



DukeMed

MAGAZINE

VOLUME 2
ISSUE 2
FALL/WINTER 2002

GOLDEN- YEAR BLUES

Recognizing and relieving
late-life depression



Brain tumors
Beating the odds

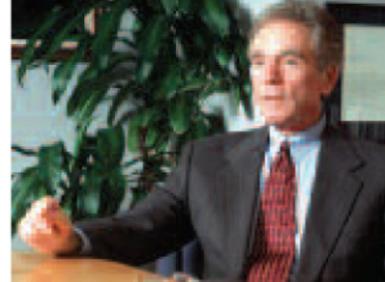
Hepatitis C
The silent epidemic

SPECIAL REPORT

How cardiovascular MRI is changing heart care

Controversies in Medicine
Should physicians accept perks
from pharmaceutical companies?

ADVANCES IN RESEARCH, EDUCATION, AND PATIENT CARE AT DUKE



THE PRICE OF PROGRESS

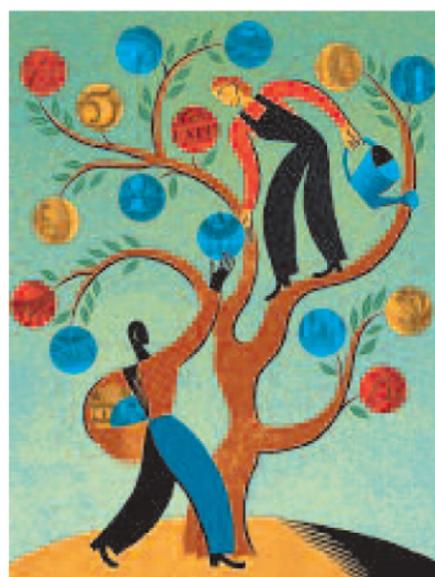
A COUPLE OF YEARS AGO I was asked what it's like to run the business end of a medical center. I compared it to operating an upscale restaurant open to anyone who happens by. When diners come in, we bring them a gourmet meal, vintage wine, the finest champagne. Only after they have indulged do we find out if they have any means to pay. Most can only give us a small percentage of the bill—and some cannot pay at all.

While the metaphor is not exact, it illustrates the quagmire many health care institutions find themselves in. We are committed to providing the best possible care, yet direct payments for treatment often do not cover the true cost of health care—which includes the indirect costs of training caregivers, improving treatment through research and technology, and treating those who can't afford to pay. Academic medical centers—the institutions that carry out these critical endeavors—do receive funding for research and education, such as grants and tuition, but these too are insufficient to cover costs. Last year, for example, Duke contributed over \$3 million in financial aid to medical students, the bulk of which came out of our operating revenues. For every dollar of external funding we receive, Duke contributes approximately 15 cents of additional financial support. We also provided more than \$91 million in charity and uncompensated care last year.

Traditionally, the federal government bridged the gap by increasing Medicare payments to teaching hospitals in recognition of their greater expenses. But these payments have shrunk precipitously in recent years. The 1997 Balanced Budget Act, which reduced Medicare expenditures, has cut reimbursements to Duke by approximately \$200 million over the past five years. This fall, as an ongoing result of the BBA, Medicare Indirect Medical Education payments to teaching hospitals will be cut by 15 percent, or \$4.2 billion

over five years, unless Congress acts to effect a change. Meanwhile, our cash-strapped state government is planning reductions in Medicaid reimbursement and other funding for health care.

These cuts are not our only financial concerns. Our drug costs have risen by 16



percent over the past two years. The weak stock market has slashed income from investments. Insurance costs continue to rise—at DUHS, costs have gone up by \$7.5 million since Sept. 11, 2001. With growing unemployment, charity care has also risen; Duke spent nearly \$8 million more on charity care this year than just two years ago.

Such trends have plunged many respected health care institutions into deep financial waters. Beth Israel Deaconess Medical Center in Boston posted a \$58.5 million operating loss last year, for example, and New York's Mount Sinai Medical Center lost \$26.4 million in 2000. Our own health system, after working diligently to reduce expenses—even taking the painful step of eliminating 300 positions in May—ended last fiscal year with

an income of \$21 million. This margin may seem comfortable, but it will fund our operations for only about seven days.

How are we addressing such challenges? We are starting in our own backyard, making extensive efforts to further reduce our expenses and responsibly steward our resources—while preserving high standards for patient care. We are forging mutually beneficial partnerships with industry, such as our collaboration with Siemens Medical Solutions to educate providers about cardiovascular MRI (see page 16). We also rely on the generosity of private citizens—this issue of *DukeMed Magazine* reports on several million-dollar gifts that aid our efforts to help patients with brain tumors and pulmonary hypertension, for example.

More broadly, we lobby state and national politicians to protect funding for hospital and physician reimbursement, medical education, research, and charity care. We do so not only on behalf of our own institution, but on behalf of all teaching hospitals—through my role as chair of the Association of American Medical Colleges and Duke's leadership in developing Project Medical Education, now an AAMC initiative to educate legislators about the value and needs of academic medicine. Importantly, Duke is also testing new models of proactive health care to reduce the high cost of treating chronic disease—a root cause of the financial crisis in health care.

As our nation grapples with rising health care costs, we urge you, our alumni, colleagues, and friends, to join with us in seeking solutions. Write your Congressional representatives; consider a charitable contribution to health care organizations; strive to adopt the lifestyle habits that will protect your own health. It is through such individual efforts that we will ensure better health care for all Americans—and the ability to pay for it.

RALPH SNYDERMAN, MD
CHANCELLOR FOR HEALTH AFFAIRS,
DUKE UNIVERSITY MEDICAL CENTER
PRESIDENT AND CEO,
DUKE UNIVERSITY HEALTH SYSTEM

DukeMed MAGAZINE

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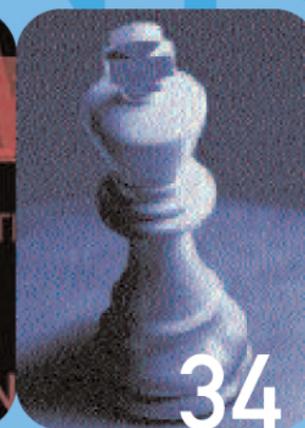
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Our mailbox runneth over

WE WERE DELIGHTED to receive many thoughtful comments from readers in response to our Spring/Summer 2002 issue. Indeed, we thought your response deserved a response. So, with this issue, we are launching a new column that will enable a dialogue of sorts between readers and the physicians, scientists, and others featured in *DukeMed Magazine*. In each issue, "Forum" will print the most provocative letter or letters we receive regarding a selected topic from the previous issue, along with a response from the appropriate person here at Duke. Our first "Forum" column appears on page 4. And, if an article in this issue inspires a question or comment from you, we encourage you to send it in for consideration for the next column. We look forward to hearing from you.



Medical news, straight from the source's mouth

DID YOU KNOW that Duke University Medical Center makes the news more than 600 times every month? At that rate, you're bound to miss many of the intriguing stories born here every day—maybe the very discoveries that would interest you most. And with our limited space, we can include only short takes on many of these stories in *DukeMed Magazine*. That's why we are pleased to announce the launch of eDuke, a customizable electronic newsletter that sends Duke news directly to your desktop. You can opt to receive information on the Duke news topics you choose—from health and medicine to basketball. Sign up for the free service at eduke.duke.edu.



You can also visit the Medical Center News Office site, dukemednews.org, to find the latest news releases and extensive background information on medicine and biomedical research at Duke. The site recently won a national Award for Excellence from the Association of American Medical Colleges—in part for its robust search engine—so it's a great site to visit if you're looking for information on a specific subject.



DukeMed Magazine is online at dukemedmag.duke.edu

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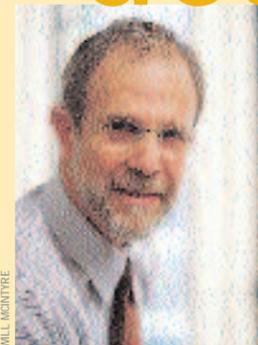
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from the dean



WILL MCINTYRE

IT WAS THE BEST OF TIMES. It was the worst of times. Charles Dickens opened his familiar tale of the French Revolution with these words, but these two short sentences also capture how many of us recall our years of internship and residency. Medical school prepared us to become doctors, but only as residents did we actually become capable of caring for patients independently. Those were heady times for me, illuminated by deep friendships with fellow residents, by admiration verging on awe of great bedside teachers from the faculty, and by a growing confidence that I could do the right thing for my patients. Medical graduates often marry and start families during residency years, and this was true for me, adding immeasurably to the feeling that those were the best of times indeed.

On the other side of the equation, with 100-plus hours per week spent on duty, days could pass in a grim blur of exhaustion. On rare nights off, I was often poor company for my wife or non-medical friends, falling asleep at restaurants or parties—even planting my face in my soup on one occasion. Few of us, I suspect, escaped some weak moments of envy for college classmates whose youth was being spent in more "normal" pursuits, and few of us willingly would resume the work schedules we carried in those days—the worst of times in that regard.

The residency training system that most of us experienced before the 1990s was rewarding but harsh, and it survived for many decades without serious challenge as the proper way to prepare physicians for practice. Then things changed. Articulate critics such as Norman Cousins likened the custom of overworking residents to a hazing ritual that

The 80-Hour Rule Will new restrictions on resident work hours change medicine for better or for worse?

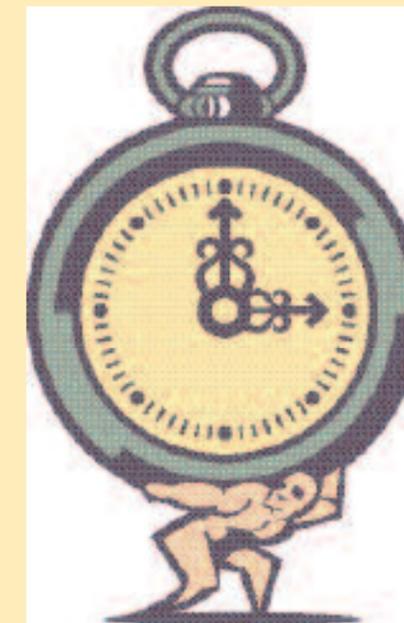
by R. Sanders Williams, MD
Dean, Duke University School of Medicine
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reflected badly on the profession (*JAMA* 245:377, 1981), and serious concerns were raised from several quarters over the quality of care provided by residents whose judgement is blurred by fatigue. Other critics alleged lasting adverse consequences of overwork on physical and emotional health, and professional values and attitudes, of physicians.

On the other side of the argument, traditionalists contend that essential learning experiences are lost when residents' work schedules are lightened, that continuity of care suffers, and that the duration of training must be extended, with attendant costs, to ensure that competent practitioners are graduated.

This debate has already generated many changes to ensure more sleep and personal time for residents. Supported by the Association of American Medical Colleges and American Medical Association, the Accreditation Council for Graduate Medical Education recently announced new limits for resident duty hours, including workweeks averaging no more than 80 hours, which it plans to enforce beginning July 1, 2003. The 80-hour week and related provisions for guaranteed time off have already become the standard for most programs, with some exceptions. In New York, the state legislature mandated major reforms by rule of law, but surveys reveal incomplete compliance with these regulations in a majority of hospitals. A recent note to us from an alumnus practicing in New York termed the effects of the new regulations "a nightmare" and "contrary to good care and training."

Whither Duke Medical Center with respect to these issues? Under the leadership of John

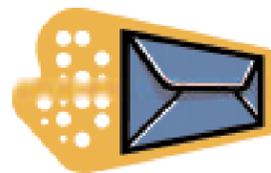


Weinerth, MD, who heads our office for Graduate Medical Education, we are, of course, demanding compliance from our residency directors with provisions we have endorsed through our membership in AAMC, and we will do whatever is necessary to ensure accreditation of our training programs.

We remain open, however, to the viewpoint that current regulations are not necessarily correct, and we expect to seek quantitative data and well-reasoned opinions from many sources in an effort to reach the proper balance. Dr. Weinerth states emphatically that "Everyone is being encouraged to look at different schedules as well as completely different approaches to residency at Duke. Education and development of competence are our goals: they will be achieved."

We welcome alumni and friends to contribute to our deliberations as we at Duke work toward these goals. Unlike the noble but unfortunate Sidney Carton of Dickens's tale, I am hopeful that we can find that far, far better place without losing our heads. □

For more information on the proposed resident duty hours standards, visit www.acgme.org.



A Controversy in Medicine, indeed

"The Rise of Midlevel Providers," Spring/Summer 2002



Readers sent dozens of letters, postcards, and e-mails in response to the Spring/Summer 2002 issue of DukeMed Magazine—and no subject drew more mail than the Controversies in Medicine column by Lloyd Michener, MD, on "The Rise of Midlevel Providers." As the sample of letters here reflects, most writers strongly agreed with Michener's position in support of an expanded role for PAs and NPs, although a few expressed reservations. If you missed the column, log onto our Web site at dukemedmag.duke.edu to read it online.

FROM OUR READERS

WHAT A WONDERFUL ARTICLE by Dr. Lloyd Michener about nurse practitioners and physician assistants—except for one thing: the title! Calling NPs and PAs "midlevel" providers implies that other medical disciplines provide higher levels of medical care. I do not think we can change the top-down traditional hierarchy into a team-based approach as he advocates without changing those semantics. I applaud his understanding of interdependent practice as we all seek to redefine roles for the best care of our patients.

*Michelle Taylor, MSN '96, FNP
Laurinburg, NC*

I WAS UPSET about your article on "The Rise of Midlevel Providers" as it negated the importance of medical doctors and gave too much credence to PAs and NPs. It touted these two professions as though they were in many ways equal to and even more experienced and knowledgeable than medical doctors. I will not allow a PA or NP to treat me as I know what their limitations are. I also greatly resent them not advising patients that they are not MDs when they see patients. [We need to address the] shortage of physicians due to managed care cutbacks. Who wants to spend 11 years becoming a physician to get paid \$75,000 a year with all the liability and financial burden it takes to get there?

Jane Diehl

I WANT TO THANK YOU for Lloyd Michener's article, "The Rise of Midlevel Providers." I agree with Dr. Michener that the team approach of MDs, PAs, and CNMs is the way to provide and meet the need for high-quality, affordable health care. I would like to see more articles relating to this aspect of U.S. medicine, as well as Duke's leading role in this arena.

*Sarah Kehoe, PA'97
Talkeetna, AK*

RESPONSE

"A NUMBER OF THOUGHTFUL questions and concerns were raised about the article. I certainly agree that the term 'midlevel' fits poorly with the less hierarchical model of teams. I used it only because it's still the best single term, and continue to look for a better label. Perhaps the best response to the question of qualifications is to say that those who do not wish to see PAs and NPs should not have to. As someone who trains the whole spectrum of medical professionals, I have no hesitation in placing my own life in their capable hands. But I strongly agree that PAs and NPs must describe themselves accurately, so that patients can make their own choices. Meanwhile, it is time for physicians, PAs, NPs, and other members of the health care team to work together, so that we draw on the strengths of each, for the benefit of our patients."

*Lloyd Michener, MD
Chair, Department of Community
and Family Medicine*

Write to DukeMed Magazine at Box 3687, Duke University Medical Center, Durham, NC, 27710, or e-mail dukemedmag@duke.edu. Letters selected for FORUM may be edited for length and clarity; due to space limitations, we cannot print all letters received. (But we do read every one.)

Controlling infection in community hospitals

LAST JULY, the *Chicago Tribune* published an eye-opening report on hospital-acquired infections. Not only do 6 percent of all hospitalized patients contract such "nosocomial" infections, the investigation found, over 100,000 people a year die of them—even though 75 percent of those deaths could be prevented through more scrupulous infection control measures.

But controlling infection has never been more complicated. New technologies and procedures are creating new infection control problems; evolved germs are resisting even the most potent antibiotics; and staff cutbacks are making it harder for many hospitals to meet increasingly complex infection control regulations—especially small community hospitals with few resources.

In 1997, realizing that such hospitals could benefit by pooling resources, Duke created the Duke Infection Control Outreach Network (DICON). A collaboration between Duke and 15 community hospitals, DICON aims to improve infection control by compiling data on nosocomial infections at member hospitals, identifying trends and areas for improvement, and providing ongoing education to community providers.

Every day, infection control practitioners (ICPs) at member hospitals collect data on nosocomial infections, which are then fed to a central database, analyzed, and turned into reports that compare statistics at the various hospitals (while keeping individual hospitals' data confidential). "If you're an ICP working in isolation at a small hospital, it's hard to know how you're doing in a particular area unless you can compare yourself with peer institutions," explains DICON founder Dan Sexton, MD.

At Scotland Memorial Hospital, for example, "The DICON data helped us see where we were doing well and where we needed to improve," says Elaine Smith-



"The infection control benchmarking data that exist are quite overwhelming to many community hospitals—it's not really 'apples to apples' because the data are collected from huge med centers like Duke where the infection control problems are different," says DICON infection control practitioner Evelyn Fulmer, pictured outside Maria Parham Hospital in Henderson, NC, with DICON's Connie Clark and local ICP Patsy Stainback. "By collecting data from community hospitals—true peer institutions—I think we're providing a valuable service. It really helps everyone assess how they're doing and focus their resources where they need to be focused."

Grubb, former director of resource management. "We used that information to prioritize our infection control activities. Knowing where to focus our performance improvement and staff education efforts enabled us to make significant improvements quickly."

The partner hospitals also share information in less formal ways. DICON ICPs visit each hospital at least monthly to assist the local ICP, DICON physicians are available for consultation, and a secure Web site provides regular updates and a discussion board.

While DICON started purely as a service organization, its founders soon realized they were collecting valuable information. "Almost nobody is studying infections in community hospitals," says Sexton, yet DICON has statistics from over 2 million patient days in such institutions. So far, the team has published more than a dozen studies based on DICON data, all aimed at improving infection control.

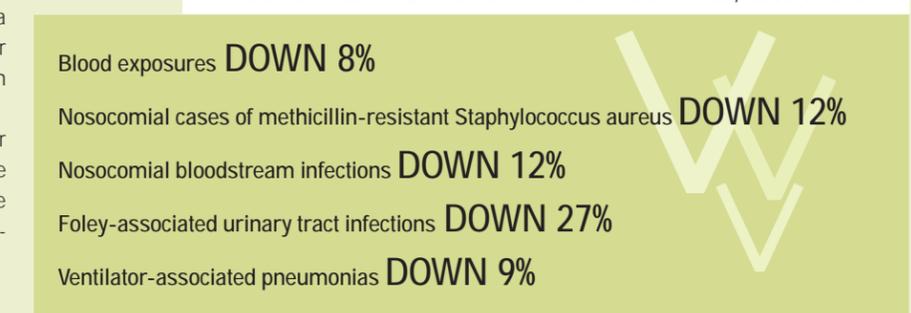
Since DICON's founding, infection rates at member hospitals have declined across the board, every member has passed all JCAHO regulatory requirements in infection control, and every one has found DICON helpful enough to renew their contracts each year. The DICON model has proved so successful, in fact, that this summer it spawned a second initiative focused on improving medical safety at community hospitals.

"There's a lot of power in this approach," says Sexton. "It's an opportunity to discuss problems, share solutions, and ask questions without hesitation."

For more information visit dicon.mc.duke.edu or call 919-684-4596.

TRENDS

NOSOCOMIAL INFECTIONS AT DICON HOSPITALS, 2000 to 2001



Minimizing medication mistakes

MEDICATION ERRORS KILL at least one person every day and harm over a million Americans every year, according to the Food and Drug Administration. And these mistakes can occur at any point in the complex process of medication management, from prescribing to dispensing to administering the drug. To help ensure patient safety, Duke Medical Center has begun implementing a suite of computerized systems that will automate every step of medication management and reduce the potential for errors.

The suite includes Horizons Expert Orders, a clinical decision support and computerized physician order entry program, as well as a program that enables pharmacists to review and process medication orders electronically. Both will be implemented throughout Duke Hospital over the next couple of years, with the Expert Orders program rolling out first in cardiology. More than 100 Duke physicians have already tested Expert Orders, which gives physicians interactive feedback during the ordering process, using an electronic library of clinical protocols, diagnostically appropriate order outlines, rules, treatment

advisories, and reference information. Duke will customize the information to adhere to its evidence-based clinical protocols.

"The system provides the environment needed to apply best practices without infringing on physician workflow or decision-making," says Chief Medical Officer Gary Stiles, MD. "The solution is intuitive and easy to use, and the physicians especially liked the common ordering shorthand feature that allows them to place orders with just a few keystrokes."

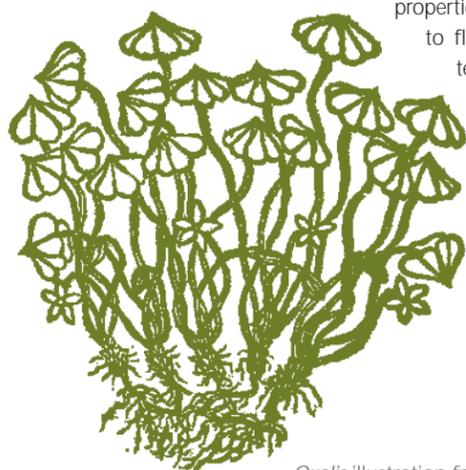
From bedside to pharmacy, says Duke Hospital CEO William Fulkerson, MD, "These solutions can help us eliminate errors due to illegible handwriting and provide real-time decision support to assist in consistently applying best practices. We expect the result to be better health outcomes that are also more cost-effective."

The medication management system is among the numerous initiatives undertaken by Duke's Patient Safety committee, formed in 2000 to oversee safety programs throughout the health system.



As part of its Patient Safety Week (held Nov. 18-23), Duke University Health System has produced a pamphlet listing steps patients can take to help caregivers prevent medical errors. The pamphlet can be accessed online at dukemedmag.duke.edu.

Healthy garden



Oxalis illustration from the 1636 edition of Gerarde's *Herball* in the Trent Collection.

ON A QUIET TERRACE behind the Medical Center Library grows a medicinal garden with over 50 herbs traditionally held to have healing properties—from ginger to foxglove, hyssop to flax. While the garden has long been

tended as part of the library's History of Medicine collections, the present-day resurgence of interest in herbal remedies recently prompted Duke botany graduate student Christine Davis to create a formal catalogue of the garden. Based on an informal guide produced a quarter-century

ago, the new catalog features expanded entries, scholarly citations, and additional indexes, and is illustrated with woodcuts from the 1597 and 1636 editions of Gerarde's *Herball*, copies of which are housed in the library's Trent Collection.



For more information about the garden, which is open to visitors, or to obtain a copy of the catalog (published with support of The Josiah Charles Trent Memorial Foundation, Inc. and the Trent Associates), contact Suzanne Porter, curator, History of Medicine Collections, at 919-660-1143 or at porte004@mc.duke.edu.

One call does it all

Duke's new patient transfer center streamlines incoming patient referrals

ARRANGING ADMISSION to Duke University Hospital just got easier—for both patients and the physicians who refer them. In March, the hospital opened a new Patient Transfer Center to offer a single, well-defined transfer process for all patients to replace the multiple ways patients had been transferred.

Modeled on a highly successful program at Tampa General Hospital in Florida, the center enables physicians at outlying hospitals to make one toll-free phone call to arrange to transfer a patient to Duke. The center's triage nurses then go into action, coordinating all telephone calls related to the patient's transfer, helping the transferring facility determine how the patient should be transported to Duke, and ascertaining the patient's managed care and financial status before transfer. The center also has a medical control officer to assist in deciding the patient's acuity level and to talk with outlying physicians about unique circum-

stances in a transfer, such as the referring hospital's ability to provide care.

The new center means external physicians and staff will no longer have to make several phone calls to transfer a patient—and will help prevent situations like one that occurred recently when an elderly man was sent by his community physician to Duke's ER for treatment. None of the Duke staff had any advance notice of the patient's arrival or any important medical information about the patient. Fortunately, the staff was able to track down the man's medical history, and hospital beds were available that day so he could be admitted immediately.

"It's very frustrating for physicians and staff at outlying facilities to have to make multiple calls to send a patient to Duke, and it makes it more difficult for us to be prepared to immediately meet the patient's clinical care needs," says Marie Hale, transfer

center/bed control manager for Duke emergency services.

The transfer center is not intended to interfere with existing relationships between Duke and outlying physicians if the transfer process is going smoothly for them, emphasizes Edward Ero, associate operating officer for emergency services. "We want to complement that," he explains. "The receiving physician may well end up calling the transfer center to request that we help with the rest of the transfer and admission process. We hope physicians both at Duke and in the community take advantage of the resources and benefits the center offers."

For more information about the Patient Transfer Center or to access its services, care providers may call **1-800-524-5433** (locally 681-3440). The center is open from 8:30 a.m.-2:30 a.m. weekdays and 8:30 a.m.-7:30 p.m. weekends.

We're on a roll

... IN MORE WAYS THAN ONE. For the 13th year in a row, *U.S. News & World Report* has listed Duke University Medical Center on its Honor Roll of the top 16 hospitals in the United States. In the magazine's July 22 issue, Duke ranked #6 overall (out of 6,045 hospitals) and had 16 highly ranked specialty areas.

SPECIALTY RANKINGS:

- Geriatrics #5
- Heart/Heart Surgery #5
- Gynecology #6
- Orthopaedics #6
- Cancer #7
- Digestive Disorders #8
- Kidney Disease #8
- Ophthalmology #8
- Psychiatry #9
- Rheumatology #9
- Urology #9
- Neurology & Neurosurgery #11
- Respiratory Disease #11
- Pediatrics #19
- Hormonal Disorders #20
- Ear, Nose, and Throat #27



People's choice in the Triangle

JUST AFTER THE U.S. NEWS rankings were announced, Duke received a 2002 Consumer Choice Award for being rated by consumers as #1 in the Research Triangle area and one of the highest quality hospitals in the nation. Duke was the only hospital in the Triangle area to receive the award, which is based on a National Research Corporation survey of more than 140,000 households in over 100 markets across the country. The awards were announced in *Modern Healthcare*.





ACROSS THE HEALTH SYSTEM...

New hospice office in Wake County

THIS SUMMER, Duke Health Community Care (DHCC) opened a licensed Hospice office in Wake County. The fully staffed office, located adjacent to Raleigh Community Hospital, includes hospice nurses, social workers, chaplains, and certified nursing assistants, as well as volunteers.

Duke Community Hospice (formerly Triangle Hospice) has served citizens in Wake County for many years, but the new office will further help Duke offer a full continuum of care to county residents, said Helen Poole, DHCC director of patient services. The Hospice provides palliative care focused on pain and symptom management for patients at the end of life, and support to family members. DHCC also offers home care and community infusion services.

For more information, call 919-862-5872.

Duke sells home care venture

ST. JOSEPH OF THE PINES, INC., and Duke University Health System (DUHS) in June sold their joint venture, Duke & St. Joseph Home Care, to Liberty Home Care, LLC, a home care services company based in Wilmington, NC.

The joint venture was formed in 1998 when Duke purchased half of St. Joseph's existing home care operation. Administrators expressed pride in their accomplishments toward offering seamless delivery of quality home care across central North Carolina, but said the time was right to move forward from the partnership.

Both St. Joseph and Duke are working closely with Liberty Home Care to help ensure a smooth transition for the approximately 800 employees of Duke & St. Joseph Home Care and the patients they serve.

Durham Regional gains long-term acute care facility

DURHAM REGIONAL HOSPITAL, part of the Duke University Health System, has been granted approval by the state of North Carolina to open a long-term acute care facility (LTAC)—the only one between Greensboro and Rocky Mount. The LTAC, a 30-bed, independently operated unit to be located on the hospital's sixth floor, is intended to meet the needs of patients who require acute medical care services for an extended period, after initial diagnosis and treatment have occurred. "This is a win-win situation," said hospital CEO Richard Liekweg. "The LTAC brings an important new service to the residents of this community and provides a new revenue opportunity for the hospital," which has suffered financial setbacks in recent years. The facility, to be run by Select Medical Corp., will open in spring 2003.

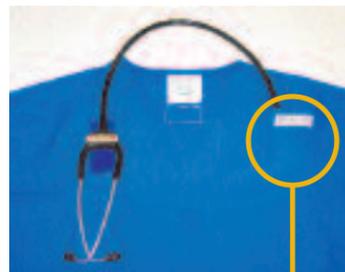
End pesky "scope flop" forever!

JACK INGOLD WAS TIRED of his stethoscope constantly flopping about his neck—so he did something about it. Ingold, a nurse at Durham Regional Hospital (part of Duke University Health System), invented Scope-rest, a product he believes will make thousands of other caregivers more comfortable.

For his prototype, Ingold stitched a small pocket just above the chest pocket of a scrub to hold the bell of the scope. To the other shoulder of the scrub, he sewed a Velcro strip that attached to its other half on the "Y" junction of the stethoscope. "I went from being annoyed by my scope to not

even knowing it was there," he says. "At that point I knew I had something that could help others in the medical field."

Ingold received a patent for his invention in 2001, and since has partnered with a local manufacturer to produce Scope-rest scrubs and lab coats. How have sales been? "So far we've just been selling them around the hospital, but we've sold a couple hundred," he says. "People who wear stethoscopes really like them and want several in different colors. We plan to start selling the scrubs in local stores soon, so we'll see what happens."



Nurse Jack Ingold's innovative scrub helps scopes stay put.

Rare gift for a rare disease



Victor Tapson, MD

ALL MEDICAL PROBLEMS deserve attention—but a dearth of research often limits what medicine can offer people with rare diseases. That's why a recent million-dollar gift to Duke was great news for the 20 people in a million who suffer from pulmonary hypertension (PH). The gift, from an anonymous donor, will help the Duke Pulmonary Hypertension Program expand an international database to aid those with the

debilitating condition, in which high blood pressure in the lungs overtaxes the heart.

The new database, launched in conjunction with Rush Medical Center in Chicago, uses an Internet-based data entry system that will help investigators throughout the world integrate and manage information from a much larger pool of patients.

Despite the rarity of PH, the Duke program, one of around 20 worldwide, treats about 500 patients and receives about six new ones each week, according to its director, Victor Tapson, MD. The anonymous gift

was prompted by the donor's acquaintance with several individuals with PH, one of whom is currently being treated by Tapson.

A recent increase in primary pulmonary hypertension (PPH) in the U.S and Europe has been attributed to the use of the appetite suppressants dexfenfluramine (Redux) and fenfluramine (Pondimin), either alone or in combination with phentermine ("fen-phen"). The FDA withdrew Redux and Pondimin from the market in 1997 after they were associated with development of heart valve damage and PPH.

Diversifying the health care workforce

MINORITIES COMPRISE about 25 percent of the United States population, yet only 6 percent of the country's practicing physicians are Latinos, African-Americans, and native Americans. That underrepresentation has serious ramifications: a National Institute of Medicine report released earlier this year, "Unequal Treatment," linked minority patients' disproportionately high level of mortality and disease to the lack of a diverse health-care workforce. The research showed that African-American and Hispanic physicians see significantly more African-American and Hispanic patients than their white counterparts do.

This September, Duke University Medical Center was named one of three partners in a new \$3.6 million W.K. Kellogg Foundation program designed to increase diversity in America's health professions, including medicine, dentistry, nursing, and health care administration. Duke will receive \$1.5 million of the grant and the remainder will be split between the National Institute of Medicine and Community Catalyst, a Boston-based national health consumer advocacy organization.

In April, Community Catalyst reported that after decades of trying to graduate more minority doctors, teaching hospitals and medical schools continue to use selection criteria and training processes that restrict minori-

A study published in the Summer 2002 *Journal of Blacks in Higher Education* ranked Duke #1 among the nation's most prestigious schools for attracting black students and faculty over the past decade.

The article is online at www.jbhe.com/features/36_leading_universities.html



ties from entering the medical profession. With its grant support, Duke will form a national panel to raise public awareness of the problem and examine the impact of college and university admissions policies on minority enrollment. Panel members will be chosen for their leadership in a variety of sectors, including higher education, corporate, entertainment, religion, and community advocacy.

"Duke not only says it supports diversity, it does it," said Henrie M. Treadwell, PhD, program director at the Kellogg Foundation, explaining why Duke was selected from a number of other medical educational institutions. "We did not see a better model or a better team. The institution's prestige and

the commitment from its president and Medical Center leadership made Duke the pre-eminent choice."

Currently 20 percent of Duke medical students are from underrepresented minority groups, and 95 percent graduate in four years or less—among the highest rates in the country. A study published in the Summer 2002 *Journal of Blacks in Higher Education* ranked Duke University number one among the nation's most prestigious schools for attracting black students and faculty over the past decade.

For further information, visit www.wkkf.org.

Weighing in on hormone replacement therapy

THIS SUMMER, a Women's Health Initiative study made front-page news by showing that one of the nation's most-prescribed therapies may do more harm than good. In fact, the study revealed such a clear correlation between long-term use of combination hormone replacement therapy (estrogen and progestin)* and heightened risk of breast cancer, heart disease, and blood clots that the study was terminated three years before its official end date.

But even those dramatic results haven't yielded a "one size fits all" answer as to whether menopausal women should take HRT, say experts. While thousands of women could suffer serious health problems if they take HRT over several years, HRT use increases the statistical risks for each individual woman by only a few fractions of a percent. And for certain women, that risk might be worth taking.

Duke cardiologist Kristin Newby, MD, served as Duke's lead investigator in the Heart and Estrogen-Progestin Replacement Study (HERS), which found an early increased risk of heart events among HRT users with preexisting heart disease, and no long-term cardiac benefits. Newby believes women should no longer take combination HRT to prevent chronic disease, even though it has been shown to lower the risk of osteoporosis and colon cancer.

But when menopausal symptoms like hot flashes, insomnia, and mood swings threaten quality of life, Newby acknowledges that a woman might arrive at a different conclusion.



"There are alternative approaches that may be worth trying first," she says. "If they really don't work, women might consider using HRT for a limited period of time."

For about 25 percent of women, however, menopausal symptoms may last not months but years—sometimes decades. For these women, HRT may provide much-needed relief of symptoms, even the ability to make love,

says Duke's Charles Hammond, MD, president of the American College of Obstetricians and Gynecologists: "The vaginal tissues of some of my patients who are not on HRT have become so thin that they simply can't have sexual intercourse anymore."

"Certainly, I'll tell any woman who says she's uncomfortable continuing to take HRT to discontinue it, and we'll work through any symptoms she develops in other ways," Hammond adds. "But most of my patients on HRT are in no rush to stop. When the WHI study came out, I invited all my patients to come in and discuss what would be best for them. These findings should be used to fuel additional discussion about HRT, not halt it."

Agrees Newby, "What the findings really make clear is that each woman should work closely with her doctor to analyze her own health profile, make informed choices, and step up efforts to make lifestyle choices that safely reduce the risk of cancer and cardiovascular disease."

**A WHI study evaluating estrogen use alone is still under way.*

The Duke Heart Center has issued a white paper for physicians with current recommended guidelines for HRT use. For a free copy, call 1-800-MED-DUKE or visit dukemedmag.duke.edu to access the paper online.

Combination HRT: Risks and Benefits

Sample alternative approaches to preventing and managing the conditions listed are shown in red. Nutritional supplements and herbal therapies have not been scientifically proven to be safe and effective; patients should discuss all interventions with their physicians first.

INCREASES RISK OF:

Breast cancer, heart disease, strokes, blood clots
Regular exercise, such as brisk walking 3x week; moderate, low-fat diet

DECREASES RISK OF:

Colon cancer
Low-fat diet, regular testing
Osteoporosis
Weight-bearing exercise, calcium + vitamin D supplements, bone-building medications

RELIEVES:

Hot flashes
Clonidine (antihypertensive), SSRI-type antidepressants, black cohosh, soy
Vaginal thinning
Vaginal lubricants; HRT patches, creams, vaginal rings (which release hormones into the bloodstream, but less than systemic use)
Mood swings
Stress management techniques, antidepressants

How does exercise make us fit?

RESEARCHERS AT DUKE and the University of Texas Southwestern Medical Center in Dallas have found a biochemical pathway in muscle cells responsible for generating many of the beneficial effects of regular exercise.

The discovery identifies targets for new drugs that may improve the lives of people suffering from chronic illnesses who could benefit from aerobic exercise, but are unable to perform the amount necessary for beneficial effects, said R. Sanders Williams, MD, lead author of the study that appeared in the April 12 *Science*. Drugs that stimulate this pathway could also reproduce health benefits of exercise that help to prevent diabetes and cardiovascular disease.

Williams and his colleagues have spent 20 years studying how muscle cells remodel themselves in response to exercise. In their latest study, the scientists identified a protein enzyme called calmodulin-dependent protein kinase (CaMK) that controls muscle cells' production of mitochondria—the powerhouses that metabolize oxygen and other molecules to produce energy for all cellular functions. People who exercise regularly have more mitochondria in their muscles than those who are sedentary, Williams said.

The scientists produced genetically altered mice with a continuously active form of CaMK in skeletal muscles, and found that these mice assumed the characteristics of

animals who exercised regularly even when they were sedentary.

"Activation of CaMK recapitulated the effects of exercise, indicating that this is a central pathway by which exercise modifies the metabolic properties of skeletal muscles," Williams said. "Until now, scientists did not suspect that this particular enzyme was involved in that control."

The research was conducted at UT Southwestern, where Williams was director of the Ryburn Center for Molecular Cardiology until becoming dean of Duke's School of Medicine in 2001.

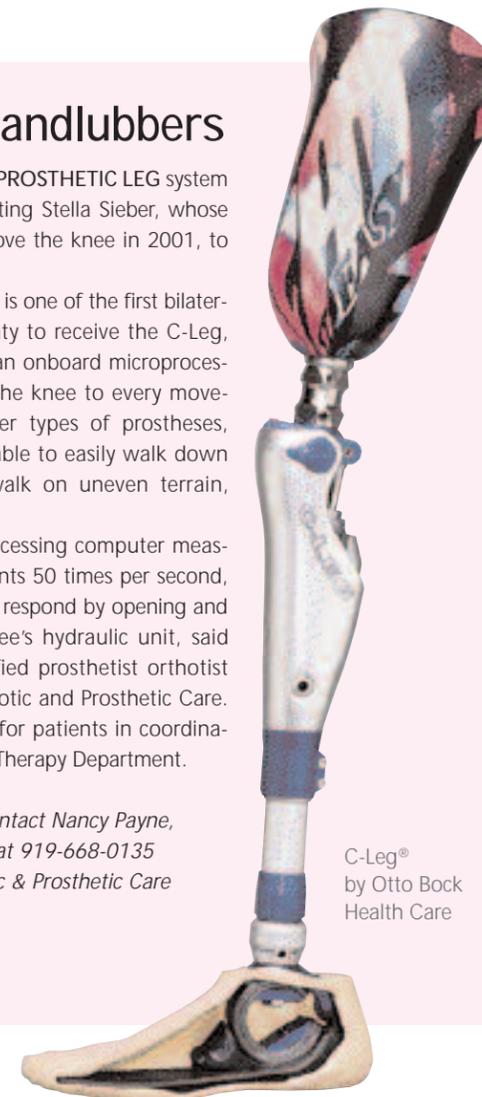
C-Legs for landlubbers

THE MOST ADVANCED PROSTHETIC LEG system ever developed is permitting Stella Sieber, whose legs were amputated above the knee in 2001, to walk again.

Sieber, a Duke patient, is one of the first bilateral amputees in the county to receive the C-Leg, which uses sensors and an onboard microprocessor to react and adjust the knee to every movement. Unlike with earlier types of prostheses, Sieber may one day be able to easily walk down stairs foot over foot, walk on uneven terrain, perhaps even run.

The C-Leg's micro-processing computer measures angles and movements 50 times per second, and computer electronics respond by opening and closing valves in the knee's hydraulic unit, said Michael Schuch, a certified prosthetist orthotist with the Center for Orthotic and Prosthetic Care. The private center cares for patients in coordination with Duke's Physical Therapy Department.

For more information, contact Nancy Payne, limb loss nurse clinician, at 919-668-0135 or the Center for Orthotic & Prosthetic Care at 919-684-2474.



C-Leg® by Otto Bock Health Care

Pinpointing recurrent prostate cancer

A NEW MULTI-INSTITUTIONAL STUDY led by Duke investigators indicates that a diagnostic scan may help localize recurrent prostate disease in men who have had surgical removal of the prostate and show early signs of recurrence.

The scan (trade name ProstaScint) employs an Indium-111-tagged monoclonal antibody directed toward the prostate-specific membrane antigen. The patient undergoes a SPECT (single photon emission computed tomography) scan immediately after injection of the radioactive antibody and another 72 to 120 hours later. The scan reveals lymph node metastases, whereas the more common radionuclide bone scan is more effective in detecting skeletal involvement.

Often the first sign of recurrence is a rising prostate specific antigen (PSA) level. Pinpointing the recurrence guides clinical management—usually radiation therapy for local recurrence and hormonal therapy for distant metastases, noted urologist Ganesh Raj, MD. He is lead author of the study, which appeared in the February 15 *Cancer*.

St. John's wort ineffective for major depression

THE LARGEST CLINICAL TRIAL performed to date on the popular herbal supplement St. John's wort (*Hypericum perforatum*) found it to be no more effective than placebo for the treatment of major depression, according to Duke researchers.

In the double-blind study, 340 subjects received St. John's wort, sertraline (Zoloft), or placebo for eight weeks, and those who responded favorably received the same medication for up to 18 additional weeks. Neither St. John's wort nor sertraline proved more effective than placebo on primary measures of effectiveness, which included scores on the Hamilton Depression scale and Clinical Global Impressions Scale for Improvement (CGI-I). While sertraline was shown to be an effective treatment on the secondary CGI-I measure, St. John's wort showed no effectiveness on any measure, according to the researchers.



"Rather than self-medicate with an over-the-counter medication or supplement, patients are strongly advised to consult an appropriate health care provider to assess the best treatment for a depressive episode," said psychiatrist Jonathan Davidson, MD, principal investigator of the study.

Another author on the study, Robert Califf, MD, director of the Duke Clinical Research Institute, emphasized the dangers of inadequate studies of St. John's wort and other herbal remedies. "As long as these types of products remain available to the public without the protection of adequate, controlled and unbiased studies, taking them is like playing Russian roulette with your health," he said.

Study results appear in the April 10 *Journal of the American Medical Association*.

"A lot of people with other serious illnesses become depressed and say, 'Well, I'll take a little St. John's wort to perk me up.' For these people, it can be particularly the wrong thing to do without good medical supervision to check these medicines and make sure that there's no harmful interaction going on." —Robert Califf, MD

Preemies see the light

TO SIMULATE THE WOMB they left too soon, many pre-term infants in neonatal ICUs are kept in near-darkness. But a new study by School of Nursing researchers at Duke and UNC found that they grow faster when exposed to cycled light, a practice usually reserved for preemies close to discharge.

Although constant bright light causes irregular heart rates and decreased sleep, and constant darkness offers no short-term advantages, cycled light apparently helps



establish a circadian rhythm in pre-term infants, noted Duke's Debra Brandon, PhD, RN, principal investigator of the study. Since they grow faster, the infants can leave the hospital sooner and may experience improved developmental outcomes later (a question researchers hope to address). The study appeared in the February *Journal of Pediatrics*.

Knees straight!

JUST AS FAILING TO PERFORM an alignment on a car after installing a new tire will lead to uneven wear and tear and ultimately tire failure, performing knee surgery without taking into account the proper alignment of the leg bones above and below the joint could cause future problems including degenerative arthritis, say Duke researchers.



Joseph Guettler, MD, standing, and Richard Glisson of the Duke orthopaedic biomechanics laboratory

Even a small varus knee malalignment—bow-leggedness—can lead to serious osteoarthritis for knee surgery patients. Physicians should at minimum closely monitor all young people who undergo reconstructive knee surgery to ensure that the leg bones stay in proper alignment, and in some cases surgically correct the bow-leggedness, said Joseph Guettler, MD, orthopaedic surgeon and sports medicine fellow at Duke.

As new surgical procedures—such as meniscus transplants or the implantation of cartilage grown outside the body—gain widespread use for patients with knee injuries, physicians should pay close attention to alignment, since it plays an important role in the ultimate success of the procedure, Guettler added.

The incredibly divisible visible mouse

LAST YEAR RESEARCHERS produced more than 6 million genetically altered mice—the principal animal model for exploring a vast range of human disorders, from cancer to drug addiction. Now, scientists can study the model more closely than ever. Advanced imaging technologies have enabled Duke researchers to produce 3-D "magnetic resonance microscopy" (MRM) images of mice at more than 250,000 times greater resolution than MRI scans used to diagnose human disease.

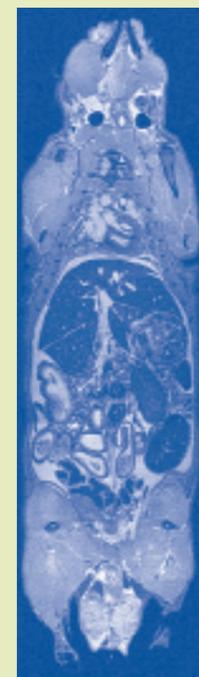
The new "Visible Mouse" project offers a powerful new tool for exploring the morphologic effects of genetically altering mice—and a host of advantages over conventional technologies, says G. Allan Johnson, director of the Duke Center for In Vivo Microscopy. While physically slicing and staining mouse sections is enormously expensive—around \$7

per slice—MRM can produce as many as 2,600 slices per animal, he said. Physical slicing also unavoidably distorts tissue, and "severely limits exploration of the often diverse morphological impacts of genetic alteration of these mice," Johnson said.

In contrast, digital MRM technology is non-destructive and enables researchers to review the whole animal at once—electronically slicing the animal in any plane, and even rapidly stepping through planes to reveal structures dimensionally. Such abilities can help researchers discover pathologies they otherwise wouldn't, such as tumors in unexpected places, Johnson said.

Learn more at the Center for In Vivo Microscopy Web site, www.civm.mc.duke.edu.

A 3D MRM image of a mouse. The scans can achieve a resolution of 25 microns—an eighth of the width of a human hair.



IT'S NICE TO SHARE MICE MRM images can be shared across the Internet—a boon to a new collaboration between Duke, UCLA, Caltech, and University of California-San Diego scientists. The researchers have received a \$20 million grant to create a new Biomedical Informatics Research Network, which will use computer technology and mouse models of neurologic disease to advance knowledge about the genetic basis of neuropsychiatric diseases and drug abuse.

Bolstering support for beta-blockers during bypass

TWO DUKE STUDIES support the belief that, with few exceptions, every patient undergoing coronary artery bypass graft (CABG) surgery should be given beta-blockers. These drugs significantly reduce the percentage of adverse neurological events—stroke, transient ischemic attacks (TIAs), encephalopathy, and coma, they say.

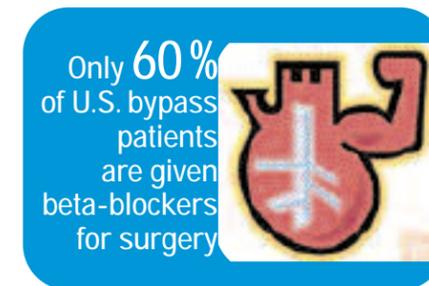
In one study, Duke cardiologist Eric Peterson, MD, and Louisiana State University cardiac surgeon T. Bruce Ferguson, MD, consulted the Society of Thoracic Surgeons' database of nearly 630,000 patients who underwent bypass surgery between 1996 and 1999. The physicians found a small but important survival benefit: patients receiving beta-blockers had a 30-day mortality rate of 2.8 percent, compared to 3.4 percent for those who did not. The drugs had no negative effects except in patients with a left ventricular ejection fraction of less than 30 percent.

In the second study, Duke researchers analyzed the medical records of 2,575 patients who underwent CABG at Duke over a three-year period. Only 3.9 percent of the patients receiving beta-blockers suffered adverse neurological events, compared to 8.2 percent of those not on the drugs. For the most severe events, stroke and coma, the beneficial effect of beta-blockers was even more striking—a 1.9 percent rate of adverse effects for those taking the drugs and 4.3 percent for those who did not.

The physicians theorize that beta-blockers protect body and brain by neutralizing the massive amounts of epinephrine and norepinephrine released during surgery. In addition, beta-blockers control atrial fibrillation, which makes patients more prone to developing emboli that cause TIAs and stroke.

Physicians previously believed that because the medications lower blood pressure and heart rate, patients would be at greater risk during surgery. "Now, obviously, we are learning that the opposite is true," said Duke anesthesiology chairman Mark Newman, MD, lead investigator of the second study. "Since only about 60 percent of bypass patients nationwide are currently given beta-blockers for surgery, there's certainly much room for improvement in this area."

The studies appeared in the May 1 issue of the *Journal of the American Medical Association* and the June issue of the *Journal of Cardiothoracic and Vascular Anesthesia*.



Hot new therapy for breast cancer

WHAT SOME PATIENTS CALL the “booby Jacuzzi” may save lives. Using a specially designed salt-water treatment table to warm the breasts, physicians can trigger the localized release of a liposome-encapsulated chemotherapy—delivering 30 times more drug to the tumor site than conventional methods without poisoning the rest of the body.

The results in 21 women with inflammatory and locally advanced breast cancer are far more dramatic than the Duke team envisioned, said medical oncologist Kimberly Blackwell, MD. The trial therapy halted tumor growth in all women and partially shrunk tumors in half of the women. One-third of the patients had no detectable visible signs of cancer after treatment.

The unique clinical trial is the first to combine hyperthermia (heat therapy) and a novel liposome delivery system—in which chemotherapeutic agents are encased in tiny fat bubbles—in patients with newly diagnosed, large, and invasive tumors. The heating draws the liposomes out of the bloodstream and directly to the tumor site, where they melt, releasing the drug. Heat also increases the rate of drug uptake into tumor cells, and

helps the chemotherapeutic agents work more efficiently once inside the tumor.

For the trial, hyperthermia program director Mark Dewhirst, DVM, PhD, and colleagues developed a new generation of liposomes with a melting point of 40 degrees Celsius—warm enough to engage the benefits of heat but cool enough to prevent burning the skin. The novel properties of these liposomes reduce the amount of free drugs in the body, and patients have experienced less nausea, fatigue, and cardiac toxicity than with traditionally delivered chemotherapy.

The treatment program begins with a traditional infusion of chemotherapy, followed by a CT scan of the breast to pinpoint the tumor’s precise location. Next, a catheter is placed inside the tumor, in which doctors place a thermometer to monitor the tumor’s temperature during hyperthermia. Patients then lie face-down with their breasts in a pool of salt water on a one-of-a-kind treatment table designed and built by Duke engineer Thaddeus Samulski, PhD. Samulski also designed the table’s heating apparatus and software, through which he delivers radio frequency energy that heats the tumor via the water.



Kimberly Blackwell, MD

After the four rounds of hyperthermia treatment (given at three-week intervals), radiation oncologists measure the tumor shrinkage and recommend the least invasive type of surgery to remove their patients’ tumors. Surgery is followed by additional chemotherapy and radiation to kill any undetected cancer cells in the breast and surrounding tissue.

“We use the best and newest agents up front, then the standard and traditional treatments at the tail end,” Blackwell said. “It’s like a guarantee policy to ensure that the patients receive every possible benefit we have to offer them.”

Clot Busters

IT’S TIME FOR “economy class syndrome” to take a front-row seat in the minds of physicians whose patients may be at risk of developing deep venous thrombosis (DVT).

Physicians are well aware that DVT (blood clots) can develop in the legs and pelvis during periods of immobility—on long plane flights (hence the nickname) or following surgery, for example. But in- and outpatients with medical conditions such as heart failure, cancer, emphysema, and obstructive pulmonary disease also experience restricted mobility, raising the risk of thrombosis, noted



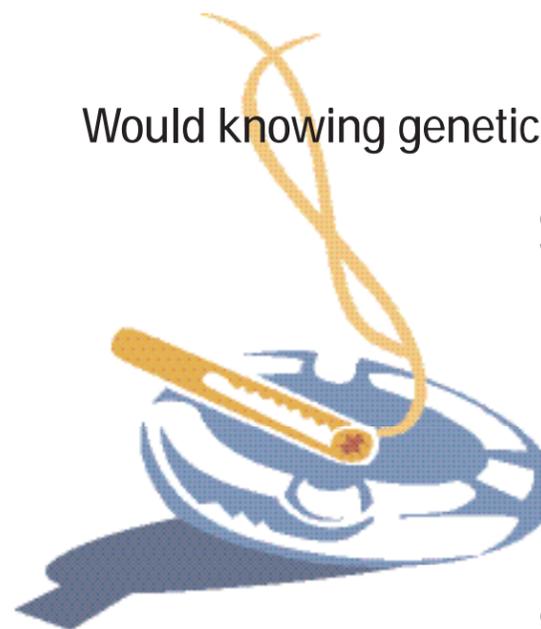
Duke pulmonologist Victor Tapson, MD. The sometimes-painful, sometimes symptom-free condition becomes life-threatening if the clot breaks free and travels to the lungs, producing pulmonary embolism. An estimated 2 million Americans develop DVT each year, and perhaps 200,000 experience fatal pulmonary embolism.

Tapson is co-chair of the Council for Leadership on Thrombosis (CLOT) Awareness and Management, a new effort to raise awareness of DVT prevention and treatment. The

council’s take-home message for physicians: consider anticoagulant prophylaxis—usually unfractionated or low-molecular-weight heparin—for all patients with medical illnesses, recent surgery, and restricted mobility unless contraindicated (such as for patients with low platelet counts or bleeding disorders). Those at higher risk for DVT include patients with certain cancers that release prothrombic substances; inflammatory diseases such as lupus, Crohn’s disease, or rheumatoid arthritis; leg and pelvic injuries; and recent surgery.

For more information, call the ClotAlert Resource Center at 1-800-CLOT-FREE (256-8373).

Would knowing genetic risk help smokers quit?



Maybe this will convince ‘em

A Duke study published in the June *American Journal of Public Health* shows that even people who have smoked for decades can add a few years to their lives by quitting—and younger quitters extend life even longer.

Age when quit:	Years added to life*:
35	6.9 to 8.5 (men), 6.1 to 7.7 (women)
45	5.6 to 7.1 (men), 5.6 to 7.2 (women)
55	3.4 to 4.8 (men), 4.2 to 5.6 (women)
65	1.4 to 2 (men), 2.7 to 3.7 (women)

*compared to smokers who do not quit

IF SMOKERS KNEW that they were genetically susceptible to smoking-related cancers, would they quit? Maybe not, suggests new Duke research.

In a study published in July’s *Cancer Epidemiology, Biomarkers and Prevention*, researchers randomized 557 African-American smokers into two groups. The first group received counseling about smoking cessation, a self-help smoking cessation guide and nicotine replacement therapy as appropriate. The second group received the same therapy but also agreed to take a blood test for GSTM1, a gene linked to increased risk for lung cancer. Case studies have shown that individuals with lung cancer are more likely to be missing GSTM1 than matched controls, and it has

been estimated that 35 percent of African-Americans may be missing the gene. GSTM1 produces an enzyme involved in detoxifying a number of environmental carcinogens, including those in cigarette smoke.

“We thought if we personalized the risks for people, it might convince them to quit,” said study leader

Colleen McBride, PhD, associate professor of Community and Family Medicine and director of Duke’s Cancer Control Program. “Unfortunately, being susceptible wasn’t strong enough to motivate them.” There was some encouraging news, though: “We were concerned that telling smokers that they were not genetically susceptible might undermine their motivation to quit smoking and that was not the case.” Researchers found that 68 percent of participants believed they would eventually acquire lung cancer if they did not stop smoking, and that most were already experiencing adverse health effects from their smoking. McBride speculated that knowledge of genetic susceptibility just reinforced what participants already knew, which might explain the lack of response.

McBride also said that about half of the smokers did not understand the feedback of information on their genetic susceptibility, and multiple telephone counseling sessions did not seem to help. “We’ve just begun to touch on how to communicate genetic makeup and health risks to the public,” she said. “It’s difficult to explain the risks, but it’s our responsibility to communicate risk to all patients so they can understand how it impacts their health and take necessary precautions.”

Century-old nitroglycerin mystery solved

FOR OVER 130 YEARS, doctors have prescribed nitroglycerin to relieve chest pain without knowing exactly how it worked. Now, Duke and Howard Hughes Medical Institute researchers have solved this old riddle. The team found an enzyme—mitochondrial aldehyde dehydrogenase (mALDH)—that degrades nitroglycerin, releasing a nitric oxide-related molecule that relaxes blood vessels. This increases blood flow to the heart,

reducing pain. Moreover, mALDH’s action is suppressed after repeated exposure to nitroglycerin, explaining why patients eventually develop a tolerance to the drug. Alcohol and certain classes of drugs (including sulfonureas, chloral hydrates, and acetaminophen) also inhibit mALDH activity, so nitroglycerin users should probably avoid those substances, said study leader Jonathan Stamler, MD.



SPECIAL REPORT

Cardiovascular MRI offers physicians a better look at patients' hearts—so they can diagnose and treat disease more precisely than ever.

AN EXQUISITE VIEW

BY MINNIE GLYMPH

A FEW MONTHS AGO, Duke cardiologist Eric Velazquez, MD, faced a dilemma. His patient—a 58-year-old man with congestive heart failure*—had depressed left ventricular systolic function: the main chamber of his heart was not contracting well, threatening its ability to pump enough blood. Velazquez thought the patient might benefit from a new resection procedure, in which surgeons cut away the thin, dead parts of the ventricle that aren't contracting, then reshape a smaller, more efficient heart.

But it wasn't an easy decision. "There's always a question of whether we should operate when a patient is at high risk," Velazquez says. "And when considering resection, it's critical to know as much as possible about what's going on inside the patient's heart."

A year ago, Velazquez would have turned to echocardiography for that information. But this summer, Duke opened one of the country's first centers dedicated to a new technology for imaging the heart: cardiovascular MRI. Viewed by many as "the ultimate frontier in noninvasive testing and cardiac imaging," as an American Heart Association report put it, MRI shows details of heart structure, function, and blood flow with unrivalled crispness—and, unlike echocardiography, it can view the heart from any angle, without interference from bone, lung, or air. Further, in a technique developed by Duke center leaders, MRI can be

combined with a contrast agent to highlight precisely which areas of the heart muscle are dead or damaged.

For Velazquez, MRI was the clear choice—and it provided a clear answer. Although the patient's heart had areas that were very thin, which is often interpreted to mean the tissue is dead, MRI showed that in fact it was alive. The patient did not undergo resection, and the healthy heart tissue was preserved. Since then, Velazquez has turned to MRI numerous times to help him target treatments for other patients. "Echo provides good general information, but when you have a patient with an enlarged, poorly contracting heart, the data it offers may not be sufficient," he says. "MRI is more specific, allowing you to quantify exactly how big the heart is, how thick the walls are, and whether there is evidence of irreversible damage. All that is higher-level information that improves your ability to make the best clinical decision."

GEARING UP

Velazquez's patient was one of the first to be seen at the new Duke Cardiovascular Magnetic Resonance Center (DCMRC), which opened June 3, 2002. Located in sleek white offices in Duke Clinic, the center features a \$2.6 million, 1.5T Siemens Sonata MRI scanner, specially designed to capture images of the heart. It's expected to serve up to 2,000

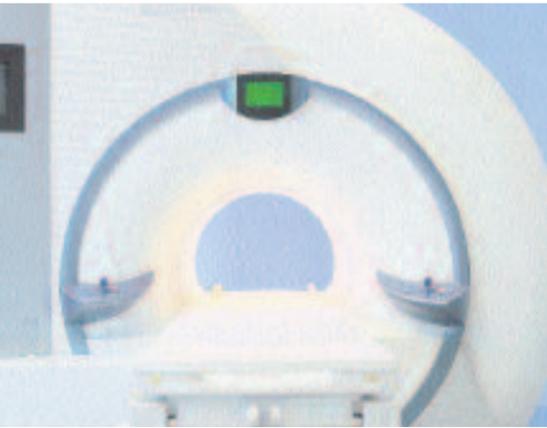
*Details have been changed.

An MR image showing all four chambers of a normal heart.

No other imaging technology offers physicians such quality of **detail** and **ease** in obtaining the exact angle and view desired.

Sample indications/anatomical regions appropriate for MRI evaluation:

Aortic dissection and other aorta abnormalities / Cardiac thrombus
 Cardiomyopathy / Congenital defects / Heart failure
 Ischemic evaluation / Pericardial thickening, cysts, and masses
 Shunt / Valvular and vascular conditions / Viability assessment



Magnetic resonance imaging was introduced over 20 years ago, but only recently have engineers developed scanners fast enough to capture clear images of a beating heart.

patients in its first year alone; the DCMRC's business manager, John Vargas, cheerfully notes that "We'll add evening hours if needed to handle the load." Meanwhile, a giant crane will soon lower a matching 8,000-pound scanner through the roof of Duke Hospital, where it will be serving inpatients by early 2003; there are also long-range plans to add a third machine devoted solely to research.

Clearly, the center anticipates brisk business. And it's not likely to be disappointed, given the rapid pace at which new applications are being found for cardiac MRI. Although the field is still in infancy—it wasn't until a few years ago that engineers developed scanners fast enough to capture a beating heart—MRI has already proven more precise than other techniques at assessing tissue viability, evaluating cardiac anatomy, and detecting minute changes that reveal how well the heart is responding to therapies, among other things. But that's just the beginning. Soon, researchers think, MRI could be used to guide minimally invasive surgeries, replace many current techniques that are in-

sive or involve radiation, and perhaps even detect imminent heart attacks.

"The whole discipline is still defining itself," says biomedical engineer Robert Judd, PhD, who codirects the DCMRC with cardiologist Raymond Kim, MD. "The idea behind this center is to advance the field by improving cardiovascular imaging techniques, while making available those clinical applications that are ready for prime time."

WHEN IS MRI BEST?

Kim and Judd are personally responsible for one of the most eagerly embraced applications for cardiac MRI. While at Northwestern University, the duo invented a technique called "MR Delayed Contrast Enhancement" that uses a gadolinium-based contrast agent to detect damage sustained in heart attacks. The scarred muscle cells soak up more of the agent than healthy tissue, to appear illuminated, or "hyperenhanced," in the MR image. "The technique is so sensitive that we can pick out heart attacks in people who didn't even know they had had one," Kim told reporters shortly after their results were reported in *New England Journal of Medicine*. Used by Velazquez to evaluate his patient for resection, the technique can also be combined with studies of contractile function to help physicians predict which areas of the heart will respond best to bypass surgery, angioplasty, or revascularization.

MRI is also especially valuable in evaluating congenital heart disease. "You can see things you can't see with echocardiography," says Stephen Sanders, MD, chief of pediatric cardiology. "For example, with adult congenital patients who have transposition—their systemic ventricle

is morphologically right, not left—assessing functionality has always been problematic. With MRI one can do a better job. It also has a lot of uses in young children, such as allowing us to image anomalous arteries without invasive cardiac catheterization." (While MRI is very good at imaging larger vessels and showing the anatomy of smaller ones, experts say, conventional angiography is still the best way to evaluate stenosis.)

MRI's great precision also gives it an edge over existing techniques in measuring left ventricle function. While echocardiography and tomography do a reasonable job, they fall short for up to 30 percent of patients with cardiovascular conditions, according to Pascal Goldschmidt, MD, chief of cardiology. These candidates for MRI include patients in the "gray area" of left ventricular function, whose ejection fraction—the percentage of blood in the chamber pumped out with each contraction—is between 20 percent (markedly reduced function) and 40 percent (almost normal function).

"A recent study, MADIT-II, showed that post-heart-attack patients who had left ventricular dysfunction and an ejection fraction less than 30 percent had better survival rates if given an automatic implantable cardiac defibrillator," Goldschmidt says. "This could be



Biomedical engineer Bob Judd (left) and cardiologist Ray Kim (right) developed a technique that combines MRI with a contrast agent to illuminate damage sustained in heart attacks—including infarcts (areas of dead tissue) that are not visible with other scanning methods. The technique can help determine whether patients will benefit from bypass surgery or angioplasty, and may even be able to predict which individuals are at highest risk for future heart attacks.



DETECTING "Clear and Present Danger"



THE DEATH THIS SUMMER of Darryl Kile, the 33-year-old St. Louis Cardinals pitcher, from a heart attack came as a shock to many people. Although he had a family history of heart disease, he was fit, young, and had just passed a physical and EKG. As the

Washington Post wrote shortly after his death, Kile's case exemplified "one of the biggest frustrations in cardiology": the fact that for an unlucky quarter-million Americans each year, a fatal heart attack will be their first and only clear symptom of heart disease.

Now, Duke researchers may have found a way for doctors to identify some of these

individuals beforehand. In a study of patients with cardiac risk factors but no history of heart attack, Raymond Kim, MD, and Robert Judd, PhD, discovered that a third of them actually did show evidence of heart attack with MRI—which can detect tiny areas of necrotic tissue, called "microinfarcts," that radionuclide and echocardiographic techniques cannot. Sometimes called "silent" heart attacks, these infarcts can present as a cold or other seemingly unrelated symptom. "If you have one of these microinfarcts, we believe your risk for having another heart attack is quite high," Kim says. "Unlike other measures of risk, such as high blood pressure or high cholesterol, this is actual, direct evidence of cell death due to heart disease. People with these lesions should probably be evaluated and treated as if they've already had a noticeable heart attack."

Kim and Judd are now preparing to launch larger studies to prove their hypothesis that microinfarcts predict poor prognosis. Meanwhile, they're also engaged in numerous other areas of research, including basic research to improve the detection of salvageable heart tissue, work to improve the visualization of arterial plaques and determine which plaques are unstable, research to improve imaging technology, and clinical trials that use MRI to determine how new therapies affect heart function.

"The technique is so new that a lot of times you don't know whether MRI is useful for something until you try it," Kim says. "There's a lot of development to do, and that's an important role our center can play. We're actually developing and using new MRI techniques for the first time here at Duke."

very helpful to certain patients, but the overall cost to health care could vary from \$100 billion to \$300 billion depending on how accurately the candidates' left ventricular function is diagnosed.

"In an era of evidence-based medicine, we owe it to our patients to make such choices based on the most definitive diagnostic procedures available," he adds. "This doesn't mean we need to use MRI with everybody, but for those for whom we need really accurate results, MRI becomes absolutely the gold standard."

TRAINING OTHERS

Cardiac MRI is still relatively uncommon, and many physicians—even cardiologists and cardiac surgeons—aren't aware of all it offers. "This field is so new that it changes from month to month," says Kim. "We really need to educate people about what the technology can and cannot do."

To that end, the DCMRC is offering training for physicians both at Duke and externally. Not only will every cardiology fellow at Duke now rotate through the center, but

DCMRC has established one of the nation's first cardiac MRI fellowship training programs. In addition, Duke is working with Siemens Medical Solutions to create joint educational symposia for physicians who would like to learn cardiac MRI techniques. Starting this fall, DCMRC will offer week- and month-long courses, as well as shorter-term preceptorships.

Center staff are also interested in helping community physicians learn how cardiac MRI can help them manage heart disease and other disorders. "We're available to talk with clinicians about whether MRI would be useful in specific cases," says Kim. "We're also developing a strong Web presence where we can actually show sample images and discuss how we're using the technology to diagnose various conditions."

In the case of MRI, seeing is believing, he adds. "There are other tests that can do similar things, but they're not as accurate," Kim says. "Conveying exactly how MRI can help and what it can add to more traditional tests is easier to show than to explain. That's why the

best feedback we've gotten is from people who have referred patients to us. They get the results and say, 'Oh, now I see how things are tied together.'

"That's when they really get the idea of the power of MRI." □

FOR MORE INFORMATION

To find out more about the Duke Cardiovascular Magnetic Resonance Center, to inquire about its diagnostic capabilities for a specific disorder, or to refer a patient, please call the Duke Consultation and Referral Center at 1-800-MED-DUKE (patients call 1-888-ASK-DUKE), or call the clinic directly at 919-668-5580. You can visit the Center online—and view sample images—at dcmrc.mc.duke.edu.

GOLDEN-YEAR BLUES

BY CAROL KRUCOFF
PHOTOGRAPHS BY
WILL MCINTYRE
AND BUTCH USERY

Underrecognized, undertreated, and all too common, late-life depression can dramatically worsen other medical conditions and quality of life. New treatments being tested at Duke offer help, as research probes the complex interactions among body, mind, and mood.

DELAINA BUEHLER DIDN'T FEEL SAD OR BLUE.

"It was more like a *blah* feeling," recalls the 68-year-old retired Durham schoolteacher, who kept telling herself she was being ridiculous. "I had every reason in the world to be happy—a wonderful husband, children, and grandchildren—but I wasn't. It's not that I was unhappy. I'd just go for weeks without any interest in life and have times when I felt like I really didn't care what happened."

When her doctor diagnosed depression, Buehler was surprised. Reluctant to see a psychiatrist because of the stigma, she enrolled in Duke's Project IMPACT—a study testing a novel approach to depression treatment in primary care. At the same Durham clinic where she saw her primary care physician, Buehler met regularly with Carol Saur, an advanced practice nurse specializing in mental health, who in turn consulted with the program's psychiatrist.

"I didn't want to take medication," Buehler admits. "But Carol taught me that depression is a medical condition involving changes in brain chemistry, so I decided to try it. And in our meetings, so many other things came out, like how I never cried over my father's death. She also helped me come up with some strategies to be more assertive when necessary. The whole experience was extremely positive and made a big difference in my life. I'd urge anyone who's not feeling right to get this kind of help immediately. Life's too short to feel bad."

DEPRESSION is a widely underrecognized and undertreated medical illness, affecting 10 to 15 percent of older adults in primary care practices and disproportionately linked to suicide among those over 65. “At best, only about one-fourth of all cases of major depression are diagnosed,” points out David Steffens, MD, psychiatrist for Project IMPACT and head of Duke’s Division of Geriatric Psychiatry. While the illness is frequently missed in people of all ages, he says several factors make depression particularly misunderstood in older adults.

“The classic symptoms of sadness, crying, and the blues tend to be present in people in their 20s and 30s,” Steffens says. “But we’ve only recently recognized that depression generally presents in different ways in older people, with the more common expression being loss of interest in life and the inability to experience

treated,” he says, “these problems may lessen or go away entirely.”

Depression is also associated with increased disability and exacerbation of other medical conditions, which can trigger a deepening cycle of depression. “We know that the longer the list of medical problems an older person has, the greater their risk of depression,” says Ranga Krishnan, MD, chairman of Duke’s Department of Psychiatry. “And being depressed increases the risks of mortality from all causes.

“The trap many physicians fall into is thinking, ‘Of course they’re depressed, they have this illness or that illness,’ so they think the depression is normal and don’t

do anything about it,” he continues. “But the majority of people with serious illness don’t get depressed. They may feel sad, but it doesn’t affect their function.” Depression rates among people with major illness vary, he says, from about 20 percent of those with heart attacks to

more than 60 percent of pancreatic cancer patients.

Researchers are just beginning to unlock the complex biochemical connections between depression and other disorders (see page 26). Krishnan, who is principal investigator for the National Institute of Mental Health’s Conte Center study of the neurobiological mechanism of depression, has identified a condition called vascular depression caused by “silent strokes” deep within the emotion centers of the brain. This evidence suggests “a two-way street,” he says, “with risk factors for cardiovascular disease influencing the onset of depression in otherwise mentally healthy patients.” As this and other research reveals strong connection between the heart and the mind, he advises physicians treating people over 60 who appear depressed to “look for other medical problems, particularly vascular ones.”

In addition, certain medical conditions can mimic depression and should be ruled out—including thyroid problems and some brain disorders such as Parkinson’s disease, Krishnan says. “It’s



Ranga Krishnan, MD

David Steffens, MD

pleasure in formerly enjoyable activities.” In addition, he says, problems that may be shrugged off as “part of getting old”—such as memory loss, difficulty concentrating, and slowing down of body movements—may, in fact, be symptoms of depression. “When the depression is

do anything about it,” he continues. “But the majority of people with serious illness don’t get depressed. They may feel sad, but it doesn’t affect their function.” Depression rates among people with major illness vary, he says, from about 20 percent of those with heart attacks to

Best Questions

...for depression screening

PRIMARY CARE PHYSICIANS CAN SCREEN older adults for depression by asking two simple questions, says internist Linda Harpole, MD:

Over the last two weeks, how often have you been bothered by any of the following problems:

- 1 Little interest or pleasure in doing things you usually enjoy?
 - Not at all
 - Several days
 - More than half the days
 - Nearly every day
- 2 Feeling down, depressed, or hopeless?
 - Not at all
 - Several days
 - More than half the days
 - Nearly every day

SCORE: Zero for “not at all,” 1 if “several days,” 2 if “more than half the days,” 3 if “nearly every day.” “If someone scores three or greater, they are very likely to have major depression,” says Harpole, who uses this quick-screening test, which was adapted from a longer Patient Health Questionnaire-9 by Spitzer et. al. 1999.

... for suicide screening

Senior citizens commit suicide at higher rates than any other age group, with older white men at highest risk: 33 of every 100,000 of them commit suicide, triple the national rate of 11 suicides per 100,000 people. “It’s almost epidemic now,” says psychiatrist Ranga Krishnan, MD, who offers the following screening questions to help identify patients at high risk:

- 1 Do you have thoughts of dying or of death?
- 2 Have you felt that life is not worth living?
- 3 Do you have images of death and dying?

Patients who answer yes to any of these questions should be referred to a psychiatrist, he says.

Linda Harpole, MD



FACT:

20% of seniors who commit suicide visit their primary care physician earlier that same day.
40% visit the same week, and
70% within a month of the suicide.



important to treat both the depression and the medical condition,” he notes. “Improving one can help the other, and vice versa.” Treating depression is also critical to reduce the risk of suicide, which he says is “almost epidemic now among older adults, particularly white males, who have the highest rate of completed suicide.”

BETTER CARE IN PRIMARY CARE

Yet there are many barriers to effective treatment, particularly among seniors. Many still subscribe to outdated notions

that depression represents a character flaw or weakness they should be able to overcome with willpower, says Linda Harpole, MD, an assistant professor in the

Department of Medicine. “The idea behind Project IMPACT is that, because of this stigma issue, older adults are more likely to come to their primary physician’s office for care,” says Harpole, principal investigator of the Duke portion of the multi-center, randomized clinical trial. “But limited time in a primary care practice means that mental health often falls to the bottom. Project IMPACT’s collaborative care model, with a depression nurse specialist, can be a more efficient use of everyone’s time, while also improving

PSYCHOPHARMACOLOGY CONSULTATION PROGRAM

Physicians, nurse practitioners, and other health professionals who prescribe medication to treat psychiatric illness can get a free consultation on choosing appropriate drugs through the Psychopharmacology Consultation Program in the Department of Psychiatry and Behavioral Sciences. Headed by Prakash S. Masand, MD, this grant-supported program is available to area practitioners Monday to Friday, 9 a.m. to 4 p.m., by phone at 919-681-5171, by FAX: 919-668-3653, and by e-mail: psychcme@mc.duke.edu. Questions will be answered within 48 hours.



Carol Saur, depression nurse specialist

communication between the mental health specialists and the primary care provider.”

Project IMPACT studied more than 1,800 participants age 60 and older with major depression and/or dysthymic disorder (chronic, low-level depression) from 18 primary care clinics across the U.S.—including 254 Duke patients. At each site, participants worked with a depression care manager—generally a mental health nurse or psychologist—in collaboration with a psychiatrist and primary care practitioner. The results suggest that the Project IMPACT model is significantly more effective than usual care for depression. Compared to the “usual care” patients, those in Project IMPACT experienced significantly higher rates of depression treatment, greater satisfaction with depression care, improvement in depression scores, lower rates of major depression at six months, less functional impairment, and greater quality of life.

“This is the first study to show this amount of improvement relatively quickly,” says Eugene Oddone, MD, chief of the Division of General Internal Medicine. “The second phase will be establishing cost effectiveness.” Since depressed patients use more medical services and may not comply with treatments, he says, “The theory is that treating the depression will result in overall better health and lower use of health services down the road.” In

fact, patients and staff have been so pleased with Project IMPACT that the division has offered Saur a permanent position to continue her work treating adults with mental health concerns in the primary care setting.

WAYS TO HELP

To help identify patients with depression, Saur and her colleagues use simple screening tests (such as those on page 23). Evaluating patients’ physical problems isn’t enough, Saur points out. “When underlying medical problems are ruled out and a patient continues to experience somatic symptoms, it’s important to acknowledge the patient’s concern and consider a mental health referral,” she says. “If the patient feels there’s something wrong, it needs to be addressed.”

After a patient has been diagnosed, Saur, in consultation with Steffens, brings in a full arsenal of treatments—not only managing medications and/or providing psychotherapy, both of which are highly effective treatments for depression, but teaching self-help methods as well. “First I educate patients about depression,” she says, pointing to a button reading *Depression—it’s an illness, not a weakness*. “Then I help them identify their triggers and create strategies to handle difficult situations.” She also gives “homework,” asking patients to practice self-management techniques such as deep relaxation breathing, taking

at least 10 to 15 minutes a day to pursue an enjoyable activity, and exercising at least 10 to 15 minutes daily.

Indeed, studies by Duke psychologist James Blumenthal, PhD, suggest that aerobic exercise is just as effective as medication in relieving depression in the middle-aged and elderly. Recently, Blumenthal, Krishnan, and others have received funding from the National Institutes of Health to explore the relationship of exercise to depression and vascular function in depressed older adults. Since evidence shows links between depression and vascular functioning—and exercise improves both conditions—they suggest it may be a particularly effective intervention for late-life depression.

While few would choose to live with depression, there is cheering news for certain sufferers: As part of a 10-year study examining illnesses and functional status of more than 4,000 older adults in five North Carolina counties, Duke researchers found that women 65 and older with mild depression were 40 percent less likely to die prematurely than older women in the other groups. “Mild blues may actually be in some way protective, just like a fever is protective,” says Dan Blazer, MD, PhD, principal investigator for the Duke Established Populations for Epidemiological Studies of the Elderly (EPESE). However, these findings of increased longevity with “the blues” did not

hold true for older men, notes Blazer. Another provocative result from the same study found racial bias in the prescription of antidepressants. Doctors were three times more likely to prescribe antidepressants to elderly Caucasians than to elderly African-Americans, the study found, although the rates of major depression are about equal in both groups.

As EPESE and other research studies reveal more about the causes and consequences of depression, treatment is bound to become more effective—but no therapy can replace the simple act of identifying those who need help, according to Blazer. “Depression is fairly common, and it doesn’t hide itself if you ask the right questions,” he says. The most important question, he believes: “Do you get enjoyment out of life?”

Richard Hamilton, 76, would now answer with a “yes.” “Depression is a devastating thing that just eats at your soul,” says the retired lecturer in the Department of Ophthalmology and Project IMPACT patient. “I was just plain melancholy and a little bit embarrassed about it. But the stability I gained through the program is wonderful. My wife would say it was a miracle almost. People should never be embarrassed to ask for help.” □

For more information about depression research and treatment at Duke, including a comprehensive list of ongoing clinical trials, visit psychiatry.mc.duke.edu.

To refer a patient to Duke’s Geriatric Depression Research Clinic, call 919-668-BLUE.

To learn more about child and adolescent depression, visit dukemedmag.duke.edu.

DEPRESSION RESEARCH

Connecting Depression and Disease

Researchers are uncovering new links between mental and physical health—and finding that treating depression can often improve patients’ medical conditions.



Christopher O'Connor, MD

CAN SADNESS REALLY BREAK YOUR HEART? New research suggests the idea may be more than a poetic construct. “We’ve known for several decades that people with mood disorders had higher than normal death rates from cardiovascular disease,” says Christopher O’Connor, MD, an associate professor in Duke’s Division of Cardiology. In recent years, he adds, a growing body of evidence has revealed that people with depression suffer more frequent and more fatal cardiovascular disease—with some research suggesting that depressed patients have a 50 percent higher risk of cardiac death than those without depression.

“Major depressive disorder occurs in 15 to 23 percent of patients with acute coronary syndromes and constitutes an independent risk factor for both first myocardial infarction [heart attack] and cardiovascular mortality,” says O’Connor, who co-authored a recent study examin-

ing the effect of antidepressants on patients with heart disease. Published in the August 14, 2002 *Journal of the American Medical Association*, the “Sad Heart” study found that patients given the antidepressant sertraline (Zoloft) had 23 percent fewer cardiovascular events than a control group, and also showed greater improvement in their depression (78 percent improved, compared to 45 percent of those taking a placebo).

While specific mechanisms are unknown, O’Connor says, “The working hypothesis is that depressed patients have higher reactivity of their platelets, which makes them ‘stickier’ and more likely to form a clot.” New research suggests that psychotherapy alone as a treatment for depression doesn’t improve heart disease, while medication does. “This may mean that there’s something going on at the biochemical level that responds to drugs,” he says, “but not psychotherapy.” In late life, depression may be a major contributor to the course and severity of heart disease, notes O’Connor, who says the two conditions may be synergistic. “I think depression will turn out to be a risk factor for heart disease that we’ll need to measure like cholesterol level,” he says.

Depression is now recognized as contributing to worse outcomes in many other disorders as well—including renal disease, stroke, diabetes, cancer, Parkinson’s disease, and obesity. “The



presence of depression in any co-morbid condition increases the risk of mortality,” says Greg Clary, MD, an assistant professor of medicine and psychiatry. “Researchers in many disciplines are studying the biochemistry of the mind-body connection to better understand how depression affects the body’s reaction to illness.”

Areas of ongoing research at Duke include: **Lung Disorders:** Depression is a significant predictor of worse quality of life and perceived shortness of breath in patients awaiting lung transplant, according to a study by Scott Palmer, MD, medical director of Duke’s lung transplantation program. “The negative effects of depression are above and beyond other factors, such as lung function and the underlying disease,” Palmer says. “Depression is a striking predictor of a lung patient’s perceived shortness of breath as well as their quality of life.” While specific mechanisms are unclear, Palmer notes that “When people are depressed or anxious it may affect the way they breathe, so that their breath becomes shallower. In someone who already has limited breathing capacity, this may create a vicious cycle, where the shallow breathing creates further anxiety and even shallower breathing.”

In a similar manner, he says, anxiety or depression could have a detrimental impact on any sort of breathing disorder, including COPD and asthma. “It’s clear that a patient’s ability to cope well with anxiety and depression will lead to better outcomes of medical conditions,” he says, “not just by making them feel better, but by improving their quality of life and survival rates.”

Cancer: “There’s a fair amount of literature to show that cancer patients frequently become depressed,” says clinical neuropsychologist Renee Dunn, PhD. In Duke’s Brain Tumor

Center, which routinely assesses patients for depression, at least 15 percent of patients score in the clinically depressed range, for instance. Depression in cancer patients can result both from the life changes and losses that accompany the illness as well as biochemical changes related to the trauma to the brain from the disease and treatment, according to Dunn. “Evaluating and treating depression not only helps improve quality of life,” she says, “it also helps patients comply better with treatment and can help improve their outcomes.”

Pain and disability: Most providers are well aware of the emotional symptoms of depression—but a recent Duke study pinpointed some telltale physical signs. In a primary care setting, patients who reported poor health and high levels of pain or disability, as well as female patients, were more likely to suffer

from anxiety and depression, according to Lawrence R. Wu, MD, director of the Family Medicine Center. “We know that anxiety and depression have been associated with adverse effects on many disorders, such as poorer blood glucose control and more complications in diabetes, and that treatment of depression has been shown to improve outcomes,” says Wu, whose study was published in the *Journal of the American Board of Family Practice*. “But not all patients exhibit the traditional symptoms of depression and depression, or report them to their family practitioner. Knowing which physical cues to watch for can help physicians diagnose and treat these disorders for their patients’ optimal recovery.”



Classified just in 1989, the liver-destroying hepatitis C virus has rapidly become the most common blood-borne infection in America. And medicine is just beginning to catch up.

THE STEALTH VIRUS

BY KARYN HEDE

IF SOMEONE SAID a slow-acting yet deadly new virus, one virtually unknown before the 1980s, had emerged as a world health threat and infected millions worldwide—including about one in 50 in the United States—many people might guess that virus was HIV. They would be wrong.

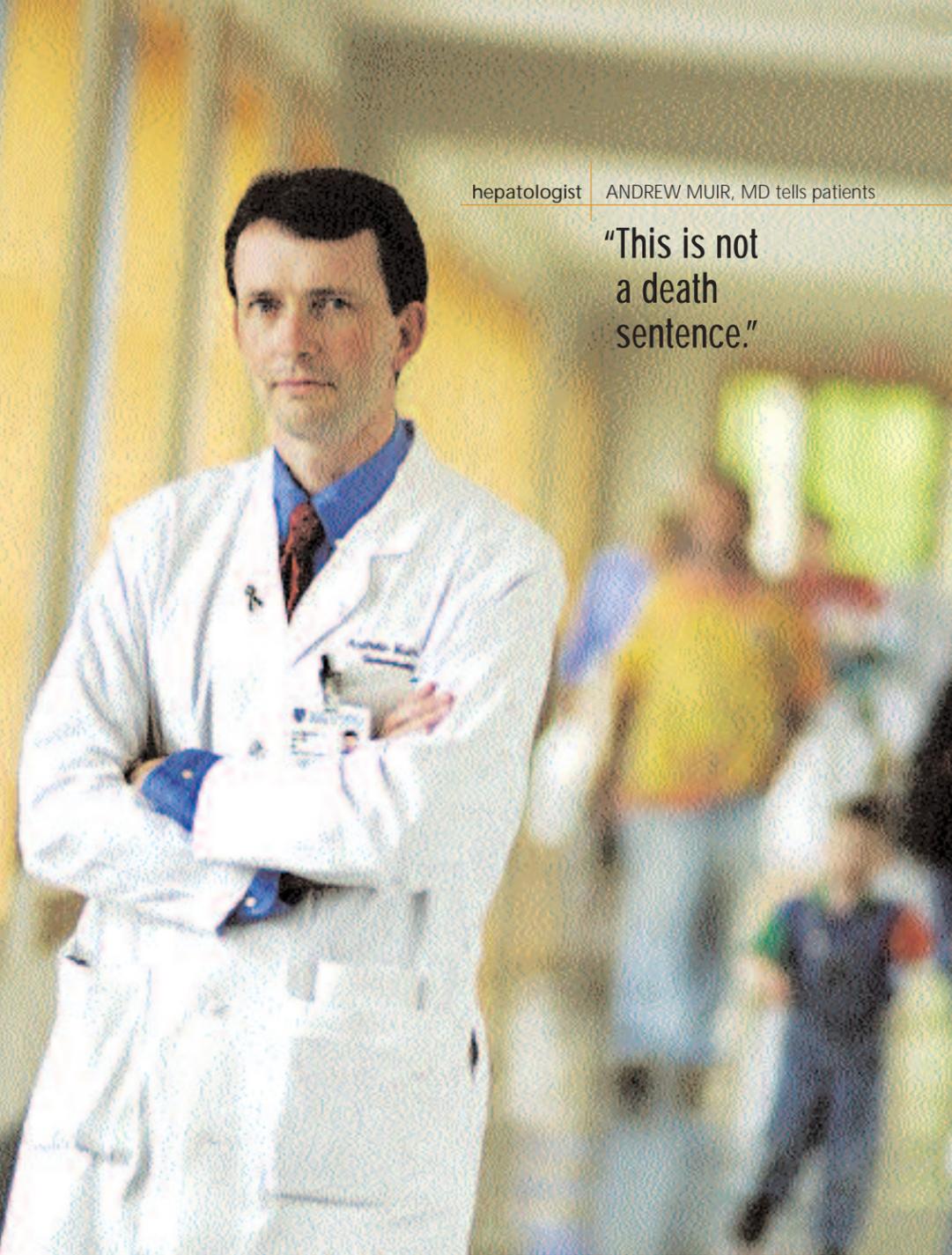
The virus is hepatitis C. While two percent of the U.S. population is now infected, making HCV the most common blood-borne infection in the United States, a three- to fourfold increase in the number of persons with known chronic HCV infection is projected over the next 15 years.

This is not your father's hepatitis. It is not the fever-inducing flu-like bug that turns eyes yellow with jaundice and, with treatment, is over in a few weeks. This virus is insidious. It infects only through direct contact between two people's blood, but once inside the body it begins a grindingly slow yet methodical destruction of the liver that can take 20 to 30 years to show its effects. HCV reproduces by infecting liver cells, which it does by slipping easily inside the cell through a receptor on the cell's sur-

face. Once inside, it makes thousands of copies of itself. The freshly minted viruses burst from the liver cell and the cell itself often dies from the exhausting process of creating viral particles. Each new virus can now go on to infect new cells, creating a cycle that, over time, can cause significant damage to the liver. By the time a person begins to feel sick, their liver is already riddled with fibrous scar tissue and little healthy tissue remains.

SILENT VIRUS

New hepatitis C infections in the United States today are primarily from intravenous drug use. As with HIV, the sharing of contaminated needles and other drug paraphernalia increases the chance of infection dramatically: hepatitis C is estimated to infect anywhere from 50 to—in some areas—100 percent of IV drug users. Other potential sources of infection include sharing razors and toothbrushes that have traces of blood residue. Body piercing and tattooing have been fingered as a source of infection if contaminated equipment is



hepatologist | ANDREW MUIR, MD tells patients

"This is not a death sentence."

His primary care doctor did some blood work and said his enzyme levels "looked a little funny." Further study and two specialists later, Ronald Griffin got the shock of his life—he was infected with hepatitis C.

Like a lot of people these days, Griffin headed straight to the Internet for more information. What he found there "scared me half to death," he says. "It said hepatitis C was incurable and eventually it would kill you."

By the time he got to Andrew Muir's examining room at Duke, he wasn't sure what to think. But the first thing Muir, MD, a hepatologist and liver transplant specialist, said to Griffin was "This is not a death sentence." Although Griffin had probably been infected since 1980, when he received a blood transfusion after an accident, his liver was still relatively healthy. In fact, many of those who a

discovering they carry the hepatitis C virus contracted it through blood transfusions before 1990, when blood screening eliminated blood transfusion as a source of infection in the United States.

Particularly since he was healthy and active, Griffin was a perfect candidate for a new drug regimen that Muir recommended as the most effective available. That treatment, a combination of interferon (an immune system booster) and ribavirin (a medicine that slows down the

virus's life cycle) has been shown effective in roughly half of patients—clearing the virus from their blood and effectively returning them to normal. The odds aren't great, but are the best medicine has to offer for now.

IMPROVING TREATMENT

In many ways Griffin's story mirrors the hepatitis C epidemic itself. The virus has been creeping up so slowly and silently that even the health care profession has been caught by surprise. For many years the virus was identified by what it wasn't—non-A, non-B hepatitis. It was an enigma. Only in 1989 did it finally get a letter of its own. And that may be a misnomer, because hepatitis C has little in common with its cousins A and B.

"Hepatitis C has brought hepatology into the mainstream of life," says Killenberg, a hepatologist and professor

of gastroenterology. "With the exception of alcoholic liver disease, we used to see mainly unusual, infrequently occurring diseases. Now, we see patients in their 30s and 40s who are going about their lives and suddenly they've got this serious disease. It's become the most common reason we do liver transplants."

And a liver transplant was not something that Ron Griffin wanted to contemplate. "I made up my mind I was going to beat this thing," he said. "I was in for the long haul."

Griffin decided to enroll in a clinical trial of a promising new treatment. But the side effects of the treatment regimen, which requires weekly interferon injections and daily ribavirin pills, began to take their toll. Several participants dropped out.

"It was absolutely terrible at first," says Griffin. "It was like the flu—aches, fever,

fatigue. I was flat out. I missed four weeks of work. But eventually, it got better. And now after 24 weeks, there are few side effects. I'm going to ride it out."

Muir admits it is a difficult sell to convince his patients, who feel fine, to submit to a drug regimen that will make them feel awful for weeks on end.

"I tell them that it means committing a year of their lives to save it," says Muir. But he realizes the current best treatment could stand to be improved, and that's why he and his colleagues at the Duke Liver Center are building a core research group committed to finding new ways to combat hepatitis C through a combination of laboratory research and patient trials of the latest drugs available.

Duke has recruited John McHutchison, MD, a renowned clinical investigator and leader in developing the current best available treatment, the PEG-interferon

used, but this has not been substantiated through independent scientific studies. There is no evidence that casual contact such as kissing, hugging, sneezing, or sharing drinking glasses can transmit the disease.

"It is estimated that we have identified only a small fraction of those infected with hepatitis C," says Paul Killenberg, MD, acting chief of gastroenterology.

"There are many, many more people who have it and don't know it."

That's why Ronald Griffin* is counting his lucky stars. Griffin was like a lot of men in their mid-40s. He didn't see a need to go to his doctor just for a physical. He felt good, ate right, worked out with weights, and walked several times a week. Finally, in November 2000, his wife convinced him to go for a routine physical.

*not his real name

SUPPORTING VICTIMS

DISCOVERING THAT YOU have contracted a potentially life-threatening disease in the prime of life is difficult enough. But when the **treatment for the disease can induce or worsen symptoms of depression**, support is even more crucial. That's why nurse clinician Patricia Bixby has helped organize a support group for patients with hepatitis C. The group, which began meeting in summer 2002 at Duke, is available for any hepatitis C patient, partner, or family member.

"I've been working with hepatitis C patients for nine months and I can see that there is a real information gap for patients," says Bixby.

"Most had never heard of the disease until they learned they had contracted it. Also, there is a feeling that there is a stigma attached to it."

Bixby explains that there a whole host of sensitive issues attached to any communicable disease, but particularly an often misunderstood disease like hepatitis C. **People don't understand how it's transmitted**, she says. Partners often don't know if it's safe to drink out of the same cup (yes), or have intercourse (also, yes—while promiscuous sexual behavior cannot be ruled out as a mode of transmission, it is considered uncommon;



monogamous partners who have tested negative can generally safely continue their sexual practices).

At early meetings, much of the time has been spent allowing people to ask questions about **how to deal with side effects of treatment**, such as fatigue and depression, and generally with having hepatitis C in their lives. About 50 percent of people develop mild to severe depression and irritability, says Bixby.

For more information about the support group, contact Bixby at 919-681-6819.

and ribavirin regimen Griffin received. McHutchison is formerly head of the hepatitis research center and director of liver transplantation at Scripps Clinic in La Jolla, California.

“Duke offers extraordinary resources to pursue new treatments for patients and for research,” McHutchison says. “It offers a true laboratory-to-clinic translational research environment that is so necessary if we are to improve treatment for hepatitis C.”

McHutchison has been at the forefront of testing new clinical regimens for hepa-

titis C and will bring to Duke the ability to offer the very latest thinking in treatment, says Killenberg.

WHEN TREATMENT DOESN'T WORK

For Griffin, the odds of beating the virus with PEG-interferon and ribavirin are good. By chance, he happened to have contracted a version of the hepatitis C virus, genotype 3, that responds well to therapy. But hepatitis C is caused by an RNA virus—a distant cousin of HIV with many of its menacing traits. It comes in at least six strains, each of which mutates

readily, switching easily from one disguise to the next—all to evade the immune system's efforts to eradicate it. Most people in the United States contract genotype 1, which does not respond as well to current treatment.

For African-American patients, the picture is also disappointing. A recent clinical trial of the Southeastern Hepatitis Treatment Group, coordinated by Muir and his colleagues at the Duke Liver Center, showed that only 25 percent of 100 African-Americans had cleared the hepatitis C virus from their bloodstream after 24 weeks of treatment with PEG-interferon and ribavirin, while 62 percent of the 100 non-Hispanic whites were free of the virus.

“The findings were the first to show a clear treatment difference independent of virus type,” says Muir. But the study only raises more questions for the researchers. What factors influence drug response? Why do some people clear the virus after treatment while others continue to have a raging infection?

Muir, McHutchison, and Don Rockey, MD, director of the Duke Liver Center, are planning to address these questions through a collaborative project with Duke's Center for Human Genetics.

“We are very interested in exploring the genetic factors that help determine why some people clear the virus without developing chronic infection, why some respond to therapy while others don't, and why some people develop severe fibrosis,” says Rockey.

The development of fibrosis, or scarring of the liver, is the main reason that people with hepatitis C (or hepatitis B

Why do some people clear the virus after treatment while others continue to have a raging infection?

investigator JOHN MCHUTCHINSON, MD, and colleagues aim to find out.

AVOIDING EXPOSURE



HEALTH CARE WORKERS have a significant risk for infection by contact with blood infected with hepatitis C. The best precaution is limiting exposure, says Debra L. Hunt, director of biological safety. All staff at Duke are educated to:

-  Handle ALL human blood and body fluids as if they are contaminated with blood-borne pathogens, including hepatitis C.
-  Handle ALL sharps carefully; dispose of them in sharps containers (needleboxes) that are provided in all areas where sharps are handled.
-  Report ALL needlesticks, cuts, and splashes to the face to the appropriate office promptly (at Duke Hospital, this is done simply by dialing 115). While post-exposure prophylaxis seems ineffective in preventing HCV infection, immediately reporting exposure enables the establishment of a baseline for serum HCV antibodies and liver enzyme levels.
-  Use other commonsense precautions for general hygiene, such as handwashing after removing gloves; no eating, drinking, smoking, etc. in areas where blood or body fluids are handled; cleaning up spills with appropriate disinfectant.
-  Use available personal protective equipment, such as gloves, gowns, face shields, or goggles, when handling blood or body fluids or equipment contaminated with them.
-  Use approved safer medical devices (provided at Duke) to minimize the risk of needlesticks or cuts.

For more information about precautions, blood-borne pathogens, and safety devices, visit www.safety.duke.edu; look for the Safety Medical Devices Demonstration and Biological Safety links.

for that matter) require a liver transplant, he explains.

“We would like to have something to offer those patients for whom therapy is ineffective,” says Rockey. “If we could reduce fibrosis in these patients, it would go a long way toward reducing the need for liver transplantation.”

Rockey (and others) have isolated a type of cell in the liver, called the stellate cell, that is responsible for generating the fibrous scar tissue that replaces healthy cells in a liver that is being slowly destroyed by the hepatitis virus. His research program aims to find ways to turn off the stellate cell by manipulating the genetic programming of the cell.

Rockey and his colleagues have shown in a series of laboratory studies that another variety of interferon, called gamma interferon, has potent inhibitory effects on the stellate cell. Gamma interferon has a whole host of effects on the body, affect-

ing cell division, gene expression, and other biological processes, says Rockey. Laboratory studies on gamma interferon have been promising enough to warrant a clinical trial; Duke is now enrolling 20 patients who have not responded to the standard therapy. “This is a classic case of bench to bedside research,” says Rockey.

PRACTICAL PREVENTION

While many novel avenues of drug research are being explored, there is not much enthusiasm among practitioners that a vaccine against hepatitis C is forthcoming, mainly because of the virus's propensity to mutate. “There are vaccine efforts afoot throughout the world,” says Killenberg. “To date these have not been effective.”

Even if the immune system begins to succeed against one variation, mutants quickly take over. As a result, the development of antibodies against HCV does

not produce an immunity against the disease like it does with most other viruses. More than 80 percent of the individuals infected with HCV will progress to a chronic form of the disease. They also remain contagious for a lifetime, able to transmit the virus to others.

That's why education and prevention are among the highest priorities of health care professionals to limit the effects of the hepatitis C epidemic.

“For most people we recommend screening only when one or more risk factors is present,” says Muir. “But for those groups, our goal is to identify infected individuals as soon as possible so we can try to stop the infectious process early.” □

For more information on hepatitis C research and treatment at Duke, visit livercenter.mc.duke.edu.

In the life-and-death battle against malignant brain tumors, Duke's aggressive approach nets admiration, controversy, and some of the nation's best survival rates.

BEATING THE ODDS

BY DENNIS MEREDITH

THE YEAR HE TURNED 36, David Bailey was given up for dead. After suffering a massive seizure, he awoke in the hospital to learn that a baseball-sized tumor had been growing inside his skull: glioblastoma, the most aggressive and deadly form of brain cancer. Though physicians had removed it, the prognosis was bleak. "It's grade four," they told him. "You've got six months."

But Bailey had other plans. He wanted to see his young son and daughter grow up, and he was willing to do whatever it took to be there. He went online to search for answers—and ended up coming to Duke's Brain Tumor Center. There, he was given an experimental antibody therapy, designed to launch tumor-killing radioactive isotopes directly into his remaining tumor cells.

That was six years ago. Today, David Bailey is one of the longest-surviving victims of glioblastoma in history—and possibly the best-known brain cancer survivor in America. An accomplished musician who swathes his bald head in brilliantly patterned bandanas, he crisscrosses the country singing his story of survival and hope to thousands of people a year. This April, Bailey, along with two fellow Duke patients, was introduced to an even larger audience: the 27 million people who watched a rare double-length segment on *60 Minutes* about the Duke Brain Tumor Center.

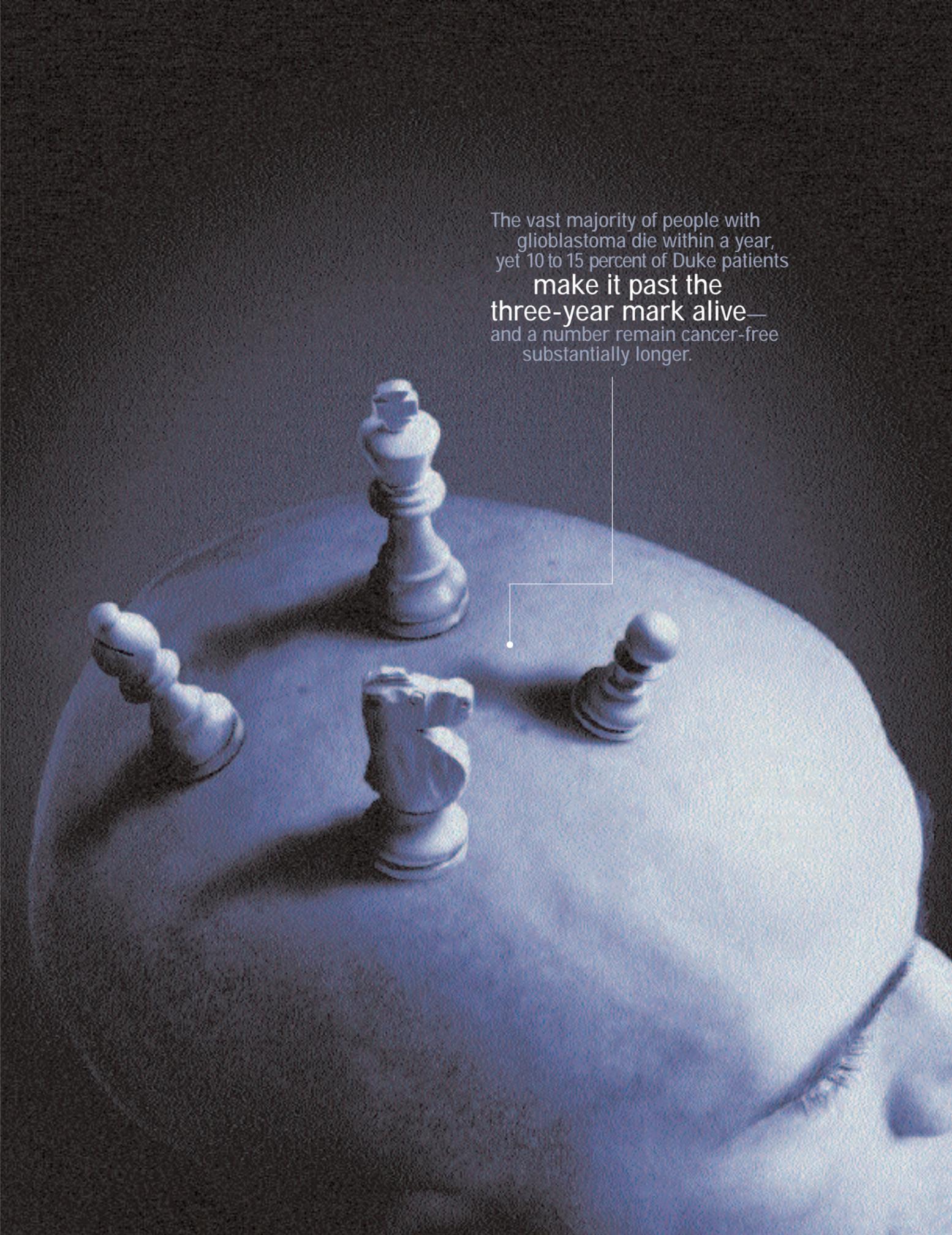
As the program showed, the center and its leaders are very much like Bailey—unwilling to accept defeat, evangelistic about their work, and, given the odds they face, surprisingly successful. Over the past

decade, Duke has adopted an aggressive approach to treating brain cancers, rapidly applying novel treatments and this-just-in research findings to save patients. While some observers question the prudence of the center's breakneck bench-to-bedside pace, it's hard to argue with the results. The vast majority of people with glioblastoma die within a year, yet 10 to 15 percent of Duke patients make it past the three-year mark alive—and a number, like Bailey, remain cancer-free substantially longer.

TRYING EVERYTHING

Bailey lyrically describes the Brain Tumor Center as a "castle of courage," a metaphor that complements the Center's own bold motto: "At Duke, there is hope." Though that's meant more as a guiding

The vast majority of people with glioblastoma die within a year, yet 10 to 15 percent of Duke patients **make it past the three-year mark alive**—and a number remain cancer-free substantially longer.





“Most physicians believe that patients with many kinds of brain tumors are so **hopeless** as to offer them nothing. [They tell them] ‘Go home, put your affairs in order, pick a plot, figure out your gravestone, and move on.’”



Henry Friedman, MD

principle than a guarantee, the center has in fact often been an all-too-rare light in the darkness for the patients it serves.

“Most physicians believe that patients with many kinds of brain tumors are so hopeless as to offer them nothing,” co-director Henry Friedman, MD, told *60 Minutes* correspondent Ed Bradley. “[They tell them] ‘Go home, put your affairs in order, pick a plot, figure out your gravestone, and move on.’”

The Duke team refuses to accept such fatalism. “We don’t just label patients with a prognosis and accept standard therapy,” says co-director Allan Friedman, MD, a neurosurgeon (who is not related to Henry Friedman). “We keep trying.” Sixty-six percent of Duke brain tumor patients participate in clinical trials, compared to just 8 percent nationwide. And the center’s aggressive use of experimental drugs, immunotherapy, radiation, and surgery is resulting in unprecedented clinical success.

“I’m seeing long-term survival in patients who were previously written off,” Henry Friedman has said. “By now they’ve been out there long enough—in several cases, three, four, five, or more years—they’re walking proof that a brain tumor patient is not necessarily dead on arrival.”

Such successes spawn others. By offering the latest treatments, the center attracts more patients—and by attracting more patients, it can conduct more clinical

trials of the latest treatments. “We’ve been able to attract the attention of drug companies that want us to do sponsored trials,” says Henry Friedman. “And we’re able to translate our laboratory research into our clinical program that much more rapidly, because we can seamlessly go from the lab to the clinic.”

What’s more, he says, he and his colleagues persuade the companies to also support trials in children, a far less lucrative market. “I’ve said that in lieu of a Christmas ham, these companies give me a pediatric trial.”

TOO EXPERIMENTAL?

The center does have its scientific critics, who question its strategy of treating patients with drugs not approved in long-term clinical trials for brain tumors. “I think when you take that approach, you’re a little bit on a slippery slope,” said Howard Fine, director of the National Cancer Institute brain tumor division, during the *60 Minutes* segment. “These are not benign drugs. They’re not vitamins. They can cause significant side effects, even death, in patients. And before advocating that type of treatment, I would like to know for a fact that we’re truly helping patients.”

Counters neuropathologist Darell Bigner, MD, PhD, director of the Duke Brain Tumor Research Program and director pro tempore of Duke’s cancer

center: “If the FDA has approved a drug for any type of cancer, and we have demonstrated in our animal models that it’s active against brain tumors, we have no reluctance to do clinical trials with the drug.

“We don’t use unapproved drugs,” Bigner adds. “They are available and approved for other uses, and many times the drug companies that own them don’t want to spend the money to do the trials on the relatively small number of people with brain tumors.”

Indeed, the federal government has given the center a resounding vote of confidence, says Bigner. He cites the fact that Duke is in its 19th year as an NIH-funded Specialized Research Center on Primary and Metastatic Brain Tumors of the Nervous System and that it has just received a National Cancer Institute Brain Cancer SPORE (Specialized Project of Research Excellence) award: “These grants help us do the kind of toxicity testing and proof of efficacy in animal models that sets us apart from all the other programs in the country.”

FINGERING THE CAUSES

Such funding, complemented by private support, has enabled the center to build an unparalleled research capability. At the most basic level, research pathologist Gregory Riggins, MD, PhD, and his colleagues are using sophisticated gene analy-

sis techniques to discover which ones are switched on in various brain tumors. Previously, tumors have eluded precise typing by remaining genetically “anonymous,” with different tumor subtypes appearing the same under the microscope. Brain cancers are also notoriously complex, often launched into malignancy by a dozen or so genetic malfunctions.

“Greg is systematically going through all the major brain tumor types, determining which genes are expressed in the tumor and comparing them to those in the normal brain,” says Bigner. “Once we’ve discovered those genes, we can determine their function.” For that work, they’ll use the new Center for Models of Human Disease—a sort of “mouse medical center,” now under construction, where gene-disease links can be traced in genetically altered animals.

Other center researchers are mimicking the malignant process in the test tube—genetically manipulating human brain cells to produce cells with tumor-like properties of cancers called gliomas. By studying such precisely altered cells, scientists can ultimately reconstruct the intricate genetic malfunctions that lead to brain cancers. Once these mechanisms are known, says Bigner, researchers will know the weak spots in the cancers’ defenses.

BOMBING BRAIN TUMORS

Having identified genes that are switched on in such tumors, Bigner and his colleagues can construct “guided missiles” called monoclonal antibodies that target only the proteins produced by the tumors. For the past five years, they have been testing such an antibody against a tumor-specific protein called tenascin—the

promising therapy received by David Bailey. Recently, they have identified two potential new protein targets in glioblastomas. The tumor-killing payloads of these monoclonal missiles include toxins and exotic radioisotopes created by nuclear chemist Michael Zalutsky, PhD.

Cancer vaccines for brain tumors constitute another highly promising treatment approach being developed under researcher John Sampson, MD, PhD. These vaccines—currently in pre-clinical trials—are constructed by extracting the patient’s own immune cells, called dendritic cells, and loading them with proteins unique to brain tumors. Once injected into patients, they trigger the immune system to attack the cancer cells.

Besides their extensive clinical testing of drugs approved for other cancers, Henry Friedman and his colleagues are

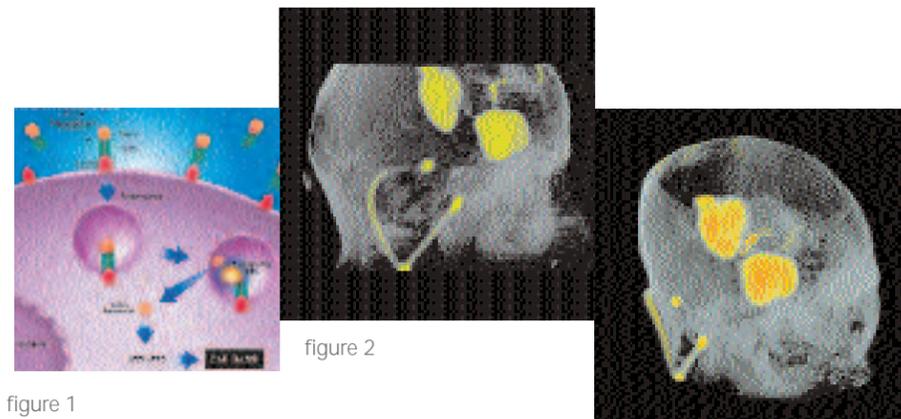


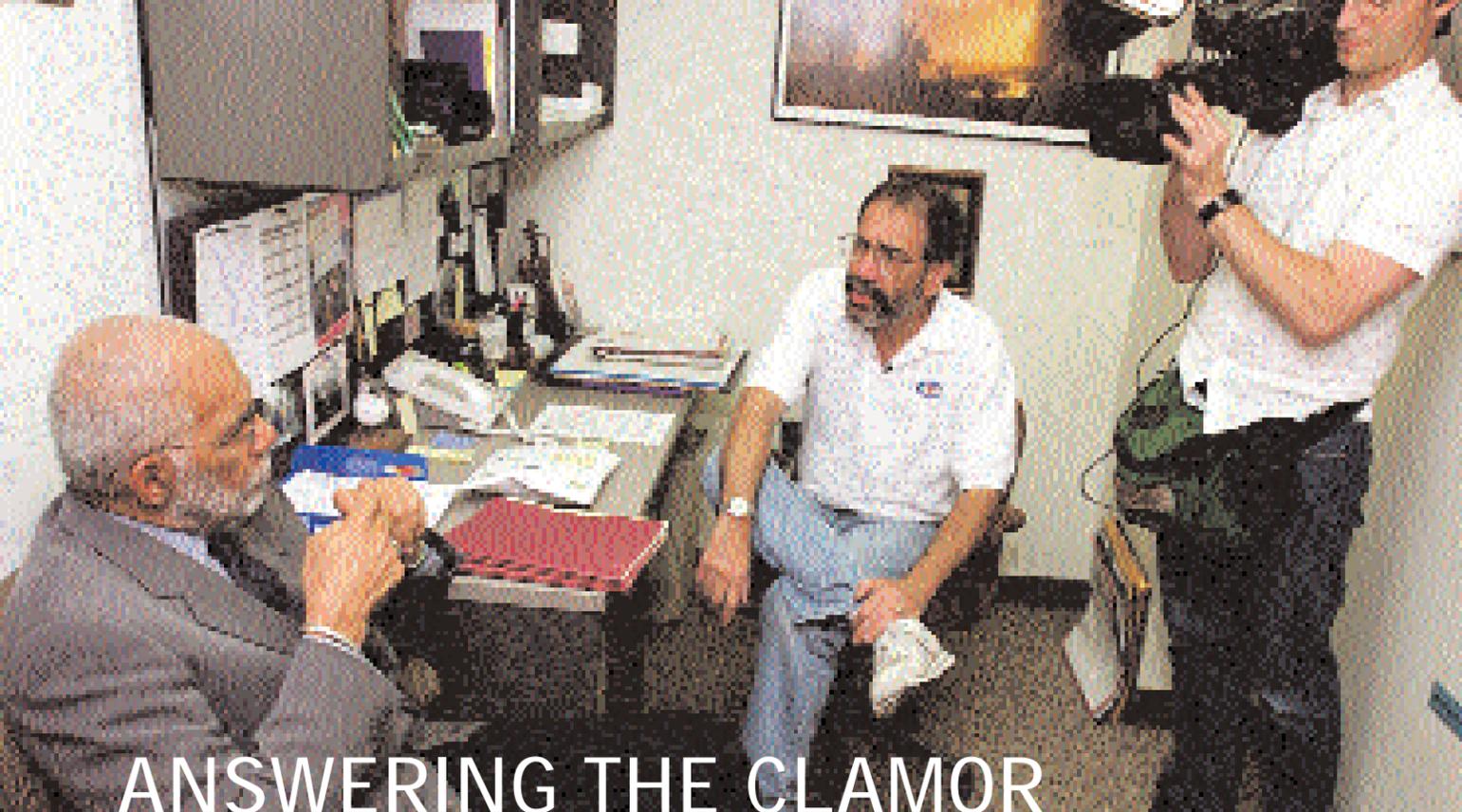
figure 1

figure 2

figure 3

TARGETING TUMOR CELLS

Producing the medical equivalent of a guided missile, Duke Brain Tumor Center researchers have armed a protein that specifically recognizes brain tumor cells, TGF α , with Pseudomonas exotoxin (PE-38)—a bacterial toxin so potent that a single molecule of it can kill a cell. The resulting immunotoxin—TP-38—is infused directly into the brain through multiple catheters placed close to the tumor bed. Once inside, TP-38 attaches to the epidermal growth factor receptor (EGFR), found only in tumor cells. The cells then internalize the immunotoxin and die (Fig.1). Figures 2 and 3 show the distribution of TP-38 (color) within a patient’s head. The innovative therapy is one of many brain cancer treatments being developed at Duke.



ANSWERING THE CLAMOR

What do you do when everybody wants your help?

DUKE BRAIN TUMOR CENTER staff braced themselves for a deluge of inquiries from patients and doctors following the April *60 Minutes* segment—and a deluge is what they got. During the weeks after the segment aired, the center received hundreds of telephone calls and some 2,000 e-mails from as far away as Singapore and Norway. While many messages applauded the center's work, others were pleas for help from brain tumor patients who refused to accept their bleak prognoses.

"A lot of the messages came from very young people in their 20s or 30s, several of them with young children," says co-manager Sandra Tourt-Uhlig. "They said their local physicians had given them no hope. Some even wrote 'Help! Help! Help!' all over the bottom of their messages. Those really hit home the hardest."

The center's extraordinary clinical results—and the resulting publicity—have brought a tenfold patient increase in five years. Now, the center finds itself squeezed between limited resources and burgeoning demand.

"We don't have the resources to take care of everybody who needs us," says co-director Henry Friedman. Thus, he says, the center is extending its help as far as it can. "We never

tell a patient we can't help them," he says. "We try to advise the patient's physician, and we're developing subsites around the country—centers whose physicians have a reputation for being compassionate and caring and can offer patients access to a full range of treatments. So rather than coming to Duke, patients can go to a regional center that has been given our protocols, and get our therapeutic insights delivered at their own institution."

The center now concentrates on those patients it is most likely to be able to help, says Friedman, including newly diagnosed patients or those suffering a recurrence that are otherwise healthy.

Fortunately, say center leaders, private support is helping bridge the considerable gap between limited resources and growing demand for costly treatments and sophisticated research. They cite as examples a recent \$1 million gift from businessman Park Smith of New York, \$1.25 million from Jim and Mary Helen Dalton of Atlanta, \$2 million from the Rory David Deutsch Foundation for Pediatric Glioma Research, \$2 million from the Keck Foundation to establish the W.M. Keck Center for Neurooncology Genomics,

\$1 million from Gary Cless of Chicago, a pledged \$1 million from Mr. and Mrs. Oscar Ellis of Bettendorf, Iowa, and a pledged \$1 million from Jack and Jean Cullather of Richmond. Also critical, leaders say, are the research support and access to experimental cancer drugs afforded by a collaboration with the nonprofit Accelerate Brain Cancer Cure Foundation (www.abc2.org).

Despite the kudos and supportive donors, says Tourt-Uhlig, the center staff still deeply feels the gap between need and resources. "I've gone home many nights depressed and overwhelmed, feeling like this was the burden of the world, and I'm sure Henry has felt that way as well," she says. "We want to help everybody—or, at least, to give them more options."

So they are doing what they can, one person at a time. On the night following the *60 Minutes* broadcast, Henry Friedman took home a stack of messages to start making phone calls.

The Brain Tumor Web site (cancer.duke.edu/BTC) includes contact information and background on available treatments. The 60 Minutes segment on the Brain Tumor Center, "A New Lease on Life," can be viewed online at yearinreview.duke.edu.



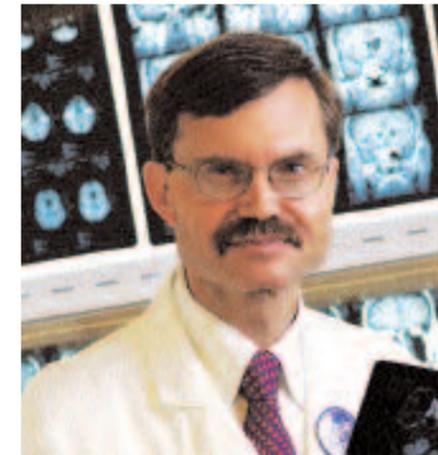
"We don't just label patients with a prognosis and accept standard therapy. We keep trying."

tackling the lethal problem of drug resistance. Their research is revealing new ways to thwart the cunning ability of brain cancers to protect themselves from the DNA-wrecking anti-cancer drugs now central to the oncologist's arsenal. For example, Friedman's laboratory is testing a compound called O6 benzylguanine, which clogs a key enzyme that tumors use to repair DNA damage, rendering them once more vulnerable.

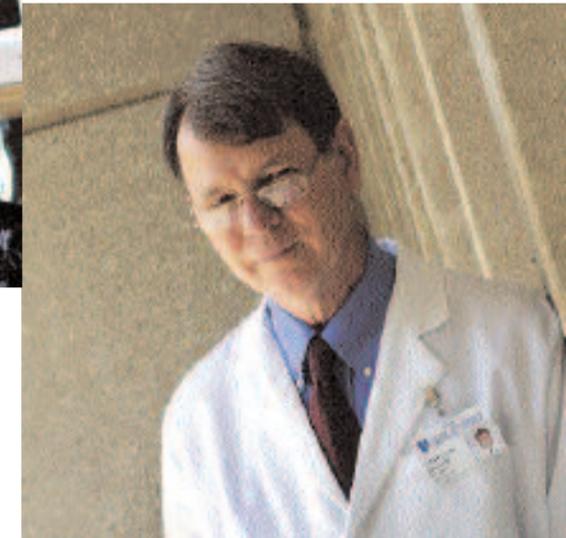
The researchers are also exploring innovative delivery systems for anti-cancer drugs. In one such technique, known as convection-enhanced delivery, SPECT (single photon emission computed tomography) imaging is used to guide the infusion of drugs directly into tumors with a precisely controlled pump. The method delivers a higher concentration of drugs than the current diffusion-dependent delivery.

SURGICAL STRIKES

More often than not, the first-strike attack on a brain tumor is still surgery. "For the malignant gliomas, we find that patients do better who can have more than a 90 percent resection of what we see on the MRI scan," says Allan Friedman. "It may be that the other interventions aren't powerful enough to kill a bulk tumor, and work best as adjunct therapy. So surgery's role is to give chemotherapy, radiation therapy, and immunotherapy the best chance of doing their jobs and cleaning up remaining tumor cells at the end."



Allan Friedman, MD



Darell Bigner, MD

Fortunately, says Allan Friedman, surgery has become simultaneously safer and more aggressive, thanks to such techniques as keeping the patient awake and testing brain function as the tumor is removed. "With awake surgery we can map out important areas of the brain that need to be saved and yet be very radical in our excision," he says.

Also improving operating-room outcomes are three-dimensional MRI brain scans, which surgeons use to locate deep tumors. While these scans are extremely useful, they are limited, says Allan Friedman. "The brain is the consistency of soft butter, and as soon as you open the skull and start removing tumor tissue, everything shifts," he says. "So the original image is no longer valid, and you don't have the millimeter-scale accuracy you would like." Friedman and his fellow surgeons are currently seeking funding for an MRI machine installed right in the operating room, so that their surgeries on the brain and other organs could be guided by constantly updated MRI scans.

While every Brain Tumor Center clinician and researcher would agree that there is much work yet to be done, "Where we are compared to 10 years ago is absolutely amazing," says Bigner. "And over the next five to 10 years, I think we're going to see quantum leaps in the clinical effectiveness of treatments. For example, we may be able to attack not only the main tumor mass, but those cells that have migrated away from the tumor. Then we'll see some huge leaps in survival, and probably some real cures. And because new therapies target the tumor and not healthy brain tissue, these patients will have a better quality of life."

"I'm personally more excited about the prospects for treating these most complex and deadly cancers than I have been in 30 years of research." □



Prescription for Trouble

Do pharmaceutical industry marketing ploys and physician perks jeopardize medical ethics?

by Peter S. Kussin, MD
Associate Professor of Medicine, Chair, Pharmacy and Therapeutics Committee

“YOUR LIFE IS WAITING,” purrs Paxil. “Enjoy your world,” urges Allegra. “Let the dance begin,” suggests Viagra. In the years since the FDA eased restrictions on direct-to-consumer advertising (DTCA) of prescription drugs, pharmaceutical companies have flooded the marketplace with ads, spending \$2.5 billion a year on DTCA. And it seems to be working: According to a recent study, one quarter of all patients now show up at physician appointments asking about specific drugs, and four out of five patients who request a particular prescription get it.

Pervasive as these messages are, they represent only the tip of the pharmaceutical marketing iceberg. In 2000, American pharmaceutical companies spent \$15.7 billion on direct advertising and promotion, most of it underwriting marketing efforts to physicians. More than \$8 million was spent on sampling alone. By some estimates, the industry’s overall advertising, promotion, and administration costs total \$70 billion annually—far more than it spends on research and development. (During the same period, drug costs rose by 18.8 percent, even while the industry enjoyed a median profit margin of 18 percent, compared to a median 5 percent for all Fortune 500 companies.)

Industry marketing activities range from the glaringly obvious to subtle tactics that, at least on the surface, appear perfectly appropriate. At academic med-

ical institutions like Duke, pharmaceutical dollars find their way into literally everything we do. The industry provides philanthropic support for indigent patient programs and multimillion-dollar strategic initiatives, sponsors research studies, underwrites CME courses, and provides grants that enable trainees to attend conferences or educational activities that would otherwise be prohibitively expensive. Without the support of the pharmaceutical industry, our research, teaching, and patient care missions would be severely affected.

It is critical to remember, however, that no matter how worthwhile the work they support, pharmaceutical dollars are not spent altruistically—ever. All that largesse comes with a price: an expectation that targeted physicians and institutions will make choices favorable to the sponsoring company.

INFLUENCING CHOICES

Unfortunately, when marketing pressures collide with evidence-based medicine, even conscientious physicians are far more vulnerable to compromise than they realize. In one study, physicians who accepted all-expense-paid trips to sponsored symposia in popular Sunbelt vacation sites believed that such activities would not influence their professional judgment about which medicine to prescribe to patients. Yet an analysis of their

prescribing patterns revealed a threefold increase in their scrips for one of the promoted drugs over a two-year period following the event.

It’s a sad fact that many doctors derive most of their knowledge about new therapies from industry detailing. A study in the *American Journal of Medicine* in 1982—the infancy of modern pharmaceutical marketing—revealed that 46 percent of physicians felt that pharmaceutical representatives were moderately or very important in influencing their prescribing. The practice of detailing has only escalated in the years since, with 83,000 representatives accounting for some 60 million detailing episodes in 2000. Even when the result of such encounters is medically neutral, it’s often fiscally deplorable, saddling the reimbursement system or the patient with a “me-too” drug that costs significantly more than competitive products while offering little or no comparative benefit.

STANDING FIRM

We respect our colleagues in the pharmaceutical industry and appreciate their philanthropic support for research, medical education, and patient care. However, it’s clear that health care providers and institutions like Duke must take firm and decisive action to separate decision-making processes from our relationships with pharmaceutical companies. Some hospi-

“. . . in the ongoing scrimmage between medicine and marketing, we each have options as to how we play the game.”

tals are banning pharmaceutical reps entirely—a scenario that has been considered at Duke, but not implemented. We are, however, taking the step of requiring physicians on Duke’s Pharmacy and Therapeutics (P & T) Committee to disclose their ties with pharmaceutical companies and recuse themselves from votes on which they might be biased.

The P & T committee has also endorsed a process to vigorously counter-detail the industry, recruiting Duke opinion leaders in a variety of specialties to provide objective, evidence-based information on new medical therapies. In conjunction with the Office of Continuing Medical Education, the committee has sponsored educational events that are free of industry influence. The Department of Pharmacy, P & T committee, and the Private Diagnostic Clinic have also developed new guidelines that significantly restrict representatives’ access to health care providers and emphasize ethical behavior by industry representatives in our institution.

INDIVIDUAL INTEGRITY

Yet adopting new policies and guidelines is only half the battle. We must engage every health care professional subject to pharma’s influence and make it clear that there is, truly, no free lunch when it comes to accepting industry largesse. Even seemingly insignificant paraphernalia such as the pens and notepads that fill our waiting rooms and exam rooms provide ethical dilemmas in the form of free industry advertisements. There are no quick and easy answers to this conundrum. Is pharmaceutical marketing an

essential part of many important medical activities? Absolutely. Is it bribery? Essentially. Our challenge lies in the fact that these propositions are not mutually exclusive. Ultimately, day by day, case by case, all physicians have to make some hard choices about what they’re willing to give up for what they’re eager to get.

There are guidelines and policy statements to help us navigate this perplexing terrain. In 1991, the AMA council on Judicial and Ethical Affairs published guidelines that should serve as our ethical mantra:

AMA GUIDELINES

“Any gifts accepted by physicians individually should primarily entail a benefit to patients and should not be of substantial value.”

“Subsidies from industry should not be accepted directly or indirectly to pay for the costs of travel, lodging, or personal expenses of the physicians who are attending the conferences and meetings . . .”

“No gifts should be accepted if there are strings attached.”

As we work our way through this ethical minefield, we must not lose sight of our sworn duty to our patients. And we must remember that, no matter how benign

the pharmaceutical companies may seem, they’re in a business with its own very specific bottom-line goals—and any convergence with our goals as healers is coincidental. Our objective must be to find that area of overlap: to accept alliances when they will help our patients, and to part company when they threaten to jeopardize our patients’ quality of life in any way—financial as well as physical.

The process has been a difficult one for me, as I am sure it is for all physicians of good conscience. The way we relate to industry is taught to us early on in our careers and the habits are deeply ingrained. I do not claim to be purer than Caesar’s wife. In fact, I have compared the process of trying to become an ethical physician in this arena to that of the recovering alcoholic or addict. If I pass you in the hallway and say “Hi, I’m Peter Kussin and I haven’t taken a free pen or eaten a drug company doughnut in two months,” do not think I have taken leave of my senses. I am simply trying to do the right thing—one day at a time.

So what do I do with all those free samples? I give them to low-income patients who couldn’t otherwise afford the medicine they need. In fact, I sometimes load them up with shopping bags of the stuff, three or six months’ worth at a time. While these expensive medications may not be my first choice (or, for that matter, the first choice of the committee that I chair), they’re better than no medication at all. The pharmaceutical companies might not like it—but in the ongoing scrimmage between medicine and marketing, we each have options as to how we play the game. □

CHANGING of the guard

Administrators have filled numerous leadership positions around the medical center in recent months. Here are some of the people who will be guiding Duke medicine in the years to come.

CEO, Duke University Hospital



William Fulkerson Jr., MD, became chief executive officer of Duke

Hospital in April. A longtime faculty member and one of the nation's leading pulmonary and critical care medicine specialists, Fulkerson has served as chief medical officer for the hospital and executive medical director of the Private Diagnostic Clinic. He succeeds Michael Israel, who resigned to become COO of the North Shore-Long Island Jewish Health System in New York.

"Dr. Fulkerson is a highly respected and dedicated member of a strong management team that has led Duke Hospital into the 21st century," said Ralph Snyderman, MD, president and CEO of Duke University Health System. "We are fortunate to have Bill assume this critical role at this time of important transitions in health care."

"Like most other hospitals in this country, and especially academic medical centers, we face enormous challenges going forward as the costs of caring for our patients rise rapidly and reimbursement falls," Fulkerson said shortly after accepting the position. "I hope to use my experience and insight as a physician to help improve systems and processes that will allow those who work at Duke Hospital to continue providing outstanding patient care despite the extraordinary cost pressures."

Chair, Department of Obstetrics and Gynecology



Haywood Brown, MD, became chair of Duke's Department of

Obstetrics and Gynecology in October. Formerly a professor of ob-gyn and of medical and molecular genetics at Indiana University, he was also ob-gyn residency program director at St. Vincent Hospital in Indianapolis. A maternal and fetal medicine specialist, Brown has cared for women at high risk for adverse outcomes, particularly women from underserved communities, and has long been involved in studying the effects of substance abuse on mothers and children.

"Dr. Brown brings distinctive skills and experience that prepare him well to lead our ob-gyn department, and to contribute to Duke's institutional commitment to develop new models of prospective health care in our community," said R. Sanders Williams, MD, dean of the School of Medicine.

A leader in studying genetic and epidemiological links to prematurity and racial disparity for infant mortality, Brown is currently president of the Society for Maternal-Fetal Medicine and director of the American Board of Obstetrics and Gynecology. He succeeds Charles Hammond, MD, who stepped down in April to serve as president of the American College of Obstetricians and Gynecologists.

Chair, Department of Cell Biology



Brigid L. M. Hogan, PhD, was named chair of Duke's Department of

Cell Biology in April. Previously director of the Stem Cell and Organogenesis Program at Vanderbilt University Medical Center, she began her duties at Duke this fall.

A world leader in developmental biology and stem cell research, the British-born Hogan is a Howard Hughes Medical Institute investigator, a member of the Institute of Medicine of the National Academy of Sciences, a fellow of the American Academy of Arts and Sciences, and a fellow of the Royal Society of London. She served as scientific co-chair of the 1994 National Institutes of Health report on human embryo research.

"We are very fortunate to have recruited a scientist of Dr. Hogan's stature and energy," said Dean R. Sanders Williams, MD. "Under Dr. Hogan's guidance, her department at Duke will be a driving force in stem cell research and other areas of cell biology."

The first woman to be appointed chair of a Duke basic science department, Hogan replaces Michael P. Sheetz, who went to Columbia University in 1999. Harold P. Erickson, PhD, has served as acting chair and will return to his duties as professor and research scientist.

Vice Dean, Associate Vice Chancellor for Academic Affairs



Edward Halperin, MD, became vice dean of Duke's School of

Medicine and associate vice chancellor for academic affairs in July. His responsibilities include coordinating clinical faculty recruitment in the School of Medicine, Private Diagnostic Clinic, and Health System; maintaining a state-of-the-art, effective medical education curriculum; and helping lead the Graduate Medical Education program.

"We are thrilled to be able to apply Dr. Halperin's substantial talents and knowledge to these critical leadership positions," said R. Sanders Williams, MD, medical school dean. "We are proud of our long tradition of excellent medical education at Duke, and Dr. Halperin's new roles will only further enhance our programs."

A prolific author whose work includes the textbook *Pediatric Radiation Oncology*, Halperin has emphasized the role of radiation therapy in managing childhood cancer in his clinical practice, while his research has addressed the treatment of childhood brain and eye tumors.

Halperin has served since 1996 as the L.R. Prosnitz Professor and chair of the Department of Radiation Oncology at Duke, and will continue in that role until a new chair is named.

Director, Sarah W. Stedman Nutrition Center



Christopher Newgard, PhD, a researcher specializing in metabolic regulatory

mechanisms and diabetes management, became director of Duke's Sarah W. Stedman Nutrition Center on March 1.

Newgard will enhance Duke's research strengths in metabolic diseases and help recruit tenure-track faculty members who focus on basic science research in nutrition, noted Dean R. Sanders Williams, MD. "With Chris at the helm to guide research and recruitment, we can truly enhance the level of work already being done at Duke," he said.

Newgard has already recruited a number of researchers to Duke from the University of Texas Southwestern Medical Center, where he was a professor of biochemistry and internal medicine and co-director of the Touchstone Center for Diabetes Research. "Coupled with existing programs at Duke, we have a tremendous opportunity to build a basic science program focusing on metabolic regulation and nutrition, and to relate our findings to major diseases such as diabetes, obesity, hypertension, heart disease and cancer," Newgard said.

Chief, Division of Orthopaedic Surgery



James Nunley, MD, an orthopaedic surgeon at Duke since 1979,

became chief of the division of orthopaedic surgery on July 1, taking over one of the largest training programs for orthopaedic surgeons in the country.

Nunley replaces James Urbaniak, MD, Virginia Flowers Baker Professor of Orthopaedic Surgery, who stepped down after 17 years as division chief but will continue serving as vice chairman of surgery. "Dr. Nunley is a very well-respected member of the Department of Surgery and the division of orthopaedics," said surgery chairman Robert Anderson, MD, who announced the appointment after a lengthy national search. "I am sure he will continue the tradition of James Urbaniak of being a hands-on leader."

Nunley said he would work to expand the division's clinical and research programs into new areas. "Past leadership has built strong and well-funded laboratory programs in microvascular surgery, microneurophysiology, biomechanics, and cartilage research," he said. "Now we're looking toward tissue engineering as the next exciting horizon. We will also look to expand orthopaedic services throughout the Duke Health System to meet the great need for diverse orthopaedic services in the area."

Vice Dean for Research



Ross McKinney Jr., MD, became vice dean for research at Duke's School of

Medicine in July. He will work to improve the infrastructure and programs that support faculty research, said Dean R. Sanders Williams, MD. McKinney also will supervise the Institutional Review Board and Office for Grants and Contracts, and lead new initiatives relating to information technology, translational medicine, and clinical research resources.

"Dr. McKinney's passion for clinical research and track record of support for faculty research endeavors made him the ideal candidate for this position," Williams said.

A member of the medical center faculty since 1985, McKinney specializes in the treatment of pediatric HIV infection, and also directs the Duke Pediatric Clinical Research Program. Since 1994 he has served as chief of the division of pediatric infectious diseases, a role he will fill until a new chief is named.

Vice Dean for Basic Sciences



Jo Rae Wright, PhD, a professor of cell biology at Duke, became vice dean of

basic sciences for the Duke University School of Medicine on August 15.

In her new position, Wright is a liaison between the dean and basic science faculty. She also works with department chairs and faculty to implement the school's strategic initiative concerning research and education, said Dean R. Sanders Williams, MD, who called Wright "a highly successful scientist, a dedicated educator who has led our graduate studies program, and a person of high energy and excellent judgement."

A member of the medical center faculty since 1993, Wright specializes in the study of lung disease, focusing on the functions of pulmonary epithelial and immune cells. Wright also is professor of pediatrics and medicine, and is head of the division of physiology.

She will maintain her current role as administrative head of the graduate program within the School of Medicine.

Jarvis: "The epitome of the modern scientist"

Erich Jarvis, PhD, an assistant professor of neurobiology, has been awarded the National Science Foundation's highest honor for a young researcher—the



Alan T. Waterman Award. The honor includes a \$500,000 grant to support Jarvis's research on the brain structures that enable birds to learn songs—research that also yields insight into how humans learn speech.

NSF Director Rita Colwell called Jarvis "the epitome of the modern scientist, crossing between disciplines and ideas, and blending his enormous sense of creativity learned at a very young age and applying it to get the very most from scientific experimentation."

A graduate of the New York High School for the Performing Arts, Jarvis turned from dance to science, becoming one of only 52 African-American men out of more than 4,300 biologists to receive a PhD in 1995. "I knew when I was leaving high school that I wanted to do something with a larger impact on the world, and science provided the creativity I had learned through my arts training and also the rigor and discipline," Jarvis has said. His unusual career path was the subject of a *People* magazine article this summer; the story is available online at yearinreview.duke.edu.

Read more about Jarvis's work at www.adm.duke.edu/dukemag/issues/111201/brain.

New CMO for DRH

Robert Gutman, MD, a physician with Durham Nephrology Associates, PA, has been appointed Chief Medical Officer of Durham Regional Hospital, part of the Duke University Health System.

In this position, Gutman will provide leadership and bring the practitioner's vantage point in promoting patient care excellence in partnership with the hospital's senior leadership team, said Richard Liekweg, DRH CEO.

Additionally, Gutman will collaborate with elected medical staff leadership and actively promote partnerships among DRH, the medical staff, and Duke University Health System.

Gutman, a member of the DRH medical staff for 18 years, is a consulting professor with Duke's department of medicine and serves on the Professionalism Subcommittee of the School of Medicine's Curriculum Committee.

President Bush honors Klingensmith, Tulsky



Klingensmith Tulsky

Duke researchers **John Klingensmith, PhD**, and **James Tulsky, MD**, were among 60 scientists nationwide to be honored at the White House July 12.

Klingensmith, an assistant professor of cell biology, and Tulsky, an associate professor of medicine, were presented the 2001 Presidential Early Career Award for Scientists and Engineers (PECASE) by President Bush. The award is the highest honor bestowed by the U.S. government on scientists and engineers who "show exceptional potential for leadership at the frontiers of knowledge."

Klingensmith received the award for his NIH-supported basic research in developmental biology that is helping reveal the mecha-

Williams, Schwinn elected to IOM



R. Sanders Williams, MD, dean of the School of Medicine, and **Debra A. Schwinn, MD**, professor of anesthesiology, pharmacology/cancer biology, and surgery, were appointed to the Institute of Medicine (IOM) of the National Academy of Sciences in October.

Robert J. Lefkowitz, MD, James B. Duke Professor of Medicine and an IOM member, nominated both Williams and Schwinn for membership in the prestigious society. Lefkowitz served as a mentor to both researchers during their fellowship years in his laboratory.

Williams, a physician-scientist, has made major contributions to the understanding of the basic mechanisms of cardiovascular disease. He was appointed dean of medicine and vice chancellor for academic affairs at Duke in April 2001.

Schwinn's research focuses on better understanding how stress and genetic differences between people relate to disease outcomes. She has made significant contributions to the basic understanding of both cardiovascular regulation and lower urinary pathophysiology.

nisms of craniofacial birth defects. His work could lead to gene testing and therapy to prevent birth defects or possibly to new treatments for birth defects.

Tulsky was nominated by the Department of Veterans Affairs for his research exploring the quality of life at the end of life. The research aims to define the attributes of a "good" death—one that eases the transition for the patient—and to create a method to measure the quality of life for dying patients.

Hammond becomes president of American College of Ob-Gyn

This May **Charles Hammond, MD**, E.C. Hamblen Professor and former chair of the Department of Obstetrics and Gynecology, was named president of the American College of Obstetricians and Gynecologists (ACOG), which represents nearly 40,000 physicians.



As president, Hammond hopes to increase awareness about heart disease in women among both patients and the medical community. "For many women in their 20s, 30s and 40s, their ob-gyn is their primary care physician," he said. "Heart disease is the leading killer of

women and it can be delayed and prevented, but it's too late once a woman has it. We need to better understand risk factors and symptoms of heart disease in women, and part of that job is better education of both physicians and women."

A nationally regarded expert in the areas of menopause, hormone replacement therapy, and gestational trophoblastic disease, Hammond was named chair of Duke's department of obstetrics and gynecology in 1980, but stepped down in April 2002 to devote attention to his new duties with ACOG. He will continue to teach and care for patients at Duke.

Goldstein chairs American Stroke Association Advisory Committee

Larry Goldstein, MD, professor of medicine and director of the Duke Center for Cerebrovascular Disease, became chair of the advisory committee of the American Stroke Association (ASA) in July. "Stroke is preventable and treatable but people



need to be informed," said Goldstein, a neurologist. "Our primary goal is to make sure everyone understands these basic facts as well as the symptoms of stroke and the best course of emergency care. As chair, I am looking forward to working with colleagues across the country and with ASA staff to help reduce Americans' risk of stroke and improve the care they receive."

Fuchs selected as Executive Nurse Fellow

Mary Ann Fuchs, chief nursing officer for Duke University Hospital and Health System,



has been selected as a Robert Wood Johnson Executive Nurse Fellow. Only 20 nurses nationwide were selected to participate in the program, an advanced leadership program for nurses in senior executive roles who are aspiring to lead and shape the U.S. health care system of the future. The award includes a \$45,000 grant for individual development and a leadership project, with an organizational matching commitment of \$30,000, as well as opportunities for educational and national exposure.

National Heroes Awards honor emergency care for kids

DUKE UNIVERSITY MEDICAL CENTER, in partnership with General Electric, and **Walter Eppich, MD**, a third-year pediatric resident, received National Heroes Awards from the Emergency Medical Services for Children Program for improving the way emergency medical care is provided to children throughout the nation.

GE and Duke received the Community Partnership of Excellence Award for developing a color-coding system for Computed Tomography scans to reduce excess radiation exposure to children undergoing the scans. When the risks associated with such exposure became known in January 2000, Duke pediatric providers recognized that an existing color-coding system, the Broselow-Luten Pediatric System (B-LPS), could be applied to scans. The system correctly identifies the size of equipment and medication dosages based upon a length-based (or height-based) assessment of the child. **Donald Frush, MD**, chief of pediatric radiology, worked with GE researchers to apply the color-coding system to CT scanning to reduce radiation exposure.

Eppich received the Research Young Investigator Award based on his research abstract, "Barriers to Prehospital Management of Pain in Injured Children," which examined the extent of pain and the need for analgesia in injured children that cannot be adequately defined without the use of pain scales.

Duke's most quoted

Jonathan Davidson was Duke's most-quoted MD during the first half of 2002, according to the Medical Center News Office. Davidson was featured in 173 news reports from January to June—the majority covering a Duke study he led showing St. John's wort to be ineffective for major depression. The story reached an estimated 58.2 million people. Other highly covered Duke folk included **Kimberly Blackwell, MD**, who led a study of hyperthermia for breast cancer that was covered in 170 stories (with an audience of 11.1 million) and **Preston Klassen, MD**, whose study showing that high pulse pressure was associated with death in dialysis patients made the news 139 times (reaching 6.5 million). Read more about their work at dukemednews.org and in this issue's Clinical Update section.

"Major depression is treatable, but our research suggests that major depression of at least moderate severity should not be treated with St. John's wort."

—Jonathan Davidson, MD, Duke's most frequently quoted physician from January to June 2002



Distinguished professors

Duke University has awarded distinguished professorships to 10 medical school faculty members. The following university-wide chairs were awarded to: **George Vann Bennett**, James B. Duke Professor of Cell Biology, effective July 1; **Patrick J. Casey**, James B. Duke Professor of Pharmacology and Cancer Biology, effective July 1; and **Alan Gelfand**, James B. Duke Professor of Statistics and Decision Sciences, effective August 1.

Recipients of university interdisciplinary chairs were: **Brian Cantwell Smith**, Kimberly J. Jenkins University Professor of Philosophy and New Technologies, effective Sept. 1, 2001; and **G. Allan Johnson**, Charles E. Putnam University Professor of Radiology, effective July 1.

Recipients of chairs established within the Duke School of Medicine and effective July 1 were: **Thomas M. Coffman**, James R. Clapp Professor of Medicine; **Mark W. Dewhirst**, Gustavo S. Montana Professor of Radiation Oncology; **Russell P. Hall III**, J. Lamar Callaway Professor of Dermatology; and **Donald P. McDonnell**, Glaxo Wellcome Professor of Molecular Cancer Biology. In addition, **H. Frederik Nijhout**, Bishop-MacDermott Family Professor of Biology, was among six new inductees in the Bass Society of Fellows for Excellence in Teaching and Research, effective from July 1 through June 30, 2007.

Palumbo Award goes to Andolsek

Kathryn Andolsek, MD, clinical professor of community and family medicine and medical director of the Office of Continuing Medical Education, received the fourth annual Leonard Palumbo, Jr., MD, Faculty Achievement Award. The award is given to the member of Duke's medical faculty who has best displayed understanding and dedication to compassionate patient care and excellence in the teaching and mentoring of young physicians. Andolsek, one of 44 nominees, received the award at the Spring 2002 faculty meeting.



Nicolelis receives first Williams research award

Miguel A. L. Nicolelis, MD, PhD, professor of neurobiology and biomedical engineering, received the first annual Ruth and A. Morris Williams Jr. Faculty Research Prize for his innovative research and development of a real-time brain-machine interface. The award was established in May 2001 by the Williamses to advance the research opportunities for young faculty and to help publicize the caliber of medical research under way at Duke. It provides a \$25,000 stipend to support innovative and high-risk projects that might be outside the scope of federal funding. Nicolelis received the award at the Spring 2002 faculty meeting.

Snyderman joins Harvard visiting committee

Ralph Snyderman, MD, chancellor for health affairs of Duke University Medical Center and president and CEO of Duke University Health System, has joined the Visiting Committee of Harvard Medical School and Harvard School of Dental Medicine. The committee is chaired by Charles A. Sanders, MD. Snyderman's three-year term on the committee began July 1, 2002.

Community and Family Medicine



Vivek P. Padha, MD
919-681-2354
Particular Clinical Interests and Skills: Full scope of family medicine, evidence-based medicine and clinical guidelines
Faculty Rank: Clinical Associate
Division: Family Medicine
MD Degree: Government Medical College, Jammu, India, 1995
Residency: Family Medicine, University of Illinois at Chicago, 2000

Duke University Affiliated Physicians



Suzanne Eaton Jones, MD, MPH
919-383-4355
Particular Clinical Interests and Skills: Urgent care, family medicine, gynecology
Faculty Rank: Consulting Associate
Duke Urgent Care Center MD Degree: Duke University School of Medicine, 1996
Residency: Family Practice, Moses Cone Health System, North Carolina, 1999
Other Degrees: MPH, Maternal and Child Health, University of North Carolina at Chapel Hill, 1994

Medicine



G. Michael Felker, MD
919-668-8919
Particular Clinical Interests and Skills: Heart failure, cardiac transplantation, novel therapies for advanced heart failure
Faculty Rank: Assistant Professor
Division: Cardiology
MD Degree: Duke University School of Medicine, 1993
Residencies: Medicine, Johns Hopkins Hospital, Maryland, 1993-98
Cardiology, Johns Hopkins Hospital, Maryland, 1998-99
Cardiology, Duke University Medical Center, 1999-2002
Fellowship: Cardiac Transplantation, Duke University Medical Center, 2002

Psychiatry and Behavioral Sciences



Diana L. Dell, MD
919-668-2570
Particular Clinical Interests and Skills: Disorders related to women's reproductive and mental health, PMS, PMDD, medication use during pregnancy and lactation, postpartum depression, menopause, hormone therapy, sexual dysfunction, depression, anxiety, and marital discord
Faculty Rank: Assistant Clinical Professor
Division: Outpatient Psychiatry
MD Degree: Louisiana State University Medical Center, 1982
Residencies: OB/GYN, Charity Hospital of Louisiana, 1982-86
Psychiatry, University of North Carolina Hospitals at Chapel Hill, 1995-98
Fellowship: Psychosomatic Medicine and Women's Health, Research, University of Toronto, Canada, 1998-99

Surgery



Brian C. Murphy, MD
919-684-2033
Particular Clinical Interests and Skills: Urologic oncology
Faculty Rank: Assistant Professor
Division: Urology
MD Degree: Duke University School of Medicine, 1992
Residencies: General Surgery, Duke University Medical Center, 1992-94
Urologic Surgery, Duke University Medical Center, 1994-98

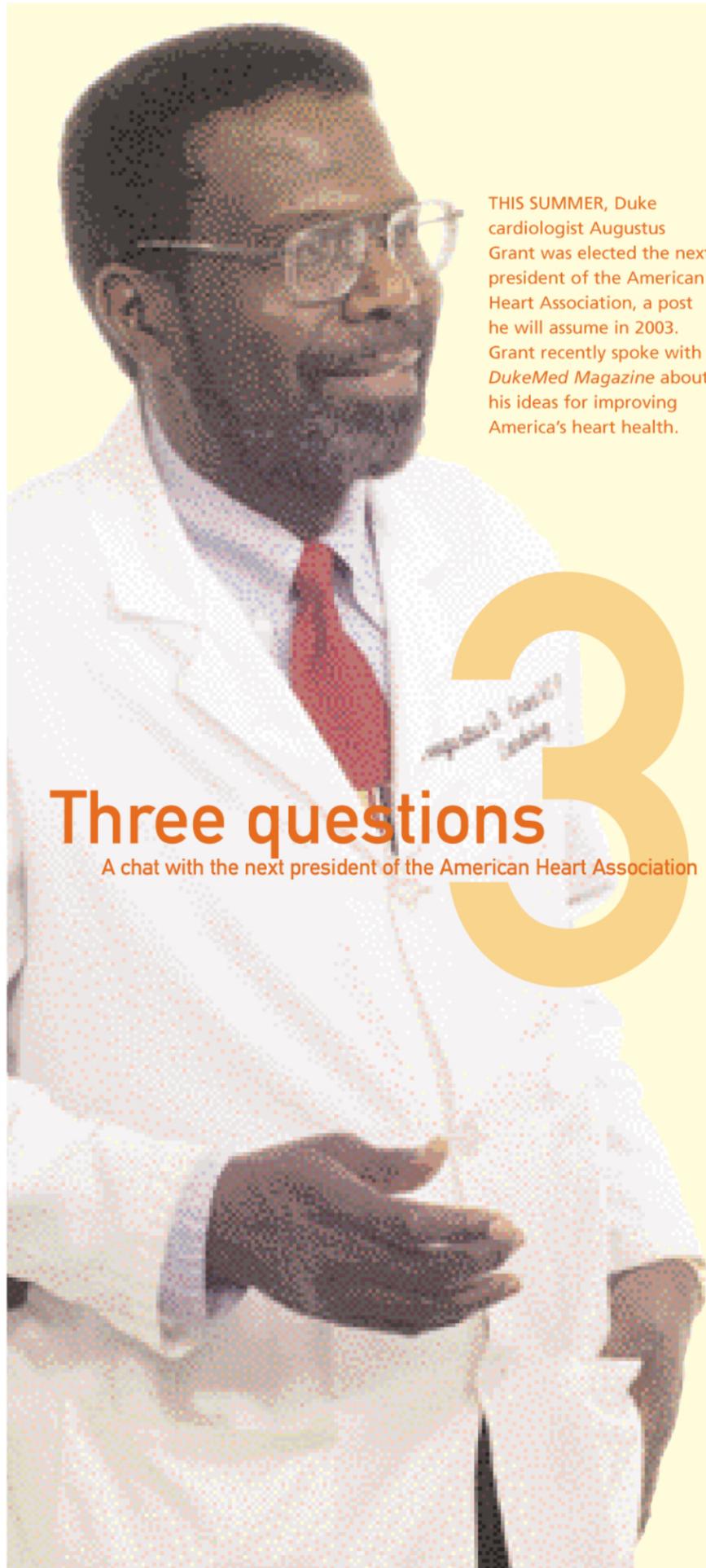
ON THE SPOT

Q. Has the Women's Health Initiative study on combination HRT changed your approach to treating menopausal symptoms?

**A. "No—although HRT doesn't appear to provide cardiac protection, it still has valid indications. I help my patients do an individual risk/benefit analysis, including a bone density study, and consider how long they've been on HRT. If discontinuing estrogen seems wise, I usually switch patients to raloxifene to protect bones. The bottom line for me is that epidemiological studies show that women who use estrogen live longer—and those data are still valid. Now it behooves us to figure out what's providing that protection."
—Diana L. Dell, MD**



Mark B. Skeen, MD
(919) 684-8615
Particular Clinical Interests and Skills: General neurology, clinical neurophysiology, intraoperative monitoring, stroke, multiple sclerosis, sports neurology, neurologic complication of medical illnesses
Faculty Rank: Associate Clinical Professor
Division: Neurology
MD Degree: University of Miami School of Medicine, Florida, 1982
Residencies: Internal Medicine, Portsmouth Naval Hospital, Virginia, 1984-87
Neurology, Duke University Medical Center, 1990-93
Fellowship: Clinical Neurophysiology/Neuromuscular Disease, Duke University Medical Center, 1993-94



THIS SUMMER, Duke cardiologist Augustus Grant was elected the next president of the American Heart Association, a post he will assume in 2003. Grant recently spoke with *DukeMed Magazine* about his ideas for improving America's heart health.

Three questions

A chat with the next president of the American Heart Association

What do you think are the greatest challenges facing heart care today?

I would say the first and foremost is economic. Over past 10 to 15 years we have developed a lot of very expensive technologies to manage heart disease and stroke—therapies such as left ventricular assist devices, which benefit only a small proportion of the patients we have to take care of. The time is fast approaching when we need to ask ourselves, given our limited resources, how can we best manage the cardiovascular health of Americans? And it seems to me it is not through the use of expensive technologies.

If technology isn't the answer, what is?

We should be talking with our patients about preventive measures and making sure they're followed. In our society we have not been willing to approach health issues this way. We do not give physicians time or compensation to sit with patients and talk about having cholesterol checked, treating high blood pressure, taking an aspirin per day, and understanding the symptoms of heart disease and stroke. We're much better compensated to do some technically difficult procedure to take care of the final event in the course of a problem. But preventive measures will have a far greater impact on cardiovascular health. More than anything, I would like to encourage a debate about this—how we are spending our energies and resources.

How do you propose to improve prevention?

Well, our society will need to reexamine the way we compensate physicians. We also can utilize physician extenders to do much of the patient education, provided that the compensation structure supports them. At the AHA, we are having serious look at how we can better educate the public at a national level in order to meet our goal of reducing heart attacks and strokes by 25 percent by 2010. Recently we decided it is important to use mass media to get our messages across, and one affiliate is piloting a television education program. We have not been able to take advantage of television in the past because of the cost, but if it is shown to work well that will help our efforts to fund a larger campaign.

Visit the Duke Heart Center online at heartcenter.mc.duke.edu, the American Heart Association at www.americanheart.org.

Uncover a little something extra.

Visit dukemedmag.duke.edu to find this entire issue online—plus a few stories and resources we just couldn't squeeze into our print version. Web extras for our fall/winter 2002 issue include:

Partners in Safety brochure

(in English and Spanish)

A printable brochure listing steps patients can take to help prevent medical errors. (Related story, page 6.)

Guide to Managing HRT

A white paper from the Duke Heart Center outlining evidence-based recommendations for HRT use. (Related story, page 10.)

Easing Menopausal Symptoms with Soy

A Duke Health Tip by Claude Hughes, MD, Consulting Professor in Duke's Department of Obstetrics and Gynecology, Director of Medical Research at Quintiles Transnational, and winner of the 2002 NAMS/Dupont Protein Technologies Soy Research Award from the North American Menopause Society. (Related story, page 10.)

Childhood and Adolescent Depression

Read about advances in geriatric depression treatment in our cover story, then log on for a look at the blues on the opposite side of the spectrum.

dukemedmag.duke.edu



AT THE HEART OF THE HRT DEBATE.

Hormone replacement therapy took a beating this summer when two major studies showed it may do more harm than good. "Clearly, HRT is not the low-risk pharmaceutical fountain of youth that many women hoped or believed it was," says cardiologist Kristin Newby, MD, Duke's lead investigator in the national Heart and Estrogen-Progestin Replacement Study (HERS). Like the recent Women's Health Initiative study, HERS found that contrary to long-held assumptions, HRT does not benefit heart health—and can even be detrimental. To guide caregivers in light of the new findings, Newby and Duke colleagues recently issued evidence-based recommendations for HRT use.

Learn more on page 10.

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For more information on the courses listed
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Continuing Medical Education at 1-800-222-9984
or visit www2.mc.duke.edu/docme.

DUKE CME CALENDAR

COURSE	DATE	LOCATION	CREDIT	REGISTRATION	
CARDIOLOGY Late-Breaking Results of IMPACT-HF: Implications for Closing the HF Treatment Gap (Symposium)	November 18, 2002	American Heart Association Scientific Sessions (2002), Chicago, IL	1 hour	(646) 602-6959	ON-SITE COURSES
EMERGENCY MEDICINE 13th Annual Duke Trauma Conference	March 13, 2003	Durham, NC	7.5 hours	(919) 684-2370	
PRIMARY CARE Musculoskeletal Assessment for Primary Care Providers (Course)	December 7, 2002	Terry Sanford Institute for Public Policy, Duke University, Durham, NC	6 hours	(919) 668-1894	
PRIMARY CARE Update in Primary Care Dinner Series (Dinner Meeting)	December 2002-August 2003	Durham, NC	1.5 hours per dinner meeting	(919) 416-8100	
PSYCHIATRY & BEHAVIORAL SCIENCES Pharmacotherapy of Anxiety Spectrum Disorders (Course)	December 7, 2002	Miami, FL	4 hours	(919) 684-6137	
RADIOLOGY Bones & Brains on the Beach (Conference)	February 17-21, 2003	Ritz-Carlton, Cancun, Mexico	18 hours	(919) 684-7228	
RADIOLOGY 19th Annual Duke Radiology Review Course (Conference)	April 5-10, 2003	Research Triangle Park, NC		(919) 684-7228	
UROLOGY Winter Urologic Forum (Conference)	February 1-8, 2003	Steamboat Springs, CO	25 hours	(919) 684-3596	
UROLOGY Duke Urologic Assembly (Conference)	March 11-16, 2003	Puerto Vallarta, Mexico	16 hours	(919) 684-2033	
COURSE	DATE	CREDIT	REGISTRATION		
INFECTIOUS DISEASES HIV Clinical Directions - Vol. 1, No. 2 (Enduring Material)	Available through December 31, 2002	1 hour	(609) 734-4369	SELF-DIRECTED STUDY	
OBSTETRICS/GYNECOLOGY 1999 Therapeutic Options for Menopausal Health Slide Kit (Enduring)	Available through December 19, 2002	1 hour	www.menopausalhealth.com		
ONCOLOGY Simplifying the Management of Chemotherapy-Induced Neutropenia (CME on Demand Archived Audioconference)	Available through August 26, 2003	1 hour	reservations.ince.com/webcast/program.asp		
PSYCHIATRY & BEHAVIORAL SCIENCES Advances and Emerging Treatments in Social Phobia (Audiocassette kit)	Available through November 30, 2002	1 hour	(216) 614-3800		

These activities have been approved for AMA PRA credit.

CONTINUING MEDICAL EDUCATION AT DUKE
 For more information on the courses listed
 below, please contact the Duke Office of
 Continuing Medical Education at 1-800-222-9984
 or visit www2.mc.duke.edu/docme.

DUKE CME CALENDAR

COURSE	DATE	CREDIT	REGISTRATION
ANESTHESIOLOGY Conscious Sedation (Limited to DUMC physicians)	Available online through December 31, 2002	1 hour	www.conscioussedation.mc.duke.edu
INFECTIOUS DISEASES Medical Mycology: Epidemiology	Available online through April 24, 2003	Not approved for CME credit.	www2.mc.duke.edu/docme/mycweb2/index.html
LEADERSHIP/MANAGEMENT Equity & Employment: The Fundamentals (for DUMC personnel with managerial responsibilities)	Available online through August 1, 2003	1.5 hours	equitytraining.mc.duke.edu
PHARMACY Thalidomide: Old Enemy, New Friend? (Restricted to Duke University personnel)	Available online through December 31, 2002	1 hour	www.thalidomide.mc.duke.edu
RESEARCH ETHICS Research Ethics/IRB Research Ethics Education Internet Modules (Limited to Duke employees or individuals working on a project subject to review by Duke IRB). Numerous topics available online	Most available online through December 31, 2003	1 hour per course	researchethics.mc.duke.edu/clinethics2.nsf/webpages/courses
CARDIOLOGY Management of the Wounded Heart: Evidence- Based Care Following Myocardial Infarction	Available online through March 5, 2003	1 hour	cme.cybersessions.org
CARDIOLOGY Global Effort to Transform Outcomes of Acute Coronary Syndromes (GET ACS series)		1 hour per course	getacs.theheart.org
ONCOLOGY Simplifying the Management of Chemotherapy- Induced Neutropenia		1 hour	reservations.ince.com/webcast/program.asp

ONLINE COURSES

These activities have been approved for AMA PRA credit.