For UNC Lineberger physicians and scientists, seed grants not only yield early results but also help develop the ideas that grow into large, federally funded projects aimed at transformative breakthroughs in care.

Over the past few decades, we have made remarkable progress, but solving a problem as intractable as cancer will require a willingness to take on risk and the kind of big-picture thinking that fuels medical breakthroughs. The Seed Grant Program at UNC Lineberger Comprehensive Cancer Center gives skilled researchers the opportunity to find answers to some of cancer’s biggest challenges and develop promising new concepts for cancer research, prevention, early detection and survivorship. An increasingly competitive funding environment has magnified the need for and impact of investments in this type of innovative, early-stage research.

Funded primarily by private support, seed grants have helped UNC become a top 10 institution for research funding.
A Catalyst for Great Ideas

The United States is a global leader in biomedical research, but our leadership depends on federal investment, primarily through the National Institutes of Health (NIH) and the National Cancer Institute (NCI). However, federal funding is in jeopardy. While the number of applicants for NCI grants has increased by 30 percent since 1998, the number of awards has remained the same. Fewer than one in seven researchers who today apply for a research grant from the NCI will receive one—a historic low.

In making funding decisions, the NIH and NCI evaluate the significance of the research, approach and level of innovation. These criteria, coupled with the competitive award process, favor applicants who can show experience and preliminary data. Being able to discuss preliminary studies, data or experience pertinent to the application greatly impacts the proposed project’s likelihood of success, especially for young cancer investigators.

Seed grants give UNC Lineberger scientists an advantage in this competitive landscape. For the past 27 years, the program has maintained a steadfast focus on three guiding priorities:

- Accelerating cancer research by funding promising novel ideas with no other source of funding;
- Providing venture capital to gather vital preliminary data to help secure major external funding for program implementation, human trials and further research; and,
- Ensuring young, bright cancer researchers have the opportunity to establish a history of success, keeping them engaged and building a future in cancer research.

RETURN ON INVESTMENT

The Seed Grant Program has experienced exemplary successes and produced significant and surprising new knowledge in many areas of cancer research. Additionally, our researchers have successfully leveraged grant awards of between $25,000 and $50,000 into hundreds of thousands and, in a few cases, millions of dollars in federal research grants.

For example, Scott Randell, PhD, received a $50,000 seed grant in 2011 to study the smoking-related lung diseases chronic obstructive pulmonary disease (COPD) and lung cancer, and to determine the mechanisms by which COPD increases the incidence of lung cancer. The results from this seed grant contributed to the body of work used by a team at UNC to secure approximately $4 million annually in funding for five years from the U.S. Food and Drug Administration (FDA) and the National Institutes of Health (NIH).

Through this grant, UNC is the only institution in the U.S. with two of the 14 Tobacco Centers of Regulatory Science (TCORS). A new, first-of-its-kind regulatory science tobacco program, TCORS is designed to generate research to inform the regulation of tobacco products to protect public health. One UNC team, led by Robert Tarran, PhD, will investigate the impact of tobacco exposure on the lungs’ innate defense system and hydration. The other, led by Kurt Ribisl, PhD, will study issues related to tobacco prevention communication and regulation.

Dr. Randell serves as a project leader and directs a Tissue Culture and Smoke Exposure Core on Dr. Tarran’s TCORS team. Data obtained in this project will be vital for directing new legislation aimed at limiting the development of harmful new and emerging tobacco products.
Private Support Fuels Progress

We are grateful to the many generous donors who share UNC Lineberger’s commitment to investing in early stage research. Since the inception of the Seed Grant Program in 1986, donors have contributed more than $7 million and supported 288 seed grants. UNC Lineberger currently has 38 permanently endowed, named seed grant funds:

Dr. and Mrs. Gerald Arney Fund for Liver Cancer Research
Elizabeth Dalton Averett Seed Grant for New ideas in Breast Cancer Research
Barnhill Family Cancer Endowment
Helen Kalogridis Baucom Memorial Fund for Breast Cancer Research
Bell Family Endowment for New Ideas in Cancer Research
Emily Bright Seed Grant Fund for New Ideas in Ovarian Cancer Research
Rebecca L. Calderon Endowment Fund for New Ideas in Lung Cancer Research
Calvo and Rivera Endowed Seed Grant Fund for GI and Thoracic Oncology Research
Elizabeth Winter Cohen Endowment Fund for New Ideas in Cancer Research
Lovick Pierce Corn Endowment Fund for New Ideas in Cancer Research
Edward K. Crawford Cancer Research Fund
Goldman Family Fund for Innovative Lung Cancer Research
Clarence A. Griffin Jr. Seed Grant for New Ideas in Prostate Cancer Research
Alice and John Harney Fund for New Ideas in Cancer Research
Lanier Swann Hodgson Kidney Cancer Research Fund
Laura T. Jensen & John V. Hyer Endowment Fund for Cancer Research
Carolyn Christoph Johnston Endowment Fund for Ovarian Cancer Research
Christina B. Jones Endowment Fund for Gastrointestinal Cancer Research
C. H. Jack & Joyce E. Keller Endowment Fund for Breast Cancer Research
Susan Hoke Lambeth Endowment Fund for New Ideas in Ovarian Cancer Research
Kenneth and Frances Lee and Family Seed Grant for Melanoma Research
Neil Maddux Miller Endowment Fund for Breast Cancer Research
Bryan and Rebecca Morris Endowed Seed Grant for Cancer Research
Annie G. Muenzner Endowment Fund for New Ideas in Cancer Research
Patrick F. and Carolyn B. Nash Seed Grant Endowment Fund
Marian Nottingham Rice Seed Grant
Palmer Family Fund for Innovative Cancer Research
Brian L. & Suzanne P. Pecheles Seed Grant Endowment for Cancer Research
Allen W. Post Jr. Prostate Cancer Research Fund
Linda T. Postema Endowment Fund for New Ideas in Lung Cancer
River Landing Golf Association for Ladies Fund for Breast Cancer Research
Murphy and Nancy Sample Endowment Fund for Pancreatic Cancer Research
Sol and Pearl Schechter Family Seed Grant for Innovative Cancer Research
Nancy W. Stegman for New Ideas in Cancer Research Fund
Barbara Snipes Tate Endowment Fund
Dianne M. Toal Endowment Fund for Cancer Research
Gail Whisenant Towne Endowment Fund
White Seed Grant Fund

*Endowed, named funds as of June 30, 2014*
Seed Grant Donors

Thank you to the following donors who gave to seed grants between July 1, 2013 - June 30, 2014:

Mrs. Gerald W. Arney
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Mr. and Mrs. Stuart F. Vaughn
Mr. William D. Whisenant and Mrs. Kelly L. Ross
Mr. and Mrs. Sydnor M. White Jr.

For Jim and Kay Mann, investing wisely has always been a way of life. Jim, a self-made successful businessman with a knack for knowing a good deal, says UNC Lineberger’s Seed Grant Program that invests in early stage cancer research resonated with him from the start.

Jim has a unique perspective on the challenges of cancer research and treatment. In 1991, he was diagnosed and treated for prostate cancer at the Mayo Clinic. Nearly two decades later, he was also treated there for laryngeal cancer.

In 2013, Jim and Kay decided it would make sense for Jim to have a cancer treatment team closer to their home in Pittsboro. The Manns felt confident that Lineberger’s multidisciplinary approach to cancer diagnosis and treatment would provide Jim with the best possible care.

Now Kay uses the word “family” when she talks about the cancer center saying, “when we first came into the Lineberger family, everyone from the receptionist to the surgeon was just so nice and reassuring.”

The Manns are driven by a desire to help others who will come after them. Says Kay, “during his own experience with cancer treatment, Jim started doing what he could to help others in the future. When he was helped by a new surgical procedure, he asked the surgeon to share his surgical notes so that others could benefit from the new procedure as well.”

Jim and Kay decided to earmark their seed grant gift to thoracic cancer research and created The James W. and Kay J. Mann Fund for Thoracic Oncology Research. They will continue to add to the fund in future years. Jim explains, “Anyone who contributes to the seed grant fund will have the personal satisfaction of helping somebody down the road. We do. We feel very fortunate to have that sense of passing it on.”
When **Marci Kramish Campbell** was a graduate student at UNC, she received a seed grant that helped jumpstart her career as a cancer investigator. Her research focused on how to help people—both the general public and cancer survivors—lead longer lives with healthy diets, physical activity and appropriate cancer screening.

Thanks in part to the funding she received from a seed grant, this research turned into a major publication and was the first big step in her becoming a national leader in her field.

Marci lived her research. She didn’t smoke, ate fruits and vegetables, exercised frequently and got regular screenings, including a colonoscopy. So when Marci developed abdominal pain, everyone thought it was her gallbladder—not the metastatic colon cancer it turned out to be.

As she did in all aspects of her life, Marci took her cancer challenge head on. She volunteered for a clinical trial of a new drug, continued to do research and mentor students, and spent time with her family. The experimental drug worked for a while and a subsequent conventional treatment helped keep her well long enough to meet her newborn first grandchild.

Cancer took Marci well before her time from the family, friends and colleagues who both loved and respected her. But, before cancer stole her, Marci had a successful and significant two-decade career in cancer prevention and control research—one that started with a seed grant.

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**Seed Grant Award Process**

The program is administered by senior cancer center leaders who review and critique applications. At least two peer scientific experts evaluate and score each proposal, and a scientific advisory board carefully screens all applications to identify top priorities for funding.

Seed grants are significant—and highly competitive—awards for our faculty researchers. Each year, we receive far more promising proposals than we are able to fund.

With award recipients from a wide variety of departments and disciplines, the Seed Grant Program reflects one of UNC Lineberger’s greatest strengths—multidisciplinary depth. UNC Lineberger is the largest research entity at the University of North Carolina, with nearly 300 scientists from 25 departments, including all five health affairs schools (medicine, public health, dentistry, nursing and pharmacy) as well as the College of Arts and Sciences. The Seed Grant Program encourages collaboration across campus as our faculty members work to combat cancer from all directions.
2013-2014 Seed Grant Awards

UNC Lineberger awards seed grants in two programs:

- Clinical/Translational, which supports early stage research that can translate basic science discovery into clinical applications

- Population Sciences, which supports innovative research in cancer prevention, early detection, health promotion, epidemiology and survivorship

**Clinical/Translational Award Recipients**

William C. Zamboni, PharmD, PhD - $50,000
*Evaluation of Mediators of Mononuclear Phagocyte System (MPS) Function and Nanoparticle Pharmacology in Obese and Non-Obese Patients with Ovarian and Endometrial Cancer Enrolled in the UNC Cancer Survivorship Cohort (CSC)*

Elizabeth Flate, PhD - $50,000
*Evaluating a Stromal Gene Signature as a Prognostic Tool in Pancreatic Ductal Adenocarcinoma*

Janet Leung, PhD - $50,000
*An Investigation into the Therapeutic Potential of MYC Inhibition by I-BET151 in Renal Cancer*

Scott Magness, PhD - $50,000
*Development of Models to Study the Origin and Progression of Intestinal Carcinoids*

**Population Sciences Award Recipients**

Clara N. Lee, MD, MPP - $50,000
*Decision Making and Outcomes of Contralateral Prophylactic Mastectomy*

Hazel Nichols, PhD - $50,000
*Pilot Study of Breast Cancer Chemoprevention Use and Adherence in a Large Integrated Healthcare Setting*

Matthew Nielsen, MD, MS, FACS - $50,000
*MISCAN-Bladder: A Simulation Model for Comparative Effectiveness Research*

Daniel Reuland, MD, MPH - $50,000
*Adaptation and Testing of a Decision Aid for Lung Cancer Screening*

Christine Rini, PhD - $50,000
*Adapting an Internet-based Pain Coping Skills Training Program to Help Cancer Patients Manage Bone Pain*
William C. Zamboni, PharmD, PhD

**Evaluation of Mediators of Mononuclear Phagocyte System (MPS) Function and Nanoparticle Pharmacology in Obese and Non-Obese Patients with Ovarian and Endometrial Cancer enrolled in the UNC Cancer Survivorship Cohort (CSC)**

Obesity has been associated with increased risk and worse outcomes for both endometrial and ovarian cancer. Our hypothesis is that obesity and obesity-related factors alter the pharmacokinetics (PK) and pharmacodynamics (PD) of nanoparticles (NP), such as pegylated liposomal doxorubicin (Doxil®; PLD) which is one of the primary anticancer agents used to treat ovarian and endometrial cancer. Specifically, obese patients will have a higher distribution of NP to fat and higher circulating levels of estrone and chemokines which lead to higher mononuclear phagocyte system (MPS) function, higher NP clearance, and ultimately reduced tumor exposure and anti-cancer efficacy of NP compared to non-obese patients. However, these hormone and chemokine mediators of MPS function and NP PK and PD have not been extensively evaluated in patients with cancer and especially not as related to body habitus.

We propose a pilot study to evaluate this hypothesis by measuring hormone and chemokine mediators in existing blood samples from obese and non-obese patients with ovarian and endometrial cancer enrolled on the UNC Health Registry/Cancer Survivorship Cohort (CSC). Our specific aims are: profile hormone mediators of MPS function and NP PK and PD in obese and non-obese patients with ovarian and endometrial cancer enrolled in the UNC CSC; and profile chemokine mediators of MPS function and NP PK and PD in obese and non-obese patients with ovarian and endometrial cancer enrolled in the UNC CSC. Our overall goal is to translate the results of this study to a future grant that will compare these mediators, MPS function, Doxil PK and PD in obese and non-obese patients with ovarian and endometrial cancer and ultimately in clinical practice in order to create new paradigms to individualize NP therapy in obese patients with cancer.

Elizabeth Flate, PhD

**Evaluating a Stromal Gene Signature as a Prognostic Tool in Pancreatic Ductal Adenocarcinoma**

Pancreatic ductal adenocarcinoma (PDAC) is a highly aggressive disease with limited treatment options and poor outcomes. A defining characteristic of pancreatic cancer is the accumulation of fibrous tissue, known as the tumor-associated stroma. The stroma is thought to provide an ideal environment for the growth and movement of cancer cells. All tumors have stromal tissue, but in pancreatic cancer, it is unusually thick and dense. In fact, a majority of pancreatic cancer tissue biopsies are dominated by stroma with few to no tumor cells available for diagnosis.

Using gene expression data from a large set of tumor and normal samples, we have identified two sets of genes that are highly expressed in stromal tissue. Furthermore, these gene signatures are associated with patient outcome. One set of genes is related to an inflammatory stromal response and is indicative
of poor survival while the other includes “normal” markers of stroma and is associated with a better outcome. We propose a research plan to validate these gene signatures in patient samples as well as in stromal cells cultured from normal, chronic pancreatitis (CP), and PDAC tissue in order to determine if there is “bad” versus “good” stroma.

A prognostic stromal gene signature would leverage the high prevalence of stromal tissue in PDAC biopsies, providing a useful tool for pancreatic cancer diagnosis and treatment optimization. Preliminary analysis of our gene signatures revealed that many of the stromal genes that are associated with poor prognosis are also involved in inflammation. Specifically, we noticed the presence of several chemical messengers, called cytokines, which are involved in the communication between immune cells and host tissue cells. Therefore, we also plan to determine if stromal cells isolated from normal, CP and PDAC samples secrete different combinations of cytokines and are associated with different inflammatory signals/responses.

We will determine if stromal cells promote tumor development and metastasis by secreting cytokines and if so, which cytokines mediate these effects. Through a better understanding of the stromal inflammatory response and its role in PDAC development and progression, we hope to strengthen the possibility of successfully integrating immunotherapy into pancreatic cancer treatment regimens.

Janet Leung, PhD

An Investigation into the Therapeutic Potential of MYC Inhibition by I-BET151 in Renal Cancer

Kidney cancer contributes to over 10,000 mortalities in the United States each year. Although surgery is potentially curative, recurring and inoperable late stage cancers are usually fatal. The increasing rates of mortality from renal cancer have thus fueled more intense efforts in finding additional therapeutic options. In the last decade, increasing evidence has shown the effective use of targeted therapies in the treatment of various cancers.

Successful well-known targeted therapies that are currently being used clinically include imatinib, which targets the BCR-ABL gene in chronic myelogenous leukemia, and trastuzumab for the treatment of HER2/neu-positive breast cancers. Targeted therapies, unlike standard chemotherapy drugs, aim to attack specific abnormalities in cancer cells that set them apart from normal cells. As a result, these treatment regimens are potentially more effective with possibly less severe side effects. The challenge, however, is identifying the abnormality that is in a specific type of cancer cell and finding the effective therapeutic compound that will target this abnormality.

We and others have found abnormal signaling of the MYC pathway in a subset of renal cancers. The MYC signaling pathway regulates transcription of genes involved in cell homeostasis. Abnormal amplification of MYC signaling is thought to contribute to tumorigenesis through a number of context dependent cell processes including unrestrained cell growth and proliferation, alterations in cell metabolism, angiogenesis and genomic instability. Here, we seek to test the therapeutic efficacy of targeting the MYC signaling pathway in renal cancer. We will include in our studies, I-BET151, which has been shown to function as a potential chemotherapeutic agent by targeting MYC activity. I-BET151 and similar compounds have shown promise in experimental models of multiple myeloma (MM) and
leukemias. The experiments we propose here will further enhance our understanding of the biology underlying renal cancer and provide insights into the therapeutic potential of a compound (I-BET151) that has already shown promise in other types of cancers. Our studies will further add to the increasing promise of targeted therapies in treating human cancers.

Scott T. Magness, PhD
Development of Models to Study the Origin and Progression of Intestinal Carcinoids

Carcinoids are slow-growing tumors occurring in the small intestine. They are usually discovered once they have metastasized to the liver, producing symptoms like abdominal pain, diarrhea and flushing. The main treatment is surgery since these tumors are usually not responsive to chemotherapy and radiotherapy. The treatment has not significantly changed in the last two decades due to the lack of studies of the initiation and progression of the carcinoid disease. We propose to study the mechanisms of initiation and progression of these rare tumors using approaches such as mouse models of the disease and gene expression analysis.
Clara N. Lee, MD, MPP  
*Decision Making and Outcomes of Contralateral Prophylactic Mastectomy*

Growing numbers of women with breast cancer are undergoing contralateral prophylactic mastectomy (CPM), in which their healthy breast is removed. CPM is recommended for women who have a genetic mutation or strong family history of breast cancer to prevent cancer on the other side. It is mostly performed, however, in women who don’t have a mutation or strong family history, and the reasons why are unclear. Although some studies have reported that breast cancer patients choose CPM to achieve peace of mind or improve their appearance, those studies did not study decision making in patients actually facing the decision.

Three psychological processes—estimating one’s own risk of a new cancer, predicting how one will feel in the future, and decision making while experience strong emotions—are known to affect people’s choices and are likely important to the CPM decision. Despite this importance, almost no research on the psychology of CPM decisions has been conducted. Communication between the patient and surgeon is important to the CPM decision, but we know little about what patients and surgeons are saying to each other about CPM. We propose to evaluate decision making and communication about CPM by following breast cancer patients over time at three sites with high volumes of CPM. Our findings will inform tools to help patients make high quality decisions about CPM and also advance research that applies decision psychology to clinical medicine. We intend to apply for a larger NIH grant using preliminary data from the proposed study.

Hazel Nichols, PhD  
*Pilot Study of Breast Cancer Chemoprevention Use and Adherence in a Large Integrated Healthcare Setting*

FDA-approved breast cancer prevention drugs (chemoprevention) can reduce breast cancer risk by up to 50 percent, but must be balanced against an increased risk of serious conditions including uterine cancer, stroke, deep vein thrombosis, and pulmonary embolism. Despite high quality evidence of the effectiveness of breast cancer chemoprevention, this therapy is not widely used and there is limited information about women who use breast cancer prevention drugs in real-world settings. Disruptive hot flashes, increased risk of serious health conditions and difficulties in estimating risk-benefit profiles are deterrents to chemoprevention use. In 2013, national guidelines for reducing breast cancer risk encourage medical providers to use a published risk-benefit index to talk with women about breast cancer prevention drugs. However, the risk-benefit index is based in part on numbers of breast cancers and other serious health events rates from randomized controlled trials—and they assume that women will take breast cancer prevention drugs the same way outside of a research study.
To date, there has been no large study of women who use breast cancer prevention drugs outside of a trial setting to evaluate risk-benefit profiles, or whether women are more likely to stop taking breast cancer prevention drugs before the recommended 5-years in a real-world setting. This research study uses existing information from a large integrated healthcare organization, Kaiser Permanente Northern California (KPNC), that has extensive electronic pharmacy and medical record information to conduct a pilot study to see whether women who use breast cancer prevention drugs can be accurately identified, determine whether women stop taking them before 5 years, and estimate whether the benefits of taking breast cancer prevention drugs are greater than the risks. This information will directly support a R01 application to conduct a larger study of women who use breast cancer prevention drugs to examine patterns of use outside of a clinical trial and the estimated level of evidence that the benefits will outweigh the risks in real-world settings.

Matthew Nielsen, MD, MS, FACS

MISCAN-Bladder: A Simulation Model for Comparative Effectiveness Research

The burden of bladder cancer is large and rising, and the risk of bladder cancer increases in the elderly. Approximately 75 percent of cases are diagnosed as early-stage, superficial tumors that do not invade the bladder wall muscle, and the majority (roughly half of all new cases) are low-grade noninvasive. The long-term outcomes for patients with superficial bladder tumors vary dramatically. Patients with high-grade tumors have relatively high risks (>50% at 5 years) of progression to potentially life-threatening muscle-invasive tumors, whereas patients with low-grade noninvasive tumors typically have low-risk recurrences but rarely progress to high-risk, muscle-invasive disease, with risks of less than 5% at 5 years. Cancer registry data suggest that these patients represent the fastest growing group of bladder cancer patients in the US; despite this, low-risk bladder cancer has received little direct study.

Standard care includes tumor excision followed by regular periodic evaluation (surveillance) of the bladder for recurrences by cystoscopy, a procedure involving the insertion of a flexible camera into the bladder through the urethra, awake in the office. There is a striking lack of consensus between the U.S. and European guidelines regarding surveillance of patients with low-grade noninvasive tumors. The U.S. guidelines do not make specific recommendations for low-risk cases, recommending essentially a uniform high intensity of surveillance for patients with low and high risk superficial disease. In contrast, the European guidelines explicitly recommend a less intensive schedule for patients with low risk disease. These discordant recommendations reflect the uncertainty of decision making for this large and growing group of predominantly elderly patients.

In this context, we have recently completed innovative mathematical modeling to compare the different surveillance regimens. The provocative results of this work suggested that the lower intensity European guidelines appear to be as effective as the more intense U.S. guidelines in terms of quality-of-life-adjusted survival. While our initial modeling offered important insights, it also had important limitations, which we seek to address in our current application. We did not explore the dimension of
costs, which are substantial for bladder cancer care, and the methods used in the initial modeling could not systematically estimate the population-level impact of policies with respect to the age distribution of bladder cancer in the US. We are developing a microsimulation model to address these limitations. We have also established a nascent collaboration with established investigators from the Erasmus Medical Center in Rotterdam who have been key contributors to the NCI Cancer Intervention and Surveillance Modeling Network (CISNET) consortium’s work in comparative modeling in other cancer sites (colorectal, lung, esophageal, breast and prostate cancer).

In the current application, we plan to work with the Erasmus collaborators on developing a parallel model of bladder cancer using their MISCAN model, established in other disease sites, to create a comparative model for bladder cancer (MISCAN-bladder—Aim 1). We will then compare the results of MISCAN-bladder to UNC Bladder Sim in examinations of alternative surveillance regimens for low-risk bladder cancer (Aim 2) to provide further insight into this specific question and also to provide preliminary data to support the development of a planned R01 submission to support the development of more comprehensive models of bladder cancer to apply to other cancer control problems.

Daniel Reuland, MD, MPH
Adaptation and Testing of a Decision Aid for Lung Cancer Screening

A large, multi-center study recently found that screening for lung cancer using low dose CT scanning (LDCT) can reduce lung cancer mortality in current and former heavy smokers. Based on this, the U.S. Preventive Services Task Force (USPSTF) and other groups have issued new guidelines recommending that annual LDCT screening be offered to at-risk patients. However, screening can clearly be harmful, and concerns have been raised about the application of LDCT screening in practice, and whether individuals will truly understand their own chances of benefitting from screening. The USPSTF and other specialty organizations recommend patients engage in informed decision making with providers before being screened.

However, patients are often poorly informed about the benefits and harms associated with cancer screening, and providers lack tools to help patients make informed decisions. Decision aids could potentially help patients and providers improve decision making about lung cancer screening. However, there are currently no decision aids have been rigorously developed and tested to see how they affect informed decision making. We propose to create a web-based decision aid for use in civilian primary care patients (through adaptation of “prototype” version developed at the VA) and to test of this new decision aid in a clinical setting. This proposed research will result in the creation and preliminary testing of a decision aid. It will also provide preliminary data needed to plan for and fund a larger study of screening decision support.
Pain is one of the most common symptoms that cancer patients experience, and also one of the symptoms most likely to be inadequately treated. Of the different types of cancer-related pain, bone pain is both common and difficult to fully control. It is therefore a critical target for efforts to improve management of cancer pain. Current guidelines for managing cancer pain recognize the need to combine different types of treatments, including those that educate patients about pain and empower them to manage their own pain—that is, pain self-management. Pain Coping Skills Training (PCST) is a pain self-management intervention that has been proven to reduce pain and improve other outcomes of people suffering from pain. Yet, PCST and similar interventions are under used in clinical care, in large part because of barriers such as a shortage of qualified therapists to lead the training, resources needed to hold in-person training sessions, the need for patients to travel for training at set times, and difficulties coordinating it with clinical care. Our goal is to expand the reach of PCST so that more cancer patients with bone pain can access it.

Research shows that interventions such as PCST can be delivered successfully as Internet-based programs, and that doing so overcomes key barriers that limit their reach. That research led us to develop an Internet-based PCST program called PainCOACH. It was originally developed to address osteoarthritis (OA) pain because that is the medical condition for which PCST was originally developed. In a recent randomized controlled trial, we found that people with OA who used PainCOACH liked using it and experienced improvements that indicated better pain self-management. The findings demonstrated a strong potential for PainCOACH to also help cancer patients manage their bone pain. However, cancer patients with bone pain are likely to have significantly different needs and concerns than people with OA. The activities described in this proposal would allow us to gather data we need to obtain grant funding to adapt PainCOACH to meet the specific needs of cancer patients with bone pain, maximizing the program’s potential to help them manage their pain.

We propose to use a “generic” version of PainCOACH that does not reference OA to conduct a pilot study to gather rich feedback from cancer patients with bone pain who use the program at home and who complete measures and interviews to share their experiences and recommendations (Aim 1). These patients will include breast and prostate cancer patients with bone pain due to bone metastases and patients with bone pain due to multiple myeloma. In addition, we propose to conduct focus groups with clinicians who treat cancer patients with bone pain. They can provide feedback on how the adapted program can be successfully coordinated with patients’ clinical care in a way that is acceptable and actively supported by healthcare providers (Aim 2). Findings will allow us to complete successfully for extramural funding that will allow us to adapt and test the adapted PainCOACH program with cancer patients with bone pain.
UNC Lineberger Comprehensive Cancer Center brings together some of the most exceptional physicians and scientists in the country to investigate and improve the prevention, early detection and treatment of cancer. One of only 41 NCI-designated comprehensive cancer centers in the nation, UNC Lineberger works to understand the causes of cancer at the genetic and environmental levels, conduct groundbreaking laboratory research and translate findings into pioneering and innovative clinical trials.