be most effective in managing the condition.

"We recommend counseling, pain-coping skills training, and relaxation techniques to help children deal with 'daily-hassle' things that come up," says Schanberg. "We also pay attention to the child's school and family situation, calling the schools when needed and helping parents adjust to their child's illness. As a specialized arthritis center for children, we can really walk with a child every step of the way."

As with adults, there aren't enough specialists to meet demand. But the Duke group is working on solutions. Besides recruiting a fourth pediatric rheumatologist to join their group (hopefully by July 2005), they have started an innovative "med-peds" fellowship program that produces physicians fully boarded in both pediatric and adult rheumatology.

"Generally there aren't enough doctors who want to become pediatric rheumatologists to fill the fellowship positions," Schanberg says. "This is a great way to train more doctors to meet the particular needs of children with rheumatic disorders."

> "By learning to manage pain, stress, and negative affect, you may be able to improve the function of the immune system and slow the course of the disease."
>
> —Francis Keefe, PhD, Duke pain specialist

to establish one of nine nationwide Autoimmunity Centers of Excellence at Duke. "This funding provides an exciting opportunity to expand our knowledge of fundamental disease mechanisms and improve clinical care," says St. Clair, principal investigator for the center. Current research includes two basic science projects aimed at developing autoimmune therapies and three clinical trials of specific medications for autoimmune disorders including RA, systemic lupus erythemotosus, and primary Sjogren's syndrome.

Another form of arthritis, gout, is the subject of a study by assistant professor of medicine John Sundy, MD, PhD, who received an FDA "orphan drug" grant to examine the effect of intravenous PEG-uricase (Puricase) on patients who don't respond to standard therapy. "There is a group of people who are intolerant to allopurinol, the medication commonly used to treat gout," Sundy notes. "The disease can make them miserable, and they have no other options. This could be a promising new therapy."

EASING THE SHORTAGE

A frustrating factor, for both patients and physicians, is that these advances in arthritis treatment come at a time when there is an international shortage of the very specialists who know most about

Pain, pain, go away

It's a common scenario: Someone with arthritis goes on vacation, is more physically active, yet hurts less.

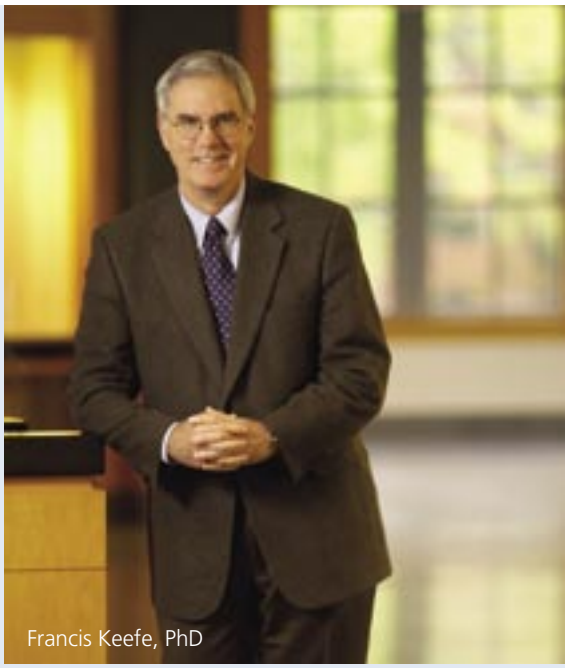
"This isn't a fantasy," says Duke pain specialist Francis Keefe, PhD. "Emerging evidence suggests that distraction and mood may influence whether or not a pain signal gets from your spinal cord to your brain. This opens up the idea that self-management can make a major difference—not just in how a person feels, but in disease activity and progression."

Arthritis pain and disability arise from more than just biological factors, Keefe notes. "Arthritis can make it difficult for people to engage in basic activities. This can result in psychological changes, such as feelings of helplessness, depression, and anxiety, and social changes, such as decreased ability to work and do chores."

Helping patients cope with these changes can reduce their pain and disability, notes Keefe, who teaches arthritis patients ways to pace their activity, how to relax in the face of severe pain, and strategies for restructuring negative thinking. Keefe also teaches spouses how to cope with their partner's disease, as his research suggests that the way a partner responds might influence the patient's pain and disability.

While the mechanisms underlying these effects are not yet known, "We do know that stress and negative mood can adversely affect the immune system," Keefe says. "Since rheumatoid arthritis has an immunologic basis, it could be influenced by factors that affect the immune system. By learning to manage pain, stress, and negative affect, you may be able to improve the function of the immune system and slow the course of the disease." In osteoarthritis, inflammation may be a key factor, says Keefe, who is exploring these biological and psychological connections in a current study of people with knee osteoarthritis.

For now, Keefe says, "It's clear that patients do better with active coping rather than passive coping. The patient I'd worry about most is the one who is feeling helpless, resting in bed too much, relying more and more on medications, and depending on others."



Francis Keefe, PhD

A wide range of self-help interventions are available to encourage more active coping, which Keefe says is associated with reduced psychological distress, less swelling and fatigue, and improved marital adjustment.

"For a variety of reasons, fewer people have been going into rheumatology. And as the population gets older, there's a greater demand than supply, which is not expected to change anytime soon."

—Lisa Criscione, MD

the disorder. In 2000, there were about half as many rheumatologists in the United States as were needed given the incidence of arthritis and related diseases, according to the American College of Rheumatology. "For a variety of reasons, fewer people have been going into rheumatology," says Lisa Criscione, MD, who joined Duke's division of rheumatology and immunology in 2003. "And as the population gets older, there's a greater demand than supply, which is not expected to change anytime soon." The result is often long waiting periods to see a rheumatologist, which runs counter to the new message urging action and early treatment.

Duke researchers and clinicians are tackling this problem on several fronts. On a grand scale, Pisetsky is coordinating a study focused on helping primary care physicians identify and treat patients with early RA as a way to distribute the workload and improve patient care. The Early Inflammatory Arthritis Study will include 40 U.S. and 40 European sites and will begin enrolling patients in early 2005. Pisetsky, St. Clair, and renowned Duke immunologist Barton Haynes, MD, also co-edited a new textbook, *Rheumatoid Arthritis*, that provides detailed, up-to-date information about diagnosing and managing the condition.

On the home front, Duke recently hired two additional rheumatologists: Joseph Shanahan, MD, and Rob Geletka, MD. And in spring 2004, Criscione headed a task force to help improve patient access to Duke's rheumatology clinics. "It used to take five to six months to get an appointment," she says, "then we'd wind up with a 22 percent no-show rate. It's very frustrating to sit idle when you know there are patients who need to see you, and doctors calling you every day practically begging you to see a patient."

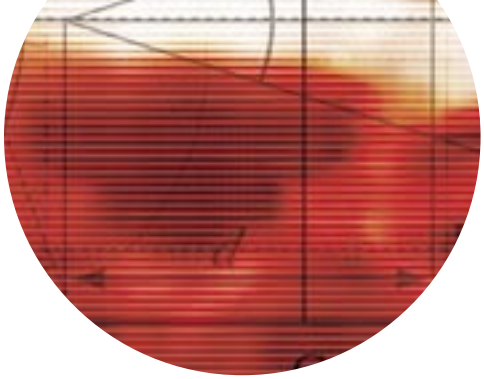
In recent months, several strategies have been put in place to shorten waiting times and improve care. "In April, we started accepting appointments from physicians only," Criscione says. "That way we know someone has been evaluated by a primary care physician to perform initial management and determine if a rheumatology consultation is necessary." This accompanies a shift to "operating as a much more consultative practice," she adds. "Often we'll see a patient one time and provide recommendations because we know we have a doctor to work with in implementing a treatment plan."

Criscione's team also worked with the appointments hub to create a list of priority diagnoses. "For example, if someone has—or is suspected to have—rheumatoid arthritis," she says, "our goal is to schedule that person's appointment within four weeks with the next available doctor." The rheumatologists also review the consult requests for non-priority diagnoses to make sure the condition is an appropriate one for their care. "We're focusing on inflammatory and autoimmune diseases rather than non-inflammatory soft tissue conditions like fibromyalgia syndrome," she says. "We may ask for more information and possibly refer someone to alternative treatments such as a pain clinic or orthopedics."

Educating physicians about rheumatology core services will help specialists spend their time treating patients they can help most, Criscione says. "With a greater need and fewer specialists," she says, "there's a strong emphasis on working closely with referring doctors to do everything we can to improve patient care." □

The Duke Rheumatology Clinic accepts appointments from physicians; call 919-668-7630.

For a list of Duke clinical trials currently enrolling patients with arthritis, please visit dukemedmag.duke.edu.



Working on the

Duke physicians are taking action against aortic disease

BY KARYN HEDE

It is the heart's conduit to the body, the big kahuna of blood vessels. Routing over a gallon of blood a minute to organs and limbs, the aorta works under greater pressures than any other vessel in the body. But despite our total reliance on this singular artery, aortic health tends to get short shrift next to diseases of the heart and its coronary arteries—even though aortic disease is one of the leading causes of death in the United States, with ruptured aortic aneurysms killing over 15,000 people per year.

"Aortic disease is hidden in plain sight, and that's the trouble," says Duke cardiovascular surgeon Robert Messier, MD. "It is a large, conspicuous vessel, and screening can easily identify patients at risk for aortic disease. But with few or no symptoms until the situation becomes critical, aortic disease is often overlooked."

At Duke, a group of surgeons, radiologists, and cardiologists are trying to shift the balance from dealing with aortic disease only when it's a medical crisis to education, prevention, early diagnosis, and, when appropriate, proactive surgery. As one of the few interdisciplinary programs devoted to aortic disease nationwide, and the only one of its kind in the Southeast, their newly formed Center for Aortic Surgery combines state-of-the-art, comprehensive diagnostic and surgical expertise with a research program that aims to understand the underlying genetic and environmental factors that cause the aorta to fail. The physicians hope that by focusing attention on this serious and underserved disease, more patients will be identified for early screening, when intervention has the best chance of preventing a disastrous result.

SPOTTING THE PROBLEM

The aorta is sometimes described as resembling a garden hose, but it is no passive pipeline. It is constantly remodeling in response to the forces it encounters. Like an old bike tire, the aorta can lose its flexibility, grow stiff with age, and develop ominous bulges—weaknesses in the vessel wall called aneurysms, which

HIGHWAY OF THE HEART

Robert Messier, MD

are prone to rupture. The aortic lining may also split open, allowing blood to flow between the layers of the vessel wall, a highly lethal condition known as dissection.

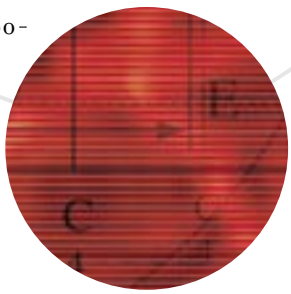
Some 5 to 7 percent of Americans over age 60 are estimated to have an abdominal aortic aneurysm (AAA), with men most commonly affected. In addition, tens of thousands of people per year are diagnosed with thoracic aneurysm or aortic dissection.

Despite their frequency, aortic diseases have historically fallen through the cracks, says Messier. Ironically, part of the reason is that the aorta traverses so much of the body, extending from the aortic arch just under the collarbone all the way down to the lower abdomen, where it splits to supply blood to the legs. No one medical specialty covers that much ground.

"Aortic disease is just not featured frequently enough in physician training," says John Gray, MD, assistant professor of surgery. "It often falls on the periphery, since most physicians are more concerned with screening for things like diabetes or elevated lipid levels. But if you've got a 70-year-old guy who comes in the door with a history of smoking and cardiovascular disease, it's a mark of an excellent internist, someone who is really paying attention, to palpate the abdomen for an aortic aneurysm. I've had two patients in the last week whose aneurysms were found that way, and I told them, 'You've got a good doctor.'"

Advances in imaging techniques are also making it feasible to identify potential aortic disease through routine screening. An ultrasound or CT scan of the chest and abdomen provides a good initial screen that can pick up a distended, inelastic aorta or one with a visible aneurysm. Such screening should be routine for men over 50 who have a history of carotid or coronary disease and smoking, says Messier, as should emergency screening for anyone who presents with intense chest or upper back pain but shows no evidence of heart attack with EKG. Routine screening can also benefit high-risk patients with a family history of aortic disease, bicuspid aortic valves, or a connective tissue disorder such as Marfan syndrome.

Once aortic disease is detected, it becomes imperative to determine the potential risk of rupture, which can be fatal in up to 80 percent of cases,



"AORTIC DISEASE IS HIDDEN IN PLAIN SIGHT, and that's the trouble. It is a large, conspicuous vessel, and screening can easily identify patients at risk for aortic disease. But with few or no symptoms until the situation becomes critical, the disease is often overlooked."

—Robert Messier, MD, Duke cardiovascular surgeon

says Messier. This is when Duke's interdisciplinary approach swings into high gear. Immediately, any newly diagnosed patient undergoes three-dimensional magnetic resonance imaging, which gives doctors an exquisitely detailed view of the entire aorta that allows them to quickly locate and assess any abnormality.

The Duke Cardiovascular Magnetic Resonance Center (DCMRC), which opened in June 2002, contains an MRI specially designed for imaging the heart and blood vessels. The cardiac MRI provides a completely noninvasive way to track the size and change in aortic aneurysms and dissections over time without exposing patients to ionizing radiation. In addition, the MRI enables velocity-encoded mapping, a technique that gives physicians information about obstruction of aortic blood flow and potential branch vessel involvement.

"The advantage of 3D MRI is its unique capability to image the entire aorta from the thoracic to the iliac and to look at it in multiple oblique angles," says Michael Elliott, MD, assistant professor of medicine in cardiology. "We can track dissection involving branch vessels. In a lot of these cases, the dissection twists and turns and is not always easy to make out. For that reason, the MRI is a tremendous help in surgical planning."

TREATMENT OPTIONS

If caught early, aortic aneurysms can often be treated medically. Since high blood pressure is a major contributor to the development of aneurysms, as well as to aortic dissection, patients are often prescribed anti-hypertensives to lower blood pressure and beta-blockers to decrease the forcefulness of the heartbeat.

Messier says physicians are also very hopeful about the new statin drugs, which target another condition associated with aortic aneurysm—atherosclerosis, the buildup of plaque along the artery wall. "Preliminary evidence suggests that in addition to reducing peripheral atherosclerosis, statins may also reduce aortic disease," Messier points out.

Unfortunately, in many cases, aortic disease gives no signs or symptoms until late in the process, he adds. In these cases, surgery becomes necessary.

"Traditionally, aortic surgery has been segregated by its location," says Richard McCann, MD, chief of Duke's vascular surgery section. "Thoracic aortic disease was handled by thoracic surgeons, abdominal aortic disease by an entirely different group, and the two groups typically didn't interact very much. But let's face it, the disease doesn't know it's supposed to be different in the chest than in the abdomen. An aortic dissection can start in the chest and extend into the abdomen, impairing blood flow to the visceral organs.

Michael Elliott, MD

"That's why we're taking a team approach, bringing our multiple perspectives together to offer comprehensive treatment to patients with aortic diseases. If we have a team experienced in operations in the chest and experienced at securing better perfusion to the organs, the hope is that we end up with a better result."

Until recently, the only way to repair an aortic aneurysm was to shut off blood flow to the body below the head and replace the diseased section of aorta with a prosthetic graft. This is a major operation with a high mortality rate, risks of paraplegia and renal failure, eight to 10 days in intensive care, and two more weeks in the hospital. Now, however, Duke is one of a handful of major medical centers offering a minimally invasive method to re-line the aorta from the inside. Starting

"WE'RE TAKING A TEAM APPROACH, bringing our multiple perspectives together to offer comprehensive treatment to patients with aortic disease."

—Richard McCann, MD, chief of Duke's vascular surgery section

in fall 2004, Duke is participating with a number of other major medical centers in a clinical trial testing a new-generation aortic stent (a cylinder inserted inside a vessel to prop it open).

"Basically, this is a really big stent that we use to relieve pressure on the aneurysm and eliminate the threat of rupture," explains McCann. "Currently, the best patients for this surgery are patients with an aneurysm on the descending aorta. Aneurysms of the ascending aorta or arch are not appropriate for this surgery."

The investigational thoracic stent graft is a fabric-covered mesh sleeve that surgeons place in the descending thoracic aorta by making a small incision in the leg and threading a catheter up the femoral artery. They deposit the stent inside the aorta and anchor it in good tissue on both ends to exclude the diseased segment. Because it's much less invasive than traditional surgery, the procedure requires only a two- to three-day hospital stay with outpatient follow-up.

GENETIC TEST AHEAD?

While treating patients is central to its mission, Duke's aortic disease team is also asking fundamental questions about the very nature of the disease. Why do some people develop aortic disease, while others are spared?

"It is not well understood why some people are susceptible to aortic aneurysms or dissections," says Messier. "But we have recently learned that the aorta is constantly remodeled by cells in a specific layer of the aorta. These cells lay down a material that acts as a biological mortar in response to stress. It appears that with age and certain genetic predispositions, including high blood pressure, the remodeling process doesn't happen correctly."

Duke scientists have recently linked the severity of atherosclerotic disease—a condition associated with aneurysms—and the level of certain bone marrow cells circulating in the bloodstream. These cells, called endothelial progenitor cells, repair damage to the lining of blood vessels. The Duke team discovered that people with aortic disease make fewer endothelial progenitor cells. Messier says he believes a major cause of aortic disease is that aging bone marrow fails to make enough cells to repair damage to the aorta, and over time damage outstrips the body's ability to repair itself.

Studies in the laboratory of Pascal Goldschmidt, MD, chair of the Department of Medicine, showed that in a mouse model of aortic disease, transplanted donor bone marrow from young mice could significantly slow atherosclerosis in the aortas of older mice.

"This is a huge switch in thinking," says Goldschmidt. "Up until three years ago, no one would have considered the bone marrow a source of cells to repair blood vessels. Now we know these endothelial progenitor cells are responsible for remodeling and recoating the interior surface of blood vessels with a pristine surface that acts as a mortar and holds the vessel together."

This newly discovered link between bone marrow cells and the aorta could yield novel therapies for the aging aorta, says Messier. Eventually, transplanted stem cells may be used to slow development of age-related aortic disease, and atherosclerosis in general, in people who

RESEARCH HIGHLIGHT

Duke is among 40 U.S. sites exploring a new treatment for thoracic aortic disease. In the minimally invasive procedure, surgeons thread a stent graft (pictured above) into the diseased section of the aorta via a catheter placed in the femoral artery. The stent, an investigational device, is designed to improve blood flow in the aorta and relieve some of the pressure created by an aneurysm. Duke is currently enrolling patients in a clinical trial of the device. Patients who have been diagnosed with thoracic aortic aneurysm or thoracic aortic penetrating ulcer, are candidates for surgical repair, and have low to moderate risks of complication may be eligible to participate. To inquire about the study, physicians and patients may call 919-684-2620.

are predisposed to the disease.

The scientists have also uncovered a link between inflammation, specific genetic markers, and aortic disease.

"We know that inflammatory markers indicate bad things happening to the aorta," says Goldschmidt. "Inflammation is designed to trigger a repair response. But if the repair capacity becomes overwhelmed, a feedback loop falls into place where you see inflammation accelerated and eventually a ruptured aorta."

Using their understanding of genes involved in the inflammatory/repair cycle, Goldschmidt and his Duke colleagues decided to look for a genetic signature of aortic disease. "Instead of trying to find a specific gene that might be implicated in the development of atherosclerosis, we took the novel approach of trying to identify clusters of genes that may help us better understand the progression of the disease," says lead researcher David Seo, MD, a Duke cardiologist. The researchers analyzed the patterns of gene activity in tissue harvested from diseased and normal aorta and identified specific gene patterns that allowed them to predict with greater than 93 percent accuracy the amount of atherosclerosis in a person's aorta. The results of their study appeared in the journal *Arteriosclerosis, Thrombosis, and Vascular Biology* in October 2004.

"What we've done is gone shopping for genes that will be telltale for atherosclerosis of the aorta," says Goldschmidt. "We've now got most of the gross information we need, and it's just a matter of refining the data. A year ago, I could not have said this, but I now feel confident that in a matter of a few years we will have a gene-based diagnostic test for aortic disease, and atherosclerosis in general." □

For more information on aortic disease diagnosis and treatment at Duke, please call 1-800-MED-DUKE (physicians) or 1-888-ASK-DUKE (patients).

"I FEEL CONFIDENT THAT in a matter of a few years we will have a gene-based diagnostic test for aortic disease, and atherosclerosis in general."

—Pascal Goldschmidt, MD, chair of the Department of Medicine

FIGHTING THE MAN'S CANCER

Offering an array of treatments and an integrated approach to care, Duke physicians are powerful allies in men's battles against prostate cancer.

BY DENNIS MEREDITH

"A MAJOR CHANGE IN THE DIRECTION OF MY LIFE" read the curious subject line of the e-mail message from my close friend of many decades. In our earlier years, I had certainly witnessed other major changes in his life. I had watched him receive much-deserved awards for his talents as a writer. I had watched him proudly walk his daughter down the aisle. But now, with both of us in our settled "middle" years—with grown offspring, happy marriages, and magically gorgeous grandchildren—I wondered what possible change could be "major."

He had prostate cancer, he announced. The fact shook me, though certainly not as much as it must have shaken him. The message and those that followed over the next few months introduced unfamiliar terms—Gleason score, brachytherapy, laparoscopic prostatectomy—that only dimly reflected the unfamiliar territory my friend's disease had brought him into.

For many men of my generation, prostate cancer has become an unexpected and unwelcome rite of passage, turning an innocuous gland somewhere in our nether regions into a malignant agent of unsettling life changes. Some 230,000 American men, many of them younger than 65, are diagnosed with prostate cancer each year—and as baby-boomers reach their middle years, the number of new cases is expected to rise to 300,000 a year by 2010, according to the National Prostate Cancer Coalition.

"The key challenge for the new millennium is to figure out how to aggressively treat cancers that are going to kill people, while not over-treating what we call 'incidental' cancers."

—Judd W. Moul, MD, chief of urology

The good news, for my friend and the other one in six men who will be diagnosed with prostate cancer in their lifetime, is that 85 percent will survive the disease. And there is enormous optimism among clinicians and researchers at Duke and other leading medical centers that this percentage will improve further in the decade ahead, thanks to promising advances across the spectrum of treatment modalities—from surgery, radiation therapy, and chemotherapy to vaccines and even nutritional therapies.

EARLY DETECTION DILEMMA

Yet there are challenges ahead as well. Ironically, one of the greatest has resulted from a major clinical advance—the advent of widespread testing for blood levels of the telltale marker prostate specific antigen (PSA).

"Better screening is catching these cancers earlier, which means that the population of men we're seeing is getting younger and the cancers tend to be smaller," says Judd W. Moul, MD, who was recently appointed chief of urology at Duke [see page 62]. "But it's a double-edged sword, in that sometimes we're diagnosing prostate cancer that may never need to have been diagnosed. It may grow so slowly it will never affect the health of the man—particularly if he is older."

The fact that PSA tests flag some men who may not need treatment—while missing up to 15 percent of men who may in fact have prostate cancer—has caused some physicians to question the wisdom of widespread screening. But Moul and other Duke specialists emphasize that PSA remains the best clinically available biomarker for detecting and tracking prostate cancer. "It's a valuable test that has saved thousands of lives," says Moul. He recommends that white men without a family history of the disease start getting annual PSA tests at age 50 while African-American men (who seem to be affected at an earlier age) and those with a positive family history start the testing at age 40.

But because of fear of the "C word," he says, "When we say prostate cancer—no matter how good or bad, small or big it is—we've trained the public very well to respond to that and say 'Doc, get rid of it.' The key challenge for the new millennium is to figure out how to aggressively treat cancers that are going to kill people, while not over-treating what we call 'incidental' cancers."

Over-treatment is a concern even for men with more significant cancers, Moul adds. "If the man is younger, he may live with the effects of treatment for 30 years. So we need to consider how we can preserve his quality of life," including potency and urinary function.

BRINGING CARE FULL CIRCLE

When treatment is warranted, says Moul, Duke's goal is to offer patients expertise in the full range of treatment possibilities. And there are lots of options—among them nerve-sparing radical prostatectomy, robotic prostatectomy, external beam radiation, brachytherapy, castration with surgery or medications in the form of periodic injections, oral hormonal therapy medications, cryotherapy, chemotherapy, nutritional therapy, and even "watchful waiting"—carefully monitoring a slow-growing cancer's course with surveillance PSA levels, digital rectal exams, and biopsies to determine whether and when

Duke's new multidisciplinary prostate cancer screening clinic enables "a much more organized dispersion of information to patients at a critical decision-making time," says Cary Robertson, MD.

Cary Robertson, MD

treatment is needed.

"All of these treatments have their advantages and disadvantages, and we try not to emphasize one over another," says Moul. "They all fit into the armamentarium. Our goal is to bring urologists, radiation oncologists, and medical oncologists together to educate patients about their options and help men and their families make informed decisions."

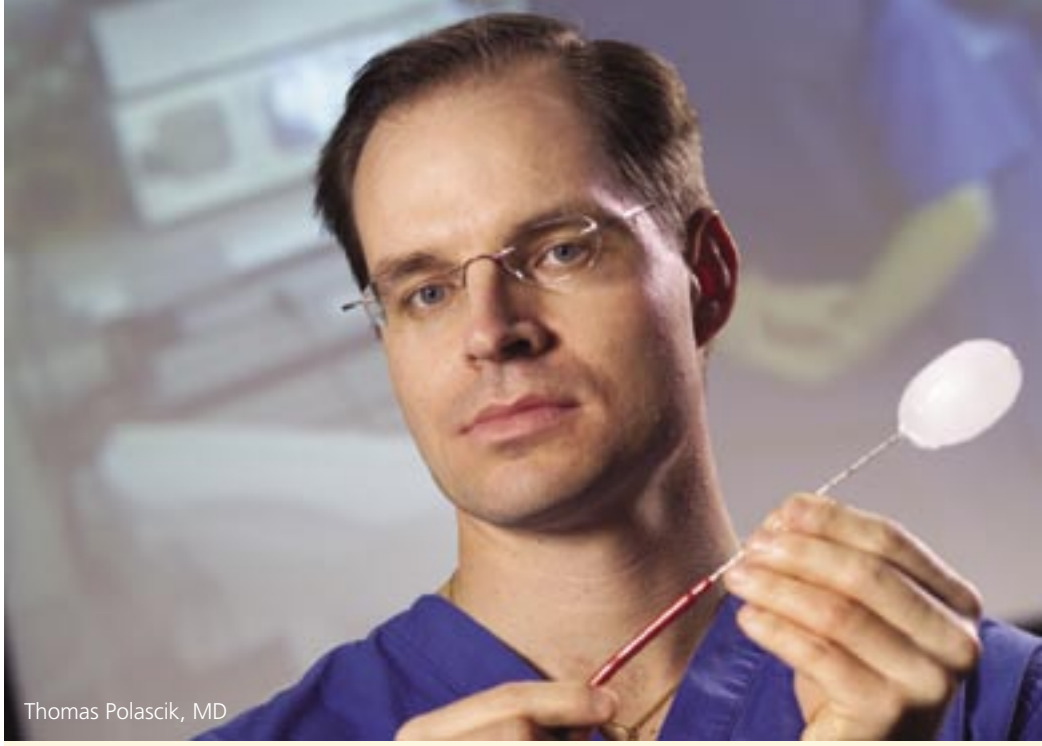
Such an approach is surprisingly uncommon. According to a major Prostate Cancer Foundation report released in September 2004, too many men are unaware of all the options available to them until they have late-stage disease, since multidisciplinary care is still not the norm in prostate cancer treatment.

To counter that problem, physicians at Duke earlier this year established a multidisciplinary genitourinary oncology screening clinic, where patients can receive opinions from two or three specialists in a single setting. Says urologic oncologist Cary Robertson, MD, "The clinic has allowed for a much more organized dispersion of information to patients at a critical decision-making time."

Now, Duke is planning an approximately 3,500-square-foot DukeProstate Center (DPC) that will bring teams of specialists together in one location in 2005. The center will not only support Duke's team approach to care, but advance fundamental understanding of the disease.

"Right now there are not enough men with prostate cancer going into clinical trials or otherwise participating in research," says Moul, who created a clinical trials unit and a nationally recognized prostate research database in his former post at Walter Reed Army Medical Center. "We plan to invite patients to become part of the research team by contributing to banks of serum and tissue samples and participating in a comprehensive prostate cancer disease research registry. We'll track their cancers and use the resulting data to better understand prostate cancer biomarkers and the effectiveness of various treatments."

Prostate cancer patients at the Durham VA Medical Center will also be offered the opportunity to participate in these research efforts, working with Duke urologic oncologist and Durham VA chief of urology Philip Walther, MD, Moul adds.


Thomas Polascik, MD

Duke offers a wide range of treatments for prostate cancer, including cryotherapy, in which fine needles are inserted into the prostate and frozen, forming ice bulbs that kill the surrounding tissue (above), and brachytherapy, in which radioactive pellets are strategically delivered into the prostate via thin catheters (right).

SURGICAL STRIKES

Since men with prostate cancer typically have multiple (and likely biologically distinct) tumors scattered throughout the prostate, most therapies today aim at eliminating the entire gland. The most widely used technique is nerve-sparing radical prostatectomy, in which surgeons carefully remove the diseased prostate while preserving the surrounding nerves that control urinary and erectile function.

"This operation remains the gold standard for prostatectomies," says Moul. "We can now perform it in approximately two hours, through quite a small incision, with no need for a transfusion."

Men who undergo the procedure have a good chance of keeping their sexual function, he adds. "Up to 90 percent of men who are fully potent prior to the operation can regain erections sufficient for sexual intercourse," Moul says. "And by using some of the new erectile dysfunction drugs to aid men's sexual recovery earlier in the post-operative course, we are improving our results." In addition, many other treatments are available for sexual recovery, according to Craig Donatucci, MD, Duke Urology's nationally recognized expert in male sexual function.


David Albala, MD

Urologic surgeons are also exploring new technologies—such as robotic prostatectomy, offered at Duke since 2003. In this technique, surgeons perform the operation via a two-arm robotic system that enables fine manipulation through very small incisions. Although he cautions that the procedure is still young, surgeon David Albala, MD, says experience with approximately 70 robotic surgeries so far has been promising, with operating time currently averaging three to four hours and most patients well-satisfied with the results.

"The best candidate for this surgery is a patient who has been detected early with a small amount of cancer," says Albala. Certain physical attributes, including obesity, would eliminate a patient from consideration, he adds.

Despite the encouraging early results, robotic prostatectomy is currently more expensive to perform than standard surgery, and most insurance companies do not recognize the added expense, Moul points out. "Duke clearly wants to be on the cutting edge of new technology, but we have to balance patient desires for the latest approaches with the realities of the added costs," he says. "Such are the challenges of modern medicine."

FREEZING IT OUT

Cryotherapy to ablate the prostate is an option for older men who do not want


Daniel George, MD

TREATMENT


Mitchell Anscher, MD

radical surgery or radiation therapy, or for those who have failed radiation therapy. In this technique, fine needles are inserted into the prostate and frozen with a mixture of cooled helium and argon. The cooling forms an ice bulb around the needle that kills prostate tissue. Guided by ultrasound imaging, the surgeons can manipulate the needles to ablate the entire prostate without need for surgery.

Says DPC urologist Thomas Polascik, MD, a leading authority on the procedure, "About 80 percent of patients experience impotence, so we counsel patients to consider this option very carefully. If they are younger and have erectile function, it may not be for them. But if they lack erectile function and want a less invasive method, cryotherapy is truly minimally invasive."

Brachytherapy is another minimally invasive alternative to surgery for certain patients with early-stage disease. Unlike external beam radiation—another form of radiation therapy—brachytherapy involves inserting radioactive seeds or pellets directly into the prostate, where they kill the tissue, ablating the prostate.

Careful planning with ultrasound imaging enables precise placement of the pellets to ablate the prostate, yet minimize radiation delivered to surrounding tissues, according to nationally recognized DPC radiation oncologist Mitchell Anscher, MD. "As imaging improves, we will be able to produce a 'metabolic map' that shows exactly where the tumors are. This will enable us to more selectively focus radiation doses in those areas."

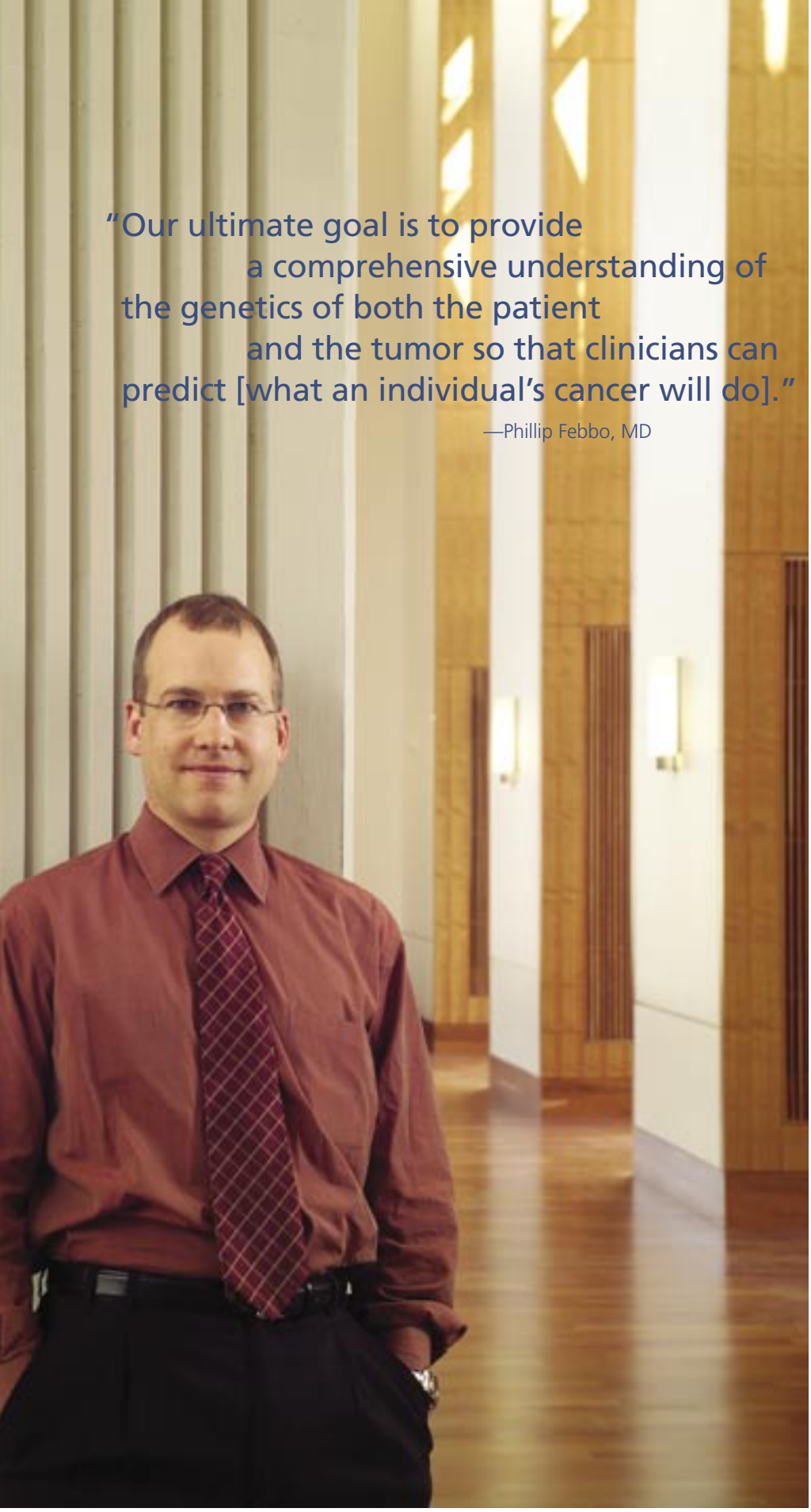
Anscher and his colleagues are also studying drug therapies to better protect surrounding tissues from radiation damage.

TARGETED TREATMENTS AHEAD

Duke oncologists are also making progress in treating patients whose cancers have progressed beyond the stage where surgery or radiation therapy alone can help. For example, DPC's Dan George, MD, and colleagues are currently testing a drug that inhibits the protein mTOR (mammalian target of rapamycin), which triggers the aberrant cells of prostate cancers to grow. And in a one-two punch, they are clinically testing a novel combination of drugs, Docetaxel and Xinlay, to inhibit cancer cell growth.

Meanwhile, says George, scientists are also developing promising new technologies to characterize cancer cells on the genetic and molecular levels. "With better tools for investigating the disease and our rapidly growing knowledge of the genetics of prostate cancer," he says, "I think over the next decade we'll gain a far better understanding of the subtypes of cancer and how to treat them."

Phillip Febbo, MD, a physician-scientist with Duke's Institute for Genome Sciences and Policy, is launching a broad research program to better define the molecular sub-types of prostate cancer. His research program will organize the DPC's planned tissue banks and allow detailed analyses of genes in both



human disease and cancer models to identify genetic events critical to prostate cancer's growth.

"Our ultimate goal," says Febbo, "is to provide a comprehensive understanding of the genetics of both the patient and the tumor so that clinicians can predict whether an individual's cancer will metastasize into the bone and cause death, or whether it will remain in the prostate—perhaps causing local symptoms such as difficulty in urination, but otherwise doing no harm." Febbo is convinced that over the next decade, such genetic insight will allow physicians to match molecularly targeted therapies with biologically susceptible tumors to improve the quality and duration of life for patients diagnosed with cancer.

ANTI-CANCER VACCINES

For cancers that have metastasized, Duke Urology's Johannes Vieweg, MD, is making rapid progress in developing vaccines that alert the body's immune system to attack prostate cancer cells throughout the body. Buoyed by promising results from early clinical tests, the researchers are now mounting trials aimed at producing a clinically useful immune response to the cancer. They're testing new approaches that target not only cancer cells but the blood vessels essential for their nourishment. And they're seeking to release the cellular "brakes" on the immune system by counteracting specific cells that suppress the immune response against cancer.

"In principle, if you eliminate these cells, your vaccine works much, much better," says Vieweg, vice chief for research in urology. "You make the patient much more immune-competent."

According to Vieweg, current vaccines will serve as adjuvants to other treatments,

DETECTION

Improving prostate cancer detection in African-American men

ONE OF THE MOST FRUSTRATING ASPECTS of the battle against prostate cancer has been its disproportionate impact upon African-American men, says urology chief Judd W. Moul, MD. The incidence of prostate cancer is 60 percent higher in African-American men than in Caucasian males, and the death rate twice as high.

"When the PSA test first came out, there was clearly an ethnic and racial disparity in screening," says Moul. "African-American men were likely not as aware of their risk. And they weren't getting tested for a multitude of reasons—distrust of the health care system, socioeconomic factors, and lack of insurance.

"Thus, African-American men are in deeper trouble when their cancers are found, because they're more advanced." What's more, he says, there are hints of greater genetic vulnerability to prostate cancer among African-American men. "In my experience in the military health care system, where care was equal between ethnic groups, many African-American men seemed to have a more aggressive variant of prostate cancer," says Moul.

However, he adds, data from military, Veteran's Administration, and private sector studies suggest that early diagnosis and effective treatment can help equalize outcomes between African-Americans and Caucasians. For that reason, Moul encourages men in this high-risk group to begin PSA screening at age 40, using a PSA threshold of </=2.0 to 2.5 ng/ml to prompt further evaluation.

By offering free annual screenings for prostate cancer, Duke researchers are exploring the reasons why some African-American men may be reluctant to be tested. In a Department of Defense-funded study, School of Nursing faculty member and family nurse practitioner Marva Mizell Price, DrPH, and urologist Cary Robertson, MD, are identifying men who are likely to return each year for screenings and comparing them to men who do not return. Thus, Price and Robertson hope to uncover factors governing a man's decision to take part in screenings, both initially and continually.

Between 1998 and 2003, the study screened 1,593 men. Early on, only about 60 percent who came in one year also came in the next, Price observed. But with community outreach and education, the return rate is improving, she says. This year's screening was the best-attended yet—508 men were screened, about half of them African-American—and return rates were also higher. "We're getting a steady increase in both Caucasian and African-American men taking advantage of the screening, and we hope to sustain that increase," says Price.

Says Robertson, "It's important to have a long-term, carefully designed project, because so often community screening is a one-day, feel-good event with no follow-through. I think our screening clinic is unique in that we track patients and offer them good information resources that encourage them to follow up individually with a physician."

The incidence of prostate cancer is 60 percent higher in African-American men than in Caucasian males, and the death rate twice as high.

PREVENTION

Better health after prostate cancer

More men are beating prostate cancer these days, but they may face additional health hurdles in the years ahead. According to Duke researcher Wendy Demark-Wahnefried, PhD, data clearly show that men with prostate cancer are at increased risk for a second cancer, heart disease, diabetes, and osteoporosis. "Men sometimes don't realize that once they have had a diagnosis of prostate cancer, their risk of dying from cardiovascular disease jumps 44 percent," she says. The increased health risks may be due to lifestyle issues, linked genetic factors, and possibly treatment side effects, she adds. "The diagnosis of prostate cancer is like a knock on the door saying, 'It's time to start exercising and eating healthier.'"

To help survivors stave off these other diseases, Demark-Wahnefried and her colleagues are testing the efficacy of home-based diet and exercise interventions in improving the health of prostate, breast, and colorectal cancer survivors. The research teams are currently working on three NIH-funded studies, including a recently completed initial study among 182 survivors and an ongoing study of 543 survivors throughout the U.S. and Canada. In February 2005, the team will launch a new study, RENEW, which will test the interventions in 640 long-term (five or more years past diagnosis) survivors of prostate, breast, and colorectal cancer who are at least 65 years of age.

Patients or physicians' office interested in the RENEW study may e-mail RENEW@geri.duke.edu.


Wendy Demark-Wahnefried, PhD

Even more common than prostate cancer

is the condition known as benign prostatic hypertrophy (enlarged prostate), which troubles half of all middle-aged men and up to 90 percent of those over 70. Read about one of the latest therapies offered at Duke to treat the problem—transurethral microwave therapy (TUMT)—on our Web site, dukemedmag.duke.edu.

aiming to increase slow cancer progression and prolong survival. However, he says, the ultimate goal is to make vaccination a primary treatment in itself. [To read an article on Vieweg's work, visit dukemedmag.duke.edu/article.php?id=414.]

While some Duke researchers pursue technically sophisticated treatments, others are finding that simple lifestyle changes may help. Studies led by Wendy Demark-Wahnefried, PhD, have demonstrated the value of flaxseed in retarding prostate cancer. Flaxseed is the richest source of plant-based omega-3 fatty acids and dietary lignans, both of which disrupt cell changes that lead to cancer. A pilot project involving 25 men with prostate cancer showed that those who ate low-fat diets supplemented with three tablespoons of ground flaxseed daily had lower testosterone levels and tended to have lower prostate specific antigen levels as well as tumors with lower proliferation rates. The researchers are now conducting a larger clinical trial, as well as studies of how diet and exercise can help prostate cancer survivors (see page 50). The establishment of the DPC will help Demark and other researchers fill such trials more quickly so they can yield answers sooner for men and their families, Moul says.

SUPPORT SYSTEM

With so many treatment options available, patients will rely heavily on their physicians to help them decide what strategies to pursue. But, emphasizes the DPC's Cary Robertson, diagnostic and treatment expertise must be accompanied by a fundamental understanding that the disease presents complex human dimensions.

"Our major priorities are patient education and social support," says Robertson. "Once we've determined whether a patient needs a really aggressive form of treatment or can be treated less aggressively, we need to educate them carefully about their options.

"Most of these gentlemen will have a significant social support person—a spouse, child, or friend. And they really do need somebody to be a sounding board—to listen to the conversations and take notes and remind the patient of what was said and keep them on track in terms of self-education. Our research into the dynamics of spousal support at Duke has helped us understand the need to tailor our comments and educate not only the patient, but his support person."

The benefits of social support are clearly evident for my friend, who is faring well after his diagnosis with cancer, thanks to both a carefully considered course of treatment and a supportive wife. Indeed, if his experience is any indication, a bout with cancer may bring men and women even closer—sometimes in unexpected ways. When next we met in a crowded restaurant, my friend paused during the salad course and announced that he had to take a brief moment to finish his hot flash first. The effects of the hormone therapy to shrink his prostate, he joked, had left him with a much deeper appreciation of the joys of menopause in women.

With excellent care available and even more encouraging prospects ahead, it's reasonable to hope even more men will soon be able to go through the common experience of prostate cancer with a similarly sunny outlook. □

Patients or physicians' office can contact Diane Dowdee at 919-681-6768 or Terry Witting at 919-668-8108 to make an appointment at Duke's multidisciplinary prostate cancer screening clinic.

For more information on prostate cancer services at Duke, physicians may call 1-800-MED-DUKE, patients 1-888-ASK-DUKE.

Antidepressants for children and adolescents: Dangerous medicine?

by John March, MD, MPH

IN FEBRUARY 2004, the FDA convened an advisory panel and public hearing to discuss reports of increased rates of suicidality in pediatric patients with major depressive disorder treated with antidepressant medications. The hearing prompted a spate of articles in the lay press about the dangers of antidepressants in young people, as well as numerous phone calls and visits to physicians from concerned parents. After a comprehensive data review, the FDA in October issued a "black box" directive for all antidepressants: drug manufacturers are required to add a warning (bordered in black) that describes the increased risk of suicidal thinking and behavior in children and adolescents and alerts caregivers about the risk. Prescribers are encouraged to balance risk with clinical need and to monitor patients on antidepressants closely. Finally, the FDA deemed that a Patient Medication Guide advising patients of the risks and offering precautions be distributed with every filled prescription and refill.

A CLOSER LOOK. At this point, some perspective about the place of antidepressants in the treatment of mentally ill youth is warranted. Seventeen years ago, when the first SSRI,* fluoxetine (Prozac), received FDA approval, some in the psychiatric community still doubted whether depression even existed in adolescents and children. The primary medications prescribed for depression were the tricyclic antidepressants—like imipramine (Tofranil)—that are side effect-ridden, dangerous in overdose, and in fact don't work for depression in young people.

We've made tremendous progress since then: clinicians concur that depression in young people is real, and some medication trials in patients under age 18 demonstrate the efficacy of newer-generation antidepressants for treating depression, anxiety, obsessive-compulsive disorder (OCD), and eating disorders. However, in the 1990s, case reports began to emerge hinting that SSRIs may be associated with the development of suicidal ideation in youth. These were case reports, not controlled clinical studies; only recently have enough patients in this age group participated in trials that the FDA could systematically review the data.

The FDA meta-analysis that brought about the black box directive included 24 trials of nine antidepressant drugs (SSRIs and others) involving more than 4,400 patients with major depressive disorder, OCD, or other psychiatric disorders. Although no suicides occurred in the trials, the analysis showed a 4 percent risk of suicidality during the first few months in those receiving antidepressants—twice the placebo risk of 2 percent. In other words, a doctor treating 100 patients with an SSRI and 100 with placebo over one year would see six suicide attempts: two on placebo, two on active drugs that would have happened anyway, and two which could be attributed in part to the SSRI. Since most attempts occur in the context of mental illness, major life stresses, and substance abuse, picking out the very small risk associated with medication likely is impossible—in part because we don't know who is at risk or the mechanism by which this risk increases.

Nonetheless, there's now little doubt that these medications demonstrate a small but real adverse effect. Since suicidality was uncommon in these trials, doctors, parents, and kids need to weigh the risk (very small) against the benefits (modest to moderate but still clinically meaningful) of the medications for most youth treated with them.

The results of the recently published TADS trial (Treatment of Adolescents with Depression), conducted at multiple sites including Duke, confirm the FDA's analysis and make some additional noteworthy findings. The first of its kind to compare psychotherapy of any type to antidepressant medication in this age group, the study examined the effect of placebo, fluoxetine, cognitive behavioral therapy (CBT), and their combination in 439 patients ages 12-17 with a primary diagnosis of major depressive disorder. The analysis indicated that the combination of fluoxetine plus CBT is better than fluoxetine alone, which is better than CBT alone,

* Selective serotonin reuptake inhibitor

which is statistically no better than placebo. The finding that CBT is no better than placebo is surprising in light of its success in previous studies. (In fact, another recent Duke-led trial, POTS (Pediatric OCD Treatment Study), found that treatment with CBT alone was more effective than sertraline alone for youth with OCD; again, a combination was most effective. No POTS participants experienced suicidality.)

However, in the TADS study CBT did demonstrate an important benefit—it reduced suicidal thoughts and behaviors, both alone and in conjunction with fluoxetine treatment. CBT—which teaches patients how to overcome negative, pessimistic attitudes—may help patients by providing coping skills for dealing with suicidal impulses and problem-solving skills when confronted with family conflict. Based on the study results, I would strongly encourage the use of combination therapy as the best treatment for teenagers with major depressive disorder, especially when there is a history of past or present suicidal ideation or behavior.

BEST PRACTICES. So, how does our way of treating the adolescent with depression change in light of recent data and FDA directives? In some respects, it doesn't. It's long been known that some patients with depression become suicidal as part of recovery. Every patient beginning a course of medication should be told that any hint of suicidal ideation or self-harm needs to be reported to the physician right away. Moreover, along with being informed about the risks of medication, patients and families should receive a written list of symptoms that may foreshadow suicidal thoughts and behaviors—including agitation, impulsivity, panic attacks, akathesia (restlessness), irritability, insomnia, hostility, hypomania, and mania. They should also be aware that major life stress as well as alcohol or drug use compounds the risk.

We would be doing our young patients a real disservice if we shun antidepressants altogether because of the FDA's "black box" warnings.

Understandably, primary care physicians may now be wary of treating depressed youth with medication. Before treatment begins, young people with symptoms of depression need a comprehensive evaluation and accurate diagnosis, including the use of normed rating scales for general psychopathology and specifically for depression and perhaps anxiety. Not every patient needs medication—those with milder cases often respond well to psychotherapy. If the patient has mild depression or uncomplicated major depression with little comorbidity and no prior or current suicidality, then the primary care physician may feel comfortable treating the patient with medication and/or CBT (if available)—with the caveat that weekly monitoring is essential, especially during the first weeks of treatment. The more severely depressed patient, particularly if suicidal, should be referred to someone who regularly deals with such patients—a child psychiatrist, an adult psychiatrist who also specializes in adolescents, or a developmental pediatrician who treats children with severe mental illnesses.

Left untreated, childhood and adolescent depression can have serious, even fatal, consequences. Depressed young people have ongoing problems at school, with friends, and at home, and are at increased risk for substance abuse, eating disorders, and pregnancy. Over half (more than 500,000 each year) will attempt suicide, and at least 7 percent eventually succeed. On the other hand, there's clear evidence that SSRIs, particularly fluoxetine, are effective for most of these patients and should be considered first when prescribing a medication. Most clinicians agree that the benefits still outweigh the risks, and concomitant CBT seems to reduce the risk and enhance the effectiveness of medication.

Every suicide is a tragedy. But it's also tragic that so many young people suffer with depression and don't get the treatment they need. We would be doing them a real disservice if we shun antidepressant medications altogether because of the black box warnings. □

John March, MD, MPH, is a professor of psychiatry and chief of Child and Adolescent Psychiatry. He led the Treatment of Adolescents with Depression (TADS) study, published in the August 18, 2004 Journal of the American Medical Association (JAMA), *as well as the Pediatric OCD Treatment Study (POTS), published in the October 27, 2004* JAMA.

clinician q&a

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Anne Marie Fras, MD

Statement of Need:
Under- and over-prescription of opioid drugs are common problems that can lead to unnecessary patient pain, side effects, and/or unnecessary referrals to specialists. Clinicians need to understand and follow guidelines for appropriately prescribing opioids and monitoring long-term use of the drugs.

Target Audiences:
Physicians, nurse practitioners, physician assistants

Learning Objectives:
At the conclusion of this activity, the learner should be able to:
- Describe the features of nociceptive versus neuropathic pain and understand the drug selection based on the type of pain present.
- Describe problems associated with inappropriate use of opioid drugs, including underuse.
- Discuss principles for prescribing opioids.
- Identify signs that a patient may be at risk for abusing opioids.

Faculty:
Anne Marie Fras, MD (Activity Medical Director)
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Duke University School of Medicine

Faculty Disclosure:
Anne Marie Fras, MD has indicated that she is a consultant for Endo Pharmaceuticals and Pfizer, Inc.; a member of Registrat, Inc.'s Advisory Board; and a member of Ortho-McNeil Speakers' Bureau.

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The Duke Office of Continuing Medical Education presents:

Use of Opioids for Outpatient Pain Management

Release date: December 1, 2004
Expiration date: December 31, 2005
Estimated Time to Complete: 1 hour

q: What are current recommendations for using opioids to treat chronic pain in the primary care arena?

a: Anne Marie Fras, MD, assistant clinical professor in the Duke Department of Anesthesiology and interim director of the Division of Pain Management, responds:

PAIN IS THE MOST common reason that patients seek medical attention. In fact, it is estimated that one in three people in the United States will experience a chronic pain complaint that requires medical attention during their lifetime.[1] Yet most clinicians report they do not have the knowledge necessary to adequately assess and manage pain.[2, 3]

This uncertainty is particularly apparent in clinicians' ambivalence toward the use of potentially addictive opioid drugs. Most clinicians agree with the use of opioid medications to treat acute pain, cancer pain, and pain caused by a terminal illness. However, long-term use of opioids for non-cancer or "benign" pain is not as widely accepted.[4] Moreover, misconceptions about opioid drugs cause many primary care physicians to under- or over-prescribe these medications, which may lead to unnecessary patient pain and side effects and unnecessary referrals to specialists.

The principles outlined below are intended to help primary care clinicians improve their ability to assess pain, choose the appropriate analgesic class, identify the signs of potential aberrant opioid use, and develop strategies to maximize patient compliance with pain treatments.

CATEGORIZING PAIN

The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience associated with actual or potential damage or described in terms of such damage." While all pain fits within that broad definition, it is imperative for clinicians to recognize there are several distinct types of pain with different underlying mechanisms and, therefore, different treatments.

Broadly speaking, pain can be either chronic or acute. The onset of acute pain is generally sudden and the pain is sharp and well localized. Chronic pain tends to be more diffuse, often without a definite beginning point. While acute pain serves an important purpose as a warning signal to alert us to injury or potential injury, chronic pain is pathologic and does not serve an adaptive purpose for the organism.

These broad distinctions can be further subdivided into four major types of pain, each requiring a different approach to treatment: nociceptive, inflammatory, neuropathic, and functional.[5]

Nociceptive Pain

Nociceptive pain is most familiar to patients and clinicians. Nociceptors are peripheral receptors that help the body sense pain, sending the signals through the spinal cord, brain stem, and thalamus to the cerebral cortex. Nociceptors respond to noxious heat, intense pressure, or irritant chemicals, but not to innocuous stimuli such as warming or light touch. They activate the body's sensory system before actual tissue damage occurs, thus warning us to avoid further injury. Examples of nociceptive pain include pain from a minor burn or a needle prick. **Nociceptive pain responds to both opioids and non-steroidal anti-inflammatory drugs.**

Inflammatory Pain

Inflammatory pain occurs in response to tissue damage. It can either be acute (as in response to surgery) or chronic (as in the chronic inflammation seen in diseases such as rheumatoid arthritis). The tissue damage causes the body to release prostaglandins, mediators of inflammation which hypersensitize nociceptors. In this sensitized state, stimuli the body would normally sense as innocuous cause the nociceptors to fire, producing a sensation of pain (a process called **allodynia**). This sensitization prompts us to guard the injured area of the body, minimizing further damage and allowing repair to begin. **Inflammatory pain also responds to both opioids and non-steroidal anti-inflammatory drugs.**

Neuropathic Pain

Neuropathic pain is caused by a lesion in the peripheral nervous system (as in diabetic neuropathy, HIV sensory neuropathy, or an entrapment neuropathy such as carpal tunnel syndrome) or in the central nervous system (as in stroke or spinal cord injury). The changes within the nervous system itself lead to sensitization of nociceptors and appearance of **allodynia, hyperalgesia** (where a normally mildly painful stimulus becomes intensely painful), and **hyperpathia** (where the patient continues to report pain well after a painful stimulus has ended). Another feature of neuropathic pain is spontaneous pain. When nerves are damaged they may fire automatically, resulting in the constant, burning sensation frequently experienced by patients with peripheral neuropathy. Neuropathic pain is a form of "maladaptive pain" where there is signaling of pain despite a lack of tissue trauma.[5] **Neuropathic pain does not respond to non-steroidal anti-inflammatory drugs. It tends to respond poorly to opioids, many times requiring very large doses**. Frequently, drugs such as anticonvulsants and tricyclic antidepressants are used to decrease the spontaneous firing of nociceptors. (*An in-depth presentation of the choice and use of anticonvulsants and tricyclic antidepressants is beyond the scope of this discussion. A detailed description of the assessment and management of neuropathic pain can be found in* Neuropathic Pain: Incorporating New Consensus Guidelines into the Reality of Clinical Practice *Adv Stud Med* 2004;4(7B):S550-S556).

Functional Pain

Another example of maladaptive pain is functional pain, in which the body processes sensory signals abnormally. In contrast to neuropathic pain, which stems from lesions in the nervous system, there is no recognizable cause of functional pain—the central nervous system simply seems to amplify sensory signals. Examples of functional pain include fibromyalgia, irritable bowel syndrome, and tension headache. As with neuropathic pain, **functional pain tends not to respond to opioids or non-steroidal anti-inflammatory drugs.** Instead, drugs such as tricyclic antidepressants and interventions such as behavioral therapy may be helpful.

DOCUMENTING PAIN HISTORY

Effective pain management starts with a thorough medical history and physical examination. The history should document the nature and intensity of the pain, current and past interventions (including over-the-counter medicines), underlying or coexisting diseases (such as diabetes or a recent stroke, which may suggest a neuropathic pain state), and a substance abuse history.

It is also crucial to assess the pain's impact on physical and psychologic functioning. In the primary care setting, more than 50 percent of patients who present with depression report somatic complaints only and at least 60 percent of these somatic complaints are pain-related.[6] In addition, when pain is moderate to severe, impairs physical functioning, and/or is refractory to treatment, it is more likely to be associated with depression. Patients with multiple pain syndromes (e.g. back pain, headache, abdominal pain, chest pain, and facial pain) are three to five times more likely to be depressed than patients without pain.[7]

Co-existing conditions (depression and anxiety) which may accompany the pain complaint can result in poor response to treatment when ignored. In addition, failure to recognize that somatic complaints may serve as a proxy for mood complaints can lead to misdiagnosis and mistreatment of mood disorders with analgesics. For these reasons, effective pain management requires a global approach to the patient.

WHEN TO CONSIDER AN OPIOID—AND CONSIDERATIONS WHEN STARTING TREATMENT

Pain management with an opioid may be considered following the complete assessment and documentation that non-opioid treatment has failed.

The establishment of **realistic** goals for treatment should be discussed and jointly

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TABLE 1: BASICS OF AN OPIOID TREATMENT AGREEMENT

- **Terms of treatment** (single prescriber, random urine/serum medication levels)
- **Prohibited behavior** (unsanctioned dose escalations, use of illicit drugs)
- **Points of termination** (positive urine screen for illicit drugs, missed appointments, inappropriate behavior)
- **Patient responsibilities** (compliance with appointments, safeguarding medication)
- **Education** (side effects, risks of respiratory depression, risks of addiction, operation of heavy equipment)
- **Emergency issues** (use of Emergency Department, prohibition for "early refills")

Adapted from Fishman SM et al *J Pain Symptom Manage* 1999;18:27-37

agreed to by the clinician and patient. Although there is no consensus in the literature on what constitutes a reasonable outcome of opioid therapy,[8] I believe it is necessary that the patient demonstrate improved functioning after a trial treatment with opioids.

In most of the literature on opioid therapy, the doses used in controlled studies are generally in the moderate range or below (up to 180 mg morphine equivalents per day). In the Pain and Palliative Care Clinic at Duke, we generally use very modest opioid dose escalations, re-assessing the patient prior to any escalation.[9] However, some clinicians take a more liberal approach to dose escalations, reaching doses as high as 1000 mg or more of morphine equivalents per day, which is five times the dose validated in the literature. Anecdotal evidence suggests that patients receiving opioid doses of this magnitude **rarely report satisfactory analgesia** or improved function[8] and in fact may develop a paradoxical opioid-induced pain sensitivity (manifested by diffuse allodynia and hyperalgesia following moderate to high opioid dosing).[10] In the patient with opioid-induced pain sensitivity, further dose escalations of opioid results in increased pain scores, rather than an improvement in pain report.

INFORMED CONSENT FOR TREATMENT

The patient should be made aware of the risks and benefits of opioid management. The potential for cognitive impairment (especially in the days following a dose escalation) should be discussed and documented. In addition, the clinician should communicate and document the specification that opioid prescriptions be written by a single clinician or practice and filled at a single pharmacy.

There is lack of consensus in the literature about use of an "informed consent and agreement for treatment" for opioid medications. The recommendation that patients "at risk for addiction" be asked to sign a treatment agreement constitutes unsound logic. Patients with a history of addiction or risk factors for addiction include men and women of all ages and backgrounds. Limiting treatment agreements to only those patients who fall into the clinician's preconceived notions of addicted patients allows patients who are "under the radar" to go undetected. In addition, inconsistent use of treatment agreements makes the clinician susceptible to charges of biased treatment. My practice is to have all patients who are receiving opioid management enter into a treatment agreement which is signed by both the patient and myself.

Some issues to consider addressing in a treatment agreement are found in Table 1. Amendments can be added to tailor the general form to individual patient needs.

DIFFERENTIATING THE PAIN PATIENT FROM THE DRUG-SEEKING PATIENT

Clinicians frequently cite concerns about drug diversion as a reason they are uncomfortable about prescribing opioids. Complicating matters, there are no hard-and-fast rules for identifying drug-seeking patients. A study of patients referred to a university pain clinic for "problematic behaviors" associated with opioids found no differences in pain condition, opioid use patterns, social and family factors, family history of pain and substance abuse, or psychiatric history to differentiate true pain patients from addicted patients.[11]

However, there are certain characteristics about the patient encounter which can help the clinician identify patients at risk for abusing opioids (Table 2), as well as "red flag" behaviors which should increase the clinician's suspicions (Table 3). In addition to the behaviors listed in Table 3, personal history of addiction and previous detoxification were more common in addicted patients in the aforementioned study.[11]

STRATEGIES FOR MAXIMIZING PATIENT ADHERENCE WITH OPIOID TREATMENT

Medication non-compliance is not limited to opioid treatment. Studies have documented poor patient adherence with treatments for cystic fibrosis, kidney disease, epilepsy, and following transplantation. Nor is medication non-adherence limited to overuse; it extends to underuse and misuse.

Overuse may be a sign of addiction or "pseudo-addiction." Pseudo-addiction has been used to describe problematic patient behavior, including hostile and demanding behaviors, in response to undertreatment of pain. Once pain is adequately treated, these behaviors resolve.

Patients may underuse analgesics from fear of addiction, side effects such as nausea or constipation, forgetfulness, complexity of the medical regimen, or medication costs.

Causes of misuse include use of opioids to treat another symptom (e.g. insomnia, anxiety, depression) or for the reinforcing properties of opioids (e.g. euphoria, sense of well-being).[12]

DETECTING NON-COMPLIANCE

Clues that a patient is not adhering to opioid medication regimens may come from multiple sources, including the patient interview (refer to Tables 2 and 3), history of unfavorable relationships with other providers (e.g., multiple clinic discharges), information from family members, and the physical examination—which may reveal affective disturbances, changes in personal grooming, or signs of intoxication or withdrawal.

Patient behavior in between visits may also provide clues—such as frequent telephone calls for additional medication or the emergence of irrational or demanding behavior in a previously compliant patient. Laboratory testing for the presence or absence of drugs must be undertaken with caution (see

below). Traditional methods of assessing patient adherence such as pill counts, diaries, and patient interviews tend to overestimate patient adherence.[12]

LABORATORY TESTING

In order to effectively use laboratory data, the clinician must have an understanding of physiology, pharmacology, and toxicology. The most commonly used laboratory measurements of opioid/illicit drug use in patients are from urine or blood sources. The clinician must understand the limits of the screening tests in use in his/her office. For instance, with urine testing some agents are detected with routine screening (usually morphine, codeine, heroin), some agents are not (fentanyl, methadone), and some agents will cross-react in the test, resulting in false positives (labetalol screening as amphetamine, or sertraline screening as a benzodiazepine). Use of urinary drug screening by family physicians is reviewed at http://www.familydocs.org/news. (See monograph at http://www.familydocs.org/UDT.pdf and Quick Reference Card at http://www.familydocs.org/UDT_Ref_Card.pdf).

TABLE 3: BEHAVIORS ASSOCIATED WITH DEVIANT OPIOID USE

- Forging prescriptions
- Abusing illicit drugs
- Losing prescriptions multiple times
- Selling prescription drugs
- Taking more than the prescribed dosage multiple times
- Stealing medications or borrowing prescribed drugs from others
- Obtaining prescription drugs from non-medical sources

Kirsh KL et al *Clin J Pain* 2002;18(4Suppl):S52-60

CONCLUSION

Effective pain management necessitates a thorough evaluation, an individualized treatment plan, and careful re-assessment of the patient at regular intervals. Opioid medications can successfully be used to treat pain from nociceptive, inflammatory, and to some degree neuropathic sources. Clinicians should apply consistent policies to patients who are treated long-term with opioid medications and inform patients of the potential risks of such treatments. Treatment agreements are a convenient tool to inform patients of the treatment expectations and potential risks.

TABLE 2: CHARACTERISTICS OF CHRONIC PAIN PATIENTS VERSUS SUBSTANCE ABUSERS

Chronic Pain Patients:

- Are interested in and cooperate with efforts to confirm their diagnosis
- Rarely rush to close the encounter
- Demonstrate self-control in their use of analgesics
- Follow the treatment plan the clinician recommends
- Have improved quality of life (QOL) from analgesics
- Are likely to complain about any side effects
- Tend to have leftover medications, rarely "run out early," rarely misplace medications

Drug Abusers:

- Are frequently in a hurry and may not be interested in an accurate diagnosis
- Cannot control their use of analgesics
- Do not follow the clinician-recommended treatment plan
- Have a decreased QOL from opioids
- Want medications even when experiencing negative side effects
- Rarely have medication left over (and often return "early" for more)
- Lose their medication and present numerous excuses for doing so

Heit HA *Eur J Pain* 2001;5 Suppl A:27-29

PRACTICE GUIDELINES FOR PRESCRIBING OPIOID MEDICATIONS FOR THE TREATMENT OF PAIN

Patient Evaluation

- Thorough history and physical examination documenting the nature and intensity of the pain, current and past interventions (including over-the-counter medicines), underlying or coexisting diseases (such as diabetes or history of a recent stroke, which may provide clues to a neuropathic pain state), and a substance abuse history.
- Assessment of how the pain impacts physical and psychologic functioning.
- Documentation of a diagnosis which is opioid-responsive.

Treatment Plan

- Documentation of treatment goals for pain relief/ improvement in functioning.
- Documentation of an individualized treatment plan based on the type of pain and physical and psychologic needs.

Re-assessment

- The patient should be assessed at regular intervals for adequacy of therapy, side effects, improvement in functioning, and adherence to treatment including laboratory studies as indicated.

Documentation

- The clinician should document the above information in a clear and accurate way. In addition, the amount of medication prescribed and time to follow-up should be documented.

Earn up to 1 CME credit!

Use of Opioids for Pain Management Self-Assessment Quiz

RESOURCES

Further information on "Model Guidelines for the Use of Controlled Substances for the Treatment of Pain" can be found on the Web site for the Federation of State Medical Boards at http://www.fsmb.org.

The American Academy of Pain Medicine and American Pain Society have issued a consensus statement on the use of opioids for the treatment of chronic pain which can be accessed at http://www.ampainsoc.org/advocacy/opioids.htm.

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1. **Which of the following features may be present in a patient with neuropathic pain?**
   a. Allodynia
   b. Hyperalgesia
   c. Hyperpathia
   d. Spontaneous pain
   e. All of the above

2. **All of the following are barriers to physicians prescribing opioids except:**
   a. Physician concerns about drug diversion
   b. Lack of knowledge about opioids
   c. Widespread acceptance of opioids for "benign" pain
   d. Misconceptions about opioids
   e. All of the above are true

3. **True or false?** Depression seldom presents in patients with pain, therefore it is not necessary to routinely screen for depression in patients with pain.

4. **All of the following statements are true about opioid use in chronic pain patients without substance abuse issues except:**
   a. They use analgesics in a controlled fashion.
   b. They fail to see an improvement in quality of life.
   c. They are likely to complain about opioid-induced side effects.
   d. They rarely lose or misplace medications.
   e. They are interested in an accurate diagnosis.

5. **All of the following statements reflect good practice for opioid management except:**
   a. A thorough history and physical examination are needed to establish a diagnosis.
   b. Re-assessment for adequacy of treatment, side effects, and adherence to treatment should occur at regular intervals.
   c. Documentation should include an individualized treatment plan based on type of pain, as well as physical and psychological needs.
   d. Obtaining a substance abuse history is not necessary.
   e. Documentation should be in a clear and accurate format.

6. **Behaviors which should cause the physician to consider aberrant drug use in a patient on opioid analgesics include all of the following except:**
   a. Obtaining prescription drugs from non-medical sources
   b. Borrowing medications from others
   c. One lost prescription
   d. Prescription forgery
   e. Concurrent abuse of illicit drugs

Answers: 1. e 2. c 3. false 4. b 5. d 6. c

Clinicians may submit questions for future "Clinician Q&A" columns by e-mailing dukemedmag@mc.duke.edu. Please include your degree (MD, PA, NP, etc.), city and state, daytime phone number, and e-mail address. We regret that comments on specific cases and individual replies are not possible.

Use of Opioids for Pain Management
Enduring Material Evaluation and CME Claim Form

Please identify your profession (circle one):

a. Physician (Specialty:_____) b. Nurse Practitioner
c. Physician Assistant d. Other (Please specify):_____

Evaluation of "Use of Opioids for Pain Management" by Anne Marie Fras, MD

Please CLEARLY circle the number that best reflects your response.
RATING SCALE: **5** - Strongly Agree **4** - Agree **3** - Neutral **2** - Disagree **1** - Strongly Disagree

1. Content was evidence-based	**5**	**4**	**3**	**2**	**1**
2. Material was well organized	**5**	**4**	**3**	**2**	**1**
3. Material was communicated clearly	**5**	**4**	**3**	**2**	**1**
4. Content was balanced, objective, and scientifically rigorous	**5**	**4**	**3**	**2**	**1**
5. Do you feel this article was commercially biased in any manner?	**YES**	**or**	**NO**		

If **YES**, please explain:_____

To what degree did the activity meet the stated learning objectives?

Please CLEARLY circle the number that best reflects your response.
RATING SCALE: **5** - Completely **4** - Mostly **3** - Moderately **2** - Slightly **1** - Not At All

6. Describe the features of nociceptive versus neuropathic pain and understand the drug selection based on the type of pain present	**5**	**4**	**3**	**2**	**1**
7. Describe problems associated with inappropriate use of opioid drugs, including underuse	**5**	**4**	**3**	**2**	**1**
8. Discuss principles for prescribing opioids	**5**	**4**	**3**	**2**	**1**
9. Identify signs that a patient may be at risk for abusing opioids	**5**	**4**	**3**	**2**	**1**

10. Please describe any changes in your medical practice you make as a result of completing this self-study CME activity:

_____

_____

_____

11. Comments and suggestions for improvement of this activity/topic suggestions:

_____

_____

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APPOINTMENTS

Gilliss new dean of nursing school


Gilliss

Catherine Lynch Gilliss, DNSc, RN, FAAN, has been named dean of the Duke University School of Nursing and vice chancellor for nursing affairs. Gillis has been a professor and dean of the nursing school at Yale University since 1998. She succeeds Mary Champagne, PhD, RN, who announced in May 2003 that she would not seek another five-year term as dean after serving 13 years in the post.

An adult nurse practitioner, Gilliss has been an active researcher in family management of diabetes, prevention of diabetes, and health disparities. She is the lead investigator for a series of grants totaling more than $3.5 million from the National Institutes of Health's National Institute for Nursing Research.

During her tenure at Yale, Gilliss led efforts to strengthen the school's programs of research and doctoral education as well as encourage more scholars from minority populations to pursue careers in nursing. In 2002, under Gilliss' leadership, Yale and Howard University established the Yale-Howard Partnership Center to Eliminate Health Disparities.

Before becoming dean at Yale, Gilliss was chair of the Department of Family Health Care Nursing at the University of California at San Francisco (UCSF) from 1993 to 1998. As director of UCSF's Family Nurse Practitioner Program from 1988 to 1995, Gilliss led her program to a Pew Primary Care Achievement Award for Excellence.

In addition to her 1971 BSN degree from Duke, Gilliss earned a master's degree in psychiatric nursing from The Catholic University of America in Washington, DC; an adult nurse practitioner certificate from the University of Rochester in Rochester, NY; and a doctorate of nursing science from UCSF, where she also completed a postdoctoral fellowship. She has authored two books—*The Nursing of Families* and *Toward a Science of Family Nursing*—in addition to writing numerous peer-reviewed journal articles and book chapters. She also serves on the editorial boards of several journals.

A fellow in the American Academy of Nursing, she is now serving her second term as an elected director on that board.

Read more on pages 10 and 80.

O'Neill to oversee strategic planning


O'Neill

Molly K. O'Neill has been named chief strategic planning officer and vice president for business development for the Duke University Health System. She also has been appointed vice chancellor for medical center integrated planning.

In a newly created position at Duke, O'Neill will direct organizational strategic planning, business development and network services for all clinical operating units.

Before coming to Duke, O'Neill served as the executive director of specialty care development for Partners Healthcare System, which includes The Brigham and Women's Hospital and Massachusetts General Hospital.

Prior to joining Partners in 1998, O'Neill was the national vice president of disease management and network development for Gambro Healthcare, an international specialty healthcare company with revenues of $2.6 billion. At Gambro, O'Neill built physician networks that worked with managed care organizations and provided "full-risk" comprehensive disease management to renal patients. In this role, she served as the president of two Florida-based independent practice associations.

Previously, O'Neill was the assistant vice president of strategic alliances and new business development at Inova Health System, an integrated delivery system in Springfield, VA. During her eight-year tenure at Inova, she was responsible for mergers and acquisitions, strategic planning, marketing, and market research. The four-hospital system included a physician hospital organization, specialty physician networks, long-term care facilities, home health services, behavioral health services, and other ambulatory care services.

"By focusing on strategic planning and business development, the health system is investing in its future and building on the outstanding infrastructure that already exists," O'Neill says. "It's a great privilege and challenge to assist in the growth and development of a world-class institution."

O'Neill is a summa cum laude graduate of the Medical College of Virginia, where she received a master of science in health care administration. She received her bachelor of science in journalism/mass communications from Virginia Commonwealth University.

Petes tapped as MGM chair

Thomas D. Petes, PhD, a professor of biology and member of the Lineberger Comprehensive Cancer Center at the University of North Carolina at Chapel Hill, was named chair of the Molecular Genetics and Microbiology (MGM) Department at Duke in October.

Petes specializes in the study of yeast as a model for understanding genomic instability and chromosomal aberrations commonly found in cancer cells. He succeeds Joseph Nevins, PhD, who became director of the Center for Applied Genomics and Technology, part of the Duke Institute for Genome Sciences and Policy (IGSP), in November 2003.

Petes

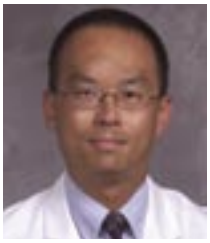
"Tom is an outstanding scientist—a first-rate scientific mind," said R. Sanders Williams, MD, dean of the Duke University School of Medicine. "His leadership and expertise will push the MGM department to the next level by building on the group's many strengths and encouraging a global approach to the study of genetics. We are pleased to welcome him."

Petes' group has discovered striking similarities between yeast and human cells in the structure and function of proteins involved in DNA repair and in the protection of the tips of chromosomes. In turn, those similarities have yielded new insight into genetic defects underlying cancer. For example, yeast cells lacking particular DNA mismatch repair enzymes exhibit genetic instabilities also found in human colorectal cancer cells, a finding that suggested the repair defects might play an important role in the disease process, he said.

Petes received his undergraduate education at Brown University and his PhD in genetics at the University of Washington in Seattle. He then went on to postdoctoral fellowships at the National Institute for Medical Research in London and the Massachusetts Institute of Technology in Cambridge. He served as president of the Genetics Society of America in 2002, and has been a member of the National Academy of Sciences since 1999.

Kuo promoted to chief of general surgery

Paul C. Kuo, MD, a hepatobiliary and transplant surgeon, has been named chief of the Division of General Surgery. He replaces R. Randal Bollinger, MD, who was promoted to vice chairman of education for Duke's Department of Surgery.



Kuo

Kuo will oversee the clinical enterprises and direct the research activities of a diverse division that includes surgeons who specialize in such areas as transplantation, gastrointestinal surgery, and vascular surgery, as well as those who specialize in surgical approaches to cancers of the breast and digestive system.

"Dr. Kuo is one of the premier surgical scientists in the country and one of a very few individuals who are true 'quadruple threats' as surgeons, scientists, administrators, and educators," said surgery chairman Danny O. Jacobs, MD. "He also has had the opportunity to work in many leading academic centers and brings different perspectives to surgery at Duke. Lastly, he has demonstrated his commitment to academics and patient care in an open, collaborative, and cooperative manner."

Kuo came to Duke in 2000 after serving for two years as chief of kidney and pancreas transplantation and chief of laparoscopic surgery at Georgetown University Medical Center. He performs liver, kidney, and pancreas transplants as well as other surgical procedures involving the liver. In the laboratory, Kuo is principal investigator for long-term NIH research grants aimed at better understanding iNOS expression in liver cells and the relationship between nitric oxide and ostepontin, and a training grant in the biology of reperfusion injury and inflammation.

Kuo received his undergraduate and medical school education at Johns Hopkins University. He then completed a six-year surgical residency at Brigham and Women's Hospital in 1991, followed by fellowships at Beth-Israel-Deaconess Hospital and Harvard Medical School. He also earned an MBA in 2001 from Johns Hopkins.

From 1993 to 1995 he served as a transplant surgeon on the faculty of Stanford University Medical Center, followed by three years as a transplant surgeon at the University of Maryland Medical Center, Baltimore. He then joined the faculty of Georgetown in 1998.

APPOINTMENTS

Frush named chief patient safety officer

Karen Frush, MD, chief medical director for children's services at Duke Hospital, was appointed chief patient safety officer for Duke University Health System (DUHS) in October after a national search.

"Patient safety is one of the most important responsibilities we have as caregivers, and I am confident that Dr. Frush, with her depth of knowledge of Duke and her passion for strong patient safety systems, is the right person to guide our efforts," said Victor J. Dzau, MD, chancellor for health affairs.


Frush

In her new role, Frush will develop a comprehensive patient safety program across DUHS. Working with the leaders of each entity, Frush will provide leadership in strategic planning, analysis, development, implementation and measurement of patient care quality and safety initiatives. She will report directly to the chancellor.

"Patient safety is a collaborative effort that requires commitment on the part of many individuals to raise awareness of the possibility of error, and to establish safeguards to minimize risk and prevent errors," Frush said.

"I am excited about the high level of enthusiasm throughout our health system, and am confident that we can create a model patient safety program that will benefit all our patients, regardless of where they receive their care."

Frush plans to develop a Patient Safety Center at Duke to further the clinical understanding of the science of safety. The Center will support educational initiatives, clinical research and outreach opportunities related to safety.

Moul becomes chief of urology

Judd W. Moul, MD, formerly professor of surgery at the Uniformed Services University of the Health Sciences (USUHS) in Bethesda, MD, and an attending urologic oncologist at the Walter Reed Army Medical Center in Washington, DC, was named the new chief of the division of urology.

Moul, a retired colonel in the United States Army Medical Corps, also was director of the Center for Prostate Disease Research, a Congressionally mandated, Department of Defense (DoD) research program based at USUHS and Walter Reed. He is a noted authority on prostate cancer in African-American men, biochemical recurrence of prostate cancer, prostate biopsy techniques, and nerve-sparing radical prostatectomy.

"Judd is a dynamic leader who will build upon the strengths of the division of urology while cultivating new research and recruiting new faculty," said surgery chairman Danny O. Jacobs, MD. "He has an established track record of bringing together multidisciplinary programs that unify efforts and benefit patients."


Moul

Moul is nationally recognized for his creation of a U.S. military-based prostate disease research database that houses information on more than 20,000 prostate cancer patients treated at nine collaborating institutions. Moul will continue his work with the database as a DoD consultant.

While at Walter Reed, Moul developed a prostate clinical trials and care unit. He plans to establish a prostate cancer center at Duke, a multidisciplinary clinic that will improve patient access to clinical trials.

Moul graduated summa cum laude from Pennsylvania State University. He earned an MD degree from Jefferson Medical College and completed his urologic-oncology fellowship at Duke.

Sutton-Wallace promoted to chief of staff

Pamela Sutton-Wallace has been appointed as the new chief of staff to Chancellor for Health Affairs Victor J. Dzau, MD. She has held several positions within the Duke University Health System, beginning in 1997 with her initial appointment as a health services fellow. Most recently, she was the associate operating officer for Medical/Surgical/Critical Care and Digestive Services. Sutton-Wallace has also served as the administrative director for the Adult Bone Marrow Transplant Program, strategic services associate for Hospitals' Operations Integration Office, and director of special projects.


Sutton-Wallace

As chief of staff—a new position—Sutton-Wallace will work closely with Dzau and will have primary oversight for the central coordination of all activities of the Chancellor's Office. She will serve as the key representative of the chancellor, working closely with the executive management team of the Medical Center and Health System.

Sutton-Wallace graduated from Yale with a Master of Public Health degree.

Ginsburg named director of genomic medicine

Geoffrey S. Ginsburg, MD, PhD, has joined Duke University's Institute for Genome Sciences & Policy (IGSP) as director of the new Center for Genomic Medicine. He will oversee efforts to develop new approaches by which detailed genetic data can be used to tailor preventive health-care plans for individual patients, a key part of Duke's larger effort to promote a new era of personalized medicine.


Ginsburg

Ginsburg said he seeks to discover and develop novel therapies and predictive biomarkers for clinical research and practice "to optimize efficiency, effectiveness, and success in bringing the right therapy to the right patient at the right time."

Ginsburg came to Duke from Millennium Pharmaceuticals in Cambridge, MA, where he was vice president of molecular and personalized medicine. At Millennium, Ginsburg was responsible for crafting strategy on the discovery of biomarkers—genetic characteristics that measure the effects or progress of a disease or condition—and the use of those indicators for clinical prediction and diagnosis.

Ginsburg received MD and PhD degrees from Boston University. He completed his clinical and research fellowships in molecular cardiology at Beth Israel Hospital and Children's Hospital Boston. Ginsburg developed and directed the preventive cardiology service at Beth Israel Hospital in the late 1980s, and served on the faculty of Harvard Medical School since 1990.

In November, Ginsburg was appointed to the board of directors of the Personalized Medicine Coalition, a non-profit group that works to advance the understanding and adoption of personalized medicine.

"As an industry leader, Geoff brings a strong appreciation for the realities of personalized medicine—in which patient care focuses on the individual with an emphasis on early disease detection and prevention—and the challenges that must be overcome to bring scientific findings into the clinic," said IGSP director Huntington Willard. "We've had a real need for a leader who could devote 100 percent of his time to genomic medicine, and Geoff's unique perspective and focused attention will go a long way toward making Duke's efforts in personalized medicine a reality."

Tyler, Donatucci new vice chairs in surgery

Douglas S. Tyler, MD, associate professor in the Division of General Surgery, has been appointed vice chair of surgery for Veterans Affairs (VA). The VA is a critically important component of the Department of Surgery's training programs and is an important site for current and future research endeavors. In this new appointment, Tyler will build upon the department's strategic relationships with the Durham and Asheville VAs within the VA's southeastern region. In addition, he will work closely with the chair of surgery and the executive advisory group to address components of the department's core missions and faculty endeavors at the VA. Tyler continues to serve as chief of surgery at the Durham VA and section head of surgical oncology in the Division of General Surgery.


Tyler

Craig F. Donatucci, MD, has been appointed vice chair of patient services for the Department of Surgery. Donatucci has been an associate professor with the Division of Urology for 11 years, most recently serving as the interim chief for the division. In his new role, Donatucci will develop and implement new clinical policies and procedures for delivery of outpatient surgical services exclusive of operating rooms and will work closely with the Department of Surgery division chiefs, senior staff members of the Private Diagnostic Clinic (PDC), as well as other key departmental leaders. His duties will include advising the chair of surgery on all major components of ambulatory health care delivery systems including practice efficiency, resource utilization, and process management. Donatucci's initial focus will be establishing productivity measurements and standards and consolidating redundant processes to maximize efficiency while more effectively managing costs and preserving maximal functionality.


Donatucci

RAYMOND GOODMAN

Circle of friends: Some of the more than 1,000 children who have attended Camp Kaleidoscope over the past quarter-century reunited with program leaders this September at the camp's 25th anniversary reunion. Founded and staffed by Duke Children's faculty and staff, with lots of support from volunteers and the community, the medically supervised summer camp gives kids with cancer, sickle cell disease, asthma, HIV, and other health problems a chance to enjoy a childhood experience they might not otherwise be able to have.

To learn more, contact Bill Taub at 919-681-5349 or taub0002@mc.duke.edu.

Stack/Guidant Cardiology Professorship established

The newly established **Richard Sean Stack, MD**/Guidant Foundation Professorship honors the emeritus cardiology professor well known for his technology development, physician education, and patient care. The Guidant Foundation's $1 million gift will be supplemented with funds from The Nicholas Faculty Leadership Initiative Fund, bringing the endowment total to $1.5 million.

After completing cardiology training at Duke in 1982, Stack joined the faculty and rose through the ranks to become a tenured professor of cardiology. He founded and directed Duke's Interventional Cardiology Program from 1983–2002 and became a professor emeritus in 2002. He then founded and became managing partner of Synecor, a generator of new medical device companies. Stack holds 35 current worldwide patents on vascular and therapeutic devices, with 41 patents pending.

Building named in Snyderman's honor

Ralph Snyderman, MD, Genome Sciences Research Building

Ralph Snyderman, MD

Duke University has named the Genome Sciences Research Building I in honor of **Ralph Snyderman, MD**, chancellor emeritus for health affairs, who served as the university's senior medical officer for the past 15 years. The 120,000-square-foot, $41-million building is the home of scientific teams from the Center for Human Genetics and other Duke research units. The building contains a DNA banking facility, an advanced genotyping facility, and high-speed computers, along with other research facilities.

Among many innovations during Snyderman's tenure is the creation of the Institute for Genome Sciences and Policy, which is advancing genome sciences in biology and health as well as a spectrum of ethical, legal, and policy issues. "Since Dr. Snyderman is a distinguished researcher himself, we could think of no better way to honor him than with a building devoted to advancing scientific frontiers," said Peter M. Nicholas, chair of the Duke University Board of Trustees.

Victor J. Dzau, MD, succeeded Snyderman in July.

Short awarded IOM Health Policy Fellowship

Nancy Short, DrPH, an assistant professor and assistant dean of the Duke School of Nursing, has been named one of seven Institute of Medicine Robert Wood Johnson Foundation (RWJF) Health Policy Fellows for 2004-2005.

Short is the first nurse from Duke to be awarded the RWJF fellowship. The fellows—outstanding, mid-career health professionals working in academic and community-based settings—will complete a wide range of activities designed to enrich their knowledge of the public-policy process and foster a better understanding of how government health and biomedical research activities relate to the mission of their home institutions and local communities. After a period of orientation, each fellow will work in legislative or executive branch offices with key responsibilities for health legislation and programs.

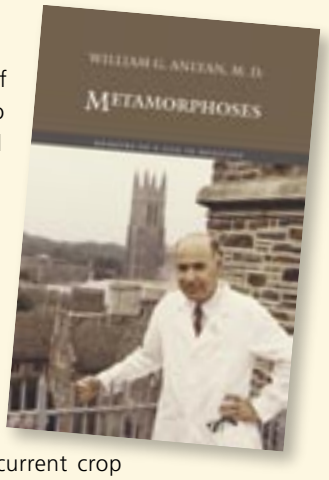
Short

Metamorphoses: Memoirs of a Life in Medicine

The career of **William G. Anlyan, MD**, chancellor emeritus for health affairs and of Duke University, spans a period of extraordinary change in the practice of medicine and the remarkable transformation of Duke's fledgling regional hospital and medical school into one of America's foremost medical, educational, and research institutions. Anlyan chronicles a series of transformations—in his life, in Duke, in Durham, and in the world of medicine—in his newly published book, *Metamorphoses: Memoirs of a Life in Medicine*.

Anlyan was born and raised in Alexandria, Egypt to parents of Armenian heritage who grew up in Egypt (at the time a British protectorate). After a childhood that included a rigorous education at a British prep school in Alexandria and many hours practicing piano (his avocation throughout adulthood), Anlyan attended Yale University as an undergraduate and medical student. Anlyan came to Durham at the start of his surgical residency in 1949, when Duke Forest covered the land where the North Division now resides. As he rose through the academic and administrative ranks, Anlyan saw (and oversaw) the Medical Center shed its cocoon and eschew segregation, hire excellent faculty and administrators, attract huge research grants and donations, and build a towering facility to complement "Mr. Duke's Hospital" to the south.

Anlyan caps off this forthright memoir with some "Lessons of Experience"—advice that should prove as useful to a CEO as to a medical resident. Some of the pearls of wisdom reflect Anlyan's well-known kind and gracious way of interacting with everyone, custodian and president alike—such as greeting your visitor outside of the office and conversing with them in a comfortable seating arrangement instead of hiding behind a desk. Others reveal his personal philosophy: "Forgive and forget! We are all capable of making mistakes"; "In dealing with your fellow human beings, accept the fact that 85 percent of the average person is good, 15 percent is bad or could be worse"; and "Be honest with yourself . . . . Be your own best critic. If you don't look forward to your job when you wake up in the morning, you may be in the wrong situation."



This book will of course appeal to Duke alumni and faculty members who witnessed the metamorphoses that Anlyan chronicles. Lovers of biographies and medical history will also enjoy its direct style. As for the current crop of medical students and residents—the book will provide them with a unique perspective of their institution as well as a guide to the namesakes of the Baker House, the Davison Building, and Duke Hospital's Anlyan Tower.

Metamorphoses: Memoirs of a Life in Medicine
by William G. Anlyan, MD
Duke University Press
Publication date: August 2004
ISBN 0-8223-3378-3
$29.95 clothback

Paul Lawrence Modrich, PhD

Joseph R. Nevins, PhD

Modrich, Nevins elected to Arts and Sciences academy

Two Medical Center faculty members, as well as Duke President **Richard H. Brodhead, PhD**, were among the 202 men and women elected to the prestigious American Academy of Arts and Sciences in May. Founded in 1780, the academy currently has more than 150 Nobel laureates and 50 Pulitzer Prize winners among its members.

New members from the medical center include:

- **Paul Lawrence Modrich, PhD**, James B. Duke Professor of Biochemistry and Howard Hughes Medical Institute (HHMI) investigator
- **Joseph R. Nevins, PhD**, James B. Duke Professor of Molecular Genetics and HHMI investigator.

AHA honors Goldstein

The American Heart Association (AHA) presented its top national award for excellence in volunteer service, the Chairman's Award, to **Larry B. Goldstein, MD,** director of the Duke Center for Cerebrovascular Disease, in November. While serving AHA and its division, the American Stroke Association (ASA), as chair of the ASA's advisory committee, Goldstein has passionately advanced his personal goal to raise public awareness of the devastating impact of stroke on the nation's health, according to the AHA.


H. Kim Lyerly, MD


Joseph Heitman, MD, PhD


John Perfect, MD

Lyerly awarded NCI planning grant

H. Kim Lyerly, MD, the George Barth Geller Professor for Research in Cancer and director of the Duke Comprehensive Cancer Center, has been awarded one of only 14 Academic Public Private Partnership Program Planning Grants from the National Cancer Institute (NCI). The grant will be used to plan the creation of partnerships among the Duke Cancer Center and other academic, industry, nonprofit institutions, and government entities.

The overall goal of these partnerships will be to leverage the expertise of all partners to research new cancer therapeutic, prevention, diagnostic, and imaging interventions. The NCI hopes that these partnerships will result in a reduction in the time required to translate newly discovered cancer treatments into clinical trials. These are the first grants of their kind awarded by the NCI, and those who received the awards are recognized leaders in the field of anticancer intervention discovery and development.

Heitman, Perfect elected AAM fellows

Joseph Heitman, MD, PhD, and **John Perfect, MD**, have been elected to fellowship in the American Academy of Microbiology. An honorific leadership group, the academy recognizes excellence, originality, and creativity in all subspecialties of the microbiological sciences.

Heitman is a professor in three departments: Molecular Genetics and Microbiology, Pharmacology and Cancer Biology, and Medicine. He is also the director of the Duke Center for Microbial Pathogenesis and the Duke University Program in Genetics and Genomics.

Perfect is a professor in the Department of Medicine's Division of Infectious Diseases. He is also director of the Duke University Mycology Research Unit.

Delbruck for Dzau

Victor J. Dzau, MD, chancellor for health affairs at Duke University and president and CEO of Duke University Health System, was awarded the Max Delbruck Medal for 2004 by the Max Delbruck Center for Molecular Medicine, Berlin, Germany. Dzau received the award Oct. 14, 2004, at a ceremony in Berlin.

The award is named after Max Delbruck, a German-born physicist and biologist who shared the Nobel Prize in physiology or medicine in 1969 for his discoveries concerning the replication mechanism and the genetic structure of viruses.

An internationally known physician-scientist, Dzau specializes in cardiovascular translational research.

In November, Dzau was named a Distinguished Scientist of the American Heart Association. Members play an active role in the association's early career development programs, present at its conferences, and serve as expert consultants.

Dzau is also a member of the Institute of Medicine, the U.S. National Academy of Science, the Academia Sinica of China and the European Academy of Science and Arts. He has been named an Honorary Fellow of the Royal Society of Medicine in Great Britain, and has served as an advisor to the governments of Canada, South Africa, and Taiwan on biomedical and health care programs.

GSA award for Cohen

Harvey Jay Cohen, MD, director of Duke's Center for Aging and chief of the division of geriatrics, was awarded the 2004 Donald P. Kent Award by the Gerontological Society of America (GSA). This distinguished honor is given annually to a GSA member who best exemplifies the highest standards for professional leadership in gerontology through teaching, service, and interpretation of gerontology to the larger society. Cohen received the award at the GSA's annual meeting on Nov. 20.

Three faculty elected AAAS Fellows

Philip Benfey, PhD, **Joseph Heitman, MD, PhD,** and **Miguel Nicolelis, MD, PhD** have been elected as Fellows of the American Association for the Advancement of Science (AAAS), the world's largest scientific society and publisher of the journal *Science*.

Fellows are elected "because of their efforts to advance science or its applications that are deemed scientifically or socially distinguished," according to the AAAS. The three were among 308 members of the association named fellows this year.

Benfey, professor and chair of the Department of Biology, was honored for genetic and genomic analyses of root development demonstrating that radial patterning is controlled by cell-cell movement of a transcriptional regulator.

Heitman, a James B. Duke Professor of Molecular Genetics and Microbiology, was named a fellow for fundamental studies on microbial pathogenesis, including the mechanisms controlling how infectious fungi sense their environment and communicate with other cells via signal transduction cascades.

Nicolelis, professor of neurobiology, was honored for contributions to the fields of coding of sensory information and neuroengineering, leading to breakthroughs in the development of brain-machine interfaces.

Miguel Nicolelis, MD, PhD

Raphael H. Valdivia, PhD

Valdivia chosen as a Pew Biomedical Scholar

Raphael H. Valdivia, PhD, an assistant professor in molecular genetics and microbiology, has been chosen as one of 15 Pew Biomedical Scholars for 2004. Launched in 1885 and administered through the University of California at San Francisco, the prestigious and highly competitive scholarship program offers early-career scientists $240,000 to help support his or her research over a four-year period. The program also provides a unique community for the scientists who work in laboratories across the nation, enabling them to meet regularly and to discuss ideas, challenges, and obstacles across subspecialties.

Joseph Anthony Moylan, MD

Moylan, Pizzo feted at Founder's Day

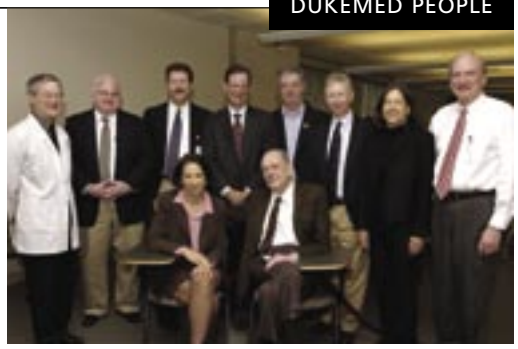
Medical Center faculty honored at this year's Duke Founder's Day celebration included **Joseph Anthony Moylan, MD**, clinical professor of surgery and medical director of the International Patient Center, who was recognized for his work as the founder and president of Durham Nativity School, a middle school that provides education and physical, spiritual, social, and moral development for students of low-income urban families. **Salvatore Pizzo, MD**, chairman of pathology and director of the Medical Scientist Training Program (MSTP), received a Dean's Award for Excellence in Mentoring, awarded for the first time by the Graduate School. Also honored was **Samuel Katz, MD** (see page 70).

Mitchell wins Mycology Society award

Thomas G. Mitchell, PhD, an associate professor in the Department of Molecular Genetics and Microbiology and the director of the tri-institutional Molecular Mycology and Pathogenesis Training Program, has been awarded the Billy H. Cooper Award for excellence in clinical research, laboratory diagnostic procedures, and teaching.

The Medical Mycological Society of the Americas presents the Billy H. Cooper Award to an individual who has contributed substantially to the clinical applications of medical mycology, particularly in laboratory diagnosis, and the recognition of mycoses, infections caused by yeast or molds.

Salvatore Pizzo, MD



Leaders of the Duke Databank for Cardiovascular Diseases, past and present: Seated are Pamela Douglas, MD, chief of cardiology, and Eugene Stead, MD, founder of the Databank. Standing (from left to right) are James Tcheng, MD, current director of the Databank and information architect of the Duke Heart Center; Don Fortin, MD; Rob Califf, MD, director of the DCRI; David Pryor, MD; Robert Rosati, MD; Frank Harrell, PhD; Barbara Tardiff, MD, MBA; and Kerry Lee, PhD, director of Biostatistics at the DCRI.

Cardiovascular Diseases Databank turns 35

Current researchers and former directors gathered in September to celebrate the 35th anniversary of the largest and longest-running cardiology databank in the world. The Duke Databank for Cardiovascular Diseases grew from a database including only Duke patients to a diversified one that looked more closely at the cost-effectiveness of diagnostics and treatment strategies for cardiovascular disease. In the '90s, it spawned the Duke Clinical Research Institute (DCRI), a multifaceted organization with a vast range of activities, including the conduct of large, multisite clinical trials and outcomes research studies.

The databank currently includes information on more than 160,000 patients, and the DCRI has entered more than 500,000 people into clinical research studies. The databank today continues to advance through integration with other Duke information technology systems, including the ability to collect data at the patient bedside using mobile technologies such as PDAs and wireless laptops. More importantly, however, the databank's wealth of data helps researchers deduce the most effective treatments for diseases and improve patient care.

E. Ralph Heinz, MD

Heinz receives neuroradiology medal

E. Ralph Heinz, MD, a professor of radiology, has been awarded the Gold Medal of the American Society of Neuroradiology. The medal, reserved for individuals who are superb neuroradiologists, clinicians, or scientists, has been given to only 17 individuals since the society's inception in 1962. During his career Heinz designed and perfected several procedures, and he helped establish the neuroradiology section at Duke after his arrival in 1978.

Brenda Nevidjon, MSN, RN

Nevidjon named AAN Fellow

Brenda Nevidjon, MSN, RN, an associate clinical professor in the Duke University School of Nursing, has been selected as a 2004 Fellow for the American Academy of Nursing (AAN).

The 63 fellows were selected by their peers for outstanding contributions to nursing and health care. Nevidjon was noted for her leadership in bridging practice settings and academic environments to advance patient care, creating innovative work environments, promoting scholarship in practitioners, and developing leaders.

Christopher D. Lascola, MD, PhD

Lascola wins career development scholarship

Christopher D. Lascola, MD, PhD, assistant professor of radiology and neurobiology, is one of two recipients of a 2004 American Roentgen Ray Society (ARRS) Scholarship.

Lascola plans to use the scholarship to build a research program for developing new functional magnetic resonance and molecular imaging approaches for studying activity-dependent changes in brain structure and function.

Guyton NLA president

John R. Guyton, MD, associate professor of medicine and director of Duke's Lipid Clinic, has been elected president of the National Lipid Association (NLA). Launched in 2002 to serve health professionals who manage patients with lipid disorders and increased cardiovascular risk, the NLA's primary goal is to formalize the specialty of "lipidology" and make the management of lipid disorders a national priority in medicine.

Hellinga wins new NIH Pioneer Award


Homme Hellinga, PhD

Homme Hellinga, PhD, a professor of biochemistry, is among nine research scientists from across the United States to win a new series of awards from the National Institutes of Health geared to promote innovation.

The NIH Pioneer Award was designed by NIH director Elias A. Zerhouni, MD, to support individual scientists and thinkers with highly innovative ideas and approaches to contemporary challenges in biomedical research.

A central component of the NIH Roadmap for Medical Research, the Pioneer Award was established in January 2004 to encourage exceptional researchers and thinkers from multiple disciplines to conduct high-risk, high-impact research related to the improvement of human health.

To inaugurate this new program, the NIH will provide $500,000 in direct costs per year for five years to each Pioneer Award recipient, allowing them the time and resources to test far-ranging ideas with the potential to make extraordinary contributions to medical research.

The nine recipients represent a broad spectrum of scientific disciplines including quantitative and mathematical biology, pathogenesis, epidemiology and translational clinical research, molecular and cellular biology, integrative physiology, instrumentation and bioengineering.

For more information on the NIH Director's Pioneer Award Program, including awardee information, please visit the Web site at http://nihroadmap.nih.gov/highrisk/index.asp.


Rebecca Buckley, MD

Michael M. Frank, MD, Research Prize awarded to Buckley


Michael M. Frank, MD

Rebecca Buckley, MD, James Buren Sidbury Professor of Pediatrics and a professor of immunology, has been awarded the first Michael M. Frank, MD, Research Prize. The award will be given annually to a member of the Duke community who has made significant contributions to the health care of children. Buckley, a renowned pediatrician and researcher, received the award in recognition of her significant lifetime contributions to the diagnosis and treatment of patients with immune deficiency disorders.

Established by the National Board of Advisors of Duke Children's Hospital in May 2004, the award honors **Michael Frank, MD**, the Samuel L. Katz Professor of Pediatrics who chaired the Department of Pediatrics from 1990 through February 2004. His research interests focus on mechanisms of immune damage and clinical aspects of immunopathology.

Frank was a Ford Foundation scholar at the University of Wisconsin and attended Harvard Medical School. He completed his pediatric residency at Johns Hopkins and served as an allergy/immunology fellow and clinical associate at the NIH.

After training in immunology at the National Institute for Medical Research, London, Frank returned to the NIH, serving for one year at National Institute of Child Health and Human Development, then joining the National Institute of Allergy and Infectious Diseases (NIAID) as chief of the Humoral Immunity Section. In 1977, he was appointed clinical director of NIAID and chief of NIAID's Clinical Investigation Laboratory.

From 1977 to 1990, Frank codirected the Clinical Infectious Disease and Allergy/Immunology Training Programs, NIAID. He was in charge of the NIAID clinical service and chief of one of the country's leading programs studying host defense mechanisms.

One of the major accomplishments of Frank's leadership was the construction of the McGovern-Davison Children's Health Center adjacent to Duke Hospital. The 66,000-square-foot outpatient center, which opened in 2000, provides an attractive, family-friendly setting for a variety of specialized, state-of-the-art pediatric services.


Samuel L. Katz, MD


Randy Jirtle, PhD


Jo Rae Wright, PhD

Duke honors Katz, champion of immunization

It's not often we say one person's work saved millions of lives, but when speaking of **Samuel L. Katz, MD**, the Wilburt Cornell Davison Professor and chairman emeritus of pediatrics, the statement rings true. He shaped one of the essential ideas of our time—immunization as a fundamental human right.

In awarding Katz the University Medal—Duke's highest honor—President Richard H. Brodhead said of Katz, "He collaborated in a successful development of a measles vaccine that has saved millions of lives. From the laboratory, he moved into implementation, working with government and nonprofit organizations to provide measles vaccines around the globe. As one of his colleagues says, 'The results have been world-changing.'" Katz received the University Medal as part of this year's Founder's Day celebrations.

An honors graduate of Dartmouth College and Harvard Medical School, Katz completed an internship at Beth Israel Hospital followed by a residency in pediatrics at the Massachusetts General Hospital and the Boston Children's Hospital. He also completed a research fellowship in virology and infectious diseases at Boston Children's Hospital and Harvard Medical School. While a staff member at Boston Children's Hospital, Katz worked in the laboratory of Nobel Laureate John Enders to develop the attenuated measles virus vaccine.

Katz joined the Duke faculty as chair of pediatrics in 1968 and led the department until 1990. A recent president of the American Society of Pediatrics, he continues to be active in vaccine policy development and pediatric HIV/AIDS research and care. He serves on the National Institutes of Health Committee for AIDS Vaccines, and cochairs the India-US Vaccine Action Program and the National Network for Immunization Information. In 2003 he received the Sabin Gold Medal, presented annually by the Albert B. Sabin Vaccine Institute to recognize exemplary contributions to disease prevention.

Jirtle speaks at Nobel Symposium

Randy Jirtle, PhD, professor of radiation oncology and associate professor in pathology, spoke at the 2004 Nobel Symposium in Medicine in Stockholm, Sweden on June 19. His presentation shared the finding that a single point mutation in the imprinted M6P/IGF2R gene reduces human IQ. Due to the limited capacity of the Nobel Forum at the Karolinska Institute, participation is by invitation only.

Wright receives thoracic society award

Jo Rae Wright, PhD, vice dean for basic sciences in the School of Medicine, has received a Recognition Award for Scientific Accomplishment from the American Thoracic Society (ATS). This award is given to individuals who have made distinguished scientific contributions to the understanding, prevention, and treatment of lung disease. Wright received the award for contributing to the understanding of the role of lung surfactant in host defense mechanisms.

Goldner given ethics award

J. Leonard Goldner, MD, James B. Duke Professor and chief emeritus of orthopaedic surgery, is the recipient of the Dr. and Mrs. J. Elmer Nicks Ethics Award for 2004. The Clinical Orthopaedic Society awards this honor to a physician whose life and work have been exemplary in conveying by example the highest level of professional ethics and morals.

ANESTHESIOLOGY

Lisa W. Faberowski, MD
919-668-4202
Particular Clinical Interests and Skills: Craniosynestosis, venous air embolism, neurosciences, anesthesia and brain development, neurocognitive outcome in pediatric ICU patients
Division: Anesthesiology Pediatric Critical Care Medicine
Faculty Rank: Assistant Professor
MD Degree: MD, Ohio State University, 1990
Residency: Pediatric Internship, Duke University Medical Center, North Carolina, 1991 Pediatric Residency, Bowman Gray School of Medicine, North Carolina, 1993 Anesthesia Residency, University of Florida, 1996
Fellowship: Neuroanesthesia, University of Florida, 1997; Pediatric ICU, University of Florida, 1998; Pediatric Anesthesia and Critical Care, Boston Children's Hospital, Massachusetts, 2001

Ellen M. Flanagan, MD
919-286-6938
Particular Clinical Interests and Skills: Perioperative ethics, research involving patient and physician perspectives on management of DNR orders in the perioperative period
Division: Anesthesiology
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, University of North Carolina at Chapel Hill, 1999
Residency: Internal Medicine, Moses Cone Health System, North Carolina, 1999-2000 Anesthesiology, Duke University Medical Center, North Carolina, 2000-2003

G. Burkhard Mackensen, MD
919-684-6025
Particular Clinical Interests and Skills: Critical care medicine and cardiothoracic anesthesiology, transesophageal echocardiography
Division: Anesthesiology
Faculty Rank: Associate Professor
MD Degree: MD, University of Hamburg, Germany, 1994
Residency: Anesthesiology, Technische Universitaet, Germany, 1997
Fellowship: Cardiothoracic Anesthesia, Duke University Medical Center, North Carolina, 1998-2000; Intensive Care Medicine, Technische Universitaet, Germany, 2001-2002

Mihai V. Podgoreanu, MD
919-681-4781
Particular Clinical Interests and Skills: Focus of research interest is to identify genetic factors involved in adverse myocardial outcomes following cardiac surgery. This is accomplished through a combination of candidate gene association studies in a well phenotyped cardiac surgical population, as well as functional genomic approaches in humans and animal models of saphenous graft disease.
Division: Anesthesiology
Faculty Rank: Assistant Professor
MD Degree: MD, Carol Davila University School of Medicine, Romania, 1993
Residency: Anesthesiology, Yale University Medical Center, Connecticut, 1996-2000
Fellowship: Cardiothoracic Anesthesia, Duke University Medical Center, North Carolina, 2000-2002; Critical Care Medicine, Duke University Medical Center, North Carolina, 2002-2004

John R. Schultz, MD
919-681-6535
Particular Clinical Interests and Skills: Anesthesia resident research, obstetric anesthesia research
Division: Anesthesiology
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, Loma Linda University, California, 1991
Residency: Loma Linda University, California, 1999
Fellowship: Obstetric Anesthesia, Loma Linda University, California

Jeffrey M. Taekman, MD
919-660-0332
Particular Clinical Interests and Skills: Neurosurgical anesthesiology, neural monitoring
Division: Anesthesiology
Faculty Rank: Assistant Professor
MD Degree: MD, Wake Forest University, North Carolina, 1991
Residency: Anesthesiology, Penn State University, Pennsylvania, 1996
Fellowship: Neurosurgical Anesthesiology/Neural Monitoring, Penn State University, Pennsylvania, 1997

B. Craig Weldon, MD
919-668-0976
Particular Clinical Interests and Skills: Currently working in both the OR and PICU with a special interest in blood management, mechanical ventilation, and postoperative delirium
Division: Anesthesiology Pediatric Critical Care Medicine
Faculty Rank: Associate Clinical Professor
MD Degree: MD, St. Louis University, Missouri, 1978
Residency: Pediatrics, St. Louis University, Missouri, 1981; Anesthesiology, Washington University, Missouri, 1987
Fellowship: Pediatric Critical Care, Children's Hospital Philadelphia, Pennsylvania

COMMUNITY AND FAMILY MEDICINE

Blake R. Boggess, DO, CAQSM
919-668-1400
Particular Clinical Interests and Skills: Sports medicine, care of athletes of all ages, non-operative orthopedics, family medicine
Division: Family Medicine
Faculty Rank: Clinical Associate
Degree: DO, Midwestern University, Illinois, 2000
Residency: Family Medicine, Duke University Medical Center, North Carolina, 2003
Fellowship: CAQSM, Primary Care Sports Medicine, Duke University Medical Center, North Carolina, 2004

Samuel W. Warburton, MD
919-684-6721
Particular Clinical Interests and Skills: Family practice, quality improvement, practice efficiency, chronic disease care, patient satisfaction
Division: Family Medicine
Faculty Rank: Consulting Professor
MD Degree: MD, University of Pennsylvania, 1969
Residency: Family Medicine, Hunterdon Medical Center, New Jersey, 1969-1972

DUKE UNIVERSITY AFFILIATED PHYSICIANS

Karen L. Hill-Garrett, MD
919-845-2125
Particular Clinical Interests and Skills: General internal medicine including diabetes mellitus, prevention of coronary artery disease, treatment of osteoporosis
Division: Harps Mill Internal Medicine
Faculty Rank: Clinical Associate
MD Degree: MD, University of Texas Health Science Center at Houston
Residency: Internal Medicine/Pediatrics, University of Texas Health Science Center at Houston

Matthew S. McGlothlin, MD
919-693-3972
Particular Clinical Interests and Skills: General family medicine, adolescent health, geriatrics
Division: Oxford Family Physicians
Faculty Rank: Consulting Associate
MD Degree: MD, University of Missouri-Columbia, 1995
Residency: Family Practice Residency, Scottsdale Healthcare, Arizona, 1998 BS, Zoology, Louisiana State University - Baton Rouge, 1990

MEDICINE

Grace Tang, MD
919-570-6060
Particular Clinical Interests and Skills: Family medicine
Division: Wake Forest Family Physicians
Faculty Rank: Clinical Associate
MD Degree: MD, Pennsylvania State College of Medicine, 1998
Residency: Franklin Square Family Practice, 2001

Richard L. Wheeler, MD
919-572-1868
Particular Clinical Interests and Skills: Urgent care, sports medicine and general family medicine
Division: Duke Urgent Care
Faculty Rank: Consulting Associate
MD Degree: MD, University of Colorado Health Sciences Center, 1982
Residency: Family Practice, Mercy Medical Center, 1985

Peter B. Berger, MD
919-681-5816
Particular Clinical Interests and Skills: Cardiology
Division: Cardiology
Faculty Rank: Professor
MD Degree: MD, New York University, 1983
Residency: Boston City Hospital, Massachusetts, 1983-1986
Fellowship: Boston University Hospital, 1986-1990

Mary Angelyn Bethel, MD
919-684-9036
Particular Clinical Interests and Skills: Diabetes particularly in the setting of cardiovascular disease, thyroid disease, including carcinoma
Division: Endocrinology
Faculty Rank: Associate
MD Degree: MD, Duke University School of Medicine, North Carolina, 1999
Residency: Internal Medicine, Duke University Medical Center, North Carolina, 2002
Fellowship: Endocrinology, Duke University Medical Center, North Carolina, 2004

Wendy Z. Davis, MD
919-684-1817
Particular Clinical Interests and Skills: General gastroenterology, colorectal cancer screening and surveillance, gastroesophageal reflux disease, peptic ulcer disease
Division: Gastroenterology
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, Duke University School of Medicine, North Carolina, 1989
Residency: General Internal Medicine, Duke University Medical Center, North Carolina, 1989-1992
Fellowship: Gastroenterology, Duke University Medical Center, North Carolina, 1992-1995

Anna Mae E. Diehl, MD
Division Chief
919-684-3262
Particular Clinical Interests and Skills: Acute and chronic liver disease—especially fatty liver disease (e.g. Non Alcoholic Steato Hepatitis - NASH)
Division: Gastroenterology
Faculty Rank: Professor
MD Degree: MD, Georgetown University, Washington, D.C., 1978
Residency: Internal Medicine, Johns Hopkins University, Maryland, 1978-1981
Fellowship: Gastroenterology, Johns Hopkins University, Maryland, 1981-1984

Louis F. Diehl, MD
919-684-8964
Particular Clinical Interests and Skills: Longstanding interest in and has been involved in the development of staging and treatment for hematologic malignancies
Division: Medical Oncology and Transplantation
Faculty Rank: Clinical Professor
MD Degree: MD, Georgetown University, Washington, D.C., 1975
Residency: Internal Medicine, Walter Reed Army Medical Center, Washington, D.C., 1975-1978
Fellowship: Hematology-Oncology, Walter Reed Army Medical Center, Washington, D.C., 1978-1981

Michael J. Feiler, MD
919-684-1817
Particular Clinical Interests and Skills: Diagnostic and therapeutic endoscopy, gastrointestinal bleeding, gastroesophageal reflux disease and Barrett's esophagus, colorectal cancer
Division: Gastroenterology
Faculty Rank: Associate
MD Degree: MD, University of Medicine and Dentistry of New Jersey, 1998
Residency: Internal Medicine, Emory University School of Medicine, Georgia, 1998-2001
Fellowship: Gastroenterology, Duke University Medical Center, North Carolina, 2001-2004

Robin C. Geletka, MD
919-681-6928
Particular Clinical Interests and Skills: Rheumatology
Division: Rheumatology
Faculty Rank: Associate
MD Degree: MD, Northeastern Ohio Universities College of Medicine, 1997
Residency: Internal Medicine, University of Nebraska Medical Center, 2001
Fellowship: Rheumatology, Duke University Medical Center, North Carolina, 2004

Daniel J. George. MD
919-668-8650
Particular Clinical Interests and Skills: New drug development in prostate and kidney cancer patients, angiogenesis and targeted therapy, molecular and radiographic surrogate markers for biologic activity of tumors
Division: Medical Oncology and Transplantation Urology
Faculty Rank: Associate Professor
MD Degree: MD, Duke University School of Medicine, 1988
Residency: Internal Medicine, Johns Hopkins Hospital, Maryland, 1992-1995
Fellowship: Medical Oncology, Johns Hopkins Hospital, Maryland, 1995-1998

ON THE SPOT

Q: How is treatment changing for non-Hodgkin's lymphoma?

A: "Very rapidly. A decade ago I would have been a pessimist when discussing the curability of lymphoma, but the recent development of new therapies and especially new techniques for developing therapies have made me an optimist.

"One of the most critical things we have learned is to plan an entire course of treatment at the beginning. Understanding what new therapies are available, when to use them, and what would compromise their use is of utmost importance. So many promising treatments are coming available, from new drugs such as rituximab to advances in bone marrow transplantation, that we want to do all we can to preserve patients' future options."

—Louis F. Diehl, MD

Roosevelt Gilliam, III, MD
919-681-3776
Chief, Electrophysiology
Particular Clinical Interests and Skills: Cardiac rhythm disorder especially in patients with implantable devices, syncope, palpitations, atrial fibrillation, atrial flutter, ventricular tachycardia or fibrillation, survivors of near sudden death
Division: Cardiology
Faculty Rank: Clinical Professor
MD Degree: MD, Duke University School of Medicine, North Carolina, 1981
Residency: Internal Medicine, Duke University Medical Center, North Carolina, 1983-1985
Fellowship: Cardiology, Duke University Medical Center, North Carolina, 1985-1988

Adrian F. Hernandez, MD
919-668-7515
Particular Clinical Interests and Skills: Advanced heart failure, cardiac transplantation, cardiology consultation, mechanical circulatory support devices/ventricular assist devices, preoperative/perioperative consultation
Division: Cardiology
Faculty Rank: Assistant Professor
MD Degree: MD, University of Texas Southwestern Medical School at Dallas, 1997
Residency: Internal Medicine, University of California-San Francisco, 1997-2000
Fellowship: Cardiology, Duke University Medical Center, North Carolina, 2000-2004
Duke University Clinical Research Training Program, North Carolina

Vern Juel, MD
919-668-7600
Particular Clinical Interests and Skills: Neuromuscular transmission disorders (particularly myasthenia gravis and Lambert-Eaton syndrome), peripheral nerve and muscle disorders, focal/segmental dystonia (including spasmodic torticollis) and chemodenervation for dystonia, clinical electromyography
Division: Neurology
Faculty Rank: Instructor
MD Degree: MD, University of Illinois College of Medicine, 1989
Residency: Internal Medicine, Northwestern University Medical Center, Illinois, 1989-1990
Neurology, Duke University Medical Center, North Carolina, 1990-1993
Fellowship: Neuromuscular Disease and Electromyography, Duke University Medical Center, North Carolina, 1993-1994

Gretchen G. Kimmick, MD, MS
919-684-3877
Particular Clinical Interests and Skills: Breast cancer with particular interest in breast cancer in older women and management of symptoms in breast cancer survivors
Division: Medical Oncology and Transplantation
Faculty Rank: Assistant Professor
MS, Epidemiology, Wake Forest University School of Medicine, 2000
MD Degree: MD, Wake Forest University School of Medicine, 1989
Residency: Internal Medicine, Shands Teaching Hospitals, University of Florida, 1989-1992
Fellowship: Medical Oncology, Wake Forest University School of Medicine, 1992-1994

Monica Kraft, MD
919-684-8401
Particular Clinical Interests and Skills: Diagnosis and treatment of airway diseases such as asthma, COPD and bronchiectasis
Division: Pulmonary, Allergy and Critical Care
Faculty Rank: Associate
MD Degree: MD, University of California-San Francisco, 1987
Residency: Internal Medicine, Harbor-UCLA Medical Center, California, 1987-1991
Fellowship: Pulmonary & Critical Care Medicine, University of Colorado Health Sciences Center, 1991-1995

Ahmad A. Mahmood, MD
910-671-5730
Particular Clinical Interests and Skills:
All aspects of adult medical oncology and hematology
Division: Hematology
Faculty Rank: Consulting Associate
MD Degree: MD, Mosul Medical School, Iraq, 1973
Residency: General Internal Medicine, Danbury Hospital, Connecticut, 1975-1978
Fellowship: Hematology, Henry Ford Hospital, Michigan, 1978; Medical Oncology, Henry Ford Hospital, Michigan, 1980

Stephanie L. Perry, MD
919-684-5350
Particular Clinical Interests and Skills: Thrombotic and hemorrhagic disorders, antiphospholipid antibody syndrome, heparin induced thrombocytopenia, anticoagulation and factor replacement management
Division: Hematology
Faculty Rank: Associate
MD Degree: MD, Wake Forest University, Bowman Gray School of Medicine, North Carolina
Residency: Internal Medicine, University of Alabama at Birmingham, 2000
Fellowship: Hematology, Duke University Medical Center, North Carolina, 2003

John L. Petersen, MD
919-286-0411
ext. 5224
Particular Clinical Interests and Skills: Coronary artery disease, percutaneous coronary intervention, diabetes and coronary disease
Division: Cardiology
Faculty Rank: Assistant Professor
MD Degree: MD, University of Washington, 1995
Residency: Internal Medicine, Duke University Medical Center, North Carolina, 1995-1998
Fellowship: Cardiology, Duke University Medical Center, North Carolina, 1998-2004

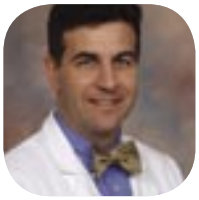
James W. Peterson, MD
919-862-5100
Particular Clinical Interests and Skills: Clinical and consultative cardiology, echocardiography (including stress echo and transesophageal echocardiography), nuclear cardiology, diagnostic cardiac catheterization
Division: Cardiology
Faculty Rank: Consulting Associate
MD Degree: MD, University of Rochester School of Medicine and Dentistry, New York, 1988
Residency: Internal Medicine, University of Iowa Hospital and Clinics, 1988-1991
Fellowship: Cardiology, The Ohio State University, 1991-1994
Master of Arts in Theological Studies, McCormick Theological Seminary, Chicago, Illinois, 1984

Thomas J. Povsic, MD, PhD
919-681-5821
Particular Clinical Interests and Skills: Advanced coronary disease, cellular therapy of cardiovascular disease, research interest in the role of stem cells in cardiovascular disease
Division: Cardiology
Faculty Rank: Assistant Professor
PhD, California Institute of Technology, 1991
MD Degree: MD, Harvard Medical School, 1995
Residency: Internal Medicine, Duke University Medical Center, North Carolina, 1998
Fellowship: Cardiology, Duke University Medical Center, North Carolina, 2003; Interventional Cardiology, Duke University Medical Center, North Carolina, 2004

Joseph G. Rogers, MD
919-681-6833
Particular Clinical Interests and Skills: Acute and chronic heart failure, cardiac transplantation, mechanical circulatory support
Division: Cardiology
Faculty Rank: Instructor
MD Degree: MD, University of Nebraska, 1988
Residency: Internal Medicine, University of Nebraska, 1991
Fellowship: Cardiology, Washington University, 1995

M. Zachary Rosenthal, PhD
919-684-6714
Particular Clinical Interests and Skills: Individual and group psychotherapy; cognitive behavioral therapy (CBT) and dialectical behavior therapy (DBT); borderline personality disorder, PTSD, multi-diagnostic patients, anxiety and mood disorders
Division: Medical Psychology
Faculty Rank: Assistant Clinical Professor
Degree: PhD, University of Nevada, Reno, 2002
Residency: Medical Psychology Internship, Duke University Medical Center, North Carolina, 2001-2002

Joseph C. Shanahan, MD
Clinical Director, Scleroderma Research Center
Associate Director, Lupus Clinic
919-681-6780
Particular Clinical Interests and Skills: Research in the study of vascular endothelial dysfunction as it pertains to disease activity in scleroderma, lupus, and CREST syndrome; clinical trials evaluating novel therapies for lupus and scleroderma
Division: Rheumatology
Faculty Rank: Assistant Professor
MD Degree: MD, University of Medicine and Dentistry of New Jersey, Robert Wood School of Medicine, 1997
Residency: Internal Medicine, Duke University Medical Center, North Carolina, 2000
Fellowship: Rheumatology, Duke University Medical Center, North Carolina, 2002



Alastair D. Smith, MB, ChB, MRCP
919-681-4044
Particular Clinical Interests and Skills: General and transplant hepatology with special interest in automimmune forms of liver disease, and recurrence following transplantation, celiac disease, liver biopsy, EGD, colonoscopy
Division: Gastroenterology
Faculty Rank: Assistant Professor
Degree: MB, ChB, University of Aberdeen, U.K., 1988
MRCP (U.K.), 1992
Residency: Internal Medicine and Gastroenterology, Aberdeen Teaching Hospitals, U.K., 1988-1991
Internal Medicine and Gastroenterology, Liverpool Teaching Hospitals, U.K., 1991-1993
Fellowship: Gastroenterology, Glasgow Teaching Hospitals, U.K., 1993-1997
Gastroenterology/Dermatology, Duke University Medical Center, North Carolina, 1997-1998
Hepatology and Biliary, Duke University Medical Center, North Carolina, 1998-1999

Gina M. Vaccaro, MD
919-954-3050
Particular Clinical Interests and Skills: Interested in the practice of community-based general Hematology/Oncology
Division: Medical Oncology and Transplantation
Faculty Rank: Consulting Associate
MD Degree: MD, Louisiana State University School of Medicine, 1998
Residency: Internal Medicine, Duke University Medical Center, North Carolina, 1998-2001
Fellowship: Hematology/Oncology, Duke University Medical Center, North Carolina, 2001-2004

OB/GYN

Lindsay C. Gray, MD
919-684-9696
Particular Clinical Interests and Skills: Routine gyn, obstetrics, adolescent gynecology, sterilization
Division: Duke Women's Health Associates
Faculty Rank: Clinical Associate
MD Degree: MD, Wake Forest University School of Medicine, North Carolina, 1999
OB/GYN, Georgetown University Medical Center, Washington, DC

Monique A. Spillman, MD, PhD
919-684-3765
Particular Clinical Interests and Skills: Gynecologic malignancies, premalignant diseases of the cervix and vagina, radical pelvic surgery, chemotherapy, immunotherapy and radiation therapy, reconstructive pelvic surgery, laser surgery, complicated gynecologic surgery, hereditary ovarian cancer
Division: Gynecologic Oncology
Faculty Rank: Clinical Associate
MD Degree: MD, University of Texas Southwestern Medical School, 1999
PhD, Genetics and Development, University of Texas Southwestern Graduate School, 1999
Residency: OB/GYN, Brigham and Women's Hospital/Massachusetts General Hospital combined residency, 1999-2003
Fellowship: Gynecologic Oncology, Duke University Medical Center, North Carolina, 2003-2004

Geeta K. Swamy, MD
919-681-5220
Particular Clinical Interests and Skills: Preterm birth, fetal growth, maternal complications of pregnancy
Division: Maternal-Fetal Medicine
Faculty Rank: Associate
MD Degree: MD, University of North Carolina at Chapel Hill School of Medicine, 1997
Residency: OB/GYN, University of Pittsburgh, Pennsylvania, 2001
Fellowship: Maternal-Fetal Medicine, Duke University Medical Center, North Carolina, 2004

Fidel A. Valea, MD
Director, Residency Program, Department of OB/GYN
919-684-3765
Particular Clinical Interests and Skills: Post-operative surgical management, laparoscopic cancer surgery, pre-invasive disease of the lower female genital tract, cervix cancer, Fellow, Resident and Medical Student education
Division: Gynecologic Oncology
Faculty Rank: Associate Professor
MD Degree: MD, State University of New York at Stony Brook School of Medicine, 1985
Residency: General Surgery, University of North Carolina Hospitals, 1985-1987; OB/GYN, University of North Carolina Hospitals, 1987-1990
Fellowship: Gynecologic Oncology, University of North Carolina Hospitals, 1990-1992

OPHTHALMOLOGY

Srilaxmi Bearelly, MD
919-684-3090
Particular Clinical Interests and Skills: Age-related macular degeneration, diabetic retinopathy, and hereditary retinal disorders
Division: Vitreoretinal Diseases and Surgery Service
Faculty Rank: Assistant Professor
MD Degree: MD, Northwestern University, Illinois, 1999
Residency: Ophthalmology, Northwestern University, Illinois, 2003
Fellowship: Medical Retina Fellowship, Duke University Medical Center, 2004

Douglas M. Blackmon, MD
919-297-0900
Particular Clinical Interests and Skills: Corneal and external disease
Division: Cornea and External Disease
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, University of Arkansas School of Medicine, 1999
Internship: Mayo Clinic Jacksonville, Florida, Transitional Year, 2000
Residency: Ophthalmology, Emory University, Georgia
Fellowship: Corneal and External Disease, Refractive Surgery, Duke University Medical Center, 2004

PATHOLOGY

Justin R. Johnsen, MD
336-768-3240
Particular Clinical Interests and Skills: Plastic surgery around the eyelids, including brow and lower facial lifts; orbital and functional problems including tumors and bone fractures
Division: Oculoplastic and Reconstructive Service
Faculty Rank: Assistant Consulting Professor
MD Degree: MD, Emory University Medical School, Georgia, 1999
Residency: Ophthalmology, Vanderbilt University Medical Center, Tennessee, 2003
Fellowship: Oculoplastic, Orbital and Reconstructive Surgery

Frank J. Moya, MD
336-768-3240
Particular Clinical Interests and Skills: Evaluation, diagnosis, and treatment of adult glaucoma; complicated glaucoma surgery; glaucoma surgery complications; cataract surgery
Division: Glaucoma Service
Faculty Rank: Assistant Consulting Professor
MD Degree: MD, Yale University School of Medicine, Connecticut, 1997
Residency: Ophthalmology, Yale University School of Medicine Eye Center, Connecticut, 1998-2001
Fellowship: Glaucoma, Duke University Eye Center, North Carolina, 2001-2002

Suzanne J. Pesce, MD
919-684-4417
Particular Clinical Interests and Skills: Management of common ocular diseases through medical and surgical intervention, management and treatment of low vision patients
Division: Comprehensive Ophthalmology Service
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, The George Washington University School of Medicine, Washington D.C., 1996
Residency: Internship, Internal Medicine, George Washington University Hospital, Washington D.C., 1996-1997; Residency, Ophthalmology, Washington Hospital Center, Washington D.C., 1997-2000

Michael Datto, MD, PhD
919-684-6965
Particular Clinical Interests and Skills: Molecular diagnostic testing
Division: Pathology
Faculty Rank: Assistant Professor
MD Degree: MD, Duke University Medical Center, North Carolina, 1999
PhD, Molecular Cancer Biology, Duke University Medical Center, North Carolina, 1999
Residency: Pathology, Duke University Medical Center, North Carolina, 2004

ON THE SPOT

Q: What are the most encouraging advances in glaucoma treatment?

A: "To me, the most encouraging advances are being made in the field of diagnostic devices. With new technologies like optical coherence tomography (OCT) and frequency doubling perimetry, we can diagnose glaucoma at earlier stages—and studies show that the earlier we institute therapy, the better patients do. We also have more therapies to draw on to lower intraocular pressure, from less invasive procedures like selective laser trabeculoplasty to glaucoma drainage tube implantation. With earlier diagnosis and better treatment, more patients will be able to retain their vision for life."

—Frank J. Moya, MD
Duke Eye Center
of Winston-Salem

PEDIATRICS

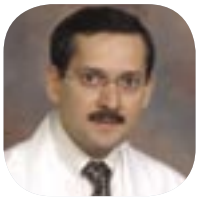
Deanna Adkins, MD
919-684-3772
Particular Clinical Interests and Skills: General pediatric endocrinology including disorders of growth, adrenal glands, thyroid, calcium and phosphorus metabolism, hypothalamus, pituitary, sexual and pubertal development, and diabetes mellitus
Division: Endocrinology and Diabetes
Faculty Rank: Associate
MD Degree: MD, Medical College of Georgia, 1997
Residency: Pediatrics, UNC Hospitals, North Carolina, 2000
Fellowship: Pediatric Endocrinology, 2004

Jeffrey W. Delaney, MD
919-681-2916
Particular Clinical Interests and Skills: Diagnostic and interventional catheterization procedures in children and adults with congenital heart disease; valvuloplasty, angioplasty, stent placement, and device closure of blood vessels and septal defects
Division: Cardiology
Faculty Rank: Clinical Associate
MD Degree: MD, Creighton University School of Medicine, 1994
Residency: Pediatrics, Madigan Army Medical Center, Washington
Fellowship: Pediatric Cardiology, Yale University, Connecticut

Ravi R. Jhaveri, MD
919-684-6335
Particular Clinical Interests and Skills: Children with viral hepatitis (Hepatitis A, B, C), research interest in children with Hepatitis C exposure or infection, patients with problems related to general pediatric infectious diseases
Division: Infectious Diseases
Faculty Rank: Associate
MD Degree: MD, Mount Sinai School of Medicine, New York, 1996
Residency: Pediatrics, University of Chicago Hospital, Illinois, 1996-1999
Fellowship: Pediatric Infectious Diseases, Mattel Children's Hospital at UCLA, California, 1999-2003

Glenn T. Leonard, Jr, MD
919-681-2916
Particular Clinical Interests and Skills: Evaluation and treatment of pediatric and adult patients with congenital or acquired heart disease with expertise in the therapeutic treatment of congenital heart defects using transcatheter techniques
Division: Cardiology
Faculty Rank: Associate
MD Degree: MD, St. George's University School of Medicine, Grenada, West Indies, 1997
Residency: Pediatrics, Children's Hospital of Buffalo, New York, 1997-2000
Fellowship: Pediatric Cardiology, University of Florida/Shands Hospital, 2000-2003; Pediatric Interventional Catheterization, Texas Children's Hospital, 2003-2004

Caren Mangarelli, MD
919-620-5374
Particular Clinical Interests and Skills: General pediatrics and adolescent medicine
Division: Children's Primary Care
Faculty Rank: Clinical Associate
MD Degree: MD, University of Illinois at Chicago, 1996
Residency: Pediatrics, University of Chicago, 1999



Suhag H. Parikh, MD
919-668-1121
Particular Clinical Interests and Skills:
Stem cell (cord blood, peripheral blood and bone marrow) transplantation for hemoglobinopathies such as sickle cell disease and thalassemia; inherited metabolic disorders, immune disorders and childhood malignancies
Division: Blood and Marrow Transplantation
Faculty Rank: Associate
MD Degree: MD, Government Medical College, India, 1988
Residency: Pediatrics, University of Bombay, India, 1988-1991
Pediatrics, State University of New York Stony Brook, 1992-1995
Fellowship: Pediatric Hematology Oncology, Baylor College of Medicine, Texas, 1995-1998; Pediatric Stem Cell Transplantation, Baylor College of Medicine, Texas, 2002-2003

PSYCHIATRY AND BEHAVIORAL SCIENCES

Vinod K. Prasad, MD, MRCP
919-668-1100
Particular Clinical Interests and Skills: Cord blood, stem cell, and bone marrow transplant for childhood cancers, inherited metabolic disorders, immunodeficiency, Hemoglobinopathies and other serious diseases; lab research in histocompatibility (tissue typing) and other determinants of alloreactivity with a focus on identifying the best matched donor by cutting edge molecular techniques; clinical research in post-transplant viral infections with a focus on early detection and treatment
Division: Blood and Marrow Transplantation
Faculty Rank: Assistant Professor
MD Degree: MBBS (1983), MD (Pediatrics, 1986) - University of Delhi
University of Delhi Pediatrics Training, 1984-1989
Residency: Member of Royal College of Physicians (MRCP), London, 1990
Pediatric Hematology Oncology, Hammersmith Hospital and Hospital for Sick Children, London; and St. James' University Hospital, Leeds, 1990-1993
Fellowship: Memorial Sloan Kettering Cancer Center and Cornell University Medical Center, New York, 1994-1997

Sara P. Robert, MD
919-620-5374
Particular Clinical Interests and Skills: General pediatric care, pediatric urgent care
Division: Children's Primary Care
Faculty Rank: Clinical Associate
MD Degree: MD, Stritch School of Medicine – Loyola University, Illinois, 1999
Residency: Pediatrics, Duke University Medical Center, North Carolina, 1999-2002

Jennifer W. Singleton, MD
919-681-6024
Particular Clinical Interests and Skills: General pediatrics, neonatology
Division: Neonatal-Perinatal Medicine
Faculty Rank: Clinical Associate
MD Degree: MD, Baylor College of Medicine, Texas, 2000
Residency: Pediatrics, Baylor College of Medicine and Affiliated Hospitals, Texas, 2003

William J. Steinbach, MD
919-681-2613
Particular Clinical Interests and Skills: Immunocompromised pediatric patients, especially children with invasive fungal infections
Division: Infectious Diseases
Faculty Rank: Assistant Professor
MD Degree: MD, University of North Carolina School of Medicine, 1998
Residency: Pediatrics, Stanford University, California, 1998-2001
Fellowship: Pediatric Infectious Diseases, Duke University Medical Center, North Carolina, 2001-2004

Martin Binks, PhD
919-688-3079
Particular Clinical Interests and Skills: Obesity treatment and research, binge eating
Division: Medical Psychology
Faculty Rank: Assistant Clinical Professor
Degree: PhD, Clinical Psychology, Fairleigh Dickinson University, New Jersey, 2002
Behavioral Medicine, Medical University of South Carolina, 2000
Post-Doctoral Fellowship, Obesity Treatment and Research, 2000-2003

Leslie L. Bronner, MD, DrPH, MPH
919-684-6725
Particular Clinical Interests and Skills:
Adult general psychiatry; medication management; psychotherapy including CBT/DBT; cultural issues in mental health
Division:
Outpatient Psychiatry
Faculty Rank:
Clinical Associate
MPH, Boston University School of Public Health, Massachusetts, 1990
DrPH, Harvard School of Public Health, Massachusetts, 1995
MD Degree: MD, Duke University Medical Center, North Carolina, 1999
Residency: Psychiatry, Duke University Medical Center, North Carolina, 2004

Lisa C. Campbell, PhD
919-286-2839
extension 232
Particular Clinical Interests and Skills: Assessment and treatment of pain disorders and disease-related pain, coping with chronic illnesses, cognitive behavioral therapy, ethnicity and psychosocial wellbeing
Division: Medical Psychology
Faculty Rank: Assistant Clinical Professor
Degree: PhD, University of Florida, 2002
Health Psychology, Duke University Medical Center, North Carolina, 2001-2002
Behavioral Medicine, Duke University Medical Center, North Carolina, 2002-2004

Jennifer S. Cheavens, PhD
919-684-6701
Particular Clinical Interests and Skills: Cognitive behavioral and dialectical behavior therapy for depression, anxiety, substance use, and personality disorders, treatment for adults (over age 18) and couples
Division: Medical Psychology
Faculty Rank: Assistant Clinical Professor
Degree: PhD, Clinical Psychology, University of Kansas, 2002
Clinical Psychology Internship, Duke University Medical Center, North Carolina, 2001-2002
National Institute of Aging Training Grant – Center for the Study of Aging and Human Development Fellow, 2002-2004

Lauren E. Durant, PhD
919-668-3690
Particular Clinical Interests and Skills: Behaviorally dysregulated "at risk" adolescent populations, culturally competent treatment approaches for African-Americans, substance dependant/abuse patients, cognitive behavioral treatment approach, marital/family therapy
Division:
Medical Psychology
Faculty Rank: Assistant Clinical Professor
Degree: PhD, Clinical Psychology, Syracuse University, New York, 2001
Clinical Internship, Duke University Medical Center, North Carolina, 2000-2001
Post Doctoral Fellow, Duke University Medical Center, North Carolina, 2001-2003
Addiction Medicine, Duke University Medical Center, North Carolina, 2001-2003
Visiting Scholar, University of California, San Francisco, 2002- Present

David P. Fitzgerald, PhD
919-416-2096
Particular Clinical Interests and Skills: Aggressive and oppositional behavior, parent-child interactions, psychological assessment and testing, children's peer and social relation development, technology use in the evaluation and treatment of externalizing disorders, ADHD and aggression
Division: Medical Psychology
Faculty Rank: Clinical Associate
Degree: PhD, University of Notre Dame, Indiana, 1995
Internship, University of Pennsylvania School of Medicine

Kelli E. Friedman, PhD
919-660-2366
Particular Clinical Interests and Skills: Assessment/treatment of depression, anxiety, eating disorders, smoking cessation, obesity, stress management, individual and group cognitive behavioral psychotherapy
Division: Medical Psychology
Faculty Rank: Assistant Clinical Professor
Degree: PhD, Duke University Medical Center, North Carolina, 2002
Durham VA Medical Center, North Carolina, 2002
Behavioral Medicine Research Center, Duke University Medical Center, North Carolina, 2002-2004

Jane P. Gagliardi, MD
919-668-0869
Particular Clinical Interests and Skills: Inpatient general medicine and psychiatry, areas of clinical overlap between medicine and psychiatry and consultation psychiatry
Division:
Outpatient Psychiatry
Faculty Rank:
Clinical Associate
MD Degree: MD, Duke University School of Medicine, North Carolina, 1998
Residency: Internal Medicine/Psychiatry (combined), Duke University School of Medicine, North Carolina, 1998-200

RADIATION ONCOLOGY RADIOLOGY

Priscilla F. Grissom, PhD
919-416-2099
Particular Clinical Interests and Skills: ADHD evaluations for children, adolescents, and college students; psychoeducational evaluations; consultation regarding school concerns; social skills training
Division:
Medical Psychology
Faculty Rank:
Clinical Associate
Degree: PhD,
North Carolina State University, 2001

Desiree W. Murray, PhD
919-416-2082
Particular Clinical Interests and Skills: Evaluation and treatment of ADHD in children, adolescents, and adults; parent training; academic skills support; school consultation
Division:
Medical Psychology
Faculty Rank:
Clinical Associate
Degree: PhD, University of South Florida, 1997
Clinical Psychology Internship, Community Child Specialty Track, University of North Carolina School of Medicine, 1993-94

Ashwin A. Patkar, MD
919-471-3826
Particular Clinical Interests and Skills: Extensive clinical and research experience in the assessment and treatment of substance abuse and dual diagnosis; expert in office based buprenorphine treatment for opioid addiction
Division:
Biological Psychiatry
Faculty Rank:
Associate Professor
Degree: G.S., Medical College, University of Bombay, India, 1987
Residency: Psychiatry, King Edward Memorial Hospital, Bombay, India, 1987-1990; Psychiatry, Queen's Medical Center, University of Nottingham, England, 1990-1994; Psychiatry, Thomas Jefferson University Hospital, Pennsylvania, 1995-1997
Fellowship: Substance Abuse, Mapperley Hospital, University of Nottingham, England, 1994-1995
MPhil, Neuropharmacology, University of Nottingham, England, 1995
MRCPsych, Psychiatry, Royal College of Psychiatrists, London, England, 1993

Laura S. Porter, PhD
919-668-1987
Particular Clinical Interests and Skills: Helping patients with chronic illness and their family members cope with the symptoms and psychological demands of their disease
Division:
Medical Psychology
Faculty Rank: Assistant Clinical Professor
Degree: PhD, Clinical Psychology, State University of New York at Stony Brook, 1996

Alton Williams, MD, JD
919-684-0275
Particular Clinical Interests and Skills: Consultation in the setting of civil and criminal litigation with a focus on competency, fitness for duty, and criminal responsibility (insanity)
Division:
Biological Psychiatry
Faculty Rank:
Clinical Associate
MD Degree: MD, Yale University School of Medicine, Connecticut
Residency: Adult Psychiatry Residency Program, Massachusetts General Hospital and McLean Hospital, 2003
Fellowship: Forensic Psychiatry Fellowship, Harvard Medical Center, Massachusetts
JD, University of North Carolina at Chapel Hill, 1999

Robert E. Williams, MD
919-684-5943
Particular Clinical Interests and Skills: Dementia, Alzheimer's disease, depression and psychotic illness in nursing home facilities and inpatients at DUMC, social interventions including family, friends, and caretakers combined with appropriate psychopharmacologic therapies
Division:
Geriatric Psychiatry
Faculty Rank:
Clinical Associate
MD Degree: MD, East Carolina University School of Medicine, North Carolina, 1998
Residency: Psychiatry, University of North Carolina Hospital, 1998-2002
Fellowship: Geriatric Psychiatry, Duke University Medical Center, North Carolina, 2002-2003

John P. Kirkpatrick, MD, PhD
919-668-5213
Particular Clinical Interests and Skills: Radiation oncology, particularly the treatment of cancers of the central nervous system, base of skull and head/neck, and gynecologic cancers; stereotactic radiosurgery, stereotactic radiotherapy and other highly conformal techniques employing spatio-temporal optimization
Division: Radiation Oncology
Faculty Rank: Assistant Professor
PhD, Chemical Engineering, Rice University, Texas, 1979
MD Degree: MD, University of Texas Health Science Center at San Antonio, 1999
Residency: Internal Medicine, University of North Carolina at Chapel Hill, 1999-2000; Radiation Oncology, Duke University Medical Center, North Carolina, 2000-2004

Caroline W.T. Carrico, MD
919-684-7288
Particular Clinical Skills and Interests: Pediatric Imaging
Division: Pediatric Radiology
Faculty Rank: Assistant Professor
MD Degree: MD, University of Louisville School of Medicine, Kentucky, 1991
Residency: General Surgery, University of Louisville, Kentucky, 1991-1992
Diagnostic Radiology, Indiana University, 1992-1996
Fellowship: Pediatric Radiology, Harvard Medical School, Massachusetts, 1996-1997

Bennett Chin, MD
919-684-7698
Particular Clinical Interests and Skills: Positron emission tomography
Division: Nuclear Medicine
Faculty Rank: Associate Professor
MD Degree: MD, University of Texas Medical Branch, Galveston, 1987
Residency: Internal Medicine, Methodist Medical Center, Texas, 1987-1990
Fellowship: Nuclear Medicine Fellowship, Johns Hopkins Hospital, Maryland, 1990-1991
University of Pennsylvania, 1991-1992

Tracy A. Jaffe, MD
919-684-7293
Particular Clinical Interests and Skills: Abdominal imaging with CT, MRI and ultrasound, bowel imaging, female pelvis imaging, abdominal intervention radiology
Division: Abdominal Imaging
Faculty Rank: Associate
MD Degree: MD, University of Texas Southwestern Medical School, 1996
Residency: Radiology, University of North Carolina at Chapel Hill, 2001
Fellowship: Abdominal Imaging, Duke University Medical Center, North Carolina, 2002

Lynne M. Hurwitz Koweek, MD
919-684-7604
Particular Clinical Interests and Skills: Cardiac and thoracic imaging
Division: Cardiac and Thoracic Imaging
Faculty Rank: Assistant Professor
MD Degree: MD, Duke University School of Medicine, North Carolina, 1997
Residency: Internal Medicine Internship, University of Washington, 1997-1998; Diagnostic Radiology Residency, Duke University Medical Center, North Carolina, 1998-2002
Fellowship: Cardiothoracic Radiology Fellowship, Duke University Medical Center, North Carolina, 2002-2003

SURGERY

Susan M. Kealey, MD
919-684-7406
Particular Clinical Interests and Skills: Neuroradiology
Division: Neuroradiology
Faculty Rank: Assistant Professor
MD Degree: MD, University College Dublin, Ireland, 1989
Residency: St. Vincent's University Hospital, Ireland, 1996-2001
Fellowship: Neuroradiology, Duke University Medical Center, North Carolina, 2001-2003

Christopher D. Lascola, MD, PhD
919-684-7218
Particular Clinical Interests and Skills: MRI and CT imaging of brain and spine, CT and conventional fluoroscopically-guided spine procedures, angiography, molecular imaging
Division: Neuroradiology
Faculty Rank: Assistant Professor
PhD, University of Chicago, Illinois, 1997
MD Degree: MD, University of Chicago, Illinois, 1998
Residency: Diagnostic Radiology, Duke University Medical Center, North Carolina, 1999-2003
Fellowship: Neuroradiology, Duke University Medical Center, North Carolina, 2003-2004

Ellie R. Lee, MD
336-503-5787
Particular Clinical Interests and Skills: General radiology with interests in abdominal imaging and abdominal interventional radiology
Division: Community Radiology
Faculty Rank: Consulting Associate
BS, Biology, Emory University, Georgia, 1992
MD Degree: MD, Emory University School of Medicine, Georgia, 1996
Residency: Radiology, Duke University Medical Center, North Carolina, 1999-2003
Fellowship: Abdominal Imaging, Duke University Medical Center, North Carolina, 2003-2004

Elmar M. Merkle, MD
919-684-7325
Particular Clinical Interests and Skills: Body imaging with specific emphasis on multidetector row CT and magnetic resonance imaging including computed tomography angiography and magnetic resonance angiography
Division: Abdominal Imaging
Faculty Rank: Associate Professor
MD Degree: MD, University of Ulm, Germany, 1991
Residency: Radiology, University of Ulm, Germany, 1992-1997
Fellowship: Magnetic Resonance Fellowship, University Hospitals of Cleveland, Ohio, 1997-1999

Srinivasan Mukundan, Jr., MD, PhD
919-684-7218
Particular Clinical Interests and Skills: Advanced MRI, brain tumor imaging, 3D CT and computer-based visualization, novel contrast agents, pediatric craniofacial CT
Division: Neuroradiology
Faculty Rank: Assistant Professor
PhD, Chemistry, Emory University, Georgia, 1991
MD Degree: MD, Emory University, Georgia, 1996
Residency: Diagnostic Radiology, Emory University, Georgia, 1996-2000
Fellowship: Neuroradiology, Emory University, Georgia, 2000-2001

Joseph M. Stavas, MD
919-684-7424
Particular Clinical Interests and Skills: Arterial and venous vascular disease diagnosis and treatment to include aneurysms, occlusions and trauma; invasive liver, kidney, chest and abdominal procedures; uterine fibroid embolization
Division: Vascular and Interventional Radiology
Faculty Rank: Assistant Professor
MD Degree: MD, Creighton University, Nebraska, 1982
Residency: Radiology, St. Paul-Ramsey County Hospital, 1983
Diagnostic Radiology, University of Minnesota, 1986
Fellowship: Interventional Radiology, University of California-San Diego, 1987

Julian Mack Aldridge, III, MD
919-684-2476
Particular Clinical Interests and Skills: Avascular necrosis of the femoral head; hand, wrist, and upper extremity surgery with emphasis on carpal tunnel syndrome, Dupuytren's, microsurgery, fractures of upper extremity, wrist arthroscopy and arthritis surgery
Division: Orthopaedic Surgery
Faculty Rank: Assistant Professor
MD Degree: MD, Wake Forest University School of Medicine, North Carolina, 1998
Residency: Orthopaedic Surgery, Duke University Medical Center, North Carolina, 1998-2003
Fellowship: Hand and Microsurgery Fellowship, Duke University Medical Center, North Carolina, 2003-2004

Michael P. Bolognesi, MD
919-668-4732
Particular Clinical Interests and Skills: Total hip and knee replacement, unicompartmental knee replacement, revision total hip and knee replacement, computer assisted orthopaedic surgery, minimally invasive hip and knee replacement
Division: Orthopaedic Surgery
Faculty Rank: Assistant Professor of Surgery
MD Degree: MD, Duke University School of Medicine, North Carolina, 1998
Residency: Orthopaedic Surgery, Duke University Medical Center, North Carolina, 1998-2003
Fellowship: Adult Reconstruction, University of Utah School of Medicine, 2003-2004

David J. Berkoff, MD
919-684-5537
Particular Clinical Interests and Skills: Emergency medicine, sports medicine
Division: Emergency Medicine
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, Albert Einstein College of Medicine, New York, 1997
Residency: Medicine Internship, Beth Israel Medical Center, New York; Emergency Medicine, Jacobi Medical Center, New York

William R. Burfeind, Jr., MD
919-684-6974
Particular Clinical Interests and Skills: General thoracic surgery, benign and malignant diseases of the lungs, esophagus and mediastinum; bronchial and esophageal stenting / photodynamic therapy (PDT), thorascopic surgery, airway surgery
Division: Cardiovascular and Thoracic Surgery
Faculty Rank: Assistant Professor
MD Degree: MD, Columbia College of Physicians and Surgeons, New York, 1994
Residency: General Surgery, Duke University Medical Center, North Carolina, 1994-2001
Fellowship: Thoracic Surgery, Duke University Medical Center, North Carolina, 2001-2004

Charles B. Cairns, MD
919-668-8686
Particular Clinical Interests and Skills: Asthma, trauma, resuscitation, toxicology, oxygen metabolism, acute cardiac disease
Division: Emergency Medicine
Faculty Rank: Associate Professor
MD Degree: MD, University of North Carolina at Chapel Hill, 1986
Residency: Emergency Medicine, Harbor-UCLA Medical Center, California, 1989
Fellowship: Emergency Medicine/Cardiology Research Fellowship, St. John's Heart Institute, Harbor-UCLA Medical Center, California, 1990

Shu S. Lin, MD, PhD
919-684-2890
Particular Clinical Interests and Skills: Cardiopulmonary transplantation (heart, lung and heart-lung transplantation), transplant immunology, adult cardiac surgery including coronary artery bypass grafting and valvular surgery, ventricular assist device
Division: Cardiovascular and Thoracic Surgery
Faculty Rank: Assistant Professor
MD Degree: MD, Duke University School of Medicine, 1992
Residency: General Surgery, Duke University Medical Center, 1992-2001; Thoracic Surgery, Duke University Medical Center, 2001-2004
PhD, Immunology, Duke University, 2000

Timothy N. McGlaughlin, DO, MS
919-684-5537
Particular Clinical Interests and Skills: Shock resuscitation, trauma
Division:
Emergency Medicine
Faculty Rank:
Assistant Professor
Masters of Science, Bucknell University, Pennsylvania, 1995
Degree: DO, Lake Erie College of Osteopathic Medicine, Pennsylvania, 1999
Residency: Internship, The Western Pennsylvania Hospital, 1999-2000; Emergency Medicine Residency, Geisinger Medical Center, Pennsylvania, 2000-2003
Fellowship: Trauma/ Critical Care, University of Maryland, 2003-2004

Joy C. Martin, MD
919-684-5537
Particular Clinical Interests and Skills: Socioeconomic barriers to healthcare, health policy, minority health issues, cultural competency/diversity training
Division:
Emergency Medicine
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, Wayne State University School of Medicine, Michigan, 2000
Residency: Emergency Medicine, Brown University/Rhode Island Hospital, 2000-2004

Jonathon D. Palmer, MD
919-684-5537
Particular Clinical Interests and Skills: Clinical emergency medicine and resident education
Division: Emergency Medicine
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, University of Arkansas for Medical Sciences, 2001
Residency: Emergency Medicine, University of Arkansas for Medical Sciences, 2004

Homa Shahnawaz, MD
919-684-5537
Particular Clinical Interests and Skills:
Emergency medicine
Division: Emergency Medicine
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, University of North Carolina School of Medicine, 1998
Residency: Emergency Medicine, Detroit Receiving Hospital/ Wayne State University, Michigan, 2001

Henry F. Tripp, Jr., MD
434-791-3009
Particular Clinical Interests and Skills: Cardiothoracic and vascular surgery, CABG, aortic valve and mitral valve surgery, lung resection, carotid endarterectomy, aneurysm repair (including endovascular) and surgery of major vessels
Division: Cardiovascular and Thoracic Surgery
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, Duke University School of Medicine, North Carolina, 1985
Residency: Keesler Medical Center, Mississippi, 1988-1993
Fellowship: Cardiothoracic Surgery, Carolinas Medical Center, North Carolina, 1993-1994; Vascular Surgery, Carolinas Medical Center, North Carolina, 1995-1996

Judd W. Moul, MD
Division Chief
919-684-5057
Particular Clinical Interests and Skills: Nerve-sparing radical prostatectomy, treatment of PSA-only or biochemical recurrence of prostate cancer, prostate biopsy, prostate cancer in African American men, multi-disciplinary management of prostate cancer, clinical trials in prostate disease, noted authority on early stage testicular cancer
Division: Urology
Faculty Rank: Professor
MD Degree: MD, Jefferson Medical College, Pennsylvania, 1982
Residency: Surgery, Walter Reed Army Medical Center, Washington, DC, 1982-1983; Urology, Walter Reed Army Medical Center, Washington, DC, 1983-1987
Fellowship: Urologic Oncology Fellowship, Duke University Medical Center, North Carolina, 1988-1989

Robert S. Park, MD
919-684-5537
Particular Clinical Interests and Skills: Clinical education, emergency ultrasound (in particular ultrasound-guided vascular access), biomedical devices
Division: Emergency Medicine
Faculty Rank: Assistant Clinical Professor
MD Degree: MD, University of North Carolina at Chapel Hill, 1998
Residency: Emergency Medicine, Alameda County Medical Center - Highland Hospital, California, 1998-2002
Fellowship: Emergency Ultrasound, Alameda County Medical Center - Highland Hospital, California, 2003

Sinan A. Simsir, MD
919-684-4694
Particular Clinical Interests and Skills: Thoracoscopic and other surgery for atrial fibrillation, lung transplantation, adult cardiac surgery, heart transplantation and cardiac assist devices
Division: Cardiovascular and Thoracic Surgery
Faculty Rank: Assistant Professor
MD Degree: MD, Marmara University, Turkey, 1991
Residency: General Surgery, University of Minnesota, 2000; Cardiothoracic Surgery, University of Massachusetts, 2003
Fellowship: Thoracic Transplantation and Cardiac Assist Devices, Duke University Medical Center, North Carolina, 2004

Robert D. Zura, MD
919-668-0291
Particular Clinical Interests and Skills: Orthopaedic traumatology, acute fractures of upper and lower extremities and pelvis
Division:
Orthopaedic Surgery
Faculty Rank: Assistant Professor
MD Degree: MD, Johns Hopkins School of Medicine, Maryland, 1994
Residency: Orthopaedic Surgery, University of Virginia, 1995
Fellowship: Orthopaedic Trauma, Carolinas Medical Center, North Carolina, 2001

ON THE SPOT

Q: Disparities in health care are a growing concern. What's your experience?

A. "Coping with patient socioeconomic and cultural barriers is a frustrating and rewarding part of emergency room life. I routinely see patients with limited or no health insurance suffering because they can't afford to address a health concern until it's become an emergency. Language barriers also present a challenge, because time is of the essence in emergency settings and the inability to communicate with a patient slows down our response. However, it's rewarding to know we provide a safety net for vulnerable members of our community. We've also made significant progress in overcoming these barriers by connecting patients with community resources and working with interpreters who now make themselves available within 15 to 20 minutes of a page."

—Joy C. Martin, MD

3 Three questions

A chat with Catherine Lynch Gilliss, DNSc, RN, FAAN, dean of Duke's School of Nursing and vice chancellor for nursing affairs

A 1971 graduate of Duke University School of Nursing (DUSON), Catherine Lynch Gilliss returned to lead her alma mater on October 1. She recently took a few minutes to share her plans and perspectives with *DukeMed Magazine*.

You've spent your career at some of the country's top nursing schools, most recently serving as dean at Yale. What drew you back to Duke?

My head was turned by the opportunity to work at my alma mater, and by Duke's "outrageous ambition," as [former Duke President] Terry Sanford put it. For over 30 years I've looked for a place that held the values I learned as an undergraduate at Duke, including a strong commitment to interdisciplinary work, a commitment to clinical inquiry, and an ambitious spirit. There is no place like home! I am delighted to return to the university where I learned those fundamental values.

My husband, Tom Gilliss, is glad to be returning to Durham as well. We were married just prior to my senior year at Duke. At that time all students lived in Hanes House, and I actually had to seek permission from the dean to get married and live off-campus!

What are DUSON's "outrageous ambitions"?

Thanks to many years of work by many people, notably former Dean Mary Champagne, several of our major ambitions will be realized in the first 100 days of my term as dean. First, we hope to receive approval to launch a PhD program from Duke's Board of Trustees when they meet in December. A rigorous doctoral program requires that many faculty be actively engaged in relevant research, so we plan to hire experienced scientists and expand our research portfolio.

We will also be looking for Board approval to begin construction of our new building. If that happens, we expect to be in the new space by the time the doctoral program starts in fall 2006.

So we are headed into a very exciting period. Over the next few years we expect to significantly expand our visibility and impact.

Are there new directions ahead for the school?

We won't be turning the ship around, because we are headed in the right direction. But, beyond the new PhD program and the building, our attentions will be directed to more fully integrating DUSON and nursing within Duke University Health System (DUHS). We have an extraordinary opportunity at Duke because of the unique governance structure in which a single chancellor presides over both the health entities and the schools; our chancellor truly believes we're all responsible for bringing optimum health to patients. Nursing education and nursing service should be strong partners in strategically aligned efforts. For instance, the distinctive focus of nursing research at DUSON is examination of the trajectories of care, that is how patients with chronic health problems manage over time and interface with systems of health care delivery over time. We intend to strengthen the DUHS by developing and testing successful models of care. In turn, we know that our curriculum and learning experiences can be enhanced by the involvement of the DUHS nurses. We believe the opportunity to work in partnership will result in the development of replicable models for nursing education and service for collaborations at other academic health centers.

Learn more about Dean Gilliss on page 60.

For more information on DUSON's planned PhD program, see page 10; for more on the planned 71,500-square-foot headquarters building, visit development.mc.duke.edu/nursing.

CONTINUING MEDICAL EDUCATION AT DUKE
For more information on the courses listed below, please contact the Duke Office of Continuing Medical Education at 919-684-6485 or visit docme.mc.duke.edu.

DUKE CME CALENDAR

ON-SITE COURSES

COURSE	DATE	LOCATION	CREDIT	REGISTRATION
MULTISPECIALTY Teaching and Leading EBM: A Workshop for Educators and Champions of Evidence-Based Medicine	April 19-22, 2005	Durham, North Carolina	36 credits	919-681-3009 or www.mclibrary.duke. edu/limited/ EBMworkshop/
RADIOLOGY Abdominal & Musculoskeletal MRI Update	January 15-18, 2005	The Atlantis, Nassau, Bahamas	18 credits	919-684-7228 or sykes010@mc.duke.edu
RADIOLOGY A Practical Approach to Musculoskeletal MRI	February 19-22, 2005	Walt Disney Resort, FL	16 credits	919-684-7228 or sykes010@mc.duke.edu
RADIOLOGY Practical & Advanced Imaging: The Abdomen and Musculoskeletal System	March 5-9, 2005	The Pines Lodge at Beaver Creek Resort	18 credits	919-684-7228 or sykes010@mc.duke.edu

ONLINE COURSES

COURSE	DATE	CREDIT	REGISTRATION
RESEARCH ETHICS "Social Sciences Research in Medical Settings"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"Using Databases in Research"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"Prisoners Involved as Participants in Research"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"Protecting the Confidentiality and Privacy of Patients"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"Protecting Research Subjects"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"What Counts as Research with Human Subjects?"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"Children Involved as Subjects in Research"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"Ethical and Regulatory Considerations When Bringing a Medication to Market"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"Informed Consent for Research"	Available through December 31, 2006	1.5 credits	researchethicstraining.org
"The Fundamentals"	Available through December 31, 2006	1.5 credits	researchethicstraining.org

These activities have been approved for AMA PRA credit.

Earn up to 1.0 hour AMA PRA Category 1 Credit for reading the Clinician Q&A feature, "Use of Opioids for Outpatient Pain Management," in this issue of *DukeMed Magazine*.

See page 54 for details.

DukeMed MAGAZINE VOLUME 4, ISSUE 2, FALL/WINTER 2004

WHAT DRIVES DZAU?

Victor J. Dzau, MD, became chancellor for health affairs at Duke and president and CEO of Duke University Health System on July 1. It's a big job with broad responsibilities—but for Dzau, it boils down to a simple goal. "The most important thing is to remember why we are doing what we are doing," he says. "It's very easy to get pulled into management processes and a focus on the bottom line—and we need to do well in those areas—but most of all, we need to enable people to work toward the good of society."

Read about the good things Dzau's doing on page 18.

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