



cancer update

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At the Helen F. Graham Cancer Center, the latest cancer treatments take a multidisciplinary approach



Members of the Genitourinary Multidisciplinary Center

(L to R) Adam Raben, M.D., Kristine Symes, RN, BSN, OCN, David J. Cozzolino, M.D., Cynthia King, LPN, and Stephen Grubbs, M.D.

Not pictured: Bruce N. Benge, M.D., Sue Brebner, RN, BSN, Thomas J. Desperito, M.D., Viroon Donavanik, M.D., Andrew Glick, M.D., Karen Karchner, RN, OCN, Francis J. Schanne, M.D.

Patients meet with their own team of experts on their first visit to the Genitourinary Multidisciplinary Center

At the Genitourinary Multidisciplinary Center, specialists from every related discipline are available to meet as a team with patients who have cancers of the bladder, urinary tract, kidney, prostate, reproductive organs and pelvis. "The ability to interact in person with an entire team of cancer specialists - including a medical oncologist, a surgeon and a radiation oncologist - makes it easier for patients to access the latest thinking and the most promising treatments for their particular type of cancer," explains medical oncologist Stephen S. Grubbs, M.D. "That's the beauty of the MDCs."

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Treating bladder cancer

Some innovative surgery and several aggressive new chemotherapy trials offer patients with advanced or recurrent bladder cancer a new lease on life.

The bladder is a hollow organ located in the lower part of the abdomen. It works like a small balloon, expanding and contracting to collect and empty urine made by the kidneys as they clean the blood.

“My wife and I had lots of questions, and everyone was willing to listen and answer thoughtfully. My doctors never once looked at the clock. That said a lot to us. My care was superior. I feel like a million dollars.”

– Tom Jordan
Hockessin

Like most cancers, bladder cancer is treated best when found early. Treatments for bladder cancer include surgery to remove the cancer; radiation to kill cancer cells and shrink tumors; chemotherapy with drugs to kill cancer cells; and biological therapy using the body’s natural defenses against disease to fight cancer. Often, combinations of these treatments work best.

Building a new bladder

Surgery is a common treatment for bladder cancer. Depending on the location and extent of the cancer, a cystectomy may be performed to remove the entire bladder. When this happens, the surgeon needs to make a new way for the body to store and pass urine.

Tom Jordan, 61, of Hockessin, Delaware, admits he had never heard of bladder cancer until his diagnosis in 2003. After discussing treatment options with his doctors and his family, he chose to have a cystectomy with reconstructive surgery. His surgeon, David Cozzolino, M.D., at the Helen F. Graham Cancer Center, would build him a new bladder fashioned from a short length of small intestine.

How it’s done

“Typically, we create a neobladder or ‘new bladder’ from a piece of small bowel that measures about 60 centimeters or roughly 23 inches,” Dr. Cozzolino explains. The section of bowel is opened to create a pouch that is sewed at one end to the ureters that pass urine from the kidneys and at the other end to the urethra where urine leaves the body. After healing, the neobladder will simulate the natural bladder and, in most cases, will allow the patient to urinate normally.

Not all patients qualify for this procedure, but for the ones who do, it can mean a whole new lease on life. “We’ve been doing different types of urinary tract diversions for about 20 years,” says Dr. Cozzolino, “but advances in technology and refinements in technique have made the neobladder an important procedure for people whose cancer has been

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Bladder Cancer: Just the Facts

In 2005, 3,800 new cancer cases will be diagnosed in Delaware. As many as 190 will be bladder cancer.

Nationwide, bladder cancer is the fourth most common cancer in men and the eighth most common in women.

Men are four times more likely to get bladder cancer than women. Caucasians are twice as likely as any other racial group.

Bladder cancer is a leading tobacco-related cancer. Smoking is a significant risk factor. Occupational exposure to certain industrial chemicals is another.

The risk of bladder cancer increases with age. Over 60% of people with bladder cancer are 65-85 years old.

When bladder cancer is found and treated early, chances for survival are very good. Ask your doctor about having a urinalysis performed annually to help detect bladder cancer. ❖



Director's Corner

Nicholas J. Petrelli, M.D., MBNA Endowed Medical Director of the Christiana Care Helen F. Graham Cancer Center talks about the cancer program.

Your family history: Know it

In this issue of Cancer Update, there is a section on the outstanding job that Zohra Ali-Khan Catts, MS, CGC, has done since joining the Helen F. Graham Cancer Center in May 2002, as the first, certified, full-time adult genetic counselor in the state of Delaware. In a brief time, Ms. Catts has built a Family Cancer Risk Registry of 275 families with greater than 12,000 individuals. Developing a Family Cancer Risk Registry that requires detailed family histories involves an inordinate amount of work and time.

Collaborations help reach families at risk

Collaborative efforts between the Helen F. Graham Cancer Center and the Tunnell Cancer Center at Beebe Medical Center have made it possible for individuals from high-risk families in Sussex County, Delaware, to undergo genetic counseling and gene testing in an effort to identify their potential for developing different cancers. This is another example of how hospitals can collaborate in the oncology field. The first collaborative program between the Tunnell Cancer Center and the Helen F. Graham Cancer Center broadened access to a promising treatment for cancers of the abdominal cavity called intraperitoneal hyperthermic perfusion described in a previous issue of *Cancer Update*.

Family history holds valuable information

Despite new medical technology, drug therapy and other treatments, the family history remains an important part of a patient's medical evaluation and has become a top priority in this genomic era of medicine. Family history can be used to help predict the risk of cancers, such as colorectal, breast, ovarian, prostate

and thyroid. Unfortunately, many individuals do not have complete information about the medical histories of their relatives, and many health professionals under use family history in advising patients about their risks for cancer. Consequently, for individuals diagnosed with cancer, the role of the genetic counselor is an integral part of the doctor-patient relationship. It is also important that individuals obtain information concerning their family history on both sides of the family. For example, failure to recognize that a family history of ovarian and breast cancer is just as important on the paternal side as it is on the maternal side can cause a clinician to overlook a woman's increased risk of either type of cancer.

Family members can become data collectors

On the other side of the coin, there are barriers that prevent health professionals from obtaining a family history. The biggest barrier is that in clinical practice, it is often difficult to find a sufficient amount of time to obtain, organize and analyze family history information. Part of the solution is having individuals and their families collect a detailed family history themselves.

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“Virtual” cancer center invites patients to explore

Men who have been diagnosed with prostate cancer can find answers about their disease and treatment options right at their fingertips. How? By visiting a “virtual” cancer center right from their own computers.

Jeff Kendall, Psy.D., Christiana Care health psychologist at the Helen F. Graham Cancer Center, has initiated a collaborative effort with Fox Chase Cancer Center, Temple University and Mount Sinai School of Medicine to help evaluate the Prostate Cancer Interactive Education System (PIES) on CD-ROM. The study is funded by the U.S. Department of Defense and is now recruiting participants.

PIES is designed to increase patients’ knowledge as well as their satisfaction with the information they receive. Patients and family members can browse through stacks of books and resource materials, listen in on support groups and get information from a multidisciplinary team of cancer specialists. “PIES offers a variety of tools, including verbal cues, printed text and pictures, to help users find information in the ways they learn best,” Dr. Kendall says. “We’re also evaluating whether the program helps men through the decision-making process about what treatment will work best for their prostate cancer.”

Multicenter collaboration

According to Nicholas Petrelli, M.D., MBNA endowed medical director of the Helen F. Graham Cancer Center, on a national level, clinical trials investigating behavioral health issues have lagged behind those in other areas of medicine. “The PIES study is just one example of the high quality collaboration we have with Fox Chase that has opened new avenues for bringing the latest educational tools and therapies to our patients.”

Christiana Care patients who are randomly assigned to review PIES will do so at the Cancer Center before they meet with their multidisciplinary health care teams, and before they have made a definite decision about treatment. Participants may take the PIES CD-ROM home to use for six weeks. So far, about 20 percent of those enrolled at Christiana Care are African-American men. “This is particularly encouraging,” Dr. Kendall adds, “since their racial background puts them at increased risk for prostate cancer.”

For more information about participating in the PIES study, contact Jeff Kendall, Psy.D. at the Helen F. Graham Cancer Center, 302-623-4500. ❖



Jeff Kendall, Psy.D., health psychologist at the Helen F. Graham Cancer Center, holds a CD-ROM of the Prostate Cancer Interactive Education System, which patients can use to learn about prostate cancer and treatment options.

“The PIES study is just one example of the high quality collaboration we have with Fox Chase that has opened new avenues for bringing the latest educational tools and therapies to our patients.”

—Nicholas J. Petrelli, M.D.

Is cancer branching out in your family tree?

A detailed family medical history could help identify cancer risks



Zohra Ali-Khan Catts, MS, CGC

The Christiana Care Helen F. Graham Cancer Center is compiling a Family Cancer Risk Registry to document cancer risk factors that run in families. Currently the registry contains information on 275 families and some 12,000 individuals from Delaware and neighboring states who either have cancer or are at high risk for developing some form of the disease. The registry contains demographic information (age, sex, race, geographic residence and occupation) and documents cancers and other diseases present, pertinent clinical data and follow-up, as well as personal lifestyle and genetic factors that can increase a person's risk for developing some types of cancer.

Zohra Ali-Khan Catts, MS, CGC, a certified, full-time adult genetic counselor at the Helen F. Graham Cancer Center, is compiling the registry. "The family registry is an important resource for information about the clinical, genetic and population aspects of different cancers," she explains. "Family medical histories such as those

documented in the registry can also provide valuable information for doctors to use in advising an individual patient about cancer prevention, cancer treatment or the latest research findings."

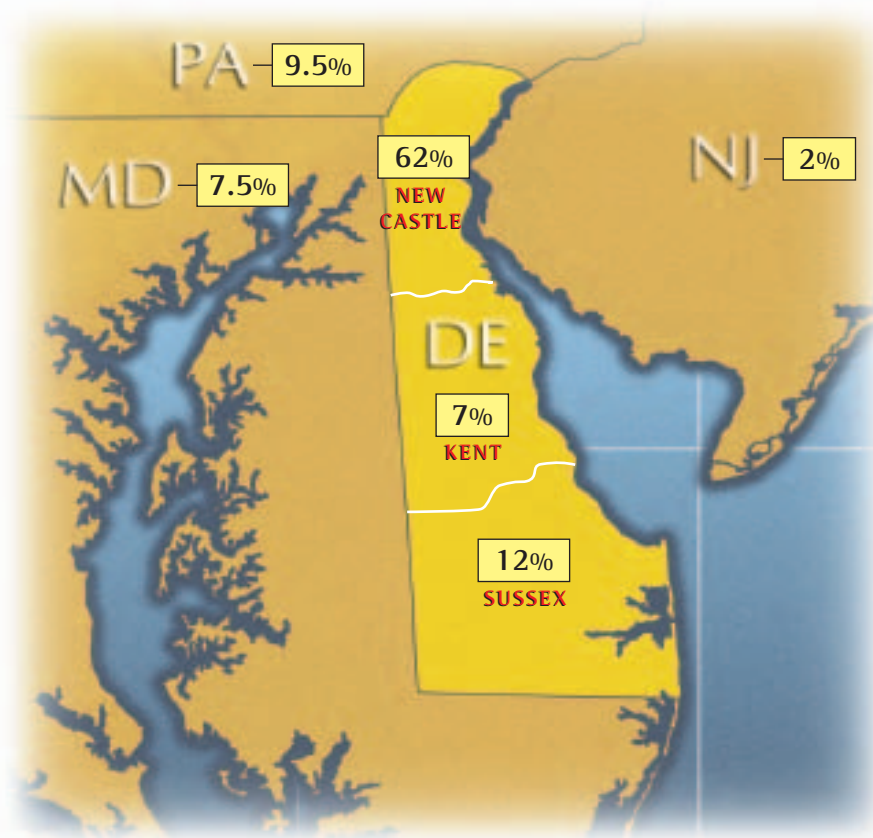
Individuals and families who seek genetic counseling at the Helen F. Graham Cancer Center are eligible to participate in the Family Cancer Risk Registry. All information in the registry is secured and protected under the laws governing a patient's right to privacy. As part

of a growing statewide hospital partnership, Christiana Care offers downstate residents the benefits of genetic counseling and the opportunity to participate in the Family Cancer Risk Registry through collaboration with Beebe Medical Center in Sussex County, Delaware.

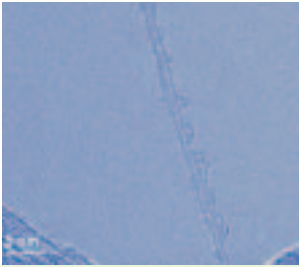
For more information about genetic counseling and the Family Cancer Risk Registry, call the Helen F. Graham Cancer Center at 302-623-4500. ❖

Participation in the Family Cancer Risk Registry

The map shows percent of total families (275) participating as of April 2005, by geographic area



Nanotechnology: Building tools smaller than cells could radically change cancer diagnosis and treatment



Transmission Electron Micrograph of Single Wall Carbon Nanotube

Imagine something so small it measures less than 1/80,000 the width of a human hair. That's the size of a nanometer - one billionth of a meter or roughly ten times the size of an individual atom. Scientists and engineers are building tools, machines and even entire systems the size of nanometers, so small they can fit inside a single cell. The pace of nanotechnology is moving so quickly, in the next 10 to 15 years, "nano" tools could allow us to identify and destroy cancer cells at the earliest stages of development.

Pioneering new study

At the Helen F. Graham Cancer Center, thoracic surgeon Thomas Bauer, M.D. has teamed with Balaji Panchapakesan, Ph.D., assistant professor in the Department of Electrical and Computer Engineering at the University of Delaware, to apply the potential of nanotechnology to the detection and treatment of lung and esophageal cancers. Their collaboration comes from a statewide partnership, funded by the National Institutes of Health, to enhance the capacity for biomedical research in Delaware.

How nanotechnology works

Devices that are small enough to fit inside the nucleus of a cell could be used to detect cancer long before a physical exam or imaging study. Nanoparticles are being engineered to interact with DNA and other cellular proteins to help identify the earliest molecular changes associated with cancer and to pinpoint their exact cellular locations. Besides helping to find the cancer, nanoparticle research is looking at ways to target and destroy cancer cells, without harming surrounding healthy tissues and organs.

Using the latest nanotools

In 1991, Japanese scientist, Sumio Iijima, discovered a new tubular form of carbon, only a nanometer wide. Carbon nanotubes are hollow and can be filled with a variety of materials including biological molecules. Researchers are using nanotubes to develop new ways to detect several types of cancer.

Dr. Panchapakesan's research involves using carbon nanotubes to transport monoclonal antibodies that bind only to receptors found on the surface of specific cancer cells. The fluorescent dye labeling the antibodies makes them and the targeted cancer cells visible under a special microscope. This work will add to a growing body of knowledge about the usefulness of nanodevices in pinpointing cellular changes associated with cancer and could ultimately lead to a whole new early detection system. Phase 2 of the study will explore methods for using nanotubes to ferry drugs, individual vaccines or targeted, gene therapies directly to cancer cells or to act as conduits for infrared or electromagnetic energy to destroy them. ❖

“This collaboration puts Christiana Care at the forefront of a revolutionary field of science. The implications are tremendous for how we might diagnose and treat cancer in the 21st century.”

—Thomas Bauer, M.D.

Tissue banking underway

Lung tissue samples are being provided for the study through tissue banking efforts underway at Christiana Hospital and the Helen F. Graham Cancer Center to help scientists learn more about the growth and development of cancer in humans. According to Dr. Bauer, “This collaboration puts Christiana Care at the forefront of a revolutionary field of science. The implications are tremendous for how we might diagnose and treat cancer in the 21st century.”

Carry your medical records on a key chain?

Cancer patients get personalized, electronic health “keys”

This spring, 250 patients at the Helen F. Graham Cancer Center will be able to keep track of their own health information using what’s called Personal HealthKey™. These electronic memory devices are manufactured by CapMed, a division of Bio-Imaging Technologies Inc, based in Newtown, PA. The Cancer Center will provide the keys to patients free of charge, as part of a pilot program.

Keys to the future

“Personalized electronic health records are the wave of the future,” predicts Nicholas Petrelli, M.D., MBNA endowed medical director of the Helen F. Graham Cancer Center. “We want our patients to have the benefits of this new technology here and now.”

Records at hand

This handy little “key” looks more like a digital thermometer with the cap on. It can easily be worn around the neck or carried on a key chain or purse. Inside, a tiny microchip can store an entire family’s medical records, including forms, charts and even copies of X-ray or imaging studies. The information can be retrieved and



“Personalized electronic health records are the wave of the future. We want our patients to have the benefits of this new technology here and now.”

—Nicholas J. Petrelli, M.D.

printed by plugging the key into the USB port on almost any computer. All the data are encrypted and password protected to ensure patient privacy. Each user can select specific health information to be automatically activated for emergency use.

“Each time patients come to the Cancer Center for treatment or for consultations with their multidisciplinary health care teams, their keys can be updated with any pertinent medical information,” says Tricia Strusowski, RN, director, Cancer Care

Management. The keys will hold just about all the medical information patients or their doctors might need. This would include a completed (5-page) Helen F. Graham Cancer Center medical history form, doctors’ reports, X-ray and imaging studies, individualized health screening guidelines and exercise prescriptions, a personal treatment journal, links to Web sites for clinical trials and other health information as well as support group contacts and community resources. ❖

High-dose rate brachytherapy: Delivering radiation where it is needed most

The Department of Radiation Oncology at the Helen F. Graham Cancer Center is the first in Delaware to offer high-dose rate (HDR) brachytherapy. Christiana Care has brought together an experienced team to offer this exciting new therapy to cancer patients.



Targeting radiation precisely

Brachytherapy delivers a protected source of radiation directly inside the body to destroy cancer cells. With high-dose rate brachytherapy, very high energy radiation can be delivered through a catheter, directly to the surface of the tumor, inside the tumor or into a body cavity that surrounds the tumor. "Specially designed computers and CT scanners are used to plan the radiation doses precisely to conform to the size and shape of the area that needs treatment," department chair Christopher Koprowski, M.D., explains. "This means far less exposure to surrounding healthy tissues."

According to radiation oncologist, Michael Sorensen, M.D., who completed fellowship training in this specialty, HDR brachytherapy allows for a more precise, higher level of radiation to be

delivered in a much shorter time with far less exposure to the patient's family or medical staff. This is generally an outpatient procedure that cuts treatment time down from weeks to days and considerably reduces the likelihood of adverse effects related to hospitalization.

"High-dose rate brachytherapy takes advantage of major advances in three-dimensional computerized brachytherapy planning," Dr. Sorensen explains. "Computerized, 3-D dosimetry makes it easier for us to 1) verify treatment accuracy and 2) look at the radiation doses delivered to the target and critical structures. Consequently, the acute and long-term radiation effects may be the same or better than with low-dose rate brachytherapy."

Patients with certain types of gynecological, prostate and breast cancers and sarcomas may be

eligible for HDR brachytherapy. "We're also preparing to offer the procedure as a form of "lung sparing" radiation for selected lung cancer patients who are not currently candidates for external beam radiation," Dr. Sorensen adds.

Treating high-risk prostate cancer

Radiation oncologist, Adam Raben, M.D., is one of the country's leading experts in HDR brachytherapy combined with intensity modulated radiation therapy (IMRT) to treat high-risk prostate cancer. "Results from a recent clinical trial that I initiated have been outstanding," he says. "In 88 percent of high-risk patients, there has been no recurrence of prostate cancer five years after treatment, something previously unheard of for high-risk cancer." He also says there is a very low occurrence of late rectal/urinary tract side effects. Along with these radiation oncologists, Dayee Jacob, MS, D.A.B.R., a radiation physicist, leads the HDR brachytherapy treatment team that includes a dosimetrist who confirms each radiation dosage, a radiation therapist and a radiation oncology nurse.

Treating non-invasive breast cancer

"My elderly mother needed me to help with her care," explains Irene S. Jones, 63, of New Castle. "When I found out I needed radiation after my lumpectomy, five to six weeks of treatment away from my mother just wasn't an option." Her team of doctors at the Helen F. Graham Cancer Center included Dr. Koprowski, her radiation oncologist, Emily Penman, M.D., her surgeon, and David Biggs, M.D., her medical oncologist. They offered her the option of HDR brachytherapy using a new technique called MammoSite®, developed by Proxima Therapeutics, Inc.

Radiation therapy from inside

With MammoSite, a small balloon attached to a thin catheter is used to deliver radiation inside the breast directly into the space where the tumor was removed. The balloon is gently inflated, and a tiny radioactive seed is introduced through the catheter

to treat only the area where cancer is most likely to recur. This limits radiation exposure to healthy tissues and reduces the potential for side effects. Actual treatment time lasts only about five to 10 minutes, and then the radioactive seed is removed. The inflated balloon remains in place until the entire course of treatment is completed, usually five days. "I had radiation treatments twice a day for five days," Jones explains. "My nurses, the technicians - everyone was so helpful and nice to me; I realized I could do this."

Dr. Koprowski points out that MammoSite is not appropriate for all types of breast cancers. "The procedure works best for small, early stage cancers that have not spread to the lymph nodes or other parts of the body," he explains. "There also must be sufficient breast tissue remaining to allow us to insert and inflate the balloon properly."

Dramatically shorter treatment times

MammoSite radiation treatment can begin immediately after surgery. Longer term radiation treatments generally follow a course of chemotherapy after surgery. "This necessary delay in the start of radiation treatment may lead to a slightly higher rate of local recurrence," explains surgeon, Diana Dickson-Witmer, M.D. "If we can deliver radiation treatment in five days instead of six weeks," she adds, "we can give the radiation before the chemotherapy begins and provide as much protection as possible against both local and systemic return of the cancer." ❖

"Specially designed computers and CT scanners are used to plan the radiation doses precisely to conform to the size and shape of the area that needs treatment,"

– Christopher Koprowski, M.D.

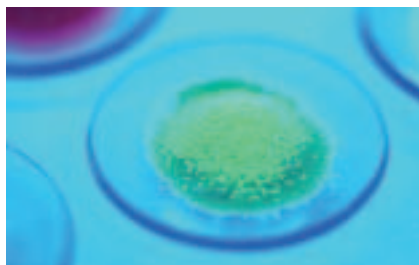
diagnosed at an advanced stage. With the neobladder, patients can remain functional without altering their quality of life as much as other surgical options.”

Compassionate care

Mr. Jordan and his wife, Linda, met with Drs. Grubbs and Cozzolino at the Helen F. Graham Cancer Center to discuss his treatment plan. “My wife and I had lots of questions, and everyone was willing to listen and answer thoughtfully. My doctors never once looked at the clock. That said a lot to us,” he recalls. “My care was superior. I feel like a million dollars.”

Patients with bladder cancer may have chemotherapy after surgery to kill any cancer cells that might be left. Chemotherapy also may be given before surgery to try to improve results or preserve the bladder.

Surgery was not an option for Lieselotte Laudorn, 77, of Newark, Delaware, when doctors first diagnosed her bladder cancer. At the Genitourinary MDC, Dr. Grubbs and urologist Bruce Benge, M.D., proposed a multidisciplinary approach to treatment that would start with chemotherapy. As a result, her inoperable cancer was converted to one that could be surgically treated. “I liked the idea of meeting together with both my doctors at same time at the Cancer Center,” she says. “Having my family there with me made it easier too. It was reassuring to know if I didn’t understand something, we all could ask questions and hear the same information that we could talk about together later.”



Chemotherapy trials open

Research studies are in progress to evaluate new drugs and new combinations of drugs to treat bladder cancer. Several of these studies are open to Christiana Care patients. Participation is made possible through membership in the Community Clinical Oncology Program (CCOP), a national clinical research group sponsored by the National Cancer Institute. Dr. Grubbs is the principal investigator for CCOP in Delaware.

Two of the trials (CALGB 90104 and ECOG 4802) compare best standard chemotherapy to newer combinations of drugs for patients with advanced bladder cancer. These drugs work in different ways to stop tumor cells from dividing so they stop growing or die.

Targeted molecular therapy

Unlike normal cells, cancer cells grow and multiply unchecked, without the programming necessary to initiate normal cell death. One combination therapy being tested includes a biological agent called pemetrexed disodium, designed to specifically interfere with the processes that control tumor cell growth. Combining chemotherapy with pemetrexed disodium may kill more cancer cells.

“The use of biological agents for targeted molecular therapy is one of the big breakthroughs in cancer management today,” says Dr. Grubbs. “This new category of pharmaceuticals is revolutionizing the way we treat many types of cancer, and we’ve already hit several home runs.” ❖

“The use of biological agents for targeted molecular therapy is one of the big breakthroughs in cancer management today. This new category of pharmaceuticals is revolutionizing the way we treat many types of cancer, and we’ve already hit several home runs.”

–Stephen S. Grubbs, M.D.

Multidisciplinary centers

Fourteen different disease site-specific, multidisciplinary centers meet regularly at the Helen F. Graham Cancer Center. Experienced cancer doctors, surgeons and radiation oncologists work with patients, family members and primary care physicians to develop the most appropriate and effective plan of care. A cancer nurse coordinator and a clinical research nurse will also meet with patients to answer questions and discuss support services and opportunities for participating in a research study.

Radiologists, gastroenterologists, pulmonologists and interventional radiologists work with the team to coordinate the mostly timely and aggressive treatment. Depending on the location and extent of the cancer, patients may need treatment from other specialists and health care professionals. These services include genetic counseling, nutrition assessment and counseling, psychological counseling, rehabilitation care and pain management, smoking cessation, billing assistance, pastoral care, social workers and integrative medicine (meditation, spiritual guidance and massage therapy).

Less waiting time for answers

No matter which MDC team of specialists a patient requires, a consultation with that team will be arranged for the very next available appointment. For more information, contact the Cancer Center at 302-623-4500. ❖

A pilot project underway at the Helen F. Graham Cancer Center will allow patients and their family members to add information to the family history using a computerized memory stick that can be carried on a patient's key chain. This device will allow patients to enter family history data in their own homes on their own computers over a period of time.

The United States Department of Health and Human Services now has a Web site www.hhs.gov/familyhistory that allows people to collect, organize and maintain their family history securely on their own computers. I encourage *Cancer Update* readers to search this Web site and use it to collect their family histories.

I would like to end this *Director's Corner* with a quote from Alan E. Guttmacher, M.D., senior clinical advisor to the director of the National Human Genome Research Institute at the National Institutes of Health. Many of you may remember that Dr. Guttmacher was the guest speaker at the opening of the Helen F. Graham Cancer Center in 2002. Dr. Guttmacher has said, "We look forward to the time, not far off, when detailed genotypic information will play an important and everyday role in guiding patient care. However, as we work towards that day, it is important that we not overlook what patients know about the health of their families. We can use refining electronic means ... to make the old-fashioned family history even more effective and useful."

Your family history. Know it! ❖

Recent appointments at the Helen F. Graham Cancer Center

Thomas L. Bauer, M.D.

*National Cancer Institute's Cancer Therapy Evaluation Program
External Reviewer for Clinical Trials*

*CALGB Intergroup Trial of Multimodality Management for Pancoast Tumors
Principal Investigator*

Darcy Burbage, RN, MSN, AOCN

*Chair, Breast Cancer Special Interest Group
Oncology Nursing Society*

Stephen S. Grubbs, M.D.

*CALGB Executive Committee
Elected member*

*CALGB Foundation
Board of Directors and Finance Committee*

Melanie Hurst, BSN, RN

*Associate Editor
Clinical Journal of Oncology Nursing*

Kandie Price, MS, RN, OCN, CCRP

*2005 Multi-Site Research Expert Panel
Oncology Nursing Society*

Nicholas J. Petrelli, M.D.

*Vice President
Society of Surgical Oncology*



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