

Cancer Lines

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UNC
LINEBERGER COMPREHENSIVE
CANCER CENTER
NC CANCER HOSPITAL

A Healing Environment: Art in the N.C. Cancer Hospital

One of the goals of the team that designed the N.C. Cancer Hospital was to create a healing environment — and a major aspect of that goal is the art that was purchased and commissioned to complement the open, airy architecture of the new facility.

Scientific studies provide evidence that viewing art in a healthcare facility can actually contribute to better health outcomes, in terms of measurable factors such as clinical indicators, patient satisfaction, and health-related quality of life. There are a number of theories about why there is a correlation between art and health outcomes, but the overall mechanics of the mind-body connection haven't been unraveled by science.

"One of the important concepts in planning the N.C. Cancer Hospital was an emphasis on the need to support a warm and inviting environment that would help in the healing process. The materials picked for the interiors reflect nature, while also being resilient and presenting a welcoming feeling for our patients and their families," said Mary Beck, senior vice president for systems affiliations at UNC Health Care.



Two large quilted pieces by Cedar Point, N.C. artist Eileen Williams greet visitors approaching the information desk and elevators in the N.C. Cancer Hospital lobby. Titled, "Pieces of Autumn," the artworks pick up the warm wood finish of the wall where they are mounted.



A Rainbow Colored Charger by Asheville, N.C. glass artist Charles Donaldson is placed in front of a third floor window, catching the light from the wall of glass outside the elevators and encouraging viewers to take in the campus landscape outside the window.



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UCRF Strategic Plan Moves to Implementation

The Cancer Research Fund Committee approved the University Cancer Research Fund (UCRF) strategic plan in November 2009. The planning process began in May 2008 under the leadership of strategic planning firm AltshulerGray. Listening sessions took place across campus and the consultants conducted interviews with 50 key stakeholders, a survey of more than 200 UNC faculty and multiple meetings with the UNC Lineberger Program Planning Committee and other faculty groups.

The final plan focuses resources on a limited set of research initiatives to maximize impact, with an emphasis on projects and programs that can be self-sustaining. It prioritizes initiatives that provide leverage for additional extramural funding, build fundamental cancer-related research capabilities — or both simultaneously. Finally, UCRF projects should enhance North Carolina's economy by creating jobs, intellectual property and start-up companies.

Based on these principles, broad input, and extensive analysis, three interconnected priorities were identified as strategic research initiatives:

- Understanding Genetics and its Role in Cancer Causation and Treatment;
- Developing New Cancer Treatments; and
- Optimizing North Carolina's Cancer Outcomes.

The goal of UCRF funding for understanding genetics and its role in cancer causation and treatment is to discover the genes that predispose families to cancer and cancer patients to poor treatment outcomes - particularly by looking for the mutant genes in specific cancer subtypes that lead to cancer therapy failure.

Second, UCRF will invest in devising new therapies targeted to the specific vulnerabilities of treatment-resistant

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director's message



H. Shelton Earp, III, MD

When you step into the UNC Lineberger building or walk into the lobby of the N.C. Cancer Hospital you can feel the energy and activity. Whether taking care of patients or talking in the halls about a research project, our faculty and staff radiate enthusiasm about progress toward our goals and optimism about how we're changing the future of cancer prevention, early detection and treatment in North Carolina and beyond.

It is a pleasure to share with you just a few of the many recent developments that contribute to this optimism.

First, we have final approval of the University Cancer Research Fund strategic plan, a plan whose genesis included many of our faculty and UNC and Health System administrators. We're proud of the plan and the impact it can make on cancer care and science. The integration of basic cancer research, our multidisciplinary care teams and clinical and public health research will accelerate progress from the tremendous investment by the state of North Carolina.

We're already seeing how this potential is being realized. Just two years after the first 18 UCRF Innovation Awards - totaling \$2.4 million - were awarded, the initial research projects have yielded 16 extramural research grants totaling \$13.1 million,

including major grants from the National Cancer Institute, National Institutes of Health, National Science Foundation, Department of Defense and the American Cancer Society. Thirteen additional grant applications are currently under review. These initial Innovation Awards have also yielded two patents, contributed to a start-up company, produced 12 new research collaborations inside and outside of UNC-Chapel Hill and resulted in multiple peer-reviewed publications in top-tier journals.

This is just the beginning of what we have to look forward to more as the seeds that are being planted by UCRF bear fruit! Please take every opportunity you have to thank your elected state senators and representatives and show how their investment is changing the future for people with cancer in N.C. and beyond.

Another reason for our optimism is the expansion of our leadership team at UNC Lineberger to meet the challenge of growth and opportunity. We want to ensure that all of the 'moving parts' of our cancer center research, clinical programs and the UCRF strategic plan are working together.

Our senior leadership team of Richard Goldberg, Tom Shea and Al Baldwin have realized that with UCRF-driven growth it was time to replace Beverly Mitchell whose departure to become Director of Stanford's Cancer Center left open the important position of watching over the translation of basic research into the clinical arena. The area has grown so substantially that we have asked two of our 'rising stars' to look after this important portfolio.

We've named Lisa Carey, MD, associate director for clinical science, and Ned Sharpless, MD, associate director for translational research for the UNC Lineberger Comprehensive Cancer Center. Both of these outstanding physician-scientists have demonstrated scientific and clinical excellence, and it's a real pleasure to be able to bring them on board as part of our formal leadership structure.

We are asking Dr. Carey to lead the more clinical aspects of translational research — bringing promising laboratory findings into clinical benefit — with particular emphasis on clinical trials. Dr. Sharpless will be leading the promotion and integration of clinical research efforts with pre-clinical translational activities, focusing on the critical phase where we're moving ideas from the lab to patients. They will work closely with two other superb physician scientists, Claire Dees in her role as medical director of the Clinical Protocol Office and Jon Serody who is taking on additional duties in building our Hematologic Malignancy efforts.

I am known for going over my allotted time and space in my efforts to express how proud I am of UNC Lineberger - so I would like to end this missive by telling you that there is more great news than we can fit into *Cancer Lines*. I encourage you to subscribe to our enews blasts and to keep your eye on our website at unclineberger.org. We are North Carolina's public comprehensive cancer center and we're excited at what the future holds! ●



Supporters Step Out for Inaugural GET REAL & HEEL 5K Walk

More than 300 people stepped out on March 27th for the inaugural Get REAL & HEEL 5k Walk, raising more than \$6500 to support the program, that provides structured exercise and other services for cancer survivors. Pictured (left to right): Katy Gilliam (Pink Pacer member), Jennifer Cashion (GR&H program coordinator), Carrie Gilmore (Pink Pacer member), Diane Groff, PhD (GR&H program co-Director and founder), Claudio Battaglini, PhD (GR&H program co-Director and founder), Brooke Bowersox (Pink Pacer member), Amber Alsobrooks (GR&H licensed recreation therapist), Jean Owen (GR&H certified exercise oncology trainer and exercise trainers supervisor). ●



Komen Founder Visits N.C. Cancer Hospital

Ambassador Nancy G. Brinker, founder and CEO of Susan G. Komen for the Cure®, toured the state-of-the-art facilities at the N.C. Cancer Hospital on April 22nd. Pictured above (left to right): Hy Muss, MD, geriatric oncology program director; Shelley Earp, MD, UNC Lineberger director; Sue Haney, clinical nurse manager at N.C. Cancer Hospital and Komen N. C. Triangle board member; Ambassador Nancy Brinker; Chuck Perou, PhD, associate professor of genetics and winner of the American Association for Cancer Research 2009 Outstanding Investigator Award for Breast Cancer Research, funded by Susan G. Komen for the Cure®; Keith Amos, MD, UNC Lineberger surgical oncologist and Komen N. C. Triangle board member; Diane Groff, PhD, Get REAL & HEEL co-director, Komen grant recipient and Triangle Race committee member; and Pam Blondin, executive director of Komen N.C. Triangle. ●

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philanthropy updates



"Spring Landscape with Cedar" by painter Richard Fennell, a graduate of both ECU and UNC-Greensboro, was commissioned for the hospital. The piece greets patients as they exit the elevators and walk toward the multidisciplinary clinics.



A hallway from the hospital's Manning-level entrance to the Radiation Oncology waiting room is lined with prints by photographer Ken Abbott, whose photos capture quintessential North Carolina scenes including a millhouse interior, farmers market wares for sale, and misty summer mornings in the N.C. mountains.

"The artwork was chosen based on evidence-based parameters with an emphasis on the beauty of our state. It provides an opportunity for diversion from the day-to-day treatment that cancer patients experience," she adds.

The N.C. Cancer Hospital contains more than 500 pieces of artwork by North Carolina artists. The pieces span the spectrum of artistic media including traditional forms such as sculpture, photography, and painting to glass, ceramics, quilting, and weaving.

UNC Health Care associate vice president for oncology services, Ian Buchanan, MD, MPH, says the quilts by coastal artist Eileen Williams hanging in the lobby across from the information desk are his favorites. "Hospitals have come a long way from the sterile ambiance many of us remember," he says. "Patients and visitors comment that it feels very warm and friendly, and that many of the images are very soothing."

The hospital's physician-in-chief Richard Goldberg, MD, concurs, "Having artwork helps make an institutional space feel more like a living room." He is particularly happy that the facility showcases North Carolina's artists,

Kim Rathmell, MD, PhD, assistant professor of medicine, received one of three INNOVATOR awards given by the American Association for Cancer Research and the Kirk A. and Dorothy P. Landon Foundation.



She received the INNOVATOR Award for Research in Personalized Cancer Medicine. In its inaugural year, the award provides support for a physician-scientist who conducts meritorious studies that hold promise for near-patient benefit to accelerate progress in the area of personalized cancer medicine.

Rathmell's project, *Advancing Prognostic Algorithms for Renal Cell Carcinoma*, focuses on renal cell carcinoma, a type of kidney cancer. Her proposed work will build on her preliminary studies to determine a gene signature biomarker profile for renal cell carcinoma. This unique biomarker profile has the potential to provide increased information regarding clinical outcomes and effective treatment planning. Once she has defined the biomarker profile, she will validate it using tissues from a large number of patients with renal cell carcinoma. ●

UCRF Strategic Plan

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cancers and on developing new ways of delivering therapeutic agents to reduce toxic side effects for all patients.

Finally, UCRF will optimize outcomes by population-based methods to track the occurrence and treatment of cancer across North Carolina. Data will come from large population and hospital-based studies to initiate research aimed at improving community prevention and early detection of cancer and enhancing the quality of oncology and survivor care across the state.

Two additional priorities were identified for UCRF Investment, the Opportunity Fund and the Critical Infrastructure Fund.

Outstanding cancer research requires the ability to take advantage of opportunities as they arise and provide the top minds in the field with the resources they need to succeed. Therefore, the strategic plan charges the UCRF Opportunity Fund with the goal of promoting innovation by:

- Funding competitive, peer-reviewed innovative pilot projects (building on the successful Innovation Award program piloted during UCRF's first two years);
- Supporting the acquisition of novel, leading-edge technology and equipment and the development of shared research resources through a competitive, rigorous peer-reviewed process; and



Neil Hayes, MD and Scott Rendell, PhD discuss UNC's participation in the National Institutes of Health (NIH) Cancer Genome Atlas Project.

- Providing seed funds for the recruitment of top-notch faculty investigators whose work enables the key research initiatives, disease-specific programs and outstanding clinical research.

The UCRF strategic plan recognizes that outstanding clinical cancer research requires an equally strong clinical program that can reach out across the state to share its expertise and research opportunities. To accomplish this objective, UNC must build the multidisciplinary expertise not only to serve the growing demand for cancer care in North Carolina, but also to do research and share knowledge across the spectrum of cancer care. Recruiting faculty with the ability to collaborate in clinical care and research with physicians across the state through telephone and telemedicine consultation as well as

providing continuing education opportunities is at the center of this mission.

Therefore, the goal of the Critical Infrastructure Fund is to expand the faculty excellence in clinical care and research and provide all UNC researchers with the core resources — including imaging, informatics and fundamental research techniques — necessary for clinical and translational cancer research. The Strategic Plan includes development of a statewide clinical research infrastructure, providing a conduit for leading-edge clinical research and its successful translation into community practice. The N.C. Cancer Hospital, combined with UCRF infrastructure support, also provides the videoconferencing/telemedicine hub that links UNC with cancer centers and oncologists across the state to increase physician collaboration and statewide access to UNC clinical trials.

As the strategic plan is being implemented, baseline data is being gathered in all of these areas and an evaluation plan is being designed to measure the impact and return on investment for the University Cancer Research Fund. For more information or to download a copy of the strategic plan, visit ucrf.unc.edu/strategic_plan. ●



faculty profile

After graduating from Cooper Union School of Engineering and completing medical school, Larry Marks, MD, almost decided not to pursue residency training. He missed the technical and quantitative nature of engineering. His wife, Caryn, also a medical student, suggested that he visit with a radiation oncologist, whose lecture she had just heard.

Marks remembers, "I had found a good field for me. Radiation oncology affords me the opportunity to use math and physics in daily life and help a lot of people with very serious illnesses."

Marks came to UNC from Duke to serve as chair of the department of radiation oncology. "The opportunity at UNC provided a unique set of challenges, a personal growth opportunity. It is a chance to do something good for the people of North Carolina with the opening of the N.C. Cancer Hospital."

Marks treats patients with breast and lung cancer and conducts research on applying

innovative technology to improve radiation treatment. The goal of radiation therapy is to kill cancer cells while minimizing damage to normal tissue that may also be affected by radiation.

In a major effort to improve outcomes for patients, Marks helped lead an international group that reviewed data for radiation-induced normal tissue injury. Guidelines for treatments were recently published and replace standards established almost 20 years ago.

Marks relishes his dual role as a physician-scientist. "Several of the research projects we have done resulted directly from challenges we face in the clinic." As mentors, he names his high school physics teacher, Mr. Brenner, who nurtured his interest in math and physics, and Edward Halperin, MD,



Larry Marks, MD, poses in the new Radiation Oncology facility at the N.C. Cancer Hospital.

MA, Dean of the University of Louisville School of Medicine, for his advice: "Just try to take good care of your patients and the obvious research questions will become evident."

In his spare time, Marks is an amateur pianist who enjoys playing Broadway show tunes and a casual cyclist. He treasures spending time with his sons Noah, Sam, and Ben and his wife Caryn. ●

Outreach Partnership with Wilson Medical Center Benefits Patients

Wilson Medical Center, a regional referral center, was looking for ways to enhance care for cancer patients in its service area. UNC Lineberger and the N.C. Cancer Hospital were looking for ways to help improve cancer outcomes in North Carolina.

"We began to discuss our goals and it became clear very quickly that this would be a win-win partnership," said Mary Beck, Senior Vice President for System Affiliations at UNC Health Care.

Since the N.C. Cancer Hospital opened in August, 2009, physicians in Wilson are dialing in to UNC's multidisciplinary team meetings in Head and Neck and Gastrointestinal Oncology using a state-of-the-art high-definition teleconferencing system, part of the outreach investment being made under the University Cancer Research Fund. Staff who can't make it

to the teleconferencing-equipped rooms at Wilson Medical Center also have the option to use MOVI personal video systems to view these weekly conferences.

Over the system, Wilson's doctors can present cases, ask questions and interact with UNC faculty - just like they were in the room.

"Developing our clinical affiliation with UNC Lineberger Comprehensive Cancer Center has been a positive move in improving access to the best in cancer care. Our physicians and their patients will be the beneficiaries of this relationship for years to come," noted Rick Hudson, President and CEO of Wilson Medical Center.

"We appreciate that Wilson Medical Center was excited about this network and technology and were willing to be 'early adopters.' It's been a positive experience for both organizations,"

said Thomas Shea, MD, Associate Director for Outreach at UNC Lineberger.

Over time, both parties believe patients will benefit from access to rapid consultations, and access to clinical trials which would otherwise require travel to Chapel Hill.

"It is always preferable for cancer patients to be cared for close to home," Shea added. "We're looking to ensure that all North Carolina's physicians and patients have access to the newest knowledge about how to treat cancer without having to travel long distances. We have a big state, but technology can help make it a little smaller." ●

Alumni Association Honors Shelley Earp, MD

On January 8, 2010, the Board of Directors of the UNC General Alumni Association presented the Faculty Service Award to H. Shelton "Shelley" Earp III, MD, who also is a professor of pharmacology and medicine and Lineberger Professor of Cancer Research. He joined the faculty in 1977 after earning both his medical degree and a master's in biochemistry in 1970 from UNC.

The award, established in 1990, honors faculty members who have performed outstanding service for the University or the association.

Besides his role as director of the cancer center, Earp's service to the University includes chairing the committee for the current provost search. He also has chaired a search for a medical school dean and served on search committees for a chancellor and a provost.

Earp has served on the Faculty Council and the steering committee for the self-study of the University's research mission. He chaired the Chancellor's Advisory Committee on Naming of Facilities. He was the faculty representative to the alumni association's Board of Directors in 2001-02.

Earp's teaching awards include the Medical School Basic Science Teaching Award and the Kaiser-Permanente Medical School Excellence in Teaching Award. In 2008, he received the Thomas Jefferson Award, recognizing a faculty member who, through personal influence and performance of duty in teaching, writing and scholarship, has best exemplified the ideals and objectives of Thomas Jefferson.

"I'm not sure any faculty member on the Chapel Hill campus has done more to serve the University than he has," said medical school dean William L. "Bill" Roper, MD, MPH. ●



More than 60 people attended the 2010 Volunteer Appreciation evening on February 22 in the N.C. Cancer Hospital. The event recognized our volunteers and provided them opportunity to bring their friends along to hear about the many ways in which volunteers can get involved at UNC Lineberger and the N.C. Cancer Hospital. Shelley Earp, MD, UNC Lineberger director, thanked the volunteers, saying, "Your volunteer work is critical to our mission of service to patients and families. Whether it's in the clinics, or out in the community, your dedication and long hours make a difference in our care and in our research, allowing us to do even more for our patients and families." Pictured above (left to right) are Loretta Muss, Coordinator of the N.C. Cancer Hospital Patient & Family Advisory Board, with volunteers Vicki Lotz and Betty Bouldin. ●

New Clinical Trial to Test Treatment for Triple Negative Breast Cancer

A new clinical trial to treat women with triple negative breast cancer and brain metastases is in development. The UNC-led trial is developed in conjunction with Sanofi Aventis/BiPAR Sciences and the Translational Breast Cancer Research Consortium.

Triple negative breast cancer describes breast cancer cells that lack expression of the estrogen receptor, progesterone receptor, or a protein called HER2/neu. Women with mutations in the BRCA1 gene are more likely to be diagnosed with triple negative breast cancer, a subset of breast cancer that places women at high risk for brain metastases.

The Phase II study will evaluate the efficacy and safety of a combination of two drugs: the PARP inhibitor, BSI-201, and gemcitabine (Gemzar). PARP is a protein that helps cells repair damaged DNA. Combining a PARP inhibitor with a chemo drug that works by damaging DNA will produce



Carey Anders, MD, assistant professor of medicine and member of the UNC Breast Center, and Maureen Beeler, clinical trials coordinator, review a patient's information.

greater anticancer effects than either chemotherapy or a PARP inhibitor alone. This approach is based on the observation that cells are unable to survive if they accumulate high levels of DNA damage. BSI-201 is able to cross the blood brain barrier, making it a useful drug to treat brain metastases.

The trial will enroll patients at 14 other sites. Carey Anders, MD, assistant professor of medicine, is the principal investigator and Lisa Carey, MD, is the co-PI.

"Clinical trials and systemic therapies to treat women with triple

negative breast cancer brain metastases are quite limited. We are very excited to offer this novel therapy, BSI-201, to women facing this disease and hope to improve both their survival and their quality of life while on treatment," said Anders.

For more information about this trial contact the UNC Lineberger Clinical Protocol office at (919) 966-4432 or toll-free (877) 668-0683. ●

Improvements Needed In Genomic Test Result Discussions

One in three early-stage breast cancer patients who received genomic testing when deciding about treatment options felt they did not fully understand their discussions with physicians about their test results and their risk of the disease recurring, a new study has found.

Noel Brewer, PhD, assistant professor of health behavior and health education at the UNC Gillings School of Global Public Health, and Janice Tzeng, who worked on the study as a graduate student at the school, led a team that examined how women with breast cancer received and understood cancer recurrence risk information after receiving the Oncotype DX test. Published online March 8, 2010, in *Cancer*, a peer-reviewed journal of the American Cancer Society, the findings suggest there is room for improvement in the way doctors communicate with patients about cancer recurrence risks and treatment decisions.

Genomic testing is an increasingly important part of care for patients after they are diagnosed with early stage breast cancer. Tests such as the Oncotype DX genomic diagnostic test, which looks at 21 genes in breast tumors that have been removed during surgery, can indicate the chance a woman's cancer will return. Such information can help guide physicians and patients' decisions about chemotherapy. Patients with a high risk of recurrence may opt for more aggressive treatment, while those with lower risk may safely avoid over-treatment and potential side effects. ●

Prevention Researcher Focuses on Gender Paradox, Health Disparities

For years, epidemiologists have known that African-American men have higher overall death rates as well as higher death rates from prostate cancer than white men. Wisdom Hammond, PhD, MPH, assistant professor of health behavior and health education, conducts research on the psychosocial causes of this phenomenon and has developed programs to address the issues she has identified.

Hammond's training as a psychologist and a public health scientist gives her a unique perspective. "As a psychologist, I have an appreciation of factors affecting the individual. As a public health scientist, I understand that individuals are part of the population herd with collective experiences that place some at increased risk for disease. So I have a micro and a macro perspective."

Both perspectives serve her well in her work because "I can focus on targeting an individual's motivation to adopt healthy behaviors and those features of the environment that constrain motivation to participate in them."

She directs the UNC Men's Health Research Lab, where faculty and students explore the individual, sociological, environmental, and healthcare system factors that impact African-American men's health status, health behavior, and healthcare utilization.

Hammond points out that "men tend to underreport health problems, underutilize health services, and report more medical mistrust. Despite



Wisdom Hammond, PhD, MPH (right), shares a laugh with NCSU graduate student Shola Dada, as they discuss her psychology thesis.

having more social power than women, men die sooner. This 'gender paradox' suggests that there are limits to male privilege and that the social power doesn't translate into better health."

"My grandfather died of a preventable cancer," she says. "And now I have young nephews who are at a critical stage when health beliefs and practices are being acquired and solidified. I want to do work

that can encourage health behavior change in this generation of males."

Hammond is collaborating with the UNC Carolina Community Network and the United Voices of Efland-Cheeks. The Carolina Community Network (CCN) is a regional cancer network developed to reduce prostate, breast and colorectal cancer disparities among adult African-Americans in North Carolina. United Voices is a grassroots organization whose purpose is to improve the quality of life in the Efland-Cheeks community by carrying out a range of educational activities.

In this study, team members are interviewing African-American prostate cancer survivors and spouses to learn how prostate cancer affects a couple's dynamics and the survivor's masculine identity. Their goal is to develop community-based interventions to address these issues.

Andy Olshan, PhD, professor and chair of epidemiology in the UNC Gillings School of Global Public Health and leader of UNC Lineberger's cancer epidemiology program, said, "Dr. Hammond's outstanding work is critical to developing effective prevention measures to reduce the significant disparities in prostate and other cancers and to providing a basis for improving survivorship. Her resources will be essential for improving cancer outcomes in North Carolina." ●

Expertise, Technology Drive Excellence of Neuro-Oncology Program

The UNC Neuro-Oncology Program is actively involved in treating and advancing understanding of tumors that involve the brain, spine, and skull-base. Program members are conducting innovative laboratory research as well as offering leading-edge therapies including endoscopic surgery and Cyberknife to patients with these cancers.

"Tumors that involve the brain and spine are especially challenging because the normal tissue surrounding the tumor is vitally important for a patient's quality of life and well being. Treatments aimed at cancers in the brain must be delivered with tremendous accuracy to avoid serious side effects. UNC researchers and clinicians deliver these treatments and are charting the future in determining new ones," says Matt Ewend, MD, program leader, division chief and Kay M. & Van L. Weatherspoon Distinguished Professor.

The multidisciplinary program involves a number of departments and divisions and will be enhanced this July when UNC School of Medicine creates a new Department of Neurosurgery from the current division of neurosurgery within the Department of Surgery. Dr. Ewend will chair the newly formed department, which will collaborate across the School of Medicine, including in the area of neuro-oncology.

for developing and delivering more targeted therapy.

Several UNC labs are using pre-clinical models to probe the genetic basis of brain tumors, and drug and diagnostic biomarkers development. Ryan Miller, MD, PhD, and colleagues have developed highly

sophisticated models of glioma that will better predict which therapies will be successful in treating patients. Other pioneering work involves imaging tumor vessels and using visualized changes in shape of the blood vessels to predict response to therapy. UNC Lineberger labs are developing nanotechnology to improve brain tumor detection with MRI and to improve drug and therapy delivery to central nervous system tumors.

In the clinic, UNC has led or participated in national trials for all tumor types. UNC is the only NCI-designated comprehensive cancer center in the region with Cyberknife technology and is working with other Cyberknife facilities to share data and improve methodology. Cyberknife facilitates more precise delivery of radiation therapy to tumors in the brain and spine (and many other areas of the body).

The UNC Skull Base surgery team is highly experienced in minimally invasive endoscopic surgery, often removing a skull base tumor through the patient's nostrils, rather than requiring an incision across the top of the head from ear to ear or a large incision directly on the face. Members of this team are teaching these techniques around the country so that many patients can benefit from them. Read Sue Upson's story of her surgery for a skull base benign mass.

UNC physicians are holding outreach brain tumor clinics in Burlington and UNC neurosurgeons based in Pinehurst are often the first point of contact for those diagnosed with brain tumors who live in North Carolina's Sandhills region. ●



Front row (left to right): Laura Novack, PA; Matt Ewend, MD; David Morris, MD, radiation oncology; Lauria Themes, neuro-oncology program coordinator; Keith Smith, MD, radiology; Second row (left to right): Uri Trembath, MD, neuropathology; Anand Germanwala, MD, neurosurgery; Thomas Bouldin, MD, neuropathology; Fran Coll ichio, MD, medical oncology; Sharon Cush, RN, nurse navigator; Lewis Rosenberg, MD, fellow, radiation oncology.



In May 2009, Sue Upson, a surgical technician from Vass, N.C., was completing her coursework at Sandhills Community College. She began to have migraine headaches, pressure around her eye area, and ringing in her right ear. "Because I was trying to finish school and was so busy, I didn't do anything about these symptoms," Upson says.

Several months later, she went to see her physician who ordered an MRI. The scan showed a mass, so she was sent to UNC to see Craig Buckman, MD, professor of surgery in the UNC Department of Otolaryngology/ Head and Neck Surgery and Matt Ewend, MD, professor of surgery in the UNC Skull Base Tumor Clinic.

"They told me it was a mass called a Vestibular Schwannoma. It's a benign tumor that is that is on the nerve responsible for my hearing and balance. I was scared at first, getting that news," Upson remembers. "I'm only 35 and I didn't know what to expect." The schwannoma was attached to her brain stem and facial nerve.

Buckman and Ewend proposed surgery and explained the procedure to Upson, who agreed with their recommendation. "They explained to me the risks involved and what it would take to have a successful surgery."

The 10.5-hour surgery was performed in October of 2009. One concern was Upson's facial nerve. The surgeons worked hard not to cause any damage and in the end it was unharmed. After a short stay in ICU, Upson returned home after just 3 days. She has resumed her daily life and work. "I'm grateful for every day now," she says. ●

UNC Lineberger Research Provides New Insights into Deadly Brain Cancer

New findings by researchers at UNC Lineberger suggest that the most common form of malignant brain cancer in adults, glioblastoma multiforme (GBM), is probably not a single disease but a set of diseases, each with a distinct underlying molecular disease process. The study, published by Cell Press in the January issue of the journal *Cancer Cell*, provides a solid framework for investigation of future targeted therapies that may improve the near uniformly fatal prognosis of this devastating cancer.

"Previous work has established that gene expression profiling can be used to identify distinct subgroups of GBM," says senior study author, Neil Hayes, MD, from the Division of Hematology/Oncology at the University of North Carolina at Chapel Hill. "However, the exact number and clinical significance of these was unclear." Hayes and colleagues at UNC Lineberger

expanded on previous GBM classification studies and used expression profiling techniques to comprehensively analyze hundreds of GBM patient samples. The group was able to reliably identify four distinct molecular subtypes of GBM tumors.

The researchers then went on to perform a unique integrative analyses across multiple platforms to look for defining characteristics associated with each subtype. Their findings were quite striking, implying that there are distinct types of GBM and that each one is associated with a specific molecular process. "We discovered a bundle of events that unequivocally occur almost exclusively within a subtype," explains Hayes.

The researchers also report that the nature of these events indicate that the underlying disease process for each subtype may involve distinct cells of origin at a specific stage of differentiation. This

finding has potential clinical significance as determining the cells of origin of GBM is critical for establishing effective treatment regimens. Clearly, given this new information, it makes sense that some drug classes would be expected to work for some tumor subtypes and not others. In support of this conclusion, Hayes's group found that response to aggressive chemotherapy and radiation differed by subtype.

The research was carried out as part of UNC Lineberger's participation in the National Institutes of Health's Cancer Genome Atlas project. ●

Greensboro Entrepreneur Making a Difference

Liz Winter Cohen of Greensboro, N.C. is no stranger to the pain and suffering brought on by major illness. Diagnosed with MS a few years back, she has come to understand first hand the urgency of investing in promising research. The losses of her mother to colon cancer and three aunts to breast cancer strengthened Liz's resolve to make a difference.

As Liz was building a successful market research business in New York and Greensboro, she supported many MS and cancer related charities including UNC Lineberger. She reflects that none of the other groups ever called to thank her for her gifts....except UNC Lineberger. "When I gave to UNC Lineberger the first time, a real person actually contacted me by phone to say thank you. I was shocked!" It marked the beginning of several other gifts and visits by development staff. Liz felt her philanthropy was valued and visits kept her apprised of how her gifts were being put to good use.



Liz Winter Cohen

When it came to her estate planning Liz says: "I had given a great deal of thought to where I wanted to leave certain assets upon my death, and the research and caring that goes on at UNC Lineberger are the pieces of the cancer puzzle that are vitally important to me. It was abundantly clear that this would be part of my legacy so I decided to make UNC Lineberger the beneficiary of an IRA. I was happy to document my intent so UNC Lineberger could account for it."

Shortly after, Liz also decided to make a generous seed grant gift in support of stem cell cancer research. When Liz signed her pledge for the gift she became teary and exclaimed: "I guess I never realized how wonderful making a gift like this feels. Everyone should try it!" ●

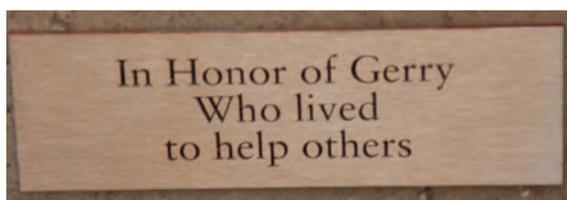
Tax-deferred retirement plan assets are great sources of retirement income, but are not always a good choice for making gifts to children and grandchildren. Consider using retirement plan assets to make a significant and meaningful gift that will support UNC Lineberger and make a difference in the fight against cancer. Because of the tax treatment of retirement plan assets, the "cost" of the gift to your estate and heirs is often relatively small. For more information, please call Debbie Dibbert at (919) 966-9874. ●

Tiles Provide Special Tribute

Sometimes there are no symptoms with cancer. Gerry Schafer was 47 years old when an x-ray for his kidney stone revealed a suspicious shadow. Even though five doctors said it was nothing, Gerry and his wife Linda persevered for a definitive answer. They got it -- lymphoma. The Schafers described the feeling as "being run over by a train in slow motion."

Gerry's first transplant used his own stem cells, but it failed. He would have to endure another transplant. It came on New Year's Eve and this time the donor was a stranger, but Gerry's resolve was failing. The toll of his ordeal began to wear on him and Gerry felt as if he could not go on. But Linda was determined to give him the spirit he needed to fight. She lifted him up and told him "You will live to help others and you will take me to Vegas."

Today, Gerry is a six-year survivor. And that trip to Vegas? They won a car. But what meant the most to them was that they were living life and they now have the good fortune to help others. To them every day is a gift and gives the opportunity, big or small, to make someone else's day.



To commemorate Gerry's struggle and ultimately his life, as a birthday present, Linda purchased a N.C. Cancer Hospital Tile inscribed with "In Honor of Gerry, who lived to help others."

The gifts given for tiles help the N.C. Cancer Hospital expand patient support services and critical programs, and support faculty and clinical research priorities at the hospital.

To purchase your own commemorative tile at the N.C. Cancer Hospital or to honor or memorialize someone special go to nccancerhospital.org/tile/ or contact Katisha Newkirk at 919-966-5905. ●



Matt Ewend, MD, leader of the Neuro-Oncology Program and his family attended a performance. He is shown here with director Sarah Peck. Proceeds have been donated to the UNC Lineberger Neuro-Oncology Program whose members are actively involved in the discovery of novel therapies for combating brain and other central nervous system tumors. ●

Students Support UNC Lineberger from the Stage

A three-performance production of "All I Really Need to Know I Learned in Kindergarten" raised close to \$5,000 for brain cancer research at UNC Lineberger. A talented cast moved audiences to laughter and tears with their performance. Sarah Peck, the producer, partnered with the UNC student group Carolina Cancer Focus to co-sponsor the production in memory of Kenneth Strong, longtime actor with the UNC Playmakers Repertory Theatre, who died of brain cancer. The play is based on the best-selling book by Robert Fulghum.



Chase Jones and his physician, Stuart Gold, MD

Big Win for UNC and Close Shaves for the Diamond Heels

The April 11th UNC men's baseball game was a winner for everyone. While the Heels won on the field, all North Carolinians won as Chase Jones, UNC bullpen catcher and cancer survivor, organized a highly successful event called BaseBald for the Cure. Chase and the team raised over \$6400 for the pediatric oncology program at UNC Lineberger Comprehensive Cancer Center.

At \$100.00 per person, Diamond Heels team members had their heads shaved to the encouragement of a large cheering crowd. Many thanks to Chase for organizing this wonderful event and to the UNC men's baseball team and coaching staff for their participation.

The proceeds are donated in memory of Ashton Miller, a close friend to the program and a member of Zeta Tau Alpha sorority, who died from cancer in March of this year. Zeta Tau Alpha holds their enormously popular annual Franklin 5K of which UNC Lineberger is a grateful beneficiary.

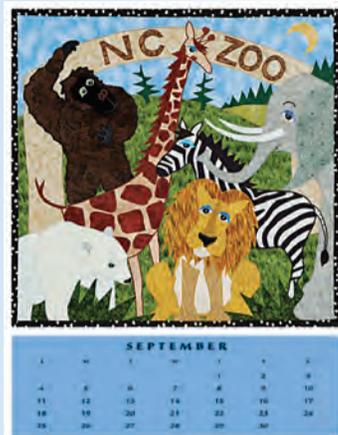
A group of APPLES volunteers from the N.C Children's Hospital collected money at the three games, increasing the amount raised. ●



Associate Head Coach Scott Forbes gets a shave. Photo by Joe Bray.

Spend a Year in North Carolina and Support UNC Lineberger

Elaine O'Neil, a textile artist living and working in Chapel Hill, is collaborating with UNC Lineberger Comprehensive Cancer Center to produce a N.C. Cancer Hospital art calendar as a fundraiser for the patient support program. Elaine is creating 12 pieces of original art that will be photographed and turned into an 11"x14" calendar, each month suitable for framing.



The 2011 calendar will feature scenes of North Carolina, including Hatteras Lighthouse, Pinehurst Golf, the Biltmore House, the Blue Ridge Parkway, and others.

"As with most people, I have been touched by cancer. Both my parents have had cancer, as well as a very dear friend of mine who was a patient at UNC. Cancer is a stressful thing in one's life. My hope is that through my artwork, I can remind people of happy times, whether the scene is a hometown parade, a sunny day at the beach, a sporting event, or a family gathering," said O'Neil.



The 2011 limited edition calendars will cost \$30.00 and will be available in September. For information about pre-ordering a calendar, please visit: unclineberger.org/gift/calendar.

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Beach Ball 2010: The White Party

The 7th annual UNC Lineberger Beach Ball was held this year at the newly renovated Chapel Hill Country Club. The change of venue was accompanied by a fresh approach to the theme: a South Beach/Hamptons-style white party. Over 600 guests, donning various shades of white and beige, enjoyed the party which also offered elements of Beach Balls past: live music by The Troupers, delicious food and drink, fun decorations, and a silent auction with a wide array of items to purchase. Over \$100,000 was raised to support the care and treatment of cancer patients, bringing the event's 7 year total to over \$875,000!

UNC Lineberger Board of Visitors members Janis and Jeff Tillman graciously opened their home for the pre-party cocktail reception, where more than 150 guests enjoyed an elegant reception poolside prior to the White Party. UNC Basketball Coach Roy Williams and his wife, Wanda, served as honorary hosts for the evening's festivities. UNC Football Coach Butch Davis and his wife, Tammy, joined the pre-party fun prior to joining the football coaching staff at the White Party event.

We are grateful to our 2010 Beach Ball lead sponsors: BlueCross & Blue Shield of NC, The Chapel Hill Herald, Butch and Tammy Davis, Eurosport, and Skanska.



Top photo: UNC men's basketball Coach Roy Williams and his wife, Wanda, enjoy the cocktail reception with UNC football Coach Butch Davis and his wife, Tammy.



Above: White Party guests enjoyed posing for photographer Sam Girton.

Left: Barrie and Arlene Bergman are pictured here with their daughter Janis Tillman and her husband Jeff. Janis and Jeff hosted a special reception preceding the White Party at their home.