JOHNS HOPKINS MEDICINE INTERNATIONAL

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HOPKINS health

Winter 2007
Vol.1, Issue 2

A PUBLICATION FOR FRIENDS AND PATIENTS OF JOHNS HOPKINS MEDICINE INTERNATIONAL

## Welcome

**We at Johns Hopkins Medicine International are dedicated to delivering top-notch, tailored service to each of our past, current and future patients. That's why we keep you on medicine's cutting edge through the articles in *Hopkins Health*. (You can also subscribe to our electronic patient newsletter, *Hopkins News for You,* at www.jhintl.net.)**

**In this issue, you'll discover the creative, homegrown technique behind the world's first five-way kidney transplantation. You'll meet surgeon John Cameron, the worst enemy pancreatic cancer has ever known. Plus, you'll take a peek inside the latest alternative to brain surgery and get to know "Nurse Terri" Magness, our most veteran nurse care manager and the employee of the quarter.**

**If you'd like to learn more about the physicians and services you read about in *Hopkins Health,* simply contact the JHM International representative for your regional division. (The directory is on page 4.)**

**Be sure to ask about our remote second opinion service, through which you can have a Hopkins specialist confirm your diagnosis and provide treatment recommendations—without leaving home.**

**Here's to your health.**

**Raffaella Molteni**
*Director*
*International Patient Services*

# Better Odds for Kidneys

## Two revolutionary techniques have made possible the world's first triple—and now quintuple—live donor transplantation exchanges


**Since the world's first "triple swap" kidney transplantation in 2003, Robert Montgomery has led three more. In November, he completed the first "quintuple swap."**

It's no secret that the number of people living with renal failure far outstrips the supply of cadaver donor kidneys. Some 66,000 patients are on the transplant waiting list, and for more than 5,000 of them, waiting is deadly.

Even though the number of people willing to be live donors has tripled in the last two decades, more than a third of the time, their blood or tissue type doesn't match their loved one's. "And when that's the case," says Robert Montgomery, Johns Hopkins' transplantation chief, "they usually don't get far."

One way around incompatibility is a plasmapheresis protocol developed here under Montgomery's leadership. Done several times before and after a transplant, the procedure uses a cell separator to cleanse the kidney recipient's blood of antibodies (blood proteins) that would otherwise launch rapid organ rejection. The technique has freed hundreds of patients from the chronic burden of dialysis, but Montgomery is convinced there's an even better way.

It's called kidney paired donation (KPD), and Montgomery knows firsthand that it works. Five years ago, Hopkins established the country's first program specifically aimed at managing the myriad puzzle pieces that must be fitted together to enable one incompatible donor-recipient pair to be matched to another. Since then, of the 80 or so KPD transplants performed in the United States, more than a third have been done here—including the world's first triple exchange (in which three people simultaneously receive a kidney from another patient's living donor) and now, the first five-way.

Together, the plasmapheresis protocol and KPD program have made Hopkins the country's largest referral center for incompatible kidney donors and recipients. And, by analyzing their outcomes data, Montgomery and the transplant team have showed that KPD has the same survival and success rates as compatible living donor kidney transplants. ■

**DID YOU KNOW?**

Visit **www.jhintl.net** to read *Hopkins News for You,* Johns Hopkins Medicine International's electronic patient newsletter.

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# Pancreatic Cancer's Enemy Number One

**John L. Cameron, the most experienced Whipple surgeon in the world, has reduced mortality rates to just 1 percent.**

**John Cameron has dedicated his 33-year career at The Johns Hopkins Hospital to continually refining—even perfecting—one of surgery's riskiest procedures.**

The Whipple, which involves the removal of part of the pancreas and small intestine, plus the gallbladder and bile duct, remains the most effective of the very few treatments for pancreatic cancer, the eighth leading cause of cancer deaths worldwide.

> "The Whipple is now **so safe** it can be done on patients in their 80s and 90s."

Cameron has done more Whipple resections than any surgeon in the world—some 1,400 to date—and in the process has made the procedure much safer. His technical improvements have reduced its mortality rate at Hopkins to about 1 percent, a statistic that only a handful of high-volume hospitals in the United States can claim. In fact, the procedure is now so safe it can be done on patients in their 80s and 90s.

Though Cameron stepped down from his 18 years as JHH's chief of surgery in 2003, he continues to perform the six-hour Whipple while training the next generation of surgeons and inspiring scientists to find new cures.

The result is that pancreatic cancer patients at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins have access to some of the most innovative therapies in the world, including tailored combinations of the Whipple, chemotherapy and radiation.

Most recently, Hopkins scientists have developed an experimental vaccine that's showing promise for dramatically increased survival rates. Others are working on new tests that will help detect cancer sooner. And Hopkins genetics experts have established the National Familial Pancreas Tumor Registry in an effort to home in on the origins of the disease. These areas of study were made possible in part because of tumors donated by Cameron's Whipple patients.

In addition to the latest therapies, the Cancer Center's holistic approach makes treatment as supportive and comfortable as possible. Specialists provide complete family and patient services through a cancer counseling center, survivor and palliative care programs and two residences for patients traveling from out-of-town. ■

To learn more, or to make an appointment, contact your regional division (see page 4).

# Triumph over Spinal Cord Injury

**A devastating skiing accident just days before his 32nd birthday left Joeri Hilte with no feeling and little movement below his neck.**

He had damaged the C6 and C7 segments of his cervical spine, an injury most physicians deem irreparable.

Hilte spent the next eight months in a rehabilitation center in his native Holland, where he was encouraged to adjust to life in a wheelchair. But Hilte was undeterred. Instead, he exercised voraciously—and his extra effort paid off. He regained some control of his triceps and movement in his fingers. Still, physicians cautioned that he shouldn't expect any further progress.

Then a friend referred him to the International Center for Spinal Cord Injury at the Kennedy Krieger Institute. There, Hilte found clinicians who shared his goal for recovery and started him on an ambitious schedule of physical and occupational therapy.

**Though the odds were against him, Joeri Hilte never gave up hope that he would recover.**

"Advances in rehabilitation equipment have sparked a shift in thinking," says John McDonald, the center's director. "We now believe that substantial spontaneous regeneration is possible even decades after injury."

In fact, it wasn't long before Hilte had sensation in his trunk, then his hip flexors, and finally, his quadriceps and hamstrings. His hard work led to feeling in his shins, calves and feet. Just before discharge, he could pick a pen off the floor with his fingers. This progress, he says, helped him regain independence and enjoyment—he could feed and dress himself and feel a loved one's embrace.

Hilte returned home six months later and continued with the devices he used at Kennedy Krieger, such as a functional electrical stimulation bicycle. The treatment team adapted his therapy to an aggressive home recovery plan, with instructions to return to Baltimore annually. "It's time," says Hilte, "to change the current attitude that spinal cord injuries are not recoverable." ■

## Repairing Nerve Damage

**In a dramatic display of stem cells' potential for healing, Hopkins scientists report that they've engineered fully-working motor neuron circuits—nerve cells that stretch from spinal cord to target muscles—in paralyzed adult animals.**

**The research, published online in *Annals of Neurology* (June 26), shows that when mouse embryonic stem cells were injected into rats with spinal cord damage, the cells can be made to re-trace pathways of nerve development long shut off in adult mammals. "We can recapture what happens in early stages of motor neuron development and use that to repair damaged nervous systems," says neurologist Douglas Kerr, who led the team.**

**The approach could one day help patients with ALS (Lou Gehrig's disease), multiple sclerosis and transverse myelitis or traumatic spinal cord injury.** ■

# Inside the Gamma Knife

At Johns Hopkins, neurosurgeons and radiation oncologists combine their expertise to use the gamma knife—the latest noninvasive alternative to brain surgery—to treat a broad range of disorders. *Hopkins Health* sat down with Daniele Rigamonti, who directs the stereotactic radiosurgery program, to learn more.

### What does the gamma knife do?

It's actually not a knife at all. It's a noninvasive surgical tool that targets and destroys brain tumors while preserving the surrounding tissue. We can perform procedures with unmatched precision, safely reach the deepest recesses of the brain and correct disorders not treatable with surgery.

### How does it work?

The "blades" are actually beams of cobalt radiation that converge to painlessly "cut" through lesions. As a result, patients have less discomfort and much shorter recovery periods.

### What does it treat?

The gamma knife is very effective in destroying brain tumors and blood vessel malformations, and in treating trigeminal neuralgia, or facial pain. It can also treat vestibular and pituitary tumors.

### Who benefits?

It's especially valuable for patients who are at high risk for surgical complications, as well as for those whose tumors are situated in an inaccessible or critical area of the brain.

### What is it like for the patient?

First, the patient's head is fitted with a frame that positions and stabilizes it during treatment. Next, we perform an MRI to target the precise location and size of the abnormality. The gamma knife's treatment-planning software uses this information to develop a three-dimensional picture so we can determine the duration and dosage of the radiation. Treatment ranges from 15 minutes to a couple of hours depending on the diagnosis. The staff maintains constant visual and voice contact with patients. Most leave the hospital that same day.

**Daniele Rigamonti, director of stereotactic radiosurgery.**

### What sets Hopkins apart?

Our stereotactic radiosurgery program brings together leading brain disorder experts—from specialists in neurosurgery, radiosurgery, radiation oncology and radiology, to highly trained technicians and nurses—striking the ideal balance between technological skill and compassionate care. ■

To learn more, or to make an appointment, visit www.hopkinsgammaknife.org or contact your regional division (see page 4).

## Get to Know **"Nurse Terri" Magness**

When patients come to Hopkins from around the world, they soon meet Terri Magness. The veteran "Nurse Terri" not only has the ultimate bedside manner, she's a self-described workaholic who never fails to go the extra mile to get her patients what they need—and she does it with a smile.

As the first of JHM International's three nurse care managers, Magness laid much of the groundwork for the strong relationships that exist today between the nursing team and the interpreters, patient service coordinators, finance department and international embassies. "Nurse care managers are the key to continuity of care," she explains, "because we work with patients from a holistic perspective."

Between reviewing patient records and test results, writing reports and cost estimates for embassies and discussing updates with physicians and patient service coordinators, nurse care managers stay on top of every detail in a patient's medical care plan, including discharge and home care arrangements. Through daily inpatient visits, they're also a consistent contact for patient questions, play a large role in education and even assist with secondary care for visiting family members.

For her many contributions, JHM International honored Nurse Terri as its employee of the quarter. She was shocked; her colleagues, however, agreed that the honor was long overdue. ■




**TOP IN THE NATION**

**For the 16th consecutive year, The Johns Hopkins Hospital stood at the top of *U.S. News & World Report's* 2006 rankings. The annual guide, say the magazine's editors, is designed to identify hospitals that excel in difficult areas of care. Just 14 of the 5,189 institutions graded made the Honor Roll. Of those, Hopkins ranked No. 1 in ear/nose/throat, gynecology, kidney disease, rheumatology and urology; No. 2 in neurology/neurosurgery, ophthalmology and psychiatry; No. 3 in cancer, digestive disorders, heart/heart surgery, hormonal disorders, pediatrics and respiratory disorders, and No. 4 in orthopedics.**

**TOMORROW'S NEIGHBORHOOD**

**Construction is now underway for an 80-acre community revitalization effort that will bring affordable housing, parks and shops to the eastern border of The Johns Hopkins Hospital's medical campus. The $800 million project includes the Science + Technology Park at Johns Hopkins, which will provide more than 1 million square feet of cutting-edge lab and office space for private biotech firms seeking to partner on life science research projects. Hopkins' Institute of Basic Biomedical Sciences will serve as the park's anchor.**

**HOSPITAL OF THE FUTURE**

**In June, The Johns Hopkins Hospital celebrated the groundbreaking for its new clinical towers—marking the official start of the most ambitious redevelopment in the hospital's 117-year history. Scheduled for completion in 2009, the $1.2 billion redevelopment plan includes the construction of a 560,000-square-foot children's hospital tower that will become the new home of the Johns Hopkins Children's Center and a 913,000-square-foot cardiovascular and critical care tower for adults that will house the new Johns Hopkins Heart Institute. Both towers are designed to support today's state-of-the-art technology and yet be flexible enough to meet tomorrow's discoveries. "Hopkins was the model of the modern academic medical center when it opened in 1889," says Edward D. Miller, dean and CEO of Johns Hopkins Medicine. "With this new plan, we hope to make Hopkins the model academic medical center for the next century."**

**Other major projects already completed as part of the campus master plan include a spacious cancer treatment center, two cancer research buildings, an advanced biomedical research building and a parking garage. ■**

# What's New in Research

### Heart Attack Repair

Showing that minimally invasive cardiac stem cell therapy can be applied to near-human conditions, Hopkins cardiologists have repaired lab-induced heart-attack damage in adult pigs. The scientists extracted tiny samples of healthy heart tissue, using them to grow large numbers of cardiac stem cells. Soon, the cells formed spherical balls that mimicked the electrical properties of heart muscle. These cardiospheres were infused through a leg catheter, and, consistent with previous research, found their way to the damaged heart tissue, where they took root as mature heart cells and vessel-forming endothelial cells. "This method can be used in any community-based clinic, and if further studies show this kind of repair, it could be performed on an outpatient basis," says Eduardo Marbán, chief of cardiology.

### Prostate Cancer Protein

Researchers at Hopkins' Kimmel Cancer Center have implicated the muscle protein myosin VI in the development of prostate cancer and its spread. In a series of lab studies with human prostate cancer cells, the

scientists found overproduction of myosin VI in both prostate tumor cells and precancerous lesions. When researchers genetically altered the cells to "silence" myosin VI, the cells were less able to invade in a test tube. It may be possible, says urologist Jun Luo, to use myosin VI to create a more sensitive cancer-detection test than the prostate-specific antigen (PSA) test currently used.

### Pacemaker or Beta Blocker?

Hopkins researchers have found that patients with non-systolic heart failure may benefit more from pacemakers to speed up the heartbeat rather than from continual, long-term use of beta blockers, drugs that slow down the heartbeat—evidence that supports a dramatic change in the way nearly half of heart failure patients should be treated. "Cardiologists are constantly being forced to rethink heart failure because one size does not fit all," says senior study investigator David Kass. Non-systolic heart failure is characterized by normal heart action when a person is at rest. This action falters, however, once daily activity begins. The scientists will soon launch a national study of the use of pacemakers in these patients.

### Best Pancreatic Path

By slicing up bits of patient tumors and grafting them into mice, Hopkins specialists have figured out how to accurately "test drive" chemotherapy drugs to learn in advance which treatments offer each pancreatic cancer patient the best therapeutic journey. Although "xenografting" with either cells or fresh tissue is already used widely to test cancer therapies, the Hopkins design is personalized to each patient who has relapsed after an initial course of chemotherapy. Information from the study also may reveal new biomarkers that predict drug response and data on how certain therapies act within the body. ■


## Hopkins **around the Globe**

**Beacon Hospital** (pictured above), the first private hospital to be built in Ireland in more than two decades, opened in Dublin this October. Johns Hopkins Medicine International signed an affiliation agreement with the hospital earlier this year for education and consulting services in areas such as performance improvement, patient safety, ambulatory care and nurse training and management.

As part of the strategic alliance between **JHM International and India's Apollo Hospitals Group,** Hopkins researcher Susan J. Zieman is participating in a collaborative study to document the risk factors and identify the genes associated with premature cardiovascular disease among Asian Indians. The study also looks into the effectiveness of the "Polypill"—a cocktail of drugs such as aspirin and statins—as a cost-effective strategy for fighting the disease. Trials are at the Apollo hospitals in Delhi, Hyderabad and Chennai, with some tests conducted in the U.S.

Mrs. Laura Bush recently announced the launch of the **U.S.-Middle East Partnership for Breast Cancer Awareness and Research.** The program unites the Susan G. Komen Foundation, MD Anderson Cancer Center, Johns Hopkins Medicine, the United Emirates and Saudi Arabia to develop awareness campaigns suited to each country and increase research, training and community-outreach efforts. ■

**To learn more, visit www.jhintl.net or get in touch with your regional division**

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*Hopkins Health* is published quarterly for Johns Hopkins Medicine International by Johns Hopkins Medicine Marketing and Communications. Dalal Haldeman, *vice president*.
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