

Winter 2005

cancer

D I S C O V E R Y & C A R E



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News Briefs

Welcome to the inaugural issue of *Cancer Discovery & Care*. Through this new publication, we are pleased to share stories of the incredible work performed each and every day at UPMC Cancer Centers and the University of Pittsburgh Cancer Institute. They are stories of our researchers' **quest to unravel the causes of cancer** and map its progression, while in the process laying the foundation for the **improved treatments of tomorrow**. They are stories of clinicians who, with care and compassion, use the most advanced methods for detection, prevention, and treatment. They are stories of health care experts who work tirelessly to educate the public about cancer prevention and treatment. In short, they are **stories of hope**.

This is truly an exciting time, one when we're learning more than ever before about cancer and developing better strategies for treatment, early detection, and cancer prevention. Our clinical care network, which extends throughout western Pennsylvania, with the Hillman Cancer Center as the hub, makes UPMC Cancer Centers **one of the largest cancer care providers in the country**. And thanks to the generous support from the University of Pittsburgh Medical Center and many organizations, businesses, and individuals, we continue to recruit world-renowned investigators to ensure the preeminent quality and achievements of our research activities well into the future. As a result of these activities, our program for cancer research and care has grown to be **one of the top ranked programs in the nation**.



"... we quite literally will be leading efforts to build a future without cancer for patients in Pennsylvania and beyond."

Adding to the excitement is the work of the **Pennsylvania Cancer Control Consortium**, or PAC3, an extensive coalition comprising some of the state's top health care leaders that was tasked by the state's Department of Health with **reducing the human and economic burden of cancer** for all Pennsylvania residents. Recently, we were intimately involved in PAC3's development of the state's first-ever comprehensive cancer control plan. This five-year plan provides **a clear, unifying vision of cancer-related priorities** that will mobilize state-wide support, build effective partnerships, and enhance the infrastructure to fight cancer on all levels, in every community throughout the state.

The burden of cancer on Pennsylvanians is painfully evident. It is the second leading cause of death in the state, accounting for approximately 30,000 deaths each year. This statistic, due in large part to our aging population, places Pennsylvania among the nation's top half of states for overall cancer mortality rates. Furthermore, it is estimated that by year's end, **there will be more than 72,000 new cancer diagnoses** in the state, the fifth highest total for any state in the nation.

Unfortunately, despite the significant past efforts to address this burden, Pennsylvania has had a fragmented approach to cancer and inadequate organizational infrastructures. The PAC3 plan's unifying vision means best practices will be identified and promoted, collaborations will increase, and duplication of effort will decrease, all within a framework of long-term planning, implementation, and evaluation. The plan marshals existing strengths and resources for innovative, research-based strategies in eight areas: **prevention** and healthy lifestyles; **screening** and diagnostic follow-up; **treatment and care** delivery; **quality of life**; access; well-being; **research**; and cancer-related information management and dissemination.

In what is a powerful affirmation of our leadership in cancer research, prevention, diagnosis, and treatment, UPMC Cancer Centers and the University of Pittsburgh Cancer Institute were selected to house the PAC3 Coordinating Office, which will be responsible for implementing the plan's objectives. These activities are well under way and will be further guided under my leadership as the first chairman of the PAC3 board of directors. With the PAC3 Coordinating Office located here, we quite literally will be leading efforts to build a **future without cancer** for patients in Pennsylvania and beyond.

Ronald B. Herberman, MD

Hillman Professor of Oncology
Director, UPMC Cancer Centers and the University of Pittsburgh Cancer Institute

Once upon a time, a Wolf resolved to disguise his appearance in order to secure food more easily. Encased in the skin of a sheep, he pastured with the flock, deceiving the shepherd by his costume. In the evening, he was shut up by the shepherd in the fold; the gate was closed, and the entrance made thoroughly secure. But the shepherd, returning to the fold during the night to obtain meat for the next day, mistakenly caught up the Wolf instead of a sheep, and killed him instantly.

— Aesop

A Wolf in Sheep's Clothing

Deceptive virus teaches how cancer develops — and how it may be stopped.

In the classic fable by Aesop, a wolf ends up the victim of his own deception. But while Aesop's moral was meant to teach the evils of deception, this children's tale also serves as a good analogy for how some viruses may fall victim to their own deception through a twist of biological fate.

Researchers at the University of Pittsburgh Cancer Institute (UPCI) are studying how viruses, by assuming human genes that allow them to take advantage of the body's inner workings, can sometimes bring mutual disaster to themselves and their hosts. In its rush to mimic human cells, a certain virus has been found to cause cancer, resulting in harm to both healthy tissue as well as the virus.

Husband-and-wife research team Patrick S. Moore, MD, MPH, and Yuan Chang, MD, study the interaction between the virus that causes Kaposi's sarcoma — an otherwise rare form of bone and muscle cancer that is common among AIDS patients — and the defenses it must overcome to flourish in our bodies.

They discovered the Kaposi's sarcoma-associated herpes virus, or KSHV, 10 years ago. Dr. Moore, a professor of molecular genetics and biochemistry, and Dr. Chang, a professor of pathology, joined UPCI in 2002 to continue their study of KSHV and other cancer-causing viruses.

Anatomy of a cancer

About 3 percent of the U.S. population is infected with KSHV. Most will never suffer any serious side effects from the infection. In some Mediterranean populations, the infection rate rises to 10 to 15 percent. In sub-Saharan Africa, it's as high as 40 to 60 percent.

Why does the virus infect so many people and cause cancer in so few? The answer to that question has taught Drs. Moore and Chang, and their colleagues around the world, a lot about how cancer develops, and how doctors might shortstop that development.

Continued



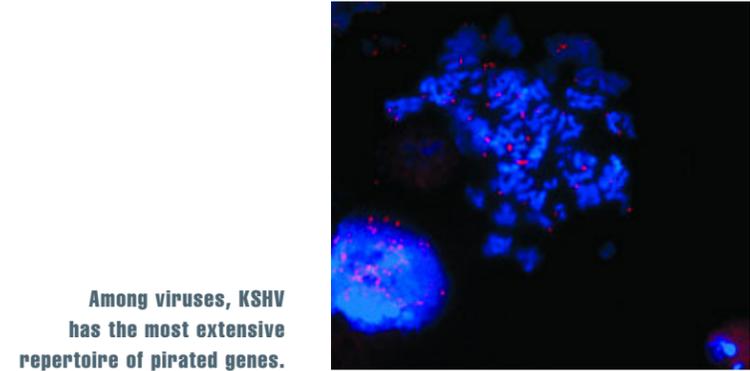
“You have to have a whole battery of techniques or technology at your disposal for hunting new viruses.”

From the beginning, it seemed clear that KSHV caused cancer only when another factor — such as the AIDS virus, chronic malnutrition, immunosuppressive treatment, or advanced age — compromised the infected person’s immune system. In its evolution, Drs. Moore and Chang discovered that KSHV had stolen bits of the human genome — the DNA in our chromosomes — in order to subdue the body’s ability to fight it off, and encourage the cells it infects to make new virus particles.

These stolen genes read like a “Who’s Who” in cancer formation, running the gamut from genes that control cell division (necessary for viral growth) and programmed cell death (a defense against viral infection that the virus must turn off) to genes that control the immune system’s response against viruses (again, necessary for the virus to turn off).

“Among viruses, KSHV has the most extensive repertoire of pirated genes that we know of,” says Dr. Moore. And when another factor, such as immune suppression, enters the picture, this fearsome array of counterfeit genes runs out of control: The same genes that helped the virus reproduce suddenly free the infected cell of the body’s controls over cell growth and movement — in other words, they make it cancerous.

The researchers found that the genes stolen by KSHV hit the cell in pretty much the same places as previously discovered tumor viruses.



Among viruses, KSHV has the most extensive repertoire of pirated genes.

But interestingly, the newcomer uses completely different genes to do it. In one fell swoop, the new virus identifies a batch of human genes that plays a major role in tumor development and tumor suppression.

The virus also shows the researchers why different cancer viruses act differently. As Dr. Chang says, “We were all aware of the big splash made when the gene that causes cystic fibrosis was discovered.” In cancer, though, “... it’s not one specific gene; there are many genes that contribute. In addition, there are environmental factors.”

The big question, Dr. Chang says, is whether all of these genes and factors are “created equal,” or some are more important for cancer formation. If the latter, those “master switches” would be particularly good targets for anticancer therapy. The relationship between KSHV and other tumor viruses suggests that the latter is true.

“That explains why every virus affects the cell differently,” Dr. Chang adds.

Casting a broad net

Neither of the two scientists began their careers with a particular interest in tumor viruses or Kaposi’s sarcoma. Dr. Moore had been studying bacteria-caused meningitis epidemics in Africa; Dr. Chang had worked on the pathology of brain tumors and other brain diseases.

But in 1993, the pair — he working for New York City’s public health department, she for Columbia University — read about a new virus-discovery technology called representational difference analysis, or RDA. They began to wonder if the method might work to isolate the Kaposi’s virus, which researchers couldn’t find but believed existed, despite two decades of searching.

Yuan Chang, MD



Patrick S. Moore, MD, MPH

Finding new viruses is a tough task even today, Dr. Chang observes: “We’re still only able to culture a small fraction of microbes out there.”

RDA is both a subtle and brute-force method: You take a tiny amount of DNA from a Kaposi’s tumor, and a tiny amount from healthy tissue in the affected person. You match up the two and then expand the DNA sample using a process that only reproduces the sequences that are different. The different DNA, if any, is by definition alien to the host. So it must come from the virus.

Drs. Moore and Chang still can’t believe their luck. The RDA process was a difficult, six-week procedure. But on the first try, it identified DNA fragments that belonged to KSHV, allowing them to isolate and sequence the rest of the virus.

Still, Dr. Moore is philosophical about the way KSHV has driven their careers: “In science, you have to follow up the big questions that need to be answered, rather than just answering the questions you think you can.”

Continuing the search

As perhaps befits a research effort led by a married couple, their laboratory has a dual personality: half continuing to study KSHV in depth, and the other half using RDA and newer methods to discover more viruses.

“You have to have a whole battery of techniques or technology at your disposal for hunting new viruses,” Dr. Chang says. This work is very much still in progress, but may teach more lessons about how viruses infect cells — and, thus, how those cells work. Subsequently, this teaches important lessons about how the infected cells malfunction in cancer.

“There have been plenty of big breakthroughs ... these breakthroughs need to be exploited.”

The couple would also like to see their KSHV work pay off in new cancer therapies.

“There have been plenty of big breakthroughs in the field; I think these breakthroughs need to be exploited,” Dr. Moore says. “We’re at such an important stage in cancer virology. We have the entire human genome; in theory we know every gene. We can look at cells from various cancers in many, many different ways. But obviously, we haven’t found all the answers.”

The support available at UPCI drew Drs. Moore and Chang to Pittsburgh. And it’s that environment that continues to drive their work. “UPCI has unique intellectual resources that can take advantage of the current state of science in cancer biology. But the comprehensive support — from administrators all the way down to donors — has been absolutely critical.” ■



Beyond the X-ray

Spiral CT opens new early detection possibilities for deadliest of cancers.

Sometimes a medical advance solves a problem but creates a challenge of its own. In the case of lung cancer screening, new imaging technology called spiral CT (computed tomography) can detect very small pulmonary nodules, or tiny lung tumors, that are not detected by chest x-ray. It's a remarkable development that may allow physicians to detect and treat lung cancer at its earliest stages, before it can grow and spread.

"Spiral CT is an emerging technology that opens a new realm of exciting possibilities for the early detection of lung cancer," says Joel Weissfeld, MD, co-leader of the Cancer Epidemiology, Prevention, and Control Program of the University of Pittsburgh Cancer Institute.

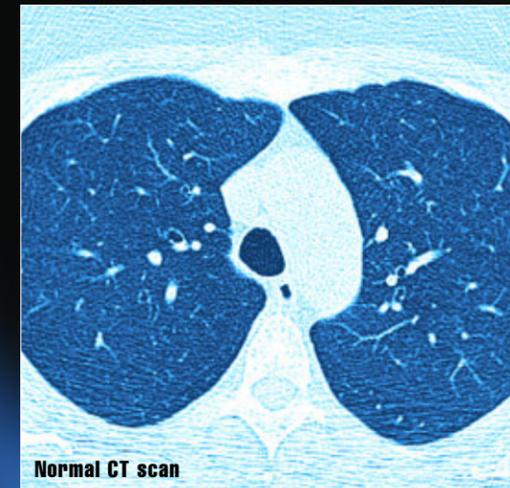
However, doctors who use spiral CT face the challenge of determining whether the newly visible nodules are cancerous, precancerous, or nonthreatening. In fact, critics argue that the technology produces too many false-positive test results. The University of Pittsburgh Cancer Institute is leading efforts to understand the physiology of the small tumors so that doctors can more easily distinguish the threatening tumors from the harmless ones.

Through the Pittsburgh Lung Screening Study (PLuSS) — a project led by Dr. Weissfeld as a component of the prestigious Lung Cancer Specialized Program of Research Excellence (SPORE) that is funded by the National Cancer Institute — current or former smokers between 50 and 79 years of age are screened using spiral CT and are monitored for several years for changes in pulmonary nodules.

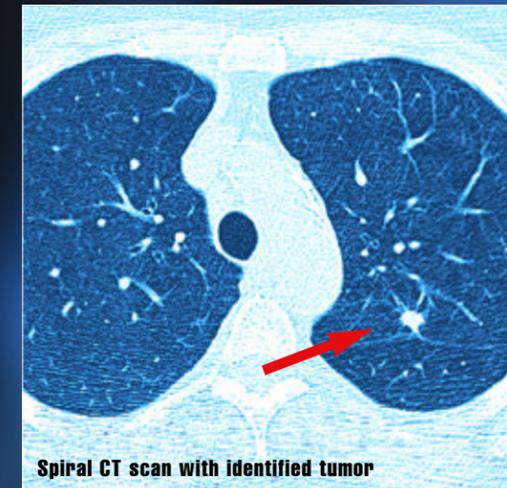
Nearly 3,100 people regionally have enrolled in PLuSS since the study opened in 2002. Based on the screenings, several hundred people were suspected of having lung cancer and, of those, 34 were diagnosed with the disease.

Among them is Allan MacLeod. A resident of Beaver County, just west of Pittsburgh. Mr. MacLeod enrolled in the study because he wanted to help advance state-of-the-art medicine. Mr. MacLeod was completely healthy by all outward appearances.

Joel Weissfeld, MD, co-leader of the Cancer Epidemiology, Prevention, and Control Program, is leading efforts to understand the physiology of the small tumors found through spiral CT, to distinguish the cancerous from the harmless tumors.



Normal CT scan



Spiral CT scan with identified tumor

However, after his initial spiral CT scan revealed a suspicious-looking nodule, he underwent two additional scans. The nodule eventually was determined to be cancerous, and because the cancer was extremely localized, the tumor was removed using minimally invasive surgery. It's highly unlikely MacLeod would have enjoyed such a positive outcome had he not participated in the study. "I ended up benefiting from my own good spirit," he says.

A major advantage of spiral CT is speed. Whereas images from older screening technology are distorted because of patient breathing, images produced by spiral CT are of much higher quality because the scan takes between 15 to 20 seconds and is performed while the patient holds his or her breath.

Nonetheless, predicting the behavior of the pulmonary nodules revealed by the new technology and, ultimately, whether the nodules pose a threat to the patient, remains an important research issue.

To that end, Dr. Weissfeld also is the local principal investigator in a related national study of the effectiveness of spiral CT scans compared to chest x-rays. The University of Pittsburgh Cancer Institute is one of only 10 centers in the United States participating.

"The extent to which these newly visible pulmonary nodules are a cancer risk is still unknown," says Dr. Weissfeld. "It's our hope that these trials may ultimately yield the answer." ■

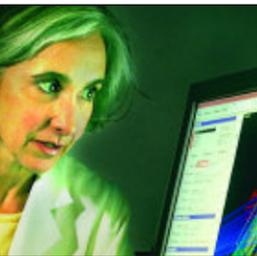
A spiral CT scan, which takes about 15 seconds, can produce a much higher quality image, making detection of tumors easier.

When Dwight Heron, MD, and Keith Morgenlander, MPH, developed a proposal for a grant from the National Cancer Institute (NCI) to break down the barriers that impede access to radiation services and innovative clinical trials involving radiation therapy for rural and minority cancer patients, it was more than an academic and intellectual pursuit.

Breaking Down Barriers

Personal experience driving force behind disparities initiative

Driven by a personal commitment to the fundamental right for equality in cancer care, Dwight Heron, MD, and Keith Morgenlander, MPH, are leading a five-year, \$5 million grant from the National Cancer Institute to address racial and socioeconomic disparities in radiation therapy in partnership with UPMC McKeesport. This community hospital, located southwest of Pittsburgh, is the hub of the study and one of only four hospitals across the country to receive the grant this year.



Susan Rafkal, MD, a UPMC Cancer Centers radiation oncologist, is the clinical leader of the ROCOG grant at UPMC McKeesport.

“As a minority myself, I am deeply committed to changing people’s perceptions and improving trust between physician and patient in order to improve access to the care they deserve,” says Dr. Heron, who is assistant professor of radiation oncology at the University of Pittsburgh School of Medicine and vice chairman of radiation oncology at the University of Pittsburgh Medical Center.

“Every day, I see patients who are unable to take time off work to make it to radiation therapy appointments or who have family obligations that keep them from receiving the care they need to overcome cancer.” His colleague, Mr. Morgenlander, assistant professor of hematology/oncology at the University of Pittsburgh School of Medicine and coordinator of outcomes and disparities research at University of Pittsburgh Cancer Institute and UPMC Cancer Centers, is the grandson of Russian immigrants who came to the United States to escape the pogroms there. Mr. Morgenlander says that he learned a keen sense of social justice early on from his father, who ran a child psychology clinic in the Hill District of Pittsburgh.

“While disease and hardship can affect every one of us, we are affected differently,” says Mr. Morgenlander. “Real barriers to care exist, and studies demonstrate that the burden of cancer is too often greater for the poor, ethnic minorities, and the uninsured.”

Dr. Heron agrees. “A number of barriers, both real and perceived, hinder minorities and economically disadvantaged populations from receiving much-needed radiation services for cancer and from accessing clinical trials. This NCI grant allows us to provide radiation services to patients and communities with the greatest needs and will help address and overcome geographic,

cultural, and socioeconomic factors that limit access to these services.”

Statistics from the NCI confirm Dr. Heron’s and Mr. Morgenlander’s assessment and indicate that African American men develop cancer 15 percent more frequently than white men; many ethnic minorities have much poorer survival rates than whites. According to the NCI, much of the disparity in cancer outcome is a reflection of type, timeliness, and continuity of care rather than the disease itself. When patients from different racial, ethnic, and socioeconomic groups receive the same quality of care, their outcomes are similar.

Dr. Heron and Mr. Morgenlander are using the grant from NCI to head up a project, aptly named the Radiation Oncology Community Outreach Group (ROCOG), that consists of a consortium of five hospitals, three health systems, several community-based organizations, and local health care providers to improve access and clinical outcomes for racial and socioeconomically disadvantaged populations with cancer.

The key goal of the grant is to use non-traditional outreach to make innovative clinical research studies, including radiation therapy, available to underserved populations, specifically the economically disadvantaged as well as African American minority populations.

Dwight Heron, MD, and Keith Morgenlander, MPH, have joined forces to break down racial and socioeconomic disparities in cancer care, specifically radiation therapy.



“What makes this grant most unusual is that it includes academic and community-based hospitals, local and national partners, and community and faith-based groups,” says Mr. Morgenlander. “We focused on the patients’ needs and put the control of the project as close to the community and patient as possible.”

According to Dr. Heron and Mr. Morgenlander, one of the most unique projects within the grant is a rural transportation program to bring patients into appointments and to house elderly and disabled patients.

“Women with breast cancer are four times more likely to have a radical mastectomy than breast-conserving surgery when they can’t physically make it to appointments for radiation treatment,” Dr. Heron says. “If we can provide something as basic as transportation, we can significantly improve recovery time and quality of life for these patients.”

Other examples of innovations within the grant include creating a neighborhood-based cancer survivor buddy system, assisting with child or senior care during treatment, developing a telemedicine system to provide real-time care consultation with local, national, and international experts at other centers, and creating a comprehensive quality assurance and improvement system to ensure the quality of care and to monitor treatment disparities.

ROCOG, based at UPMC McKeesport, includes Jameson Hospital in New Castle, Pa.; Mercy Hospital in Pittsburgh; Somerset Hospital in Somerset, Pa.; Allegheny Cancer Institute at Somerset; and UPMC Lee Regional and UPMC Cancer Center, John P. Murtha Pavilion, both in Johnstown, Pa. The University of Pittsburgh Cancer Institute, Allegheny Cancer Institute, and the National Adjuvant Surgical Breast & Bowel Project provide locally-based academic support

while two additional cancer centers, Roswell Park Cancer Institute in Buffalo, N.Y., and the Mallinckrodt Institute of Radiology at the Washington University School of Medicine in St. Louis, act as mentors in the project to advise in the design of ongoing clinical programs and community outreach efforts.

Other partnerships with key community and faith-based organizations include the Consumer Health Coalition of Greater Pittsburgh, the Center for Healthy Hearts and Souls, and the University of Pittsburgh Graduate School of Public Health’s Center for Minority Health. ■

“We focused on the patients’ needs and put the control of the project as close to the community and patient as possible.”

Philanthropy Soars at Annual Cancer Gala

Hope Takes Flight event raises \$4.2 million for cancer research and patient care.

The late Jerry Orbach, legendary star of stage and screen, lent his support to the evening's events. Mr. Orbach, who succumbed to prostate cancer on Dec. 28, 2004, sang the classic "Time to Remember" from the Broadway hit, *The Fantastiks*, in tribute to those affected by cancer. He is pictured with his wife Elaine (left) and donor Debi Wheeler (center).



On Nov. 4, 2004, 870 guests joined honorary chairs Elsie and Henry Hillman and celebrity chair and golfer Greg Norman for "Hope Takes Flight ... A Future Without Cancer," a gala fund-raising event that raised \$4.2 million to support world-class research and patient care at Hillman Cancer Center, the flagship facility of UPMC Cancer Centers and the University of Pittsburgh Cancer Institute.

Building on the theme of flight, an airport hangar was transformed into a magical banquet hall, resplendent with vibrant fall colors and glowing hurricane lanterns to give the room an intimate feel. While enjoying a five-course dinner, guests were treated to unique vignettes of entertainment by Broadway performers Marcus Lovett, Michele Pawk, and Billy Porter, as well as Jerry Orbach, star of stage, screen, and television, accompanied by a full orchestra. Between courses, aerial acrobats dazzled the crowd with feats of amazing strength, agility, and grace.



Through the leadership of event general chairs Markos and Pamela Tambakeras and Mikell and Bill Schenk, the Hope Takes Flight gala was the most successful fund-raising event ever for UPMC Cancer Centers and UPCI.

Throughout the evening, celebrations of cancer survivorship, heartfelt reminders of special people who lost their battles with cancer, and interviews with compassionate physicians underscored the critical nature of the Hillman Cancer Center's mission. "The evening was a time to celebrate and take great pride in our world-class institution that provides the finest in cancer research and patient care," Mr. Hillman said. "It also was an opportunity to rededicate ourselves to the very special cause of curing cancer, a disease that touches all our lives."

Wheeler Brothers, Inc., ambitiously launched fund-raising efforts by creating a \$1 million "challenge grant," encouraging other individual and corporate leaders to participate in a collective match of their generous philanthropic contribution, which helped to vault fund raising to the highest level ever for the gala event.

In addition to funds raised in conjunction with the gala, Elsie Hillman used the occasion to announce a \$1 million commitment



Professional golf great Greg Norman (center) served as honorary celebrity chair for the event. Pictured with Mr. Norman are Honorary Chair Henry Hillman (left) and Joe Hardy, president and founder of 84 Lumber (right), sponsor of the online auction.



Honorary Chair Elsie Hillman, with UPMC President Jeffrey Romoff (left) and Mark E. Pasquerilla (right), announced a \$1 million commitment by Mr. Pasquerilla to fund cancer genomics and proteomics research.

by Mark E. Pasquerilla to fund research on cancer genomics and proteomics, research that could have a revolutionary impact on early diagnosis and treatment of cancer.

The event, presented by PNC and the University of Pittsburgh Medical Center (UPMC), featured for the first time an online auction hosted by eBay. The auction, sponsored by 84 Lumber Company, provided a unique opportunity for others throughout the United States and the world to lend their support to the event's cause.

Numerous individual donors joined Ronald Herberman, MD, director of UPCI and UPMC Cancer Centers, UPMC President Jeffrey Romoff, and University of Pittsburgh Chancellor Mark Nordenberg for this special evening, including: University of Pittsburgh Cancer Institute Advisory Council Chair Sy Holzer, president of PNC Financial Services Group; general chairs of the event, Pamela and Markos Tambakeras and Mikell and Bill Schenk; advisory chairs Tricia and Bill Kassling, and co-chairs, Bonnie and Tom VanKirk and Susan and Michael Boyle.

Through the generous support of many individuals, corporations, and businesses, we are working toward a future without cancer. Special thanks to our lead donors, including:

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Leadership Gift
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Aventis Oncology
Alice and Frank Bittner and Gateway Travel Plaza
The Hillman Company
Varian Medical Systems

State-of-the-Art Cancer Care



When Debbie Paxton was diagnosed with cervical cancer in October 2001, she wanted the best care available. Unfortunately, that meant four hours of driving each day to Magee-Womens Hospital of UPMC in Pittsburgh to receive a state-of-the-art treatment that wasn't offered in her Johnstown community. "The traveling added to the anxiety and stress of treatment. It made it much worse for me," says Ms. Paxton, whose family and friends drove her to and from Pittsburgh nearly 35 times in six weeks. The constant driving

became more difficult for Ms. Paxton as her treatment progressed and side effects of fatigue and nausea worsened. "There were a lot of stops on the way home," she says.

Ms. Paxton is just one example of the compromises many cancer patients once had to make to receive high quality cancer care.

Now patients can receive care right in their own community. Recognizing the need of cancer patients in western Pennsylvania, the University of Pittsburgh Medical Center and the University of Pittsburgh Cancer Institute have partnered with local community hospitals to bring its world-class cancer care to patients in their communities. Since its inception in 2001, UPMC Cancer Centers has grown to become one of the largest clinical care networks for cancer in the country, treating more than 30,000 patients each year at 43 locations.

Continued

Close to Home

“UPMC Cancer Centers has grown to become one of the largest clinical care networks for cancer in the country.”





Using a **hub-and-spokes concept**, we're able to extend the expertise of UPCI researchers and clinicians — housed at the Hillman Cancer Center — to more than

40 locations throughout western Pennsylvania.



As the "hub" of the network, Hillman Cancer Center houses both research facilities and outpatient clinical care.



Intensity modulated radiation therapy can literally "sculpt" the contours of a tumor with radiation, dramatically reducing harmful side effects.

"Using a hub-and-spokes concept, we're able to extend the expertise of UPCI researchers and clinicians — housed at the Hillman Cancer Center in the Shadyside section of Pittsburgh — to more than 40 locations throughout western Pennsylvania," says Jeffrey Shogan, deputy director of clinical business affairs, UPMC Cancer Centers.

In short, patients throughout the region now have convenient access to cancer treatments that were previously not available outside major university medical centers. "Our more than 80 affiliated oncologists are able to collaborate with the internationally-renowned experts at UPMC and UPCI and draw upon the full resources available there," Dr. Shogan notes.

For example, the treatment Ms. Paxton received, called intensity modulated radiation therapy, or IMRT, is a revolutionary new way to deliver high doses of radiation to pinpoint cancerous locations, sparing nearby healthy tissues and organs and dramatically reducing harmful side effects. Because the highly specialized physicists who perform the complex IMRT treatment planning are in extremely short

supply, IMRT typically is available only at large academic research centers. However, through telemedicine capabilities, physicists based at the Hillman Cancer Center are able to provide IMRT treatment planning services for 11 community locations throughout western Pennsylvania, including UPMC Cancer Center, John P. Murtha Pavilion, in Johnstown, only five minutes from Ms. Paxton's home.

"It thrills me to know that someone who is diagnosed with cancer is now able to drive five minutes and have peace of mind knowing they're getting the same treatment as they would in Pittsburgh," Ms. Paxton says.

Through this affiliation, patients now also have convenient access to the most innovative treatments through clinical trials

that are offered exclusively through major academic research centers such as UPMC Cancer Centers and the University of Pittsburgh Cancer Institute, the only National Cancer Institute-designated Comprehensive Cancer Center in western Pennsylvania. Clinical trials may give patients a new lease on life when standard therapies have failed.

As UPMC Cancer Centers continues to enhance its clinical care network, even more patients will benefit from the local presence of a national leader in cancer care. "When I was first diagnosed with cancer, I immediately thought it was a death sentence. It absolutely is not," Ms. Paxton says. "Now others have a much easier road to the most advanced care." ■

UPMC Cancer Centers community physicians can now offer their patients the most innovative treatments through clinical trials available through the University of Pittsburgh Cancer Institute.



The Power of Partnership

UPMC Cancer Centers and the University of Pittsburgh Cancer Institute deeply thank our partners, the hundreds of individuals, families, businesses, corporations, foundations, and organizations that have supported our patient care, education, and cancer research efforts during the fiscal year ending June 30, 2004. Every gift helps our institutions to thrive and maximize every opportunity and advantage for patients and their families. Each gift demonstrates a profound faith in the work that we do.

Endowments

An important number of endowed chairs and funds support our mission. The income generated from endowments provides solid support and will continue to fuel many new initiatives into the future. These funds enable our scientists and clinicians and their teams to strengthen and expand many of the established areas of expertise, as well as forge new frontiers in science that benefit our patients and their families.

The Claude Worthington Benedum Endowed Chair in Radiation Oncology

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The Giant Eagle Foundation Endowed Chair in Cancer Genetics

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Visionary Society

UPMC Cancer Centers and the University of Pittsburgh Cancer Institute gratefully acknowledge those dedicated partners with a passion for conquering cancer in our lifetime who have given or helped to raise a cumulative total of \$1 million or more.

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Family Legacy Society

Motivated by a personal experience with cancer or by the loss of a loved one to the disease, these families have been instrumental in generating significant support for patient care, education, and cancer research programs. Their extraordinary efforts are an inspiration to all of us. UPMC Cancer Centers and the University of Pittsburgh Cancer Institute gratefully acknowledge the support from these families who have begun the following named funds.

Nathan S. Arenson Fund for Pancreatic Cancer Research

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Annual Giving

The Annual Fund provides a broad scope of vital support for the operation of clinical programs, basic and clinical research programs, recruitment of new physicians and scientists, seed money support, medical and patient education, and outreach programs. UPMC Cancer Centers and the University of Pittsburgh Cancer Institute gratefully acknowledge gifts that have been given from July 1, 2003 to June 30, 2004 through the following recognition societies. Membership is a result of sustained annual investments at these designated levels.

Circle of Hope

The Circle of Hope was established in 2002 to honor individuals, family foundations and privately held companies that make contributions of \$10,000 or more during the course of a calendar year. We proudly recognize all donors for 2003 as well as those for the first part of 2004.

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“Cancer research is going to be the salvation for the next generation. This disease is so insidious that it's going to take researchers to defeat it, and it's going to take people supporting the researchers.”

Valerie Koch, Family Legacy Society donor

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“Too many people have suffered because of cancer. Someday we will come up with that cure, but it's going to take time and it's going to take people committed to supporting the researchers and doctors hard at work combating this disease.”

Richard Cohen, Circle of Hope donor

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“Too many people have suffered because of cancer. Someday we will come up with that cure, but it's going to take time and it's going to take people committed to supporting the researchers and doctors hard at work combating this disease.”

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UPMC Cancer Centers and the University of Pittsburgh Cancer Institute gratefully acknowledge gifts from the following individual estates and trusts.

Estate of John J. Shagovac
 Estate of Florence K. Williams

Businesses, Corporations, Advocacy Associations, and Other Groups

UPMC Cancer Centers and the University of Pittsburgh Cancer Institute gratefully acknowledge the following gifts of \$250 or more from businesses, corporations, advocacy associations, and other groups.

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“You shouldn’t have to tell your children ‘There’s nothing more we can do.’ We need to keep fighting for cures.”

Ellen Goodman, Endowment donor

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“Having been blessed to survive melanoma, I determined, when it was possible, to support the seemingly insurmountable fiscal task of helping to spare others the suffering and loss that so often comes with this type of cancer.”

Robert Johnson, Cancer Foundation for Melanoma Research

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 Charles T. Campbell Charitable Foundation
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“Over the past 20 years, the most rewarding thing for us has been to watch the Cancer Centers’ growth and knowing that it’s an integral part of the city of Pittsburgh.”

Annie and Richard Rivers Jr.

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Every gift plays a vital role in helping us achieve our mission of advancing research and enhancing patient care. Unfortunately, space is too limited to list the individual names of donors that gave gifts at levels of \$1 to \$249. Please know your support is truly appreciated.

If we have made an error in any name or omitted any name from this list, please accept our apologies and notify us at 412-623-4700.

HEAD AND NECK SPORE GRANT

The University of Pittsburgh Cancer Institute received a five-year, \$10 million Specialized Program of Research Excellence (SPORE) grant from the National Cancer Institute to examine innovative treatment and innovative risk assessment strategies designed to improve survival outcomes for patients with head and neck cancer. This prestigious grant — the second SPORE awarded to UPCI — is one of only four in head and neck cancer awarded nationally.

Jennifer Grandis, MD, director of UPCI's Head and Neck Cancer Program, will serve as the principal investigator for the grant, which will fund four translational research projects focusing on genetic changes that are potential risk factors for head and neck cancer, intracellular signaling proteins activated during head and neck cancer, and new treatment and vaccine strategies designed to reduce the morbidity and mortality from head and neck cancer. ■



MONTHLY SCREENINGS FOR AFRICAN AMERICANS

The African American Cancer Program of UPMC Cancer Centers and the University of Pittsburgh Cancer Institute was established to educate the African American community about the importance of early detection of cancer. African Americans have a higher rate of cancer and suffer a disproportionate amount of cancer deaths. Through outreach programs such as community screenings, survivor self-help groups, and educational programs, the program is helping to eliminate the barriers that prevent many African Americans from obtaining early cancer diagnosis and treatment.

Screenings for breast, cervical, colorectal, oral, ovarian, prostate, and melanoma cancers are held monthly at the Hillman Cancer Center in Shadyside, as well as at the Alma Illery Medical Center in the Homewood-Brushton section of Pittsburgh. ■



PROTEOMICS/GYNECOLOGIC CANCER GRANT

The University of Pittsburgh Cancer Institute is involved in two major cancer research collaborations that are being funded by the U.S. Department of Defense.

UPCI, Windber Research Institute, and the University of Pittsburgh Schools of the Health Sciences were awarded \$3.4 million to create a program dedicated to proteomics, which is the study of the shape, function, and expression of proteins. This promising research may one day allow physicians to diagnose cancer at its earliest stages by identifying specific proteins responsible for the disease, leading to better prevention, screenings, and treatment.

UPCI, Windber Research Institute, Walter Reed Army Medical Center, and Georgetown University received \$4.2 million to create a program to reduce the incidence, morbidity, and mortality of gynecologic cancers. The initiative focuses on characterizing the molecular alterations associated with benign and malignant gynecologic diseases and facilitating the development of novel early detection, prevention, and treatment strategies.

U.S. Rep. John P. Murtha played a central role in obtaining the funding for both initiatives. ■

ADVANTAGE 4D™

Preliminary results at the University of Pittsburgh Medical Center demonstrate that a new imaging technology developed by GE Medical Systems further limits the exposure of radiation to healthy tissue surrounding a tumor.

Advantage 4D™ (Adv4D) is one of the first technologies of its kind to allow physicists to perform respiratory gating — precisely following the movement of a tumor according to a patient's breathing cycle. This, in turn, enables radiation oncologists to better target the radiation doses only at the tumor.

UPMC is one of only five centers in the nation evaluating Adv4D. ■

LANCE ARMSTRONG BRINGS TOUR OF HOPE™ TO PITTSBURGH

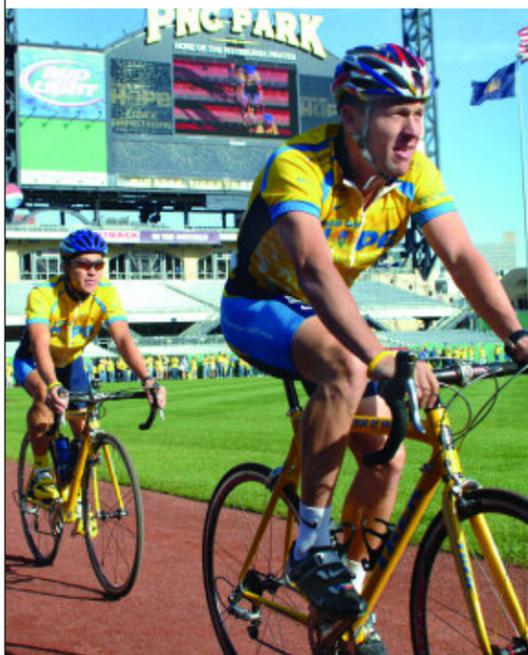
On Oct. 8, 2004, more than 2,000 cancer survivors, their families, and friends converged upon PNC Park, home of the Pittsburgh Pirates, to celebrate survivorship and the promise of clinical trials in overcoming the burden of cancer.

UPMC Cancer Centers partnered with the Oncology Nursing Society to bring the Tour of Hope™ to Pittsburgh. This weeklong bike relay, featuring Lance Armstrong and a team of cancer survivors and caregivers, crossed the country to raise awareness of the importance of clinical trials.

In Pittsburgh, local sports celebrities, as well as leaders in the field of cancer research and care, shared the field with these inspirational heroes, who shared their personal experiences with the disease.

As the Tour crossed the country, people were encouraged to make the Cancer Promise, a commitment to become better educated about cancer, to participate in prevention and early detection, and if faced with the disease, to contemplate participation in clinical trials.

Ronald Herberman, MD, director of UPMC Cancer Centers and the University of Pittsburgh Cancer Institute, and executive director of the Pennsylvania Cancer Control Consortium (PAC3), delivered 20,018 Cancer Promises, signed by UPMC Cancer Centers patients, staff, and others, to the Tour of Hope™ relay team during the Pittsburgh event. ■



cancer

DISCOVERY & CARE

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DISCOVERY & CARE

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UPMC Cancer Centers offers cancer patients exceptional care and innovative treatments close to home. Working in tandem with the University of Pittsburgh Cancer Institute, western Pennsylvania's only National Cancer Institute-designated Comprehensive Cancer Center, UPMC Cancer Centers provides the latest advances in cancer prevention, detection, diagnosis, and treatment at community-based locations throughout the region. The University of Pittsburgh Cancer Institute comprises the academic and research activities for cancer at the University of Pittsburgh and the University of Pittsburgh Medical Center.

For information about supporting cancer research efforts and patient care at the University of Pittsburgh Cancer Institute and UPMC Cancer Centers, contact us at 412-623-4700.



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