

Cancer CONNECTION

A PUBLICATION OF THE HAROLD C. SIMMONS COMPREHENSIVE CANCER CENTER

FROM THE DIRECTOR | *Dr. James Willson*



DEAR FRIENDS FOR COMPREHENSIVE CANCER CARE AND RESEARCH,

Warm greetings to all our Friends. I am so glad that you are on our team. As a Friend, I know that you appreciate the teamwork approach we bring to providing state-of-the-art cancer care. In this newsletter, we feature our program in radiation oncology, led by Dr. Hak Choy.

I have written previously about the Simmons Cancer Center as a powerhouse research and cancer treatment center – emphasizing translation of discovery into research, and then into patient care and cancer prevention. This issue takes an in-depth look at this dynamic in action, featuring Dr. Choy, the Department of Radiation Oncology, and the amazing work of Dr. Robert Timmerman and Dr. David Chen.

You might be aware of the W. A. Monty and Tex Moncrief Radiation Oncology Building, a facility located on UT Southwestern Medical Center's North Campus that provides the latest advances in cancer treatment. But you might not yet be familiar with the stereotactic body radiation therapy (SBRT) available there

and at specialized facilities within UT Southwestern University Hospitals. After reading the lead newsletter article, I think you will be as awed as I am by this new and exciting cancer treatment.

The pinpoint precision of SBRT offers patients more powerful therapy options and the promise of better outcomes.

In addition to developing new technologies such as SBRT, you'll see that Dr. Choy and his team have access to all the most modern equipment available, not just the one or two machines typically available at other clinics. Cancer experts here select the optimal radiation therapy for each and every patient. Another behind-the-scenes component of this care is the support of 12 physicists who ensure that the equipment is precisely tuned and who collaborate with the physician team to design custom treatment plans.

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STEREOTACTIC RADIATION THERAPY: LEADING- EDGE TREATMENT FOR CANCER PATIENTS

Investigators at the Harold C. Simmons Comprehensive Cancer Center are tackling the challenge of improving radiation therapy from multiple directions – both from inside the body and out.

From the inside, researchers in the center's DNA Repair and Radiation Oncology Program are peering into tumor and normal cells to understand better how to make tumors more vulnerable to radiation while protecting normal tissue (see *Research Focus*, page 7).

From outside the body, investigators are reshaping how radiation itself is delivered. They are continually testing ways to improve and expand the use of a high-dose radiation therapy pioneered at UT Southwestern Medical Center.

This leading-edge technique, known as stereotactic body radiation therapy, or SBRT, involves administering highly focused

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Physician Profile



Dr. Robert Timmerman
*Professor of Radiation Oncology
and Neurological Surgery*

Nuclear engineering and cancer medicine might seem worlds apart, but combining knowledge from those two fields has led Dr. Robert Timmerman to pioneer ways to minimize the side effects of radiation treatment and improve patients' lives.

After graduating from Iowa State University with a bachelor's degree in nuclear engineering, and from the University of Tennessee in Knoxville with a master's degree in reactor physics, Dr. Timmerman worked as a nuclear scientist at the Oak Ridge National Laboratory.

As jobs in the nuclear power industry dwindled, he turned to medical school, where he complemented his knowledge in physics with research in medicine. That combination has proven to be successful on both the research and patient-care fronts at the Simmons Cancer Center.

Dr. Timmerman, vice chairman of radiation oncology and professor of neurological surgery at UT Southwestern, is considered one of the top international

experts on stereotactic radiosurgery. This noninvasive, innovative technique concentrates high doses of radiation directly on tumors that would be especially hard to reach using traditional surgery.

"My affiliation with physics has been very helpful," Dr. Timmerman said. "The next phase of our work is to help encourage physicists and biologists to work together to make radiation treatment more complementary and personalized."

After finishing medical school at the University of South Dakota – in his home state – he completed a residency in radiation oncology at The Johns Hopkins Hospital. While on the faculty of the radiation oncology department at Indiana University School of Medicine, he focused on the treatment of adult and pediatric patients with brain tumors.

Recruited to UT Southwestern in 2004, Dr. Timmerman is helping build a program that offers treatments with the latest advanced radiation therapy equipment, including the Gamma Knife and CyberKnife for brain radiosurgery, and several image-guided radiation systems for lung, liver, spine and prostate cancer treatment.

"The sophisticated treatments we offer require very expensive machinery and many well-trained support staff," Dr. Timmerman said. "I came to UT Southwestern because Dr. Hak Choy, chairman of radiation oncology, and the Simmons Cancer Center leadership delivered what was necessary for success."

Currently, he is leading national clinical trials in lung and prostate cancer. The U.S. Department of Defense funded a prostate trial to test a noninvasive method of targeting prostate tumors with focused doses of high radiation. The

LEADERSHIP

AT THE HAROLD C. SIMMONS
COMPREHENSIVE CANCER CENTER

James K.V. Willson, M.D., *director; associate dean for oncology programs; Lisa K. Simmons Distinguished Chair in Comprehensive Oncology*

Joan H. Schiller, M.D., *deputy director; chief of hematology/oncology; Andrea L. Simmons Distinguished Chair in Cancer Research*

Hak Choy, M.D., *associate director for radiation oncology; chairman of radiation oncology; Nancy B. and Jake L. Hamon Distinguished Chair in Therapeutic Oncology Research*

Roderich Schwarz, M.D., Ph.D., *associate director for surgical oncology; chief of surgical oncology; Mark and Jane Gibson Distinguished Professorship in Cancer Research*

David Boothman, Ph.D., *associate director for translational research; professor of pharmacology; Robert B. and Virginia Payne Professorship in Oncology*

Michael White, Ph.D., *associate director for basic science; professor of cell biology; Sherry Wigley Crow Cancer Research Endowed Chair, in Honor of Robert Lewis Kirby, M.D.*

David Euhus, M.D., *associate director for clinical research; professor of surgery; Marilyn R. Corrigan Distinguished Chair in Breast Cancer Surgery*

Jerry Shay, Ph.D., *associate director for education and training; professor of cell biology; Southland Financial Corporation Distinguished Chair in Geriatrics*

Celette Sugg Skinner, Ph.D., *associate director for cancer control and population science; professor of clinical sciences*

Chul Ahn, Ph.D., *associate director for biostatistics and bioinformatics; professor of clinical sciences*

Stephanie Clayton, M.H.S.M., *associate vice president for clinical cancer programs*

Tim Strawderman, Ph.D., *associate director for research administration*

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Research Focus



RADIATION BIOLOGY

COLLABORATION AMONG SCIENTISTS, CLINICIANS IMPROVES THERAPY

When DNA – the molecule in cells that contains all our genes – is damaged by radiation, it needs to be repaired quickly for a cell to survive. The question is, by what mechanisms does such repair occur, and how can it be prevented selectively in tumor cells?

Researchers at the Simmons Cancer Center are working collaboratively to identify substances that will inhibit DNA repair in cancer cells, allowing them to die, and to enhance repair in normal cells. Dr. David Chen is professor of radiation oncology at UT Southwestern and

leader of the cancer center’s DNA Repair and Radiation Oncology Program.

“We’re applying our understanding in DNA repair and radiation biology, combined, to radiation oncology,” Dr. Chen said.

Cancer center researchers such as Dr. Philip Thorpe, professor of pharmacology, are finding ways to sensitize tumors to treatment. He has developed a method that interferes with development of the blood vessels that supply tumors. That treatment, combined with stereotactic body radiation therapy, or SBRT, has proved promising in making the tumor cells themselves more sensitive to radiation.

“Here we find a synergy that we never expected,” Dr. Chen said. “That’s the beauty of collaboration.”

Such synergy could allow patients to receive the therapeutic benefits of SBRT but not require such a high dose of radiation, Dr. Chen said.

The DNA Repair and Radiation Oncology Program often lends its expertise to other cancer center programs and plays a role in a variety of research projects, including one funded by NASA. That project studies biological effects of space radiation to understand what risks radiation in space will pose for astronauts going to Mars.

Dr. Chen holds the David A. Pistenmaa, M.D., Ph.D., Distinguished Professorship in Radiation Oncology.



Dr. David Chen

STEREOTACTIC RADIATION

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beams of radiation to a tumor from multiple directions. By minimizing the area of surrounding tissue that might be damaged, SBRT allows fewer but higher doses of radiation.

The stereotactic approach originally was developed to treat brain tumors, said Dr. Robert Timmerman, vice chairman of radiation oncology at UT Southwestern and principal investigator on multiple clinical trials of SBRT. Because the therapy is delivered so precisely, it is easier to do in the brain, where movements related to bodily functions such as breathing and digestion don’t interfere.

CLINICAL IMPACT

When UT Southwestern researchers began development and early testing of SBRT more than a decade ago, the goal was to improve very low survival rates for diseases like lung cancer by making

radiation therapy more potent. Although the researchers assumed the higher cancer-killing doses would also increase side effects, Dr. Timmerman said, “to our surprise when we gave these very focused, very precise, very potent treatments, the patients actually tolerated it better.”

Advances in the technique have opened the door for stereotactic body radiation to be used to treat not only lung, but also other tumors throughout the body. SBRT and radiosurgery are used widely in the medical center’s clinics, with several patients a day receiving the therapy with the aid of one of several multimillion-dollar devices, including Gamma Knife, CyberKnife, Synergy-S, Trilogy and Novalis machines.

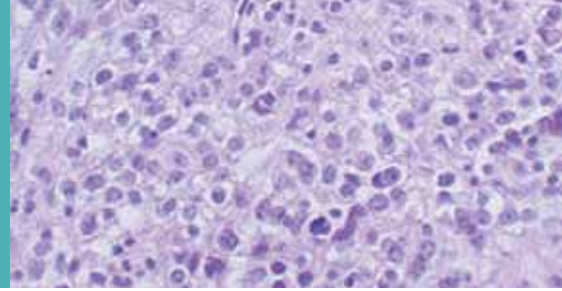
“Whereas most centers have one of the machines, we have them all. We can pick the machine from our arsenal that best suits the particular problem,” said Dr. Hak Choy, chairman of radiation oncology.

As pioneers in SBRT, experts at UT Southwestern conduct symposia and offer other training to clinicians and physicists from around the world.

The Simmons Cancer Center also directs numerous national clinical trials of the therapy. One study developed with UT Southwestern surgical oncologists Dr. John Manssour, assistant professor, and Dr. Roderich Schwarz, chief of surgical oncology, will soon test SBRT in resectable pancreatic tumors, combining modern surgery with stereotactic radiation to achieve the best possible cancer control in patients.

Dr. Choy holds the Nancy B. and Jake L. Hamon Distinguished Chair in Therapeutic Oncology Research.

Cancer Frontiers



GROUNDBREAKERS

STUDY EXAMINES LUNG CANCER IN PEOPLE WHO NEVER SMOKED



Dr. Adi Gazdar

Researchers at UT Southwestern and the Simmons Cancer Center are among an elite group of cancer scientists to share a \$2 million grant to find biomarkers for lung cancer that develops in people who have never smoked.

The National Cancer Institute's Early Detection Research Network (EDRN)

and the Canary Foundation, a nonprofit organization that funds research in early cancer detection, are providing initial funding of \$1 million each for the first year of this project. The partnership will support studies designed to create a further understanding of the biology of lung cancer and to develop a test to detect early-stage lung cancer in lifetime nonsmokers.

Dr. Adi Gazdar, professor of pathology in UT Southwestern's Nancy B. and Jake L. Hamon Center for Therapeutic Oncology Research, is the principal investigator for the EDRN project, which will be conducted at five sites across the country.

"We know that smoking-related cancers are heavily dependent on how much one smokes. The more you smoke, the greater the risk," Dr. Gazdar said. "But why are so many new cases of lung cancer being diagnosed among never-smokers?"

Estimates suggest that as many as 25 percent of all lung cancers worldwide – 15 percent of those in men and 50 percent of those in women – are not attributable to smoking, although the figures for the U.S.

are somewhat lower (10 percent of men and 20 percent of women, for a total of 27,000 cases per year).

"If you consider lung cancer in never-smokers as a separate category, it ranks as the seventh-most common cause of cancer deaths worldwide," Dr. Gazdar said. "Lung cancer among never-smokers is really an ignored disease, yet it is such a major killer."

Research has shown that lung cancer in people who have never smoked differs in many ways from the disease in smokers.

The collaboration includes scientists at the Simmons Cancer Center, Johns Hopkins University, Fred Hutchinson Cancer Research Center, University of Southern California and at the British Columbia Cancer Agency.

"By pooling our talents we have a much better chance of rapid success," Dr. Gazdar said.

Dr. Gazdar holds the W. Ray Wallace Distinguished Chair in Molecular Oncology Research.

RESEARCHER NAMED HOWARD HUGHES MEDICAL INSTITUTE EARLY CAREER PHYSICIAN-SCIENTIST

Dr. Nima Sharifi, assistant professor of internal medicine at UT Southwestern and a member of the Simmons Cancer Center, has received a Howard Hughes Medical Institute (HHMI) Early Career Physician-Scientist Award.

He is one of 11 researchers named in a national competition by the institute to

be part of the program, which is aimed at increasing the number of researchers who translate basic science discoveries into improved treatment for patients. Established in 2006, the program supports a total of 52 physician-scientists.

Dr. Sharifi's research focuses on how advanced prostate cancer – the second leading cause of cancer death in men – becomes resistant to androgen deprivation therapy. The most well-known androgen is the male sex hormone testosterone.

Although prostate cancer initially responds to androgen withdrawal, these tumors eventually become resistant. Dr. Sharifi's laboratory focuses on genes that determine how this resistant state occurs. The hope is that this work eventually will help in the development of new therapies.

"This funding will allow my laboratory to look at this problem further in depth," Dr. Sharifi said. "I am truly honored to receive this award and support from HHMI."

Each Early Career Physician-Scientist receives \$375,000 in research funding over a five-year period from HHMI. The funds, which do not support the awardees' salaries, often are used to hire lab personnel or purchase vital research equipment.

The Howard Hughes Medical Institute, a nonprofit medical research organization that ranks as one of the nation's largest philanthropies, has in the past two decades invested more than \$8.3 billion for the support, training and education of the nation's most creative and promising scientists.



Dr. Nima Sharifi

Study News

CLINICAL TRIALS

PARTICIPATING IN CLINICAL RESEARCH BENEFITS ALL

Your physician in the Harold C. Simmons Comprehensive Cancer Center may determine that you are eligible to participate in a clinical trial involving a promising investigational medication or other form of treatment. A clinical trial is a research study. Carefully conducted clinical trials are the fastest and safest way to find new treatments that work in people.

Clinical trials that are well-designed and well-executed are an excellent way for volunteers to:

- * Play an active role in their own health care;
- * Gain access to experimental drugs and devices before they are widely available;
- * Obtain expert medical care at leading health care facilities during the trial; and
- * Help others by contributing to medical research.

UT Southwestern's Institutional Review Board is mandated by law to oversee the involvement and protection of study patients in research.

For more information on participating in cancer clinical research at UT Southwestern, patients and referring physicians are encouraged to contact the Clinical Research Office at 214-648-7097.

NEWS REPORT HIGHLIGHTS BREAST CANCER STUDY

UT Southwestern is conducting a clinical trial to study the benefits of a supervised exercise program in patients undergoing chemotherapy for breast cancer.

Patient Joan Wolman was one of the first women to be enrolled in this clinical trial. Mrs. Wolman, who was diagnosed with stage 3 breast cancer, is undergoing chemotherapy before surgery. Several times a week, she meets with a certified personal trainer for cardiovascular exercise and resistance training.

Dr. Roshni Rao, a surgical oncologist in the Simmons Cancer Center who specializes in breast cancer, is heading the



Dr. Roshni Rao

planned, supervised exercise regimen on breast cancer survival."

Dr. Rao and Mrs. Wolman were featured in a recent story about the clinical trial on KTVT-TV Ch.11, the Dallas CBS network affiliate. The news crew visited the UT Southwestern campus and filmed Mrs. Wolman while she exercised.

"This is an exciting clinical trial that uses physical exercise as an intervention in cancer care," Dr. Rao said. "To our knowledge, this is the first study to attempt to link physical exercise to modifications in tumor aggressiveness and insulin resistance."



Joan Wolman, right, and her trainer are interviewed by a news crew about Mrs. Wolman's participation in a clinical trial.

clinical trial to study whether exercise drives down specific molecules in the body that make tumors more aggressive.

"A growing body of evidence reveals that breast cancer outcomes are improved with physical activity," Dr. Rao said. "We're evaluating the impact of a

Dr. Rao's study is funded by a gift from the Commercial Real Estate Women, Inc., an advocate for women's health issues.

Center Notes

UNIVERSITY HOSPITALS EARN OUTSTANDING ACHIEVEMENT AWARD FOR CANCER CARE

UT Southwestern University Hospitals recently received the Commission on Cancer (CoC) Outstanding Achievement Award from the American College of Surgeons.

are among 93 facilities (19 percent) nationwide to receive this designation.

“Clearly, this is a team effort, and it highlights the integration of care for our cancer patients,” said Sharon Riley, chief executive officer and vice president for UT Southwestern University Hospitals. “This recognition, through on-site evaluation, helps validate our multidisciplinary approach and our partnership with the entire campus to provide excellent patient care.”



The award recognizes programs that strive for excellence in providing quality care to cancer patients. Facilities receive the designation through rigorous on-site evaluations, which must demonstrate compliance within a series of cancer program standards, including: cancer committee leadership, cancer data management, clinical services, research, community outreach and quality improvement.

In 2008 programs at 478 community-based facilities, teaching hospitals, National Cancer Institute-designated comprehensive centers and network cancer centers underwent site visits and evaluations by physician surveyors. UT Southwestern University Hospitals

There are currently more than 1,400 CoC-approved cancer programs in the U.S. and Puerto Rico, representing close to 25 percent of all hospitals. These CoC facilities diagnose and/or treat 80 percent of newly diagnosed cancer patients each year.

“This designation is another step in our goal of providing the best possible cancer care in North Texas,” said Dr. James Willson, director of the Simmons Cancer Center. “It also highlights our collaborations among programs in clinical care, scientific research and cancer prevention.”

FROM THE DIRECTOR

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The radiation oncology team works together with other cancer specialists at the Simmons Cancer Center to provide comprehensive care for every cancer type. Recently UT Southwestern University Hospitals received the Commission on Cancer Outstanding Achievement Award from the American College of Surgeons. This award recognizes both our outstanding treatment facilities and our commitment to providing outstanding multidisciplinary cancer care.

Thank you for your support and for your interest in our programs. Without community involvement we would not be able to make these advances.

A handwritten signature in black ink that reads "James Willson".

Jim Willson

TIMMERMAN

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treatment consists of five 30-minute sessions and can be completed in a week and a half, compared to the typical 42 radiation treatments for prostate cancer.

“Our goal is simple: Provide fast, aggressive, noninvasive and curative treatments allowing our patients to move on to better things,” Dr. Timmerman said.

Dr. Timmerman lives on a small rural acreage in Westlake with his wife and four children – 16-year-old twin daughters, a 15-year-old son and an 8-year-old daughter.

Dr. Timmerman holds the Effie Marie Cain Distinguished Chair in Cancer Therapy Research.

In The Community



MAMMOGRAM VAN PROVIDES SCREENINGS ON THE GO

For Alicia Macias, UT Southwestern's mobile mammography van is a lifesaver.

By the time she entered the mobile unit in 2007, her mother and two sisters had already died from breast cancer.

Mrs. Macias understood that she was at a higher risk to develop breast cancer, but she had forgone mammograms for several years because her job didn't offer health insurance.

When she discovered that the mobile unit provides mammograms for the uninsured through a grant, she signed up for a screening. The 47-year-old mother of five from Dallas has been back for her regular screenings ever since.

"Mammograms are costly, and I would not be able to afford one if not for the mobile mammography unit," Mrs. Macias said. "I feel a sense of relief now. I know that early detection is important. Now, I go every year."

A cornerstone of the Simmons Cancer Center, the Center for Breast Care has been providing mobile mammography screenings to insured, underinsured and uninsured women in the Dallas/Fort Worth area since 2002.

The mobile unit – the first in the Southwest to provide digital screenings – houses state-of-the-art technology in a self-contained 18-wheeler coach designed inside to look like a standard medical

office. The screening takes about 30 minutes, and the breast images are transmitted to the Center for Breast Care where UT Southwestern radiologists read the images for evidence of breast cancer. Patients receive results within a week.

During the week, the mobile unit travels to businesses and corporate headquarters that are hosting wellness fairs, providing convenience and accessibility for employees with insurance.

On Saturdays, the mobile unit travels to underserved neighborhoods to provide screenings that are paid for through a

eliminate barriers – lack of insurance and transportation – in hopes of detecting cancers earlier."

Dr. Phil Evans, professor of radiology and director of the Center for Breast Care, said that reaching women who might otherwise not be screened is one of the center's goals. The mobile unit served about 3,200 women last year and detected 12 cancers.

"Screening mammography is a woman's best chance for detecting breast cancer in its earliest stages, and a large part of why we have seen an almost



grant from the Dallas affiliate of Susan G. Komen for the Cure. On a typical Saturday about 40 women receive mammograms. The mobile unit travels to recreation centers, churches and grocery store parking lots – taking the unit into the community to aid those who lack transportation. This fall, the mobile unit also will be at the Komen Race for the Cure in Dallas at NorthPark Center.

"We recently increased the number of weekends the unit is in use and increased capacity so we can maximize the number of women that can be screened," said Gloria Espinosa, program coordinator for the mobile unit. "We're trying to

30 percent decrease in the death rate from breast cancer since 1990," said Dr. Evans.

To find out where the mobile mammography unit will be next and to make an appointment, call (214) 645-2560. To reserve the mobile unit for a daylong community event, call Mrs. Espinosa at (214) 645-2518.

Dr. Evans holds the George and Carol Poston Professorship in Breast Cancer Research.

Join Us



JOIN THE FRIENDS FOR COMPREHENSIVE CANCER CARE AND RESEARCH

The Harold C. Simmons Comprehensive Cancer Center is working diligently toward its mission to reduce the burden of cancer in North Texas. A gift to join the Friends for Comprehensive Cancer Care and Research will support a promising research project by UT Southwestern's outstanding team of oncologists and basic scientists. You can join as a:

Sustainer Member	\$10,000 and above
Sponsor Member	\$5,000 to \$9,999
Advocate Member	\$2,500 to \$4,999
Contributor Member	\$1,000 to \$2,499
Supporter Member	\$500 to \$999
General Member/Other	Up to \$499

Membership at the Supporter Level and above is recognized in UT Southwestern's *Southwestern Medicine* Annual Review. For more information, please call the development office at 214-648-2344.

PATIENT AND COMMUNITY OUTREACH PROGRAMS AVAILABLE

Support groups are available at the Harold C. Simmons Comprehensive Cancer Center, led by a licensed social worker. Meetings are scheduled regularly for:

- * Ovarian cancer
- * Thoracic/lung cancer
- * Husbands and partners of women with cancer
- * Prostate cancer
- * Breast cancer
- * Brain cancer

For more information about patient-care services at the Simmons Cancer Center, please call 214-645-HOPE (214-645-4673) or toll-free, 866-460-HOPE (866-460-4673).

Cancer Connection is published by the Harold C. Simmons Comprehensive Cancer Center at UT Southwestern Medical Center.

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Cancer Connection

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