UNIVERSITY OF ILLINOIS
CANCER CENTER
Bench to Community

SEEING
Beyond the Gene

ANNUAL
REPORT
2018

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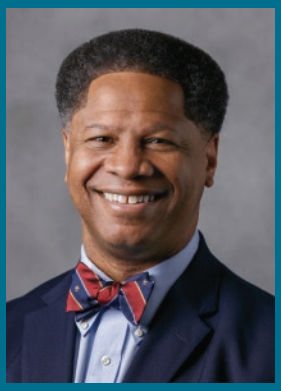
Dear UI Health Community,

The University of Illinois Hospital & Health Sciences System (UI Health) and the University of Illinois Cancer Center continue to gain momentum. Throughout the course of the last year, the health and medicine community across campus and in our neighborhoods continues to rally behind the effort to pursue National Cancer Institute (NCI) designation. As you will read throughout this report, we continue to organize ourselves among the health sciences to foster alignment and collaboration between diverse disciplines in the pursuit of new knowledge and discoveries that may impact the spectrum of cancer care and services we offer our patients. Whether it be pharmacy researchers investigating the health benefits of a south Asian fruit, dental faculty offering community oral cancer screenings, or the recruitment of a world-class physician scientist to lead clinical research efforts, our community is focused on providing meaningful and essential care to improve the lives of all those struggling with the burden of cancer. We invite everyone to join efforts to support the University of Illinois Cancer Center community as it brings its innovative "bench to community" model of care to life. Thank you for your support and we look forward to another tremendous year as we pursue health equity for communities near and far.

Sincerely,
Robert A. Barish, MD, MBA
Vice Chancellor for Health Affairs
University of Illinois at Chicago



Dear friends,

This has been an incredible year of growth for the University of Illinois Cancer Center. We have nearly doubled our clinical trials accrued and co-recruited faculty in cancer research. This investment in infrastructure is significant and will help us work toward our goal of pursuing a designation from the National Cancer Institute that will provide us with the recognition and resources necessary to dramatically increase our research efforts, serve more patients and amplify our reach into our community. Throughout this quest, our focus will remain on the patients we serve. They are the reason that our research matters, and the reason we are so motivated to work not only on new cures and therapies for cancer but also ways to screen and prevent cancers from happening in the first place. The community we serve is disproportionally affected by many cancers and we refuse to accept this as status quo. We will continue to work on innovative ways to fight cancer for everyone it impacts.

Sincerely,
Robert A. Winn, MD
Director, University of Illinois Cancer Center

Our Mission

We are the only public university-based cancer center in the nation dedicated to exploring and understanding the totality of intersecting issues that trigger cancer ***– race, gender, environment, occupation, economic status, education, geography –*** so that we can effectively identify and discover methods necessary to better prevent, treat and help eradicate cancer.

Our expert, multidisciplinary cancer focused physicians and researchers are committed to advancing innovative breakthroughs with the goal of preventing and eliminating cancer. Through our nationally renowned community outreach programs that address health care disparities and build upon our population health initiatives, we have established a community based program through our Federally Qualified Health Centers to screen and navigate patients early - before their cancers become more aggressive and to increase their chances for positive outcomes.

Our renowned researchers and specialists – medical oncologists, surgical oncologists and cancer scientists, among others – understand the dynamics of cancer genetically, environmentally and behaviorally, developing targeted approaches and individualized therapies for each patient.

Our programs feature state-of-the-art research, clinical trials, diagnostic and treatment options, with patients having access to the latest cancer resources and survivorship program, including cutting edge surgery options like an FDA-approved real-time magnetic resonance imaging-guided biopsy and the da Vinci robotic minimally invasive surgical system. Our state-of-the-art research is a bedrock for training and educating postdoctoral fellows and young faculty to prepare them for tomorrow's challenges.

The UI Cancer Center is among the select group of medical centers accredited by the Commission on Cancer, a program recognized by the American College of Surgeons for its commitment to providing comprehensive, high-quality and multidisciplinary patient-centered care. Our research is well-funded by the National Cancer Institute and is built on a "bench to community" model that not only engages the community but actively involves them in developing research and treatment choices.

We partner with the seven health science colleges at the University of Illinois at Chicago; the University of Illinois Hospital and Health Sciences System, a 465-bed-licensed hospital that cares for more than 135,000 unique patients annually; and 11 Federally Qualified Health Clinics throughout Chicago and Illinois.

UIC

The University of Illinois at Chicago is comprised of:

15 colleges
941 faculty
31,683 students

UNIVERSITY OF ILLINOIS
CANCER CENTER
Bench to Community

The University of Illinois Cancer Center is comprised of:

103 Members
7 Health Science Colleges
30 Departments

The UI Cancer Center believes everyone deserves quality health care, and the closer to home the better.

Mile Square Health Centers Federally Qualified Health Center Sites

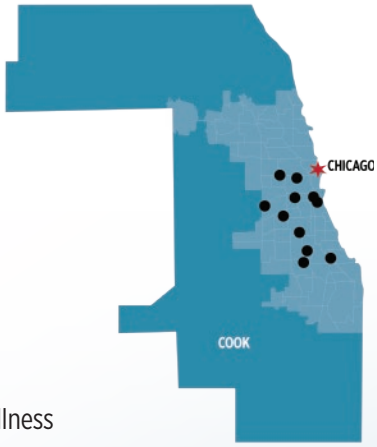
Mile Square Health Center opened its first neighborhood clinic in 1967, and continues to help Chicagoans today. Because we are a member of the community, we are better able to support the patients who visit our Mile Square Federally Qualified Health Center (FQHC) sites.

Through this program we are able to support the patients who frequent our community-based FQHC sites located in the city of Chicago. These locations exist specifically to provide health care and access to patients who are low- to no-income, and those who may be uninsured or under-insured. By providing free screening programs and conducting research within this patient population we can address the health disparities that they are likely to encounter as a result of race and ethnicity, environment, income, geography and infrastructure. The ability to work together with these populations in a substantive way allows us to create replicable and sustainable initiatives. These health centers have community boards who are involved in determining which research programs occur at their locations.

Our FQHC sites provide comprehensive health services in: primary, preventative, and specialty care; women's health; vision; survivorship/cancer care; and dental care.

FQHC LOCATIONS:

- Main Location
- Back of the Yards
- Cicero
- Englewood
- Humboldt Park
- South Shore
- School Based Clinics
  - National Teachers
  - Bronzeville Health & Wellness
  - Hope Institute
  - Davis Health & Wellness
  - Auburn Gresham

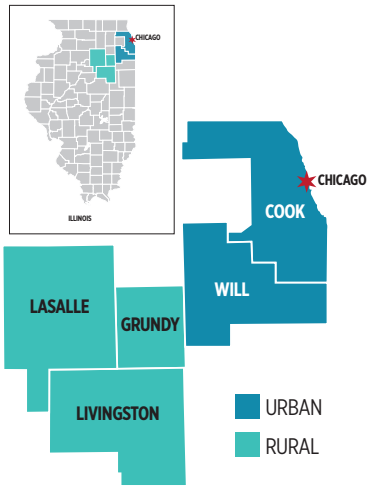


Mile Square Main Location

Our Catchment Area

5 Illinois Counties:

- **Cook**
- **Will**
- **Grundy**
- **LaSalle**
- **Livingston**



6.1 million people

Racial and/or ethnic minorities:

- **46% minorities in urban counties**
- **11% minorities in rural counties**

5,108 SQUARE MILES • 100 MILES IN LENGTH

Average commute around perimeter: **3-5 hours**

Cancer Prevention and Control

The University of Illinois Cancer Prevention and Control Program advances scientific knowledge related to cancer prevention and control while simultaneously bringing innovative interventions to the underserved and diverse communities in the UI Cancer Center's catchment area.

The Cancer Prevention and Control Program has assembled talented investigators from multiple disciplines across different departments and colleges at the University of Illinois at Chicago who will examine the role of social and physical environments that have the potential to influence and reduce cancer risk, focusing on developing effective, evidence-based interventions.

Scientific Goals:

Three aims advance the scientific goals of the program: Preventing cancer by identifying and elucidating behavioral, environmental and biological risk factors and use knowledge of these factors to inform the development of multi-level interventions and policies; develop and test interventions to reduce cancer risk or to detect cancer early with an emphasis on both behavioral and environmental policy level interventions is the second, with the third being to improve outcomes relevant for cancer survivorship, including quality of life.

A strong focus on understanding and addressing cancer health inequities in cancer risk and interventions to address these disparities are included in each of the goals. The work of the Cancer Prevention and Control program can be arranged in three major themes:

- Understanding the adoption of tobacco, alcohol, diet, and physical activity behaviors from childhood through adulthood
- Understanding how the environment, location, and residential mobility patterns influence health behaviors and cancer risk
- Developing and implementing effective evidence-based interventions at multiple levels (e.g., individual, community, macro-environment, policy level) to modify cancer prevention and control behaviors

New Recruit

Ardith Doorenbos, PhD, RN

2018: Recruited by College of Nursing and UI Cancer Center as UI Presidential Scholar

2014-2019: K24 NR015340

Focus:
Applying technology for pain and symptom management

Mentees:
Two nursing postdoc trainees in cancer palliative care

Two junior faculty in cancer survivorship

Future Plans:
NINR T32 Biobehavioral Health & Chronic Disease

NEW RESEARCH EXPLORES POLICIES ON TIMELY BREAST CANCER DIAGNOSIS FOR UNDERSERVED WOMEN

Richard Warnecke knows that disparities exist between minority and white women receiving a timely breast cancer diagnosis. The question he has is why.

Richard Warnecke, PhD

In a new paper published in the journal Cancer Epidemiology, Biomarkers & Prevention, Warnecke, PhD, professor emeritus of epidemiology, public administration and sociology at the University of Illinois at Chicago, reviewed data from more than 900 black, Latina and white patients to learn about the barriers they encounter to receiving a timely mammography screening and follow-up treatment. Warnecke's findings identify potential policy interventions to address the problems related to later stage diagnosis.

Warnecke and his colleagues conducted a multilevel analysis to assess the effects of policies intended to assist medically underserved populations on disparity in later stage diagnosis by using data from the Breast Cancer Care in Chicago study, where 411 black, 397 white and 181 Hispanic women diagnosed between the ages of 30-years-old to 79 were interviewed and their medical records reviewed. Information was obtained on pathologic stage at diagnosis, tumor characteristics, and date of diagnosis.

The data was collected between 2005 and 2008, at a time when "Chicago was one of the most racially and ethnically segregated cities in the United States," Warnecke said.

"Low income and racial and ethnic minority patients, largely residing in medically underserved communities on the south and west sides of the city, often received their care in under-resourced safety net hospitals and public health clinics," he said. "Residents of the more racially, ethnically, and socioeconomically diverse north and east sides were more likely to receive their care at academic and high volume health centers primarily located there."

Not only were the minority women often forced to travel outside of their neighborhoods for diagnosis and treatment, but a choice of health care centers may have been limited due to a patient's insurance, a primary factor of access to care, Warnecke said. The primary care provider's preferences often resulted in patient referral for diagnostic follow-up of an abnormal mammogram to a local "safety net" hospital that could not provide the spectrum of care needed for timely diagnosis of an abnormal mammogram.

"Time is of the essence. A patient's delay in diagnosis and treatment often results when the referral hospitals are not properly equipped to assist them and they may have to be referred several times before diagnostic resolution," Warnecke said. At the time of the research, Chicago had 11 full-service or academic facilities that were designated a Breast Cancer Center of Excellence (BICOE), but many patients received mammograms and diagnostic follow-up at unaccredited facilities, he said.

PRICE PREDICTOR OF E-CIGARETTE USE IN ADOLESCENTS

The higher the price of disposable e-cigarettes, the less adolescents want to vape, according to research conducted by University of Illinois Cancer Center member Frank Chaloupka.

Frank Chaloupka, PhD

Published in the journal Addiction, Chaloupka, PhD, professor of health policy and administration and director of the UIC Health Policy Center, found policies that raise retail e-cigarette prices, such as taxes, have the potential to lower the chances of adolescents beginning to use the potentially harmful product. About 3 million – or nearly 20 percent – of high school students are using e-cigarettes, according to the Centers for Disease Control and Prevention's annual National Youth Tobacco survey.

Using data from the 2014 and 2015 Monitoring the Future (MTF) survey conducted at the University of Michigan where 8th-, 10th- and 12th-grade students completed a questionnaire on e-cigarette use, Chaloupka and his research assistants assessed the impact e-cigarette pricing had on adolescents' product usage. Researchers examined the costs of e-cigarette disposables and refill cartridges separately, as the products may be used at different times by the students.

"We found that a 10 percent increase in prices of disposable e-cigarettes was associated with an approximately 10 percent reduction in vaping days among current e-cigarette users, or an approximately 19 percent reduction in vaping days among all adolescents," Chaloupka said. "Our study is among the first to examine youth e-cigarette price elasticities, and will provide evidence on the effectiveness of e-cigarette taxing and pricing policies in deterring and reducing youth vaping."

Cancer Prevention and Control

Principal Investigator **1R01CA225446-01**
Barbara Di Eugenio, PhD
Professor, Computer Science

Research has shown that patients who actively manage their health have better outcomes, but many patients lack information and understanding of their disease and medications. This project is focused on creating a bridge between the physician and the patient by enhancing their understanding of every step in the process and delivering it directly into their hands via technology.

Principal Investigator **1OT2OD026557-01**
Robert Winn, MD
Associate Vice Chancellor for Community Based Practice
Director, University of Illinois Cancer Center
Professor of Medicine

The scope of this project is to gather survey research from three major Chicago universities – Northwestern University, the University of Chicago, and the University of Illinois at Chicago. In this project, individuals of all age groups and both sexes will be entered, whether they have been diagnosed with a disease or show signs of pre-existing diseases, and from innovative mobile health technologies, electronic health records, and health insurance claims. The data will link environmental/genetic exposures to a broad array of health outcomes.

Principal Investigators **1R21CA215252-01A1**
Yamila Molina, PhD
Assistant Professor Community Health Services
Karriem Watson, DHSc, MS, MPH
Clinical Assistant Professor

Increasing the number of African American women who are diagnosed with breast cancer at early stages is a public health priority. Patient navigation has been developed to address this problem and is increasingly widespread in public health practice; it is utilized to coordinate care and provide informational, emotional, and logistical support to patients. Through research, it was found that breast cancer patients have reached out to relatives (and non-relatives) and made them more aware of the cancer diagnosis process. This project's aim is to efficiently bridge the gap between breast cancer survivors and navigators to more efficiently provide care and earlier diagnosis.

Principal Investigator **1R21HL140531-01**
Greg Calip, PhD
Assistant Professor Pharmacy Systems, Outcomes and Policy

Strategies to minimize the risk of cancer treatment-related cardiotoxicity are needed to keep pace with the evolving highly effective treatments for patients with multiple myeloma. This project seeks to examine the comparative safety of multiple myeloma treatments with respect to treatment-related venous thromboembolism and determine differences in long-term risks by racial groups in the United States, essentially reducing burdens to racial minority populations.

Scientist Spotlight
Greg Calip,PharmD, MPH, PhD

Greg Calip knows the medical histories of thousands of patients, but he's never treated any.

A biostatistician and epidemiologist, Calip, a University of Illinois Cancer Center member and assistant professor of pharmacy systems, outcomes and policy, is conducting research on how to prevent venous thromboembolism in patients suffering from multiple myeloma.

The second most common blood cancer after non-Hodgkin lymphoma, multiple myeloma forms in plasma cells – white blood cells that help fight infections by making antibodies that recognize and attack germs. Multiple myeloma causes cancer cells to accumulate in the bone marrow, where they crowd out healthy blood cells. Rather than produce helpful antibodies, the cancer cells produce abnormal proteins that can cause complications. Multiple myeloma patients have a greater risk of producing blood clots following diagnosis and treatment.

Greg Calip, PharmD, MPH, PhD

"Race, multiple myeloma and anti-cancer treatments are independent risk factors for venous thromboembolism," said Calip, who was awarded a two-year $440,000 grant from the National Heart Lung and Blood Institute for his study. "How these factors together affect the long-term risk of VTE among multiple myeloma patients are not known. That's what we want to figure out."

Calip and his research team will analyze data from 5,000 patients contained in a database linking cancer registry information with Medicare beneficiaries and a pooled cohort study of patients at UIC and the University of Chicago to determine why multiple myeloma patients develop blood clots following their cancer treatments. The study is the first step in hopes of one day developing prevention strategies, treatment options and conducting clinical trials.

"The databases contain hundreds of thousands of patients, but we're especially interested in elderly Medicare patients," Calip said. "The risk of contracting multiple myeloma increases as people age – especially black men, who are about twice as likely to get it."

More than 30,200 adults are estimated to be diagnosed with multiple myeloma in the U.S. this year, with more than 12,500 deaths occurring. The study, Calip said, is unique in that it will be the first to determine racial differences in long-term treatment related cardiotoxicity in multiple myeloma patients using population-based data.

Translational Oncology

The University of Illinois Cancer Center's Translational Oncology Program encourages collaboration among researchers in basic and clinical science departments – as well as the UI Cancer Center's Cancer Biology and Cancer Prevention and Control programs – to facilitate the development of novel therapeutics to fight cancer, advancing these treatments through clinical trials to benefit cancer patients.

With the University of Illinois at Chicago being recognized as a minority serving institution (MSI), one of the major objectives of the Translational Oncology Program is to identify targets and biomarkers to develop therapeutics and clinical trials that address the health disparity in cancer, moving the discoveries from bench to bedside to community.

Scientific Goals:

Three aims encapsulate the Translational Oncology Program:

The first is to identify and validate targets for cancer therapy and chemoprevention, with emphasis on nuclear receptors and hormone signaling.

The second goal is to discover and develop novel anti-cancer agents and chemopreventive agents for targeted therapy either alone or used in combination to prevent and circumvent resistance.

The third and final goal is to progress discoveries through clinical research, defining mechanisms of action, and target engagement, leveraging tissue imaging and translational biomarkers.

New Recruits

John Stewart IV, MD, MBA
Associate Director for Clinical Research
Physician Executive of Oncology Service, UI Cancer Center and UI Health
Duke University

Yu (Tom) Gao, PhD
Assistant Professor
Medicinal Chemistry & Pharmacognosy
The Scripps Research Institute

Steve Seung-Young Lee, PhD
Assistant Professor
Biopharmaceutical Sciences
University of Chicago

Laura M. Sanchez, PhD
Assistant Professor
Medicinal Chemistry & Pharmacognosy
University of California, San Diego

Ajna Hamidovic, PharmD
Assistant Professor
Pharmacy
University of New Mexico

Selected Publication

LUNG CANCER SCREENING GUIDELINES INADEQUATE FOR HIGH-RISK MINORITIES

Data from a lung cancer screening program at the University of Illinois at Chicago provides evidence that national lung cancer screening guidelines, which were developed based on the National Lung Screening Trial, or NLST, in 2011 and recommend screening based on age and smoking history, may be insufficient for individuals in underrepresented communities.

The UIC researchers, who are members of the University of Illinois Cancer Center, found that when compared with patients in the NLST, the cohort of patients engaged in a Chicago-based lung cancer screening program had a higher percentage of black (69.6 percent vs. 4.5 percent) and Latino (10.6 percent vs. 1.8 percent) individuals, double the number of positive scans (24.6 percent vs. 13.7 percent) and a higher percentage of diagnosed lung cancer cases (2.6 percent vs. 1.1 percent).

Their findings were published in JAMA Oncology.

The researchers say the data illustrates how the national trial is not representative of all people living in the U.S., particularly of minorities.

Lawrence Feldman, MD

Senior author Lawrence Feldman, MD, associate professor of clinical medicine at UIC College of Medicine and an oncologist at the University of Illinois Hospital, says that comparing the national screening data to baseline screening data from a diverse and urban population, including patients who receive care at federally qualified health centers, provides insights that can help reduce the racial disparities in lung cancer outcomes.

"Immunotherapies and other advances in medicine have come a long way in extending life and improving quality of life for many individuals diagnosed with lung cancer, but those advances mean much less for people living in underserved communities who can't access or are ineligible for screening programs," said Feldman, professor of clinical medicine in the UIC College of Medicine. "Screening that is offered based only on age and smoking history may miss a large group of people who are at higher risk due to other factors."

According to the American Lung Association, African-Americans not only get lung cancer at a higher rate than other groups, but they are also more likely to die from the disease. The ALA reports that African-American men, for example, are 22 percent more likely to die from lung cancer than white men.

Lead author Mary Pasquinelli, a UIC nurse practitioner, says that the guidelines for lung cancer screening should be examined to see if additional risk factors, like a history of chronic obstructive pulmonary disease and having a close relative with lung cancer or a low education level, among other socioeconomic factors, should be considered alongside age and tobacco use when evaluating a person's eligibility for screening.

"We know screening is effective, but these data show us that we really need to start thinking about more expansive, risk-based screening guidelines, especially if we want to close the gap when it comes to racial disparities in lung cancer outcomes," Pasquinelli said. "Otherwise, continued use of screening guidelines that are skewed toward the white population could actually increase racial disparities in outcomes."

The UIC study group consisted of 500 men and women who received care at the University of Illinois Hospital and Clinics or UI Health Mile Square Health Center, its network of federally qualified health centers. The mean age of participants was 62 years.

SO FAR, FIRST TIME'S A CHARM FOR TONETTI'S INITIAL CLINICAL TRIAL

Debra Tonetti's first clinical trial has not gone the way she anticipated. It's gone much better.

Debra Tonetti, PhD and Greg Thatcher, PhD

Tonetti, PhD, a University of Illinois Cancer Center member, associate professor of pharmacology and interim head of the department of biopharmaceutical sciences, is testing a drug she helped developed with fellow UI Cancer Center member Greg Thatcher that has the potential to help women whose breast cancer has stopped responding to hormone therapy.

Patient recruitment into the Phase 1 trial of the new drug, TTC-352, has proceeded more rapidly than anticipated. The drug is a selective estrogen mimic that causes complete tumor regression, but unlike tamoxifen, it may pose a reduced risk of uterine cancer development. The trial is currently open at four sites throughout the U.S., with the University of Illinois Hospital & Health Sciences System being a fifth and final location beginning in the coming months.

About two out of three breast cancers are hormone receptor-positive, whose cells have receptors (proteins) that attach to the hormone estrogen (ER-positive cancers) and/or progesterone (PR-positive cancers). For these cancers, high estrogen levels help the cancer cells grow and spread.

Hormone therapy is considered to be highly effective at fighting estrogen receptor-positive breast cancer, but nearly 50 percent of the women who undergo this type of treatment still develop a resistance to the medication and experience a recurrence, Tonetti said. TTC-352, a selective human estrogen receptor partial agonist (ShERPA), may be as effective at treating breast cancer as other hormone therapy drugs, like tamoxifen or aromatase inhibitors, but with fewer side effects.

The Phase 1 trial will determine the maximum tolerated oral dose of TTC-352 in patients with metastatic breast cancer that has progressed despite endocrine therapy. It will also evaluate the patients' best response to treatment; the duration of progression-free survival, as well as overall survival; the safety profile of the drug; and the drug's pharmacokinetic profile. It will also study the association between tumor response to the drug and its expression of a specific predictive biomarker, protein kinase C alpha, or PKC alpha, Tonetti said.

"We have observed that breast cancers that develop a resistance to hormone therapy have elevated PKC alpha expression," she said. "Our previous studies suggest that PKC alpha may predict a positive response to estrogen mimics like TTC-352."

Tonetti and Thatcher co-founded the biopharmaceutical company TTC Oncology LLC in 2016. Along with being professor of medicinal chemistry and pharmacognosy at UIC and co-director of the UI Cancer Center's Translational Oncology Program, Thatcher, PhD, serves as director of UICentre, a campus-wide program at UIC centered on collaborative engagement designed to stimulate the application of pharmaceutical and translational knowledge in order to generate novel therapeutic compounds.

Selected Grants

Exposure to low-dose bisphenol A significantly increases the risk of prostate cancer, according to new research conducted by University of Illinois Cancer Center member Gail Prins, whose results confirmed her prior work. The study was published in the journal Environmental Health Perspectives.

Gail Prins, PhD

Controversy surrounds whether the plastic-derived contaminant BPA is harmful to one's health, said Prins, PhD, Michael Reese Professor of Urology and Physiology and director of UIC's University Andrology Laboratory. To assess if BPA can cause fertility issues, male impotence and heart disease, among other health conditions, the National Institutes of Health partnered with the Food and Drug Administration to conduct a large-scale controlled and blinded study across multiple end-points in animal models, including the prostate gland.

In addition to confirming her prior work, Prins also identified the stem cell as a BPA target, with stem cell numbers doubling at the lowest BPA dose and lineage commitment of daughter progenitor cells shifted towards basal cells.

"The prostate data is among the strongest found in this large scale study," said Prins, whose laboratory was one of 14 investigative facilities, as well as FDA labs, to participate in the research. The work was funded through $30 million in federal grants. Prins' findings will be included in a large NIH-FDA report that will be used as the definitive work regarding PBA safety.

BPA is an industrial chemical that has been used to make certain plastics and resins since the 1960s. It is found in polycarbonate plastics – containers that store food and beverages, such as water bottles – and epoxy resins.

LACK OF VITAMIN D COULD PLAY A ROLE IN PROSTATE CANCER IN BLACK MEN

University of Illinois Cancer Center member Larisa Nonn has received a grant from the U.S. Department of Defense to conduct research to determine whether the lack of vitamin D in African American men increases the amount of testosterone and estrogen within the prostate, leading to a higher risk of cancer.

Larisa Nonn, PhD

"Although the disparity of vitamin D deficiency in African Americans is well known, the clinical significance is often questioned because African American men do not have soft bones, which is a classic symptom of vitamin D deficiency," said Nonn, PhD, associate professor of pathology in the University of Illinois College of Medicine. "If clinicians are aware of a direct mechanism by which these men are increasing their risk of prostate cancer, they would strongly recommend taking a vitamin D supplement."

The pigment melanin reduces the capacity to produce vitamin D, Nonn said, and is the main reason for its deficiency in African American men. Vitamin D is not actually a vitamin, but a hormone, as it is synthesized in the skin following sun exposure. African American men are disproportionately low in vitamin D compared to those of European descent, with 90 percent of African American men being vitamin D deficient.

Not only are African American men at an increased risk of contracting prostate cancer, but they also get it at a younger age and it is more lethal, Nonn said. The disparity in prostate cancer in African American men is likely due to multiple contributors, one of which may be vitamin D. Vitamin D works in the body similar to that of testosterone and estrogen, although each hormone has distinct functions.

"Our studies have shown that men with low vitamin D status opens an "entryway" into prostate tissue to let in more vitamin D, but we only observed this in African American men," Nonn said. The entrance, known as megalin, is also responsible for allowing testosterone and estrogen into cells. In the prostate, high levels of testosterone and estrogen are known drivers of prostate cancer, she said.

Nonn will use samples from patients' stored blood, prostate tissue and tissue from fresh prostate cells to perform the studies. Should she discover the link between vitamin D deficiency and the change in tissue levels of hormones, it could be applicable to other cancers, she said.

"Megalin is also present in breast cancer, and there is a pronounced breast cancer disparity for African American women," she said. "Intervention and adequate vitamin D supplementation from a young age may ultimately not only reduce prostate cancer mortality, but also other cancers and disease."

Nonn's grant runs for three years and is her third Department of Defense funded project as a UIC faculty member. She previously received one of the grants as a postdoctoral fellow at Stanford University. She will be assisted by UI Cancer Center member Gail Prins, PhD, Michael Reese Professor of Urology and Physiology in the UI College of Medicine, and Bethany Baumann, PhD, postdoctoral fellow.

Nonn is not the sole researcher in her laboratory who has received a grant to study prostate cancer in African American men. Zachary Richards recently obtained a National Research Service Award Individual Predoctoral Fellowship (F31) from the National Institutes of Health to research the correlation.

Richards, a graduate student and PhD candidate, will seek to explain the differences in the mechanism of cellular uptake and metabolism of vitamin D in primary prostate cells from African American and Caucasian men, and define the role of megalin in endocytosis of vitamin D and testosterone in the prostate. This is his first federally funded research project.

In his previous work, Richards compared the differences in vitamin D metabolite levels between the serum and prostate tissue in a group of prostate cancer patients from different ethnicities. The results were the

precursor to Nonn's new grant, and it suggested that vitamin D status was "more complex than we previously thought," he said.

"We found that African American men had lower vitamin D status in the serum, but higher levels of active vitamin D in their prostate tissue compared to Caucasian men," Richards said.

"Megalin is of particular relevance to the prostate since it also binds the sex-hormone globulin to facilitate androgen import," Richards said. "This dual role of megalin has not been explored and is of great interest, as it presents a potential mechanism of increased prostatic testosterone in the setting of vitamin D deficiency."

Principal Investigator **5R01CA200669-03**
Jonna Frasor, PhD
Professor, Physiology

Up to 75 percent of breast tumors are estrogen receptor (ER) positive and nearly 50 percent of these will recur following endocrine therapy. Thus, new therapeutic targets and strategies are urgently needed for a large population of women. Our research demonstrates that ER and NFkB interacts cooperatively to synergistically up-regulate a gene signature that is correlated with the more aggressive, Luminal B phenotype of ER+ breast cancer, and predicts an increased risk of recurrence for women given endocrine therapy.

Principal Investigator **1R01EB023924-01A1**
Tohru Yamada, PhD
Research Assistant Professor, Surgery

Current intraoperative identification of tumor margins remains imprecise, leaving cancer cells behind that cause recurrence and metastasis (cancer growth in another area of the body). This approach focuses on developing non-toxic, tumor-targeted imaging agents that potentially fill the gap in current technology by clearly defining tumor margins and small central points of cancer cells in a real-time intraoperative setting that could also offer simplified and more cost-effective protocols.

Principal Investigator **1R03CA230829-01**
Gnanasekar Munirathinam, PhD
Associate Professor, Biomedical Science

Despite major advancements in treatment approaches, there is an increasing death rate in patients with castration-resistant prostate cancer (CRPC). Patients undergoing hormonal therapy invariably develop CRPC. This project seeks to develop effective strategies to control CRPC though research using a cell culture system.

Scientist Spotlight • David Peace, MD

PEACE TAKING A SHOT AT TREATING CANCER

Vaccines have been developed to fight the flu, combat chicken pox, and battle Hepatitis B. David Peace is working to add cancer to that list of diseases.

David Peace, MD

Peace, a member of the University of Illinois Cancer Center and professor of hematology and oncology at the University of Illinois College of Medicine, is conducting basic and translational research in tumor immunology in hopes of developing vaccines to treat numerous cancers, including prostate, kidney and bladder.

The majority of Peace's research career has been devoted to the immunology field, and he has seen sweeping changes in how cancer can be treated, from the use of checkpoint inhibitors, CAR-T cells, and vaccines, among other modalities. Identifying tumor-specific antigens and developing strategies to elicit tumor-specific T-cell immunity in patients has been a focal point of his studies over the years.

"It's been fascinating and exciting to watch the emergence of checkpoint inhibitors, as they block the normal proteins on cancer cells and allow T-cells to respond to many different types of tumors," Peace said. "But I have been interested in developing very precisely directed immunotherapy, especially in exploiting tissue-specific antigens such as prostate specific antigen (PSA) and prostate specific membrane antigen (PSMA), which can serve as "tumor specific" markers in the right context."

Peace has translated several of his discoveries in the lab into clinical trials. In 2002 he developed and tested a vaccine that boosts the body's own immune system in an effort to cure prostate cancer. Sponsored by the National Cancer Institute, the vaccine included a carefully selected peptide fragment of PSA, which is produced by cells lining the tubules of the prostate gland, as well as by prostate cancer cells.

In the latest trial he is assisting with, Peace is using a combination of a checkpoint inhibitor and the tumor vessel blocking drug Avastin to treat patients with advanced kidney cancer. Conducted through the Big 10 Cancer Research Consortium, the trial has rapidly accrued and "we've had favorable results in the response rates we're seeing," Peace said.

Cancer Biology

The University of Illinois Cancer Center's Cancer Biology Program unites scientists conducting basic research using a variety of model systems - mice, drosophila, and zebra fish, among others - to understand molecular and cellular events that contribute to the beginning, advancement, and metastasis of cancer. A major focus of the Cancer Biology Program is to promote outstanding research that will identify new therapeutic targets and approaches for treating cancer, which will be further investigated and validated with investigators in the UI Cancer Center's Translational Oncology Program.

Scientific Goals:

Three aims advance the scientific goals of the Cancer Biology Program:

The first is to determine how cancer metabolism and signaling pathways act individually and are integrated to drive cancer development and progression, identifying new vulnerabilities of cancer.

The second - to determine how signaling is relayed to transcriptional control through direct and epigenetic mechanisms, and how genome integrity is compromised, to drive the cancer phenotype.

The third is to identify mechanisms by which cancer cells interact with the local extracellular matrix and stromal cells, and inflammatory and vascular systems to allow for invasion and metastasis.

Within each of these aims, a strong focus on identifying new therapeutic targets for treating cancer can be found. The work of the Cancer Biology program can be arranged in three major themes:

Cancer Cell Signaling and Metabolism, includes growth factor and cytokine signaling, kinase functions, adaptors, transporters, protein modifiers, and environmental signaling. Focus areas include angiogenesis; cancer stem cells; metabolomics; microenvironment; and protein kinases.

Gene Regulation and Genomics, encompasses traditional control of gene expression by transcription factors, alteration of gene expression by micro-RNAs and other noncoding RNAs, as well as epigenetic adjustment of gene expression. Focus areas include transcriptional regulation; genomics; and epigenetics.

Tumor Microenvironment and Inflammation, where program members within employ different aspects of growth control and cell survival that are impacted by tumor suppressors and oncogenes. Focus areas include apoptosis; cell cycle regulation; DNA repair; viruses and cancer.

New Recruits

Jonathan Coloff, PhD
Physiology and Biophysics
K22 CA215828
Harvard Medical School

Jiyeon Kim, PhD
Biochemistry and Molecular Genetics
K22 CA226676
University of Texas Southwestern Medical Center

Owen Tamplin, PhD
Pharmacology
R01 HL142998
Harvard Medical School

Shafi Kuchay, PhD
Biochemistry and Molecular Genetics
Cell Reports, 2018
NYU Medical Center

Kostandin Pajcini, PhD
Pharmacology
R01 HL14299
University of Pennsylvania

Selected Publication

DO PROSTATE CANCER CELLS HAVE AN ACHILLES' HEEL?

In prostate cancer, the loss of a tumor suppressor gene called PTEN is common. Without a functional copy of this gene, cancer is much more likely to develop. One of the downstream effects of the loss of PTEN is increased activation of an enzyme called protein kinase B, also known as Akt. Akt has multiple roles in the cell, including driving metabolism and cell proliferation — both of which are amped up in cancer cells, contributing to their out-of-control growth and spread. Hyperactivation of Akt can also make cancer cells resistant to chemotherapy, but efforts to develop drugs to suppress Akt in cancer cells have fallen short due to toxicity.

The activation of Akt also produces elevated levels of reactive oxygen species, or ROS. These are byproducts of metabolism that can cause damage to cellular structures, including DNA.

Nissim Hay, PhD

Nissim Hay, UI Cancer Center member and professor of biochemistry and molecular genetics in the UIC College of Medicine, believes that these elevated ROS levels can be exploited to kill cancer cells.

"ROS levels are high in cancer cells, which normally helps them grow and proliferate," said Hay, who along with Veronique Noguiera, UIC research assistant professor of biochemistry and molecular genetics, served as coordinating author on a paper reported in the online journal, eLife. "But, we have shown that by pushing ROS levels up above a certain threshold, they become toxic, and we can selectively kill off the cancer cells while leaving normal cells unharmed."

To boost ROS levels in cancer cells, Hay and colleagues suppressed ROS scavengers using a natural compound found in cruciferous vegetables, such as broccoli and cauliflower, called phenylethyl isothiocyanate, or PEITC.

In a mouse model of PTEN-deficient prostate cancer, PEITC, combined with a drug called rapamycin, almost completely eradicate tumors. Treated mice also showed no recurrence of cancer six months after the treatment stopped.

Next, the researchers targeted another downstream metabolic consequence of Akt hyperactivation: an enzyme called hexokinase 2, or HK2. They found that when they deleted the gene for HK2 in the mouse model of prostate cancer, the cancers in those mice stopped growing. The researchers saw similar results in human prostate cancer cells, where the deactivation of HK2 helped restore prostate cancer cell sensitivity to chemotherapy.

"The increased metabolism of cancer cells presents a sort of Achilles' heel that we have several ways to exploit in order to very selectively kill these cells while normal cells are left alone," Hay said. More research is needed to determine how best to develop these findings into treatments, he said.

Selected Grants

$1.17 MILLION DEPARTMENT OF DEFENSE GRANT TO DEVELOP NEW THERAPY TO TREAT TRIPLE-NEGATIVE BREAST CANCER

Can Jagged 1 – a protein found on breast cancer cells – be a new target to treat triple-negative breast cancer? Jan Kitajewski believes so.

Jan Kitajewski, PhD

Kitajewski, a University of Illinois Cancer Center member and professor and head of physiology and biophysics at UIC, has received a three-year $1.17 million Department of Defense grant to develop a new therapy to treat triple-negative breast cancer, so named because it does not contain three of the most common types of receptors that fuel most breast cancer growth – estrogen, progesterone and the HER-2/neu gene.

About 40,000 women in the U.S. are diagnosed with triple-negative breast cancer (TNBC) each year. It is typically treated with aggressive chemotherapy or radiation, not with hormone therapy, the traditional course of action to fight most breast cancers. New targeted therapies for TNBC are "badly needed to improve the quality of life for patients," Kitajewski said.

"Triple-negative breast cancer is more likely than other breast cancers to recur and spread to other parts of the body, such as the brain, lungs, liver or bones," he said. "We need to find a way to block metastasis, because it is often difficult or impossible to treat once it spreads. In many cases this leads to death."

Jagged 1 (or Jag1) is frequently produced by the TNBC tumors and activates Notch signaling, a form of cellular communication. The presence of Jag1 is typically associated with poor outcomes for patients. Notch signaling often causes tumors to grow, receiving oxygen and nutrients from blood vessels of nearby tissue. Researchers have tried to block all Notch signaling, which would stop the tumor's growth. It hasn't been successful, however, because of severe gastrointestinal toxicity.

Kitajewski and his laboratory have developed a new class of proteins, called Notch decoys, that only block specific portions of the Notch signaling pathway, some only caused by Jag1. Tests have been conducted using Notch decoys on human tumors implanted into mice. Results have shown that Jag1-specific Notch decoys reduce tumor growth, tumor blood vessels and the ability of those vessels to carry blood and oxygen to the tumor, Kitajewski said. The treatment also did not cause gastrointestinal toxicity in the animals.

A new, more advanced Jag1-inhibiting Notch decoy, called the N1 decoy, has been developed by Kitajewski and his colleagues. It will first be tested in mice, but it has been made in a form that can be given to human patients, Kitajewski said.

Selected Grants Continued

NEW GRANT TO LEARN IF THE GENE SELENOF CONTRIBUTES TO PROSTATE CANCER

Alan Diamond, PhD

Caucasian men accounted for about 106 new cases of prostate cancer per 100,000 men for the years 2011-2015. For African American men, that number jumped to nearly 179 per 100,000. University of Illinois Cancer Center member Alan Diamond has received a U.S. Department of Defense grant to study the accuracy of his hypothesis that the gene SELENOF is a contributing factor in the disparity.

The combination of genetics and environmental factors likely play a role in why African American men experience a higher incidence of prostate cancer, as well as having a worse clinical outcome, said Diamond, pathology professor at the University of Illinois at Chicago College of Medicine. In prior studies, Diamond has compared the amount of SELENOF in prostate cancer to normal tissue, and the gene is expressed at significantly lower levels in African American men compared to Caucasian men.

"We believe that reduced levels of SELENOF contribute to the risk of experiencing and dying from prostate cancer and that the differences in the SELENOF gene between African American and Caucasian men contributes to the increased risk in that population," Diamond said.

About 165,000 new prostate cancer cases are anticipated in 2018, according to the National Cancer Institute. Nearly 30,000 will die from the disease, accounting for about 5 percent of all cancer deaths. A little more than 11 percent of men will be diagnosed with prostate cancer at some point during their lifetime, based on 2013-2015 data. In 2015, there were an estimated 3.1 million men living with prostate cancer in the U.S., the NCI said.

Along with determining the differences in levels of SELENOF between African American and Caucasian men, Diamond will also ascertain whether the absence of the gene in the prostate reduces the time when prostate cancer appears, the frequency of the tumors and their severity. The experiments will be conducted in mouse models. A third goal in the new grant is to determine the mechanism by which reduced SELENOF levels contribute to a higher prostate cancer risk and poorer clinical outcomes.

DISCOVERY COULD LEAD TO BETTER TREATMENT FOR LEUKEMIA

Acute myeloid leukemia (AML) is a cancer of the bone marrow. In AML, stem cells that would normally differentiate into blood cells instead multiply unchecked and fail to develop into mature blood cells. Patients with AML have a high risk of death from uncontrolled infection, fatigue easily and get organ damage because they lack adequate numbers of oxygen-carrying red blood cells. They are also at high risk for dangerous bleeding because of low numbers of cells that help with blood clotting.

It has been known that patients with a mutation in the NPM1 gene have a better response to standard chemotherapy, with up to 80 percent of patients being cured compared to just 40 percent for patients without the mutation.

Previous research has revealed that patients with acute myeloid leukemia who also have a particular mutation in the NPM1 gene have a higher rate of remission with chemotherapy. About one-third of leukemia patients possess this favorable mutation, but until now, how it helps improve outcomes has remained unknown.

Andrei Gartel, PhD

Irum Khan, MD

In the journal JCI Insight, University of Illinois at Chicago scientists, led by University of Illinois Cancer Center members Andrei Gartel, PhD, associate professor of molecular genetics, and Irum Khan, MD, assistant professor of clinical medicine, reported on how this mutation helps improve sensitivity to chemotherapy in patients.

The protein coded for by the NPM1 gene affects the location and activity of another protein called FOXM1, which activates other cancer-promoting genes and has been found to be elevated in cancer cells. The presence of FOXM1, especially at high levels, is a strong predictor of worse treatment outcomes and decreased survival in patients with cancer.

When the NPM1 gene is mutated, FOXM1 can't activate additional oncogenes, so patients with this mutation tend to respond better to chemotherapy. A drug that targets and incapacitates FOXM1 in patients without the beneficial NPM1 mutation may help improve the efficacy of chemotherapy.

Principal Investigator **5R01CA175380-05**
Pradip Raychaudhuri, PhD
Professor, Biochemistry and Molecular Genetics

Liver cancer is the second most leading cause of cancer-related deaths in men. Clearly, efficacious therapy is needed to combat this deadly disease. The proposed studies will investigate the FoxM1 gene, which is over-expressed in liver cancer and a marker for poor prognosis. The studies in this proposal will elucidate the mechanism by which FoxM1 contributes to the development of aggressive metastatic liver cancer. In addition, the studies will characterize an inhibitor of FoxM1 derived from the tumor suppressor ARF that is active against liver cancer. The results will have significant impact in designing new therapy against the aggressive forms of liver cancers.

Principal Investigator **5R01CA141057-07**
Barbara Jung, MD
Division Chief, Gastroenterology and Hepatology,
University of Illinois Hospital

Colorectal cancer (CRC) remains deadly due to metastatic disease and there is a fundamental gap in understanding how CRC metastases form. Transforming growth factor-beta (TGF-beta) promotes metastatic CRC at later stages and TGF-beta inhibitors are in early phase clinical trials, but their suboptimal performance may be due to the lack of appreciation for its family member, activin, which itself has distinct prometastatic actions. Our preliminary studies indicate that activin and TGF-beta should be interpreted as a complexly intertwined network and further, that tumor stroma potentiates prometastatic activin/TGF-beta signaling.

Principal Investigator **1R35GM127084-01**
Jie Liang, PhD
Professor Bioengineering-Medicine

Computational models and algorithms will be developed to further understand the organizing principles of barrel membrane proteins (MPs), which will help in predicting their structures, learning their functional mechanisms, and designing MPs with desired properties. Developments in theory, model, and algorithms will also be made to compute exact probability landscape to understand how interacting networks of molecules of proteins, DNA/RNA, and other molecules randomly lead to different cellular phenotypes.

Principal Investigator **1R21CA223915-01**
Andrei Karginov, PhD
Assistant Professor, Pharmacology

Kinases are enzymes critical for regulation of physiological processes and often dysregulated in human cancers. The proposed project is focused on the development of new tools to study kinase function in cancer cells using light. These new approaches will allow scientists to identify biological processes critical for normal development and function of human organs, as well as the pathological events leading to cancer.

Scientist Spotlight • Susan Ross, PhD

MICE LEADING ROSS TO SCIENTIFIC DISCOVERIES

Susan Ross has never been afraid of mice. That's a good thing, since she has spent her scientific career surrounded by the mammals.

Susan Ross, PhD

Ross, University of Illinois Cancer Center member and Sweeney Basic Science Professor and head of microbiology and immunology at the University of Illinois College of Medicine, studies the genetics of resistance and susceptibility to virus infections through the use of mouse models. One set of viruses her lab studies are retroviruses that cause cancer in mice, such as mouse mammary tumor virus (MMTV) and murine leukemia virus (MLV).

Mouse mammary tumor virus, a milk transmitted, infectious cancer-inducing agent discovered in the 1930s, is used as a model to study human breast cancer. A number of important oncogenes have been discovered by carrying out MMTV integration site analysis, some of which may play a role in human breast cancer, Ross said.

"MMTV was originally classified as a simple retrovirus," said Ross. "Like other complex retroviruses, MMTV encodes a number of accessory proteins that both facilitate infection and affect host immune response. In animal models, the virus predominantly infects lymphocytes and mammary epithelial cells."

High level infection of mammary epithelial cells ensures efficient passage of virus to the next generation, she said. It also results in mammary tumor induction, since the MMTV provirus integrates into the mammary epithelial cell genome during viral replication and activates cellular oncogene expression. Thus, mammary tumor induction is a by-product of the infection cycle.

Ross expanded her work several years ago to include MLV, which is "easier to work with in terms of studying susceptibility to infection," she said. One of the host antiviral gene families she studies is APOBEC3, which mutate viral DNA during replication. However, several members in the family have been implicated in a variety of human cancers, she said.

"We've made mice that express human versions of these genes, particularly APOBEC3A and APOBEC3B, and we're studying whether there is a higher incidence of cancer in these models," she said. The mice have also been sent to about a dozen laboratories throughout the world who are researching skin, lung and other cancers, Ross said.

Research Symposiums

MILE SQUARE HOSTS FIRST RESEARCH DAY

Mile Square Health Center opened its first neighborhood clinic in 1967 and has not stopped helping to keep all Chicagoans healthy.

On Sept. 10, 2018, the Mile Square Health Center Research Council hosted its first Mile Square Research Day – Research to Action Poster Session. Twelve research posters were presented from studies such as incidences of lung cancer screenings in high risk populations; findings from the working poor who are at the highest risk of work-related injuries and have limited access to occupational health care; and using patient navigation to inform determinants of breast cancer health disparities among under-resourced Chicago women.

A kick-off celebration was held prior to the poster session. Lisa Aponte-Soto, PhD, MHA, associate director of community engaged research for the Office of Community Based Practice, served as moderator. Robert Winn, MD, associate vice chancellor of community based practice, and Henry Taylor, Mile Square president and chief operating officer, opened the event by sharing welcome remarks, as well as sharing the history of Mile Square and the inception of the Research Council in 2014.

Karriem Watson, DHSc, MPH, MS, co-director of the Office of Community Engaged Research and Implementation Science, was the keynote speaker. Watson shared his experience as a Mile Square researcher.

A Federally Qualified Health Center (FQHC), Mile Square has health clinics in many Chicago neighborhoods to care for families at every stage of their life. Nearly 18,000 people are treated at the centers per year, whether they can afford it or not. Numerous healthcare services are offered at the centers, including pediatrics, mammography and urgent care, among others.

DR. GARY KRUH CANCER RESEARCH SYMPOSIUM A ROUSING SUCCESS

Nearly 200 people attended the first-ever Dr. Gary Kruh Cancer Research Symposium in May, and they learned from some of the nation's top cancer researchers. The event was sponsored by the University of Illinois Cancer Center and Philadelphia's Fox Chase Cancer Center.

Among the many speakers was Maxica Williams, a member of the UI Cancer Center's Patient Brigade who volunteers to assist those who are just like her: someone battling cancer for themselves or for someone they love. She discussed how the disease has affected her, her family and others.

Williams, from Chicago's Kenwood neighborhood, told those in attendance how cancer has robbed her of one of her most precious loves – her hair – but not of her will to live.

After losing 11 members of her family to the disease, Williams found herself battling breast cancer. "I'm fighting my battle for my children," Williams said. "My son is graduating from high school on May 30 and I have lived to see it."

Following the removal of both breasts and undergoing radiation therapy, Williams enrolled in a clinical trial at the UI Cancer Center. Her family was afraid for her, because they felt "I was going to be treated like a lab rat." She completed the clinical trial, and her survival showed her family how important it is so a cancer cure can one day be found, something she desperately wants to assist with, not only for herself but for others.

"I'm working with the Patient Brigade because it allows my voice to be heard by doctors and researchers like you," Williams said. "I want everyone to know I'm here to help."

In addition to the speakers, a student poster competition was held. Two winners from each category – Cancer Biology, Translational Oncology and Cancer Prevention and Control – were chosen by a panel of judges. Each winner received $500.

FEATURED SPEAKERS

Cory Abate-Shen, PhD
Herbert Irving Comprehensive Cancer Center
Columbia University Medical Center

Nestor F. Esnaola, MD, MPH, MBA, FACS
Fox Chase Cancer Center
Temple University

Kenneth D. Tew, PhD, DSc
Hollings Cancer Center
Medical University of South Carolina

Hayley Thompson, PhD
Karmanos Cancer Institute
Wayne State University School of Medicine

Grace X. Ma, PhD
Lewis Katz School of Medicine
Temple University

Maxica Williams
UI Cancer Center Patient Brigade Member

AACR American Association for Cancer Research

FINDING CURES TOGETHER®

AACR-MICR HEALTH DISPARITIES LECTURE

For the first time ever, the American Association for Cancer Research Minorities in Cancer Research Distinguished Lectureship Series on Cancer Health Disparities kicked-off (instead of ended) the American Association of Cancer Research annual meeting. On Friday, April 13, prior to the start of the AACR on Saturday at McCormick Place, the University of Illinois Cancer Center hosted *"From Bench to Community: Driving Innovative Cancer Research to Patient Care and Health Equity."*

The lecture was part of Friday's symposium highlighting innovative research targeting health disparities and inequities at the individual, healthcare, community, and policy levels. Integral to cancer health disparities research are the lived experiences of those impacted by cancer. The symposium offered the opportunity for faculty, students and community members to engage in bidirectional conversations, increasing awareness and understanding of how cancer research impacts the surrounding communities.

Among the presenters were: Robert A. Winn, MD, and Susan Hong, MD, of the UI Cancer Center; Candace Henley, survivor and Patient Brigade member, UI Cancer Center; and healthcare experts from George Washington University Cancer Center and Duke Cancer Institute, among others.

UI CANCER CENTER HOSTS SECOND ANNUAL TAPAS DAS GUPTA SEMINAR

FEATURED SPEAKERS

Cathy Bradley, PhD
University of Colorado
Comprehensive Cancer Center

Clifton David Fuller, MD, PhD
University of Texas
MD Anderson Cancer Center

Candace Henley
University of Illinois Cancer Center
Patient Brigade

Douglas Tyler, MD
University of Texas Medical Branch

Paula Vertino, PhD
Emory University School of Medicine

Ralph Weichselbaum, MD
The University of Chicago Medical Center

More than 150 people attended the 2nd Annual Tapas Das Gupta Cancer Research Seminar on Oct. 17, held at UIC's Student Center West.

Featured speakers for the event, titled *"A Tribute to Innovations in Transforming Cancer Care"*, were:

Das Gupta, MD, PhD, DSc, is professor emeritus of surgical oncology at the University of Illinois College of Medicine.

Seeing Beyond the Gene

The UI Cancer Center's Office of Community Engaged Research and Implementation Science (OCERIS) is a unique population health program that employs an evidence-based approach to community engagement. The OCERIS team carefully investigates the needs of our community members and develops services and research responsive to those needs. Patients are then navigated to those services to ensure positive health outcomes.

Karriem Watson, DSHc, MPH, MS

Co-Director, Office of Community Engaged Research and Implementation Science

Kathy Tossas-Milligan, PhD, MS

Co-Director, Office of Community Engaged Research and Implementation Science

CHER Chicago Addressing Structural Violence in Chicago

The new Center for Health Equity Research (CHER Chicago) was formally launched in January at an event at the National Museum of Mexican Art, and Dr. Robert Winn, director of the University of Illinois Cancer Center and one of three principal investigators on the new program, told those in attendance that he wants to learn how "we can go beyond community engagement and move toward community involvement."

"How can we at UIC, as your public institution, do a better job for those in need? How can we do things differently?"

UIC received a $6.75 million grant from the National Institutes of Health to establish CHER Chicago to investigate how various social structures and determinants contribute to the health of marginalized groups. Under the direction of Monica Garcia Norlander, CHER Chicago will initially focus on three research projects: how colorectal cancer risk in the black community correlates to experiences of racism; the relationship between stress due to racial discrimination and cardiovascular disease outcomes in Latino families; and examine the factors associated with mental health disparities among Asian immigrant populations.

Dr. Steven Meeks, chief of health services at the Illinois Department of Corrections, served as keynote speaker for the event, and he said there are five key elements to address for the new program to be successful.

"Be diligent – have compelling data and rigorous analysis; be collaborative by bringing others along and engage them; be inclusive, as people who are impacted know best; be bold; and be relentless and tell the untold stories," he said.

Along with Winn, principal investigators on the grant include Martha Daviglus, MD, UIC professor of medicine, associate vice chancellor for research, and executive director of the Institute for Minority Health Research; and Jesus Ramirez-Valles, professor and director of Community Health Sciences, UIC School of Public Health.

ChicagoCHEC

The Chicago Cancer Health Equity Collaborative, or ChicagoCHEC, is continually searching for ways to improve health outcomes among Chicago's underserved communities.

The program, a National Cancer Institute (NCI)-funded partnership between the University of Illinois at Chicago (UIC), the Robert H. Lurie Comprehensive Cancer Center of Northwestern University (NU), and Northeastern Illinois University (NEIU), initiated in 2015, strives to advance cancer health equity through meaningful scientific discovery, education and training, and community engagement.

Throughout 2018, ChicagoCHEC participated in Cervical Health Month in January, joined in UIC's Intern & Part-Time Job Fair to recruit future research fellows, assisted in a colorectal awareness event at the Friend Family Health Center on Chicago's South Side, and joined community partners for the 10th Annual Cancer Survivor's Celebration Walk & 5K. Among many other activities, ChicagoCHEC participated in Fiesta del Sol in Pilsen, the Avondale Health Fair, and HopeFest with New Life Covenant in Humboldt Park.

ChicagoCHEC is committed to educating, training, mentoring and supporting a diverse workforce that includes students (undergraduates and college graduates), early stage investigators, junior faculty members, researchers and health care professionals. A Research Fellows program is available to students interested in pursuing a career focused on the development of academic, technical, and professional skills in preparation for careers in social, behavioral and biomedical research in healthcare.

More than 100 applications were received from students to participate in the 2018 summer program. Seventeen students (and three returning Senior Research Fellows) were selected for the eight week program, at which time fellows met with leading scholars in basic, clinical, translational, prevention, control, behavioral and population research. The students were also divided into four teams to conduct a research project, after which they presented their findings at a symposium.

One team proposed developing a comprehensive population-based approach through prevention, policy and cessation to aid the reduction of tobacco use in the lesbian, gay, bisexual and transgender (LGBT) communities. A second program recommended initiating a culturally-competent intervention to improve the health-related quality of life (HRQoL) of African-American women in breast cancer remission by offering classes on relative health and nutritional literacy.

A third research project evaluated and determined whether community partners, specifically the Puerto Rican Cultural Center, can better address the incidence of HPV (human papillomavirus)-related cancers, such as oropharyngeal and anal cancers. The final project focused on why sex workers are 30 percent more likely to contract cervical cancer than the average population. Students hypothesized that the proper interventions to address HPV and other sexually transmitted diseases (STDs) will reduce the rates of high-risk communities impacted by cervical cancer and incidences.

Past fellows are working towards obtaining their PhDs, attending medical school, pursuing a master's degree in occupational therapy, completing nursing school and working as an analyst at insurance company Aetna, among others.

Patient Brigade aiding UI Cancer Center with new PCORI contract

COLORECTAL CANCER TOOK CANDACE HENLEY'S HOME, HER CAR AND HER JOB. BUT IT DIDN'T TAKE HER LIFE.

A 15-year cancer survivor, Henley made a promise to God that if she overcame her battle with the disease she would help others navigate a healthcare system that at times she felt was overwhelming. As co-leader of the University of Illinois Cancer Center's Patient Brigade, Henley is assisting the organization on a new Patient-Centered Outcomes Research Institute contract (PCORI, number 10629) that will develop learning tools to ensure that patient's/survivor's play an integral role in the Cancer Center's strategic research development.

"Underserved communities in Chicago carry some of the greatest cancer burdens," said Vida Henderson, PhD, PharmD, MPH, research scientist at the UI Cancer Center, who along with Karriem Watson, DHSc, MS, MPH, and Susan Hong, MD, MPH, are co-leaders of the project. "Having an active voice in all phases of research is a key factor to ensuring not only diversity and inclusiveness in clinical trials, but also in expanding the research of cutting edge cancer finders.

"Knowing this, there is a lack of best practices in training and patient stakeholder engagement."

Comprised of about a dozen cancer survivors, family of, or supporters of survivors, the Patient Brigade was created to reflect the diverse ethnic, cultural and socioeconomic groups in the Chicago area. Guided by principles of community-based participatory research (CBPR) and PCOR, the Patient Brigade was the inspiration of Patient Advocate Stephanie Carter-Logan, a three-time cancer survivor who received her care at the UI Cancer Center.

PCORI is an independent, non-profit organization authorized by Congress in 2010 to fund comparative effectiveness research that will provide patients, their caregivers, and clinicians with the evidence needed to make better-informed health and healthcare decisions. PCORI is committed to seeking input from a broad range of stakeholders to guide its work.

During the two-year contract - the UI Cancer Center will receive nearly $250,000 in that time - UI Cancer Center researchers and Patient Brigade members will share information as to the areas of research the center should focus on, how to best engage communities in the center's research, and how to disseminate the information into the communities the UI Cancer Center serves. The information will be used to develop a training toolkit for communities, advocates and researchers as a resource for best practices in conducting community engaged research and working with community members to guide strategic planning of cancer centers.

"This project was selected for Engagement Award funding because it will build a community equipped to participate as partners in community engaged research and develop partnerships and infrastructure to disseminate PCORI-funded research results," said Jean Slutsky, PCORI's chief engagement and dissemination officer. "We look forward to working with the University of Illinois Cancer Center throughout the course of their two-year project."

Colorectal cancer is the third most common cancer in men and women in the United States. Sometimes abnormal growths, called polyps, form in the colon or rectum. Over time, some polyps may turn into cancer. Screening tests can locate polyps so they can be removed before turning into cancer. The tests may also help find colorectal cancer at an early stage, when treatment often leads to a cure.

2018-2019 UI CANCER CENTER PATIENT BRIGADE

Candace Henley

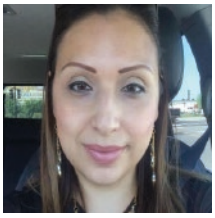
Joanne Glenn, RN, MBA

Carol Gyimatey

Tonya Roberson

Phyllis Rodgers

Kimberly Richardson



Ruth Pena

Rosemarie Rogers

Elizabeth Rivera

The Timothy Francis Jones Foundation

Russell Hopkins

Maxica Williams

UIC 3-ON-3
BASKETBALL TOURNAMENT

Congratulations to *"The Heat"* for winning the Third Annual Ballin' for Health 3-on-3 basketball tournament, held Nov. 18 at the UIC Student Recreation Facility. *"The Heat"* defeated *"Don't Quit Your Day Job"* in the finals. Michael Abern, MD, UI Cancer Center member and assistant professor of urology and director of urologic oncology in the UI College of Medicine, spearheaded the event. UI Cancer Center Director Robert Winn, MD, opened the one-day event by discussing men's health issues with those in attendance. The tournament was sponsored by the College of Medicine's urology department, UI Health Urology and the UI Cancer Center.

WVON 1690 Dr. In The House With Dr. Terry Mason

Every 1st Sunday of the month, UI Cancer Center Director and Associate Vice Chancellor of Community Based Practice, Robert A. Winn, MD and Associate Director of Community Outreach and Engagement, Karriem S. Watson, DSHc, MPH, MS co-host the WVON 1690 AM show *"Doctor in the House"* with Dr. Terry Mason. The highly successful radio show has aired for 25 years.

During this hour the group disseminates information on cancer screening and ground breaking research.

2018 TOPICS INCLUDED:

UI Health Mile Square Health Center: Addressing Health Needs for the South Shore Community

Precision Medicine: Know Your Family History

Colorectal Cancer Month

All of Us Research Program and Precision Medicine

I'm Sick and Tired of Being Sick and Tired

Getting Ready for Back to School: Cancer Center Recommendations

The Holiday Blues: Mental Health, Prevention and Maintenance

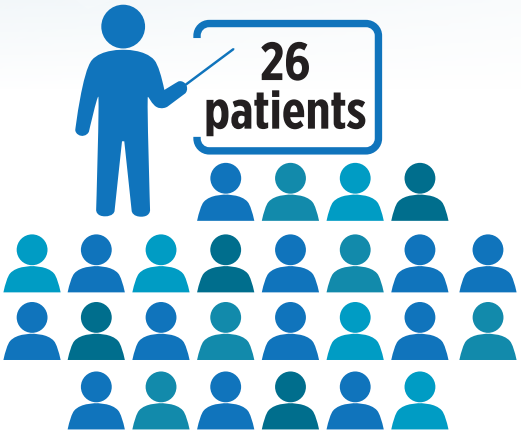
Cancer Screenings

OCERIS provides patients from underserved communities with education on prevention and navigation to cancer screenings that can lead to the identification of early stage diagnoses that may have otherwise been missed. Evidence-based research identified four types of cancer disproportionately present in our service area: **colorectal, breast, lung and prostate.**

No Cost Colorectal Cancer Screenings

Colon cancer remains one of the most common cancers in the U.S. It can be deadly when found in its late stages, but it can often be cured if discovered early.

In 2018, we provided

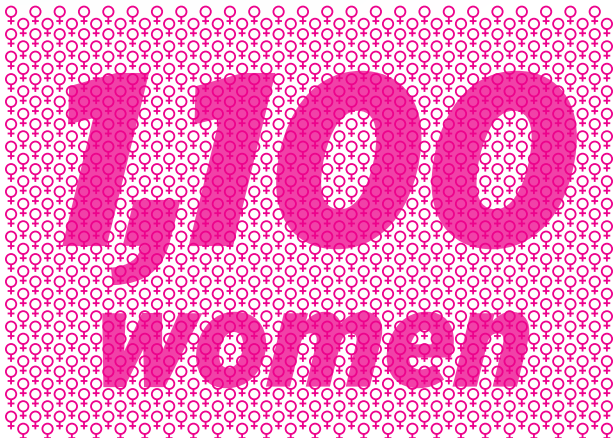


with education, screening, and FIT Test Pilot Program

Low-to-No-Cost Mammogram Program

In Chicago, African American women die from breast cancer more than twice as much as white women despite improved survival rates for women nationally. A screening mammogram is recommended annually for women who are 40 years or older, or for younger women with specific risk factors for breast cancer.

In 2018, we screened

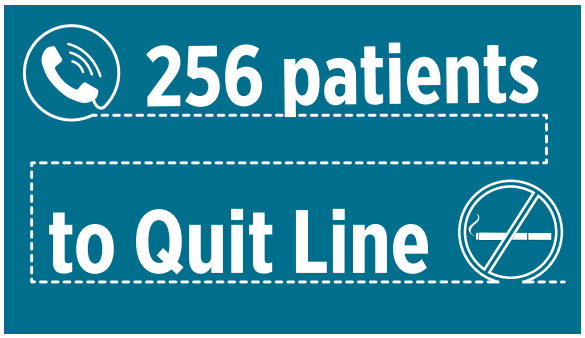


for breast cancer.

Smoking Cessation

Quitting smoking lowers the risks for cancers of the lung, mouth, throat, esophagus and larynx. According to the American Cancer Society, if nobody smoked, one of every three cancer deaths in the United States would not happen.

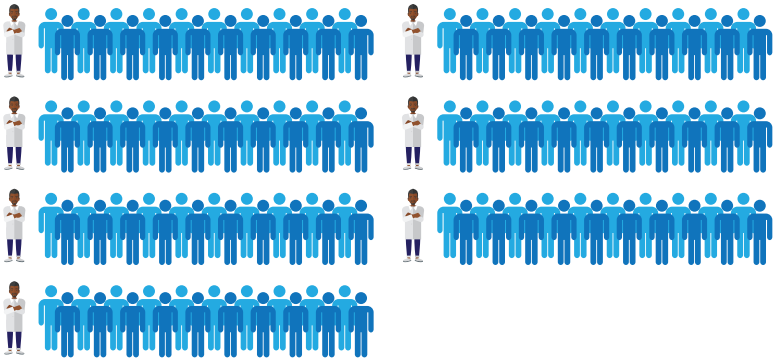
In 2018 we referred



Prostate Research

The goal of screening for prostate cancer is to find cancers that may be at high risk for spreading if not treated, and to find them early before they spread. Prostate cancer is the most common cancer among men (after skin cancer), and it is often treated successfully.

In 2018 we recruited 7 African American citizen scientists who navigated 138 men for prostate cancer screening



Education and Training

We believe it is critical to increase the number of underrepresented high school and college students who pursue cancer research as a potential career field. By increasing the number of underrepresented minorities interested in oncology research, we hope to impact how disparities in cancer are understood.

Paul Grippo, PhD

Associate Director,
Career Enhancement and Education

Education Aims

Aim 1: Coordinate biomedical science experiences for high school and undergraduate students, notably among underrepresented minorities, with an emphasis in cancer

Aim 2: Expand formal cancer research curricula and training for UI Cancer Center-based pre-and postdoctoral trainees across the basic, clinical, and population sciences

Aim 3: Facilitate career enhancement activities for early stage investigators and faculty at all levels to promote independence as cancer researchers or physician scientists

Aim 4: Establish CME and research training opportunities for community-based healthcare providers within the UIC's 11 FQHCs and other community partners

GUIDE Project

The UI Cancer Center is partnering with Governors State University on a $1.5 million National Cancer Institute initiative, the GUIDE Project, which will prepare college students and junior faculty for careers in cancer disparities research by equipping them with the skills and abilities to respond to the rapidly-changing landscape of health inequities in Chicago's south side and growing south suburban and rural communities.

researcHStart

Through the researcHStart program, a partnership with the University of Chicago, Northwestern University, and the University of Illinois Urbana-Champaign, we introduce students to cancer research to promote career opportunities in the field and help students gain knowledge in biophysics, biochemistry, immunology, and pharmacology.

ChicagoCHEC

The ChicagoCHEC (Chicago Cancer Health Equity Collaborative) Research Fellows program is a comprehensive summer learning experience for undergraduate and post baccalaureate students from Northeastern Illinois University, University of Illinois at Chicago, Northwestern University, the City Colleges of Chicago, and other community colleges in the Chicago metropolitan area who are planning to apply to graduate or medical school.

Education and Training

GENETIC TESTING THE STAR OF UI CANCER CENTER FILM

The Academy Award's best animated short film category will not include the movie Kaylan Norise is helping develop, but that's not her goal. She wants it to save lives.

Kaylan Norise

Norise, a senior at Governors State University who was selected to participate in the 2017 GUIDE Summer Scholars program, is assisting University of Illinois Cancer Center member Dr. Kent Hoskins and research scientist Vida Henderson in producing a four-minute video encouraging African American women to undergo genetic counseling to learn if they are predisposed to breast cancer. Patients can view the educational video on iPad's or download it to their phone while waiting for their appointment.

"African American women who live on the south and west sides of Chicago suffer disproportionate mortality rates from breast cancer compared to women residing in other areas," said Norise, who is majoring in Interdisciplinary Studies with an emphasis in chemistry. "Providing genetic counseling to African American women with a family history of breast cancer may prove to be an effective strategy in mitigating breast cancer mortality rates."

Genetic counseling and testing may be recommended for people who have had certain cancers or certain patterns of cancer in their family, said the American Cancer Society. It should be considered for individuals who have several first-degree relatives (mother, father, sisters, brothers, children) with cancer; many relatives on one side of the family who have had the same type of cancer; a cluster of cancers in a family that are known to be linked to a single gene mutation (breast, ovarian, pancreatic); a family member with more than one type of cancer; ethnicity; and a known genetic mutation in one or more family member who have already had genetic testing.

The P20-CA202908 GUIDE Cancer Research Training Project is a collaborative initiative between Governors State and the UI Cancer Center. It will enhance the capacity of both institutions to conduct research to understand and reduce local cancer disparities and their determinants.

During her fellowship, Norise aided Henderson, PhD, PharmD, MPH, MFA, research scientist in the UI Cancer Center's Office of Community Engaged Research and Implementation Science, and Hoskins, MD, associate professor of medicine in the Division of Hematology/Oncology at the UI College of Medicine, in conducting focus groups to learn why African American women may or may not pursue genetic counseling. Twenty women who were recommended for genetic counseling by their doctor but failed to attend the appointment were recruited for the interviews, which met their goal, Norise said.

"We learned that the women lacked knowledge about what genetic counseling is, and many thought it is often combined with receiving a breast cancer diagnosis," Norise said. "They also felt there were barriers navigating the health care system; keeping breast cancer a secret within their family; and having fatalistic spiritual beliefs.

"The women desired more education about breast cancer and genetic counseling and believed that increased awareness would generate more women getting counseling. Once our video is finished and distributed we hope that is the case."

Two actors discuss genetic counseling in a new educational video produced by the UI Cancer Center.

See the completed video on our website at:
cancer.uillinois.edu/genetic-counseling-video

Quality Care for Every Patient

At the University of Illinois Cancer Center we are keenly aware that advances in cancer research requires cooperation between patients, caregivers, and community leaders to bring us closer to a cure. We remain dedicated to providing promising new therapies for ALL patients.

Clinical Trials

Romana Bahena was uncertain why she felt well.

For the past three years, Bahena has been battling a metastatic pancreatic neuroendocrine tumor (PNET), a disease with only a 15 percent survival rate at five years. Was the new medication she was taking really working? She didn't know. What she does know is that the clinical trial she is enrolled in at the University of Illinois Cancer Center has given her her life back.

Bahena began experiencing lower back pain in the fall of 2015. She initially believed the discomfort was due to her physical work caring for the elderly. With the pain becoming intolerable, she went to her doctor, who discovered a baseball-sized tumor growing near her spleen.

"I couldn't believe I had cancer," said Bahena, who came to the United States more than five years ago from her hometown in Monterrey, Mexico. "There's no history of it in my family."

In January 2016, Bahena presented with symptoms of pancreatitis, and was found to have a pancreatic tail lesion, as well as liver lesions. She underwent surgery at Advocate Illinois Masonic Medical Center to remove her tumors along with her spleen. The day following her release from the hospital, Bahena felt a throbbing pain in her abdomen, which was due to an infection. After spending the next two weeks in the hospital, she returned home to continue her treatments. Bahena began regaining her strength and felt well enough to return to work in April 2016.

Although all visible disease was removed at the time of her surgery, Bahena's cancer reoccurred in the fall of 2017. The disease began spreading to her lungs and liver. The medical staff at Masonic told her there was nothing more they could do, giving her a 10 percent chance of survival. She was then referred to UI Cancer Center member Ajay Maker, MD, a surgical oncologist at the University of Illinois Hospital and Health Sciences System.

Maker referred Bahena to UI Cancer Center member Rozina Chowdhery, MD, after her cancer had progressed on two lines of therapy. Bahena initially began taking sunitinib, but the cancer progressed after six cycles (six months). She then started an immunotherapy trial, but again the cancer progressed after four cycles (two months), Chowdhery said.

"Romana always looked great and continued to work throughout her treatment," Chowdhery said. "She had minimal toxicities with either therapy and was a model trial patient, bringing her notebook to each appointment that documented the timeline and severity of all side effects she experienced."

Bahena is now enrolled in a Phase I trial (STM-03) of a novel oral chemotherapy drug called PAC-1. She takes one pill daily for three weeks and then gets one week off. She has a scan every two months to assess her response.

"Romana's tolerated the treatment very well," Chowdhery said. "Her last scan showed a remarkable 60 percent reduction in her overall tumor burden from baseline, or six months of treatment. She's doing fantastic."

CLINICAL TRIALS HIGHLIGHTS FROM 2018

2018 was a productive year for the Clinical Trials Office. Here are some highlights of our accomplishments:

- Reorganized personnel to more efficiently manage studies
- Centralized and redesigned study start-up processes
- Created and trained all CTO personnel on Standard Operating Procedures
- Developed a comprehensive clinical research training program for UI Cancer Center personnel
- Implemented a Quality Assurance Audit Program
- Created disease teams
- Collaborated with the Protocol Review Committee to substantially revise their policy
- Increased accrual in treatment studies by 100% (87 in 2018 versus 43 in 2017), making 2018 the all-time high.
- Decreased time to activation by 25%

Quality Care for Every Patient

BREAST CANCER TASK FORCE BESTOWS AWARD ON UI HEALTH, UIC

The Metropolitan Chicago Breast Cancer Task Force honored the University of Illinois Hospital & Health Sciences System and the University of Illinois at Chicago with its Healthcare Provider Champion Award at its Celebrating Life Gala held on Thursday, June 21 at Chicago's Fairmont Hotel.

Michael Zenn (left), CEO, UI Health, and Eileen Knightly, RN BSN, MHA

"UI Health is a patient-centered organization that believes providing safe, high-quality, and cost-effective care for patients is our foremost responsibility," said Eileen Knightly, director of UI Health's hematology/oncology clinic who presented the award to Michael Zenn, chief executive officer of UI Health. "UI Health's mission is to advance healthcare, to improve the health of patients and communities, promote health equity, and develop the next generations of healthcare leaders."

Knightly, RN, BSN, MHA, is a founding member of the Task Force and currently serves as the executive board's vice president.

In accepting the award, Zenn said "this was a combined effort with very strong support from many of our UI Health and UIC staff deeply involved."

Over the past nine years, many UIC health care professionals have played an integral role in conducting research on cancer disparities. Beyond research, UI Health has been committed to making improvements in "our own system so as to improve access to high quality healthcare for women here in Chicago," Zenn told those in attendance.

"We joined the Task Force's incredibly important project, the Chicago Breast Cancer Quality Consortium, to share our data and provide our expertise so that we could contribute to the improvement of breast care quality across the city."

UI Health has also donated hundreds of screening and diagnostic mammograms to the Task Force's *"Beyond October"* program for uninsured women, Zenn said.

"We are proud of our partnership with the Task Force, working together to understand the root causes of this disparity and to follow the data to develop solutions that work in a practical sense to make our healthcare system better," Zenn said. "Every woman deserves an equal chance at survival from breast cancer. The Task Force works with all of us in this room and all across Metro Chicago to make that goal a reality.

"It is a shared goal for UI Health, UIC and the Task Force and we will continue it until the job is done and every woman does, in reality, have an equal chance at survival."

FORMER UI CANCER CENTER DIRECTOR DR. HOWARD OZER DIES

Howard Ozer, MD, PhD, former University of Illinois Cancer Center director, Eileen Lindsay Heidrick Professor of Oncology and hematology/oncology division chief at the University of Illinois College of Medicine, died on Friday, April 6.

Throughout his distinguished career in hematology/oncology, Dr. Ozer served in leadership roles in multiple prestigious institutions, participated in innumerable clinical trials and was published in journals with the highest impact factors, as well as securing a vast amount of research funding and trained many young investigators. Dr. Ozer served as director of the UI Cancer Center from 2012-2014. Dr. Robert Winn, who followed Dr. Ozer as director, said his colleague performed his duties "admirably in a tumultuous time.

Howard Ozer, MD, PhD

"Under Howard's leadership, the University of Illinois Cancer Center experienced tremendous growth and forward progression," Winn said. "We are honored to continue to work towards improving cancer outcomes, building on the foundation that was laid during Howard's tenure. The UI Cancer Center would like to express our deepest condolences to Howard's family, colleagues and loves ones. His memory and the legacy of his work will remain an important part of the UI Cancer Center's history."

In 2017, Dr. Ozer was named a Fellow of the American Society of Clinical Oncology (ASCO) for his dedication and service to the field of cancer. When he accepted the award, Dr. Ozer said, "In my 37 years in oncology and hematology, I've been able to witness and participate in clinical trials that cure and ameliorate many different kinds of tumors, and save many patients' lives. To be recognized in this fashion by the American Society of Clinical Oncology whose membership was responsible for so many of these advances is truly an honor."

Prior to joining UIC as chief of the division of hematology/oncology from 2010-2012, and then director of the UI Cancer Center from 2012-2014, Dr. Ozer served as division chief of medical oncology at the University of North Carolina, Chapel Hill, N.C.; chairman and director of the Winship Cancer Center, Emory University School of Medicine, Atlanta; director of the Cancer Center of MCP Hahnemann University, Philadelphia; and chief of the section of hematology/oncology and director of the University of Oklahoma (UO) Cancer Center, Norman, Okla. He obtained his medical degree and PhD from Yale University and performed his residency at Massachusetts General Hospital in Boston.

"Dr. Ozer's passion for research and clinical studies made him also a senior leader of the Gastro-Intestinal Cancer Working Group at UIC and the director of the UI Health Tumor Registry," said Dr. Patricia Finn, Earl M. Bane Professor, head of the Department of Medicine.

"Howard was a great colleague. Always smiling, willing to collaborate and also to share his passion for Africa and hunting.
He will be sincerely missed."

Cancer Survivorship

An estimated 15.5 million Americans are cancer survivors, but they haven't beaten the disease alone.

The UI Cancer Center is establishing a comprehensive multidisciplinary survivorship program that not only meets the clinical care, research, and education needs of our diverse patient population, but also sets the standard by which other programs will be judged.

BEATING CANCER IS A TEAM EFFORT

It takes a concerted effort to survive cancer, and a new program developed at the University of Illinois Cancer Center is providing patients with the resources they need to help them continue living a full life.

Susan Hong, MD, MPH, FACP

"Survivorship begins at the time of cancer diagnosis," said Dr. Susan Hong, director of the Cancer Center's Adult Cancer Survivorship Program. "Just because the cancer has been cured doesn't mean people are left in perfect health. There's a lot of fallout, not just with patients but for family members, friends, and others."

The survivorship clinic is housed within Mile Square Health Center, 1220 S. Wood St., a federally qualified health center. Any adult diagnosed with cancer with their primary care physician at Mile Square or who are treated at University of Illinois Health Science System are eligible to receive care in the survivorship program. The aim of the survivorship clinic is to coordinate care between the cancer specialist and primary care physician to ensure that all aspects of a cancer survivor's health needs are met.

The survivorship program contains numerous components: screening for recurrent and new cancers; assessing for the medical and psychosocial late effects, as well as the intervention for the consequences of cancer and its treatment; and the coordination of care between specialists and primary care providers.

Navigating life can be difficult for cancer survivors, as they face numerous challenges. Depression affects between 15 to 25 percent of survivors, and the disease causes many survivors to make changes in their employment, causing stress. Survivors also confront pain, limitations in activity, and poor general health.

Treatment-related side effects also hinder a survivor's health – many are poorly understood and can occur years after therapy is completed, Hong said. Cancer survivors have an increased risk for other health effects, including increased risk for second cancers and other chronic health conditions such as diabetes and hypertension. Survivorship care is needed because traditional medical care for cancer survivors has been fragmented and poorly coordinated with both survivors and health care providers confused about who is delivering which aspects of care.

"The Adult Survivorship Program is more than a clinical program," Hong said. "We are passionate about the research and education missions of the university. Through research, we are trying to gain a better understanding of the health issues faced by cancer survivors. Our hope is to intervene early to prevent or minimize the long-term health impacts of cancer and cancer treatments."

Cancer Survivorship

TO GOLDBERG, CANCER HAD A SILVER LINING

Sandy Goldberg will never forget her mother, Evelyn. Neither will thousands of other women.

Women entering the mammography clinic at the University of Illinois Hospital & Health Sciences System (UI Health) are greeted by a plaque and photograph of the late Evelyn Goldberg. They may not be aware of who she is, but Evelyn Goldberg taught her daughter Sandy, a Chicago television personality and clinical nutritionist, to help others, and through a partnership with Sandy Goldberg's A Silver Lining Foundation, the center has assisted socioeconomically disadvantaged women receive free mammograms and other testing for breast health. The hospital renamed the clinic in 2012 to honor Evelyn Goldberg.

Sandy Goldberg, MS, PhD

"My mother would always say there's a silver lining no matter how dire the circumstances," said Goldberg, a breast cancer survivor who along with Susan Hong, MD, director of the University of Illinois Cancer Center survivorship program, and Freddie White-Johnson, MPPA, president and founder of the Fannie Lou Hamer Cancer Foundation, served on last week's panel discussion at the Life After Cancer Event that celebrated National Cancer Survivors Day. "My mother and I were extremely close, and I really came to realize her impact in my life after I was diagnosed."

That diagnosis came in 2000, said Goldberg, who still retains the exact day in her memory – 18 years and 11 days ago as of Friday. After her physician said the word cancer, "I felt like I was hit by a bus." Two days after the diagnosis she underwent surgery for breast cancer. During her recovery she not only spent a great deal of time thinking about her own health, but that of others.

Having served as a nutrition expert on NBC television for more than 20 years, Goldberg was known throughout Chicago, and she felt she could use that medium to share cancer information with a TV audience. She began hosting a television program with cancer experts as guests, inviting cancer patients to call in to ask questions. It was well-received, but Goldberg thought bigger.

A Silver Lining Foundation was initiated by Goldberg and her husband, Greg Hines, in 2003, a non-profit organization "to ensure dignified, respectful and equal access to quality cancer education and services for all, by creating meaningful partnerships with community, advocacy and healthcare organizations," says the foundation's mission. UI Health was an early partner of A Silver Lining Foundation.

In 2006, the foundation established its *Buy Mom a Mammogram* program at UI Health, providing free screening mammograms and other diagnostic testing for uninsured and underinsured women and men. Today, 14 other healthcare organizations have joined UI Health in participating in the program, helping more than 20,000 women (and men). In 2017, funding was provided for 2,593 procedures for 2,015 women, accounting for 24 breast cancer diagnoses.

Earlier this year, A Silver Lining Foundation raised $40,000 at its fourth annual Glitz & Glamour fashion show and luncheon to further support the mammogram program.

When Goldberg began the foundation 15 years ago, she never dreamt it would help as many individuals as it has. But she knows one person who would be happy with her work.

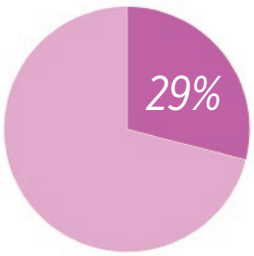
"I know my mother is smiling and it fills me with such joy," Goldberg said. "Having the mammography center named after my mother is an honor and a testament to her philosophy of life: We are family and we have to help each other through the tough times."

Cancer IQ

Launched in February 2018, Cancer IQ is an online screening tool that can identify a patient's cancer risk. The program allows researchers to focus more time on analyzing data than gathering it from scratch, and contains tools designed for training genetic specialists, including test-ordering features and post-appointment documentation. The program improves patient adherence to personalized cancer prevention and survivorship plans, and provides patients with tailored educational content that they can access anywhere there's a computer.

In 2018 we screened 3,251 women to determine if they required advanced genetic testing.

More than a quarter were recommended for additional tests.



Rockford-Peoria Regional Programs

The University of Illinois Cancer Center reaches outside of Chicago, as scientists in regional programs in Rockford and Peoria play an integral role in conducting groundbreaking research.

Located 88 miles northwest of Chicago, the Rockford campus houses the Center for Rural Health Professions, which works to improve health and healthcare in rural communities. The Center develops collaborative projects involving multiple health professions and emphasizes recruitment, retention and health care delivery initiatives that will positively impact the health and well-being of both rural residents and their communities.

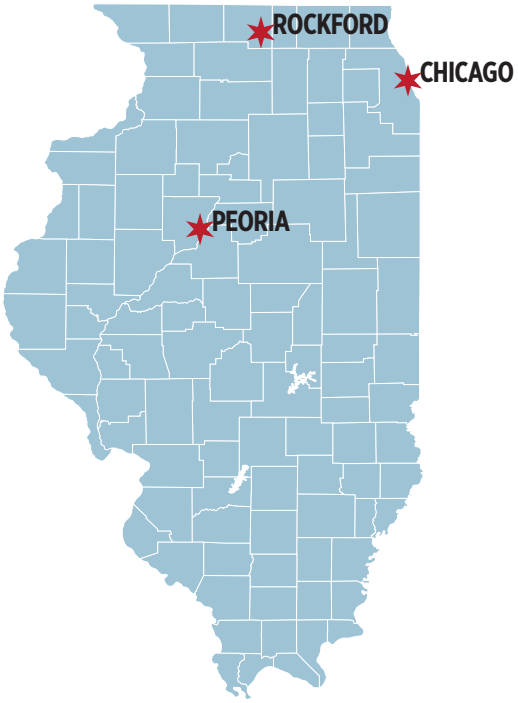
John Nitiss, PhD

Led by John Nitiss, professor of biopharmaceutical sciences and assistant dean of research, the campuses world-class researchers secured federal funding for numerous projects, among them targeting TCTP (translationally controlled tumour protein) signaling in castration-resistant prostate cancer; dietary management of castration-resistant prostate cancer; and developing novel approaches for studying topoisomerase 2 targeting anti-cancer drugs.

In addition, Rockford scientists published their latest research in numerous peer-reviewed journals, including Molecular Cell; DNA Repair; Methods of Molecular Biology; and Cancers, to name a few. Nitiss was also one of two UIC scholars to have been named a fellow of the American Association for the Advancement of Science this year.

Marcelo Bento Soares, PhD

In Peoria, located 165 miles southwest of Chicago, researchers led by Bento Soares, PhD, focus on a variety of cancers – brain (glioblastoma, medulloblastoma, meningioma and neuroblastoma), pancreatic cancer, prostate cancer, and leukemia. Within Peoria's Cancer Research Center, scientists are exploring the invasive characteristics of malignant tumor cells that infiltrate normal tissue and cause the tumor to recur, and multi-faceted alternative strategies have been developed with a focus on gene therapy, among other studies.



ILLINOIS

In 2018, Peoria scientists presented their work at numerous conferences – the 23rd World Congress on Advances in Oncology and 22nd International Symposium on Molecular Medicine and the annual Biophysical Society, among others – and published their work in such journals as Oncology Letters, Oncotarget, American Journal of Cancer Research, and Methods in Molecular Biology. Numerous grants were also secured from funding agencies such as the McElroy Charitable Foundation and the Theresa Tracy Foundation. Patents were also submitted on research projects.

"It's a good time to be a critical care doctor," said Dr. Robert Winn, director of the UI Cancer Center. "We're building something here from the ground up. And I think it's a really good time to be working together. We want to build a relationship in Peoria and Rockford and continue to move forward in our pursuit of receiving NCI designation. We're excited about this opportunity to collaborate."

cancer.uillinois.edu (312) 413-5598