

#### Welcome to the Memorial Regional Cancer Center 2015 Annual Report.

We are exceptionally delighted with the development and expansion we've achieved in these last 12 months. To better serve you, we continue to grow our talented and integrated team of physicians and nurses, build our survivorship program and multidisciplinary clinics and extend our capabilities – now including a board-certified genetics counselor.

We are extremely proud of our clinical trial research team and affiliation with the Mayo Clinic. As a Mayo affiliate, Memorial Regional Cancer Center (MRCC) is a member of Alliance (for Clinical Trials in Oncology), one of five cooperative groups in the United States designing, directing and reporting results from cancer clinical trials. Moreover, the MRCC is pleased to partner with the Harper Cancer Center at Notre Dame in tissue banking (storing cancer specimens for scientific research).

As Medical Director, I can tell you that your team at the MRCC has developed an extraordinary and highly regarded cancer program since I came here in January of 2013. We continue to improve on what we have already accomplished, and new capabilities are under continuous development. For updates, please follow us: www.facebook.com/MemorialRCC and twitter.com/MemorialRCC.

I have heard often from our patients that visiting the MRCC is like being with family. This is because the front office staff, technicians, medical assistants, lymphedema specialists, dietitians, social workers, nurses, genetics counselor and physicians all are engaged in your care – ensuring a heartfelt and warm experience, and ... we listen to you!

Respectfully,

Thomas J. Reid III, MD, PhD, FACP

Thomas J' Keilt

Medical Director, MRCC

Chief, Hematology-Medical Oncology



#### **ACCREDITATIONS**

Memorial Regional Cancer Center

Three-year accreditation by the American College of Surgeons, Commission on Cancer



National Radiation Accreditation by the American College of Radiation Oncology



Memorial Regional Breast Care Center —
Designated as a Breast Imaging Center of Excellence
This designation is awarded only to facilities that
have received accreditation by the American College
of Radiology in stereotactic breast biopsy, breast
ultrasound and ultrasound-guided breast biopsy.





#### Our Expert Team Includes:

Board-certified medical and radiation oncologists

Gynecologic oncologist

An oncology nurse navigator who helps guide patients along every stage of treatment

Highly trained surgeons who specialize in laparoscopic and minimally invasive surgical techniques

Dermatologic surgeon

Oncology-certified nurses and chemotherapy/biotherapy-certified nurses

Radiation therapists, physicist and dosimetrists

Oncology nurse practitioners

Oncology social workers who help assess family needs and gather resources

A certified specialist in oncology nutrition

Physical therapists, massage therapists and exercise specialists

A palliative care specialist

Lymphedema therapists

Chaplains

A financial counselor

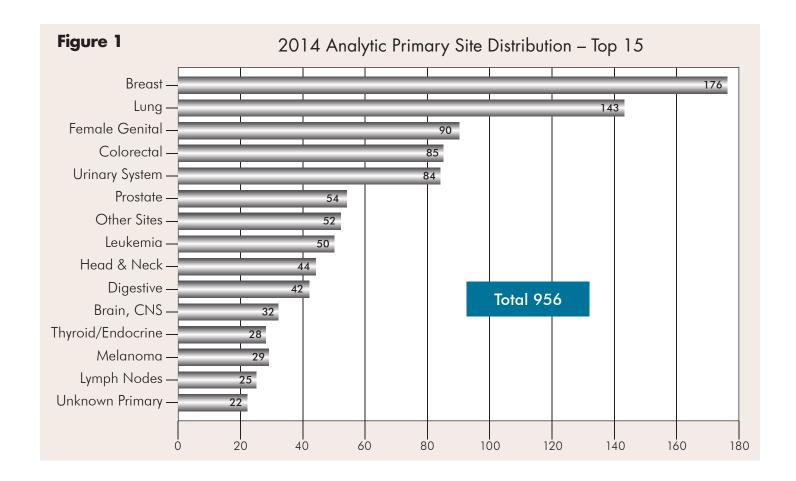
An oncology genetic counselor

## **CANCER REGISTRY**

Collecting relevant data on a timely basis is at the heart of any cancer registry program. The Memorial Cancer Registry is dedicated to ensuring complete, timely and accurate data collection on all patients who have been diagnosed and/or treated for cancer at Memorial Hospital.

This ongoing task of data collection is integral because it is submitted to the Indiana State Cancer Registry and National Cancer Data Base, which then shares the information with clinicians, researchers and standard setters who provide the best treatments available, analyze outcome and end-results data and to assess clinical standards and quality of patient care.

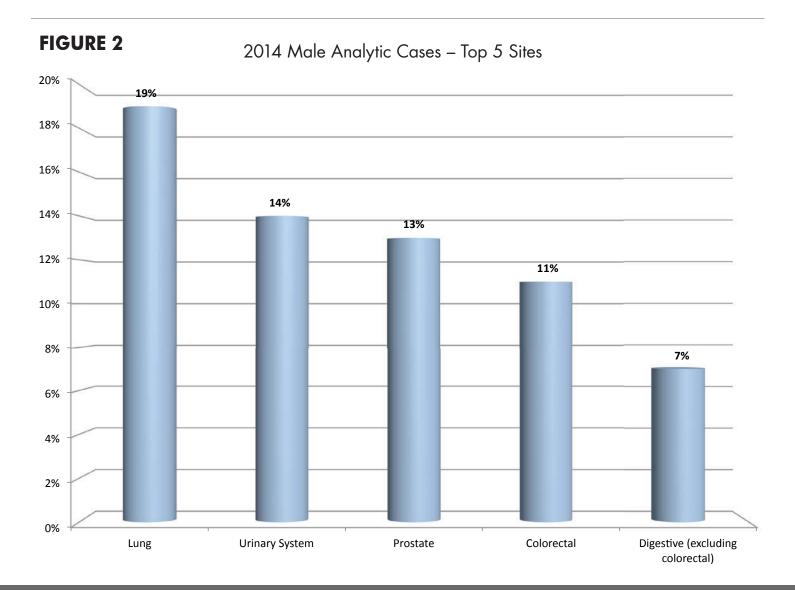
Operating under the leadership of the Director of Oncology Services and the Oncology Care Committee, Memorial Cancer Registry also coordinates multiple site-specific multidisciplinary cancer conferences where diagnostic procedures are reviewed and treatment options are discussed by a multidisciplinary group of specialty physicians. The site-specific conferences include breast, lung, gastrointestinal, urology, gynecology, neurosurgery, head and neck, hematologic and pediatric oncology. In 2014, 96 conferences were held at Memorial Hospital with 307 of Memorial Hospital analytic cases presented, 99 percent of which were prospective case presentations.



Since the Cancer Registry's reference year of 1985, the department has collected data on over 32,000 cases and continues to maintain a successful follow-up rate of 91 percent on eligible cases, exceeding the requirement of the Commission on Cancer. In 2014, 1,122 cancer cases were added to the cancer registry database, which includes 956 analytic cases (diagnosed and/or receiving first course of treatment at Memorial) and 166 non-analytic cases (first course treatment elsewhere).

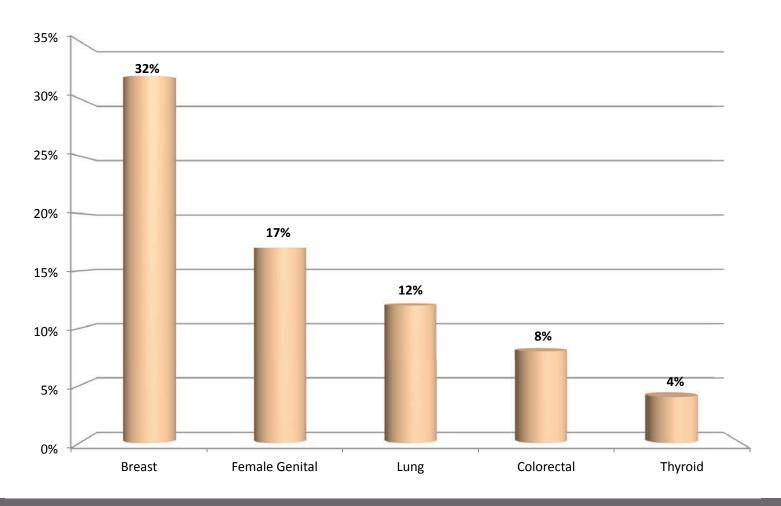
**Figure 1** illustrates 2014 analytic primary diagnostic site distribution, with **figures 2 and 3** showing the top five sites for male and female, respectively. **Figure 4** demonstrates the service area for 2014.

Memorial Cancer Registry continues to strive for excellence. The associates participate in continuing education annually, work closely with physicians and physician offices to ensure accurate data is collected and collaborate with other local and state registries.

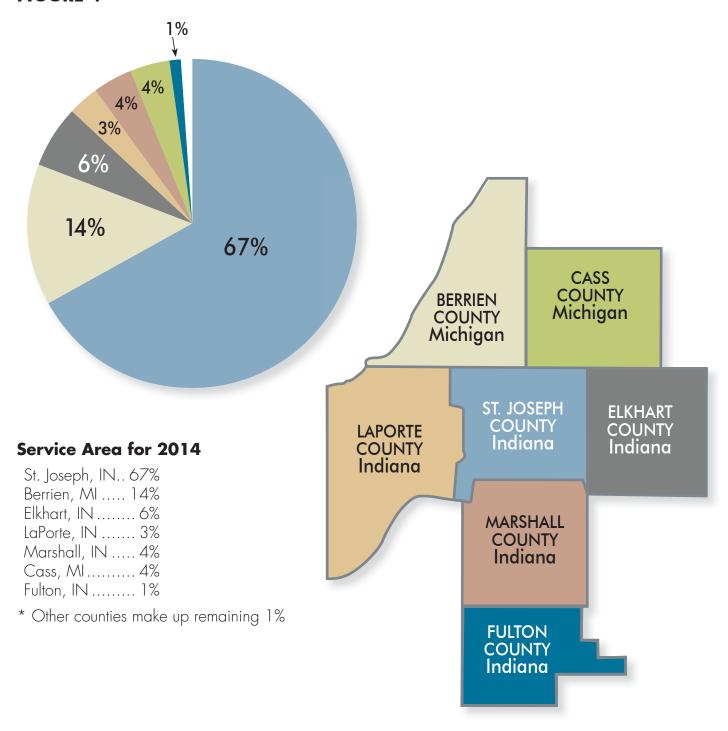




**FIGURE 3** 2014 Female Analytic Cases – Top 5 Sites



#### FIGURE 4



## CANCER STANDARDS

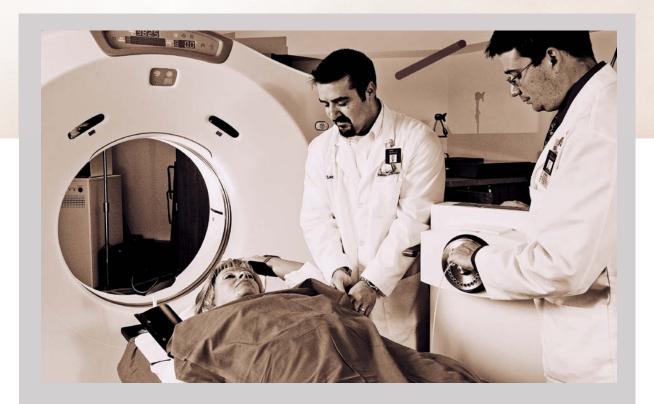
2015 Cancer Screening and Prevention Plan (Standard 4.1, 4.2) Standard 4.1 and 4.2 Cancer Prevention and Screening Programs

#### Prevention

Breast cancer	March 2015	Women's Show	Breast Exams – Total of 56 exams, 55 normal and 1 abnormal. The woman with the abnormal exam went on for a diagnostic mammogram, core biopsy and was diagnosed with breast cancer and is being followed by her breast cancer navigator.	
Skin cancer	July 2015	Local business	Skin cancer screenings and prevention teaching completed with employees of large business. There were 28 participants and 8 abnormal findings. Those participants with abnormal findings were referred to PCP for continued follow-up.	
Breast/ Prostate/ Skin cancers	October 2015	Memorial Hospital	Breast exams performed by breast care center nurses: 7 normal and 1 abnormal exam. Prostate screening by Beacon radiation oncologist: DRE and PSA with 3 normals and zero abnormals. Skin cancer screening by Beacon dermatologist: 23 normal and 5 abnormals. All abnormal findings sent to patients and their PCPs.	
Lung cancers	Ongoing	Memorial Hospital	Low-Ddose CT project to effectively screen for early signs of lung cancer. 14 low-dose CT scans were performed to date in 2015.	

#### Screenings

	March 2015	Women's Show	Display of educational materials and answered many questions about cancer screening and treatments available in the community. Approximately 60 women visited the booth.
	June 2015	St. Joseph County Employee Health Fair	Display of educational materials and answered many questions about cancer screening and treatments available in the community.
	July 2015	YMCA Education	Breast Care Center RN hosted a class on breast health and information on the Breast and Cervical Cancer Program (BCCP).
Lung cancer prevention	Ongoing	Health Discovery Center and ACS	Smoking cessation is offered to community through Health Discovery Center until Oct. 31, 2015, and referrals are now made to the American Cancer Society.
	March 2015	Women's Show	Low-dose CT information shared with participants.



#### 2015 Quality Improvements (Standard 4.8)

Monitoring and documenting patients' pain score at each visit improved from 94 percent compliance at start of year to 99 percent compliance at year-end. (Standard 4.7 Quality study #1)

Vision RT technology added in Radiation Oncology (Quarter 1, 2015) for stereotactic radiosurgery alignment and real-time surface rendering to detect motion during treatment.

CT Simulator added to Mishawaka Day Road site. (Quarter 1, 2015)

Second nurse practitioner added to Medical Oncology program. (Quarter 3, 2015)

Genetic counselor dedicated to oncology added. (Quarter 2, 2015)

Second outpatient oncology social worker added. (Quarter 1, 2015)

Opening of melanoma vaccine trial. (Quarter 2, 2015)

Began oncology-focused medication assistance program. (2015)

## PHYSICIANS AND SPECIALISTS



Thomas J. Reid III, MD, PhD, FACP Hematology-Medical Oncology Memorial Regional Cancer Center Medical Director

Dr. Reid received his medical degree from Uniformed Services University of the Health Sciences in Bethesda, Maryland. He completed his internship and residency in internal medicine and fellowship in hematology-medical oncology at the Walter Reed Army Medical Center, District of Columbia. He received a PhD in biochemistry at Purdue University.

From 1991 to 2004, Dr. Reid was at the Walter Reed Army Institute of Research; including three years as Chief of Blood Research. From 2004 to 2008, Dr. Reid was Chief of Hematology-Medical Oncology at the Walter Reed Army Medical Center. After 27 years in the Army Medical Corps, he retired in 2008 as a full Colonel.

From 2011 to 2012, he was Chief, Hematology-Medical Oncology and Oncology Program Director at MedStar Good Samaritan and MedStar Union Memorial Hospitals in Baltimore, Maryland. In Baltimore and at Walter Reed, he served as Principal Investigator for the cancer clinical trials cooperative group, Cancer and Leukemia Group B (CALGB). Dr. Reid also served as co-chair of the Clinical Research Committee at the Lombardi Cancer Center, Georgetown University Medical Center.

His special interests include cancer clinical trials (adult solid tumors and lymphomas, supportive care, cancer vaccines, translational research), cancer epidemiology, cancer genetics, cancer survivorship and coagulation (bleeding and clotting) and hematologic disorders.



David Hornback, MD Radiation Oncology

Dr. Hornback is a board-certified radiation oncologist and is the Medical Director of the radiation oncology program at Memorial Hospital. After receiving his medical degree at the Indiana University School of Medicine, he interned at St. Vincent Hospital in Indianapolis and completed his residency in radiation oncology at Indiana University Hospital in Indianapolis. Dr. Hornback moved to South Bend in 1992 where he joined Radiology, Inc. and began his practice at Memorial Hospital.

In 2009, Dr. Hornback joined Memorial Medical Group, which is now Beacon Medical Group. Dr. Hornback specializes in high and low dose rate brachytherapy and prostate seed implants. In fact, he has the most clinical experience in permanent seed implant for prostate cancer in our region. He has a special interest in treating patients with prostate, breast, gynecologic, lung and colorectal cancer. He has experience in special radiation procedures including stereotactic radiosurgery and stereotactic body radiotherapy.

Dr. Hornback has extensive clinical research experience and maintains memberships in a number of professional associations, including the American Society for Therapeutic Radiology and Oncology, the American College of Radiation Oncology and the American Society of Clinical Oncologists.



Ivan Bedoya-Apraez, MD Hematology-Medical Oncology

Dr. Bedoya-Apraez received his medical degree at the Universidad de Caldas in Colombia and completed his internal medicine residency at The Jewish Hospital in Cincinnati and hematology-oncology fellowship at the University of Cincinnati.

He is a member of the American College of Physicians, the American Society of Clinical Oncology and the American Society of Hematology. Board-certified in internal medicine, hematology and medical oncology, Dr. Bedoya-Apraez has a passion for individualized patient care and a special interest in gastrointestinal oncology and malignant hematology.



Samuel McGrath, MD Radiation Oncology

Dr. McGrath received his medical degree from Wayne State University School of Medicine in Detroit, Michigan, graduating with highest distinction as a member of the Alpha Omega Alpha national medical honor society. Prior to this, he completed his bachelor's degree in chemistry at Indiana University, Bloomington, where he graduated summa cum laude and as a member of the Phi Beta Kappa honor society.

He completed his internship and residency at William Beaumont Hospital in Royal Oak, Michigan. While at William Beaumont, Dr. McGrath had the opportunity to train under several nationally renowned radiation oncologists, acquiring valuable experience with advanced treatment planning and delivery techniques, including radiosurgery, brachytherapy and IMRT/IGRT.

A board-certified radiation oncologist who has been practicing at Memorial Hospital of South Bend since 2010, Dr. McGrath has published on a variety of topics, including prostate, breast and lung cancer. He is an active member of the American Society of Therapeutic Radiology and Oncology and treats all solid tumors at both the South Bend and Mishawaka offices.

## PHYSICIANS AND SPECIALISTS



Nonyem Onujiogu, MD Gynecologic Oncology

Dr. Onujiogu received her medical degree from the University of Chicago Pritzker School of Medicine and completed her obstetrics and gynecology residency at the University of Chicago Medical Center. She completed her gynecologic oncology fellowship at the University of Wisconsin School of Medicine and Public Health in Madison, Wisconsin.

Dr. Onujiogu specializes in treatment of ovarian, uterine, cervical, vulvar, and vaginal cancers. She is experienced in robotic, laparoscopic, and complex gynecologic surgeries. Dr. Onujiogu most recently served as Assistant Professor in the Division of Gynecologic Oncology at the University of Illinois at Chicago. She is board-certified in obstetrics and gynecology, is a member of the Society of Gynecologic Oncology, and a Fellow of The American Congress of Obstetricians and Gynecologists. Dr. Onujiogu's greatest interest is providing quality and compassionate care to the women of this community.



Luiz Pantalena, MD, PhD Dermatologic Surgery

doctorate degree in developmental biology from Stanford University in Palo Alto, California. He completed his residency in dermatology at University Hospitals in Cleveland, Ohio, and his fellowship in dermatologic surgery at the University of British Colombia in Vancouver, Canada. A passionate researcher, Dr. Pantalena has published academic articles in both basic science and applied dermatological surgery.



**Melissa Beyer, MS, LCGC**Oncology Genetic Counselor



Silvia C. Dyson, LCSW, LMSW Oncology Social Worker



**Lynn Sobecki, RN, BSN, OCN** Nurse Navigator - Memorial Regional Breast Care Center



**Dawn Case, AOCNP**Nurse Practitioner Medical
Oncology



**June Brandner, RD, CSO, CD** Clinical Oncology Dietitian



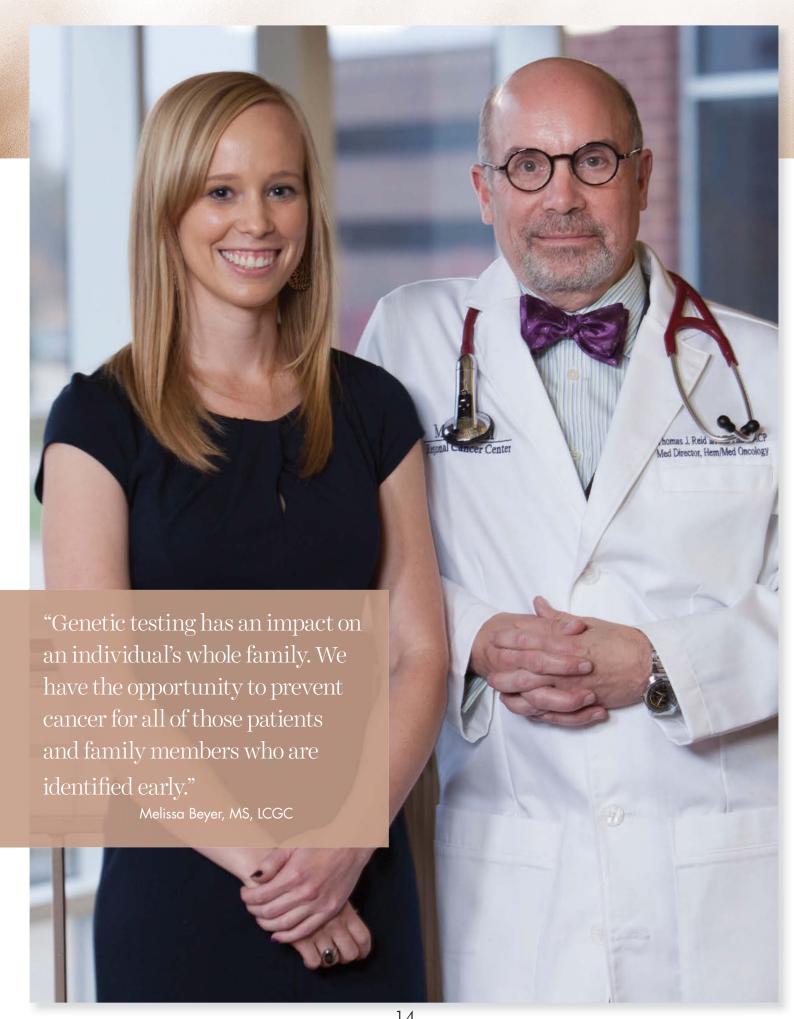
**Kelly Mailloux, RN, BSN** Nurse Navigator - Memorial Regional Breast Care Center



**Ruth E. Conley, MSN, NP-C** Nurse Practitioner Medical Oncology



**Amy Tinlin, RN, OCN**Nurse Navigator - Memorial
Regional Cancer Center



## **Unwinding the Double Helix:**

Oncology Genetic Counseling Helps Patients Determine Risks, Weigh Options

Growing up with a known genetic condition in her family heavily influenced Melissa Beyer, MS, LCGC, in her decision to become a genetic counselor herself. The field blends her interest in genetic science with the personalized approach of helping patients.

Now, as a licensed and certified genetic counselor at Memorial Regional Cancer Center, she's using her skills to guide patients through the genetic testing process.

"Genetic testing is a great example of personalized medicine, which is the future of medicine," Melissa explains. "Genetic testing has an impact on an individual's whole family. We have the opportunity to prevent cancer for all of those patients and family members who are identified early. It's a good feeling to be working to prevent cancer."

Though oncology genetic testing has existed for around 20 years, it has only been in the last five years or so that the field has evolved, says Melissa.

"The availability of testing has increased due to new advances in technology," she says. "We used to do genetic testing one gene at a time. We would test for the most common, well-known mutations in just a few genes. Now we're able to look at a lot of genes at one time — up to 25 genes or so — with one test."

The proliferation and availability of testing brings the field out of larger academic centers and into the community setting, explains Thomas J. Reid, III, MD, PhD, FACP, Medical Director of Memorial Regional Cancer Center.

"The whole area of genetic testing is in a constant state of evolution," says Dr. Reid. "It's very important for us to have someone like Melissa in-house who can discuss these topics with patients, including what it means to be genetically tested and what one might need to do if the test is positive."

Insurance coverage for genetic testing is growing, too, according to Melissa: "Patients with commercial insurance can generally get testing covered very easily. There are options for individuals with Medicare and Medicaid. As testing becomes more widespread and more laboratories are offering testing, we're able to get affordable testing for almost everyone who meets national guidelines."

### Who Should Have Oncology Genetic Counseling?

Oftentimes, primary care physicians have already gathered patients' extensive family histories of cancer, says Melissa.

"But it's hard to know what to do with that information." Physician referrals for genetic counseling may or may not result in a recommendation for genetic testing, she explains.

"I have a conversation with patients about the many genetic testing options that are available and what information different tests could provide," says Melissa. "I help patients to make those decisions for themselves about what testing is right for them as well as whether or not testing is right for them at this point. There may be another family member who is more appropriate for genetic testing, or the patient may be hesitant to learn that they are at an increased risk of cancer. In these cases, we can still make recommendations for personalized cancer screening based on the family history alone."

Using guidelines established by the National Comprehensive Cancer Network, Melissa considers the patient's personal and familial cancer histories, including these hallmarks of hereditary cancer:

- Cancer that develops in those younger than age 50, including breast cancer, colon cancer and endometrial cancer.
- Women diagnosed with ovarian cancer at any age and those with a first- or second-degree relative with ovarian cancer.
- Individuals who have multiple cancers, including two primary cancers or multiple types of the same or similar cancer on one side of their family.
- Individuals with rare types of cancer, e.g., male breast cancer or certain types of thyroid cancer.

Both Melissa and Dr. Reid say the media attention surrounding the recent health care decisions by actress Angelina Jolie Pitt have brought more awareness to the field of hereditary cancer. The actress chose to have prophylactic breast and ovary removal surgeries after she disclosed two years ago that she tested positive for the BRCA1 gene mutation. Many of Melissa's patients bring up the actress during counseling sessions, particularly women of childbearing age who've been diagnosed with cancer.

"One of the leading reasons patients tell me they are interested in genetic counseling is to get information for their children," says Melissa. "For example, a woman who was diagnosed with breast cancer at a young age may be very worried about her daughters' or siblings' risk."

Though hereditary cancer is rare — estimated at approximately five to 10 percent of cancers — both Dr. Reid and Melissa believe primary care physicians should remain diligent in monitoring patients (whether or not they have cancer) who have a family history of cancer. This is especially important for children of cancer patients.

"Children of patients with hereditary cancer may need to begin cancer screening 15 years before the age the parent was diagnosed, depending on the cancer," explains Dr. Reid. "If the children's genetic testing results are negative, they don't need to worry; that is, they have an average risk of cancer but are not at increased risk. But if their genetic testing is positive, they will need to plan for appropriate cancer screening earlier in their life."

Other reasons Melissa may recommend genetic testing include helping to determine if patients may be at high risk of getting cancer again, the availability of more treatment options and more aggressive screening options for themselves or for family members.

#### Receiving Results and Next Steps

As a board-certified genetic counselor, Melissa has the training to suss out the significance of genetic testing results for patients.

"Genetic testing is most appropriate in the context of genetic counseling," she explains. "Some physicians are very comfortable ordering genetic tests, and others are not. Sometimes the results come back with something unexpected, and then the patient gets referred to the genetic counselor. That's not an ideal way to do things. As a genetic counselor, I am able to sit down with patients and go over the different options in detail and make sure the appropriate test is ordered and the patient isn't caught off guard by unexpected results."

Melissa typically spends an hour during an initial consultation with a patient, and a half-hour reviewing test results when they are available. For patients who test positive for a genetic mutation for cancer, she provides a detailed report to those patients, their primary care physicians and appropriate specialists about the cancer risks associated with the mutation and any available guidelines for managing the risks.

#### For Further Study

To learn more, visit the National Cancer Institute's Physician Data Query (PDQ) on Cancer Genetics Risk Assessment and Counseling at: www.Cancer.gov/About-Cancer/Causes-Prevention/Genetics/Risk-Assessment-PDQ.

#### **For More Information**

To contact Melissa Beyer for more information or to make a patient referral for oncology genetic counseling, call the Memorial Regional Cancer Center at **574.647.1100**. To download a comprehensive questionnaire for patients regarding their own personal cancer risk, visit **QualityOfLife.org/Services/Cancer**.



### Clinical Trials

Memorial Regional Cancer Center's clinical research team brings cutting-edge clinical trials to Michiana. Memorial participates in clinical trials through the Mayo Clinic, National Cancer Institute and pharmaceutical companies. One of the latest developments is vaccine clinical research. These trials use anti-cancer vaccines in an attempt to boost the immune system (immunotherapy) to recognize and eliminate cancer cells. Memorial is proud to be one of the only centers in the area to offer vaccine clinical trials. Clinical trials are key to developing new methods to prevent, detect and treat cancer.

In 2015, Memorial Hospital enrolled over 40 patients into clinical trials. It is through clinical trials that researchers can determine whether new treatments are safe, effective and work better than current treatments. Taking part in a clinical trial adds to our knowledge about cancer and helps improve cancer care.

### Memorial Cancer Research Center is currently enrolling participants in the following vaccine clinical trials:

#### **Breast Vaccine Study**

Combination immunotherapy with nelipepimut-S + GM-CSF (NeuVax™) and Trastuzumab in High-Risk HER2 Breast Cancer Patients

#### **Breast Vaccine Study**

Combination Immunotherapy with Herceptin and the HER2 vaccine E75 in Low and Intermediate HER2-Expressing Breast Cancer Patients to Prevent Recurrence

#### **Melanoma Vaccine Study**

A Prospective, Randomized, Blinded, Placebo-Controlled, Phase IIb Trial of an Autologous Tumor Lysate

(TL) + Yeast Cell Wall Particles (YCWP) + Dendritic Cells (DC) Vaccine vs. Unloaded YCWP + DC in Stage III and Stage IV (resected) Melanoma to Prevent Recurrence.

# Advances in Intracranial Stereotactic Radiosurgery

#### Memorial Offers Frameless SRS Option

Stereotactic radiosurgery (SRS) is a radiation therapy delivery technique in which multiple beams converge onto a small intracranial target, depositing a high dose of localized radiation within a small volume. Radiation beams are delivered either via a Gamma Knife®, a dedicated radiosurgical unit using gamma radiation from multiple cobalt sources, or a conventional medical linear accelerator specially adapted with circular collimators of varying diameter as employed at the Memorial Regional Cancer Center (MRCC). Current applications include treatment of brain metastases, acoustic neuromas, arteriovenous malformations, pituitary adenomas and even recurrent gliomas.

Historically, a neurosurgeon affixed a stereotactic frame to the patient's skull under local anesthesia until completion of the radiation treatment. Frame placement is critical in this process as it provides a relationship between the patient's intracranial anatomy and the coordinate system employed for target localization.

Recently, MRCC transitioned to the AlignRT® SRS module. This frameless system utilizes optical surface tracking capabilities, allowing for the real-time assessment of facial movement during treatment with preset movement thresholds that trigger automatic beam interruption. The open-faced, plastic mask used with this system is much more comfortable for the patient compared to a rigid frame and facilitates facial recognition needed for target tracking.

Patients initially undergo a CTbased simulation with the mask in place. These images are in turn fused with a thin-slice planning MRI. The radiation oncologist and neurosurgeon contour the target and normal surrounding critical tissue structures. The resulting treatment plan is subjected to exhaustive quality assurance prior to delivery. Treatment generally takes 30 minutes, after which time the patient is discharged home.

Eligibility for radiosurgical treatment is predicated upon the geometry of the target lesion. This treatment is best suited for spherical lesions under 4 cm in size. Selection of radiation dose is contingent upon the size of the lesion and biology of the tumor. Larger targets result in irradiation of more normal brain tissue, thus a lower dose is utilized. Treatment can be administered as either initial therapy or as a salvage option in the setting of prior conventionally fractionated radiation treatment.

For those patients eligible for radiosurgical treatment, the advantages are numerous. Radiosurgery is extremely accurate, with dose being deposited with submillimeter precision. This optimally spares the normal surrounding neurologic tissue, resulting in less acute and chronic toxicity. This treatment approach circumvents the need for surgical removal of the lesion, offering up a much less invasive therapeutic alternative. Radiosuraery is administered in a single fraction, replacing a standard three- to six-week treatment course, allowing patients the option to start additional treatment such as chemotherapy sooner. Finally, the single large dose of radiation is advantageous radiobiologically, allowing less tumor cells to survive the initial radiation insult and in turn increasing the efficacy of treatment.







With over 100 cases treated to date, Memorial Regional Cancer Center is pleased to offer the region's most robust, and only frameless, intracranial stereotactic radiosurgical program. Working in close collaboration with the neurosurgeons from Beacon Medical Group North Central Neurosurgery South Bend, we are proud to offer this very precise and sophisticated treatment option to our community, delivering the highest quality of care close to home.

## Low-Dose CT Program



Memorial Regional Cancer Center now offers an effective screening tool for early stage lung cancer. The Low-Dose lung CT scan offers individuals at risk an opportunity to find lung cancer at its earliest, most curative state. Candidates must meet the following criteria:

- $\square$  Age 55 to 74 years
- ☐ No signs or symptoms of lung cancer
- □ Tobacco smoking history of at least 30 pack years
- ☐ Current smoker or former smoker who has quit in the last 15 years
- Former smokers who have quit within the last 15 years
- Our program includes a series of low-dose CT scans and smoking cessation classes
- Medicare and some, but not all insurers, cover the cost of the low-dose lung CT program



For more information, call 844-4LoDoCT

For more information, please call 574.204.7322 or talk to your primary care physician.



Memorial Hospital Campus | 615 N. Michigan St., South Bend, IN 46601 Day Road Campus | 301 East Day Road, Mishawaka, IN 46545 574.647.1100 | QualityOfLife.org/Cancer



