



NORTON CANCER INSTITUTE 2016 COMMUNITY REPORT





As my first full year as physician-in-chief of Norton Cancer Institute comes to a close, I'm pleased to introduce this 2016 Community Report.

With the goals of curing cancer and eliminating suffering, we have several accomplishments for which to be proud – from groundbreaking research published in prestigious medical journals to opening the first prompt care clinic to keep cancer patients out of the emergency room when they have an illness. This report highlights these and many more achievements.

During this past year we expanded our radiation technology to include NeuroBlate for the treatment of brain tumors as well as began offering DigniCap for women going through chemotherapy for breast cancer. We understand the need to offer the latest technology without losing sight of the things that keep hope afloat during grueling treatment, such as helping a woman not to lose her hair.

I welcome you to read about additional ways we care for the body and for the person within, which you will find highlighted throughout this report.

None of our efforts would be possible without our team of distinguished cancer specialists and support personnel, and I'm pleased to introduce some new members of the team within these pages. Our shared dedication to curing cancer and eliminating suffering will only continue to propel us forward as we work to discover new treatment options through robust research and offer patients what they need to make the most of life as they heal.

Joseph M. Flynn, D.O., MPH, FACP Executive Director and Physician-in-Chief Norton Cancer Institute



# The year in achievements

### Caring for the body

#### Prompt care clinic opens

Patients don't get sick only between 8 a.m. to 5 p.m. And when they are in the throes of cancer treatment, they shouldn't have to wait for relief from side effects. To alleviate that wait, the first Norton Cancer Institute prompt care clinic opened in November in downtown Louisville.

The clinic offers timely care for patients and serves as an alternative to visiting an emergency department when appropriate. It is open extended hours, much like an urgent care center. Patients are triaged by specially trained advanced practice providers who work with each patient's primary cancer care team to determine the best course of action for symptoms such as uncontrollable nausea and vomiting, diarrhea, fever, dizziness, pneumonia and pain.

Four additional acute care clinics are planned for 2017 at Norton Cancer Institute locations at Norton Audubon Hospital, Norton Brownsboro Hospital, the Norton Healthcare – St. Matthews campus and in Jeffersonville, Indiana.

#### Research featured in prominent journals

Norton Cancer Institute is making a mark as an authority in treating blood cancers. Findings from two Norton Cancer Institute clinical trials were published in prestigious medical journals. Don A. Stevens, M.D., medical oncologist, was the principal investigator in these important multicenter clinical trials.

In December 2015, the findings of the Phase III trial of ibrutinib as initial therapy for patients with chronic lymphocytic leukemia were published in The New England Journal of Medicine. Ibrutinib significantly improved survival rates compared with the standard-of-care chemotherapy. This work will have a significant impact on treatment of this incurable malignancy.

In January, The Lancet published data from the Phase II trial to determine the efficacy and safety of daratumumab monotherapy in patients with refractory multiple myeloma. Daratumumab, a monoclonal antibody, has received approval from the U.S. Food and Drug Administration.

The fact that Norton Cancer Institute patients have been included in two very important medical publications is a testimony to our team's effort and to our patients and their families. Dr. Stevens has developed one of the foremost blood cancer programs in the nation and serves as a tremendous resource for all patients who have cancer. With oncology a rapidly changing discipline, the only way we are going to be able to defeat cancer is to develop novel, exciting and targeted cancer therapies.

## Caring for the person within

#### Same-day appointments

Patients who have been diagnosed with cancer may struggle to figure out where to go and what happens next. The last thing they want to hear is that it will be a week or two before they can get an appointment with a cancer specialist.

To further the ways in which Norton Cancer Institute offers expert care and service, we began offering same-day appointments Monday through Friday for a number of conditions, including breast, colon and lung cancers. In most cases, depending on the level of care needed and the time of the call, a physician can see the patient that day.

It's natural to have lots of questions after learning you have cancer. Providing basic human compassion means we should be here for patients when they need us most.

#### Cooling cap helps breast cancer patients keep their hair

This summer, Norton Cancer Institute became the first provider in a five-state region to offer patients DigniCap.

Knowing that many of today's powerful chemotherapy treatments cause extensive hair loss, and that hair loss can be emotionally devastating for patients, DigniCap furthers our focus on not just healing the body, but eliminating suffering by caring for the person within.

The scalp cooling system features a patented tight-fitting silicone cooling cap that is placed directly on a patient's head during chemotherapy. An outer neoprene cap is used to insulate and secure the silicone cap. The cap is connected to a cooling and control unit with touchscreen prompts. A liquid coolant delivers consistent, controlled cooling to all areas of the scalp as it circulates throughout the silicone cap. As the temperature of the scalp is lowered, blood vessels narrow. This reduces delivery of chemotherapy to the scalp and lessens cellular uptake of drugs, thereby reducing the risk of hair loss.

Currently, DigniCap is the only treatment approved by the FDA for use in preventing chemotherapy-related hair loss in breast cancer patients. While the system ultimately may be approved for use as part of treatment for various types of cancer, at this time Norton Cancer Institute is offering it only for breast cancer patients, as approved by the FDA. Funding for the cap was made possible by the Norton Healthcare Foundation.

#### Sending support across the river

Cancer patients in Southern Indiana now have a place to turn for hope and healing, thanks to one woman's vision and support of her community.

The Norton Cancer Institute Pat Harrison Resource Center, in partnership with Clark Memorial Hospital, opened in February in Jeffersonville, Indiana. The resource center serves as a healing place where cancer patients, survivors and their families can go for support, information, guidance and, most of all, hope.

Local resident Pat Harrison was the visionary behind the new center. After her experiences being diagnosed and treated for breast cancer in 2013, she realized a service was desperately needed for others like her in her own community — a warm, welcoming place to turn for people needing cancer information and support services and to meet others going through the same journey — a place where patients, and women in particular, could feel good about themselves.

With support from the Norton Healthcare Foundation, the center features an atrium reception area, library/reading room, indoor and outdoor meditation spaces – including a meditation garden – individual and group meeting areas, a therapy center that offers free massages and music therapy, a prosthetics center with room for patients to be fitted for bras and wigs, and plenty of space for individuals and families to meet with a multidisciplinary team of providers. It has a warm and welcoming feel, a dedicated parking lot for easy access and full-time nursing and support staff.

#### Celebrating our courageous survivors!

In September, on the eve of the annual Bike to Beat Cancer, Norton Cancer Institute held its inaugural Celebration of Courage. All cancer patients, survivors and their family members were invited to this free event that rallied the community around fighting cancer. They enjoyed a light meal, live music, children's games and inflatables.

#### Minimally invasive brain tumor surgery with NeuroBlate

This year Norton Cancer Institute acquired the NeuroBlate System, a laser interstitial thermal therapy for the treatment of primary brain tumors including highgrade gliomas, also known as glioblastomas. Laser-induced hyperthermia is a treatment modality that may have a direct impact on neurosurgical resection, one area known to impact patient outcomes.

The minimally invasive NeuroBlate System employs a specially designed laser probe that allows the neurosurgeon to selectively heat and destroy diseased brain tissue. It does not require an open skull incision. Its potential benefit is in the ability of concomitant MRI thermography to discern the extent of thermal damage induced by the lasing. Its impact may be most significant in difficult-to-access tumors.

We will be participating in trials to evaluate NeuroBlate's efficacy in the management of high-grade gliomas and delineate the clinical context where it may have the most impact.







### Caring for the body

#### From prevention to Pilates

Currently, the incidence of cancer in Kentucky is among the highest in the nation. We are committed to significantly reducing those numbers by providing our communities everything they need to stay proactive about their health.

Our Prevention & Early Detection Program offers no-cost and low-cost cancer screenings, testing, assessments and follow-up care throughout the community at health events and aboard the Norton Healthcare Mobile Prevention Center. In 2015, the mobile prevention center went to 226 events.

#### 2015 prevention efforts by the numbers



people screened for breast, cervical, colon and prostate cancers



of women who received mammograms had never been screened



of women who received mammograms had not had one for five or more years women had pre-cancer or cancer that was diagnosed and treated as a result of the mammogram they received on the mobile prevention center

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people received education about tobacco cessation, diet and exercise during their screenings

#### **Pink Ribbon Pilates**

Norton Cancer Institute introduced Pink Ribbon Pilates for women who have had a mastectomy and completed rehabilitation. Pilates is a mild-resistance exercise regimen designed to strengthen and stretch muscles, release tension and balance the body without putting stress on the joints. Benefits include improved flexibility and posture, reduced stress, stronger core and a healthier mind/body connection.

The class uses a reformer/trapeze combination apparatus that helps stretch and strengthen the shoulder, chest, back and abdominal muscles, allowing breast cancer patients to regain full range of motion in areas affected by surgery.

Pink Ribbon Pilates, which promotes a healthy lifestyle and positive body image for our patients, is made possible by generous funding from the Norton Healthcare Foundation.

#### Why did you choose to specialize in dermatology?

I initially wanted to skip residency and go straight into the lab doing basic science research after medical school, but my mentor, Dr. Richard Chole (chair of ENT at Washington University), insisted that I choose a specialty. With some help from Dr. Lynn Cornelius (chair of dermatology at Washington University), I decided to pursue dermatology. Dr. Cornelius specializes in melanoma and complex medical dermatology, which is an emerging subspecialty and much more rewarding for me than general or cosmetic dermatology.

I did my doctorate research on chronic inflammation and infection, which was great background for treating inflammatory skin diseases and chronic wounds. I went on to do another postdoctoral year studying a melanoma immunotherapy model in mice, which really got me excited about translational research and specializing in oncologic dermatology.

#### What are your clinical interests?

I spent the last four years at a National Comprehensive Cancer Center in Los Angeles (City of Hope National Medical Center), where I saw mostly cancer patients. I have significant experience treating chemotherapy-related skin, hair and nail complications as well as graft versus host disease, which affects patients who have had bone marrow transplants. I am also very interested in oncologic dermatology and managing patients who are at high risk for skin cancers, especially organ transplant patients. I really enjoy working with a multidisciplinary team to optimize the care of these patients.

I am involved in clinical trials for unresectable and metastatic skin cancers as well, which have shown remarkable results. I am also very excited about intralesional therapies, especially oncolytic viral therapy. I have two patients who had complete remissions, and results have been extraordinary nationwide. One of my new interests has been the management and treatment of skin metastases, especially for breast cancer patients. There is a lot of hope for these patients, and I am the principal investigator on a clinical trial that is examining potential immunotherapy treatments for cutaneous metastatic breast cancer.

#### What has surprised you most about your field?

There is an amazing number of new therapies emerging for skin cancers as well as inflammatory skin conditions such as psoriasis and eczema. The approval of immune checkpoint inhibitors such as ipilimumab and pembrolizumab have been game-changers for melanoma patients, and clinical trials are underway for non-melanoma skin cancers as well. I am hoping to bring immunotherapy trials for squamous cell carcinoma and basal cell carcinoma to Norton in the next few months. Biological therapies have been life-changing for patients with psoriasis and new therapies for eczema are also on the cusp of approval. It is a very exciting time to be a dermatologist!

When I was a medical student deciding on a specialty, I was really surprised by how many patients had severe skin diseases that ruined their quality of life. Even for cancer patients, it is striking how many people will stoically put up with the nausea, vomiting and diarrhea but completely fall apart when they get a disfiguring facial rash. It is really difficult for them to cope with and we now have very good treatment options to help relieve their suffering. Similarly, breast cancer patients, even the ones who are not responding to treatment, will take their prognosis fairly calmly but will become extremely despondent if they get skin metastases – it is such a visible reminder of their disease and when it becomes large, ulcerated and bleeding, it isolates them socially as well. I really want to help this patient population. I believe that treating skin metastases with topical immune therapies will not only help their skin but will potentially improve their internal metastases, and this is one of the clinical trials that I am also hoping to bring to Norton.

#### What has been a stand-out moment in your career?

One of my most memorable clinical success stories was helping a patient with a terrible chronic wound on his leg (from graft versus host disease following bone marrow transplant). He had the ulcer for at least nine months and it involved his whole leg. His other doctors recommended amputation and told him there was not much else that could be done. I saw him in consultation at the City of Hope and I put together a multidisciplinary team — hematology, general, plastic and orthopaedic surgery, and wound care nurses — and we saved his leg. It was one of the first cases where I used maggot debridement therapy and it worked wonderfully. It took about a year, but he was able to take his dream vacation to Costa Rica with his wife and two sons!

Additionally, I have been very proud of my research career. As a post-doc, I successfully obtained an NIH RO1 as a co-investigator. As a resident, I obtained a competitive Dermatology Foundation Grant to study melanoma, and in my early career I successfully obtained a STOP Cancer Foundation Grant and obtained funding for my investigator-initiated study — it is a very competitive process.

## Jae Y. Jung, M.D., Ph.D.

#### **Oncologic Dermatologist**

Medical and doctorate degrees: Washington University, St. Louis, Missouri Residency: Washington University, St. Louis, Missouri Fellowship: University of Utah Department of Dermatology, Salt Lake City





#### From chemotherapy to art therapy

Norton Cancer Institute is the largest comprehensive oncology practice in the region, offering medical oncology/hematology, medical genetics, radiation oncology, gynecologic oncology, neuro-oncology, oncologic dermatology, surgical oncology, orthopaedic oncology and behavioral oncology services.

Our physicians, oncology-certified nurses and staff provide advanced treatment options and offer compassionate services for patients and their families. With eight outpatient office locations, three radiation centers, seven chemotherapy infusion centers and access to numerous clinical trials, patients have world-class, multidisciplinary care right here in Greater Louisville.

Inpatient cancer care is provided at Norton Healthcare's four adult-service hospitals – Norton Audubon Hospital, Norton Brownsboro Hospital, Norton Hospital and Norton Women's & Children's Hospital.

Norton Cancer Institute is accredited by the Commission on Cancer, an American College of Surgeons program based on 34 quality care standards for comprehensive and patient-centered cancer care. The accreditation signifies that we are committed to offering patients a range of services, from diagnostic imaging, radiation oncology and systemic therapy, to clinical trials, psychosocial support, complementary therapies, rehabilitation and nutritional guidance. This multidisciplinary approach leads to improved patient care and better outcomes.



A QUALITY PROGRAM OF THE AMERICAN COLLEGE OF SURGEONS

#### Primary treatment and services include:

- The latest medical, pharmaceutical and chemotherapy treatments, including oral chemotherapy
- Minimally invasive prostatectomies and gynecologic and colorectal surgeries
- Radiofrequency ablation, a less invasive nonsurgical treatment to remove liver tumors
- Cryoablation, a minimally invasive alternative to surgery for kidney tumors
- Radiopharmaceuticals for the diagnosis and treatment of specific cancers, such as non-Hodgkin lymphoma, thyroid cancer, bone pain and inoperable liver cancer
- Stereotactic radiosurgery for precision hypofractionated radiation treatment and imaging; used to treat lung and brain cancers as well as many other cancerous and noncancerous conditions, such as trigeminal neuralgia and arteriovenous malformation
- High-dose radiation (HDR) brachytherapy for highly localized radiation administered internally to tumors while minimizing exposure to surrounding healthy tissue and reducing side effects; used to treat breast, lung and gynecologic cancers
- Innovative lung mesh brachytherapy treatments used for nonresectable lung tumors
- MammoSite minimally invasive method of delivering targeted HDR internally following lumpectomy in early-stage breast cancer; offers a shorter treatment duration and reduced side effects
- NeuroBlate laser interstitial thermal therapy for the treatment of primary brain tumors
- Calypso external beam radiation
- Tumor boards
- Private specialty pharmacy
- Lymphedema program



NeuroBlate system



# Healing through creative expression

Studies show art-making can help patients, their caregivers and family members address challenges and develop the resilience to feel truly healthy and well. Art therapy combines visual arts with the knowledge of human development, psychology and mental health to assist in the healing process.

Led by a licensed art therapist, art therapy incorporates a variety of mediums and approaches to creativity and is designed to build on the recipient's interests and strengths. These may include traditional fine-art materials such as pencils, markers, paints and clay, or more craft-based approaches such as jewelry-making, fibers, printmaking or scrapbooking.

Immediate effects of art therapy can include reduction in stress and pain perception, as well as increased relaxation and a feeling of accomplishment. Long-term effects can include empowerment, resiliency and a better understanding and expression of life experiences.

Inpatient and outpatient art therapy is available free of charge through Norton Cancer Institute Resource Centers to anyone affected by cancer. This offering is supported by the Norton Healthcare Foundation.

#### **Multidisciplinary clinics**

Our multidisciplinary clinics provide patients with convenient access to expert teams specially trained in diagnosing and treating advanced cancers and tumors, including brain tumors, sarcoma and lung cancer. By combining physician visits and support services in one location, patients receive coordinated care with fewer appointments.

In 2016, we opened a Comprehensive Lung Center that offers electromagnetic navigational bronchoscopy. This minimally invasive procedure enables access to the outer areas of the lung using an advanced navigation system and a specialized technology known as LungGPS, the cutting edge in early diagnosis of lung cancer. LungGPS, made possible through funding from the Norton Healthcare Foundation, takes from 30 minutes to an hour to complete, and patients may be discharged the same day.

#### Our other multidisciplinary clinics:

- Brain Tumor Center
- Liver Cancer Program
- Sarcoma Clinic
- Survivorship Clinic
- Genitourinary Program
- Hematology Program

#### Breast health program

The Norton Cancer Institute Breast Health Program is accredited by the National Accreditation Program for Breast Centers (NAPBC), a program administered by the American College of Surgeons.

The program was developed to provide comprehensive breast care, including prevention, diagnostic and treatment services, to women in our community. Along with clinical services, the program provides education and support through a team of certified breast care nurse navigators. These registered nurses are specially trained in breast health issues and breast cancer treatment, and are available to assist patients and their families from the point of an abnormal mammogram through diagnosis, treatment and survivorship. In 2015, breast health nurse navigators had more than 4,800 interactions with patients.

The Breast Health Program also cares for the person within by offering support groups and community education. The program facilitates the Young Survivors Day Out for women diagnosed at age 45 or younger, and a monthly breast cancer support group for any woman affected by breast cancer. Community education includes booths at health fairs and "Think Pink," an initiative for high school girls in which a nurse navigator travels to area high schools to educate girls on breast health, self-exams and cancer risk factors.





Derby Divas is a Norton Healthcare Foundation fundraising event held each April to kick off Kentucky Derby season and raise awareness of breast cancer. The much-anticipated event is an evening of shopping and Derby-themed entertainment.

This year marked the 10th anniversary of Derby Divas. Since its inception, the annual fundraiser has raised more than \$1 million for the Norton Cancer Institute Breast Health Program. Those funds have helped pay for mammograms for women who cannot afford them and helped open the Derby Divas Breast Health Center on the Norton Healthcare – St. Matthews campus. In 2015, funds from Derby Divas helped 1,771 women get mammograms aboard the Norton Healthcare Mobile Prevention Center.

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#### Why did you choose the field of oncology?

I am drawn to oncology because of the strong relationship between the patient and oncologist and felt that this was an area where I could make a positive impact on people's lives.

#### What are your clinical interests?

My primary clinical interest is in breast cancer. I find it fascinating that one type of cancer is so biologically and clinically diverse. Each breast cancer is different, and each patient is different. That requires making nuanced decisions to individualize treatment for each person. Strong research in breast cancer has improved our understanding of the disease, finding targeted treatments and ways to overcome resistance.

#### What has surprised you most about your field?

I am constantly inspired by my patients: A mother of three going through chemotherapy and still running 3 to 5 miles a day; a patient with metastatic cancer whose smile and positive attitude touches everyone around them; or the patient who expresses gratitude in the face of bad news. It is humbling to be in a field where you can witness the beauty and resilience of the human spirit.

#### What has been a defining moment in your career?

To me, the best moments are quiet moments in the exam room when we can celebrate milestones in life, a good scan result or another year of being a survivor.

#### Where do you see your field in five years?

I think in five years we are going to see long-term survival in some diseases that previously were thought to be incurable. The pace of discovery has really accelerated, and we are seeing so many new treatment options for patients, such as immunotherapy and targeted therapies. We are going to be able to individualize treatments even better based on the characteristics of the cancer and avoid unnecessary toxicity. I feel very lucky to be in oncology at this point in time.

## Laila S. Agrawal, M.D.

#### Hematologist/Oncologist

Medical degree: Indiana University, Indianapolis Residency: Washington University School of Medicine/Barnes Jewish Hospital, St. Louis, Missouri Fellowship: Vanderbilt University Medical Center, Nashville, Tennessee



#### Gynecologic oncology program



From left: Erica L. Takimoto, D.O.; Lynn P. Parker, M.D.; Wafic M. ElMasri, M.D.; Mary E. Gordinier, M.D.; and David L. Doering, M.D.

Gynecologic cancers account for more than 84,000 cancer diagnoses each year in the United States. While they may not be as common as other types of cancer, they can be deadly due to detection at later stages.

This year, Norton Cancer Institute expanded our gynecologic oncology program, adding two new oncologists to serve a burgeoning patient population.

Joining David L. Doering, M.D., Mary E. Gordinier, M.D., and Lynn P. Parker, M.D., are our newest gynecologic oncologists, Wafic M. ElMasri, M.D., and Erica L. Takimoto, D.O.

The expansion of the gynecologic oncology program also allows for further involvement in clinical trials. Combined with advanced care and support services already available, we're making strides in becoming the destination for treating not just the body, but the woman within through a holistic approach to care.

Our surgical base of operations is at Norton Women's & Children's Hospital, a Center of Excellence in Minimally Invasive Gynecology<sup>™</sup> (COEMIG). Patients also have access to minimally invasive robotic-assisted surgical options at Norton Hospital in downtown Louisville.

#### **Radiation beyond cancer**

Just like with some cancers, there are diseases in which there is no cure — but there is hope. Norton Cancer Institute is working in collaboration with Norton Neuroscience Institute to make pioneering strides in treating patients with painful neurological conditions, such as trigeminal neuralgia and glossopharyngeal neuralgia, that respond to radiation. Working along with a functional neurosurgeon, radiation oncologists can treat these patients with just one dose of radiation from Norton Cancer Institute's TrueBeam STx, a frameless radiosurgery system. They've seen a success rate of 70 percent to 80 percent in relieving pain.

The radiation basically "turns down the volume" on the nerve so that it doesn't fire as often. The same technology is being used to treat children and adults with arteriovenous malformations. And because of the success seen thus far, our radiation oncologists are exploring the use of frameless radiosurgery for the treatment of epilepsy, movement disorders and brain-mediated obesity as well.

#### Healing the body, easing the mind

#### Specialty pharmacy

Norton Specialty Pharmacy offers Norton Cancer Institute patients comprehensive and convenient pharmacy services. The pharmacy has two full-time pharmacists and two pharmacy technicians specializing in oncology and specialty medications. The pharmacists work closely with providers and patients to address any treatment issues.

While you may not think about pharmacy services helping ease a patient's mind, those who use the specialty pharmacy receive their cancer medications more quickly than at other area pharmacies, where availability is often limited. This minimizes delays in treatment, ensuring patients have what they need to begin or continue the healing process.

Norton Specialty Pharmacy also offers personalized information about medications and financial assistance, specialized billing to Medicare Part B and Part D patients, commercial plans and options for delivery and pickup.

#### Specialty lab and pathology

CPA Lab is a Norton-employed and -owned laboratory that provides outpatient lab and pathology services to Norton Cancer Institute, among other Norton Healthcare facilities. Its 20 pathologists support Norton Cancer Institute by providing routine pathologic and subspecialty pathology diagnoses related to cancer. These pathologists work in the subspecialty areas of neuropathology, hematopathology, molecular pathology, cytopathology, gynecologic pathology, breast pathology, genitourinary and gastrointestinal pathology.

CPA Lab's service to Norton Cancer Institute goes beyond routine pathology and into the more esoteric area of developing testing algorithms for various tumors, such as lung adenocarcinoma, breast, acute leukemia and colon cancers for which molecular testing is needed to help determine prognoses as well as various treatment regimens. CPA Lab works with Norton Cancer Institute to develop these algorithms so that once a diagnosis is made by the pathologist, the appropriate testing algorithms can be implemented by the pathologist so that all appropriate diagnostic and treatment data is available to the oncologist.

Examples of these algorithms include MSI testing with reflex to appropriate KRAS, NRAS and BRAF testing in colon cancer as well as KRAS and EGFR mutational analysis and ROS-1 and ALK-1 rearrangement analysis in lung adenocarcinoma.

#### Palliative care

Outside of surgery, chemotherapy and radiation treatment, one of the most important services is palliative care – a specialized holistic therapy that seeks to minimize pain and other physical symptoms as well as address emotional, social and spiritual distress that can be experienced by patients and their family members.

Norton Hospital has an inpatient palliative care program to provide an extra layer of support as patients move through various stages of treatment. This multidisciplinary team consists of a physician, nurse practitioner, nurse, social workers and chaplains. They give special attention to symptom control, clarifying the care goals and hopes of patients, and supporting patients and families spiritually, socially and emotionally. Some palliative support services, such as pastoral care and behavioral oncology, also are available at Norton Audubon Hospital, Norton Brownsboro Hospital and Norton Women's & Children's Hospital.

#### **Research and clinical trials**

Norton Cancer Institute is committed to arming our region with the best possible options in the fight against cancer. We offer access to more than 140 innovative National Cancer Institute and industry-sponsored clinical trials. Cancer studies constitute the largest part of Norton Healthcare's 780-study research portfolio. For a large community hospital system, ours is a robust research program with an impressive research support infrastructure.

The Norton Cancer Institute Research Program has made remarkable strides and discoveries through participation in these ongoing trials. A research-rich environment draws patients who recognize the value of seeking care from a facility committed to scientific breakthroughs in health care.

Norton Cancer Institute's clinical trials are mostly industry-sponsored, focusing mainly on the most common cancers in our area: lung, breast and brain. They improve the ability of our specialists to provide patients with cutting-edge therapies while also advancing cancer treatment for those beyond our communities.

#### Focus on research

Arash Rezazadeh, M.D., medical oncologist, is lead investigator in an exciting targeted molecular therapy clinical trial for bladder cancer that has spread to other body parts and cannot be surgically removed. The research is being conducted at top cancer centers throughout the world and has shown great promise in our patients.

Targeted molecular therapy involves blocking cancer cells' ability to multiply. Ongoing research is moving various types of targeted therapies forward. For example, immunotherapy, a type of targeted therapy, triggers the immune system to destroy cancer cells. Targeted therapy allows oncologists to offer "personalized medicine" based on the individual characteristics of each person's specific cancer.

Researchers see great promise in the not-too-distant future in moving cancer from a life-threatening disease to a chronic illness that can be managed with daily medication. As an added benefit, targeted therapy also tends to have far fewer negative side effects than traditional chemotherapy.



In late 2016, we launched the "N Trial Finder" mobile app for physicians, which more efficiently connects them to cancer clinical trials. The app eliminates the tedious task of determining qualifying factors of potential candidates for each trial. Within a few clicks, the provider can determine if a patient may qualify for a clinical trial.

In 2017, the app will be available for the public to search for trials.

#### **Outreach services**

As a regional leader in cancer care for more than 20 years, Norton Cancer Institute has a long-standing tradition of excellence that is now available to even more patients across our region. The following outreach services are available at locations in Kentucky and Southern Indiana:

- Clinics for new patients and follow-up visits
- Telemedicine consultations
- Collaborative tumor boards
- Support services
- Patient navigation









## From radiation to meditation

#### Complementary and integrative therapies

Art and music therapies, Reiki, massage, meditation, yoga and tai chi are some of the complementary and integrative therapies available through our Norton Cancer Institute Resource Centers. All patients and their caregivers or family members are welcome to take advantage of these offerings.

Outside of the physical benefits of these therapies and activities, they also bring about a greater sense of well-being; relieve anxiety, stress, fatigue and sleep disturbances; and improve mood and quality of life. They also may reduce the negative side effects of chemotherapy and radiation.

Massage therapy is our most popular complementary therapy modality. Studies suggest that massage may help relieve pain, nausea, anxiety and depression associated with cancer. It also can be a great stress reliever for caregivers.

Whether a practitioner or a patient, experiencing complementary and integrative therapies reminds us that we all have healing energy within us and are not on this journey alone.

## Caring for the person within

#### Genetic counseling

While genetic testing could be viewed as a service that cares for the body, we look at it as a means of offering patients and their family members peace of mind – whether through understanding their risk (or lack of risk) or through making a plan for early detection.

The Norton Healthcare Prevention & Wellness Genetic Counseling Services team carefully evaluates each individual's family history, conducts personal cancer risk assessments and provides guidance through the genetic testing process if needed.

In 2015, 517 patients received hereditary cancer genetic counseling through Genetic Counseling Services. Of those, 108 elected to proceed with genetic testing and 160 were found to have a hereditary cancer syndrome. These individuals were offered several options, including observation, enhanced surveillance and surgery, depending on their desires, age, overall health and level of risk.

Our team recognizes that the impact of an inherited risk for cancer extends beyond the patient being tested to include family members, some of whom also might carry the increased risk. Our counselors work in partnership with patients' physicians to provide personalized recommendations.

#### Benefits of genetic testing

- Finding out why cancer is occurring can help relieve uncertainty.
- Knowing whether a diagnosed cancer is hereditary can help the patient and physician decide which treatment options are the most appropriate.
- Knowing whether a cancer is hereditary can help the patient and physician take steps to prevent the development of certain cancers in the future.
- Genetic testing provides support for insurance coverage of more frequent screenings and preventive measures.
- Genetic testing can relieve worries that family members may be at increased risk for developing cancer.

#### **Behavioral oncology**

For many individuals, a cancer diagnosis can bring about a wide range of emotions, including sadness, fear and worry associated with the uncertainties that come with cancer. The Norton Cancer Institute Behavioral Oncology Program offers an integrated approach to addressing the mental and emotional aspects that often accompany cancer care. While the importance of this specialized type of care is understood, Norton Cancer Institute is one of few oncology programs nationwide offering a robust program for mental and emotional health needs.

The Behavioral Oncology Program is staffed by a team trained in psychosomatic medicine and equipped to care for the emotional and mental health needs of patients and their families and enhance quality of life. A full spectrum of services is available, including individual therapy, couples therapy, medication management and interdisciplinary collaboration.

Unresolved psychological distress can contribute to a desire for death, reduced adherence to cancer treatment, decreased quality of life, prolonged hospitalizations, increased health care costs and exacerbation of challenging caregiving needs and family dynamics. Our oncology providers and staff routinely assess the emotional health needs of our patients and make referrals to this specialized service. The Behavioral Oncology Program saw 6,664 patient encounters in 2015.

#### **Resource centers**

Norton Cancer Institute offers patients and their families a place to turn for support, assistance and education. Four resource centers provide personal attention to address patients' physical and emotional needs before, during and after cancer treatment. Their mission is to offer comfort as well as to educate.

#### The resource centers serve as the base for our patient navigators. In addition, they offer the following free services:

- Community support and Norton Cancer Institute-sponsored support groups
- A wide variety of monthly classes and seminars
- Complementary therapies, including Reiki; tai chi; massage; art, pet and music therapies
- Private educational sessions with oncology-certified nurses
- Social workers to assist with overcoming barriers and evaluating resource and support needs
- Nutritional counseling
- Wigs, turbans and hats
- Head scarves and caps in partnership with Hope Scarves and Cap on Cancer
- Breast prosthetics and mastectomy bras
- Certified breast prosthetic fitters
- Lending library with current educational information
- Tobacco cessation programs
- Lung cancer screening program through our lung cancer screening navigator

#### Pet therapy in outpatient clinics

"Petting, scratching and cuddling a dog could be as soothing to the mind and heart as deep meditation and almost as good for the soul as prayer." - Dean Koontz, author

We couldn't agree more — and science proves it. From reducing blood pressure to alleviating stress, relieving pain and pain-related symptoms to even helping humans live longer, dogs and other animals are helping patients cope.

Researchers have found that interacting with animals can increase a person's level of oxytocin, the hormone responsible for helping us feel happy as well as prepare the body for healing and growing new cells. And, of course, there's the unconditional love. Dogs give it, and we feel good when we receive it.

This year Norton Cancer Institute – Jeffersonville introduced pet therapy for our Southern Indiana patients. Pet therapy also is available in Norton Cancer Institute outpatient clinic offices in downtown Louisville and St. Matthews.



#### Why did you choose to become a medical geneticist?

Though I'd taken genetics classes as an undergraduate, I didn't know much about the medical field of genetics prior to medical school. The genetics class in medical school was very interesting. It was fascinating to see how changes in our chromosomes and/or DNA can manifest clinically. To learn more, I rotated in the genetics clinic in medical school and residency. Through these experiences, I realized medical genetics was the specialty for me.

#### What would you like people to know about your specialty?

When I tell people I'm a geneticist, I'm often asked if I work in a lab. Many people don't realize that medical genetics is a clinical field. It is focused on patients, including genetic counseling, diagnosis, risk assessment and/or management recommendations. Geneticists can arrive at the specialty through pediatrics, internal medicine, med/peds or family medicine; though once finished with genetics training, we often see patients of all ages.

#### What are your clinical interests?

There are many different areas within medical genetics, including cancer, prenatal, cardiovascular, metabolic, neurogenetics and general genetics. During my genetics residency training, I was drawn to metabolic genetics, which led me to pursue additional fellowship training in medical biochemical genetics. Once out of training, metabolic genetics was a main component of my clinic, but the other was cancer genetics. Though I still like metabolic genetics, I found a love for cancer genetics.

#### Where do you see the specialty of genetics in five years?

Medical genetics is changing so quickly. I have been out of training seven years and the field has expanded dramatically. Certain testing options from residency are now outdated. New testing methods have been and are continuing to be developed. It seems like new genes and syndromes are being identified constantly.

In cancer genetics alone, there are so many new gene testing options than there were even a year ago. With all of this change, it is hard to predict where genetics will be in five years, though I can't wait to find out.

#### Is there a stand-out moment in your career?

I've had many exciting opportunities from participating in research projects, presenting posters at national and international meetings, presenting lectures at local and national meetings, and teaching. I've enjoyed all of these experiences but still feel there is so much more to accomplish.

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## Kara Goodin, M.D.

#### **Medical Geneticist**

Medical degree: University of Louisville School of Medicine Residency: Pediatrics, University of Louisville; medical genetics, The University of Alabama, Birmingham Fellowship: Medical biochemical genetics, Wayne State University, Detroit, Michigan



## Someone to lean on

#### **Patient navigators**

When facing one of the greatest challenges in life, our patients shouldn't have to deal with added obstacles. Whether it's financial concerns, confusion about a diagnosis or uncertainty about a treatment plan — we believe it's our job not to let these barriers get in the way of timely care for our patients.

Our Patient Navigator Program is available through our four Norton Cancer Institute Resource Centers. It's designed to guide patients and their family members from diagnosis through treatment, recovery and survivorship. Eleven oncology-certified patient navigators are here to lean on and connect patients with the support and information they need. In 2015, they had more than 27,000 interactions through the resource centers and navigator programs.

#### Navigators provide the following services:

- Coordinate care and assistance to streamline appointments, allowing for more timely treatment
- Identify and assist with any barriers to cancer care, such as educational, financial, transportation, language, cultural, communication and fear
- Oversee the educational, emotional and social needs of patients and families
- Provide one-on-one education to help patients and families understand diagnosis and treatment options
- Link patients, families and caregivers to community resources to address specific needs during the cancer treatment experience
- Lead and facilitate support groups for patients and their families

Equipped with an in-depth understanding and familiarity of the health care system, our patient navigators offer their services at no cost to the patient and are available to anyone in the community, regardless of where they receive care

#### Survivorship

Enormous strides continually are being made in cancer treatment, accounting for more and more people living with a personal history of cancer. Since the early 1990s, the overall cancer death rate in the United States has declined, and the number of cancer survivors has increased. According to the National Cancer Institute, the number of people nationwide living beyond a cancer diagnosis reached nearly 14.5 million in 2014. This number is expected to rise to almost 19 million by 2024.

These cancer survivors require medical care and support services tailored to meet their unique needs. The Norton Cancer Institute Survivorship Program provides a special level of care for adults with a history of cancer who have completed active therapy. Services include comprehensive clinical support, education and resources, including:

- Information about upcoming screenings, new treatments and therapies, and emerging technologies that may be relevant to the patient's diagnosis
- Support for family members and caregivers who may be grappling with the diagnosis themselves or may require assistance in helping to care for their loved ones' side effects of treatment and recovery
- Individualized survivorship care and education plans to assist patients in maintaining their overall health and well-being after cancer
- Assistance with maintaining a long-term patient/physician relationship

#### **Celebrating survivors!**

There are no words that bring more hope than telling someone, "You will survive!" And when you can say those words to someone with cancer, it's something to celebrate.

From our Young Survivors Day Out to special events such as this year's Celebration of Courage, which kicked off the Bike to Beat Cancer, these opportunities draw on the hope of being free from cancer. Here are some highlights from ways we celebrated all cancer survivors in 2016.

#### **National Survivors Day at Churchill Downs**

A favorite tradition at Norton Cancer Institute's Survivors Day event every spring at Churchill Downs is drawing the names of eight survivors who are invited to the track's Winner's Circle for the last race of the day. As the eight survivors present the winning trophy for that race – ceremonially named in honor of all cancer survivors – they symbolize the spirit, courage and determination it takes to stand victorious against cancer.



#### Bra Party: The ultimate support group

Now in its sixth year, the Bra Party happens every October in recognition of Breast Cancer Awareness Month. Best described as the ultimate support group, this fun gathering brings breast cancer survivors together for an evening of bra decorating, music, food, friendship and advocacy.

These celebrations are made possible through support from the Norton Healthcare Foundation.

#### The eighth Bike to Beat Cancer

The Bike to Beat Cancer is Norton Cancer Institute's annual premiere fundraising event. The one-day cycling trek is for riders of all skill levels. They choose from three distance options or a 5-mile Family Ride through scenic Kentucky bluegrass country.

Through the Norton Healthcare Foundation, funds raised from the event support prevention, early detection and educational initiatives at Norton Cancer Institute, as well as programs that encourage patients and families to approach cancer with a hopeful outlook. The 2016 Bike to Beat Cancer raised more than \$476,000 for adult and pediatric cancer programs through the participation of 850 riders and 600 volunteers.

#### Community support through the Norton Healthcare Foundation

The Norton Healthcare Foundation, the philanthropic arm of the not-for-profit Norton Healthcare system, provides valuable resources for Norton Cancer Institute to continue its mission of hope, healing and compassion for patients and families.

Thanks to the generosity of our community, in 2016, the foundation gave more than \$1.3 million for a variety of cancer programs and services. Learn more or give at **NortonHealthcareFoundation.com**.

#### Grants by the Norton Healthcare Foundation included funding for:

- Continuing education for registered nurses seeking to become oncology certified through the foundation's Oncology Education and Prevention Fund, established by the Nixon family of Louisville
- Ongoing outreach activities and peer support opportunities for young adult survivors of cancer through the Young Survivors support group
- Funding for two free lectureships, the Gail Klein Garlove and Nixon lectureships, for physicians, clinicians and the public on timely topics in cancer prevention, detection and treatment.
- Lifesaving screenings aboard the Norton Healthcare Mobile Prevention Center in underserved areas in our community
- Cutting-edge videoconferencing technology that enables Norton Cancer Institute physicians to collaborate remotely for the benefit of patients throughout the region
- The Norton Cancer Institute Breast Health Program
- Clinical research programs at Norton Cancer Institute
- Unique partnerships with community cancer groups to provide emotional support and strength to men and women facing cancer







Embracing life after cancer

#### Adolescent and Young Adult Program

Recent research found that cancer affects eight times as many 15- to 39-year-olds as those younger than age 15. And while overall cancer death rates have dropped 23 percent in the U.S. over the past 21 years, this young patient subgroup is the only demographic in which cancer death rates are increasing.

Adolescents and young adults face many barriers to cancer care — transitioning from pediatric to adult-based physicians, few clinical trials focused on their age group, adjusting to living independently and learning to manage social and intimate relationships. Cancer specialists recognize that this group, who initially were diagnosed and treated during childhood, have unique needs related to their types of cancer, psychological impacts and subsequent follow-up needs.

This year, Norton Cancer Institute was proud to unveil two initiatives to provide focused medical care, support and resources for adolescents and young adults: The My Young Adult Program (MyYAP) and the Adolescent and Young Adult (AYA) Transition Clinic. Under the leadership of Patrick Williams, M.D., medical director, Norton Cancer Institute, the AYA program is the only one of its kind in Kentucky and Southern Indiana.

#### **MyYAP**

MyYAP services are built around the key elements of clinical social work, behavioral health needs, physical therapy, genetic counseling and fertility counseling.

The program offers a host of integrative complementary therapies, including massage, yoga, art and music therapy. Participants connect and network through social media channels. They plan various events and group activities, such as laser tag, bowling and dinner at area restaurants.

#### **AYA Transition Clinic**

The AYA Transition Clinic is a collaborative relationship between Norton Cancer Institute and Norton Children's Hospital. It's available to patients age 18 or older who are survivors of childhood cancer and have been off therapy for at least two years.

The AYA Transition Clinic is run by clinicians with expertise in the individual needs of these patients. To provide seamless care, a patient navigator works with each patient to provide clinical and emotional support, education and assistance in addressing barriers to care. The navigator may assist with providing disease-specific education and compiling a summary of cancer treatment and health promotion education to date.

Other navigator services include scheduling appointments; scheduling and coordinating studies; and explaining screenings, procedures, exams and lab work. Navigators also serve as advocates, assessing the physical, emotional and social needs of patients and their families.

The AYA program reflects our commitment to care not just for the body, but the person within. It's open to any adolescent or young adult, regardless of where their diagnosis and treatment took place.





# Adult Network Cancer Registry
In order to successfully manage all cancer data throughout the Norton Healthcare system, a centralized cancer registry department was developed in 2004. The Network Cancer Registry maintains a systemwide cancer database and provides systemwide data reporting for administrative planning and research/outcomes measurements for clinicians.

Norton Cancer Institute's Network Cancer Registry is the only program in the region with American College of Surgeons' Commission on Cancer Integrated Network accreditation. This level of accreditation assures that the cancer program is meeting or exceeding all cancer standards for quality improvement, creating benchmarks for clinicians and exploring trends in cancer care.

The Network Cancer Registry database contains more than 70,000 cancer cases. In response to American College of Surgeons' Commission on Cancer requirements, the registry follows more than 58,000 cancer cases annually. Follow-up letters are sent to physicians and patients to ensure data is current and that accurate outcomes are reported.

Registry data is reported annually to the Commission on Cancer National Cancer Database. All data submitted to the National Cancer Database for the Annual Call for Data are thoroughly reviewed to guarantee that all submissions are error-free. Registry data also is reported regularly to the Kentucky Cancer Registry, which ensures inclusion with the Surveillance, Epidemiology and End Result national cancer program data.

The Commission on Cancer National Cancer Database quality reporting tools, the "Cancer Program Practice Profile Reports," are used by the Network Cancer Committee to monitor the quality of patient care at Norton Cancer Institute. The Network Cancer Registry diligently collects cancer treatment information to ensure completeness of data in the Cancer Program Practice Profile Reports. The online Cancer Program Practice Profile Reports are updated as additional treatment information is collected, and supplementary National Cancer Database submissions are performed as necessary to update the Cancer Program Practice Profile Reports.

Our staff brings the full resources of comprehensive cancer facilities, technology and services together to improve cancer treatment and survivorship, expand prevention and early detection efforts, and enhance education and broaden clinical research.





2015 by the wimbers

#### Top seven sites of new cancer cases





Gender distribution

**Race distribution** 



#### Cancer cases with Hispanic origin

						Non-Hisp	oanic - 3,884	4
His Dor	panic – 23 ( mican Repu	includes His blic- 2, Sout	panic [not ] h/Central /	otherwise sp American (ex	becified], Cu cluding Bra	ban- 18, Me zil) - 2, Pue	xican - 10, rto Rican - 1	
0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000

#### Five-year survival by stage (diagnosed 2011)

Top five malignant sites					
	Breast	Lung (NSC)	Colon	Prostate	Endometrium
Stage O	98.9%	100%	100%	*	100%
Stage I	98.0%	77.0%	97%	100%	95.3%
Stage II	92.1%	60.0%	93.0%	98.6%	100%
Stage III	82.4%	29.2%	77.4%	95.1%	71.4%
Stage IV	33.3%	9.4%	32.0%	65.3%	22.2%
Overall	92.1%	34.1%	71.2%	96.5%	89%

\*No stage 0 for prostate cancer

#### Top treatment composites

Surgery only	1,212	30.8%
No definitive Rx	500	12.7%
Surgery/chemo	309	7.8%
Chemo only	294	7.5%
Surgery/other	282	7.2%
Surgery/radiation/ other	236	6.0%
Chemo/radiation	211	5.4%
Surgery/chemo/ radiation	164	3.97%
Chemo/other	154	3.9%
Radiation only	137	3.5%
Radiation only Surgery/chemo/ radiation/other	137 119	3.5% 3.0%
Radiation only Surgery/chemo/ radiation/other Surgery/radiation	137 119 116	3.5% 3.0% 2.9%
Radiation onlySurgery/chemo/ radiation/otherSurgery/radiationSurgery/chemo/ other	137 119 116 96	3.5% 3.0% 2.9% 2.4%
Radiation onlySurgery/chemo/ radiation/otherSurgery/radiationSurgery/chemo/ otherOther only	137 119 116 96 58	3.5% 3.0% 2.9% 2.4% 1.5%
Radiation onlySurgery/chemo/ radiation/otherSurgery/radiationSurgery/chemo/ otherOther onlyChemo/radiation/ other	137 119 116 96 58 33	3.5% 3.0% 2.9% 2.4% 1.5% .8%

#### Counties of residence at time of diagnosis





# 2015 quality studies

#### Hypersensitivity reaction rate among outpatient oncology patients receiving cetuximab

Cetuximab is a monoclonal antibody indicated for the treatment of head, neck and colorectal cancers. Hypersensitivity reactions occur during the first infusion in greater than 90 percent of cases. Grade 3-4 cetuximab hypersensitivity reaction rates reported in the southeastern United States are higher than the national and international reaction rates. Louisville, Kentucky, does not formally fit into this reaction belt; however, we have observed several Grade 3 cetuximab reactions. Pharmacy leadership was approached by the Nursing Council in June 2015 for thoughts and recommendations on this issue. This prompted us to evaluate patients that experienced a reaction to elucidate trends among these patients.

#### Criteria

We evaluated age, sex, drug allergies, daily antihistamine and/or intranasal corticosteroid use, tobacco use and premedications that were administered. The goal of the research was to determine the rate of cetuximab infusion reactions at Norton Cancer Institute oncology clinics and compare that with national rates. Secondly, we wanted to identify characteristics within our patient population that have been theorized to increase the risk of having a hypersensitivity reaction to cetuximab.

#### Findings

Patients who received cetuximab during January 2015 to December 2015 were evaluated. Forty-two patient charts were identified for use in the study via pharmacy dispensing records. With an average age of 61, the majority of patients identified were males with colorectal cancer and a positive tobacco use history. Eight patients experienced a hypersensitivity reaction (HSR) with the first infusion of cetuximab. Five of eight patients experienced a Grade 3-4 HSR, of whom three were hospitalized. No Grade 5 reactions occurred.

There were no differences in cancer type or gender among patients who had an HSR and those who did not. Patients who had an HSR were more likely to be older with a mean age of 65, receive acetaminophen and diphenhydramine as premedications, have a positive smoking history, and have no known allergies nor use a daily antihistamine or nasal corticosteroid. Patients who received acetaminophen, diphenhydramine and dexamethasone were less likely to have HSRs.

#### National benchmark comparisons

The Grade 3-4 cetuximab HSR rate among patients treated at Norton Cancer Institute clinics in Louisville and Southern Indiana was 11 percent compared with the national and international rates of 2 percent to 5 percent. This rate is similar to other rates determined by studies conducted in the southeastern United States, which ranged from 6.6 percent to 23 percent.

#### Action plan

Currently, our patients are premedicated with acetaminophen and diphenhydramine prior to cetuximab infusions. The data presented here and two studies referenced have shown that patients who receive a steroid as part of their premedication regimen are less likely to experience an HSR.

The action plan involves adding a steroid (Solu-Medrol 80 milligrams) to the premedication regimen as well as administering a 100 milligram test dose. This was implemented in August 2016.

#### Follow-up to monitor action plan

We will perform a retrospective chart review in second quarter 2017 to monitor for improvements.

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#### Assessing the impact of behavioral oncology intervention on patient anxiety level

Recent studies have shown that 32 percent of individuals with cancer experience difficulty with anxiety, depression or an adjustment disorder. The estimated prevalence of generalized anxiety in the general population is nearly 6 percent over an individual's lifetime, higher in cancer patients (studies range from 10 percent to 30 percent and as high as 49 percent in some studies). Understanding cancer patients are at increased risk for experiencing anxiety and that anxiety has a negative impact on quality of life highlights the importance of identifying ways to reduce the impact of anxiety during cancer care.

This study assessed for changes in anxiety scores (the Generalized Anxiety Disorders [GAD-7] questionnaire) by retrospective analysis for patients seen for behavioral oncology for two visits January through September 2015.

#### Criteria

The study was completed through retrospective chart review. Patients who were seen for an initial and follow-up visit within the behavioral oncology department were included.

Data collection included:

- 1. Age
- 2. Gender
- 3. Race
- 4. Cancer type
- 5. GAD-7 initial score
- 6. GAD-7 follow-up score

#### Findings

The study included 102 patients. The majority of participants were 51 to 65 years old (45%), female (80%), and Caucasian (67%). Participants had a wide range of oncologic diagnoses, including breast (41%), gastrointestinal (13%), myeloma (12%), genitourinary (11%), lung (8%), gynecologic (7%), brain (5%) and other cancers (3%).

In the 102 study participants, GAD-7 scores were analyzed for change in score after behavioral oncology intervention. GAD-7 score showed a statistically significant reduction after intervention with behavioral oncology providers (p = 0.0001).

#### National benchmark comparisons

GAD-7 is a widely used, well-studied tool for the assessment of anxiety across the primary care setting with use in oncology practices. Data will be helpful for establishing benchmarks.

#### **Action plan**

Continual tracking to ensure the continuation of evidence-based practice interventions and screening within Norton Cancer Institute's behavioral oncology patient population.

#### Follow-up to monitor action plan

Ongoing process improvement and quality improvement monitoring will be done. Additional follow-up study with a larger sample that is more racially diverse may help to better appreciate changes in anxiety across this population.

The changes on GAD-7 scores could be impacted by several factors, including but not limited to educational level, marital status, available psychosocial supports, insurance, time between visits, co-existing mental health/medical concerns and chosen intervention (pharmacotherapy, psychotherapy or combined psychotherapy/medication management).

Further study with analysis of additional variables would be helpful to better understand identified differences among groups and across the population.

#### **Result improvement**

As a significance level of 0.05, the hypothesis is whether the GAD-7 score is significantly different in the follow-up scores than initial scores.

- The average difference between initial and follow-up is 3.7549
- The test statistics is 6.37, and p-value = 0.0001

Statistically significant reduction in GAD-7 score after one visit with a behavioral oncology provider reflects high-quality care with potential for a significant impact to the system based on ease of patient suffering and enhanced quality of life.

Using the following GAD-7 cut points to summarize the changes in the GAD-7 scores per patient, it shows significant changes on the patients' GAD-7 scores after the intervention, as shown below.

- GAD-7 cut points "The GAD-7 questionnaire" by N Williams, Occup Med (Lond); 2014
  - Normal: 0-4
  - Mild: 5-9
  - Moderate: 10-14
  - Severe: 15-21

As shown below, patients exhibiting difficulty with moderate and severe levels of anxiety were found to have a reduction in anxiety after one visit with a behavioral oncology provider. The following chart summarizes the changes/difference per the GAD score (initial and follow-up score).

As shown, 69 percent of patients had scores that went down after the intervention; 11 percent stayed the same; and 21 percent increased. The changes could be impacted by several factors, such as educational level, marital status, insurance, etc.





#### GAD scores by age group







#### GAD scores by gender



#### GAD scores by race



#### A retrospective analysis of hypo-fractionated whole breast irradiation at Norton Cancer Institute

Each year, the breast cancer quality committee, under the direction of the cancer committee, develops, analyzes and documents studies that measure the quality of care and outcomes for patients with cancer. This study focuses on areas with problematic quality-related issues relevant to the program and local cancer patient population. When possible, studies were designed to evaluate the entire spectrum of cancer care, including diagnosis and treatment, and the psychosocial and supportive care of patients. The spectrum of cancer includes issues related to structure, process and outcomes. Studies were designed to involve physicians and outside health professionals.

#### Criteria

- 1. Registry accession year 2013-2014; site group: breast, stage I
- 2. Analytical cases: 33 cases from Jan. 1, 2013 to June 30, 2013 compared with 36 cases from July 1, 2014 to Dec. 31, 2014.
- 3. Age, stage, systemic therapy, breast irradiation dose and dose fractionation were examined

#### Background

Randomized clinical trials in patients with early-stage breast cancer have shown that adjuvant whole breast irradiation (WBI) following breast-conserving surgery reduces risk of ipsilateral breast tumor recurrence and produces a 5 percent absolute improvement in 15-year overall survival. Most of the early studies evaluating adjuvant radiation therapy in early-stage breast cancer used "conventionally fractionated" radiation therapy regimens. These regimens consisted of 1.8 to 2.0 Gy daily fractions for total doses ranging from 45 to 50 Gy in 25 to 28 daily fractions with or without radiation therapy boost to the tumor bed.

Hypo-fractionated WBI has been long used in the United Kingdom and other countries influenced by British practices. These treatment regimens deliver lower total doses and number of fractions compared with conventional WBI schemes. Hypo-fractionated treatment regimens allow fewer treatment appointments, thus enhancing patient convenience and lowering costs. Four large randomized clinical trials conducted in Canada and the United Kingdom compared conventionally fractionated and hypo-fractionated WBI treatment regimens.

The American Society for Radiation Oncology (ASTRO) Health Services Research Committee convened a task force to formulate clinically useful evidence-based guidelines on whole breast irradiation fractionation. Those guidelines were published in the International Journal of Radiation Oncology, Biology and Physics, Vol. 81, Number 1, 2011. Following is a summary of those guidelines:<sup>1</sup>

Data was considered sufficient to support the use of hypo-fractionated whole breast irradiation for early-stage breast cancer patients:

- Age ≥ 50 years
- Stage pT1-2 NO
- Patients not receiving cytotoxic chemotherapy
- Treated with a dose of homogeneity within ±7 percent in the central axis plane

Data was considered insufficient to make a judgment on the use of hypo-fractionated whole breast irradiation in other types of patients.

The American Society for Radiation Oncology announced its list of radiation oncology-specific treatment practices that are commonly ordered but may not always be appropriate as part of the national Choosing Wisely campaign, an initiative of the ABIM Foundation at the annual ASTRO Meeting in Atlanta, Sept.23, 2013. One of the Choosing Wisely recommendations was "Don't initiate whole breast radiotherapy as a part of breast conservation therapy in women age 50 years and older with early-stage invasive breast cancer without considering shorter treatment schedules".<sup>2</sup>

The current study was undertaken to evaluate the level of use of hypo-fractionated whole breast irradiation within Norton Cancer Institute, with particular attention to the impact of the Choosing Wisely initiative established by ASTRO in September 2013.

Goals

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To review the use of hypo-fractionated whole breast irradiation within Norton Cancer Institute and compare levels of use of hypo-fractionated whole breast irradiation before and after the Choosing Wisely initiative established by ASTRO in September 2013.

#### Methods

Breast cancer cases were obtained from the Norton Healthcare Tumor Registry, which involved radiation treatment and met the evidence-based guidelines for use of hypo-fractionated whole breast irradiation outlined by ASTRO in 2011: age  $\geq$  50 years; stage pT1-2 NO; no chemotherapy. The cases were drawn from time periods Jan. 1, 2013, to June 30, 2013, and July 1, 2014, to Dec. 31, 2014.

Cases were excluded if they were not treated at a Norton Cancer Institute Radiation Center or if they did not meet the criteria outlined above. Cases were excluded if they received partial breast irradiation.

Hypo-fractionated whole breast irradiation was defined as an adjuvant radiation treatment regimen delivered to the whole breast in 20 treatment fractions or less.

Evaluable cases were reviewed to determine the percentage receiving hypo-fractionated whole breast irradiation and conventionally fractionated whole breast irradiation. The radiation records also were reviewed for documentation of consideration of a hypo-fractionated treatment regimen as advised by the ASTRO Choosing Wisely initiative. The percentages of patients either receiving hypo-fractionated whole breast irradiation or with documented consideration of this option were calculated over both time periods sampled. The stated reason for delivering standard fractionated radiation therapy was recorded.

#### Results

Determination of evaluable cases	Jan. 1, 2013 to June 30, 2013	July 1, 2014 to Dec. 31, 2014
Cases from registry	69	77
Cases treated at NCI	39	56
LN (+) / chemo (+)	1	11
APBI MammoSite	3	1
APBI external beam	2	4
Mastectomy/recurrence		4
Evaluable cases	33	36

Percentage of patients receiving hypo- fractionated whole breast irradiation	Jan. 1, 2013 to June 30, 2013	July 1, 2014 to Dec. 31, 2014
Evaluable cases	33	36
Hypo-fractionated WBI	21	24
Conventionally fractionated WBI	12	12
Hypo-fractionated WBI	63.6%	66.7%

The table below represents the absolute number of evaluable cases receiving conventionally fractionated whole breast irradiation and the number of those cases in which hypo-fractionated whole breast irradiation was considered and documented. The percentage of evaluable patients either receiving hypo-fractionated whole breast irradiation or with documented consideration of hypo-fractionated whole breast irradiation also is shown.

	Jan. 1, 2013 to June 30, 2013	July 1, 2014 to Dec. 31, 2014
Conventionally fractionated WBI	12	12
Hypo-fractionated WBI	8	10
No documentation or consideration for hypo- fractionated WBI	4	2
Hypo-fractionated either treated or documented/ considered	87.9%	94.4%

Documented reason for electing conventionally fractionated whole breast irradiation

Reason stated for standard fractionation	Jan. 1, 2013 to June 30, 2013	July 1, 2014 to Dec. 31, 2014
Breast size/dosimetric	2	6
Concerns about close margin/boost	4	2
Comorbidities/rheumatoid Arthritis	1	0
Patient elected (reason unspecified)	1	2

#### Conclusions

Hypo-fractionated whole breast irradiation was used within Norton Cancer Institute over the two treatment periods studied with a slight increase in extent of use of hypo-fractionated whole breast irradiation after the ASTRO Choosing Wisely initiative of September 2013.

The frequency of documentation of consideration of hypo-fractionated whole breast irradiation increased following the ASTRO Choosing Wisely initiative of September 2013.

The power of the conclusions is limited by small sample size.

#### References

- 1. Smith BD, Bentzen SM, et al. Fractionated for whole breast irradiation: an American Society for Radiation Oncology (ASTRO) evidence-based guideline. Int J Radiat Oncol Biol Phys. 2011; 81:59-68.
- 2. Choosing Wisely Campaign, an initiative of the ABIM Foundation. Annual ASTRO Meeting; Atlanta, GA. Sept. 23, 2013.







Norton Children's Hospital (renamed in 2016 from Kosair Children's Hospital) is a source of hope and healing for 100-plus children diagnosed with cancer each year and nearly 1,000 children annually who are in ongoing cancer treatments, clinics and follow-ups.

The hospital's Addison Jo Blair Cancer Care Center is the oldest continuously accredited children's oncology program by the American College of Surgeons' Commission on Cancer, holding accreditation since 1959. Affiliated with the Children's Oncology Group and the National Cancer Institute, the Addison Jo Blair Cancer Care Center offers advanced cancer research and treatment options for children fighting all types of cancer at all stages.

As the teaching facility for the University of Louisville School of Medicine Department of Pediatrics and a Magnetdesignated hospital recognized for nursing excellence, Norton Children's Hospital maintains an unwavering dedication to the children of our community and region. The hospital's oncology specialists also are faculty members of the UofL School of Medicine Department of Pediatrics. Decades of pediatric expertise, comprehensive treatment and support services make Norton Children's Hospital an excellent choice for the treatment of all forms of childhood cancers.

The hospital's multidisciplinary approach to children's care integrates the efforts of many specialists in cancer, including oncologists, hematologists, cardiologists, nephrologists, infectious disease specialists, surgeons, nurses, social workers, chaplains and pharmacists.

When a child has cancer, it affects the whole family. In addition to aggressive treatment of cancer, the cancer team focuses on preserving quality of life during and immediately after treatment, as well as long-term, to minimize late effects associated with treatment. This patient- and family-centered approach to care includes resources to address all aspects of a family's day-to-day life, including psychosocial support for patients, parents and siblings; areas for relaxing and sleeping; and family-oriented activities.



### Caring for the body

#### **Treatment and services**

The Addison Jo Blair Cancer Care Center provides inpatient and outpatient multidisciplinary evaluation and treatment of children with a wide range of cancers, including leukemia, Hodgkin and non-Hodgkin lymphoma, brain tumors and all types of childhood solid tumors. It also includes the state's only stem cell and bone marrow transplant program specifically for children and an eight-bed, HEPA-filtered stem cell transplant unit designed for stem cell/bone marrow transplant patients and other patients who may be immunocompromised.

Each child is different, and multiple treatment options are available to meet their special needs. These include chemotherapy for all types of pediatric cancers, high-dose chemotherapy with stem cell rescue, reduced-intensity stem cell transplants, autologous and allogeneic stem cell/bone marrow transplants, and supportive care.

The Addison Jo Blair Cancer Care Center also treats blood disorders, such as sickle cell anemia, hemophilia, idiopathic thrombocytopenic purpura, neutropenia and other types of anemias. The hospital has the region's only pediatric apheresis program offering many types of apheresis procedures, including photopheresis to treat blood disorders, rejection after solid organ transplantation, graft-versus-host disease that sometimes occurs after stem cell/bone marrow transplant, and auto-immune disorders such as Crohn's disease. The center also is among the first in the region to offer a red blood cell exchange program, which is virtually a painless treatment for sickle cell disease that helps to minimize complications such as acute chest syndrome. The following pages detail some highlights of our pediatric cancer services.

#### Pediatric brain tumor program

Brain tumors in children are different from those in adults. For the best outcomes, they should be treated by specialists with appropriate expertise. Outcomes for children with brain tumors have improved significantly in the past two decades. Most children with brain and spinal cord tumors are longterm survivors due to the many advancements made in the field, including improved surgical techniques, chemotherapy and radiation therapy.

The pediatric brain tumor program is a collaboration among specialists from Norton Cancer Institute, Norton Neuroscience Institute and University of Louisville Physicians. Every child in the program is cared for by a multidisciplinary team of pediatric neuro-oncologists, radiation oncologists, neurosurgeons and specially trained support staff. These children also benefit from an integrated rehabilitation facility. The rehab team includes physical and occupational therapists who begin therapy as early as possible during brain tumor treatment.

The brain tumor team is in ongoing contact with nationally recognized experts in the treatment of rare and complex neurologic cancers and neurological complications associated with cancer. Children also have access to several Phase I and II and supportive studies for pediatric brain tumors.



#### Cord blood storage

The Family Link Cord Blood Storage Program is a service of Norton Healthcare for storage of umbilical cord blood from newborns. A private facility established in 1998, Family Link serves families delivering within a four-hour driving distance from Louisville.

A baby's stem cells are preserved from the umbilical cord and placenta at birth. The cells are kept at ultra-low temperatures through a process called cryopreservation and stored in the Stem Cell Laboratory located at Norton Children's Hospital for up to 20 years.

Family Link provides access to stored stem cells for transplants, one of the best methods of treatment for several types of leukemia as well as other cancers and diseases. Stem cell transplants can help the body rebuild blood cells destroyed by disease or treatments such as chemotherapy. Norton Healthcare is the only organization in the region offering a private cord blood storage program.

#### **Research and clinical trials**

In 1970, a child diagnosed with leukemia had a very slim chance of survival. Today, the most common type of leukemia, acute lymphoblastic leukemia, has a cure rate of 70 percent to 90 percent.

The reason? Research.

The Addison Jo Blair Cancer Care Center has been a member of the Children's Oncology Group, a multi-institutional pediatric cancer research organization sponsored by the National Cancer Institute, since it was founded. It also is the oldest continuously accredited children's oncology program by the American College of Surgeons' Commission on Cancer.

Through the Children's Oncology Group, the most current phase I, II and III clinical trials and treatment protocols are available to our pediatric patients. These protocols provide the most effective treatment options and aim to improve long-term outcomes for all children with malignant tumors. By participating in the Children's Oncology Group on a national level, our research groups have helped international efforts that have dramatically increased pediatric cancer survival rates to over 80 percent.



More than 100 clinical trials are available through the Children's Oncology Group under the leadership of Ashok B. Raj, M.D., interim chief of pediatric cancer research. A current open Children's Oncology Group multicenter Phase III study compares different combinations of risk-adapted chemotherapy regimens and their side effects on young patients with acute lymphoblastic leukemia and B-lineage lymphoma.

Most breakthroughs in pediatric cancer care are built on years of experimental treatments and research. This requires a large time commitment from our team, but it's a commitment we're proud to follow through on every day.

Frances Price, R.N., pediatric cancer nurse navigator, and Ashok B. Raj, M.D., interim chief of pediatric cancer research



### Pediatric radiation therapy

Children who require radiation therapy receive it two blocks away from Norton Children's Hospital in the state-of-the-art Norton Cancer Institute Radiation Center - Downtown. But that doesn't mean children have to go to a facility for adult patients. The radiation center, which opened in 2011, was designed with kids in mind.

Pediatric radiation patients have a dedicated wing within the radiation center that incorporates a kid-friendly theme and is equipped to care for the needs of the whole family. Siblings are welcome to come to appointments so that parents don't have to worry about finding child care. Families have access to a dedicated playroom to keep children occupied and at ease. Because this part of the radiation center is separate from the area for adult patients, distractions are kept to a minimum.

Knowing that easing suffering is just as important as eliminating cancer, a pediatric anesthesia team from Norton Children's Hospital is available for children who need sedation during their radiation therapy sessions.

Because the radiation center is equipped with the most current technology (see page 11), pediatric radiation oncologists have the ability to adjust dosages to minimize radiation exposure in our littlest patients.

These cancer patients and their families cope with different issues and in different ways from adult patients. That's why we make available integrated behavioral oncology services for our young radiation therapy patients and their families.

They also have access to Children's Oncology Group trials studying a variety of radiation therapies, including a current study on rhabdomyosarcoma, for which Aaron C. Spalding, M.D., Ph.D., director of radiation therapy, is co-investigator.

#### Hearts & Hands Care Team

The Hearts & Hands Care Team at Norton Children's Hospital focuses on treating the pain, symptoms and stress faced by children and families during treatment for complex or life-threatening medical conditions.

The team assists families, community members and medical providers with education, advocacy, communication and palliative expertise to promote the best quality of life for patients.

#### Hearts & Hands provides:

- Help and knowledge for anticipating what may occur during a child's illness
- A multidisciplinary approach to care that involves the entire family
- Coordination of care and medical conferences to keep providers and the family informed
- Decision-making assistance for the child, family and medical team
- Support for the child and family throughout their medical journey

### Caring for the child within

#### Child life and expressive therapies

A cancer diagnosis is a traumatic, life-changing event at any age. For children who don't understand what their diagnosis means, why they have to spend time in the hospital or why painful treatments are necessary, child life therapists are available to help families understand and manage stressful hospital experiences.

Expressive therapists incorporate art, puppetry, writing and drama as therapeutic interventions to help patients and their family members express feelings, fears, worries, hopes and dreams. By expressing themselves, patients have an outlet to externalize their energy and allow their bodies to heal, and families are better able to cope with their cancer experiences.

Music therapists address physical, psychological, cognitive and social functions through a variety of music-related activities. Benefits of music therapy include improved sleep and appetite, pain relief and increased relaxation.

Pet therapy is available weekly. Dog and other pets visit, bringing smiles to young faces and helping the hospital seem more like a familiar environment. Pet therapy also encourages kids to move and interact, thereby improving their mood while in the hospital.

All child life services are funded by the Children's Hospital Foundation.

#### Patient and family navigation

A certified pediatric hematology/oncology nurse navigator is available to every family facing a childhood cancer diagnosis.

#### The navigator provides the following services:

- Coordinates care by streamlining appointments with physicians as well as social workers, child life therapists and other support services
- Identifies and assists with any barriers to care, such as educational, financial, transportation, language, cultural, communication and fear
- Oversees the educational, emotional and social needs of patients and their family members
- Provides education to help patients and families understand the cancer diagnosis and treatment plan
- Links families to community resources to address specific needs

#### Warriors against cancer

**War•ri•or** / noun / a brave or experienced soldier or fighter; known for having courage

Norton Cancer Institute and Norton Children's Hospital launched two initiatives this year to connect families affected by cancer with events, support services and one another.

Teen Warriors is a group for youths ages 15 to 18 affected by cancer. They meet weekly for music jam sessions and have monthly "hangouts" that include dinner and an activity at a community park or attraction.

7 West Warriors is a private social media group named after the floor where the Addison Jo Blair Cancer Care Center is located in Norton Children's Hospital. The Facebook group is for patients, parents and family members with the goal of making support and information more easily accessible.

Brett Northrup, music therapist, with a teen cancer patient

#### Other services to help kids be kids



Playrooms offer "safe" places where no medical procedures are allowed. Children can visit playrooms, or toys from playrooms can be taken to patients who are unable to leave their rooms.

Teens have access to video games, computers, arts and crafts, age-appropriate magazines and books, as well as child life therapists, who encourage communication and understand teens' need for independence and privacy.

Other ancillary services include Jarrett's Joy Cart, which distributes toys, books and movies to patients in the Addison Jo Blair Cancer Care Center, and Caps for Kids, a program that makes available hats autographed by celebrities, entertainers and athletes to help young cancer patients cope with hair loss during treatment.

The nonprofit Flashes of Hope organization provides professional volunteer photographers who visit the hospital once a month to create uplifting portraits of children fighting cancer. These portraits help children feel better about their changing appearance by celebrating it through photography.

Shield of Faith, a program composed of local police officers, brings a wagon of toys and games to patients once a week to help keep their spirits lifted.

To supplement the nutritional needs of patients' families, meals are provided throughout the month by generous contributions from Camp Quality, Texas Roadhouse and other groups.

The Coping Cart, a mobile multimedia center, gives pediatric patients the opportunity to create videos to share their strategies for coping with health or life issues. With families' permission, these videos are posted on CopingClub.com to help other children and families who may feel alone in their experiences.

Camp Quality and Indian Summer Camp both offer cancer patients ages 5 to 17 a chance to just be kids and enjoy summertime fun. These camps are available at no cost to families. Norton Children's Hospital pediatric oncology-certified nurses work as camp nurses thanks to support from the Children's Hospital Foundation, which also funds most of these services and programs.



#### Getting back to life after cancer

#### School Re-entry Program

Child life therapists are available to visit a cancer patient's school to educate classmates and teachers about the patient's illness and return to school. Classmates learn what to expect when the patient returns and possible side effects or changes to their classmate from the recent medical experience. Classmates have the opportunity to share their feelings and experiences about their own hospitalizations and ask questions about cancer.

#### Support groups

Norton Children's Hospital hosts several ongoing support groups for family members of children with cancer.

Sib Stars is a group for siblings ages 6 to 11 of kids with chronic diseases. Weekly meetings include dinner, games and therapeutic activities that address common issues these siblings face, such as anger, jealousy, taking on responsibilities, loss of control, fear of the future, hospitalizations and more.

A moms' support group and parents' dinner both meet once a month as opportunities for parents to support one another. The parents' dinner includes stress-relieving massage therapy and presentations by speakers.

#### Community support through the Children's Hospital Foundation

Norton Cancer Institute services span a lifetime, starting with children diagnosed and treated in the Addison Jo Blair Cancer Care Center at Norton Children's Hospital. Donations to cancer care through the Children's Hospital Foundation are aimed at ensuring the hospital has the equipment and resources to provide the most specialized treatments for children with cancer.

The Children's Hospital Foundation provided more than \$300,000 in 2015 to support a variety of pediatric cancer initiatives that ensure all children diagnosed with cancer at Norton Children's Hospital, and the hundreds receiving ongoing treatment, have access to the care they need. To learn more or give, visit **HelpNortonChildrens.com**.

#### From a clip to a cure

Chili's Clip for Kids is the main cancer fundraising event for the Children's Hospital Foundation, which supports pediatric cancer services available through Norton Cancer Institute.

Held each May, the event challenges participants to raise funds in return for shaving, trimming or clipping their hair in solidarity with kids fighting cancer at Norton Children's Hospital. What makes the event unique is that every dollar raised stays in the community by directly going to the hospital.

In 2016, nearly 1,000 people came together to help the third annual Chili's Clip for Kids event raise more than \$90,000. These funds are used to continue the comprehensive support and educational programs, advanced treatments and equipment, and research available through Norton Healthcare.





The 7 West Family Room, made possible through funding by the Children's Hospital Foundation



## Children's Hospital Cancer Registry

The Norton Cancer Institute Network Cancer Registry also manages the Norton Children's Hospital Cancer Registry. In 2015, 84 new cancer cases were entered into the children's cancer database. Since the 1995 reference date, the children's cancer registry has collected data on 1,577 cancer cases. Beginning in 2004, the registry began collecting data on benign/borderline brain and central nervous system tumors, as required by law.

In addition to entering information on new cancer diagnoses, the children's cancer registry also follows all pediatric cancer and benign/borderline brain and central nervous system tumor patients until they reach age 27. Currently, the registry follows 1,115 pediatric patients, maintaining a five-year follow-up rate of 90 percent and a reference date (1995) follow-up rate of 80 percent.





2015 by the wimbers

#### Top five histologies

### 3.6% 16.7% 3.6% 3.6% 8.3%



## 16.7% 2.4% 81% Black Other

#### Top five sites for new pediatric cases



- Lymphocytic leukemias
- Brain
- Other endocrine
- Kidney
- Non-Hodgkin lymphoma

#### Gender distribution



#### **Race distribution**

#### Top treatment composites



Five-year survival rates for top five cancer sites			
	Norton Children's Hospital	ICCC*	
Lymphocytic leukemia	85.9%	88.1%	
Brain and central nervous system**	78.4%	73.8%	
Other endocrine***	***	***	
Kidney	100%	91.1%	
Non-Hodgkin lymphoma	82.3%	88.8%	

\*International Classification of Childhood Cancer (2005 to 2012), part of the SEER Cancer Statistics Review 1975-2011, National Cancer Institute

\*\*SEER does not separate brain and CNS, so percentages are combined for this report.

\*\*\*No data available for this site within ICCC; they are included with other sites that are not in the Norton Children's Hospital top 5 sites

The comparative data from SEER is for years of diagnoses 2006 to 2012; that is same time frame for Norton Children's Hospital data included in this section of the report.

#### Counties of residence at time of diagnosis





# 2015 quality studies

#### Patient influenza immunization compliance: January 2015 to May 2016

The Centers for Medicare & Medicaid Services recommends that all patients 6 months of age or older who have not had the influenza vaccine in the current season receive the vaccine as a part of the IMM-2 measure regarding flu vaccination. This study examined whether the children's hospital was meeting the benchmark of 92 percent vaccination rate.

#### Criteria

All patients who meet the criteria of being at least 6 months old, who have not had the influenza vaccine in the current season, who want to receive the influenza vaccine and have no contraindications/precautions as listed by the Centers for Medicare & Medicaid Services as part of the IMM-2 measure are given the influenza vaccine.

#### Findings

#### A chart review revealed the following:

- Influenza screening contained missing documentation
- Screenings were not being performed correctly and on each admission.
- Screening in the electronic medical record (EMR) was complicated and confusing.
- Standing orders were either not initiated for patients who met the criteria without contraindications/precautions/ refusal and were eligible for the vaccine or initiated but not acted upon prior to discharge.

#### Additional findings:

- Compliance and feedback of staff was limited due to the limitations of available and accurate reports pulled from the EMR.
- Lack of knowledge of criteria/contraindications and unfamiliarity with CMS inclusions/exclusions
- Limited communication among staff regarding patients' influenza status
- Limited documentation of education on the influenza vaccine

#### National benchmark comparisons

National vaccination rate for fourth quarter 2013 is 92 percent. (Quality Net, Hospital Outpatient Quality Reporting released June 9, 2015)

#### **Action plan**

#### For the 2015 influenza season:

- The cancer committee will be provided with the IMM-2 measure criteria.
- Influenza screening in the EMR will be simplified and reduced from four to two questions as part of a systemwide initiative.
- A team consisting of nursing staff, clinical nurse specialists, infection preventionist and clinical informatics management will meet initially to review the new screening process prior to the 2015 influenza season (September 2015).
- Increased involvement of physicians, pharmacy, patient navigator, nurse manager and assistant nurse managers will be required during the influenza season to help communicate to nursing staff the appropriate time during admission the patient may receive the vaccine.
- Collaboration will occur between heme-oncology manager and clinic to administer the vaccine to all eligible patients as early as possible in the influenza season.
- Daily discussion during patient rounding and huddles should occur if the patient has not received the influenza vaccine prior to admission, meets criteria and has no contraindications/precautions/refusal. Influenza vaccination should occur as early in the admission as possible and not at the time of discharge.
- Refusal of the vaccine by the family/patient should initiate a conversation between the medical staff and the family so education may be provided.
- Staff feedback will be given by the manager to those who are noncompliant with the process of screening and/or administering the vaccine for those who meet the criteria and have no contraindications/precautions/refusals to receiving the immunization.

#### Follow-up to monitor action plan

- An EMR report will need to be developed that accurately reflects the compliance rate for influenza screening.
- Staff members from 7 West (the Addison Jo Blair Cancer Care Center) will help monitor compliance by performing five random chart reviews per week.
- Compliance rates for 7 West will be reported at staff meetings/huddles, in a weekly newsletter and at the cancer committee.
- Monthly during influenza season, a random sample of charts of all inpatients will be selected by Quality Works (Quality data vendor for Norton Healthcare) and compliance of IMM-2 measure will be reported to CMS quarterly.

#### **Result improvement**

The 2015-2016 influenza vaccination rate was 31.6 percent. Barriers to achieving the goal of 92 percent included lack of documentation in the EMR when the influenza vaccine was contraindicated for patients and a low number of eligible patients admitted in the last few months of influenza season.

#### Reduction in falls: January 2015 to December 2015

We determined the 7 West (Addison Jo Blair Cancer Care Center) Falls with Injury NDNQI indicator was above the national benchmark. Upon further investigation, we realized that there are very few hospitals in this comparison group (less than 10). There were 14 falls in 2014. In July 2015 we had already had 12 falls. Looking at our Fall Bundle compliance, our initial data showed we had opportunities to improve.

#### Criteria

Population included inpatients on 7 West.

#### Findings

- The screening tool, while simple, lacked clarification.
- Screenings were not performed at all appropriate intervals.
- Lack of visual and verbal communication of falls risk at the unit and facility levels.
- Lack of documentation of patient/family education.
- Difficulty verifying that the appropriate intervention was selected and implemented.

#### National benchmark comparisons

The SPS (Solutions for Patient Safety) collaborative states reliable improvement in patient outcomes result when bundle compliance is greater than 90 percent.

#### Action plan

- The 7 West Unit-Based Council (UBC), in collaboration with a hospitalwide falls team consisting of clinical nurse specialists and staff members, will map out the current process and identify barriers to the process.
- Components of the Falls Bundle include use of a standardized assessment tool to determine falls risk score and assessment/documentation of risk score at specific intervals as stated in our policy; visual and verbal communication of falls risk; assurance that a safe environment is provided for the patient; and patient/family education is provided/documented.
- The falls screening tool will be clarified and updated for accuracy.
- A request will be made to update the electronic medical record to reflect the additions to the screening tool.
- PDSA trials will be conducted to identify barriers to communicating falls risk to other care providers.
- A communication and education plan for staff regarding all components of the bundle will be implemented once the PDSA trials are completed and the barriers have been identified and resolved.

#### Follow-up to monitor action plan

Continue to monitor Falls Bundle compliance and falls rate.

#### Result improvement

Compliance with the Falls Bundle increased from 0 percent in July 2015 to 45 percent in December 2015. Number of falls decreased from 17 in 2014 to 15 in 2015.

#### Staff and locations

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# Orthopaedic oncology

## Shawn L. Price, M.D.

Medical training: Ohio State University College of Medicine Residency: Penn State Milton S. Hershey Medical Center Fellowship: University of Utah Department of Orthopaedic Surgery

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# Patient navigators

Downtown Louisville Norton Healthcare Pavilion Suite 209 315 E. Broadway Louisville, KY 40202 Phone: (502) 629-3136 Fax: (502) 629-6004

### Norton Audubon Hospital campus

Norton Medical Plaza West – Audubon Suite 300 2355 Poplar Level Road Louisville, KY 40217 Phone: (502) 636-8308 Fax: (502) 636-8319

### Norton Healthcare - St. Matthews

Norton Medical Plaza 2 - St. Matthews Suite 111 3991 Dutchmans Lane Louisville, KY 40207 Phone: (502) 899-6888 Fax: (502) 899-6763

## Multidisciplinary clinics

Brain Tumor Center Program directors: Aaron C. Spalding, M.D., Ph.D., and David A. Sun, M.D., Ph.D. Phone: (502) 629-4440

## **Breast Clinic**

Program director: Jeffrey B. Hargis, M.D. Phone: (502) 629-4440

## **Endocrine Clinic**

Program director: Amy R. Quillo, M.D. Phone: (888) 4-U-NORTON

## **Liver Cancer Clinic**

Program director: Robert C.G. Martin, M.D., Ph.D. Phone: (888) 4-U-NORTON

## Lung Clinic

Program director: George J. Mikos, M.D. Phone: (502) 629-LUNG (5864)

## Sarcoma Clinic

Program director: Shawn L. Price, M.D. Phone: (502) 629-4440

# Additional patient services

Adolescent and Young Adult Program Program director: Patrick Williams, M.D. Phone: (502) 899-6888

**Behavioral Oncology Program** Program director: Sarah E. Parsons, D.O. Phone: (502) 899-2673

**Breast Health Program** Program director: Natalie G. Stephens, M.D. Phone: (877) 78-BREAST

Genetic Counseling Services Phone: (502) 629-GENE (4363

Lymphedema Program Phone: (502) 899-6684

Pharmacy Services Phone: (502) 636-8088

**Prevention & Early Detection Program** Phone: (502) 899-6842

Research and clinical trials Program director: John T. Hamm, M.D. Phone: (502) 629-3465

Survivorship Program Phone: (502) 899-3366

# Infusion centers

Downtown Louisville Norton Healthcare Pavilion, Fourth Floor 315 E. Broadway Louisville, KY 40202 Phone: (502) 629-5153 Fax: (502) 629-3166

## Norton Brownsboro Hospital

4960 Norton Healthcare Blvd. Louisville, KY 40241 Phone: (502) 394-6315 Fax: (502) 394-6317

### Norton Healthcare - St. Matthews

Norton Medical Plaza 2 – St. Matthews Suite 309 3991 Dutchmans Lane Louisville, KY 40207 Phone: (502) 899-6440 Fax: (502) 899-6441

## **Radiation centers**

Downtown Louisville 676 S. Floyd St. Louisville, KY 40202 Phone: (502) 629-4555 Fax: (502) 629-4599

Northeast Louisville

2401 Terra Crossing Blvd., Suite 101 Louisville, KY 40245 Phone: (502) 244-0692 Fax: (502) 244-0684

#### Norton Healthcare - St. Matthews

Norton Medical Plaza 3 -St. Matthews Suite G-02 4123 Dutchmans Lane Louisville, KY 40207 Phone: (502) 899-6601 Fax: (502) 899-6630

### **Cancer resource centers**

Downtown Louisville Medical Towers South, Suite 164 234 E. Gray St. Louisville, KY 40202 Phone: (502) 629-5500 Fax: (502) 629-3279

### Norton Audubon Hospital campus

Norton Medical Plaza West -Audubon Suite 300 2355 Poplar Level Road Louisville, KY 40217 Phone: (502) 636-8308 Fax: (502) 636-8319

## Norton Healthcare - St. Matthews

Norton Medical Plaza 3 – St. Matthews Suite 111 4123 Dutchmans Lane Louisville, KY 40207 Phone: (502) 899-6888 Fax: (502) 899-6763

## Southern Indiana

Pat Harrison Resource Center 1206 Spring St. Jeffersonville, IN 47130 Phone: (812) 288-1156 Fax: (812) 725-1613

# **Physician practices**

### Downtown Louisville

Norton Healthcare Pavilion, Fourth Floor 315 E. Broadway Louisville, KY 40202 Phone: (502) 629-2500 or (502) 561-8200 Fax: (502) 629-2055

## Norton Audubon Hospital campus

Norton Medical Plaza West -Audubon Suite 405 2355 Poplar Level Road Louisville, KY 40217 Phone: (502) 636-7845 Fax: (502) 636-8045

## Norton Brownsboro Hospital campus

Norton Medical Plaza I - Brownsboro Suite 300 4950 Norton Healthcare Blvd. Louisville, KY 40241 Phone: (502) 394-6350 Fax: (502) 394-6363

### Norton Healthcare - St. Matthews

Norton Medical Plaza 2 – St. Matthews Suite 405 3991 Dutchmans Lane Louisville, KY 40207 Phone: (502) 899-3366 Fax: (502) 899-3455

## Shelbyville, Kentucky

131 Stonecrest Road, Suite 100 Shelbyville, KY 40065 Phone: (502) 633-7093 Fax: (502) 633-7094

### Shepherdsville, Kentucky

Norton Community Medical Associates - Bullitt County 438 Adam Shepherd Parkway Shepherdsville, KY 40165 Phone: (502) 636-7845 Fax: (502) 636-8045

## Corydon, Indiana

Harrison County Hospital Medical Pavilion, Suite 110 1263 Hospital Drive NW Corydon, IN 47112 Phone: (812) 734-0912 Fax: (812) 738-8715

## Jeffersonville, Indiana

Medical Plaza Building, Suite 301 301 Gordon Gutmann Blvd. Jeffersonville, IN 47130 Phone: (812) 288-9969 Fax: (812) 288-9657

# Norton Cancer Institute affiliate

## King's Daughters' Health

Cancer Treatment Center 1373 E. State Road 62 Madison, IN 47250 (812) 801-0603





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