

BUILDING
ON *hope*

APPROVED

By Megan Gardner (megan.gardner@ncc.org)



Hope AND HEALING THROUGH ART

Our annual report theme, “Building on Hope,” came out of inspiration from the artwork commissioned for our new Norton Cancer Institute – Brownsboro building.

Art and health care really go hand-in-hand. The first healers in almost every culture were shamans whose purpose was to take care of a person’s soul. They did so using symbols, songs, costumes and dance. Today, with growing evidence that art can spur healing and restorative powers, what better way to create a hopeful environment in our new building than to adorn it with beautiful and inspiring art that nourishes the soul.

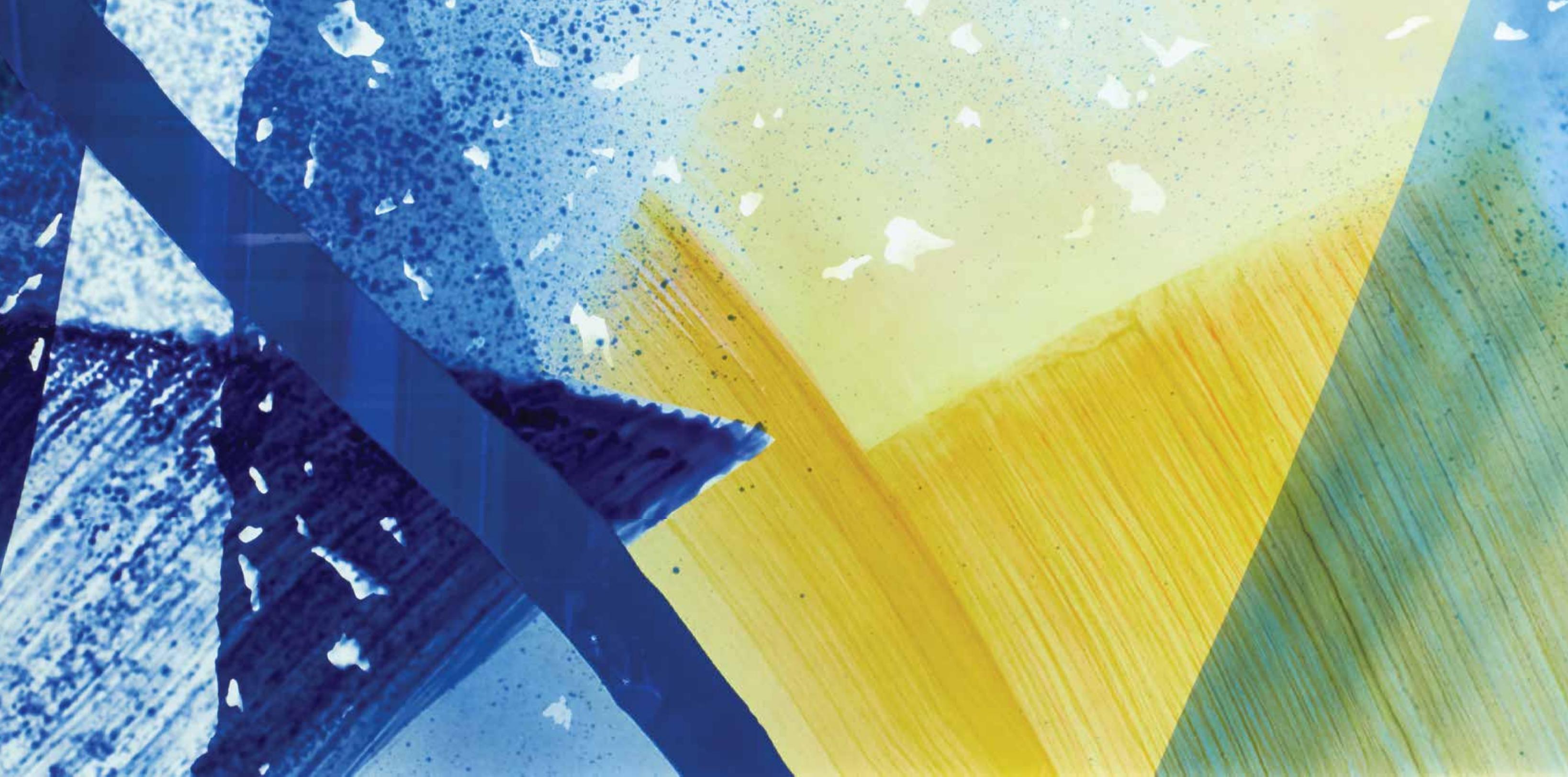
Science says that art in the health care environment can:

- Reduce stress and anxiety
- Affect patients’ perception of pain
- Distract from worry and negative emotions
- Support the idea that physical and mental well-being are connected

Participating in art by being creative is life-affirming. It engages our capacity for hope even in the midst of great difficulty. That’s why art therapy has so many benefits:

- Gives patients an opportunity to creatively express their emotions
- Empowers patients
- Enhances self-esteem and confidence
- Allows people to connect, creating a sense of belonging
- Affects patients’ perception of well-being and quality of life
- Relieves loneliness and isolation

Throughout these pages you’ll get to know the artists of Norton Cancer Institute – Brownsboro and get a taste of the artwork on display there. We hope it will uplift your spirit and inspire hope as you read about our achievements and offerings.





BUILDING ON HOPE. The title of this year's annual report has a lot of meaning. You could say we've built the foundation of our mission to cure cancer and eliminate suffering on hope. You also could say our new Norton Cancer Institute – Brownsboro facility was built on the notion that it will provide hope to even more people in our community. And the action of building means we have not stopped.

While this report will highlight what we might consider this year's crowning achievement — opening our new Brownsboro cancer center — we have many more achievements to share from the past year. These include addressing needs that often get overlooked, such as offering care for retinoblastoma and other rare eye cancers; working to lower the incidence of liver, lung and colon cancers through new offerings; and helping more cancer patients tap into palliative care.

In these pages you'll also meet some of our new cancer specialists and learn a little bit about what gets them out of bed in the morning. We are pleased to have them join our team of distinguished oncologists and support staff, whose dedication to curing cancer and eliminating suffering will continue to propel us to even greater achievements.

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



A year of achievements

New Brownsboro facility opens

Our newest cancer center, Norton Cancer Institute – Brownsboro, opened on Nov. 5, 2018, just 17 months after its groundbreaking. The free-standing, three-story structure with 48,500 square feet of space brings all of our specialty cancer services together under one roof for the first time.

The new facility offers radiation oncology, medical oncology and infusion therapy in one convenient location, along with specialists in hematology, neuro-oncology and surgical oncology.

The building was actively designed to be an instrument of care. It features the latest in design and technology features, including:

- Streamlined registration and preregistration through the use of electronic registration and self-check-in kiosks
- Curved main corridors and strategic use of colors, textures and materials to facilitate wayfinding
- Combined use of natural daylight and 100 percent LED lighting to support a more natural, less clinical feel
- White noise and music in key locations, along with special ceiling tiles and recycled denim insulation to dampen noise and enhance acoustics
- Improved efficiency through the use of collaborative care “team rooms” and infusion rooms designed as pods around centrally located nursing stations

- Amenities such as personal technology charging stations, central nourishment stations, wireless internet access, a quiet room, outdoor healing garden and bistro
- Integrated technology along with a premanufactured, adaptable wall and millwork system that will serve as a flexible backbone so future changes can be implemented as needed with minimal cost and disruption

The \$38 million investment was made possible by generous donors to the Norton Healthcare Foundation.

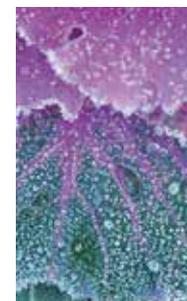


Norton Breast Health Center services

- Screening and diagnostic mammography
- 3D tomosynthesis mammography
- Stereotactic breast biopsy
- Breast ultrasound and MRI
- Same-day appointments for urgent breast issues
- Surgery consultations
- Genetic counseling for patients at high risk for breast cancer due to genetics or family history

New breast health center part of Brownsboro expansion

With the opening of Norton Cancer Institute – Brownsboro came the new Norton Breast Health Center, located on the same campus in Norton Medical Plaza III – Brownsboro. The center offers diagnostic services with rapid results to eliminate unnecessary waiting. It also has a Breast Clinic for high-risk patients. Patients have access to a leading multidisciplinary team of dedicated specialists in surgical management of all types of breast disease — all on one campus.



Norton Eye Cancer Program established

In summer 2018, Norton Children's Cancer Institute, affiliated with the University of Louisville, announced the creation of the Norton Eye Cancer Program for the treatment of retinoblastoma and other eye cancers.

The program is led by Aaron C. Spalding, M.D., Ph.D., executive medical director, Norton Cancer Institute, and Aparna Ramasubramanian, M.D., from UofL Physicians, one of the nation's few physicians specializing in ocular oncology and treatment of retinoblastoma. Dr. Ramasubramanian is the nation's only physician fellowship trained in pediatric ophthalmology and ocular oncology.

About 300 children each year are affected by retinoblastoma. Early detection and treatment are key in preventing spread to the brain and the rest of the body. While the program sees mainly children, it's also available to adults with all types of eye cancers. It is one of the country's few programs dedicated to treating retinoblastoma.

Complex Care Clinics address important need

At Norton Healthcare alone, about 100 patients a week are diagnosed with hepatitis C. In addition, overall diagnoses in our part of the country are higher than the national average. In response, the Norton Cancer Institute Multidisciplinary Center established Norton Complex Care Clinics to screen people suspected of having the virus and to provide ongoing care and education to those who are diagnosed.

Hepatitis C is the most common bloodborne infection in the United States. Left untreated, the infection causes inflammation in the liver. Ongoing inflammation can cause scarring that can lead to liver cancer. Chronic hepatitis C also increases the risk for non-Hodgkin lymphoma and head and neck cancers.

Outpatient palliative care available, inpatient care expands

Outside of surgery, chemotherapy and radiation treatment, one of the most important services available to Norton Cancer Institute patients 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.

In May 2018, an inpatient palliative care program opened at Norton Audubon Hospital, joining Norton Hospital in providing an extra layer of support as patients move through various stages of treatment. Inpatient care is provided by a multidisciplinary team consisting of a physician, nurse practitioner, 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.

In July 2018, for the first time, outpatient palliative care became available to Norton Healthcare patients. A weekly clinic in the Norton Cancer Institute Multidisciplinary Center is open to cancer patients, as well as patients with any type of diagnosis, needing this special form of care.

Making strides in screening more people for colon cancer

A colon cancer screening project kicked off in spring 2018 to make it easier for people to get colon cancer screenings. The project was threefold:

- Begin offering colonoscopies on Saturdays
- Launch **(502) 446-WELL** to connect the community with a patient navigator for assistance with screening options, scheduling, follow-up and next steps
- Promote the convenience of Norton Healthcare's online "on-demand" colonoscopy scheduling at the location of the patient's choice as well as scheduling through MyNortonChart

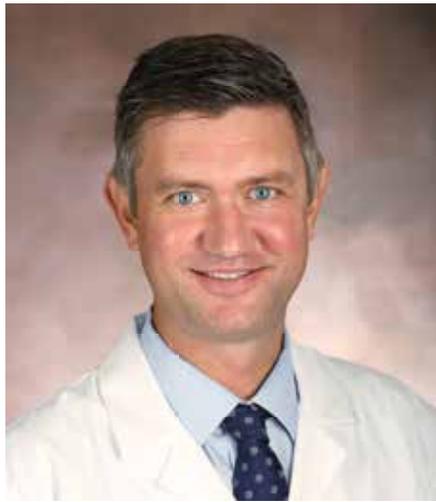
Between May and November 2018, 93 people took advantage of Saturday colonoscopies.



Artist spotlight: Guy Kemper

Guy Kemper is the artist behind a large art glass installation in the quiet room at Norton Cancer Institute – Brownsboro. Describing the artwork as quiet, reassuring and healing, Guy started by creating a painting inspired by the Falls of the Ohio. Working with a glass artist in Germany, the pair translated the painting into 10 glass panels. Prisms in the glass were hand-ground to emit intense rainbows throughout the room.

"There's something about a rainbow that's reassuring. It's hopeful. Through art, you're given this assurance that there is always hope for another day," Guy said.



Adam D. Lye, M.D.

Scratching the surface of advancements

Adam D. Lye, M.D., medical oncologist/hematologist, joined Norton Cancer Institute in 2018. A native of Kentucky, when asked about his care philosophy, he said he prides himself on being able to communicate and relate to his fellow Kentuckians by building honest and sincere relationships through clear communication.

Dr. Lye's clinical interests include lung cancer screenings and care, immunotherapy and breast cancer treatment.

"I love that we can combine cutting-edge technology and scientific advances to provide patients meaningful care and real improvements in their outcomes and quality of life. I feel like we have only scratched the surface of advances yet to come in the treatment of cancer," Dr. Lye said.

Meeting lung patients where they are

When we make lung cancer screenings more convenient, in a community known for having a high rate of smoking, we can chip away at Kentucky's lung cancer rate — the worst in the country. That's what Norton Cancer Institute set out to do when it opened a lung clinic within a Norton Community Medical Associates office in the Fern Creek area of Louisville in August 2018.

The office offers lung CT screenings and same-day appointments for patients with suspicious findings, all at a convenient location in a part of the community at high risk for lung cancer. This means a lower cost than going to a hospital for a CT.

With this added location, the lung screening program is on target to provide 4,000 lung CTs in 2018 — by far more than any other facility in Kentucky.



Adult cancer services

Comprehensive cancer care

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

Our physicians, oncology-certified nurses and staff provide advanced treatment options and offer compassionate services for patients and their families. With seven outpatient office locations, three radiation centers, seven chemotherapy infusion centers and access to numerous clinical trials, patients have high-quality, 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, rehabilitation and nutritional guidance. This multidisciplinary approach leads to improved patient care and better outcomes.



Prevention and early detection

Currently, Kentucky's cancer rates are among the highest in the nation. Norton Cancer Institute is committed to significantly reducing those numbers by providing our communities with the screenings and education 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.

2017 prevention efforts by the numbers:

- 2,697 people screened for breast, cervical and colon cancers
- 13 percent of women who received mammograms had never been screened
- 6 percent of women who received mammograms had not had one for five or more years
- 11 women had precancer or cancer diagnosed and treated as a result of a mammogram they received on the Mobile Prevention Center
- 3,677 people received 7,978 screening services that included education about tobacco cessation, diet and exercise

Evaluation and Diagnosis Clinic

Norton Cancer Institute's Multispecialty Care Center, which opened in April 2017, is home to a newly developed Evaluation and Diagnosis Clinic. The clinic offers same-day appointments for evaluation of suspicious areas. Clinic specialists assess the patient with the goal of determining etiology of findings in order to make a rapid diagnosis. The providers of the Evaluation and Diagnosis Clinic then collaborate with the referring physician, refer the patient to an appropriate specialist and/or assist in finding a primary care physician within Norton Medical Group if cancer care is not needed.



Khuda Dad Khan, M.D.

Caring for patients is a special privilege

Khuda Dad Khan, M.D., is one of Norton Cancer Institute's newest physicians. A hematologist/oncologist and immunologist, Dr. Khan came to the U.S. on scholarship from Pakistan and received his medical training at some of the nation's most prestigious universities, including Yale and Duke.

Today we are just beginning to realize the potential of harnessing the immune system to treat cancer and blood diseases. Dr. Khan said it is a special privilege and an honor to care for these patients and be able to make their lives better and longer.



Treatment and services

- Medical, pharmaceutical and chemotherapy treatments, including oral and biologic chemotherapy
- Minimally invasive robotic prostatectomies and gynecologic and colorectal surgeries
- DigniCap, the only treatment approved by the FDA for use in preventing chemotherapy-related hair loss in breast cancer patients
- 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
- Adult Sickle Cell Program
- Research and clinical trials
- Genetic counseling services

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 care and service, we offer 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 many questions after learning you have cancer. Providing basic human compassion means we should be here for patients when they need us most.

Prompt Care Clinics

Patients don't get sick only between 8 a.m. to 5 p.m. And when they are in the midst of cancer treatment, they shouldn't have to wait for relief from side effects. To alleviate that wait, Norton Cancer Institute's two Prompt Care Clinics are open extended hours, much like an urgent care center, but specializing in conditions related to cancer treatment. Each patient is triaged by specially trained advanced practice providers who work with the 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.



Multidisciplinary clinics

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

Comprehensive Lung Center

Norton Cancer Institute is the first community hospital system in Kentucky to become an Addario Lung Cancer Foundation Center of Excellence. The Center of Excellence recognition assures lung cancer patients who don't live near large cities and academic health centers that high-quality care is available. It means a patient-centric, collaborative care model is available with access to the newest and most effective diagnostic and therapeutic techniques.

The Comprehensive Lung Center 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 30 minutes to an hour to complete, and patients may be discharged the same day.

Head, Neck and Skull Base Tumor Program

Treating tumors that occur in these tiny spaces requires specialized training and skill to achieve the best possible outcomes. The Head, Neck and Skull Base Tumor Program, in collaboration with the University of Louisville, offers a multidisciplinary team approach to



treat the unique needs of these patients. The team includes an oncologist, neurosurgeon, radiation oncologist, otolaryngologist and plastic surgeon who work with each patient to create an individualized treatment plan.

Patients are guided through treatment and follow-up by a patient navigator and have access to a behavioral oncologist, oral prosthodontist, speech pathologist and nutritionist.

The program treats benign and malignant tumors, including:

- Basal cell carcinoma
- Malignant thyroid
- Melanoma
- Merkel cell carcinoma
- Oral cancer
- Throat cancer
- Squamous cell carcinoma
- Skull base tumors, including the nasal cavity, salivary glands, ear and temporal bone
- Other tumors and cancers in the head and neck region

Adolescent and Young Adult Transition Clinic

The Adolescent and Young Adult (AYA) Transition Clinic is a multidisciplinary collaboration between Norton Cancer Institute and Norton Children's Cancer Institute, affiliated with the University of Louisville. It's available to patients ages 18 and 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.

Other navigator services include coordinating 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.



Artist spotlight: Clare Hirn

Clare Hirn created "We All Reflect," a 5-foot by 5-foot large-scale painting on canvas for the lobby of Norton Cancer Institute – Brownsboro. Her layered painting method creates transparent, opaque and textured areas. This active surface helps the eye move and explore, occasionally finding a surprising detail.

Elements of reflection, translucence and the moving rhythm of arcing circles in the natural world are inspiration for this composition that strives to touch what is known and unknown, to go between realism and abstraction, and to allow room to make each visit to this canvas unique.

"The rhythm of a circle as it radiates out has no stop and start. The cycle of life does not favor one particular arc over another," Clare said.

In May 2018, the Norton Healthcare Breast Health Program was awarded a three-year reaccreditation by the National Accreditation Program for Breast Centers (NAPBC), a consortium of national professional organizations dedicated to improving quality outcomes through evidence-based standards and education.

NAPBC-accredited centers demonstrate the following services:

- A multidisciplinary team approach to coordinate treatment options
- Access to breast-specific information, education and support
- Data collection on quality indicators for subspecialties involved in breast care
- Ongoing monitoring and improvement of care
- Information about participation in clinical trials and new treatment options



Breast Multidisciplinary Clinic

Norton Cancer Institute patients who receive a breast cancer diagnosis have the option to be seen by multiple specialists on the same day through our Breast Multidisciplinary Clinic. This type of setting offers the convenience of fewer appointments, thereby reducing travel and time in beginning the next steps in their care.

Patients' cases are presented to a group of multidisciplinary providers, and treatment plans are discussed in the Breast Tumor Board. This allows the treating provider to ensure all options are considered prior to the course of treatment. A Norton Cancer Institute patient navigator supports each patient along their journey, every step of the way.

Breast Health Program

The Breast Health Program was developed to provide comprehensive breast care, from prevention to diagnostic and treatment services, to women in our community. The program also provides education and support from a team of oncology-certified 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.

The program also offers support groups and community education. It 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.

In 2017, the Breast Health Program had more than 5,200 interactions with patients.

Derby Divas

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.

2017 was the 11th year for Derby Divas. Since its inception, the annual fundraiser has raised more than \$1.4 million to support breast health at Norton Cancer Institute. 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.

Personalized care for adults with sickle cell disease

Last year, Norton Cancer Institute opened the Adult Comprehensive Sickle Cell Program, a multidisciplinary clinical program offering care for all aspects of sickle cell disease. It works with patients to prevent related illnesses, treat acute crises and manage long-term effects.

The program's caregivers include physicians specializing in hematology, advanced practice providers, nurses, infusion center teams, licensed clinical social workers, dietitians, pain management specialists, behavioral health specialists, chaplains and many others.

Every patient's care journey requires more than directed medical care. The program also includes educational programs, coordination of care and supportive care resources, such as spiritual care, social services, alternative therapies and behavioral health services.

Through our Prompt Care Clinics, sickle cell patients with nonlife-threatening complications, such as dehydration, headache, routine infections and early-onset pain, can get a same-day or evening visit to avoid a trip to an emergency department.



Churchill Downs partnership

As part of the 2018 Kentucky Derby Festival, Norton Cancer Institute enjoyed a unique opportunity to increase breast cancer awareness and benefit from a charitable partnership with Churchill Downs. The partnership was the centerpiece of the annual Kentucky Oaks Day "Pink Out" celebration, which includes a survivors' parade and other public awareness activities.

Churchill Downs raised \$118,378 in 2018 through the Norton Healthcare Foundation. Funds will help with renovations to the Mobile Prevention Center and will support women in our community who lack access to breast health screenings and other services.



Radiation beyond cancer

While there are diseases other than cancer that have no cure, there always is hope. Norton Cancer Institute works in collaboration with Norton Neuroscience Institute to care for patients with painful neurological conditions that respond to radiation, such as trigeminal neuralgia and glossopharyngeal neuralgia. Working with a functional neurosurgeon, radiation oncologists can treat these patients with just one dose of radiation from our TrueBeam STx, a frameless radiosurgery system. They've seen a success rate of 70 percent to 80 percent in relieving pain.

Radiation therapy 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.

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 often is 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 and other Norton Healthcare facilities. Its 20 pathologists support Norton Cancer Institute by providing routine and subspecialty pathology diagnoses related to cancer. These pathologists work in the subspecialty areas of neuropathology; hematopathology; molecular pathology; cytopathology; and gynecologic, breast, genitourinary and gastrointestinal pathology.

CPA Lab's service to Norton Cancer Institute goes beyond routine pathology. The lab also develops testing algorithms for various tumors, such as lung adenocarcinoma, acute leukemia, and breast and colon cancers, for which molecular testing is needed to help determine prognoses and treatment regimens. CPA Lab works with Norton Cancer Institute to develop these algorithms so that once the pathologist makes a diagnosis, the pathologist can implement the appropriate testing algorithms, making all appropriate diagnostic and treatment data 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.

Research and clinical trials

The Norton Cancer Institute Research Program has made remarkable strides and discoveries through participation in ongoing clinical trials. We offer access to more than 170 innovative National Cancer Institute and industry-sponsored clinical trials. Cancer studies constitute the largest part of Norton Healthcare's 830-study research portfolio.

Most of our clinical trials are industry-sponsored, focusing on various cancers including lung, breast, hematologic and gynecologic. For a large community hospital system, ours is a robust research program with an impressive research support infrastructure.

A research-rich environment is important to patients who recognize the value of seeking care from a facility committed to scientific breakthroughs in health care. It also improves the ability of our specialists to provide patients with cutting-edge therapies while also advancing cancer treatment for those beyond our communities.



Don A. Stevens, M.D.

Leading important research

Don A. Stevens, M.D., medical oncologist with Norton Cancer Institute, is principal investigator for Norton Cancer Institute's participation in an international study for primary mediastinal large B-cell lymphoma (PMLBCL). Of 90 facilities around the world, Norton Cancer Institute is the only site in the United States enrolling patients. The clinical trial is a randomized, open-label, multicenter, two-arm, phase III comparative study assessing the role of mediastinal radiotherapy after rituximab-containing chemotherapy regimens to patients with newly diagnosed PMLBCL. Being a part of this important study speaks to the prestige of the Norton Cancer Institute clinical research program.



Support services

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, as well as determining treatment options.

The Norton Cancer Institute 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.

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 our medical geneticist and 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 concerns 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. 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. Norton Cancer Institute is one of the few oncology programs nationwide offering a robust program for addressing patients' mental and emotional needs that often accompany cancer care.

The Behavioral Oncology Clinic is staffed by a team of advanced practice providers, social workers and nurses trained in the mental and emotional care of oncology patients. The program offers a full spectrum of services, including individual therapy, couples therapy, medication management and interdisciplinary collaboration. The Behavioral Oncology Clinic had approximately 7,287 patient encounters in 2017.

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 five Norton Cancer Institute Resource Centers. It's designed to guide patients and their family members from diagnosis through treatment, recovery and survivorship.

In 2018, we introduced a genitourinary patient navigator program to connect patients with noncancerous genitourinary conditions to urologists. Two nurse navigators are dedicated to this patient population, helping to facilitate diagnostic testing and educating patients on their condition and next steps for care.

Our team of 22 oncology-certified patient navigators specialize in colorectal/gastrointestinal cancer, genitourinary conditions, lung cancer, breast cancer, brain tumors, liver cancer, general oncology, pediatric oncology and survivorship. They are available to connect patients with the support and information they need.



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.

Resource centers

In 2017, cancer support services had more than 41,000 interactions through the resource centers. Norton Cancer Institute Resource Centers offer patients and their families a place to turn for support, assistance and education. With our newest resource center opening at Norton Cancer Institute – Brownsboro, we now offer patients five convenient locations.

The 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 also serve as the base for our patient navigators.

Our five centers offer the following services:

- Community support and Norton Cancer Institute-sponsored support groups
- A wide variety of monthly classes and seminars
- Complementary therapies, including acupuncture; tai chi; and 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 (Pat Harrison Resource Center only)
- Lending library with current educational information
- Tobacco cessation programs



Acupuncture now available

Acupuncture, an ancient medical treatment originating in China, is the newest complementary therapy available to Norton Cancer Institute patients. Sound research shows that it is a safe and effective way to help relieve a wide variety of symptoms and side effects of cancer treatment. These include nausea and vomiting, pain, fatigue and anxiety. When these symptoms can be reduced, we increase patients' quality of life and make an impact on eliminating suffering.





Bra Party

The ultimate support group

Now in its ninth 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.

Survivorship

Enormous strides 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 15.5 million in 2016. This number is expected to rise to almost 20.3 million by 2026.

These cancer survivors require medical care and support services tailored to meet their unique needs. The Norton Cancer Institute Survivorship Clinic 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 and long-term health care needs 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.

Annual community events draw on the hope of being free from cancer. Survivor celebrations are made possible through support from the Norton Healthcare Foundation.

Celebration of Courage

Each September, on the eve of the annual Bike to Beat Cancer, Norton Cancer Institute holds the Celebration of Courage. Cancer patients, survivors, families, caregivers, Bike to Beat Cancer riders, volunteers and all those who join in the fight against cancer are invited to this free community event. They enjoy fellowship that includes a light meal, live music, children's games and inflatables.

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 our mission of building hope for patients and families. Thanks to the generosity of our community, in 2018, the foundation gave more than \$1.1 million for a variety of cancer programs and services.

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 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 Healthcare 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



Bike to Beat Cancer

10 years of building hope

The annual Bike to Beat Cancer is Norton Cancer Institute's premier fundraising event. Riders in the one-day cycling trek choose from four distance options through scenic Kentucky bluegrass country or a 5-mile Family Ride. Through the Norton Healthcare Foundation, funds raised from the event support prevention, early detection and educational initiatives, as well as programs that encourage patients and families to approach cancer with a hopeful outlook.

The 2018 Bike to Beat Cancer raised more than \$600,000 for adult and pediatric cancer programs. For ways to help, visit NortonHealthcareFoundation.com.

Adult Network Cancer Registry

The performance rates shown below provide an estimate of the proportion of patients concordant with measure criteria by diagnosis year. If appropriate, the Commission on Cancer (CoC) standard and benchmark compliance rate is provided.

This application provides cancer programs the opportunity to examine data to determine if performance rates are representative of the care provided at the institution and to review and modify case information using the review function for the measure of interest.

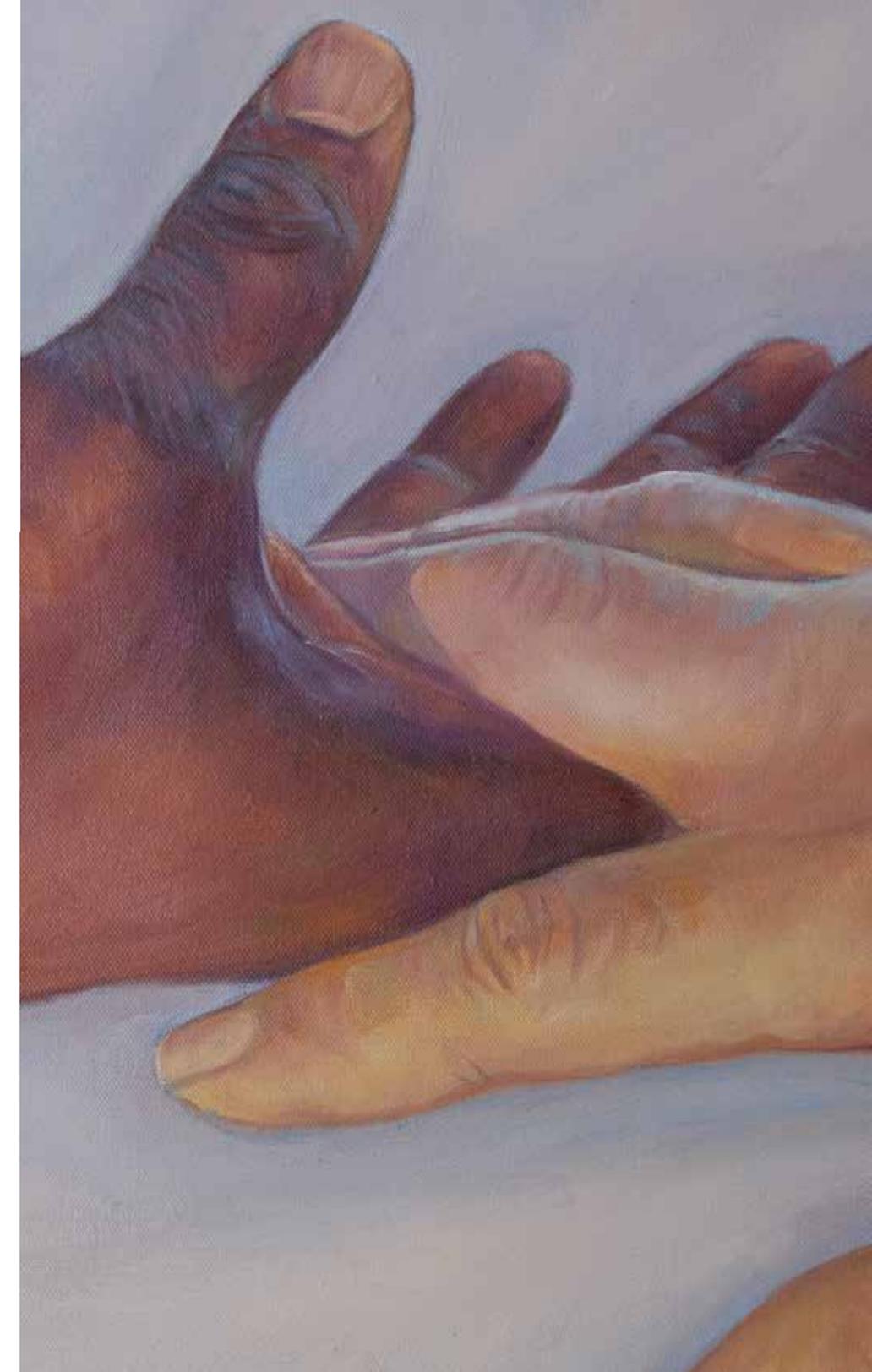
Select measures	Measure	CoC standard/%	2012	2013	2014	2015
Radiation is administered within 1 year (365 days) of diagnosis for women under age 70 receiving breast conservation surgery for breast cancer (accountability)	BCSRT	4.4 / 90%	98.00	94.00	97.40	91.20
Tamoxifen or third-generation aromatase inhibitor is recommended or administered within 1 year (365 days) of diagnosis for women with AJCC T1c or stage IB-III hormone receptor-positive breast cancer (accountability)	HT	4.4 / 90%	97.70	98.70	99.20	99.20
Radiation therapy is recommended or administered following any mastectomy within 1 year (365 days) of diagnosis of breast cancer for women with \geq 4 positive regional lymph nodes (accountability)	MASTRT	4.4 / 90%	88.00	96.80	94.70	90.50
Image or palpation-guided needle biopsy to the primary site is performed to establish breast cancer diagnosis (quality improvement)	nBx	4.5 / 80%	88.40	96.50	82.00	85.50
Breast conservation surgery rate for women with AJCC clinical stage 0, I or II breast cancer (surveillance)	BCS	Not applicable	57.30	58.70	63.00	56.80
Combination chemotherapy is recommended or administered within 4 months (120 days) of diagnosis for women under age 70 with AJCC T1cN0 or stage IB to III hormone receptor-negative breast cancer (accountability)	MAC	Not applicable	94.60	90.90	87.10	95.50



Artist spotlight: Debra Lott

Debra Lott created a series of four 24-inch by 24-inch paintings grouped to form a 48-inch by 48-inch composition for the second floor of Norton Cancer Institute – Brownsboro. Each painting is a unique composition of hands. Her paintings express the process of caring for the body and the person within, being mindful of how cancer affects all races, genders and ages. They represent a common bond and invite the viewer to consider his or her own journey.

“The hands can communicate much more than we realize — a touch, a clasp, a gesture — expressing more than the spoken word while bringing comfort,” Debra said.



Pediatric cancer services

Formed in 2017, Norton Children's Cancer Institute, affiliated with the University of Louisville, is a source of hope and healing for approximately 100 children diagnosed with cancer each year and nearly 1,000 children annually who are in ongoing cancer treatments, clinics and follow-ups.

Cancer patients who require inpatient care stay in the Addison Jo Blair Cancer Care Center at Norton Children's Hospital. It is the oldest continuously accredited children's oncology program by the American College of Surgeons' Commission on Cancer, holding accreditation since 1959. The inpatient unit, which has about 8,000 visits per year, also is affiliated with the Children's Oncology Group and the National Cancer Institute. Why does this matter?

1. Each child is treated as an individual as treatment protocols are put into place.
2. Children may enroll in any of the Children's Oncology Group 50-plus clinical studies, in addition to other studies offered by the institute.

As the teaching facility for the University of Louisville School of Medicine Department of Pediatrics, 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.

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.

Teens who require inpatient cancer care stay in the adolescent and young adult unit located within the Addison Jo Blair Cancer Care Center. In 2017, the unit was renovated to create spaces that appeal to teenage patients. Three teen patient rooms were created along with a quiet space for private time and a common space for social gatherings. The teen unit is complete with age-appropriate technologies and décor.



Care for teens and young adults

Norton Children's Cancer Institute offers Kentucky's only Adolescent and Young Adult (AYA) Program and Transition Clinic.

The AYA Program was made possible through a \$300,000 investment from several key donors through the Children's Hospital Foundation. These include \$100,000 from Teen Cancer America (founded by Roger Daltrey and Pete Townshend of The Who), \$98,000 from Freudenberg Medical, \$89,000 from local high schools' pink and white football games, and \$30,000 from Northwestern Mutual.

Treatment and services

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.

Norton Children's Cancer Institute also cares for kids with blood disorders, such as sickle cell anemia, hemophilia, idiopathic thrombocytopenic purpura, neutropenia and other types of anemias. Norton Children's 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 autoimmune disorders such as Crohn's disease. The institute also is among the first in the region to offer a red blood cell exchange program, which is a virtually painless treatment for sickle cell disease that helps to minimize complications such as acute chest syndrome.



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.

Care for solid tumors

Solid tumors represent 30 percent of all the cancers in children. They can occur in several parts of the body, including bones, muscles, organs and soft tissues. Treatment for solid tumors includes surgery, chemotherapy and, in some cases, radiation therapy.

Norton Children's Cancer Institute has a number of specialized clinics to treat solid tumors, including:

- Germ cell tumors in the reproductive cells, abdomen, chest, neck, head and brain
- Hepatoblastoma, a rare type of malignant liver cancer
- Nephroblastoma, also called Wilms tumor, a malignant tumor in the kidney
- Neuroblastoma in the tissues that form the sympathetic nervous system
- Retinoblastoma, a rare form of eye cancer



Infusion services in new Novak Center for Children's Health

In 2018, Norton Children's infusion services moved into a new building one block away, the Novak Center for Children's Health. The 176,000-square-foot building is one of the largest and most technically advanced pediatric outpatient centers in the country. It houses UofL Physicians specialty practices, diagnostic services and a lab, so patients can get all of their outpatient cancer care in one place.



Blood and bone marrow care

Norton Children's Cancer Institute is home to Kentucky's only pediatric hematology program and the largest pediatric coagulation (clotting) center in the state. The program cares for patients with:

- Blood cancers (leukemia, lymphoma)
- Benign blood disorders (hemophilia, sickle cell disease)
- Hemophilia and other bleeding disorders, including gynecological bleeding disorders
- Clotting disorders (thrombosis and thrombophilia)

Treatments include chemotherapy, blood and marrow transplantation (stem cell), blood transfusions (apheresis and photopheresis) and radiation therapy.

Leukemia/Lymphoma Clinic

Leukemia is the most prevalent type of cancer in children, accounting for 40 percent of all pediatric cancer diagnoses. Two of the most common types of leukemia treated at Norton Children's Cancer Institute are:

- Acute lymphoblastic leukemia, also called acute lymphocytic leukemia
- Acute myelogenous leukemia, also called acute myeloid leukemia or acute myelocytic leukemia

Available treatments include chemotherapy, blood and marrow transplantation, blood transfusions and radiation therapy.

Lymphomas are a group of cancers of the lymphatic system, a part of the body's immune system that includes the bone marrow, spleen, thymus, lymph nodes and lymphatic vessels. The clinic cares for kids with Hodgkin lymphoma and non-Hodgkin lymphoma.

Blood and marrow transplantation

Norton Children's Cancer Institute is home to the region's only dedicated pediatric blood and marrow transplant program. Norton Children's Hospital is a member of the Pediatric Blood & Marrow Transplant Consortium and the Blood and Marrow Transplant Clinical Trials Network.

There are two types of stem cell transplants: Autologous (self), in which the child's own stem cells are used; and allogeneic (nonself), in which the stem cells from either a family member or an unrelated donor are used. The type of transplant depends on the child's particular disease.



Hematology

Sickle cell disease services

Sickle cell disease is a complicated condition with various manifestations. The abnormal structure of red blood cells causes them to break down at a faster rate and leads to anemia. It also can cause sudden pain anywhere in the body, as well as damage to tissues and organs over time, placing patients at a higher risk of serious infections.

A broad range of specialty services are available through the Sickle Cell Disease Program, including access to pediatric general surgeons, orthopedists, ophthalmologists and pulmonologists with expertise in caring for children with this disease.

Offerings include:

- Transfusion services to prevent stroke
- Newborn screening and genetic counseling
- Pulmonary care to treat asthma, which is common in children with sickle cell disease
- Cerebrovascular care for children at risk for or who have experienced cerebrovascular complications, including stroke
- Imaging to detect or evaluate potential issues such as gallstones, stroke and narrowed blood vessels
- Psychosocial services for families to help in coping with chronic illness and associated issues affecting school, employment, financial issues and more

Artist spotlight: Tamara Scantland

Tamara Scantland created a watercolor painting on canvas for the third-floor lobby area of Norton Cancer Institute – Brownsboro. Tamara knows firsthand that nature is healing and comforting to the body and soul. Her experiences inspired her painting of a sunrise over a river. Layers of paint form birds, flowers, colors and light.

"I find rest and ease being surrounded by nature," she said. "The warmth of sunshine hugs the body. Bare feet on earth comforts and grounds me. The sights and sounds fill me with joy."



Apheresis and photopheresis

Norton Children's Cancer Institute features the region's only pediatric apheresis and photopheresis program as part of the Norton Children's Infusion Center in the new Novak Center for Children's Health. Apheresis and photopheresis are used to treat leukemia, sickle cell disease and graft-versus-host disease. The center also treats adult patients.

- Apheresis is a process involving the removal of whole blood from a patient or donor and then separating the components of the blood. The separated portions are either returned to the bloodstream or replaced with donor blood or plasma.
- Photopheresis is a type of apheresis in which a small amount of white blood cells is treated with an ultraviolet light-activated photoactive drug before being retransfused into the patient.
- Plasmapheresis replaces blood plasma with plasma from a healthy donor.

Care for immune system disorders

The Immunodeficiency and Histiocytosis Clinic cares for young patients with conditions that affect the immune system. Patients are treated by a team that includes immunologists, infectious disease specialists and hematology/oncology specialists. Conditions treated in the clinic include:

- Primary immunodeficiency disorders caused by a lack of, or dysfunction of, white blood cells, which play an important role in fighting infections
- Histiocytosis, a group of diseases that are not necessarily cancer but involve abnormal growth of immune system cells, most notably histiocytes (a form of white blood cell)

Care for soft tissue and bone sarcomas

Sarcomas are cancers that occur in the muscles, bones or tendons. These tumors are the focus of the Soft Tissue/Bone Sarcomas Clinic. The clinic treats a number of conditions, including:

- Osteosarcoma, the most common type of bone cancer and third most common pediatric cancer after lymphomas and brain tumors
- Ewing sarcoma, the second most common malignant bone tumor
- Rhabdomyosarcoma, a tumor of the skeletal muscles, the most common soft tissue sarcoma in children
- Non-rhabdomyosarcoma, a tumor of the tendons, nerves, fatty tissue and fibrous tissue

Thyroid cancer services

Care for all types of thyroid carcinoma, a rare cancer in children, is available in the Endocrine Center. Differentiated thyroid cancer is the most common type of thyroid carcinoma and includes papillary thyroid cancer and follicular thyroid cancer. Papillary thyroid cancer affects both children and adults, and represents about 85 to 90 percent of all thyroid cancer diagnoses.



Dan Ishihara, M.D.

Beating up cancer with radiation

Dan Ishihara, M.D., is Norton Cancer Institute's newest radiation oncologist. As a kid, he was fascinated by physicians — considering them to be like superheroes swooping in and saving people in their time of need. Now, he gets to play the hero and, as he says, beat up cancer with radiation. A self-described perfectionist, his specialty serves him well.

"Radiation is much like surgery, but I can use imaging and take as much time as I need to get the treatment just right," Dr. Ishihara said. "I enjoy that part of my job."



Specialized programs

Pediatric Brain Tumor Program

Outcomes for children with brain tumors have improved significantly in the past two decades. Most children with brain and spinal cord tumors are long-term 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 UofL 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 offering physical and occupational therapy. Several phase I and II and supportive studies for pediatric brain tumors also are available.

Immunotherapy and Cancer Vaccine Program

Immunotherapy for pediatric cancer has the potential to provide medical oncologists new, effective treatment options with fewer side effects. Immunotherapy seeks to induce, enhance or suppress the body's immune response. In cancer immunotherapy, the goal is to stimulate the immune system to help the body reject or destroy tumors. When combined with conventional cancer treatments, the efficacy of immunotherapy increases by nearly 30 percent. This treatment is the focus of the Immunotherapy and Cancer Vaccine Program. Available immunotherapies include:

- Monoclonal antibodies
- Cancer vaccines (vaccine therapy)
- Cellular therapies
- Interleukins
- Interferons
- Granulocyte-macrophage colony-stimulating factor

Precision Cancer Medicine Clinic

One of the latest advancements in cancer treatment is the use of precision cancer medicine. With advances in mapping DNA, scientists have discovered that each patient's cancer is the result of unique and individual changes to their cells' DNA. Together, these changes build a tumor "profile."

The Precision Cancer Medicine Clinic uses this profile to tailor treatments by focusing on the genetic characteristics of each patient's cancer, selecting drugs that would better match the profile.

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 geared to adult patients. The radiation center, which opened in 2011, was designed with kids in mind.

Children 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 two dedicated playrooms 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. 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, 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.



Total body irradiation

Thanks to a grant from the Children's Hospital Foundation in 2018, Norton Children's Cancer Institute is now offering total body irradiation for leukemias, lymphomas and multiple myeloma before stem cell transplantation. The grant allowed Norton Cancer Institute to purchase the microSTARii system for monitoring radiation dosing. Using hundreds of "readers" attached to the patient, specialists can ensure dosing is symmetrical across the body. Total body irradiation is given twice a day over three days, as opposed to once a day over a longer period of time with targeted radiation. The therapy also is available for adults.

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. The team includes experienced pediatric specialists with expertise in palliative care and symptom management, as well as social workers and interfaith spiritual care.

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



'Going Gold' for childhood cancer awareness

Each September, hundreds of children and their families attend a free celebration at the Louisville Zoo in support of Childhood Cancer Awareness Month. The "Go Gold at the Zoo" event is hosted by Norton Children's Cancer Institute, affiliated with the University of Louisville. In addition to a presentation, lunch and family activities, all young cancer patients and survivors who attend receive a gold medal to honor their strength, courage and resiliency.

Support services

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. Dogs 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 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 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



Cancer Beats

If listening to music can positively impact someone, then imagine what creating music can do for someone fighting a life-threatening disease, such as cancer. Norton Children's Cancer Institute patients are learning to tune out cancer with music therapy through Cancer Beats. The Children's Hospital Foundation and Teen Cancer America (founded by Roger Daltrey and Pete Townshend of The Who) support Cancer Beats, a program aimed at improving quality of life and outcomes for teens and young adults with cancer. They can experience music therapy in social settings through Cancer Beats "jam sessions," where community musicians help Cancer Beats members learn new skills and coping strategies, meet peers, gain support and be creative in a safe and controlled environment.



Chili's Clip for Kids

Chili's® Clip for Kids is the main cancer fundraising event for the Children's Hospital Foundation. 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.

In 2018, nearly 1,000 people came together to raise more than \$60,000. These funds are used to continue the comprehensive support and educational programs, advanced treatments and research available through Norton Children's Cancer Institute.

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 ask questions about cancer.

Support groups

Norton Children's Cancer Institute 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.
- A parents' dinner meets once a month as opportunities for parents to support one another.
- Teen Warriors is a group for youth ages 15 to 18 affected by cancer. They meet weekly for music jam sessions and have monthly "hangouts" that include dinner and an activity.
- 7 West Warriors is a private Facebook group named after the floor where the Addison Jo Blair Cancer Care Center is located in Norton Children's Hospital. The group provides information and support for patients, parents and family members.

Community support through the Children's Hospital Foundation

Donations to cancer care through the Children's Hospital Foundation are aimed at ensuring Norton Children's Cancer Institute has the equipment and resources to provide the most specialized treatments for children and teens.

The Children's Hospital Foundation funded several initiatives to support a variety of pediatric cancer services that ensure all children diagnosed with cancer at Norton Children's Cancer Institute, and the hundreds receiving ongoing treatment, have access to the care they need. For ways to help, visit HelpNortonChildrens.com.



2017 quality report

Improvement in quality outcomes with indwelling urinary catheter bundles, April to December 2017

Structure/focus of problematic quality issue

Recent updates to the Commission on Cancer protocol require urinary catheters during certain times of treatment. Since the change, the Norton Children's Hospital 7 West inpatient cancer unit has seen an increase in urinary catheter days, positive urine cultures not meeting the national Healthcare Safety Network (NHSN) definition for catheter-associated urinary tract infection (CAUTI), and CAUTI.

Deep dives into the practices of inserting and care of indwelling urinary catheters show areas for opportunity around compliance with the urinary catheter insertion and maintenance bundles.

Criteria/study parameters

Population included inpatients on 7 West with indwelling urinary catheters.

Findings

- Lack of experience with urinary catheter insertion and care
- Compliance not being monitored on patients with urinary catheters
- Lack of knowledge on insertion and maintenance bundle components
- Lack of knowledge on proper specimen collection
- Lack of documentation of patient/family education

National benchmark comparisons

The Solutions for Patient Safety (SPS) collaborative states reliable improvement in patient outcomes result when bundle compliance is greater than 90 percent. The goal for this project is to have 90 percent compliance with both insertion and maintenance bundles.

Action plan

- A member of 7 West staff will join the Norton Children's Hospital UTI reduction team.
- Staff will be educated on the insertion bundle. Components include necessity of catheter, hand hygiene, peri care prior to insertion, use of adding a Foley kit, use of sterile drape, use of sterile technique when inserting.
- Staff will be educated on the maintenance bundle. Components include daily evaluation of need, collection bag below bladder level, catheter tubing free of kinks, collection bag less than two-thirds full and catheter secured to leg.

Follow-up

- An insertion bundle sheet is required for all insertions of indwelling catheters.
- A trained member of the hospital UTI reduction team and 7 West staff member will monitor maintenance compliance on all patients with an indwelling urinary catheter.
- Insertion and maintenance bundle compliance will be reported at staff meetings.
- Obtain a baseline from May to December 2016.

Result improvement

After extensive staff education and dedicated observers to monitor compliance, maintenance compliance increased from 61 percent to 100 percent. The hospital had no CAUTIs in 2017.



Jaspreet S. Grewal, M.D.
Patient care from the heart

Jaspreet S. Grewal, M.D., joined Norton Cancer Institute in 2018 after realizing his work in immunotherapy drug development, while fulfilling, was missing the human touch. A medical oncologist/hematologist with a doctorate in tumor immunology, he got into medicine to make an impact in people's lives.

Dr. Grewal brings expertise in immunotherapy, passion for science and oncology, and a heart for patient care. He has a simple philosophy: Patients should be involved in decision-making from beginning to end.

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Behavioral Oncology Program
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Breast Health Program
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Genetic Counseling Services
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Phone: (502) 629-GENE (4363)

Lymphedema Program
Phone: (502) 394-6455

Oncologic Dermatology Program
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Orthopedic Oncology Program
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Prevention & Early Detection Program
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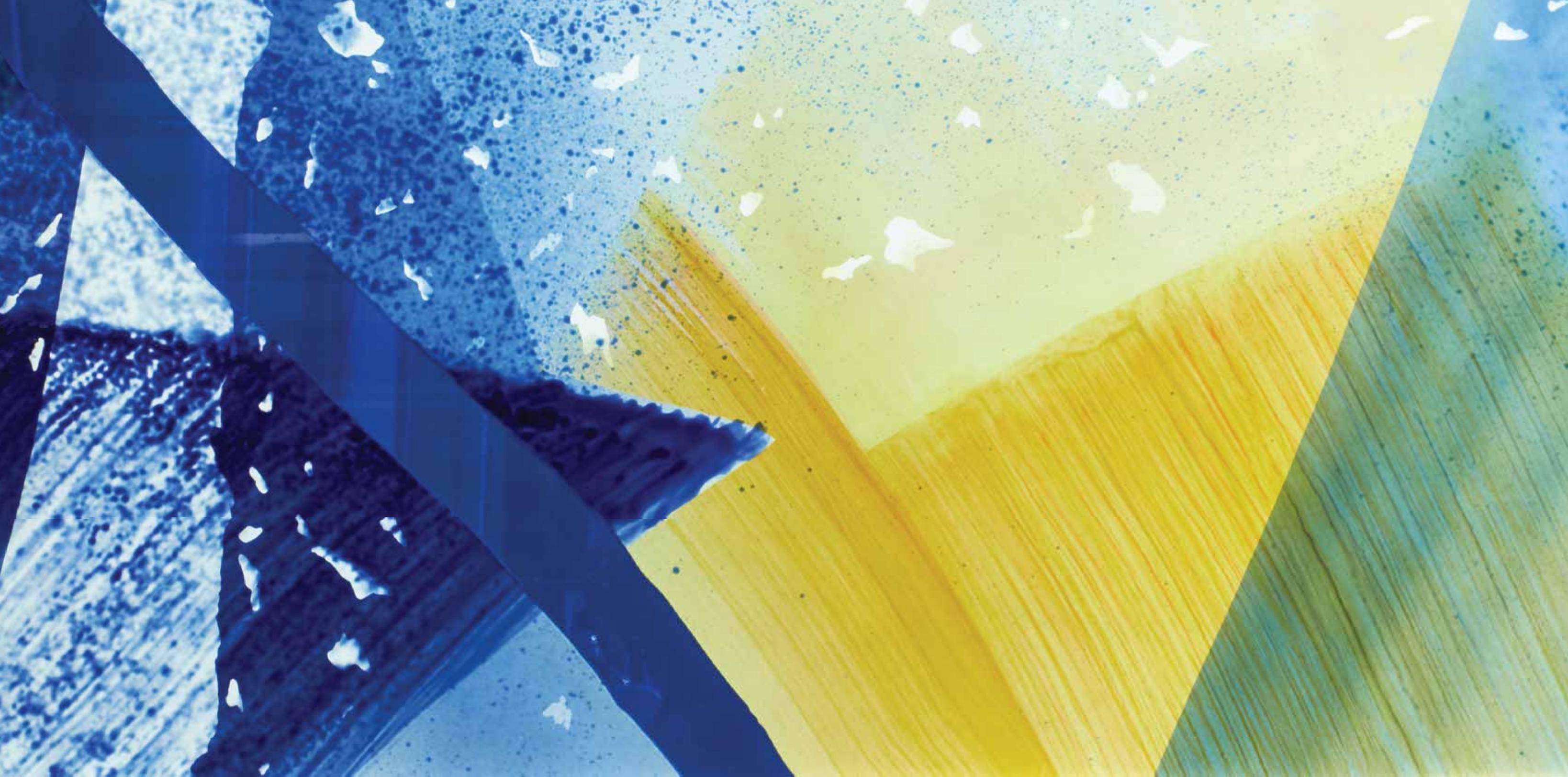
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