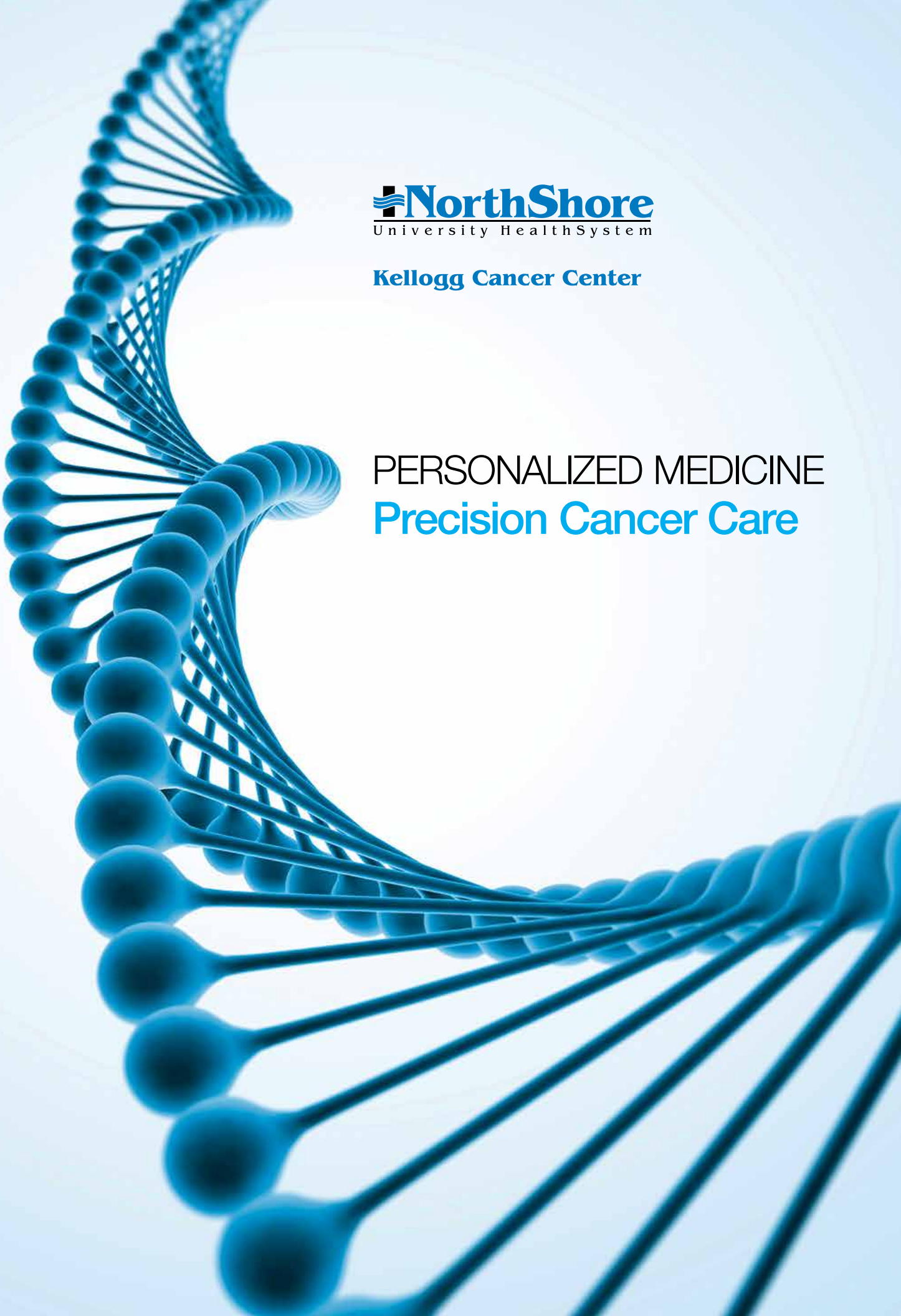




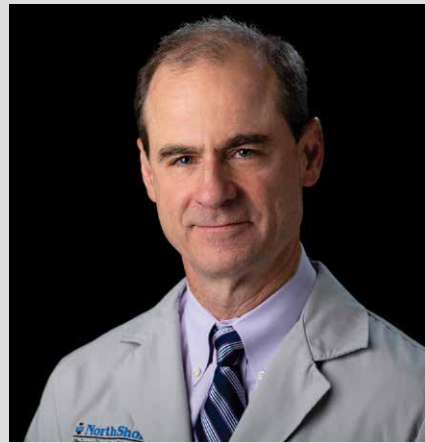
Kellogg Cancer Center

PERSONALIZED MEDICINE
Precision Cancer Care





Dr. Bruce Brockstein



Dr. David J. Winchester

An institution-wide focus on personalized medicine has furthered Kellogg Cancer Center's role as a leader in cancer prevention, early detection and advanced treatment.



Personalized Medicine | Precision Cancer Care

At NorthShore University HealthSystem (NorthShore) Kellogg Cancer Center, personalized patient care is our top priority. Our collaborative teams of experts provide comprehensive, compassionate care to each individual patient.

We use the most sophisticated genomic and tumor analysis to help develop personalized treatment plans with therapy directed at personal tumor characteristics. Kellogg Cancer Center has been at the forefront of immunotherapy, and we remain focused on this quickly evolving field bringing new therapies and hope to patients. We are expanding our in-house tumor gene sequencing capabilities, and exciting plans are in the works to launch a new, transformative immunotherapy program in the coming months, further enhancing our commitment to provide the best possible patient outcomes. Participation in a broad array of clinical trials ensures that our patients have access to the most promising new therapies, right here. Our academic affiliation with the University of Chicago Pritzker School of Medicine and our alliance with the Mayo Clinic increases our knowledge and support to deliver optimal care for cancer patients.

NorthShore continues to invest in technology including robotic devices, important for precise removal of hard-to-reach head and neck tumors and to minimize postoperative pain and recovery times for patients undergoing hepatobiliary, gastric, rectal, urologic and gynecologic surgery. NorthShore has also maintained its commitment to recruit top physician talent such as Melissa Hogg, MD, a nationally recognized expert in robotic pancreatic surgery, hematologist Jason Kaplan, MD, and oncologist Nicklas Pfanzer, MD.

NorthShore is certified by the American Society of Clinical Oncology (ASCO) Quality Oncology Practice Initiative (QOPI) as a premier medical provider for practicing the highest standards of quality cancer care. The Commission on Cancer has continuously accredited NorthShore as an Academic Comprehensive Cancer Program since 1981. NorthShore was named a "High-Performing Site" by the National Cancer Institute's National Clinical Trials Network (NCTN) reflecting our patient accrual, site participation and data quality. Pioneering research initiatives play an important role at Kellogg Cancer Center, supporting today's clinical care and paving the way for better prevention and treatment options for future generations. While we are proud of these and other formal awards, we are most gratified by successful patient outcomes.

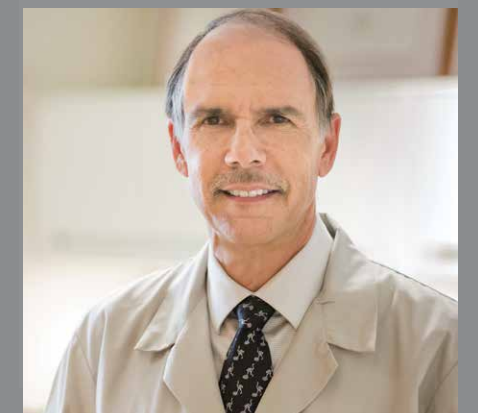
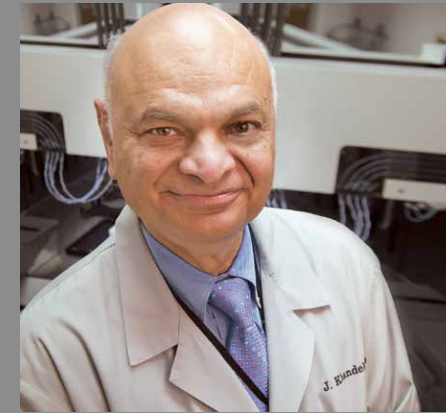
We invite you to learn more about the highlights of Kellogg Cancer Center's personalized medicine approach with our Annual Report. We are grateful to our generous donors whose philanthropic support helps ensure comprehensive care for patients and their families throughout their cancer journey.

Bruce Brockstein, MD
Medical Director
NorthShore Kellogg Cancer Center
Head, Division of Hematology/Oncology
Kellogg-Scanlon Chair of Oncology

David J. Winchester, MD
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Board of Directors, David P. Winchester, MD,
Chair of Surgical Oncology



Leaders in Advanced Cancer Treatment



NorthShore has been ahead of national trends in research and clinical use of novel lifesaving therapies, including genomic advances and immunotherapy agents. NorthShore leaders—including (from left) Dr. Janardan Khandekar, Director for Innovation and Education, Center for Personalized Medicine; Dr. Linda Sabatini, Director of Molecular Pathology; and Dr. Robert Marsh, Leader, Molecular Oncology Tumor Board—ensure that Kellogg Cancer Center patients receive the most sophisticated testing and treatments.

Personalized Medicine

Kellogg Cancer Center is recognized for its excellence in cancer care and research, work that is enhanced by a distinguished faculty, advanced Electronic Medical Record (EMR) system, vast biospecimen repository and a commitment to staying ahead of the curve with the latest treatment options.

Never has this been more evident than in our early embrace of personalized medicine and the power of immunotherapy.

The first clinical use of immunotherapy at Kellogg Cancer Center was for metastatic melanoma in 2011. Today, up to 50 percent of patients with metastatic melanoma can expect long-term remission with immunotherapy; in years past, that number was close to zero. Today, 15 to 20 percent of lung cancer patients see long-term remission with immunotherapy, and we expect that number to continue to grow. More than 20 percent of all Kellogg Cancer Center patients will be treated with immunotherapy by 2020.

NorthShore is now implementing a comprehensive, multidisciplinary immunotherapy program, with recruiting underway for a program director and lead researcher. The sophisticated Kellogg Cancer Center program will provide a growing range of groundbreaking treatment options, and will support critical translational and clinical research. Expanded support services for patients will also be implemented.

The new program will build on the foundation already in place, including extensive research, internal and external education, and financial advocacy.

Personalized Cancer Care

NorthShore's Program for Personalized Cancer Care is dedicated to individualizing care from enhanced prevention and screening for those at higher risk to customized treatment modalities based on individual and tumor genomics. Superior resources and systemwide collaboration enable our commitment to deliver personalized cancer care.

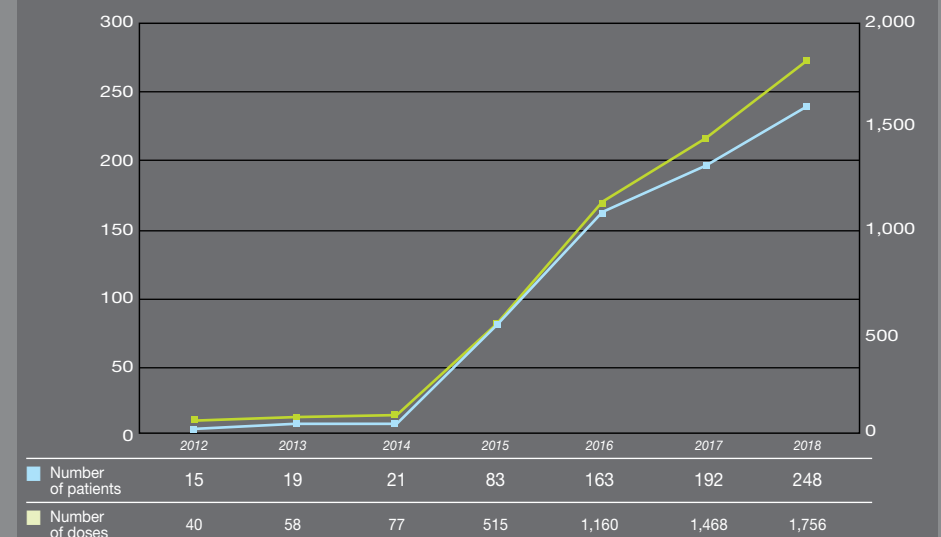
Our on-site molecular and surgical pathologists use next-generation sequencing to analyze tumors at a genetic level, with a rapid clinical turnaround time. NorthShore's Molecular Pathology Laboratory led by Linda Sabatini, PhD, was one of the first and most sophisticated of its kind, and remains a leader in genomic testing and analysis. Dr. Sabatini has developed a

next-generation DNA sequencing assay to test for genomic alterations in (plasma) liquid biopsies of pancreatic cancer patients and reported preliminary findings at a national meeting. Plans are in the works to leverage those findings and develop a liquid biopsy test for men with advanced prostate cancer.

Complex cases are presented at Kellogg Cancer Center's regular molecular oncology tumor board meetings led by oncologist Robert Marsh, MD.

Our Center for Medical Genetics is one of the busiest clinical services of its kind in the country. It offers the latest technologies and risk-assessment tools and works collaboratively with our oncology specialists.

Immunotherapy Total Number of Patients and Doses



Lifesaving Immunotherapy Clinical Trial

When Charmaine Stredl had surgery in 2013 for her first recurrence of cancer at the base of her tongue, she did not expect to survive. It was a more aggressive recurrence of the oropharyngeal cancer she had been treated for two years earlier.

But thanks to NorthShore's Mihir Bhayani, MD, an expert in head and neck cancer surgery, and medical oncologist Nicholas Campbell, MD, Stredl not only survived a complex surgical procedure followed by chemotherapy and radiation, she is still going strong five years later.

After a second recurrence, Stredl has been on an experimental immunotherapy drug for close to three years, available through an advanced clinical trial at Kellogg Cancer Center. The 77-year-old Chicago resident receives an infusion at NorthShore Evanston Hospital every two weeks and has become like family to her Kellogg Cancer Center clinical team.

"I feel just fine, and I am so happy to be alive," said Stredl. "I cannot complain about a thing."

When Stredl began the clinical trial, her only other option was hospice care, said Dr. Campbell. While clinical trials demand significant organizational resources and time, they can be lifesaving.

"This is exactly why we do clinical trials here; all of this effort is meant for people like Charmaine, so they have access to cutting-edge therapies right here and don't have to go elsewhere. Not everyone will benefit from a clinical trial, but we're helping find new drugs to give Charmaine and others like her hope and extra time," said Dr. Campbell.

"At first, I wasn't sure I wanted to do the infusions, but [research nurse] Clancy Fine explained everything to me and I realized it was really my only option," said Stredl. "I've had no side effects, and I'm healthy otherwise."

Stredl takes daily walks and enjoys the company of her neighbors and friends. She never fails to greet everyone at Kellogg Cancer Center, remembering to inquire about their children, progress in school and other personal details she has committed to memory over the years.

"I love everybody at Kellogg, and I wish I had a million dollars to donate," said Stredl. "Dr. Campbell is a wonderful man, and I will never forget Dr. Bhayani. I say a prayer for all of them—doctors, nurses, infusion techs—every day. One person is better than the next."

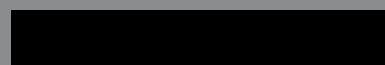
The promise of immunotherapy continues to grow as there are indications every few months of new immunotherapy medications working for different cancers, explained Dr. Campbell. When Stredl was diagnosed with the recurrent cancer, there were no immunotherapy options available for her.

"We continue to offer more trials here and enroll as many patients as we can so that they have the opportunity and hopefully the results that Charmaine has enjoyed," added Dr. Campbell.



Charmaine Stredl (center) is one of many Kellogg Cancer Center patients benefiting from a range of clinical trials. She is grateful to her care team, who has become like family to her, including (from left) Research Nurse Clancy Fine, Dr. Nicholas Campbell and Nurse Laura Lenski.

NorthShore leads and participates in a large portfolio of clinical trials aimed at developing better prevention, detection and treatment options. Current trials are listed beginning on page 14.



Critical Expertise in Cancer Care

Breast Cancer Program

NorthShore's multidisciplinary breast program provides comprehensive care and services to patients with breast cancer. Kellogg Cancer Center's Breast Cancer Program received accreditation by the American College of Surgeons' National Accreditation Program for Breast Centers (NAPBC) again in 2018.

The breast surgery team successfully implemented an Enhanced Recovery After Surgery (ERAS) protocol for mastectomy with reconstruction patients, which has significantly decreased narcotic usage in our patients (see more details on page 13). Director of Breast Oncoplastic Surgery Katherine Kopkash, MD, developed an oncoplastic breast surgery workshop to teach new oncoplastic techniques. The program was well-attended by both NorthShore and University of Chicago breast surgeons. Oncoplastic surgery focuses on both the best clinical and aesthetic outcomes for patients.

Major recruitments include a new plastic and reconstructive surgeon Akhil Seth, MD, who completed his residency at Harvard and fellowship at Memorial Sloan Kettering Cancer Center. Medical oncologist Allison DePersia, MD, completed her training at the University of Chicago and focuses on cancer risk. She leads the high-risk breast program, which offers patients a personalized risk assessment and evaluation and guidance for appropriate screening and prevention techniques.

Over the last year, a robust clinical trials program in breast oncology was created under the direction of Poomima Saha, MD. We have continued our partnership with the University of Chicago, as well as opened multiple national and international clinical trials ranging from targeted therapy to immunotherapy for breast cancer, allowing patients access to the latest options.

Multiple surgery focused clinical trials have also been launched including COMET (observation of DCIS), MarginProbe (an industry-sponsored device trial that intraoperatively evaluates margins), and surgical ergonomics (assessing ergonomic workload of nipple-sparing mastectomies), which received a NorthShore Auxiliary Award for breast cancer research. Translational research projects underway include a study led by anatomic pathologist Megan Sullivan, MD, investigating the use of cell-free DNA in breast cancer patients.

The Kellogg Cancer Center Breast Cancer Program is now offering the Paxman scalp cooling system for patients with breast cancer to reduce the likelihood of chemotherapy-induced hair loss. This advanced technology will help minimize one of the most emotionally difficult aspects of cancer treatment for our patients.

Prostate/Genitourinary Program

The Prostate/Genitourinary Oncology Program saw a 5 percent increase in the number of new patients over the previous year. The program in collaboration with Ambry Genetics launched a new commercially available genetic test to evaluate prostate cancer risk. Genetic testing can help guide screening and treatment decisions



Breast Oncology Nurse Navigator Beth Weigel (left) and Dr. Katherine Kopkash, Director of Breast Oncoplastic Surgery



for patients diagnosed with prostate cancer, including the choice of active surveillance without initial therapy. Test results can also help determine when to initiate screening and can identify men with advanced disease that may respond to specific chemotherapies.

The "Prostate Next" test includes a panel of 14 highly penetrant genes, including BRCA1, BRCA2 and ATM. It also includes AmbryScore-Prostate, which is a novel test developed by NorthShore to evaluate common risk factors for prostate cancer.

We continue to have the largest active surveillance program in the Midwest as surveillance remains a viable option for men with low-risk prostate cancer.

A new prostate cancer Enhanced Recovery After Surgery (ERAS) protocol has been initiated to ensure standardization of care and a continued decrease in the length of stay and pain after surgery.

A robust research portfolio offers our patients access to the latest clinical trials. The ENACT study, a randomized study of men with localized low-risk disease who are taking enzalutamide, is currently underway. We are initiating the "ProVent" Study to assess the effectiveness of Sipuleucel-T immunotherapy (PROVENGE) for men with low-risk or low-volume intermediate risk prostate cancer who are pursuing active surveillance.

We are participating in ongoing familial studies aimed at identifying genetic variants that predispose to aggressive disease as part of studies led by the International Consortium for Prostate Cancer Genetics. NorthShore's team is involved in other national and international studies as well, including a National Cancer Institute Specialized Programs of Research Excellence (SPORE) project with

Northwestern University. Daniel Shevrin, MD, is director of the Patient Advocacy Program of Northwestern's SPORE.

Our program is an active participant in the TRUMPET study, a national prospective observational cohort study of men with advanced prostate cancer with Dr. Shevrin serving as a member of the TRUMPET advisory board.

We are continuing to enroll patients in numerous trials, including the NorthShore-led MOSAIC-P trial, testing mindfulness online in men with advanced cancer; a University of Chicago based trial of enzalutamide/mifepristone for advanced prostate cancer; and the AFT-19 trial testing aggressive hormone therapy in men with PSA-recurrent prostate cancer.

NorthShore is initiating development of a liquid biopsy test to determine the genomic profile in men with advanced prostate cancer to guide treatment decision. The project is funded primarily by a philanthropic gift from the Ellis Goodman Family Foundation.

Kellogg Cancer Center promotes ongoing patient support, hosting monthly Us TOO prostate cancer support meetings.

Our Bladder Cancer Program completed a study in collaboration with the Genomic Health Initiative aimed at identifying biomarkers that are associated with bladder cancer progression. Nationally recognized expert Norm Smith, MD, was recruited to join the team and will help establish a center of excellence in bladder cancer. Dr. Smith serves on the Cancer Advocacy Network and Bladder Cancer Think Tank Scientific Advisory Board. In addition, Nicklas Pfanzer, MD, a nationally recognized expert in genitourinary oncology, joined the NorthShore team this year.

A new Institutional Review Board (IRB)-approved active surveillance kidney cancer program will observe outcomes and identify factors associated with disease progression in men with small kidney masses less than 4 cm in size.

Gastrointestinal Oncology

COLORECTAL CANCER PROGRAM

Kellogg Cancer Center's multidisciplinary team leverages collective expertise and the latest technology to offer individually focused treatment to patients with colorectal cancer. Our collaborative approach ensures outstanding care for unusual or complex cases with multidisciplinary clinics at both NorthShore Evanston and Glenbrook Hospitals with experts from gastroenterology, medical oncology and surgery all in one location.

Our Kellogg Cancer Center team is a leader in minimally invasive surgical techniques. NorthShore surgeons perform laparoscopic procedures on most patients. We are one of only a few centers in the Chicago area using minimally invasive and robotic approaches to manage pancreatic cancer as well as liver resections in patients with colorectal cancer.

Our experienced surgeons continue to push the boundaries of innovative technology, including scarless, or transanal and transoral



Oncologist Dr. Marisa Hill talks to a patient about neoadjuvant chemotherapy for gastrointestinal cancer given before surgery to shrink tumors.

procedures. We are one of the first centers in the Chicago area to offer robotic transanal surgery as well as endoscopic submucosal dissection for polyps with early cancer changes.

Interventional Radiology offers a full spectrum of therapeutic interventions, including embolization of tumor vasculature, radiofrequency ablation and Yttrium-90 perfusion of the liver. These minimally invasive techniques add to the multimodality approaches and supplant more invasive therapies in many patients. Radiation therapy and nuclear medicine are able to offer all of the latest techniques, including stereotactic body radiation therapy and targeted radioactive particle infusion.

Medical Oncology staff members approach each patient individually to develop effective, personalized therapy focused on molecular-based treatment. As a routine, multidisciplinary reviews of individual patient care plans are performed prior to initiating therapy, ensuring that all the most applicable options are implemented.

For more information, visit northshore.org/cancer or call (847) 570-2112

Patients with rectal cancer may be considered for total neoadjuvant treatment, an innovative approach with delivery of all chemotherapy and radiation prior to surgery, achieving better treatment tolerance, higher response rates and shorter ostomy times.

Our program continues to emphasize prevention and early detection with a high-risk colorectal cancer screening program. Specialists in medical genetics meet with patients and families and help coordinate personalized screening plans based on individual medical and family history. A special Women's GI Cancer Risk and Prevention Center counsels women to assess individual risk and offers personalized risk-reduction strategies, including lifestyle modifications.

Innovative research is a key component of our GI program. We participate in a number of national and international studies, ensuring that our patients have access to the latest research and novel treatment options. Our collaboration with our academic partner, the University of Chicago Pritzker School of Medicine, significantly enhances our research efforts and facilitates access to an even broader range of studies.

HEPATOPANCREATOBILIARY PROGRAM

The Hepatopancreatobiliary (HPB) Program provides minimally invasive procedures for malignant and benign liver and pancreas disease using the robotic surgery platform and continues to draw a growing number of patients. With the recruitment of Melissa Hogg, MD, an expert in robotic oncologic and hepatopancreatobiliary surgery, we expect continued growth of these surgeries. This modality improves the quality of lives and survival for our patients by requiring shorter hospital stays and fewer narcotics, and increasing the likelihood and tolerance of postoperative adjuvant chemotherapy and radiation.

Ensuring that patients receive treatment based on national guidelines is vital for optimized survival. A crucial aspect of our program is the HPB multidisciplinary conference attended by specialists from diagnostic and interventional radiology, pathology, oncology, gastroenterology, hepatology and surgery, that meets weekly to discuss specialized treatment plans for patients with complex hepatic and pancreatic disease. This format ensures that patients are considered for all multidisciplinary opinions and nurse navigators assist to streamline care between disciplines.

Assessment of every patient's unique biology, maximizing in-house pathologic testing and molecular analysis, as well as external tumor panels, has facilitated a personalized medicine approach into treatment planning and research participation. Research nurses attend tumor board meetings and help maximize accrual for trials at NorthShore and the University of Chicago. The nurses also track patients' perioperative and oncologic outcomes to ensure high standards of quality and compliance. Our physician-scientists are involved both locally and nationally in groups and societies to discuss cutting-edge research. Our team is active in the publication of a number of important studies.

For more information, visit northshore.org/cancer or call (847) 570-2112

Gynecologic Oncology

The Division of Gynecologic Oncology has been at the forefront of progress in improving outcomes for women with gynecologic cancers, supporting an aggressive clinical and research program aimed at prevention, early detection, improved treatment and survivorship for ovarian, uterine and other women's cancers. Led by Gustavo Rodriguez, MD, Matthews Family Chair of Gynecologic Oncology Research, the Division brings together a collaborative team that employs a multidisciplinary approach to treating women with malignant or premalignant conditions of the gynecologic tract.

Patients benefit from the collaborative care and the combined experience of gynecological oncologists, geneticists, radiologists, radiation oncologists, pathologists and critical support services, including psychosocial oncology, integrative medicine and nutrition. We leverage the latest technology and innovative techniques with robotic surgery and other minimally invasive procedures through our minimally invasive program, which is among the most active in gynecologic oncology in the nation.

The outstanding quality of care provided by the Division has been recognized consistently by third parties, including Press Ganey.

Our palliative care initiatives are being spearheaded by Elena Moore, MD, in collaboration with the NorthShore palliative care and hospice teams. This has included both clinical initiatives as well as research, as we seek to mitigate the toxicities and treatment side effects, and symptoms associated gynecologic cancer. Dr. Moore is the principal investigator of a study evaluating the impact on quality of life and survival of early involvement of the palliative care team in the care of women with gynecologic cancers.



Dr. Carolyn Kirschner leads an important new Cancer Survivorship Program for gynecologic oncology patients, helping to enhance quality of life for our patients and their families.

A major emphasis is our robust Cancer Survivorship Program, a resource specifically designed for gynecologic oncology patients directed by Carolyn Kirschner, MD. The goal of the program is to enhance the quality of life of our patients and their families by helping them address and overcome the many physical, psychological, social and economic challenges associated with the treatment of gynecologic cancers.

Mary Tilley Jenkins Vogel, MD, leads clinical studies with a focus on pharmacologic prevention of endometrial cancer and is overseeing quality improvement initiatives for the Division.

Conducting an array of important clinical trials ensures that our patients have access to the latest treatment options for women's cancers. These include industry-sponsored clinical trials, as well as projects with the National Cancer Institute-funded NRG, formed as an amalgamation of the National Surgical Adjuvant Breast and Bowel Project (NSABP), Radiation Therapy Oncology Group (RTOG) and Gynecologic Oncology Group (GOG). Important clinical trials open this year include studies evaluating the new classes of "PARP inhibitors" and immunotherapeutic agents for women with recurrent ovarian cancer.

Cancer prevention is a major clinical and research focus of the Division. Dr. Rodriguez and his team have made important discoveries that are opening the door toward the pharmacologic prevention of ovarian and uterine cancer. A five-year NIH R01 grant was awarded to the program this year to fund research aimed at developing an effective pharmacologic approach to prevent ovarian and fallopian tube cancer.

Building on the significant success of Dr. Rodriguez's research—which is generously supported by Bears Care, the charitable beneficiary of the Chicago Bears, The Auxiliary of NorthShore University HealthSystem, Sandy and Ron Schutz, and other grateful patients—the Clinical Gynecologic Cancer Prevention Program at NorthShore includes risk assessment and evaluation, followed by individualized pharmacologic and surgical strategies for cancer preventive care. Many women in our community have an increased genetic-based risk for both breast and gynecologic cancer, making a personalized approach to cancer prevention and treatment critical.

The Division is collaborating with partners at the University of Chicago Pritzker School of Medicine via joint oversight of a prestigious gynecologic oncology fellowship training program awarded by the American College of Obstetricians and Gynecologists.

Thoracic Oncology Program

These are exciting times in thoracic oncology as a new array of treatments are rapidly being developed that are showing tremendous benefits for our patients. NorthShore has been part of the development of these new protocols and continues to be a leader in their implementation. Among the highlights are development of a robotic surgery program; improved, on-site rapid molecular testing; expansion of immunotherapy and the participation and leadership of national immunotherapy trials; and the development of a more robust clinical outcomes research program. Our program features a dedicated multidisciplinary team of surgeons, medical oncologists, nurses and physician assistants.

Long a leader in minimally invasive approaches to thoracic cancers, NorthShore now has a fully implemented robotic assisted thoracic surgery program. The robotic platform provides 3D visualization and finer, more precise instrument control, allowing our surgeons

to offer a minimally invasive approach for more patients with increasingly complex cancers. This has led to better outcomes with less pain and shorter length of stay.

Our medical oncology program remains a leader in novel treatments. The thoracic oncology team continues to expand the immunotherapy program and is working collaboratively across Kellogg Cancer Center to develop a systemwide program. We have developed an on-site rapid molecular testing program of patients' tumors, which allows us to quickly identify those who would most benefit from these therapies.

The thoracic oncology research program continues to grow. Using our robust clinical database and associated biobank, and in collaboration with the NorthShore Research Institute, we are gaining new insights into inherited cancer risk and how a patient's genetic history can affect whether or not their cancer responds to various therapies. We continue to participate in numerous clinical trials. Led by Thomas Hensing, MD, NorthShore was the lead site in a multi-center trial evaluating the timing of immunotherapy in patients with advanced non-small cell lung cancer. We continue to use national databases to perform important clinical research that has been published in numerous peer-reviewed journals.

Neuro-Oncology Program

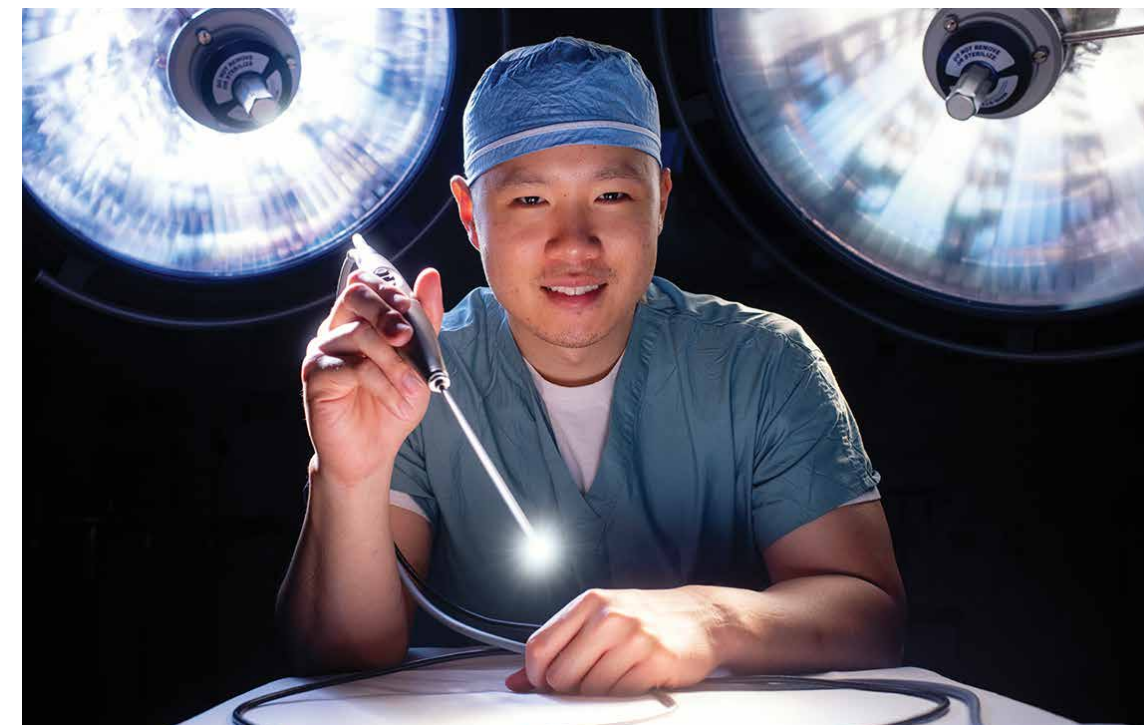
Our multidisciplinary Neuro-Oncology Program brings together recognized experts in medical oncology, neurosurgery, radiation oncology, neuroradiology and neuropathology dedicated to comprehensive care of patients with all types of brain and spine tumors and neurological complications of cancer.

Leaders in the field of minimally invasive brain surgery, our Neurosurgery Department led by Julian Bailes, MD, Arlene and Marshall Bennett and Joseph A. Tarkington, MD, Chair of



Dr. Julian Bailes, Chairman, Department of Neurosurgery, is a nationally recognized expert in minimally invasive brain surgery. NorthShore is the only Chicago area program offering advanced surgical tools that combine real-time imaging, navigation, advanced optics and robotic positioning designed to reduce surgical time and improve patient outcomes.

For more information, visit northshore.org/cancer or call (847) 570-2112



Neurosurgeon Dr. Ricky Wong provides minimally invasive skull base endoscopic and surgical expertise, offering exceptional treatment for patients with pituitary and skull base tumors.

Neurosurgery, uses an array of the most advanced surgical technology. NorthShore is the only program in Chicago to offer Synaptive BrightMatter™ Servo Solution, a robotic technology that improves access, precision and visualization. Synaptive's groundbreaking technology combined with NICO BrainPath Surgical Theater (which enables 3D representations of individual tumors) is transforming how we access tumors previously deemed inoperable. Ricky Wong, MD, leads our endoscopic skull base surgery program pioneering minimally invasive approaches to treat pituitary and skull base tumors.

Neuro-Oncology Program Director Ryan Merrell, MD, leads a robust clinical trials program, offering patients access to promising new therapies including many national and industry-sponsored trials for glioblastoma, the most common primary brain tumor in adults. Another glioma trial features a basic science research collaboration with the University of Chicago.

The program offers the full range of radiotherapy options, including stereotactic radiosurgery, standard external beam radiation therapy and intensity-modulated radiation therapy.

Our team is nationally recognized and publishes studies including a recent look at growth rates in meningiomas and efforts to identify variables that predict tumor growth rates.

Dr. Merrell is involved with the Chicago-based BrainUp, a non-profit organization dedicated to building awareness and fundraising for brain tumor research. Our program also continues to partner with the Michael Matters Foundation, where Dr. Merrell serves as a board member.

NorthShore hosts a monthly support group for brain tumor patients and caregivers, bringing in visiting speakers in a compassionate forum.

For more information, visit northshore.org/cancer or call (847) 570-2112

Melanoma and Other Skin Cancers

NorthShore's multidisciplinary Melanoma Program offers the depth and breadth of experience to use complicated new therapeutics against malignant melanoma. Metastatic melanoma has been one of the deadliest forms of skin cancer, but significant advances continue to improve patient outcomes.

New molecularly targeted therapies are available for close to 50 percent of metastatic melanoma patients whose tumors carry specific mutations in the BRAF gene. Our molecular pathologists perform on-site testing for this mutation, along with multiple less-common melanoma gene mutations, enabling our patients to start appropriate treatments within days rather than weeks, potentially adding years to their lives.

Major advances in immunotherapy for cancer have meant new hope for melanoma patients. The "checkpoint inhibitor" drugs Ipilimumab, Pembrolizumab and Nivolumab have the capacity to add years to some patients' lives. Long-term cancer control or cure of metastatic melanoma is now possible for nearly half of our patients. We had early access to these drugs through clinical trials, providing an advantage for our patients and early expertise for our clinicians.

We participate in partnership with the University of Chicago in studies including assessing treatment of patients whose cancers no longer respond to Nivolumab or Pembrolizumab; a biobanking/biomarker study assessing correlations between patients' inborn genetics, tumor genetics, immune system "T cells," stool "microbiome" and the presence of the important "inflamed tumor phenotype" that corresponds to response to immunotherapy.



Kellogg Cancer Center Medical Director Dr. Bruce Brockstein and the melanoma team were early adopters of advanced immunotherapy treatment options, dramatically improving outcomes for our melanoma patients.

Additionally, our Melanoma Program has provided an excellent opportunity to educate key partners within our institution on the principles of immunotherapy and diagnosis and assessment of side effects. The PD-1, PD-L1 and CTLA-4 checkpoint inhibitors are used for many different types of cancer. As these medicines work by a very different mechanism and have side effects unique from other cancer treatments, we provide a joint educational program with two medical oncologists and an oncology pharmacist. Together, they educate Kellogg Cancer Center staff as well as vital collaborators in other departments (emergency medicine, radiology, endocrinology, rheumatology, gastroenterology, dermatology, primary care medicine and internal medicine residency) on the scientific basis, clinical uses and, importantly, the side effect management of these drugs.

We have several ongoing research projects initiated by mentored residents. These include a real-world look at the side effects and toxicities of checkpoint inhibitors in our melanoma and other patients at the Kellogg Cancer Center, and a DNA project looking at the response to traditional chemotherapy after initial treatment with immunotherapy.

Kellogg Cancer Center patients have access to leading dermatologists. Gregg Menaker, MD, and Ross Levy, MD, are specialty trained experts in Mohs micrographic surgery, a unique technique that allows the sparing of normal tissue in delicate areas such as the face, hands, feet and around the genitals.

For our high-risk melanoma patients, NorthShore is now offering total body digital photography using the FotoFinder system. Total body digital photography helps the dermatologist identify new or changing moles and facilitates early diagnosis of melanoma skin cancer.

In some cases, melanoma may spread or recur within an arm or leg, which can be painful or disfiguring and pose the threat of spreading to other parts of the body. David J. Winchester, MD, Board of Directors, David P. Winchester, MD, Chair of Surgical Oncology, is one of only a few physicians in the country who perform complex isolated limb perfusions and isolated limb infusions to treat this challenging condition. This procedure saves patients from amputation and helps control tumors that might otherwise spread.

Head and Neck Oncology

A collaborative team of experts in otolaryngology/head and neck surgery, radiation oncology and medical oncology—as well as plastic and reconstructive surgery, dental medicine, physical medicine and rehabilitation, psychosocial oncology, nutrition, speech, swallowing and physical therapy, diagnostic and interventional radiology, pathology, nursing, and more—come together in NorthShore's head and neck cancer (HNC) group.

Head and neck surgeons Mihir Bhayani, MD, and Cheryl Nocon, MD, continue to grow the flexible robotic system program at Evanston Hospital, the first hospital in the Midwest to offer the innovative technology. This minimally invasive, state-of-the-art device allows transoral tumor resections of the pharynx and larynx that are more targeted than current robotic and transoral technologies.

The approval of immune targeted therapies (pembrolizumab and nivolumab) for use in recurrent/metastatic head and neck cancers has given medical oncologists the ability to provide patients a chance at long-term remission. We were among the first in the area to offer this treatment in structured clinical trials, and now in FDA-approved available medications.

Robust research continues, including ongoing translation projects in genomic profiling of aggressive cutaneous squamous cell carcinoma, and altered lipid metabolic pathways in head and neck squamous cell carcinoma. We are analyzing a large database of patients treated with chemotherapy and radiation to assess outcome and effect on the immune system. We have described the long-term effect of head and neck cancer radiation on the immune system and presented this at this year's 2018 ASCO (American Society of Clinical Oncology) Meeting.

For our patients who have undergone radiation therapy, we are studying the effect of a pneumatic compression device for lymphedema on swallowing function. Our outcomes research program continues to grow as we study racial disparities in head and neck cancer treatment, inequalities in oral health services, and other potential risk factors for oral cancer.

Our team made numerous presentations at national meetings and had many publications in prestigious journals. We continue with outreach efforts aimed at raising awareness of the role of human papillomavirus (HPV) in head and neck cancer and the opportunity to prevent cancer with the HPV vaccine in boys and girls. Our head and neck cancer (Support for People with Oral and Head and Neck Cancer [SPOHNC]) support and education group meets every other month.

For more information, visit northshore.org/cancer or call (847) 570-2112



Surgeon Dr. Mihir Bhayani is at the forefront of flexible robotic technology (inset photo) used for complex head and neck cancer surgical procedures.

Hematology and Hematologic Malignancies

The Hematologic Malignancy Program at NorthShore offers the latest care for patients with acute and chronic leukemia, myeloma, and Hodgkin and non-Hodgkin lymphoma. Led by Lynne Kaminer, MD, Virginia and James Cozad Chair of Hematology/Oncology, the program features four full-time hematologists and four additional physicians whose practice is focused on hematology. The team sees patients at all four NorthShore Hospitals and our Ambulatory Care Centers in Gurnee and Lake Bluff.

Close collaboration with hematopathologists and a multidisciplinary conference to review cases, lymph node and bone marrow specimens and treatment plans are key elements of our program. The hematopoietic stem cell program for myeloma and lymphoma continues to grow and evolve.

Several molecular assays are now being done at NorthShore, significantly decreasing the time required for a molecular diagnosis required to initiate treatment. We continue to develop specific multi-gene panels with molecular pathology to identify mutations associated with specific malignancies to guide therapeutic decisions. We analyze molecular features of tumors to enable more precise therapy, and can identify subgroups that are at higher or lower risk or have specific mutations to facilitate therapeutic treatment decisions.

Among the new studies that opened this year is a comprehensive study investigating new agents for the treatment of several specific subsets of non-Hodgkin lymphoma.

For more information, visit northshore.org/cancer or call (847) 570-2112

Radiation Oncology

NorthShore's Department of Radiation Medicine offers the full spectrum of advanced treatment technologies and specialized faculty with years of clinical experience.

NorthShore is one of the largest centers for breast cancer treatment in the Chicago area. The Department offers the latest in accelerated whole and partial breast radiation treatments, including deep inspiration breath hold and prone breast irradiation, both designed to minimize heart radiation dosage.

Early stage lung cancer volume continues to grow as a result of surveillance programs, diminished competing forces of mortality in patients overall, and an increased number of survivors of previously treated lung cancers. Stereotactic body radiation therapy (SBRT) is available for early-stage lung cancer patients at both Evanston and NorthShore Highland Park Hospitals.

SBRT is also available for select gastrointestinal cancers to convert marginally resectable tumors to operable ones and for metastatic cancers to lung, pancreas and adrenal organs.

Prostate cancer volume continues to grow and mirrors the success of the John and Carol Walter Center for Urological Health. Axumin PET scanning can localize sites of metastatic prostate cancer often not visible by conventional CT and MR scans. This enables radiation to such sites to be used as a supplement to systemic hormone therapy and has the potential to lead to improved outcomes. NorthShore continues to be one of the few area centers offering Xofigo

(radium-223) radionuclide therapy for the treatment of metastatic hormone refractory prostate cancer involving multiple bone locations.

Stereotactic radiosurgery (SRS) treats a variety of benign and malignant intracranial and central nervous system conditions and has largely replaced whole-brain radiation therapy for metastatic cancer, reducing the risk of cognitive dysfunction sometimes associated with whole-brain irradiation.

Interventional Radiology

NorthShore's Interventional Radiology group includes eight specialist physicians, four physician assistants, and more than 40 dedicated nurses and technologists who perform image-guided, minimally invasive cancer therapies aimed at optimizing cancer outcomes, improving quality of life and reducing hospital stay. We offer the latest and most advanced developments in the rapidly evolving and expanding field of interventional oncology.

NorthShore's interventional radiologists work in close collaboration with a team of oncologists, surgeons and radiation oncologists to provide customized care unique to each individual's specific condition. We offer state-of-the-art diagnostic imaging equipment and minimally invasive care. Therapies include Y-90 radioembolization and chemoembolization of both primary and metastatic liver tumors, which provide options when chemotherapy is no longer effective or surgery is not feasible.

We also specialize in radiofrequency, microwave and cryoablation of solid tumors in organs that include the liver, kidneys, bones, lungs and other soft tissues. These are alternative treatments to surgical resection, especially for patients at high risk for surgery.

Patient-Centered, Comprehensive Support



A full range of support services is an essential element of Kellogg Cancer Center's comprehensive, individually focused care. Clinical leaders like (from left) Integrative Medicine Medical Director Dr. Leslie Mendoza Temple, Cardio-Oncologist Dr. Amit Pursnani and Palliative Care Specialist Dr. Lauren Wiebe work collaboratively with NorthShore's oncology team to ensure optimal outcomes and well-being for cancer patients.

Oncology Nursing

Our dedicated oncology nurses bring a high level of experience and compassion to Kellogg Cancer Center patients. All nursing staff hold the Oncology Nursing Society's (ONS) chemotherapy and biotherapy validation, and many have achieved the national certification for Oncology Certified Nurse.

Collaborative nurses work with each of our physicians to coordinate care and provide additional resources for patients and families, including one-on-one education sessions. Treatment nurses offer hands-on, professional care and help coordinate communication with the physician team. Advanced practice nurses are a critical part of the care team, helping patients during scheduled visits and unscheduled urgent care and symptom management issues.

Dedicated nurse navigators, along with collaborative nurses, help patients manage their course of care from diagnosis to surgical, medical and radiation treatment and ultimately to survivorship.

As part of NorthShore University HealthSystem, Kellogg Cancer Center nurses have achieved Magnet designation, which reflects the high level of professionalism, quality and ownership of practice.

Integrative Medicine

NorthShore's Integrative Medicine Program continues to care for a significant number of oncology patients with acupuncture, massage therapy, integrative medicine physician consultations and other services. Our team of

experienced clinicians helps Kellogg Cancer Center patients deal with issues including pain, decreased appetite, digestive problems, sleep, energy levels, and overall well-being and quality of life.

Medical Director Leslie Mendoza Temple, MD, and Kellogg Cancer Center Pharmacist Hanna DeLuna, PharmD, are completing the inaugural Integrative Oncology Scholars Program at the University of Michigan, a first-of-its-kind competitive fellowship funded by the National Cancer Institute. The fellowship will culminate in a capstone project by Drs. Temple and DeLuna highlighting the judicious use of popular herbs and supplements during the cancer care spectrum.

The third annual "Food as Medicine" symposium hosted by NorthShore's Integrative and Family Medicine Departments attracted a sold-out crowd of patients and healthcare professionals. Plans are already underway for the May 5, 2019, symposium, which will be held again at the Chicago Botanic Garden.

A benefit concert drew a capacity crowd and raised more than \$21,000 for scholarships to help qualified oncology patients receive integrative services that are not typically covered by insurance. Held at Chicago's Metro, the concert featured the David Bowie tribute band, Sons of the Silent Age, and Golden-Globes' award-winning actor Michael Shannon. The 2019 Integrative Medicine benefit concert will again be held at Metro on January 12. Philanthropic support is critical to ensuring integrative services for oncology patients.

Integrative Medicine Fellowship

In response to the increased interest in integrative medicine therapies in addition to conventional cancer therapy, we are pursuing a collaborative effort to develop resources and guidance for the sound usage of these therapies. Our patients are seeking complementary therapies to help reduce symptom burden and increase quality of life; however, there is currently limited guidance regarding the use of some of these therapies in cancer patients and survivors. It is especially important for dietary supplements, which can interact with cancer-directed therapies. This collaborative effort is being led by Integrative Medicine Medical Director Leslie Mendoza Temple, MD, and Hannah DeLuna, PharmD, who are completing the Integrative Oncology Scholars Program at the University of Michigan.

Oncology Pharmacy

Each Kellogg Cancer Center contains a dedicated oncology pharmacy, which is staffed by specialized oncology pharmacists and pharmacy technicians who are key members of the comprehensive care teams at the Kellogg Cancer Center. The pharmacy staff works closely with the physicians and nursing staff to provide patients with the highest quality of care during the course of their therapy. Kellogg Cancer Center pharmacists review and evaluate each patient's chemotherapy regimen prior to treatment. They review home medications for potential drug-drug interactions, laboratory parameters to

verify chemotherapy doses and patient-reported symptoms for optimization of supportive care therapies. Pharmacy is currently leveraging the use of technology to increase patient access to pharmacy clinical services.

Kellogg Cancer Center outpatient pharmacies are available at each site to dispense and manage oral chemotherapy prescriptions, supportive care medications and over-the-counter medications. Pharmacists review oral chemotherapy orders sent to both the Kellogg Cancer Center pharmacies and outside pharmacy locations for appropriateness and any potential drug interactions. They contact patients with new treatment starts to assess for adherence and to manage any potential side effects or toxicities. Kellogg Cancer Center outpatient pharmacists assist with prior authorizations that are frequently required by insurance companies before dispensing medication. With the pharmacists' involvement in the authorization process, approvals are often obtained within 24–48 hours to ensure timely treatment initiations.

A cancer diagnosis can sometimes lead to 10 or more new prescriptions for patients to manage at home, leaving some feeling overwhelmed and at risk for noncompliance. To help patients overcome this barrier, the Kellogg Cancer Center pharmacy has provided medication calendars, detailing which days of the week and what time of day patients should take their medications.

Cardiotoxicity Monitoring

A significant number of cancer therapy agents are associated with cardiac toxicity. Cardiac complications from these agents range from hypertension to coronary artery

disease and heart failure. Cardiovascular toxicity due to cancer therapy can be temporary or can have more permanent effects.

Plans for a 2019 study of cardiac monitoring are underway. Kellogg Cancer Center pharmacists and physicians will work closely with cardio-oncologist Amit Pursnani, MD, to examine the current practices for monitoring and managing therapy-related cardiotoxicity at NorthShore. We will also review the utility of a new technology that can potentially detect subclinical cardiotoxicity before symptomatic changes are seen. We hope to gain a broader understanding of current cardiac monitoring practices.

With continued collaboration between medical oncologists, hematologists, cardio-oncologists and pharmacists the goal is to reduce the risk of long-term toxicities related to cancer therapy.

Oncology Nutrition Services

Nutrition counseling is an important aspect of care for all patients as proper nutrition is critical to good health, yet maintaining a healthy diet can be especially challenging for those undergoing cancer treatment. Registered dietitian-nutritionists (RDNs) with expertise in oncology are available to provide nutrition therapy to help patients and families develop nutrition goals, devise therapeutic meal plans and provide education throughout the continuum of cancer care.

Maintaining good nutrition has been found to improve patient outcomes by helping to manage symptoms such as unintentional weight loss/gain, nausea, taste changes and bowel changes that many patients experience. Nutrition therapy thus helps

patients better tolerate common treatments such as chemotherapy, radiation therapy and surgery.

Our oncology RDNs are experts at translating evidence-based cancer nutrition research related to prevention, treatment and survivorship to improve health and well-being and reduce risk of cancer recurrence. They actively partner with NorthShore's *Healthy You* blog and Chicago area cancer organizations to provide nutrition education and support to our community. In 2018, the RDNs collaborated on an education series about oncology nutrition shared with the Kellogg Cancer Center nursing staff.

In an ongoing effort to address cancer-related malnutrition, Kellogg Cancer Center RDNs are now using dynamometers to measure hand-grip strength to help in the diagnosis and treatment of malnutrition. This initiative will enhance the application of the nutrition care process in addressing each patient's individual nutrition needs.

Psychosocial Support

NorthShore's Kellogg Cancer Center's Psychosocial Oncology Program offers services to patients and their families to help navigate their emotional and practical needs throughout their cancer journey. The team sees patients who are new to chemotherapy, those referred directly for specific needs and those who have identified themselves as distressed on the Psychosocial Distress Screening Tool, as well as ongoing supportive check-ins throughout treatment.

A team of experienced oncology social workers help patients and their families understand and process the wide range of normal emotional reactions to diagnosis,



Thoracic Surgeon Dr. Seth Krantz leads efforts to broaden the Kellogg Cancer Center's Smoking Cessation Program to target all early-stage lung, head and neck and some other cancer patients across the NorthShore system.

TOBACCO CESSATION PROGRAM

The Tobacco Cessation Program at the Kellogg Cancer Centers was developed in 2011. This program has been run by Shannon Hartman, PharmD, one of the oncology pharmacists who underwent certification to become a Tobacco Treatment Specialist. The program was created because tobacco use is the leading preventable cause of premature death in the United States and has been linked to many different types of cancer. There is evidence that continued tobacco use after the diagnosis of cancer decreases survival, reduces treatment efficacy, increases/prolongs treatment toxicity and increases the risk of recurrence. Despite this evidence, it is reported that 23 to 35 percent of head and neck cancer patients and 13 to 20 percent of lung cancer patients continue to smoke after diagnosis. The combination of support from a trained professional and the use of tobacco cessation medications increases the chances of quitting successfully from 1/2 to 20 percent. The program has helped numerous Kellogg Cancer Center patients and their family members quit smoking. Patients are referred to the program by Kellogg Cancer Center staff. Dr. Hartman provides one-on-one counseling and follows up to assist through the tobacco cessation process. The program will be expanded in the coming year to serve more patients.

treatment and, for some, terminal illness, including fear, anger and sadness. Our caregivers also identify and address barriers to receiving treatment, including transportation and financial concerns, and build a comprehensive network of support by providing referrals as needed to local cancer support programs, integrative medicine practitioners and mental health clinicians in the community.

The Psychosocial team also assists with advanced care planning, including living wills and durable powers of attorney for healthcare forms. Our team partners with a Child Life Specialist who coaches patients in caring for their children on issues related to diagnosis, prognosis, loss of hair and end of life.

Our Psychosocial Oncology Program facilitates a biweekly in-house stress reduction group as well as other monthly support groups for those with brain tumors, head and neck cancer, and prostate cancer. The program also helps facilitate grant applications to help Kellogg Cancer Center's most economically vulnerable patients meet basic living needs and enhance quality of life.

Palliative Care and Advance Care Planning

The Palliative Care team offers compassionate care and inpatient consultation and ambulatory clinics at all Kellogg Cancer

Center locations and NorthShore Hospitals. It also provides a symptom support program for house calls and nursing home visits.

Community outreach and activism are key elements of the program. Lauren Wiebe, MD, completed her term as Honorary Co-Chair for the Greater Chicago PanCAN (Pancreatic Cancer Action Network) PurpleStride fundraiser with the most successful fundraising year ever for the PurpleStride Chicago.

Dr. Wiebe and Mark Dunnenberger, PharmD, completed a project and published a paper related to supportive care pharmacoeconomics for oncology patients.

The Palliative Care Program hosts a yearly regional palliative care symposium with the University of Chicago and runs multiple community programs on advance care planning. Our Palliative Care team continues to advance efforts for advance care planning and goals of care and care transitions across NorthShore.

LIFE CANCER SURVIVORSHIP PROGRAM

The mission of the Myra Rubenstein Weis (MRW) Living in the Future (LIFE) Cancer Survivorship Program is to provide patient, family and health professional resources that bridge the gap between the oncology treatment environment and the primary care setting. Considering the amount of information patients with cancer receive, having a survivorship care plan is crucial to ensure that follow-up visits and warning signs for late effects are not missed.

The LIFE Program, under the direction of its founder Carol Rosenberg, MD, FACP, pioneered survivorship care planning at NorthShore. Today, it is continuing to lead its evolution with the implementation of a new, innovative technology—the LIFE survivorship care planning initiative—to streamline the methodology by which the survivorship team provides a detailed summary of each survivor's cancer history, diagnosis, treatment and a roadmap for follow-up care. This sophisticated technology enables NorthShore to continue as a cancer care leader by providing every patient who completes treatment with a comprehensive survivorship care plan that is completely integrated in the Electronic Medical Record (EMR), providing an enduring resource for the survivor and all their clinicians.

Individualized visits with a specialized LIFE advanced practice oncology nurse add valuable context and help address the unique and long-term needs of patients as they complete primary treatment for cancer. The LIFE model of survivorship care was described in the international *Journal of Cancer Survivorship* and assessed by the national Patient-Centered Outcomes Research Institute (PCORI) and the National Accreditation Program of Breast Centers (NAPBC) resulting in an international reputation for helping survivors construct a useful understanding of their cancer experience.

The LIFE Program's educational reach goes beyond NorthShore. In LIFE's MRW Survivor 101 Seminars, survivors and their families are taught the science of improving the quality and quantity of their life after treatment. This popular free seminar series is available to everyone in the community.

The LIFE Program also trains health professionals to address the issues that arise among cancer survivors. This curriculum, created and directed by Dr. Rosenberg and accredited by the University of Chicago Pritzker School of Medicine, is one of the first of its kind in the nation and prepares an entire health professional workforce to help their cancer patients thrive and move forward, living in the future.



Myra Rubenstein Weis (MRW) Living in the Future (LIFE) Cancer Survivorship Program founder and Director Dr. Carol Rosenberg (right) and Advanced Practice Nurse Anisha Patel. The LIFE Program is an important element of Kellogg Cancer Center's personalized post-treatment care.

Patient Education

We are dedicated to providing holistic and compassionate care to patients and their families. Our resource centers reflect our desire to provide as much educational support as possible.

Philanthropic support has been essential in developing the Myra Rubenstein Weis (MRW) Health Resource Center at Highland Park Hospital, and the Kellogg Cancer Resource Center at Evanston Hospital, established in memory of patient Ira Korman. Both centers offer valuable information vehicles and opportunities for patient education.

Collaborative nurses meet with new patients to review individual treatment plans and develop a relationship that encourages them to ask questions throughout their care. Comprehensive patient education materials are also provided for all patients. Questions related to symptom management, scheduling, financial concerns and available resources may be discussed at this time.

NorthShore's "Understanding Cancer" educational events in collaboration with Mayo Clinic are part of our community outreach and education efforts. These physician-led programs provide the community with valuable cancer-related information. This year's programs included "Understanding Immunotherapy," which attracted a large, engaged audience interested in the growing use of immunotherapies for advanced cancers.

Financial Advocacy

Patient Financial Advocates help patients understand and access our assistance program that is designed to help with a variety of financial issues. Our specially trained advocates work with a team of precertification specialists who help get treatment plans pre-

authorized for payment, and are available to answer questions about bills and specific charges.

For patients who demonstrate significant financial need, our advocates coordinate reduced-cost care through state programs, NorthShore's charity care, and in some cases working directly with pharmaceutical companies or private foundations. Patient Financial Advocates work closely with social workers and the Kellogg Cancer Center team.

SERVING THE UNDERSERVED

NorthShore partnered with YWCA of Lake County to offer 50 free screening mammograms at our Highland Park Hospital and Gurnee mammography locations to under- and uninsured women. The YWCA followed up with any women who needed additional imaging or clinical consults. This was just one of the many ways NorthShore and Kellogg Cancer Center work to serve the community.



Supporting the Community

Kellogg Cancer Center proudly collaborates with many community organizations, and participates in regular events to raise funds and awareness and offer public education. Our community outreach is an important element of our mission.

NorthShore teams joined many fundraising events, including the Hustle Up the Hancock, Breathe Deep North Shore 2-Mile Walk and 5K Run, Balloon Launch & Rally to Stop Lung Cancer, and multiple American Cancer Society Relay for Life and Making Strides Against Breast Cancer events. We also hosted a first-ever Survivor Celebration.

Our education activities included Wisdom 4 Health Symposium jointly sponsored with the American Cancer Society aimed at smart choices for tweens and teens, and "Look Good Feel Better," a complimentary beauty workshop for women undergoing cancer treatment.

Free oral cancer screening offered at Highland Park Hospital's Kellogg Cancer Center, promote early detection and education for those at higher risk because of smoking, chewing tobacco, excessive alcohol use or oral HPV infection.

Kellogg Cancer Center also hosts Imerman Angels socials and numerous support groups for cancer patients and their family members or caregivers.

OUTCOMES STUDY: Review of Enhanced Recovery After Surgery (ERAS) for Mastectomy with Implant-Based Reconstruction

The opioid epidemic facing our country has been well-documented as a public health crisis. With increasing pressure for surgeons to analyze their prescribing practices, the NorthShore breast surgery team looked at narcotic use among the Mastectomy with Implant-Based Reconstruction population. With postoperative narcotic usage at 94 percent, Catherine Pesce, MD, and her surgical and anesthesia team wanted to significantly reduce that rate. The Enhanced Recovery After Surgery (ERAS) protocol for the Mastectomy with Implant-Based Reconstruction patients was operationalized in April 2018 with the goals of reducing narcotic use and length of stay and maximum pain scores.

New preoperative practices include patient education, one-time use of three oral medications and one patch prior to surgery, and the use of a carbohydrate drink before surgery aimed at reducing insulin resistance during surgery. Intraoperatively PECS I and PECS II nerve blocks (local anesthetic placed between the pectoralis muscles of the thoracic wall to provide analgesia) were used along with multimodal pain medication including intravenous nonsteroidal anti-inflammatory medications and Tylenol along with preventive nausea and vomiting medications ondansetron and dexamethasone.

NorthShore is one of the only institutions performing PECS nerve blocks on all patients, and this important intervention has made the most significant impact on decreased narcotic use. Rebecca Blumenthal, MD, and others from anesthesia spearheaded the effort to roll out the program.

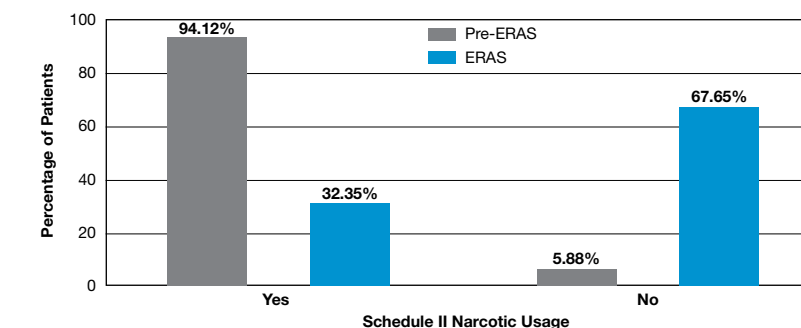
Postoperative pain control was defined as non-narcotic first-line pain control and narcotics only for breakthrough pain.

The ERAS protocol produced dramatic results. Following the implementation of the ERAS protocol, narcotic use was down from 94 to just over 65 percent, average length of stay decreased by 11.4 hours, one-dose postoperative nausea and vomiting medication usage was down from 35.3 percent to 8.8 percent, and median reported pain scores were down.

Oncology Surgeon Dr. Catherine Pesce and her team led efforts to reduce postsurgical narcotic usage in mastectomy patients with implementation of a new Enhanced Recovery After Surgery (ERAS) protocol.



Postoperative Schedule II Narcotic Usage Comparison: Pre-ERAS vs. ERAS



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Locations: GBK, GR, HPK



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Thomas Aquisto, MD
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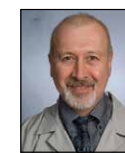
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Expertise: Cervical Cancer; Endometrial Cancer; Fallopian Tube Cancer; Ovarian Cancer; Uterine Cancer; Vaginal Cancer; Vulvar Cancer
Locations: EVK, HPK



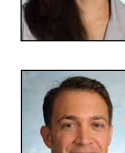
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*Director, Preventive Health Initiatives;
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 Locations: EVK, HPK, LB



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 Oncologic and Complex Wound
 Reconstruction
 Location: NMB



Arif Shaikh, MD
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 Cancer; Gynecologic and Breast
 Tumors
 Locations: EH, GBH



Daniel Shevrin, MD
*Medical Director, Glenbrook
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 Genitourinary Cancer
 Locations: EVK, GBK



Michael Shinnars, MD
 Expertise: Otolaryngology/Neurotology;
 Lateral Skull Base Surgery
 Locations: EV, NMB



Mark Sisco, MD
*Division Head, Plastic and
 Reconstructive Surgery*
 Expertise: Plastic Surgery;
 Breast Reconstruction
 Location: NMB



Norm Smith, MD
 Expertise: Bladder Cancer,
 Testicular Cancer, Kidney Cancer,
 Advanced Urologic Cancers,
 Hematuria
 Locations: EV, GB



James Spitz, MD
 Expertise: Colon and Rectal Surgery;
 Colonoscopy; General Surgery
 Locations: GBM, SK, VH



Mark Talamonti, MD
Department Chair, Surgery
 Expertise: Gastrointestinal Surgical
 Oncology; Pancreatic Cancer;
 Primary and Metabolic Liver Tumors;
 Neuroendocrine Tumors; Foregut
 Cancers of the Esophagus; Sarcoma
 Location: EVK



Leslie Mendoza Temple, MD
 Expertise: Integrative Medicine
 Location: GP



Michael Ujiki, MD
*Division Head, Gastrointestinal
 & General Surgery*
 Expertise: Gastrointestinal Surgical
 Oncology including Stomach and
 Esophagus; Minimally Invasive
 Endoscopic Surgery; Weight Loss
 Surgery; General Surgery
 Locations: EV, GBM



Elaine Lee Wade, MD
 Expertise: Breast Cancer;
 Benign Hematology
 Location: GBK



Jason Waldinger, MD
 Expertise: Skin Cancer, General
 Dermatology, Laser Procedures
 Location: LB



Lauren Wiebe, MD
 Expertise: Palliative Medicine;
 GI Oncology
 Locations: EH, GB



David J. Winchester, MD
*Associate Director for Surgical
 Specialties, Kellogg Cancer Center*
 Expertise: Surgical Oncology with
 Emphasis on Breast, Endocrine,
 Melanoma and Sarcoma
 Locations: EV, EVB, GBB, GBM



Ricky Wong, MD
 Expertise: Brain, Skull and
 Pituitary Tumors
 Locations: EV, GB



Katharine Yao, MD
Division Head of Surgical Oncology
 Expertise: Breast Cancer; Breast
 Health; Breast Disease and Surgery
 Locations: EVB, EVK

LOCATIONS

Chicago Lake Shore Medical Office (CH)
 680 North Lake Shore Drive, Suite 924
 Chicago, IL 60611

Evanston Breast Center (EVB)
 2650 Ridge Avenue, Evanston, IL 60201

Evanston Hospital (EH)
 2650 Ridge Avenue, Evanston, IL 60201

Evanston Kellogg Cancer Center (EVK)
 2650 Ridge Avenue, Evanston, IL 60201

Evanston Specialty Suites (EV)
 1000 Central Street, Evanston, IL 60201

Glenbrook Breast Center (GBB)
 2050 Pfingsten Road, Suite 130
 Glenview, IL 60026

Glenbrook Hospital (GBH)
 2100 Pfingsten Road, Glenview, IL 60026

**Glenbrook John and Carol Walter Ambulatory
 Care Center (GB)**
 2180 Pfingsten Road, Glenview, IL 60026

Glenbrook Kellogg Cancer Center (GBK)
 2180 Pfingsten Road, Suite 1000
 Glenview, IL 60026

Glenbrook Medical Building (GBM)
 2050 Pfingsten Road, Suite 128
 Glenview, IL 60026

Glenview Park Center (GP)
 2400 Chestnut Avenue, Glenview, IL 60026

Gurnee Ambulatory Care Center (GR)
 7900 Rollins Road, Gurnee, IL 60031

Highland Park Ambulatory Care Center (HPS)
 757 Park Avenue West, Highland Park, IL 60035

Highland Park Breast Center (HPB)
 777 Park Avenue West, Suite B400
 Highland Park, IL 60035

Highland Park Hospital (HPH)
 777 Park Avenue West, Room 1260
 Highland Park, IL 60035

**Highland Park Kellogg Cancer Center (HPK)—
 Ellen Marks Ambulatory Care Center**
 757 Park Avenue West, Suite 1810
 Highland Park, IL 60035

Highland Park Medical Building (HP)
 767 Park Avenue West, Suite B100
 Highland Park, IL 60035

Lake Bluff Medical Building (LB)
 71 Waukegan Road, Suite 700
 Lake Bluff, IL 60044

Lincolnshire Medical Building (LS)
 920 Milwaukee Avenue, Suite 2100
 Lincolnshire, IL 60069

Mount Prospect Medical Building (MP)
 1329 Wolf Road, Mount Prospect, IL 60056

Northbrook Medical Building (NMB)
 501 Skokie Boulevard, Northbrook, IL 60062

**NorthShore Medical Group (HPM)—
 Highland Park**
 1160 Park Avenue West, Suite 1N
 Highland Park, IL 60035

NorthShore Medical Group (SKM)—Skokie
 9933 Woods Drive, Suite 200, Skokie, IL 60077

Skokie Ambulatory Care Center (SK)
 9650 Gross Point Road, Suite 3000
 Skokie, IL 60076

Vernon Hills Specialty Suites (VH)
 225 North Milwaukee Avenue
 Vernon Hills, IL 60061



Create Hope. Transform Cancer Care. Support Kellogg Cancer Center.

You likely have a family member, friend or neighbor who's been affected by cancer. Perhaps you, too, have been affected. It's so important for cancer patients and their families to receive the support they need for every aspect of the cancer journey.

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When you donate to Kellogg Cancer Center, you make a real impact for our cancer patients—your family, your friends and your neighbors.

To learn more about how you can support Kellogg Cancer Center, please call **(224) 364-7200** or visit foundation.northshore.org.

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Glenbrook Hospital
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