

Pathways to DISCOVERY

At the Forefront of Discovery™

THE UNIVERSITY OF
CHICAGO
COMPREHENSIVE CANCER CENTER

NCI
CCC
A Comprehensive Cancer
Center Designated by the
National Cancer Institute

Spring 2011 | cancer.uchicago.edu

New Patient Navigation Program Enhances Experience at UChicago

THE University of Chicago Medical Center (UMC) has launched a program to assist new cancer patients navigate through their initial visits. The goal of the program, called Central Cancer Intake and Navigation, is to increase patient satisfaction by providing a timely, streamlined, coordinated experience for patients and providers from initial contact to completion of consultation.

“Our patients deserve an efficient system in which they can learn about their disease, understand it, review their options, and develop a plan,” said Mitchell Posner, MD, Thomas D. Jones Professor and Vice-Chair of Surgery. “For many patients, a cancer diagnosis is a life-defining moment.”

Dr. Posner, UCCCC Co-Deputy Director Richard Schilsky, MD, and colleagues across several departments and sections, developed the program in response to feedback from patients and providers who want more assistance with the logistics of complex multidisciplinary care.

The program uses specially trained staff, known as cancer navigators, to connect patients and referring physicians with the providers who can best treat a specific disease. Each cancer navigator has experience within a specific disease program and is trained to handle all types of inquiries.

By providing one initial contact point, the program aims to ensure that the patient will see the right providers with the right information in the fewest number of visits to Hyde Park.

“Because we’re facilitating the appointments for multidisciplinary disease programs, we have the patients interacting with one group of people instead of having to go through multiple transfer points,” explained Jamie Bachman, executive director of the UCMC Clinical



Mitchell Posner, MD, and colleagues developed the navigation program in response to feedback from patients and providers who want more help with multidisciplinary care.



Romella Lee and Teresa Barry confer with Mitchell Posner, MD, to coordinate cancer care for a patient. As cancer navigators, Lee and Barry connect patients and referring physicians with the providers who can best treat a specific disease.

Our patients deserve an efficient system in which they can learn about their disease, understand it, review their options, and develop a plan.

Mitchell Posner, MD

Cancer Program and the administrative leader for the navigation initiative. He calls this process “one-stop shopping” for new patient appointment-making.

The program currently focuses on the multidisciplinary care coordination for gastrointestinal (GI), genitourinary (GU), breast, and head and neck cancers, as well as all hematology patients. Bachman said other disease programs will likely be added in the future, including pediatric cancers.

The program was modeled after Dr. Posner’s GI oncology program that has been incredibly well-received by both the participating patients and clinicians.

Dr. Posner attributes the success to patients feeling that they are a priority.

“The patients feel that their problems are something we all deeply care about, and they frequently compliment the individuals who help them navigate the process and deal with their disease in a much more user-

friendly manner,” said Dr. Posner.

Patients are not the only ones benefiting from this more efficient program. Dr. Posner said UCMC physicians and referring physicians are also happy because they are getting what they want—an efficient system that works.

The Approach

The Central Cancer Intake and Navigation Program offers the following to make the intake process as efficient as possible:

- One toll-free phone number [1-855-702-UCCC (8222)] for scheduling across departments and sections
- Multidisciplinary appointments scheduled on the same day when clinically appropriate
- Prescreening for clinical trials and supportive services
- Preregistration and insurance verification
- Assistance for patients in acquiring outside medical records for UCMC physician review
- Single, complete information package that is mailed to patients
- Appointment reminder calls to patients and follow-up calls with referring physicians
- Post-consultation point of contact, as needed



Michelle M. Le Beau, PhD

FROM THE DIRECTOR

Forty years ago, the United States launched a major salvo in the war against cancer. Congress passed the National Cancer Act of 1971 in May, and President Richard Nixon signed it into law on December 23, 1971.

The National Cancer Act gave the National Cancer Institute unique budget authority to support basic research and develop clinical trials programs. As a result, we have made some remarkable progress in the fight against cancer—in incidence and mortality rates have dropped significantly—but cancer remains the second-leading cause of death among Americans. One in

every four deaths in the U.S. is due to cancer. The fight is far from over, and the UCCCC is committed to exploring and developing innovative ways to prevent, detect, and treat cancer.

In this issue of *Pathways to Discovery*, we highlight some of the significant research contributions The University of Chicago has made in the fight against cancer.

We describe some of our unique programs that help cancer patients have a more positive treatment experience and lead a better quality of life, and we provide details of a newly expanded effort to help eliminate breast cancer disparities among Blacks and Asians in the Chicago area. We also profile a woman who turned to UChicago’s leading-edge research to treat advanced-stage ovarian cancer. She is now celebrating 5 years of survivorship.

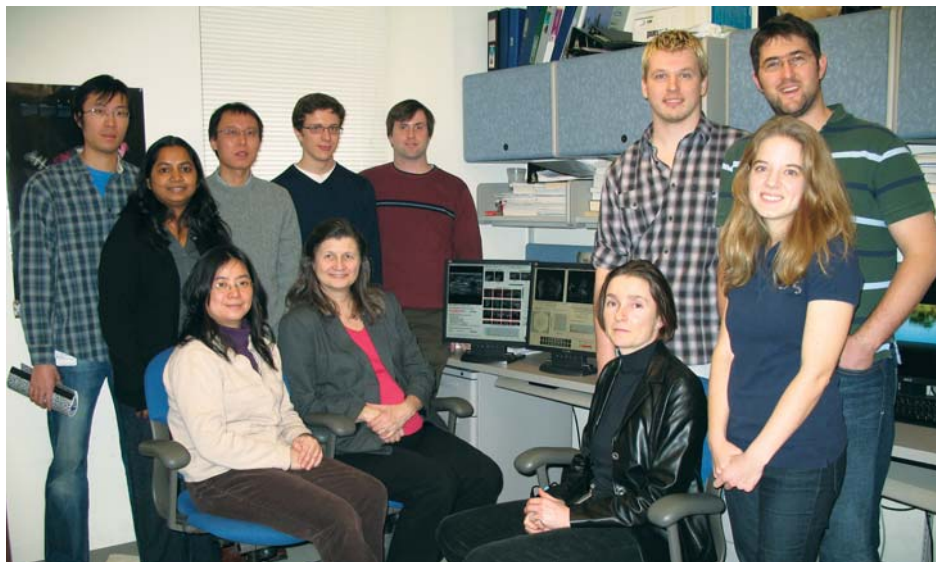
Over the next few issues, you may start to notice some changes in

content and design. These changes hopefully will result in a newsletter that is more timely, engaging, and relevant. Feel free to share your suggestions and feedback with us at feedback@bsd.uchicago.edu.

Regards,

Michelle M. Le Beau, PhD
Director, The University of Chicago
Comprehensive Cancer Center
Arthur and Marian Edelstein
Professor of Medicine

New UChicago Technology Aims to Advance Breast Cancer Diagnoses



Members of Dr. Maryellen Giger's lab surround the intelligent breast cancer workstation for CADx and quantitative image analysis. The workstation uses information from mammograms, ultrasounds, and MRIs to help radiologists more accurately diagnose suspicious breast lesions.

(sitting, from left) Li Lan, MS, Maryellen Giger, PhD, Karen Drukker, PhD (standing, from left) Hsien-Chi Kuo, Jyothi Janardanan, MS, Hui Li, PhD, Jeremy Bancroft Brown, Michael Chinander, PhD, Robert Tomek, MSc, Andrew Jamieson, and Claire Salling (not pictured) Neha Bhooshan, PhD, Karla Horsch, PhD, and Umnouy Ponsukcharoen

A PROTOTYPE BREAST IMAGING computer workstation developed at The University of Chicago could soon revolutionize the way breast cancer is diagnosed. Radiology Professor Maryellen Giger, PhD, and members of her research team, created an intelligent breast workstation for computer-aided diagnosis (CADx) and quantitative image analysis, that reviews data from multimodality images and helps evaluate and characterize suspicious lesions.

To use the system, images are first loaded from a patient's mammography, ultrasound, and magnetic resonance (MR) exams. Next, radiologists click on the area of the suspicious lesion in each modality. Within seconds, the computer returns characteristic quantitative data about the lesion in the form of image-based biomarkers, such as size, shape, texture, margin, contrast, and kinetic uptake. The merged output from the unknown case is indicated on a histogram along with merged data from cases of known benign and malignant tumors. Using computer intelligence, the CADx technology gathers quantitative data about the lesion and estimates a probability of malignancy based on a reference library of known cases of benign and malignant tumors.

At the Radiological Society of North America's (RSNA) annual meeting last December, the UChicago researchers demonstrated the technology in RSNA's quantitative imaging reading room showcase. Dr. Giger noted that the CADx workstation was met with high interest, especially from people involved in quantitative imaging. "With this system, the interpretative process, which many radiologists perform manually and visually, can be

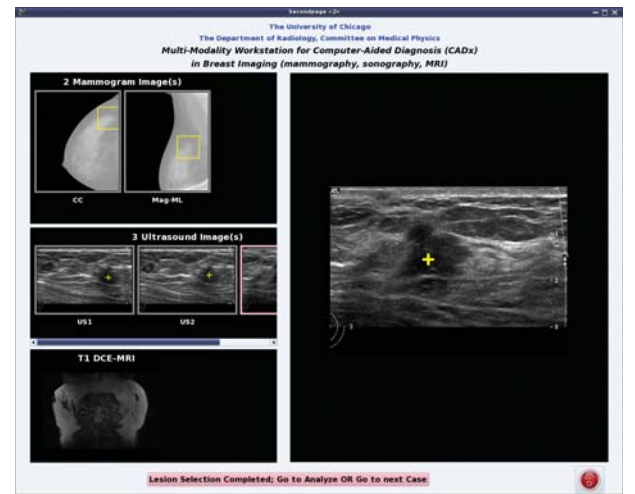
conducted automatically," Dr. Giger explained. "People appear to be ready to include more computer analyses into their interpretations."

The next step is to move from a prototype research phase to actual application in a clinical setting. Dr. Giger said a company called Quantitative Insights is currently negotiating a licensing agreement for the product with UChicagoTech, the university's office of technology and intellectual property. Quantitative Insights was formed by a team of Chicago Booth MBA students who were finalists in the 2010 New Venture Challenge, an annual competition run by the Booth School of Business and its Polsky Center for Entrepreneurship. Dr. Giger collaborated with the team, and the start-up company is now obtaining expert advice on the commercialization of the workstation via the Chicago Innovation Mentors program.

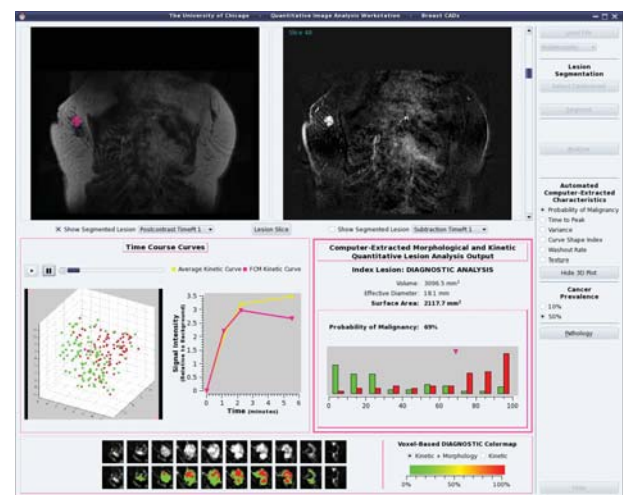
Dr. Giger, who is excited to see the technology take one step closer to clinical implementation, said, "I see CADx translating to the clinical setting in the near future as another 'test result' to be used concurrently by radiologists in improving the accuracy of diagnostic output and patient management."

With success already demonstrated in the areas of detection and diagnosis, Dr. Giger said she plans to now focus on improving prognostic capabilities, in other words, harnessing the technology to determine how advanced a cancer is. "Enhancements in analyzing lesions to predict response to therapy could make a difference in how patients are managed," Dr. Giger said.

HOW IT WORKS



1 Radiologists click on the image of the suspicious lesion in the mammogram, ultrasound, and MRI.



2 Within seconds, the computer returns characteristic quantitative data about the lesion. Data are plotted on a histogram along with merged data from cases of known benign and malignant tumors.



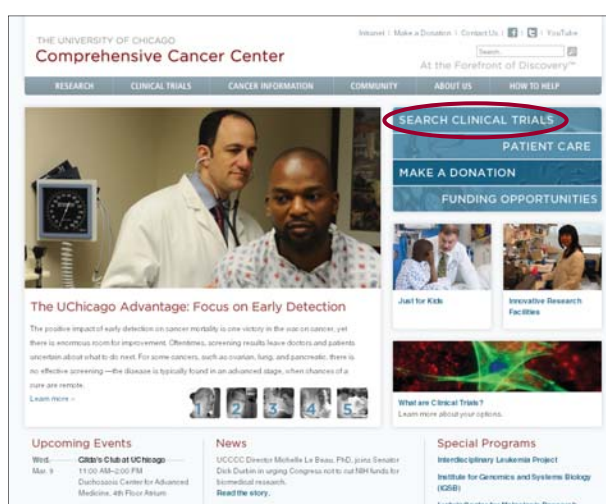
3 CADx technology gathers quantitative data about the lesion and estimates a probability of malignancy based on a reference library of known cases of benign and malignant tumors.

Open Cancer Clinical Trials

Patient enrollment is under way for more than 350 clinical trials at The University of Chicago Comprehensive Cancer Center. Our new clinical trials include:

- A Phase II Study of RO4929097 in Advanced Platinum Resistant **Ovarian Cancer** – Gini Fleming, MD, principal investigator.
- A Randomized Discontinuation Phase 2 Study of AZD0530 as a Metastasis Inhibitor in Castrate Resistant **Prostate Cancer** – Walter Stadler, MD, principal investigator.
- A Non-Randomized Phase 2 Study of Alvocidib (Flavopiridol) Plus Oxaliplatin with or without 5-FU and Leucovorin for Relapsed or Refractory **Germ-Cell Tumors** – Walter Stadler, MD, principal investigator.
- A Pilot and Phase II Study of Etoricoxib and Anastrozole in Postmenopausal Women with Operable Triple Negative **Breast Cancer** to Evaluate Biomarkers and Surrogates for Response – Rita Nanda, MD, principal investigator.

To learn more about these or any other UCCCC clinical trial, call 1-773-834-7424 for adult clinics trials or 1-773-702-6808 for pediatric clinical trials, or go to cancer.uchicago.edu and click on "Search Clinical Trials" in the blue box.



Pathways to DISCOVERY

At the Forefront of Discovery™

Pathways to Discovery is a quarterly publication of The University of Chicago Comprehensive Cancer Center. Spring 2011, Volume 6, Number 2

The University of Chicago Comprehensive Cancer Center
5841 S. Maryland Ave., MC1140, H212
Chicago, IL 60637

PHONE: 1-773-702-6180 • FAX: 1-773-702-9311
feedback@bsd.uchicago.edu

© 2011 by The University of Chicago Comprehensive Cancer Center. All rights reserved.

EXECUTIVE EDITOR AND WRITER
Natalie Olinger Boden

MANAGING EDITOR AND WRITER
Jane Kollmer

COPY REVIEWERS
Mary Ellen Connellan, MA
Hoyee Leong, PhD

EDITORIAL ADVISORS
Michelle M. Le Beau, PhD
Marcy A. List, PhD

GRAPHIC DESIGN
Adam Indyk
PRINTING
Service Communications and Solutions, LLC



Follow us for news, events, and other interesting information.



Experts Take Team-Based Approach to Treat Colorectal Cancer

COLORECTAL CANCER is the third most common cancer in both men and women, according to the American Cancer Society. Because of the UCCCC's strengths in the areas of treatment and research, it is a place where colorectal cancer patients can receive a high level of personalized care.

Available Treatment Options

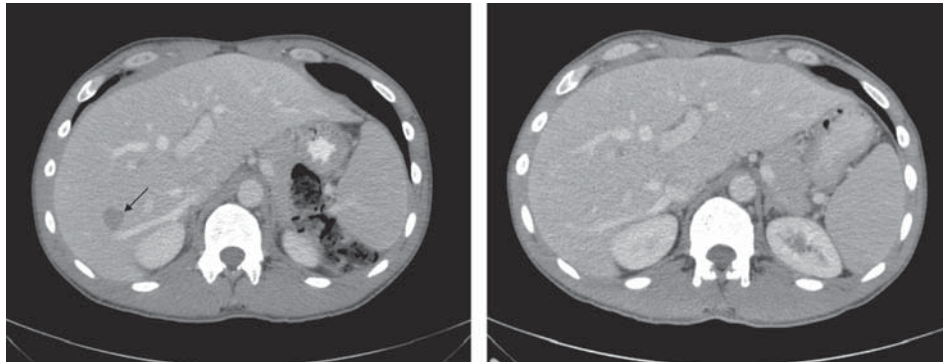
From the moment a patient contacts the Center for Gastrointestinal Oncology, a trained intake specialist assembles a team of dedicated surgical oncologists, medical oncologists, radiation oncologists, and interventional gastroenterologists. Using the most accurate information from detailed CT scans, the team coordinates an individualized plan that draws on their collective strengths and experiences.

"The team that treats colorectal cancer at The University of Chicago focuses almost exclusively on these cancers," said Blase N. Polite, MD, assistant professor of medicine. "This is what we do. Many of us are also national leaders who teach other physicians around the country how to best treat colorectal cancer." For example, UChicago colorectal surgeons are pioneering minimally invasive robotic surgeries for patients with rectal cancer to speed recovery and reduce the number of patients who need permanent colostomy bags.

UChicago also has a cancer risk group that helps young patients with colorectal cancer and those with extensive family histories of the disease. "We are also in the process of developing a colorectal cancer survivors' clinic to help patients maximize their health after cancer treatment to allow them to live a healthy and productive life," said Dr. Polite.

Research Continues to Improve Care

The UCCCC is committed to advancing cancer care through therapeutic clinical trials. Dr. Polite explained there are three main areas of active research—personalized cancer care, multidisciplinary rectal can-



Patient with metastatic colorectal cancer (left, arrow) had complete tumor disappearance (right) with preoperative chemotherapy.



Blase N. Polite, MD

cer treatment, and investigation of new drugs.

First, the personalization of cancer care is being applied through a trial that uses a patient's genetic profile to help physicians determine how best to dose chemotherapy. So far, researchers have been able to increase the standard dose of chemotherapy by more than 50% in certain patients without increasing the toxicity of therapy.

Second, researchers are focused on ways to improve the cancer disappearance rate and limit the surgical complications of patients with rectal cancer. In an ongoing trial, they are testing whether offering chemotherapy earlier in the treatment process is better tolerated, causes more tumors to shrink or disappear, and helps some patients avoid surgery.

"Preliminary results from this study show that we are achieving almost twice the rate of tumor disappearance as we have seen in the past," Dr. Polite said.

The third area of research involves finding the next generation of drugs to treat chemotherapy-resistant tumors. Soon to be launched is a National Cancer Institute-sponsored trial to test a new class of drugs, called insulin growth factor inhibitors, in patients with refractory colorectal cancer.

"We are a resource to colorectal cancer patients and their physicians in the greater Chicago area and beyond and encourage patients to utilize that resource," said Dr. Polite.

Recognizing Risk Factors

Sonia Kupfer, MD, assistant professor of medicine and a gastroenterologist in the Center for Clinical Cancer Genetics, offered the following factors that research has shown to increase patients' risk for developing colorectal cancer. Individuals with one or more of these risk factors should talk to their doctor to consider early or more intensive screening.

Age

- 50 years or older
- African Americans should consider screening starting at age 45

Family history

- Multiple family members with cancer (colorectal and/or endometrial cancers) especially at age less than 50*
- First-degree relative with colorectal cancer or polyps

Personal medical history

- Inflammatory bowel disease (IBD)
- Diabetes

Diet and lifestyle

- High intake of red and processed meat
- Low intake of fruits and vegetables
- Obesity
- Smoking
- Heavy alcohol consumption

* Should be considered for hereditary colorectal cancer syndromes such as Lynch Syndrome

For more information, contact the Center for Gastrointestinal Oncology at 1-773-834-3434.

UCCCC Takes Steps to Eliminate Disparities in Breast Cancer

THE UCCCC Office of Community Engagement and Cancer Disparities (OCECD), under the direction of Karen E. Kim, MD, MS, is launching a series of programs to help increase breast cancer awareness and to improve mammography utilization rates among racial and ethnic groups in the Chicago area.

One program is funded through a National Cancer Institute (NCI) Cancer Center support grant supplement as part of the nationwide Community Health Educators (CHE) program. A key element of the program is developing culturally relevant educational materials. The Chinese American Service League (CASL) of Chicago—an OCECD strategic partner—has 220 homecare workers who are being educated through this program.

"We've spent the last 2 months talking with all 220 homecare workers, and much of the discussion was in Cantonese," explained Dr. Kim, associate professor of medicine. "Our goal was to understand how Chinese Americans in Chicago perceive mammography and to provide them with information about breast cancer screening." The homecare workers were surveyed before and after the meetings to measure changes in knowledge and attitudes.

Although the CHE supplement enabled the establishment of a solid infrastructure to develop the program, making a more significant difference in mammography utilization rates or in the quality of mammography services in Chicago's underserved populations requires more resources. Currently, only 14% of the no-cost mammograms that UChicago offers each year are being used.

New ENRICH'D Program

Building on the CHE infrastructure and a \$20,000 grant from the Exelon Corporation through The University of Chicago Cancer Research Foundation, OCECD is now launching the Engaging Neighborhood Resources in Combating Health Disparities (ENRICH'D) program.

ENRICH'D focuses on culturally relevant breast cancer information created in partnership with community high school students and medical students from the Pritzker School of Medicine to maximize effective program dissemination.



Karen E. Kim, MD, MS

"These programs are important because the information currently available doesn't speak to individual communities—it is very generic. Even within a particular ethnic group, there are nuances. By tailoring this health information, I hope it will help motivate behavioral change," said Dr. Kim. "We also know that if you have community members who speak the language and who look like the community, they can deliver a much more powerful message."

If you have community members who speak the language and who look like the community, they can deliver a much more powerful message.

Karen E. Kim, MD, MS

real interest in trying to have some control over their health," said Dr. Kim. "My short-term goals are to understand the barriers to screening and figure out how we can help. My long-term goals are to create pathways to care for these communities and make it a sustainable resource."

With continued support from NCI, UCCCC, and corporations such as Exelon, Dr. Kim said she is hopeful that ENRICH'D will serve as a widely disseminated model for community engagement in targeted populations, "Through shared resources and common goals, we can truly succeed in decreasing breast cancer incidence and increasing breast cancer survival rates for all populations."

A LITTLE MORE WITH...

Karen E. Kim, MD, MS

Associate Professor of Medicine
Director, UCCCC Office of Community Engagement and Cancer Disparities (OCECD)

If you were not a physician, what would your profession be?

This is what I've wanted to do since I was 4. This is my passion.

What do you do for relaxation?

I spend a lot of time with my kids.

Where have you been that you feel everyone should go?

Korea

What projects are you working on at home?

We're trying to convert our dining room into a family room.

Who is the person you most admire?

My mother, who has been deceased for 15 years. She was a trailblazer. She immigrated to this country from Korea and started several social agencies for Asian Americans. At the same time, she had a very powerful mainstream job as the assistant superintendent for the Chicago Board of Education. As she climbed the professional ranks, she never stopped giving back to the community, she never lost sight of her personal struggles, and she never forgot anyone who reached out to help.

What was the last book you read?

Rivertown by Peter Hessler. It is a description of Americans working in Asia.

What is the most daring thing you have ever done?

Accepting the role of OCECD director has certainly pushed me outside my comfort zone and expertise in gastrointestinal cancers. Starting our outreach programs with breast cancer has been an interesting challenge that has been very, very positive.

If you had one piece of advice for someone considering your field, what would it be?

The only reason to enter medicine is because you love it. It is time-consuming and emotionally draining, but if you love it, it's the best profession in the world.

Unique UChicago Clinic Helps Women Overcome Cancer-Related Sexual Problems

DISCUSSION ABOUT sexual performance is routinely part of treatment decisions for men with prostate cancer, but the same is not true for women with breast cancer or cancer of the gynecologic organs. That may change thanks to a unique UChicago clinic that helps female cancer survivors manage sexual problems related to their cancer or cancer treatment.

“What we know from our research is that 40%–60% of female cancer survivors face some kind of sexual dysfunction, but we think those numbers are conservative,” said Stacy Tessler Lindau, MD, MAPP, associate professor of obstetrics/gynecology and medicine and director of the Program in Integrative Sexual Medicine (PRISM) clinic.

In November, UChicago hosted a conference, in conjunction with Memorial Sloan-Kettering Cancer Center, in which clinicians and scientists from 20 states and 15 major cancer centers discussed ways to move this issue into the national spotlight and begin a multi-institutional, evidence-based approach to monitor and evaluate treatment in this patient population.

“The group liked the idea of building upon the registry that has already been developed here,” explained Dr. Lindau. “We are the only ones tracking patients over time to see if they are getting better.”

Pain Most Common Complaint

Most patients who seek help from the PRISM clinic report experiencing pain during intercourse. “Pain is oftentimes the result of dryness or thinning of the vulva structures of the vagina,” said Dr. Lindau. “It’s not uncommon for women to say, ‘I haven’t had sex in 3, 4, or 5 years because I didn’t know where to get help.’”

Patients seeking help from the PRISM clinic can expect at least three visits. The first visit is used to gather



It’s not uncommon for women to say, “I haven’t had sex in 3, 4, or 5 years because I didn’t know where to get help.”

Stacy Tessler Lindau, MD, MAPP

an in-depth patient history, answer questions, provide counseling, and educate patients about the range of available treatment options. The second is a detailed gynecologic, rectal, and gastrointestinal exam, after which an

initial treatment plan is developed, and follow-up is planned for visit three.

“Many of our patients benefit from just a little bit of estrogen cream,” said Dr. Lindau. “Other patients benefit from over-the-counter moisturizers or lubricants, while some need physical therapy and psychotherapy. We always use a team approach that includes discussion with the patient, the patient’s oncologist, and a psychologist.”

Treatments are generally covered by insurance because the problems are either a direct result of a patient’s cancer or cancer treatment, but Dr. Lindau said she worries about uninsured women, “There is no reason to believe that women without insurance aren’t experiencing these same problems and, in some cases, even worse problems because they are not getting regular healthcare.”

She said that virtually every woman who seeks help from PRISM and follows through with her appointments shows significant improvement.

Future Plans

Conference participants will get together again this fall at Memorial Sloan-Kettering in New York to advance implementation of a national registry. Meanwhile, Dr. Lindau is working with a cancer center in Peoria, Illinois, to create a program that is similar to PRISM that will offer comparable care and will begin to add data to the registry.

Advice for Women with Cancer

- Talk about potential sexual problems with your physician
 - Understand that cancer-related sexual problems are common, and that they are physical problems, not a defect in your character
 - Regularly communicate with your partner and openly discuss sexual problems
- For more information about cancer-related sexual problems, contact PRISM at 1-773-702-6123 or go to uchospitals.edu/prism.

Cancer Center Reaches Out to Chicago’s Asian Community

About 500 members of Chicago’s Asian community took advantage of free flu shots and other free health screenings offered in December through the UCCCC Office of Community Engagement and Cancer Disparities (OCECD).

OCECD Director Karen E. Kim, MD, MS, organized the event in cooperation with the UChicago Section of Pediatric Infectious Diseases, Pritzker School of Medicine, Chicago Department of Public Health, and others. This event was funded through UChicago’s Institute for Translational Medicine.

Pritzker students helped administer the flu shots, perform diabetes and glaucoma screenings, conduct blood pressure evaluations, and collect information about cancer screening behavior.

The events were held at the Chinese American Service League (CASL) in Chinatown and at Metropolitan Asian Family Services on Chicago’s North Side.



1 OCECD Director Karen E. Kim, MD, MS (center) with three nursing students from Rush University Medical Center, OCECD Assistant Director Fornessa Randal, MCRP (far left), and Jennifer L. Burns, CPNP (second from right), medical director of the UChicago Pediatric and Family Travel Clinic.



2 Pritzker School of Medicine students Asad Qadir (left) and Lisa Sun discuss the importance of preventive healthcare with a community resident.

3 Pritzker School of Medicine student A. Ning Zhou administers a flu shot to a CASL patron.

UCHICAGO MARKS NATIONAL CANCER RESEARCH MONTH

In 2007, the U.S. Congress declared May as National Cancer Research Month in honor of the 100th anniversary of the American Association for Cancer Research (AACR) and its progress in advancing cancer research. May also marks the 40th anniversary of the introduction of the National Cancer Act.

An AACR supporter, The University of Chicago has played an integral role in transforming cancer care and prevention, something that has been recognized with national and international awards that include the Nobel Prize, National Medal of Science, Lasker Award, Presidential Medal of Freedom, and MacArthur Foundation “genius grant.”

The following represent a sampling of UChicago’s seminal discoveries in cancer research:

1939

• Charles B. Huggins, MD, initiates the use of hormone therapy to treat cancer, in this case, prostate cancer.

1943

• Leon Jacobson, MD, uses the first chemotherapeutic agent—nitrogen mustard—to treat leukemia and lymphoma.

Late 1940s

• Dr. Jacobson lays the groundwork for the first bone marrow transplantation in humans.

1954

• Eugene Goldwasser, PhD, explains the basic principles behind erythropoietin, a hormone that stimulates the production of red blood cells. He will later be the first to isolate erythropoietin in 1977.

1958

• Elwood Jensen, PhD, and Eugene DeSombre, PhD, discover the estrogen receptor, the first receptor found for any hormone.

1960–70s

• George Block, MD, promotes a more extensive operation to treat rectal cancer, proving with his own success rate that the operation is superior to standard treatment.

1970s

• John Ultmann, MD, introduces an innovative treatment for Hodgkin disease and other lymphomas, leading to a 60% reduction in death rates from lymphomas.

1972

• Janet Rowley, MD, identifies the first chromosomal abnormality in leukemia, leading to the recognition of the genetic basis of cancer.

1975–83

• UChicago researchers define over 15 chromosomal abnormalities in human leukemia and demonstrate that the chromosome pattern is an independent prognostic factor.

1977

• Dr. Jensen and Geoffrey Greene, PhD, develop monoclonal antibodies directed against estrogen receptors, enabling them to quickly and accurately detect and count estrogen receptors in breast and other tumors.

1984

• Harvey Golomb, MD, is among the first physicians in the world to perform clinical studies using interferon.

1985

• Dr. Rowley and Michelle Le Beau, PhD, recognize that therapy-related acute myeloid leukemia (t-AML) is characterized by the loss of

chromosomes 5 and 7, thereby implicating tumor suppressor genes in the pathogenesis of leukemia.

1986

• Everett Vokes, MD, combines chemo- and radiation therapies for head and neck cancer, which later becomes the standard of care.

Late 80s

• Craig Thompson, MD, and Jeffrey Bluestone, PhD, discover that the immune system often requires two parallel lines of communication.

1994

• Daniel Gottschling, PhD, isolates the gene for a component of telomerase, essential for making cancer cells immortal. The discovery offers scientists a target for new anticancer drugs that are more effective and less toxic.



President Richard Nixon signs the National Cancer Act on December 23, 1971, before a group of senators, officials, and other dignitaries. The legislation was introduced in May 1971 as an “Act to Conquer Cancer.”

Source: National Cancer Institute.

MEMBER NEWS & NOTES

1 Richard Baron, MD, is the inaugural UChicago dean for clinical practice. Dr. Baron previously served as chair of the Department of Radiology.

2 Vinay Kumar, MD, PhD, professor and chair of pathology, has been named the Donald N. Pritzker Professor for his important contributions to scholarship and leadership of the Department of Pathology.

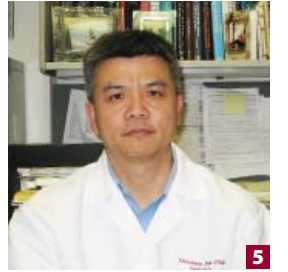
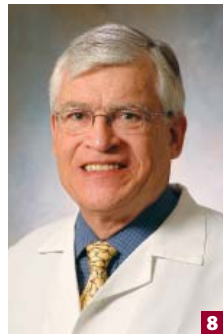
3 David Meltzer, MD, PhD, chief of the UChicago Section of Hospital Medicine, is one of 15 experts chosen by the U.S. Government Accountability Office for the new Methodology Committee of the Patient Centered Outcomes Research Institute (PCORI). PCORI was created through federal health reform legislation. The committee is charged with helping PCORI develop and update methodological standards and guidance for comparative clinical effectiveness research.

4 Andrea King, PhD, was promoted from associate professor to professor in the Department of Psychiatry and Behavioral Neuroscience.

5 Xiaochuan Pan, PhD, professor of radiology, has been appointed by the NIH Center for Scientific Review to serve as the chair of its Biomedical Imaging Technology Study Section, for a 2-year term.

6 Janet Davison Rowley, MD, DSc, and Mary-Claire King, PhD, pioneering cancer geneticists, are the recipients of the 2010 Pearl Meister Greengard Prize, awarded by The Rockefeller University. Created to recognize the accomplishments of outstanding female scientists, the \$100,000 prize was presented at a ceremony on November 16.

7 Sharon O’Keefe, a nationally recognized authority on hospital operations, healthcare quality, patient satisfaction and employee engagement, is the new president of The University of Chicago Medical Center. O’Keefe held a similar position at Loyola University Medical Center in



(from left) Mary Claire King, PhD, and Janet Davison Rowley, MD, DSc, with Paul Greengard, PhD (who established the prize) and Rockefeller President Paul Nurse, PhD.

Photo courtesy Darren Ornitz

Maywood, Illinois, and served as chief operating officer at Barnes-Jewish Hospital in St. Louis.

8 Richard A. Larson, MD, professor of medicine, Section of Hematology/Oncology, was elected to serve a 4-year term as treasurer of the American Society of Hematology.

9 UCCCC Director Michelle Le Beau, PhD, professor of medicine, has been named as the inaugural Arthur and Marian Edelstein Professor of Medicine for her important contributions as a scientist and as a leader.

UChicago Participates in Powwow at Navy Pier

The UCCCC Office of Community Engagement and Cancer Disparities (OCECD) participated in the 57th Annual Powwow hosted in December by the American Indian Center (AIC) of Chicago. More than 8,000 people attended the event that featured arts and crafts, as well as traditional American Indian ceremonies. American Indians have a higher prevalence (32.4%) of cigarette smoking than any other racial or ethnic group, according to the Centers for Disease Control and Prevention. In partnership with the AIC, the OCECD offered information about cancer risk and cancer screening during the event.



A traditional American Indian dance was performed in Navy Pier's Grand Ballroom.



(from left) OCECD Assistant Director Fornessa Randal, MCRP, Sally Waggoner, RN, BSN, from the AIC wellness department, and AIC Executive/Technical Director Joseph Podlasek.



Mid-1990s

- Dr. Thompson discovers BCL-XL, a protein crucial to the survival of cells.

1998

- Dr. Greene discovers the molecular mechanism by which tamoxifen blocks the effects of estrogen.
- Thomas Gajewski, MD, PhD, demonstrates that giving melanoma patients the immune stimulant interleukin-12 bypasses a long and costly step in the treatment process.

2000

- Dr. Vokes finds that intensive treatment combining chemo- and radiation therapies can control locally advanced head and neck cancer, improve survival, and, in most cases, eliminate the need for debilitating and invasive surgery.
- Elaine Fuchs, PhD, discovers a mutation that prevents skin cells from making normal connections with each other,

playing an unexpectedly early and important role in the development of skin cancer.

• Samuel Hellman, MD, and Ralph Weichselbaum, MD, propose that there is an intermediate state between cancer that has not spread at all and cancer that has spread extensively. They name this phenomenon “oligometastasis.”

playing an unexpectedly early and important role in the development of skin cancer.

2002

- John Crispino, PhD, identifies a gene defect that causes the development of leukemia in children with Down syndrome.
- Dr. Weichselbaum develops a novel therapeutic approach that harnesses the power of both gene therapy and radiation treatment to attack cancerous tissue.
- Dr. Vogelzang finds combining cisplatin and pemetrexed helps patients with pleural mesothelioma live longer, and have less pain and shortness of breath.

2003

- Mark Ratain, MD, and Federico Innocenti, MD, PhD, discover that specific gene variants can help physicians predict which colorectal cancer patients are likely to experience

severe side effects from the drug irinotecan.

- Marsha Rosner, PhD, discovers that EGF uses protein Kinase C to activate RAS/MAPK signaling pathway.

2004

- Harinder Singh, PhD, provides insight into how stem cells differentiate into an antibody-producing B cell.
- Olufunmilayo Olopade, MBBS, leads the first study to compare breast cancers from Nigeria, Senegal, and North America, and discovers that women of African ancestry are more likely to be diagnosed with a more aggressive form of the disease than women of European ancestry.

2007

- Stacy Tessler Lindau, MD, publishes the first study to look at sexual function in long-term, female survivors of genital-tract cancer.
- Rick Kittles, PhD, discovers two genetic

variations that may provide the best clues yet for finding more precise ways to estimate prostate cancer risk and improve early detection for men of African ancestry.

2008

- Hans Schreiber, MD, PhD, finds that targeting and killing the non-malignant cells that surround and support a cancer can stop tumor growth in mice.
- Marcus Peter, PhD, discovers that small, non-coding RNA molecules could serve as a marker to improve cancer staging and may also be able to convert some advanced tumors to more treatable stages.
- Dr. Weichselbaum and Joseph Salama, MD, find that precisely targeted radiation therapy can eradicate all evidence of disease in selected patients with cancer that has spread to only a few sites.
- Greg Karczmaz, PhD, and Suzanne

Conzen, MD, lead the team that develops a new MRI procedure that can detect very early breast cancer in mice, including DCIS, a precursor to invasive cancer.

- Dorothy Sipkins, MD, PhD, improves understanding of how leukemia takes over privileged “niches” within the bone marrow, which will help researchers develop improved treatment strategies for bone marrow transplantation for leukemia and other types of cancer.

For more information about how The University of Chicago Comprehensive Cancer Center is “At the Forefront of Discovery™”, view our interactive, online timeline at <http://cancer.uchicago.edu/about/timeline.shtml>.

RESEARCH HIGHLIGHTS

The following represent some of the research by UCCCC members published October 2010–January 2011.

Evaluating Speech, Swallowing After Head and Neck Cancer Therapy

A recent study found that patients who received chemotherapy and radiation therapy instead of surgery for head and neck cancer generally have minimal long-term trouble speaking and swallowing. There were certain factors linked to poorer function, identifying a group of patients who may benefit from intensive speech and swallow therapy.

A UChicago team followed up with 163 patients an average of 34.8 months after they completed treatment. Most of the patients had no lasting problems. At the same time, researchers were also able to identify specific factors that were associated with poorer functional outcomes. They linked being female, having a history of smoking, having a tumor in the hypopharynx or the larynx, or having a tumor that did not respond to the initial dose of chemotherapy with poorer speaking ability. Poorer swallowing seemed to be linked to being older, having poor swallowing ability before treatment, neck dissection, and having a tumor in the hypopharynx or larynx.

(Mouw et al., *Arch Otolaryngol Head Neck Surg* 12:1226-1234, 2010)

Racial Disparities in Risk and Survival for Neuroblastoma

A study that evaluated racial disparities for risk and survival from neuroblastoma, a common childhood cancer, found that Black, Asian, and Native American children are more likely than White and Hispanic children to die after treatment.

Tara Henderson, MD, MPH, assistant professor of pediatrics, led the research group that analyzed data from 3,500 patients diagnosed with the disease between 2001 and 2009. They found that whereas 75% of White and Hispanic patients survived 5 years after diagnosis, only 67% of Black patients, 63% of Asian patients, and 39% of Native American patients survived to that point.

The study's findings also suggest that Black and Native American children are more likely to have the high-risk form of neuroblastoma and show signs of resistance to modern treatment. The researchers are planning follow-up studies to look for genetic factors that may predispose Black children to high-risk forms of neuroblastoma and chemotherapy resistance.

(*J Clin Oncol* 29:76-82, 2011)

Novel Post-Translational Modification Identified

Yingming Zhao, PhD, associate professor in the Ben May Department for Cancer Research, and his team have unlocked another door in proteomics, the study of protein structure and function in an organism, tissue, or cell.

In a study published online in December by *Nature Chemical Biology*, the researchers describe the identification and verification of a previously unreported form of protein post-translational modification (PTM)—lysine succinylation. The enzymes that regulate PTMs can become important targets of new drug therapies. Proteins bearing these PTMs could serve as biomarkers.

Given the high abundance of lysine succinylation and its induced chemical changes, it is highly likely that lysine suc-

cinylation could have important cellular functions, the researchers wrote, adding that this study provides a stepping stone for dissection of this PTM pathway and studies of its biological significance.

Scientists Observe Intermediate Stage in Chemical Process that Mediates Biological Demethylation

New information about an intermediate stage in the chemical process responsible for repairing DNA methylation damage may give researchers better insight into the



The Beverly Duchossois Cancer Laboratories at the Knapp Center for Biomedical Discovery (KCB) is home to some of the groundbreaking research at UChicago.

development of cancer and other diseases. Methylation is an important process that regulates function in cells.

Led by Chuan He, PhD, professor of chemistry, research teams at UChicago and the University of Wisconsin-Madison report their findings in *Nature*. Their observations focused on the bacterial DNA repair protein AlkB, but the results also apply to several proteins in the same family that play key regulatory roles in humans.

The study's results may guide researchers to one day develop methods for blocking the demethylation function in human cells, which could have important implications in the development of therapeutic agents that target the DNA methylation machinery in cells, said Dr. He.

(Yi et al., *Nature* 468:330-333, 2010)

Potential for New Strategies in Acute Myeloid Leukemia Treatment

Investigators have found strong evidence that expression of a particular molecule may provide excellent outcome for patients with acute myeloid leukemia.

In a study published in the *Journal of Clinical Oncology*, Richard A. Larson, MD, professor of medicine, and other members of the Cancer and Leukemia Group B, evaluated the prognostic significance of expression levels of a single microRNA, *miR-181a*, in the context of established molecular markers in cytogenetically normal acute myeloid leukemia (CN-AML). They found that higher *miR-181a* expression is associated with a higher complete remission rate, longer overall survival, and a trend for longer disease-free survival.

According to the researchers, this study provides the first evidence that the expression of a single microRNA, *miR-181a*, is associated with clinical outcome in patients with CN-AML and may lead to refinement of molecular risk classifications. Targeted treatments that increase endogenous levels of *miR-181a* might represent novel thera-

peutic strategies, they wrote. (Schwind et al., *J Clin Oncol* 28:5257-64, 2010)

New Targeted Lung Cancer Drug Produces 'Dramatic' Symptom Improvement

An early stage clinical trial of a chemotherapy drug shows promise to stop or shrink tumor growth in lung cancer patients with a specific genetic abnormality. The drug, called crizotinib, was given daily to patients whose lung tumors were driven by alterations in the anaplastic lymphoma kinase (*ALK*) gene. The multi-institutional research was reported in the *New England Journal of Medicine* in October, and Ravi Salgia, MD, PhD, professor of medicine, was among the authors.

Of 82 patients with *ALK*-altered tumors who enrolled in the trial, crizotinib treat-

ment reduced tumor size in at least 47 and halted tumor growth in 27. Among those participants, 63 have continued receiving the drug, some for more than 2 years. Researchers said they are encouraged by the dramatic improvement of symptoms in these patients, with many of them being able to resume a normal life without pain and a constant cough. Within the UChicago Thoracic Oncology Program, several clinical trials (Phase II and III) are under way to determine crizotinib's role in non-small cell lung cancer.

(Kwak et al., *N Eng J Med* 363:1693-1703, 2010)

Researchers Visualize Mobile Protein Molecules in Solution

In a study designed to observe protein molecules as they change shape, researchers developed a novel method that combines

computational simulations with experimental X-ray scattering data to examine the structural organization and dynamics of proteins in solution. The method, called basis-set supported SAXS (BSS-SAXS) reconstruction, was used to characterize Hck, an important signaling enzyme that is a member of the *Src*-family of tyrosine kinases.

The analysis permitted the researchers to visualize how the enzymes react and assemble when binding with different signaling peptides.

Benoit Roux, PhD, professor of biochemistry and molecular biology, and colleagues published their findings in the *Proceedings of the National Academy of Sciences* (Yang et al., *PNAS* 36:15757-15762, 2010).

The study was also a topic of discussion in a News & Views article in the December issue of *Nature*. The authors wrote, technologies for determining protein structure have contributed immensely to our understanding of molecular biology, providing us with three-dimensional models at atomic resolution to explain the molecular basis of physiologically important interactions between biochemically active molecules.

(Bernadó and Blackledge, *Nature* 468:1046-1048, 2010)

Few Women Ask for Help with Sexual Problems after Cancer

More than 40% of women who survive gynecologic and breast cancers express an interest in receiving medical help for resulting sexual problems, but few ever seek such care. Cancers affecting the breasts and genital tract and the treatment of these cancers can lead to significant and lasting morbidity, some of which includes decreased sexual interest and satisfaction, vaginal dryness, and anatomical changes that are detrimental to quality of life.

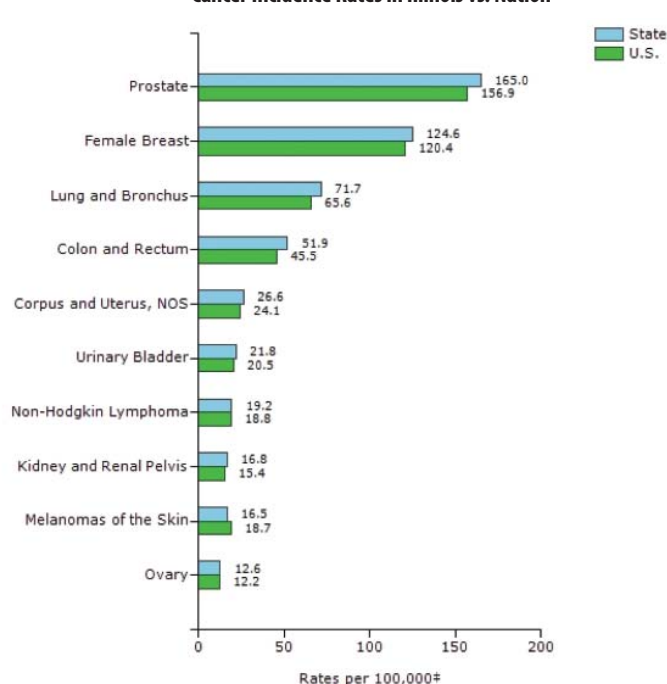
Emily K. Hill, MD, Stacy Tessler Lindau, MD, associate professor of obstetrics and gynecology, and colleagues collected surveys and reviewed medical records from 261 gynecologic and breast cancer patients from June 2008 to March 2009.

In an article that appeared online ahead of print in *Cancer*, the researchers wrote that despite well-documented sexual dysfunction among women with gynecologic and breast cancers, little has been done clinically to address psychological or physiologic sexuality issues. They add that further research should expand the range of evidence-based options for prevention and treatment of sexual problems in women and girls with cancer.

Just the Stats

A newly released government report offers statistics on cancer incidence by state, as well as the nation as a whole.

Cancer Incidence Rates in Illinois vs. Nation



Source: U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999–2007 Incidence and Mortality Web-based Report. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute, 2010; www.cdc.gov/uscs.

FOCUS ON CORE FACILITIES

Integrated Microscopy Core Facility Brings Powerful Science into Focus

JUST AS MICROSCOPES revolutionized the field of biology by enabling scientists to see objects many times smaller than possible with the human eye, modern-day advanced optics are helping to solve new mysteries, including why some cancer cells behave differently than others.

Since 1997, The University of Chicago's Integrated Microscopy Core Facility has been providing the research community with state-of-the-art microscopy instrumentation and image-analysis tools that would otherwise be prohibitively expensive for individual laboratories to obtain on their own.

The facility caters to 140 laboratories at UChicago, and of its roughly 700 registered users, approximately 53% are from the UCCC. Located primarily in the Knapp Center for Biomedical Discovery (KCBD) with a satellite location in Abbott Memorial Hall, the facility is accessible to users 24/7, with support staff available during normal business hours.

In January, the integrated microscopy facility announced the addition of three new major systems. These systems represent the best in corrected optics, with advanced features that allow for high speed and sensitivity.

The Marianas Nipkow system, a high-powered light microscope, was installed in the Abbott site. This confocal microscope uses five diode lasers and two state-of-the-art cameras that simultaneously capture two colors. The Marianas also has special features that allow scientists to correct for optical defects, such as artifacts and distortions, and includes a fast scanner to selectively bleach or photoactivate targets.

"This is a special microscope because it is computer controlled and does things on the fly.



One of the new additions to the Integrated Microscopy Core Facility, the Marianas Nipkow system is a high-powered light microscope that allows researchers to study living cells.

Because of its automation and powerful capabilities, it saves researchers time and money," said Vytas Bindokas, PhD, facility co-technical director.

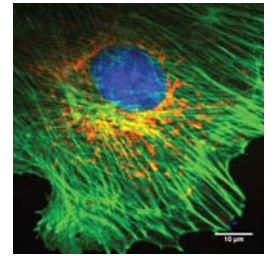
A system for whole-slide scanning of fluorescence and histology-labeled slides was recently added within the KCBD site. Researchers can simply drop off their slides, and staff will create digitized files that can be shared with colleagues around the world. Christine Labno, PhD, co-technical director, said this is especially valuable because it eliminates the need to recapture images at different magnifications. She also suggested that these new scanner-based techniques will change the way microscopy is performed.

Finally, the crown jewel in the facility is the

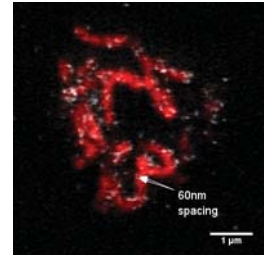
Leica SP5-II-STED-CW system, the next generation in high-power optical microscopes. It is the only system on campus to offer stimulated emission depletion (STED) super-resolution light microscopy. "Super resolution is the next big push in microscopy," said Dr. Bindokas. The new technology surpasses the century-old limit of diffraction, or the smallest spot on which you can focus, in real time.

With the new piece of equipment, Dr. Bindokas reported routine visualization at 50 nanometers versus 200 nanometers on typical confocal systems. He said it would be nice to reach 10 nanometers to see how single, common proteins behave. "We're getting close," he said. "The best tools make for the best science."

UCCC members receive access to shared resources at subsidized rates. For more information on eligible core facilities, go to cancer.uchicago.edu/research/core-facilities.



A test sample of bovine pulmonary artery endothelium stained for microtubules (green), mitochondria (red), and nuclei (blue), captured by the Marianas.



Resolution has been classically viewed as roughly half the wavelength of light used to create the image. The super-resolution image is from a prep made by Veronica Cloud from the lab of Douglas Bishop, PhD. Note the 1-micron scalebar. Red staining is shown with normal confocal resolution, something with about 200-300nm detail for this color. The white spots are for Alexa 488 (green) stained protein with STED enhanced detail. Smallest spots are <50nm, and distinct spots with 60nm spacing are clearly evident. This image without STED would look very similar to what is seen in red.

The best tools make for the best science.

Vytas Bindokas, PhD

Aggressive Therapy, Friendship Help Patient Survive Ovarian Cancer

WHEN RETIRED TEACHER and homemaker Sondra Hannafan was diagnosed with advanced Stage III ovarian cancer in April 2006, she described it as the most devastating news someone could receive—other than the death of a loved one. "It's your own life that you see perhaps ending rather quickly," she said.

Anxious to find the best care, she and her husband, Mike, researched where to go for treatment. After interviewing with oncologists at three teaching hospitals, the Hannafans turned to The University of Chicago and called Diane Yamada, MD, associate professor of obstetrics and gynecology.

Dr. Yamada agreed to see the Hannafans the next day to discuss treatment options. "When you know that you have cancer, you want surgery or whatever treatment done yesterday," Sondra said.

The treatment plan was intense: hysterectomy and debulking surgery followed by intraperitoneal chemotherapy, known as a belly wash, and a 6-month course of chemotherapy every 3 weeks.

During the course of treatment, Sondra experienced a severe reaction to the chemotherapy. Dr. Yamada collaborated with other UChicago physicians to determine the cause, which was a rare response to cisplatin. A different chemotherapy agent was then used.

Not Just a Number

The Hannafans were pleased that Dr. Yamada, as a gynecologic oncologist, was with them through every step of the process. Mike said, "Dr. Yamada is very caring and professional, and she has a good sense of humor, which helps in very difficult situations."

Sondra said she was most surprised when she received a phone call at 9:00 p.m. from Dr. Yamada, who wanted to check on her. "You're not just a number. And I found that wonderful," Sondra said.

Almost 5 years later, Sondra is enjoying life and filling



(from left) Mike Hannafan, Diane Yamada, MD, and Sondra Hannafan. The Hannafans share a close bond with Dr. Yamada, whose aggressive treatment plan helped Sondra celebrate 5 years of surviving ovarian cancer.

"On the 5-year anniversary of her survivorship, I am thrilled to see her doing so well and living life to the fullest," said Dr. Yamada.

The Hannafans return to UChicago every 4 months for blood tests and to see Dr. Yamada, who

they are proud to call their friend. "She always comes into the examination room with a smile and a hug," said Sondra.

Dr. Yamada said she feels gratified to see more advanced-stage fallopian tube, ovarian, and primary peritoneal cancer patients living longer with a combination of aggressive treatments.

"UChicago is a great place for cancer patients because we have so many experts who can roll with the punches to develop the best individualized treatment plans," Dr. Yamada said. "In Sondra's case, we depended on quite a few people to weigh in on her care, and I think this has paid off in dividends. She is truly a wonderful patient with a keen spirit who should be an inspiration to others."

UChicago is a great place for cancer patients because we have so many experts who can roll with the punches to develop the best individualized treatment plans.

Diane Yamada, MD

her days with volunteer activities, traveling, and babysitting her grandchildren. Dr. Yamada said Sondra's treatment was effective because of a combination of aggressive surgery, effective chemotherapy, and her own tumor biology.

'NO TIE' BALL RAISES \$35K FOR CANCER RESEARCH

The University of Chicago Cancer Research Foundation (UCCRF) Associates Board hosted its annual gala in February. More than 120 people attended the "No Tie" Ball at the James Hotel in Chicago. The Associates Board comprises young professionals from the Chicago area who are committed to raising money for cancer research.

- 1** (from left) Gala Co-Chairs Jeff Feste and Lindsay Essi and Donations Chair Alex Reo.
- 2** (from left) Caitlin Maloy and Associates Board Secretary Erin Callahan.
- 3** (from left) Rylee Olewinski, Adam Simon, Kat Olewinski, and Kristina Leng.



Charles L. Sawyers to Receive 2011 Shubitz Prize

THE UNIVERSITY OF CHICAGO Cancer Research Foundation (UCCRF) is presenting its 2011 Simon M. Shubitz Cancer Prize to Charles L. Sawyers, MD, an investigator at the Howard Hughes Medical Institute and director of the Human Oncology and Pathogenesis Program at Memorial Sloan-Kettering Cancer Center. Dr. Sawyers will receive the award and deliver the lecture, "Overcoming Resistance to Targeted Therapy," on May 23 at 12:00 p.m. in the Frank Billings Auditorium.

Dr. Sawyers was selected for his notable achievements in research aimed at overcoming resistance to molecularly targeted cancer therapy in leukemia and prostate cancer.

The Simon M. Shubitz Cancer Prize and Lectureship recognizes excellence in cancer research and brings to The University of Chicago internationally respected scientists who have made significant contributions to the field of cancer.

"It is a tremendous honor to receive the award and to join such a distinguished list of prior recipients," said Dr. Sawyers, who will also be the guest of honor at an evening reception at the Gleacher Center, UChicago's downtown campus.



Charles L. Sawyers, MD, winner of the 2011 Shubitz Prize

Photography by Rick DeWitt, MSKCC, Public Affairs



(back, from left) Chicago Bears Rod Wilson, Nick Roache, Matt Toeaina, Matt Forte, Tommie Harris, and Edwin Williams. (front, from left) Bears Chaplain Ray McElroy, Anthony Adams, Carrie Zielke, and Phil Zielke.

Chicago Bears Bring Holiday Cheer to UChicago Cancer Patients

THE Chicago Bears and a local cancer support organization, Phil's Friends, delivered more than 100 holiday care packages to patients and their families at UChicago last December. They spent about 2 hours at Comer Children's Hospital and in the Pediatric and Adult Oncology Clinics. Phil Zielke created Phil's Friends after successfully undergoing treatment for Stage 4B Hodgkin lymphoma at UChicago. Quarterback Jay Cutler made a separate visit to Comer earlier in the month.



Edwin Williams (right) and Matt Forte have some fun with cancer patients at Comer Children's Hospital.

IN THIS ISSUE...

- 1** A new program assists cancer patients as they navigate through the process of their initial visits.
- 2** An intelligent breast workstation for computer-aided diagnosis and quantitative image analysis could soon revolutionize the way breast cancer is diagnosed.
- 3** Personalized care is the norm for UChicago patients with colorectal cancer, the third most common cancer among men and women.
- 4** The UCCCC initiates a series of programs to help increase breast cancer awareness and improve mammography utilization rates among racial and ethnic groups in the Chicago area.
- 4** A unique UChicago clinic helps female cancer survivors manage sexual problems related to their cancer or cancer treatment.
- 7** The Integrated Microscopy Core Facility announces three new major systems, representing the best in corrected optics.
- 7** Aggressive therapy and a special bond with her doctor help an ovarian cancer patient reach the 5-year survival mark.

Support cancer research through the UCCRF:

cancer.uchicago.edu/donations