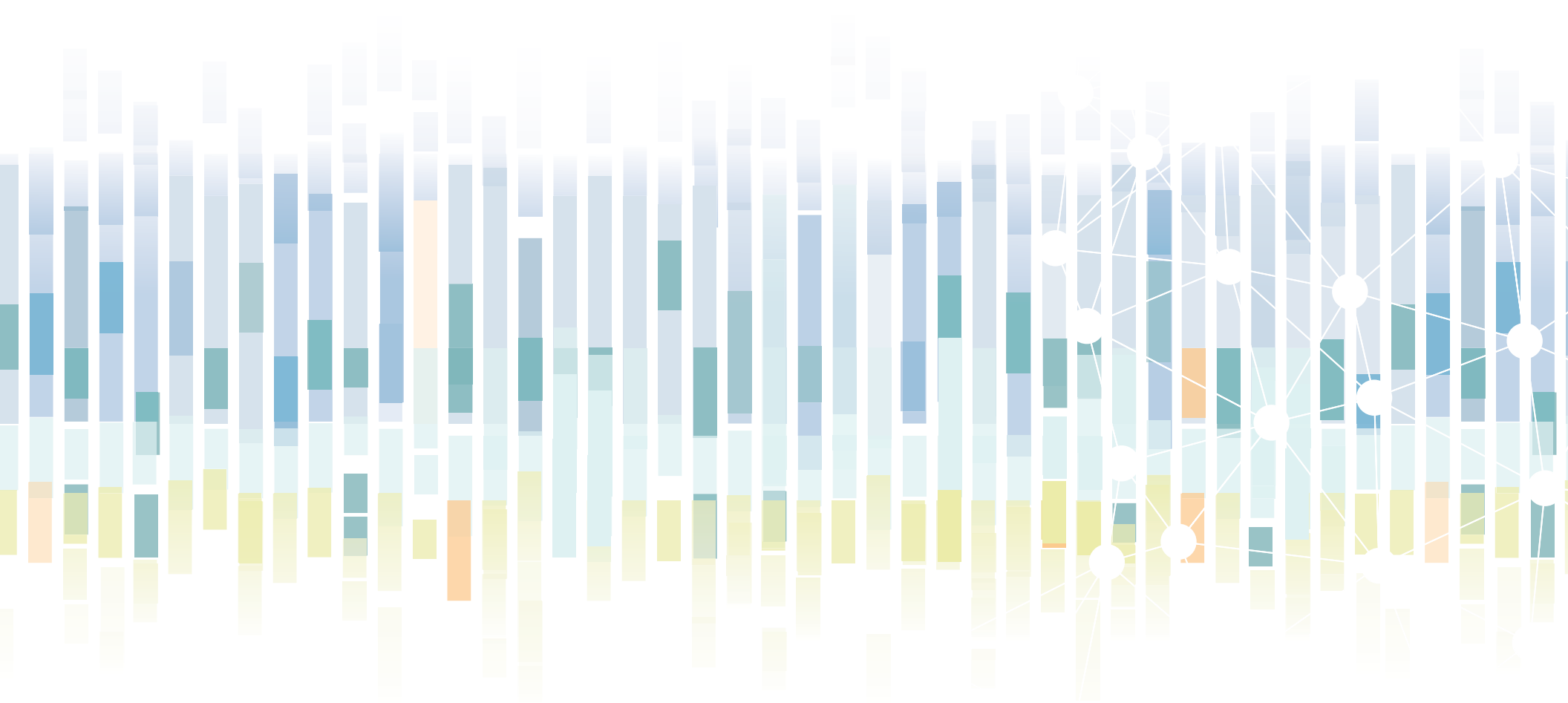


A MULTI-LAYERED APPROACH:

Tenacity | Perseverance | Compassion

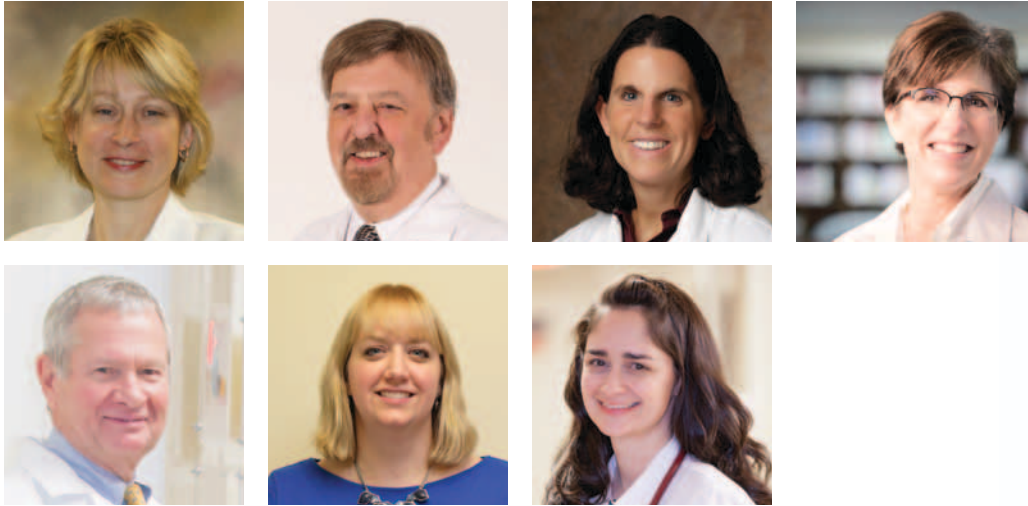


C A N C E R A N N U A L R E P O R T 2 0 1 5

Karmanos Cancer Institute at McLaren Northern Michigan

A TEAM OF Quality, Caring Professionals

MEDICAL ONCOLOGY



First row, left to right | Second row, left to right

- **Irene Connolly, MD** (*top left*)
ONCOLOGIST | HEMATOLOGIST | PALLIATIVE CARE
- **Timothy Cox, MD, FACP** (*second top*)
ONCOLOGIST | HEMATOLOGIST
- **Elena Coppola, DO** (*third top*)
ONCOLOGIST | HEMATOLOGIST
- **Lisa Galloway, DO** (*top right*)
ONCOLOGIST | HEMATOLOGIST
- **Ervin Hire, MD** (*bottom left*)
ONCOLOGIST | MEDICAL DIRECTOR
- **Angela Simpson, MSN, NP-C** (*bottom center*)
NURSE PRACTITIONER
- **Jennifer Wedge, MSN, ACNP-BC** (*bottom right*)
NURSE PRACTITIONER

RADIATION ONCOLOGY



- **Thomas Boike, MD** (*left*)
RADIATION ONCOLOGIST | CANCER COMMITTEE CHAIR
- **Isaac Kaufman, MD** (*right*)
RADIATION ONCOLOGIST

SUPPORT SPECIALISTS

- Board-certified General and Reconstructive Surgeons
- Nurse Navigators
- Oncology Social Worker and Integrative Therapies
- Oncology Dietitian
- Nursing Teams
- Outpatient Therapies and Rehabilitation
- Spiritual and Pastoral Care
- VitalCare Home Health Services
- Genetic Counseling
- Radiation Therapy Team
- Financial Counselor

THE TENACITY AND PERSEVERANCE NEEDED TO BATTLE CANCER.

THE COMFORT AND COMPASSION DESERVED BY THOSE IN THE FIGHT.



DEAR FRIENDS AND COLLEAGUES:

As part of Michigan's largest cancer research and provider network, Karmanos Cancer Institute at McLaren Northern Michigan occupies a position of influence in the region. This arrangement brings with it a high degree of responsibility. We must meet the varied needs of a diverse population — from education and diagnosis to advanced treatments and research. Our goal and our promise have been to exceed expectations at every level, through our will and our collective strength.

Our oncology and hematology providers, together with a highly trained and educated support team, are relentless in their pursuit of best practices and adherence to national standards. Participation in research and clinical trials initiated here or in collaboration with other cancer facilities drives our approach. Karmanos Cancer Institute at McLaren Northern Michigan patients have access to forward-thinking treatments and nationally accepted protocols. This report chronicles the past year and presents the results through hard data and two compelling patient stories.

We are Karmanos Cancer Institute at McLaren Northern Michigan, and we are the regional leader in cancer care.

Respectfully,

Thomas Boike, MD
RADIATION ONCOLOGIST | CANCER COMMITTEE CHAIR
KARMANOS CANCER INSTITUTE AT McLAREN NORTHERN MICHIGAN

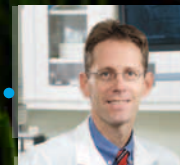
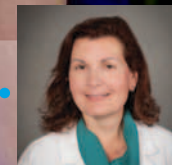
Ervin Hire, MD
ONCOLOGIST | MEDICAL DIRECTOR
KARMANOS CANCER INSTITUTE AT McLAREN NORTHERN MICHIGAN

A FEARSOME DIAGNOSIS: STEP BY STEP THROUGH THE CONTINUUM

As a McLaren Northern Michigan clinical pharmacist, Amanda Bush (age 36) was accustomed to working in the hospital setting and even mixing chemotherapy drugs for patients, but she never expected to endure her own long journey through the cancer care continuum. On February 11, 2015, Amanda incidentally found a lump in her breast while she was showering. At work, she asked her Primary Care Physician Vira Heise, MD, if she should be concerned. While her doctor assured her that it was probably a cyst, she pushed to have an ultrasound. The ultrasound revealed something unexpected by all: the lump, referred to as a “complex cyst,” had a vascular signal, an indication of something more serious. “As a health care professional, I immediately knew that a vascular signal was a bad sign,” she explains.

Radiologist Janice Schwinke, MD, recommended a diagnostic mammogram, which required extra images and, because of dense breast tissue, a biopsy to rule out any malignancies. Surgeon Kevin Markham, MD, removed the entire lump, hopeful that it was benign. But, two days later, the diagnosis said otherwise: invasive ductal carcinoma, a form of breast cancer. That very day, she and her husband faced their choices: lumpectomy with radiation or bilateral mastectomy.

“I will
do my best
to PAY IT FORWARD”



Family photo used with permission of Center of Attention Photography.

EXPANDED KNOWLEDGE IMPACTS CARE

GENETIC TESTING



Genetic counseling and testing, introduced at Karmanos Cancer Institute at McLaren Northern Michigan in 2015, brings advanced knowledge and treatment options to oncology patients or individuals with a family history of cancer. “We look at both predictive and presymptomatic testing for those patients who choose to know,” says Nurse Practitioner Jennifer Wedge, MSN, ACNP-BC, “and genetic counseling helps individuals and families make informed decisions about whether or not to pursue testing, additional screening, and, in some cases, preventative treatment,” she adds.

Going forward, McLaren Northern Michigan has committed itself to utilizing advancements in genetic testing as they become available. “The science of genetics will continue to expand,” Wedge continues, “and we are witnessing the future of cancer care in real time.”

The following week, an MRI revealed two more lesions on the same breast — likely cancerous — with one site close to the chest wall, a difficult location for a biopsy. At this point, Amanda had to decide what to do. When she asked her husband, his reply told her everything she needed to know. “Do what you need to do,” he said, “to be around for the next 30 to 40 years.” She chose a bilateral mastectomy with reconstruction.

Amanda also underwent genetic testing to fully understand her condition and to determine risk factors for her two young daughters. “Our genetic testing program is especially useful to identify markers for future health conditions,” says Nurse Practitioner Jennifer Wedge, MSN, ACNP-BC, who specializes in genetic counseling. “Amanda’s case was unusual because of her age, so the more information we can gather for her and her family, the better.”

On April 9, 2015, Amanda underwent surgery with Dr. Markham and Plastic Surgeon Steven Thomas, MD, working together to complete the process. After the recovery stage, and five weeks post-op, Amanda began chemotherapy. Though her chemotherapy treatments were far from easy and not without side effects, Amanda tolerated it fairly well, even working part time during the process. On August 20, 2015, Amanda received her last chemotherapy treatment, and was able to ring the celebration bell in front of her family, friends, and colleagues. “The emotion you feel when you ring that bell is indescribable and so overwhelming. It was truly an amazing day.”

Amanda Bush credits her successful journey to her support system — husband, family, friends, and coworkers — and the treatment that she received at Karmanos Cancer Institute at McLaren Northern Michigan. “I have such gratitude,” she continues, “and I was able to be strong because of the people who stood beside me. My physician Dr. Heise, and surgeons Dr. Markham and Dr. Thomas, really went the extra mile. My coworkers really embraced me and literally carried me through those difficult months. My oncologist Elena Coppola, DO, is truly amazing, and I so appreciate her, not only as my physician, but also as my friend. Nurse Navigator Melissa DeSimone, RN, BSN, OCN, CBCN, was such a resource for me, and she continues to support me even now. And the infusion nurses — I cannot say enough about them. Their love and support was overwhelming. I will never be able to thank everyone enough for what they did for me, but I will do my best to pay it forward.”

A TEAM APPROACH

Pictured from left to right:



- Vira Heise, MD PRIMARY CARE PHYSICIAN
- Kevin Markham, MD GENERAL SURGEON
- Steven Thomas, MD RECONSTRUCTIVE AND PLASTIC SURGEON
- Elena Coppola, DO ONCOLOGIST AND HEMATOLOGIST
- Melissa DeSimone, RN, BSN, OCN, CBCN BREAST CANCER NURSE NAVIGATOR
- Jennifer Wedge, MSN, ACNP-BC NURSE PRACTITIONER

SCREENING DATA

LUNG CANCER

117 screenings

77%

ABNORMAL RESULTS

45.57% in 2014

Including adenopathy, granuloma, parenchymal scarring and changes, AAA, COPD, emphysema, spiculated mass, bronchiectasis, bronchitis, thyroid nodules, and nodules of various sizes

COLORECTAL CANCER

51.1%

KIT RETURN RATE

50.06% in 2014

9.2%

POSITIVE RESULTS

5.4% in 2014

SKIN CANCER

49 participants

46.9%

ABNORMAL RESULTS

Of Which **28.5%**
Recommended for Biopsy

49.15% Positive Findings in 2014

BREAST CANCER

6,207 participants

0.99%

POSITIVE FINDINGS

1.03% in 2014

Participant results based upon Screening Mammograms



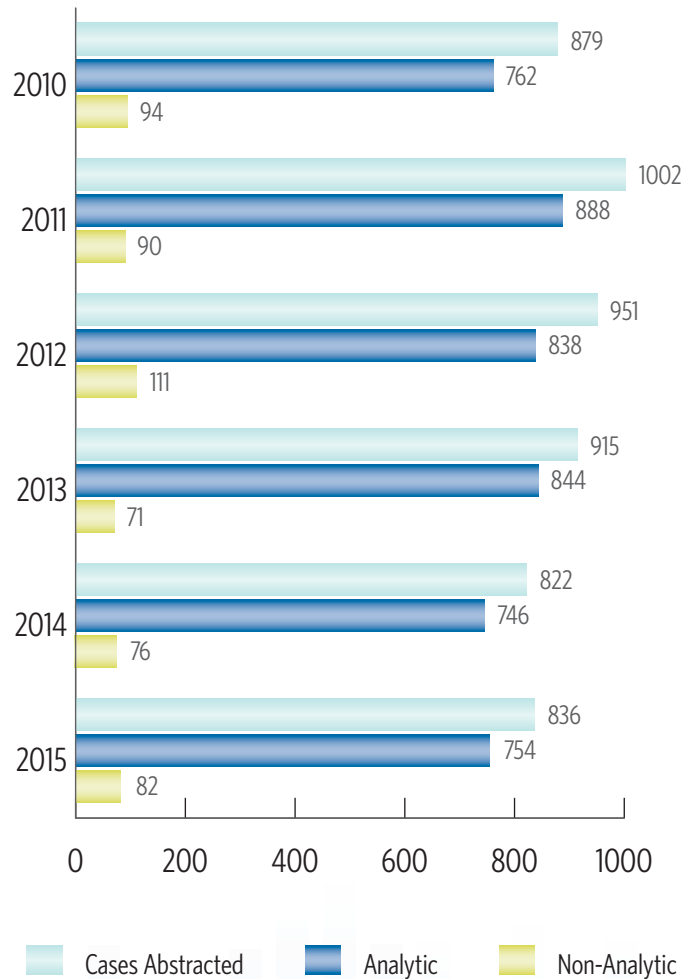
The Whole Patient: BEYOND TREATMENT, LEARNING TO LIVE

A four-part program, conducted quarterly in Petoskey, sustains the cancer survivor throughout his or her journey. Education, counseling, and skill development foster physical and emotional well-being. "Living with cancer is far more likely with today's advancements," says Oncology Social Worker Andrea Cherry, LMSW. "In a sense, surviving creates a unique lifestyle, and it has its special challenges that we are able to address with this program. Every cancer patient has access to this service and hundreds have already benefitted." The Survivorship and Wellness Support Program is supported by McLaren Northern Michigan Foundation and its generous donors.

New in 2015, Cheboygan area residents have access to a survivorship support group led by cancer survivors.

COMMISSION ON CANCER REGISTRY DATA

CANCER CARE CASES AT McLAREN NORTHERN MICHIGAN



ACCESSIONED CASES

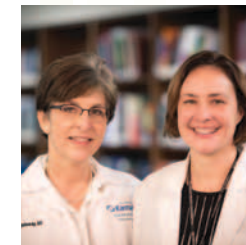
OVERALL	2014	2015	2014 - 2015 COMPARISON
CASES RESEARCHED	1900	2185	+285
CASES ABSTRACTED	822	836	+14
ANALYTIC	746	754	+8
NON-ANALYTIC	76	82	+6

PRIMARY SITE

LUNG	144	148	+4
BREAST	149	124	-25
PROSTATE	113	109	-4
MELANOMA	7	17	+10
COLORECTAL	52	47	-5
ANAL	1	4	+3
GASTRIC	5	3	-2
GE JUNCTION	2	2	SAME
ESOPHAGUS	15	18	-3
PANCREAS	19	26	+7
BLADDER	50	46	-4
KIDNEY	25	30	+5
URETER	0	0	SAME
RENAL PELVIS	1	3	+2
URETHRA	1	0	-1
BILE DUCT	1	3	+2
LIVER	14	4	-10
SMALL BOWEL	2	0	-2
UTERUS	1	5	+4
CERVIX	3	7	+4
ENDOMETRIUM	15	16	+1
OVARY	5	4	-1
VULVA	1	1	SAME
TESTES	4	1	-3
LYMPHOID NEOPLASM	55	63	+8
SARCOMA	4	10	+6
HEMATOPOIETIC	39	44	+5
THYROID	12	7	-5
BRAIN	16	13	-3
HEAD AND NECK	43	48	+5
MISCELLANEOUS	5	5	SAME
UNKNOWN	18	28	+10



Ervin Hire, MD
ONCOLOGIST
MEDICAL DIRECTOR



THE KARMANOS CONNECTION COMING TOGETHER. WORKING TOGETHER.

Karmanos Cancer Institute at McLaren Northern Michigan is one of only two cancer treatment centers in the state recognized as a comprehensive cancer center by the National Cancer Institute. Moreover, Karmanos Cancer Institute is the largest

“Karmanos is one of the nation’s leading cancer centers — pivotal in the discovery of new treatments, expert in various malignancies, and excellent in patient and family support. We are fortunate to be part of the Karmanos system.”

— Ervin Hire, MD
ONCOLOGIST
MEDICAL DIRECTOR

cancer research and provider network in Michigan. “Our patients have access to all that the Karmanos name represents and this strengthens our position as a regional cancer center, linking us to groundbreaking treatments with national and international trials,” explains Oncologist and Medical Director Ervin Hire, MD.

Locally, weekly conferences bring together a coterie of professionals — physicians and surgeons, pathologists and radiologists, oncology nurses and nurse navigators, research associates and support staff — for consults on patient cases and to determine timely, appropriate treatments, and services throughout the continuum of care. Conferencing with these Multidisciplinary Tumor Boards (MDT) “strengthens patient care at the local, regional, and state levels,” Dr. Hire adds. Northern Michigan providers participate in teleconference E-tumor Boards with physicians from Karmanos Cancer Institute in Detroit and in many weekly MDT sessions. These MDT Boards include participation from oncology and hematology specialists across the Karmanos network who are experts in specific cancers. “Together, we form consensus opinions for individual patients that may include further evaluation, specific treatment plans, and involvement in applicable research trials,” Dr. Hire adds. “Our ability to participate in real-time collaboration with the best minds in the field guides our practice and our patient outcomes.”

CLINICAL TRIALS

14 TOTAL CLINICAL TRIALS AT THE START OF 2015

9 CLINICAL TRIALS CLOSED OR TEMPORARILY CLOSED IN 2015

9 NEW CLINICAL TRIALS STARTED IN 2015

14 CLINICAL TRIALS ONGOING AT THE END OF 2015

754 TOTAL NUMBER OF NEW CANCER PATIENTS (ANALYTIC CASELOAD) IN 2015

139 TOTAL NEW PATIENTS REGISTERED IN CLINICAL RESEARCH AS OF YEAR-END 2015

Through Karmanos Cancer Institute at McLaren Northern Michigan, Michigan Radiation Oncology Quality Consortium (MROQC), or registered outside facility like Karmanos Cancer Institute in Detroit

18.4% NEW 2015 CANCER CASES ENROLLED IN ONCOLOGY RESEARCH
Exceeding Commission on Cancer Minimum of 4% and Commendation Goal of 6%

754 CANCER CASES
SCREENED FOR CLINICAL TRIALS IN 2015

18.4%
OF NEW 2015 CANCER CASES ENROLLED IN ONCOLOGY RESEARCH

CLINICAL TRIALS: EACH ADVANCEMENT BEGINS WITH RESEARCH

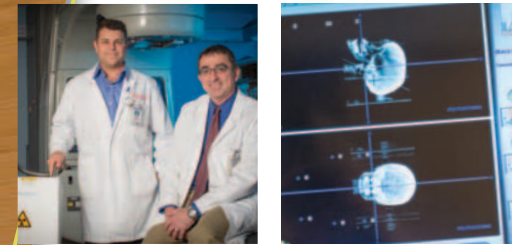
Karmanos Cancer Institute at McLaren Northern Michigan aggressively pursues advanced knowledge through involvement in clinical trials here at home and through access to national and international trial data. Below are two new trials initiated in 2015.

- 2013-021 Phase I — Soy Study for Stage 3 Lung Cancer
The use of soy isoflavones in pill form is studied as protection from toxicity incurred during radiation therapy and chemotherapy by sensitizing tumor cells and protecting normal cells.
- NRG-CC001 Randomized Phase III — Whole Brain Radiation, with or without Hippocampus Avoidance, in Treating Brain Metastasis
Avoiding the hippocampus during radiation using techniques such as intensity modulated radiotherapy, with the addition of memantine hydrochloride, is examined as a method for preserving neurocognitive function post-treatment.



LEFT Thomas Boike, MD
RADIATION ONCOLOGIST
CANCER COMMITTEE CHAIR

RIGHT Isaac Kaufman, MD
RADIATION ONCOLOGIST



HDR Brachytherapy Radiation Oncology

In 2015, Karmanos Cancer Institute at McLaren Northern Michigan began offering High Dose Rate (HDR) Brachytherapy, an internal radiation therapy capable of fast, accurate placement with minimal downtime. HDR delivers maximum radiation close to or inside the tumor, where it is needed, and minimizes exposure to healthy tissue. Additionally, in some cases, HDR decreases treatment time from weeks to days, often cutting the number of treatment sessions needed in half. Currently, Karmanos Cancer Institute at McLaren Northern Michigan treats breast, skin, and gynecological cancers with HDR.

Historically, breast cancer has been treated with external beam radiation therapy which was delivered over the course of six to seven weeks. "While this is still required for some patients, more recently, we have been able to reduce the length of treatment needed for many of our patients to about four weeks," explains Radiation Oncologist Isaac Kaufman, MD. "Today, with HDR brachytherapy using the SAVI® applicator system, we have the ability to treat select early stage breast cancer patients in only one week, with treatments given twice a day for five days."

Over the last several years, there have been multiple large studies comparing traditional, long course radiation therapy, with accelerated partial breast irradiation (APBI), delivered with the SAVI® system. As more data becomes available, success rates of the two treatments are equivalent, and toxicity rates are comparable, but favor APBI. For example, patients in the APBI treatment

The SAVI® system is a strut-based, open design comprised of a bundled group of expandable catheters, each holding a tiny radioactive seed. The catheter bundle is placed in or near the tumor, delivering a customized radiation dose. SAVI conforms to specific patient anatomy, and, in cases such as breast cancer, reduces incidence or severity of cosmetic side effects.

groups reported lower rates of breast pain, improved cosmetic results, and less skin toxicity.

“With a patient population that extends throughout northern Michigan and the Upper Peninsula, we understand that many of our patients travel a long distance to receive treatment,” Dr. Kaufman adds. “With this in mind, we are always looking to improve patient convenience, while delivering the most effective, state-of-the-art treatment, as with HDR for both breast and skin cancers. This way, patients can get their treatment and return back to their normal schedule faster than with conventional radiation therapy.”

IN THE PATIENT’S WORDS



Patient Dee Blevins’ mammogram revealed a malignant pellet-sized tumor. She chose breast conservation therapy (BCT) which combines lumpectomy with shorter, targeted radiation delivered through the SAVI® applicator. Unlike previous methods

of BCT, which required six or seven weeks of daily external radiation of the entire breast including healthy tissue, SAVI took just five days. And, unlike traditional treatment, which can adversely affect the ribs, lung, and heart, the SAVI treatment is site-specific and does not harm surrounding tissue. Blevins described the procedure as “relatively painless with minimal discomfort.”

PICTURED

Dee Blevins of Engadine, Michigan, with Radiation Oncologist Thomas Boike, MD, (left) and Surgeon Kevin Markham, MD (right).



ACCREDITATIONS, AWARDS, AFFILIATIONS

Full Accreditation. Outstanding Achievement.

While Commission on Cancer (CoC) accreditation is strictly voluntary, the finest cancer centers and hospitals nationwide seek it. Karmanos Cancer Institute at McLaren Northern Michigan is proud to share the recognition it affords. Additionally, commendations were received in seven areas including clinical trials, nursing care, pathology reports, and cancer registrar education, resulting in Gold Level — the highest national award level possible for all of cancer care.

In addition to full accreditation, Karmanos Cancer Institute at McLaren Northern Michigan is one of only two Michigan cancer programs to receive the CoC Outstanding Achievement Award. In total, only 75 cancer programs nationwide are named as preliminary winners.



American College of Surgeons: National Surgical Quality Improvement Program® (ACS NSQIP)

ACS NSQIP data enhances a hospital's ability to zero in on preventable surgical complications. Developed by surgeons who understand the realities of the operating room, ACS NSQIP helps hundreds of hospitals gauge the quality of their surgical programs with unrivaled precision to measurably improve surgical outcomes. As a participant, Karmanos Cancer Institute at McLaren Northern Michigan collects preoperative and postoperative data to nationally benchmark complication rates and surgical data for the purpose of improving patient outcomes through best practices.



Michigan Breast Oncology Quality Initiative

Karmanos Cancer Institute at McLaren Northern Michigan has completed its sixth year as one of 30 participating members of the Michigan Breast Oncology Quality Initiative (MiBOQI). The state-based effort collects demographic, diagnostic, treatment, and outcome data in an open-ended study to evaluate current standards of care and coordinate efforts to improve patient outcomes. First launched in 2005, MiBOQI compares collected data to the established guidelines of the National Comprehensive Cancer Network.



Quality Oncology Practice Initiative

Administered by the American Society of Clinical Oncology, QOPI is a voluntary program promoting a culture of self monitoring, goal setting, and improvement benchmarks. Karmanos Cancer Institute at McLaren Northern Michigan maintains certification status through QOPI. This oncologist-led program includes quality measures, data analysis and feedback, and improvement resources. Twice yearly reviews of patient charts track progress and improvements and generate actions as needed throughout the department. 2015 marked the seventh year of participation in QOPI.



Top Ten Hospitals in Michigan

U.S. News & World Report named McLaren Northern Michigan as one of the top ten hospitals in Michigan out of nearly 170, rating as a high performer in adult urology specialty services, abdominal aortic aneurysm repair, chronic obstructive pulmonary disease, colon cancer surgery, heart failure, hip replacement, and knee replacement.

Cancer treatment demands TENACITY.
Cancer care requires COMPASSION.
WE HAVE BOTH.

B A R B A R A A N N



CANCER INSTITUTE

Wayne State University

McLAREN NORTHERN MICHIGAN

(800) 248-6777 | northernhealth.org