



# PHILADELPHIA

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## INTERNATIONAL MEDICINE

### PHILADELPHIA INTERNATIONAL MEDICINE® NEWS BUREAU

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*Editors note: Research, new techniques and improved facilities by Philadelphia International Medicine hospitals and physicians may lead to new ways to treat some of our most challenging diseases. Below are just some examples from our hospitals.*

#### Robotic Partial Nephrectomy; Precision Surgery and A Painless Recovery

Philadelphia – In January 2007, 49-year-old Harry Epstein lost his sight, but it didn't stop him from getting on with this life. By October, he was approved to get a guide dog through Guiding Eyes for the Blind and was scheduled to begin a month-long training program this February.

Three weeks before he was scheduled to leave – and almost exactly a year after he lost his sight – a CT scan revealed a cancerous tumor on his left kidney. Clearly it had to be removed, but the standard surgical procedure required a large incision and the partial removal of a rib to reach the kidney. Recovery would take at least six weeks.

Fortunately, this is where surgeon C. William Schwab II, MD, of the University of Pennsylvania Medical Center – and the da Vinci S robot -- entered the picture. Within a week of the diagnosis, Dr. Schwab had surgically removed the tumor, and Epstein was well on his way to a full recovery ... and his training.

Epstein's tumor was discovered on a CT scan he had to determine the cause of his back pain. Dr. Schwab said that's often the case with kidney tumors – they're found incidentally while checking another medical issue. Indeed, the increased use of imaging as a diagnostic tool in the past 10-15 years has led to much earlier detection of kidney tumors, when they're smaller, asymptomatic... and much more curable.

According to Dr. Schwab, surgery is the only treatment for a kidney tumor. "The disease does not respond to radiation or chemotherapy."

Classically, surgeons treat kidney tumors with a radical nephrectomy -- total removal of the kidney and

the surrounding fat. Until recently, this approach required a large incision and removal of a portion of a rib. “It’s one of the more painful surgical incisions for patients to recover from.”

Today, however, removing the kidney laparoscopically (a minimally invasive approach) is an option with some surgeons. “It’s far superior to the open method in terms of post-op pain, blood loss and recovery time.”

The earlier a kidney tumor is discovered, the smaller its size. This fact led to a new treatment: a partial nephrectomy, which removes only the tumor and a rim of tissue underneath it. “The rates of cure, from a cancer standpoint, are no different than with a radical nephrectomy,” said Dr. Schwab, who completed a fellowship in both robotics and laparoscopic surgery. “But most doctors still think you have to take out the entire kidney – for all tumors.”

Removing only part of the kidney laparoscopically is technically advanced ... so fewer surgeons do it. Dr. Schwab said that, normally, only kidney tumors less than four centimeters lend themselves to a partial nephrectomy, but “if there’s a larger tumor and removing the entire kidney would require the patient to go on dialysis, I try to leave as much normal kidney function as possible.”

The biggest drawback to laparoscopic surgery is the time constraint. “You need a bloodless field to more precisely reconstruct a kidney, so we temporarily stop the blood flow to the kidney,” Dr. Schwab said. “But the kidney only tolerates this for about 30 minutes. After that, kidney cells begin to die.”

Enter robotic surgery, which combines the noninvasive approach of laparoscopic surgery with efficiency of time. “Since I started doing nephrectomies robotically, I’ve cut the length of time we need to cut off the blood supply in half.”

In addition, “the image is so much better, I can excise tumors with much greater precision,” he said. “As a result I’m comfortable doing more complex tumors because I can perform the procedure so much more efficiently.

Plus, the robot mimics hand motions. The instruments can move any way your wrist can move,” he noted. “Laparoscopic instruments only turn sideways and open and close.”

Epstein received his diagnosis on January 15, a mere 20 days before the February 4 start of his training program with the guide dog. “If I missed that training session, it would have been months before I would have been rescheduled,” he explained. “And I couldn’t wait until after I got the dog because I would be laid up for six weeks and not be able to work with the dog. That was my predicament.”

Dr. Schwab learned of his problem and made things happen. “Dr. Schwab saw me that Thursday evening and said he could do the procedure,” Epstein said. “He changed his schedule so he could operate as soon as possible.”

Epstein had his operation on Friday and was out of the hospital by the following Monday, January 21. “He really went out of his way so I could make my training.”

Robotic surgery requires only four small incisions: one for the camera and three for instruments. Epstein

said the pain from the operation was almost “nonexistent.”

“By the following Wednesday, I walked three miles on my treadmill,” Epstein recalled. “The surgery was great. Not only am I cured but I recovered in a week.”

“The outcomes have been great,” Dr. Schwab agreed. “Patients are out of the hospital in two to three days. They take it easy for a while and are back to normal in three weeks.”

That’s how it happened with Epstein. He made his training date, completed the program, and is now the proud owner of Georgeanne, a two-year old German Shepherd.

“She knows all about guiding, and I know nothing about following right now,” he said, smiling. “It’s like she’s got four ‘right’ feet, and I’ve got two left feet ... and we’re trying to learn how to dance!”

### **Jefferson Establishes New Center to Study Stem Cells and Regenerative Medicine**

Thomas Jefferson University has established a new center to study the biology, behavior and the potential medical uses of adult stem cells in a variety of diseases, including neurological disease and cancer.

The Jefferson Stem Cell Biology and Regenerative Medicine Center will be directed by renowned cell biologist Michael P. Lisanti, MD, PhD, professor of Cancer Biology at Jefferson Medical College of Thomas Jefferson University in Philadelphia and the Kimmel Cancer Center at Jefferson.

According to Dr. Lisanti, who is also the Margaret Q. Landenberger Professor of Breast Cancer Research at Jefferson, one center focus will be on the uses of adult stem cells for tissue regeneration in a variety of injuries and disease conditions, such as brain injury after stroke, Parkinson’s disease and the damaged heart and cardiovascular system after heart attack.

The other area of concentration will be on cancer stem cells, both in solid tumors such as breast, prostate and pancreas and in blood cancers such as leukemia and lymphoma. “It’s thought that cancer stem cells that are resistant to therapy are also important in conveying drug resistance,” notes Dr. Lisanti.

“We want to identify and develop new biomarkers to perform patient stratification so that we can do early detection and potentially find out who might benefit from chemotherapy and/or radiation,” he explains.

“The new stem cell biology and regenerative medicine center, under Michael Lisanti’s leadership, will be catalytic in clinical translational science initiatives across cardiovascular, neurological disease and cancer disciplines at Jefferson,” says Kimmel Cancer Center director Richard Pestell, MD, PhD. “This center at Jefferson will serve as a national hub for our ongoing collaboration with other national and international stem cell center partners.”

Dr. Lisanti says that Jefferson scientists plan to use both cell and mouse models to identify potential biomarkers and then test their validity with tumor microarray technology. For example, using a mouse model of pre-cancerous conditions in breast or prostate tissue, researchers can use gene-based microarrays to actually profile the individual genes involved.

“Once you come up with a new gene signature, you can rapidly screen these candidate biomarkers using

tumor tissue microarrays to see if they have predictive value. Then you could potentially offer alternative therapies very early on rather than after the development of drug resistance,” Dr. Lisanti points out. “We think we have some novel cancer stem cell biomarkers in the pipeline.”

The new center consists of seven programs: blood and immune cells; bone, cartilage and muscle; brain and nervous system; cancer; tissue and organ regeneration; reproduction and fertility; and skin.

The center also will encourage more scientific relationships at Jefferson. “We’ve already set up collaborations across the university in both the basic and clinical sciences,” Dr. Lisanti notes, adding that Jefferson already has a stem cell working group. “The center will be the focus for new multi-investigator grants and new educational opportunities.” International collaborations are also underway.

### **Keystone Programs for Collaborative Discovery Launch at Fox Chase: Self-Assembled Scientific Teams to Pursue Major Cancer Research Questions**

Fox Chase Cancer Center announced the first four awards in an innovative new research program designed to bring the power of team-based science to bear on some of the most significant questions in cancer research. The Keystone Programs for Collaborative Discovery aim to accelerate the pace of medical progress against cancer.

At the heart of each of the four new Keystone Programs is a self-organized group of scientists, clinicians and other research professionals seeking to integrate and focus their joined expertise on an important cancer problem. Selected after a competitive external peer-review process, each of the new Keystone Programs will receive at least \$5 million in support over five years. The funding will come primarily from new sources, including Fox Chase’s Board of Directors and private philanthropy. Additional Keystone Programs are in development and will be added to the portfolio as soon as is feasible.

“The Keystone Programs for Collaborative Discovery represent an unprecedented reimagining of Fox Chase’s research enterprise to seize the opportunities for progress against cancer unique to this moment in scientific history,” says Michael V. Seiden, MD, PhD, president and CEO of Fox Chase Cancer Center. “In the post-genomic era, the next wave of major advances against disease will depend on self-assembled teams of researchers from different fields effectively pooling their skills and resources. The Keystone Programs were designed specifically to encourage and support the kind of creative team-based science at Fox Chase that will be required to solve the most challenging cancer problems.”

The first four Keystone Programs for Collaborative Discovery are:

The Keystone Program in Personalized Risk and Prevention

- Goal: To discover molecular markers that predict cancer risk and to develop risk reduction strategies tailored to the profile and personal values of the individual

The Keystone Program in Epigenetics and Progenitor Cells

- Goal: To investigate two new views of the origins and maintenance of tumor cells with the aim of creating novel approaches to diagnosis, treatment, and prevention

#### The Keystone Program in Blood Cell Development and Cancer

- Goal: To identify the genes essential for blood precursor cells to give rise to the many distinct blood cell types, a critical step towards understanding blood cell cancers and improving the treatment of patients with leukemias and lymphomas

#### The Keystone Program in Personalized Kidney Cancer Therapy

- Goal: To investigate the mechanisms of kidney cancer metastasis and to uncover the molecular signals that anticipate how a kidney tumor will respond to therapies in order to optimize therapy for individual patients

In recent years, federal agencies funding biomedical research have recognized the importance of multidisciplinary team-based strategies for solving important disease problems. Funding mechanisms intended to support this kind of research include the Program Project Grants (P01) sponsored by a number of the National Institutes of Health and the Specialized Programs of Research Excellence (SPORE) supported by the National Cancer Institute, one of the NIH institutes.

“In launching the Keystone Programs, Fox Chase Cancer Center is making a remarkable institutional commitment to promoting team-based research to accelerate discovery in cancer medicine,” says Dr. Seiden. “The scope of our investment in this program is unusual and may well be unique among academic research centers.”

In confronting cancer, Fox Chase Cancer Center has two advantages over most other leading medical centers, according to Dr. Seiden, both of which will contribute to the success of the Keystone Programs.

The first is its tight focus on only one major health problem. Unlike most medical centers, Fox Chase is dedicated solely to confronting the challenge of human cancer.

A second pronounced advantage is Fox Chase’s intimate organizational culture, which encourages the kind of collaborative interactions among scientists and physicians that will drive the success of the Keystone Programs.

Twelve proposals for Keystone Programs funding were submitted for consideration by teams of Fox Chase researchers. At the invitation of Fox Chase president and CEO Seiden, an external scientific advisory panel of 16 leading cancer scientists and clinicians agreed to review the proposals in detail to assess their scientific strengths. The panel also traveled to Fox Chase to listen to presentations by the proposal teams. The counsel provided by this independent group of advisors served to ensure the fairness of the award process, as well as the high quality of the winning programs.

More information about the Keystone Programs for Collaborative Discovery is available on the web at <http://keystone.foxchaseprojects.org/>. Fox Chase Cancer Center is one of the leading freestanding cancer

research and treatments centers in the United States. Founded in 1904 in Philadelphia as the nation's first cancer hospital, Fox Chase became one of the first institutions to be designated a National Cancer Institute Comprehensive Cancer Center in 1974. Today, Fox Chase conducts a broad array of nationally competitive basic, translational, and clinical research, with special programs in cancer prevention, detection, treatment, and community outreach. Fox Chase has long fostered a team-based approach to the treatment of cancer patients, with coordinated teams of physicians, nurses, and other health-care professionals providing individual patients with the most appropriate and most effective care for their cancer.

**Philadelphia International Medicine** is an organization that provides medical and patient support services to international patients. It also provides continuing medical education and health care training and education to international physicians, administrators and other practitioners. As the international department of several Philadelphia-area hospitals, international patients gain access to physicians and hospitals rated among the best in the world through one telephone call to PIM. You can reach PIM by calling 1-215-563-4733; fax, 1-215-563-2777; or e-mail, [physicians@philadelphiamedicine.com](mailto:physicians@philadelphiamedicine.com). You can find out more about PIM through its Website at [www.philadelphiamedicine.com](http://www.philadelphiamedicine.com).