



Carolinas HealthCare System
Levine Cancer Institute



LEVINE CANCER NAVIGATOR

WINTER 2015

24 Hours of Booty Teams with Levine Cancer Institute for Cancer-Fighting Ride

It's 3:30 a.m. on a hot July morning and Charlotte's Myers Park neighborhood is abuzz. Several hundred cyclists are circling the neighborhood in an effort to raise money for their friends, family, neighbors and colleagues. In just a few hours, several hundred more will re-enter the course after a night resting in tents and sleeping bags. The 24 Hours of Booty event is in motion, igniting the community in a fight against cancer.

24 Hours of Booty has become one of the Charlotte area's most successful cancer fundraising events, garnering more than \$12 million since its beginning in 2002. In 2014 alone, the 24-hour cycling ride raised \$1.43 million. As a grateful beneficiary of these earnings and an event sponsor, Carolinas HealthCare System's Levine Cancer Institute is actively involved in each summer's event.

The 2014 ride was held July 25-26 and included 1,200 participants from 26 states. Three hundred volunteers supported riders along the three-mile loop and inside "Bootyville," the tent village where cyclists ate, slept, and celebrated. Top fundraiser awards went to Team Bank of America, who raised \$86,805 for the group category, and Josh Jones, who raised \$31,898 among individuals.

Booty Funds Survivor and Navigator Services

Levine Cancer Institute's relationship with 24 Hours of Booty has developed across the fundraising organization's 12 years, from initially providing medical care to eventually becoming both a sponsor and beneficiary. Proceeds from Booty support the Institute's patient navigator and survivorship programs, which focus on a multi-faceted approach to cancer care, emphasizing psychosocial assistance.

"The whole idea of modern cancer treatment is to address cancer from prevention and screening to diagnosis and treatment through post-treatment vigilance and survivorship. It's a lifelong continuum," noted Jeffrey Kneisl, MD, medical director of surgical oncology services at Levine Cancer Institute and a board member for 24 Hours of Booty.



Jeffrey Kneisl, MD
Medical Director of Surgical Services, Levine Cancer Institute;
24 Hours of Booty board member

Levine Cancer Institute's cancer survivorship program offers numerous support groups, a wellness program run through area YMCAs, individual and family counseling, an on-staff psychologist, and comprehensive educational resources. It also includes yoga classes, tai chi instruction, and stress relief programs. Funds from this event allow these services to be provided free of charge to Institute patients.

The Institute's navigator initiative provides individuals who can help patients coordinate their visits, more

fully understand their disease and its treatment, and access community resources. Levine Cancer Institute currently runs a training academy to prepare their navigators for this unique position. "Initially, the navigator started as a nurse that helps you get to the doctor's office and helps you set up appointments, but the concept has evolved into someone who is relatively disease-specific and understands the entirety of the disease, enabling them to help with all phases of care and societal reengagement," stated Kneisl. "The navigator, in this role, has really developed in the last five to seven years and integrating them at the pace we desired has taken funding."

Ride Celebrates Survivors, Honors Victims

While the Booty proceeds help enhance cancer care for current and future patients, the ride recognizes those who have already fought the disease. Each year, a Survivor's Breakfast is held, and names of loved ones bedeck the back of jerseys. Participants also commonly form teams centered around a family member or friend who has undergone cancer treatment, highlighting them in



Dr. Crystal Perkins, Dr. Jeffrey Kneisl and Dr. Kelly VanderHaave

CONTINUED ON PAGE 7 ►►

Breast Initiatives Enhance Care

Embodying the Mission of Levine Cancer Institute

New Radiation Therapy Center at CMC-University

Lymphoma Program Grows Under New Leadership

Breast Initiatives Enhance Care



Richard White, Jr., MD (left)
Chief of the Division of Surgical Oncology

Wendy Brick, MD (center)
Vice Chair of Solid Tumor Oncology
Co-Medical Director, Integrative
Oncology Program

Antoinette Tan, MD, MHS (right)
Chief of Breast Medical Oncology
Chief of Medical Oncology,
Levine Cancer Institute-Pineville
Co-Director, Phase I Program

The breast oncology program at Levine Cancer Institute, part of Carolinas HealthCare System, exemplifies the System's multidisciplinary approach to cancer care. Radiation, surgery and medical oncology staff work together with pathologists, plastic surgeons, geneticists, nutritionists, social workers, psychologists and nurses to offer comprehensive, personalized care for each patient. Within this diverse group of staff, quality improvement is a continuous process that is eagerly embraced.

Metrics Ensure Quality Care

The breast oncology program is currently building surgical and medical quality metrics that will be tracked and reported across the Institute's network, which spans North and South Carolina. Breast cancer screening, treatment and supportive care pathways are standardized and followed at all locations across the Carolinas ensuring quality care that is in alignment with national standards.

According to Richard White, Jr., MD, chief of the Division of Surgical Oncology, a number of the Institute's breast centers have already been accredited through the National Accreditation Program for Breast Centers (NAPBC), and several more are currently working towards the voluntary accreditation. The metrics

that he and the breast oncology team are implementing overlap with many of those required by the NAPBC. Metrics include ensuring that women who are candidates for specific treatments—such as post-lumpectomy radiation and reconstructive surgery after mastectomy—are properly informed and educated by their care team. “We always drill down to the individual patient. In some women, it's completely appropriate not to do certain treatments, but we need to know that this has been considered, discussed, and tracked,” said Dr. White.

Nurse Navigators Uphold Patient-Centered Care

To help patients maneuver the breast oncology program's multiple services, patients are provided nurse navigators. Often the first practitioner to consult the patient after diagnosis, the navigator answers questions, informs the patient and their family about services, tracks appointments, and coordinates care. Wendy Brick, MD, vice chair of Solid Tumor Oncology, works closely with the breast program's navigators and notes that these valuable team members work with patients to address issues that may impede treatment success.

“The navigators help us solve many problems that we wouldn't have even identified. Lack of transportation, lack of insurance, even lack of housing are problems that our patients experience,” she stated. “It can be difficult for the physician to know all of this, so the navigator plays a critical role.”

In addition to providing a more patient-centered experience, the navigator can also improve outcomes. Data from Harlem Hospital showed that 5-year survival rates for breast cancer were 70 percent when navigation was used as part of a more comprehensive screening and treatment program, compared to 39 percent without navigation services.

Dr. Brick notes that ensuring patient compliance is likely a key part of this outcome improvement. “When you get your chemo at the appropriate time, you're going to do better. The navigators ensure that patients remember their appointments, make it to their treatment, and follow through on their care instructions.”

CONTINUED ON PAGE 3 ►►



Grace Sauzier, RN, BSN, CBCN

Breast Program Nurse Navigator Wins National LifeChanger Award

The breast program's skilled nurse navigators impact their patients' lives every day. Recognizing this, Health Monitor Network recently awarded breast health navigator Grace Sauzier, RN, BSN, CBCN, with a LifeChanger Award. The annual honor is given to healthcare professionals who have made a difference through their work. Nominations are submitted by patients or caregivers, and one winner is selected in each of four categories: physician assistant, diabetes educator, nurse practitioner and oncology nurse navigator.

Sauzier began nurse navigating for the underserved in 2006. Since that time, she's helped many women handle the challenges of breast cancer treatment. The connections she forms with her patients keep her engaged in her work, she says, and make her eager to continue assisting this patient population.

“I meet with patients when they're diagnosed and work with them all through treatment and follow-up. I never let go,” said Sauzier. “There is a relationship that develops over this time. I feel very close to them, and they feel close to me. These women trust me to do the right thing for them, and I take my role as patient advocate very seriously.”

Honored to be a 2014 Oncology Nurse Navigator LifeChanger Award recipient, Sauzier notes that the award's patient-driven nature is especially meaningful to her. She plans to continue her work as a nurse navigator long term, with a special focus on increasing access to healthcare and community resources for underserved patients.

Clinical Trials Offer Additional Treatment Options

The breast oncology program is further improving care quality by engaging in research trials to give patients access to investigational therapies. Antoinette Tan, MD, MSHc, chief of Breast Medical Oncology, came to Levine Cancer Institute in July, bringing along significant experience in clinical trials. As she leads the breast program, her goal is to build a robust clinical trial portfolio that offers a trial for every stage and each type of breast cancer. "I identify myself as a clinical investigator, so I look forward to identifying and developing new clinical trial opportunities for the Institute and then bringing these concepts to reality," said Dr. Tan. "I also want to increase the accrual of patients to the trials in our breast program. I think that's important, as not many patients participate. The percentage that has been quoted is 2-3 percent nationally."

Dr. Tan's main research interest is investigating novel therapies for breast cancer treatment, especially triple-negative disease. Currently, she is the local principal investigator for a recently-opened trial at four Institute facilities that examines the use of a novel agent, ipatasertib, in patients with metastatic, triple-negative breast cancer. The multicenter, Phase II, randomized, double-blind study will compare ipatasertib combined with paclitaxel (common chemotherapy) and paclitaxel with placebo. Ipatasertib is designed to block Akt, a protein thought to be important in cancer.

Dr. Tan's goal for Levine Cancer Institute's breast cancer research is to build a diverse portfolio with investigator-initiated, pharmaceutical-sponsored, and cooperative group-funded studies. Mentoring other Institute physicians interested in research is also important to Dr. Tan, as is assisting with the development of additional Phase I clinical trial units.

Initiatives Example of Quality Standard

As the breast team works to implement and perfect these critical initiatives, they continue to provide high-quality care to the Institute's patient population every day. Working together to offer a comprehensive approach to breast cancer treatment, the team ensures that patients witness the Institute's commitment to quality every step of the way.

FACILITY SPOTLIGHT: Embodying the Mission of Levine Cancer Institute in Union



R. Dean Butler, MD (left)
Medical Oncology

Gregory M. Brouse, MD (center)
Medical Oncology

Ben Moeller, MD, PhD (right)
Medical Director, Radiation Oncology,
Levine Cancer Institute-Monroe

Carolinas HealthCare System's Levine Cancer Institute brings professionalism, expertise, and compassionate care to Monroe, NC.

The oncology program at Levine Cancer Institute-Monroe comprises just three physicians—two medical oncologists and a radiation oncologist—but the impact they have on the community is significant. About 25 miles from Charlotte, Monroe is a growing city of 38,000. By offering state-of-the-art technology, sound medical expertise, and a steadfast commitment to their patients, the Institute's team has enabled the population to receive critical care services right at home.

Radiation Renovation Enhances Care

In early 2014, the radiation treatment unit at Levine Cancer Institute-Monroe underwent a complete renovation, bringing in a new linear accelerator and several other technological upgrades. According to Ben Moeller, MD, PhD, medical director for radiation oncology at Levine Cancer Institute-Monroe, the most relevant aspect for patients is the ability to now receive intensity-modulated radiation therapy (IMRT). The IMRT significantly cuts treatment times and is designed to reduce radiation exposure and its side effects through improved precision. The upgrades have also enabled crisper and clearer x-ray images of patients on the treatment table.

Dr. Moeller further cites the ability to do stereotactic radiotherapy as a major benefit of the renovation. Previously, patients needing this treatment were required to travel to Charlotte or

Concord. Its availability in Union County, he notes, is a "quantum leap forward" for treating certain diseases.

"In early stage lung cancer, for patients who weren't surgical candidates and only received radiation, we could only cure about one out of every two," he said. "With stereotactic radiation, because we're able to provide a very high dose of radiation accurately and safely to a small lesion, we can now cure nine out of 10 patients. It's been gratifying to bring those technologies to patients here in this county."

Genetics Clinic Supports Need

Once per week, Levine Cancer Institute-Monroe houses a genetics clinic that offers testing and counseling for cancer patients and their families. Run by two genetics counselors, with medical oversight, the clinic has rapidly expanded from once monthly because of patient demand.

Previously many patients did not avail themselves of genetic counseling because of anxieties about the need to travel to metropolitan Charlotte. Now 4-5 patients are seen each week in the Monroe clinic and numerous family members have been identified with cancer predisposition genes. That's potential lives saved, without a doubt. "Individuals from Anson County and Chesterfield County are included among the patient population seen at Levine Cancer Institute-Monroe, decreasing the distance and difficulty in accessing expanded services.

The genetics team uses national standards to advise patients on when they should be tested for specific genetic mutations, as well as options after receiving a positive test result, such as risk-reducing surgery or high-risk screening.

Team-Based Approach

While informal collaboration is ongoing, the team of Ben Moeller, MD, PhD; medical oncologists Gregory Brouse, MD; and Dean Butler, MD; and several breast surgeons and general surgeons meet formally twice per month at the breast tumor board; in some cases, complex

CONTINUED ON PAGE 8 ▶▶

Biospecimen Repository Opens at Carolinas HealthCare System



Carol Farhangfar, PhD, MBA
Assistant Vice President of
Tissue Procurement and
Research

In an effort to enhance clinical and translational research capabilities, Carolinas HealthCare System has opened a biospecimen repository that will collect and process blood, tissue, DNA, and other patient samples across the system. The specimens are removed from patients during procedures and processed and stored at the new facility for future research (with the patient's consent), allowing investigators to gain insight on disease risk, prognosis, and treatment response.

According to Carol Farhangfar, PhD, MBA, assistant vice president of Carolinas HealthCare System's Tissue Procurement and Levine Cancer Institute Translational

Research, the repository provides a "bedside-to-bench" approach that will lead to more personalized cancer treatment. "Providing access to high-quality biospecimens is the foundation for molecular and genomics research that can lead to new targets for treatment, diagnostics, and risk factors," she said.

The repository, which was completed this summer at Carolinas HealthCare System's Carolinas Medical Center-Mint Hill, contains numerous built-in systems to ensure high-quality samples, including triple-backup systems on freezers and a barcoding and scanning system to track specimens throughout the process. The facility's development team also created multiple tools to ensure consistency and ease of use across the system, such as umbrella protocols for all disease sites, electronic order forms for specimen collection, and continuing education modules for clinic staff patient consent. The repository is currently collecting

specimens from 13 sites—from Concord, NC, to Charleston, SC—and is supporting both new drug trials and investigator-initiated translational research.

Dr. Farhangfar notes that the new Mint Hill repository allows for a System-wide initiative that has not previously been done in the community-based setting.

"By expanding the opportunities for Carolinas HealthCare System investigators in translational research, the biospecimen repository is aligned with the organization's mission and vision to transform healthcare delivery and provide research opportunities for the benefit of the people we serve," said Dr. Farhangfar.

New Radiation Therapy Center at Carolinas Medical Center-University



Robert Fraser, MD (left)
Director of Radiation Oncology

Mark Liang, MD (right)
Medical Director, University
Radiation Therapy Center

A new 11,000-square-foot radiation therapy center opened in June at Carolinas HealthCare System's Carolinas Medical Center-University. The facility, which is located at 8800 North Tryon Street in Charlotte, NC, is adjacent to existing surgical and medical oncology facilities at CMC-University, better

facilitating multidisciplinary care. The new center features enhanced technology and greater patient comfort than the previous center it replaces, which was approximately one-half mile away and roughly half the size.

"In the short time the new center has been open, many patients have benefited from the improved accessibility of our new location on the hospital campus," said Mark Liang, MD, the center's medical director. "Our new department not only provides a more comfortable environment for patients, but also provides increased access to the vast resources and expertise of Levine Cancer Institute."

The new University Radiation Therapy Center features a linear accelerator that for some radiation treatments is up to 10 times faster than at the previous center. Specifically, the accelerator's volumetric modulated arc therapy (VMAT) has allowed average radiation times for many prostate and head and neck radiation treatments to be cut from 20 minutes to two minutes. In addition, the center's 16-slice Planning CT scanner, which provides up to 10

images per inch in three dimensions, allows the even more precise definition of tumor borders.

"Our new planning and treatment delivery capabilities will further improve both the precision and speed of treatment," noted Robert Fraser, MD, director of Radiation Oncology for Levine Cancer Institute. "A faster daily treatment means less chance for patient movement and, thus, improved precision. It also means that our patients will be able to get back to their normal daily activities all the faster."

The facility's technology updates will also better align University Radiation Therapy Center with the Levine Cancer Institute network. For example, videoconferencing capability will connect the center's physicians and staff with other Institute experts for consultation and discussion of clinical treatment guidelines. The updated treatment capabilities will also allow the center's patients to be enrolled in important clinical trials without having to travel to other facilities.

INSTITUTE UPDATES

NEW LEVINE CANCER INSTITUTE PHYSICIANS



Top Row: Manisha Bhutani, MD; Hassan M. Ebrahim, MD; Mary Ann Knovich, MD; Brinda Koya, MD; Laura Young McGirt, MD

Bottom Row: Ala'a Muslimani, MD; Obiageli Ogbata, MD; Gregory Pennock, MD; Antoinette R. Tan, MD, MHSc

Carolinas HealthCare System's Levine Cancer Institute continues to grow, and nine new physicians have joined our team.

MANISHA BHUTANI, MD, is a hematology and oncology specialist who has done extensive clinical research on multiple myeloma. Dr. Bhutani did her postdoctoral fellowship at MD Anderson Cancer Center and completed her fellowship in medical oncology at the National Institutes of Health. Her translational research and clinical interests include novel therapeutics, imaging, and immunologic manipulation in smoldering myeloma, multiple myeloma, and other plasma cell disorders.

HASSAN M. EBRAHIM, MD, is a board-certified hematology/oncology specialist with clinical interests in breast, gastrointestinal and gynecological cancers, and blood disorders. He completed his fellowship in hematology and medical oncology at Howard University and came to Levine Cancer Institute from East Carolina University, Brody School of Medicine, where he was an attending physician. His previous research has included work in breast cancer and lymphomas.

MARY ANN KNOVICH, MD, is a board-certified hematologist

who focuses on non-malignant and consultative hematology. She specializes in the care of patients with bleeding and coagulation disorders, particularly hemophilia and von Willebrand disease, thrombosis, and platelet disorders, such as thrombotic thrombocytopenic purpura. She came to Levine Cancer Institute from Wake Forest School of Medicine, where she was the medical director of the Comprehensive Hemophilia Diagnostic & Treatment Center and the adult sickle cell program for many years.

BRINDA KOYA, MD, is a medical oncology and hematology specialist with a focus on lung, breast, and gastrointestinal cancers, as well as chronic leukemias. Prior to joining Levine Cancer Institute, she was a fellow in hematology/oncology at Kansas University Medical Center. She is an associate member of the American College of Physicians, American Society of Hematology, and American Society of Clinical Oncology.

LAURA YOUNG MCGIRT, MD, is the director of dermatologic oncology at Levine Cancer Institute.

Dr. McGirt earned her medical degree at Duke University School of Medicine and completed her dermatology residency and a fellowship in immunology research at The Johns Hopkins University School of Medicine. Prior to joining the Institute, Dr. McGirt worked as an assistant professor of dermatology at Vanderbilt University School of Medicine. Dr. McGirt is a member of Alpha Omega Alpha, the American Academy of Dermatology, the United States Cutaneous Lymphoma Consortium, the Dermatology Foundation and the Society for Investigative Dermatology. Her clinical and research interests include cutaneous oncology (with a special focus on cutaneous lymphoma), as well as cutaneous reactions to chemotherapy and cutaneous graft-versus-host disease.

ALA'A MUSLIMANI, MD, is a board certified hematology/oncology specialist with Levine Cancer Institute. He completed his fellowship in hematology and oncology at the Oakland University Beaumont Medical School in Royal Oak, MI, and came to Levine Cancer Institute from the Billings Clinic in Billings, Montana. Dr. Muslimani is a member of the American College of Physicians, the American Association of Clinical Oncology and the American Society of Hematology.

OBIAGELI OGBATA, MD, is a medical oncology specialist with interests in genitourinary malignancies and breast, head, and neck cancers. She came to Levine Cancer Institute from the University of Tennessee, where she completed her fellowship. She is the recipient of a National Merit Award from the American Society of Clinical Oncology for her research in lung cancer and is a member of the International Association for the Study of Lung Cancer, among other organizations.

CONTINUED ON PAGE 8 ►►

INSTITUTE UPDATES

LEVINE CANCER INSTITUTE WINS TOP PERFORMANCE AWARD FOR CLINICAL RESEARCH

Carolinas HealthCare System's Levine Cancer Institute recently received a Top Performance award by Forte Research Systems for the organization's excellence in clinical research. The award was given to three sites that demonstrated exceptional research operations, as measured through Forte's Research Resonance Network (RRN). Members of RRN report metrics and benchmark these against anonymized data provided by other RRN organizations.

To determine the award winners, Forte combined metrics across all categories—including Institutional Review Board Cycle Time, Protocol Review and Monitoring Committee Cycle Time, and Open-to-Accrual-to-First-Patient-In Cycle Time – and scored each facility by comparing its percentile rankings to similar organizations.

According to Levine Cancer Institute's Assistant Vice President of Clinical Trials, Mark King, the Top Performance award is particularly exciting given the vast Institute network. "Because our unique approach to decentralizing cancer care requires us to implement trials across multiple locations and across a large region, to be recognized for our efficient clinical research operations is a special accomplishment," he said.

"Our ability to rapidly review, implement, benchmark and adjust our processes is particularly valuable in our clinical trial initiation process, which is among the swiftest in the nation and helps us deliver care of the highest quality."

SIRIANNI ELECTED TO LEADERSHIP ROLE IN NATIONAL ORGANIZATION

Lindsey Sirianno, MSPAS, PA-C, director of solid tumor oncology for advanced care practitioners, was recently elected to the board of directors for the Association of Physician Assistants in Oncology (APAO). The national organization seeks to promote the utilization of physician assistants (PAs) in oncological care through continuing education, professional development, information exchange, networking, and advocacy.

Sirianno was elected to be director-at-large in July and has already begun fulfilling her responsibilities, including attending the APAO national conference in Austin, TX, September 11-14. In her role, she will focus on social media outreach to the PA community, informing practitioners about the organization's presence and potential benefits.

While a general member since 2011, Sirianno's recent move to Levine Cancer Institute helped motivate her to become more active in APAO.

"When you are part of an academic center, there is more time and focus on branching out and becoming a bigger presence in the oncology community," she said.

She added that the solid tumor oncology director Edward Kim, MD, strives to cultivate leadership in his team, supporting their goals for professional development. In addition to membership outreach, the APAO board is focusing on providing ongoing services for its members, such as a monthly news update on the most recent headlines in hematology and oncology, and regular notifications about new jobs and other professional opportunities.

Sirianno will hold her position for one year and says she looks forward to growing with the organization.

SURGICAL ONCOLOGY LOOKING TO DEVELOP COLORECTAL, THORACIC, AND HEAD AND NECK PROGRAMS



Brent D. Matthews, MD
Senior Medical Director of the Surgery Care Division for Carolinas HealthCare System's Medical Group

Levine Cancer Institute's surgical oncology program has three primary focuses for future growth: developing more coordinated colorectal services, creating a thoracic program, and expanding the head and neck team.

According to Brent D. Matthews, MD, senior medical director of the Surgery Care Division for Carolinas HealthCare System's Medical Group, the colorectal advancement will focus on coordinating care, implementing best practices, and improving Levine Cancer Institute alignment. As part of this work, a new colorectal surgeon will be recruited for both clinical and administrative roles. After recognizing a community need for complex thoracic oncology procedures, the Institute leadership team is establishing a thoracic oncology surgical program. "Recently, we have recruited individuals like Edward Kim, MD, a head and neck and thoracic oncologist. So we need to develop the surgical complement to what's occurring on the medical oncology side," said Dr. Matthews. Program development will likely include recruiting two to three thoracic oncology surgeons over the next five years.

Bolstering the head and neck surgical oncology program is another key goal. "We are increasing access in that program by bringing on support staff," said Dr. Matthews. "We are also looking to recruit an additional head and neck surgeon with microvascular expertise and a plastic surgeon for head and neck reconstruction."

The multidisciplinary composition of the head and neck team is an approach that Dr. Matthews is taking throughout the entire surgical oncology program. "We are looking at areas of multidisciplinary surgical care in addition to multidisciplinary cancer care. We are using a team-based approach, even within surgical care delivery itself," he said.

Lymphoma Program Grows Under New Leadership



Nilanjan Ghosh, MD, PhD
Director of Lymphoma,
Department of Hematologic
Oncology and Blood
Disorders

To provide expert direction in the treatment of lymphoma, Carolinas HealthCare System's Levine Cancer Institute recently recruited new talent as part of its Department of Hematologic Oncology and Blood Disorders. Nilanjan Ghosh, MD, PhD, came to the Institute in early 2014 from The Johns Hopkins University to head the lymphoma program and has brought with him a keen focus on advancing the science of lymphoma through clinical trials, a commitment to support treatment advances (including stem cell transplantation), and a goal of delivering world-class care across the vast network.

Trials Investigate Novel Agents, Updated Protocols

Since the subspecialization of the Department of Hematologic Oncology and Blood Disorders and the arrival of Dr. Ghosh, the lymphoma program has become involved in multiple clinical trials. Two of the trials examine ibrutinib, a Bruton's tyrosine kinase inhibitor, for its use in diffuse large B-cell lymphoma (DLBCL). In a Phase III trial, ibrutinib is paired with the standard treatment R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) and is compared against R-CHOP alone for patients with newly diagnosed disease. A Phase Ib/II trial examines the use of ibrutinib in combination with lenalidomide and rituximab in those with relapsed/refractory DLBCL who are not eligible for transplant.

A Phase II trial in early stage non-bulky Hodgkin lymphoma uses the standard (ABVD) chemotherapy regimen followed by brentuximab, rather than radiation. Brentuximab is a highly effective antibody-drug conjugate that targets CD30 and is FDA approved in relapsed Hodgkin lymphoma. The study allows newly diagnosed patients to have access to the drug with the hope of improving outcomes. Translational research is also being conducted to identify biomarkers in diffuse large B-cell lymphoma. Other upcoming research will investigate treatments in T-cell lymphoma and follicular lymphoma. According to Dr. Ghosh, the development of the lymphoma

clinical trial program this year will provide a valuable service to patients in the region.

"We're trying to move new, more effective, less toxic agents into clinical trials, so that we can establish the next standard of care," he said. "One of our departmental goals is to help scientifically move the field forward through clinical trials, so that better treatment options become available for our patients in the future. In the meantime, clinical trial enrollment allows patients to have access to promising new drugs that are not currently available on the market."

Transplant Unit Supports Lymphoma Patients

The adult blood and marrow transplant unit has helped a number of lymphoma patients since its opening in January 2014. The unit does both allogeneic transplants (myeloblastic and non-myeloblastic) and autologous transplants. Dr. Ghosh notes that the unit's haploidentical, or half-matched, transplanting capabilities will enable an even greater number of patients to receive transplantation, which is potentially curative for a number of hematologic malignancies, including lymphoma.

Because HLA genes on only one of the two number six chromosomes needs to match in haploidentical transplantation, parents, children or siblings have the ability to donate stem cells, greatly expanding the donor pool. "With haploidentical transplantation, your donor availability increases significantly, as you're no longer relying on just 25 percent of siblings who have a chance of being fully matched to the patient," said Dr. Ghosh. "Fifty percent of patients will not have a close match with a sibling or from the donor registry, and some ethnic groups have a very small chance of finding a match in the registry. In addition, stem cell transplants from a related donor can be done in a relatively short period of time compared to an unrelated donor from a registry."

Treatment pathways standardize care ensuring that patients receive the highest quality care at every facility in the system is an Institute foundational goal. To facilitate this, the lymphoma program has created uniform treatment pathways to be shared by all Institute physicians which can be updated as needed to reflect the ever-advancing field.

These pathways include treatment options in a flowchart format easily accessible as an online tool for oncologists across the Institute's network. They will include standardized order sets for lymphoma chemotherapy regimens, consents, information sheets for patients and information on clinical trials. The pathways are discussed at monthly lymphoma section meetings, where members from each site can connect and discuss clinical trial options and standard pathway modifications.

"The face of lymphoma treatment keeps changing and our goal is to practice evidence-based medicine and have it accessible across Levine Cancer Institute," said Dr. Ghosh.

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their team name and educating others about their experience through their fundraising efforts. The 2014 top individual fundraiser did just that. Josh Jones raised his award-winning amount this year while leading LibStrong, a team formed to honor his three-year-old daughter Libby, who fought leukemia before succumbing to her disease last spring. Josh's ride is similar to many participants who choose to participate for those who no longer can.

The Levine Cancer Institute staff similarly took part in this year's event to support the patients they work with each day. The Institute's team of riders raised \$30,000 (a \$400 minimum per rider is required to participate in the event), and a group of staff took part as volunteers and ride cheerleaders. Other Institute employees worked in Bootyville, educating attendees about available cancer care resources.

Kneisl says he advocates participation at the event each year and is never disappointed with the result. Working with 24 Hours of Booty, he adds, is a natural fit for Levine Cancer Institute. "We have an aligned mission, which makes it very easy to work together," he said. "We also have aligned incentives. Booty wants to get communities involved to support cancer awareness, and we're also incented to do that, because we think we can take excellent care of our patients in the community. It's that unique alignment that makes success easier to obtain."



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GREGORY PENNOCK, MD, joined Levine Cancer Institute in May 2014. He previously served as the section leader for melanoma and sarcoma oncology at UF Health Cancer Center at Orlando Health. Additionally, he was medical director in the Office of Clinical Trials. At the Institute, he will continue to focus on the care of patients with advanced melanoma and sarcoma. He is a graduate of the University of Texas Medical Branch and completed hematology/oncology training at the University of Pittsburgh School of Medicine.

ANTOINETTE R. TAN, MD, MHSC, is the chief of breast medical oncology and co-director of the Phase I

clinical trials program at Levine Cancer Institute. She also has been named chief of medical oncology at Carolinas HealthCare System's Carolinas Medical Center-Pineville. Dr. Tan most recently served as director of Phase I and investigational therapeutics and as an associate professor of medicine at Rutgers Cancer Institute of New Jersey. Her research is focused on the development of novel therapeutics for breast cancer. She has extensive experience in the conduct of early phase clinical trials and breast cancer studies. She was a 2012 recipient of the National Cancer Institute Cancer Clinical Investigator Team Leadership Award. Dr. Tan has also served on several American Society of Clinical Oncology (ASCO)

committees, including as chair of the ASCO Cancer Education Committee from 2012-2013. Dr. Tan earned her medical degree from Robert Wood Johnson Medical School. She completed an internal medicine residency at North Shore University Hospital-New York University School of Medicine. She completed her fellowship in medical oncology at the National Cancer Institute. She also obtained a master of health sciences degree from Duke University School of Medicine.

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problems are discussed in the system-wide tumor board in association with Levine Cancer Institute's Research and Administrative Headquarters in Charlotte, NC. Through these conversations, which also include clinicians from pathology, palliative care and social work, the team discusses more than 80 percent of the breast cancer patients treated in Monroe.

"We have all the bases covered at the breast tumor board, and it's a very efficient use of both our time and the patient's time," noted Dr. Butler. "It often saves the patient from being held up several weeks, while they get one opinion over here and another opinion over there. We're all in there together and can devise a treatment plan so the patient's entire care is optimized and expedited."

The team implemented the breast

tumor board in 2011 before seeking accreditation by the National Accreditation Program for Breast Centers and has appreciated its results.

Community Care

Dr. Brouse and Dr. Butler note that Levine Cancer Institute-Monroe offers personal, compassionate care provided close to home, allowing patients to be relaxed during a difficult time and surrounded by their support system.

"Chemotherapy is time consuming and tiring, but our center is cozy and comfortable," said Dr. Brouse. "Much of our staff is local to the Union County area, and I think we do an excellent job taking care of people with cancer for long-term treatment and follow-up."