

OSF HEALTHCARE SAINT FRANCIS MEDICAL CENTER



2018

**CANCER PROGRAM
ANNUAL REPORT**



OSF[®]
HEALTHCARE

2018 Cancer Committee



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Dr. James McGee, MD, SM

CANCER COMMITTEE CHAIRMAN

The Cancer Program Annual Report provides an opportunity to highlight the efforts in cancer management at OSF HealthCare Saint Francis Medical Center. This year, we are noting the many great things going on in the treatment of central nervous system (CNS) tumors. Under the leadership of Dr. Patrick Elwood, the neurosurgery and neurology programs were fully developed as part of OSF HealthCare Illinois Neurological Institute. With consolidation and expansion of services, OSF INI has come to be the most respected name in neurological care in downstate Illinois. Among their many other activities, OSF INI actively engages and supports the treatment of patients with primary and metastatic CNS tumors and related conditions. Over time, the effectiveness of those therapies has steadily improved, but much is yet to be done.

Throughout the last third of the 20th century, the neurosurgeons at OSF Saint Francis progressed in steadily developing the techniques of brain tumor surgery, establishing Peoria as a referral center for such surgery. The program was strengthened by a robust neurosurgery residency program at the University of Illinois College of Medicine Peoria. The residency program provides support for patient care, research and education and has helped the CNS tumor program to attract excellent clinical staff and researchers. By 1990, the need for resident education to be comprehensive was a driver for the early adoption of radiosurgery treatment for metastatic brain tumors. Radiosurgery had become a viable treatment option, and OSF Saint Francis was an early adaptor of linear accelerator radiosurgery.

Working with the Freiburg System, the treatment beams were shaped into non divergent circular beams by passage through lead cones with central circular passageways of small diameters. Treatments took over an hour to deliver and longer to calculate. One patient needed to have fractionation of therapy over seven treatments to protect his optic apparatus and had to be admitted

for two weeks with the targeting head frame on the whole time.

In 2001, the Model 4C Gamma Knife was placed at OSF Saint Francis, and we left behind the uncertainties of dose fractionation of the linear accelerator era. The great tradition of Gamma Knife brain radiosurgery as promoted by the global Leksell Gamma Knife Society supplanted the many variables and physical limitations of linear accelerator treatments and assured the ultimate in patient safety. Unfortunately the Model 4C required manual setting of each of the target points, as well as the size of each of the 201 beams coming from cobalt-60 sources, discouraging the use of large numbers of "shots" which lead to highly shaped contours on tumors.

After eight years, the Model 4C was replaced with a Gamma Knife Perfexion unit that is still in operation. Finally the precision of the Gamma Knife was fully realized. The robotics added to the Gamma Knife automated movement of the treatment couch and the shot sizes were fully automated. Now, each dose plan could be fully optimized since the manual settings were all eliminated. Brain metastases are very well treated with excellent dose conformity allowing maximum doses of 44 to 48 Gy in a single treatment, much higher than the 22 to 28 Gy maximum doses achieved on the linear accelerator system. The Perfexion unit fully supports the treatment of a number of benign tumors and functional disorders including trigeminal neuralgias, meningioma, vestibular schwannomas and arteriovenous malformations. Since the planning is done directly on MR images obtained with the head frame in position, there are no image fusion uncertainties. Digital subtraction angiograms can be incorporated into the planning, and our treatment plans and techniques can easily be compared to those from Gamma Knife centers around the world.

Linear accelerator advances have also been achieved with our high definition Varian TrueBeam linear accelerator. Using RapidArc and HyperArc techniques, multiple brain



metastases can be treated with a relocatable frame (mask) system treating up to 20 or more metastases in under 30 minutes. We now understand that it is not the number of mets in the brain that is the major prognostic concern but the aggregate volume of those mets. The 6 degree of freedom couch on the TrueBeam allows roll-pitch-yaw functions to assure set up accuracy within 1 mm when simultaneously treating lesions at multiple brain sites with radiosurgery. The use of radiosurgery has reduced the indications for whole brain treatment considerably, but in some circumstances it is unavoidable. The adaptability of the beam shaping on the TrueBeam allows us to address the worst side effect of whole-brain radiation, namely short-term memory dysfunction. Treatment plans can be developed that allow for hippocampal avoidance and better preservation of the patient's recent memory function. With multi-field IMRT, the dose to the hippocampus can be reduced by two-thirds, and studies have shown considerable reduction in short term memory problems.

For primary brain tumors or large metastases, our neurosurgery colleagues have access to a number of tools to help guide resections, including an intra-operative 3 Tesla MRI unit. Protocols for the pre-operative radiation treatment of cerebral mets that require surgical removal are being assessed as a means to reduce tumor seeding at the time of resection. With the intraoperative MRI unit, the chances of a gross total resection are enhanced, leading to better patient outcomes. While important in metastatic disease, this is critical to improved outcomes in the treatment of primary CNS tumors.

Spine tumor surgery and radiosurgery are keeping pace. Recently, we have initiated a program for pre-operative radiosurgical treatment of spinal metastases. In that model, a tumor in proximity to the spinal cord will be resected so the very high dose radiosurgery is targeting only the tumor that will not be surgically removed. A zone of reduced dose to the spinal canal is planned to protect the spinal cord from radiation injury. This allows the tumor to be treated in two to three dose fractions over 24 to 48 hours followed by immediate resection of the



tumor impinging upon the spinal canal. This avoids the standard radiation therapy needed postoperatively when “hardware” has been placed and when tumor can regrow while waiting for the wound to heal. Patients who present for postoperative radiation or primary radiation alone are often planned with a CT myelogram study that allows us to accurately understand the relationship of the dose to be delivered to the tumor itself and to the spinal cord. OSF INI offers a complete range of services for patients with spine tumors, and ease of treatment for the patient will hopefully continue to improve.

Fortunately, patients who would benefit from proton beam therapy to reduce their normal brain and spine radiation exposure can benefit from the working relationship between our team and the radiation oncologists at Northwestern Medicine Chicago Proton Center. Housing near the center in Warrenville is available for our patients through the efforts of the Peoria office of the American Cancer Society. Their organization is able to obtain very affordable housing at excellent facilities through hotel operators who donate their facilities and services to help our patients.

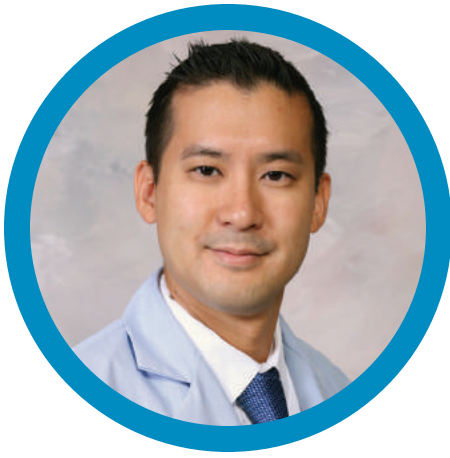
Through our tumor boards and multi-disciplinary brain and spine cancer clinics, we seek to prospectively evaluate all patients requiring these types of management. Working with our neuro-oncology colleagues from Illinois Cancer Care is always a critical step in the formulation of a plan personalized to the patient's individual tumor profile markers. More and more the results of genomic and molecular testing on tumor tissues is replacing morphologic classifications in treatment recommendations, and that information will only continue to revolutionize how we think of CNS tumors.

Entering the new era of understanding the impact of the individual tumor's tumor markers and genomics is “an exciting time” as they say, but again there is much to be done. We will participate in more and more clinical trials, and we will be prepared to offer an ever-expanding range of services to the patient with CNS tumors and related conditions.

James L. McGee, MD, SM

James L. McGee, MD, SM
Radiation Oncology, Chairman





Dr. Andrew Tsung, MD

NEUROSURGERY

At OSF HealthCare Illinois Neurological Institute, we take a comprehensive approach to the treatment of brain tumors by bringing together a multi-disciplinary team to provide advanced treatment options for targeting and eliminating brain tumors. Our team of specialists include providers from the following specialties:

- Neurosurgery
- Neuro-oncology
- Radiation oncology
- Neuroradiology
- Neuropathology
- Otorhinolaryngology (ENT)

Our neurosurgical oncology team evaluates and treats patients with gliomas, metastases, pituitary tumors, spinal malignancies and skull base neoplasms. We are one of the largest brain tumor centers in Illinois, performing over 300 procedures per year to remove and treat brain and spinal tumors. By utilizing the intraoperative MRI technology available at OSF HealthCare Saint Francis Medical

Center, we are now able to fully evaluate the imaging of the brain tumor while the patient is undergoing surgery. This state-of-the-art, real-time technology leads to a more complete resection and, therefore, better outcomes. Technology offered at the OSF INI Brain Tumor Center includes:

- Intraoperative MRI guided resection
- Minimally invasive neurosurgery with Brainpath
- Brainlab diffusion tractography and advanced intraoperative navigation
- Endoscopic endonasal transsphenoidal surgery for tumors of the pituitary region
- Gamma Knife® Radiosurgery
- 3D ultrasound
- O-arm™ 2D/3D Navigation for spinal oncologic surgery
- StealthStation™ and Brainlab Curve™ neuronavigation
- Zeiss OPMI Pentero® 900 operating microscopes

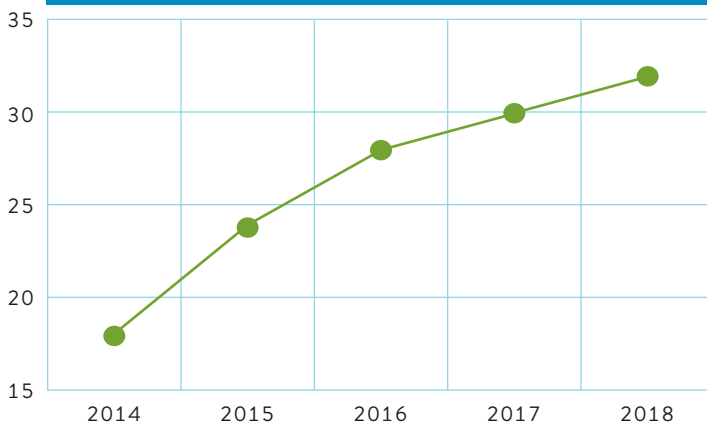
We collaborate with Illinois Cancer Care specialists and their dedicated neuro-oncologist to provide up-to-date treatments in those requiring adjuvant therapy. A collaborative Phase III study was recently completed for glioblastoma utilizing autologous dendritic cell immunotherapy DCVax®-L. Current trials and therapies include:

- Adding a diuretic for the initial treatment of grade 3 and 4 gliomas
- Comparing two therapy courses for patients with WHO grade 2 and 3 oligodendroglioma
- Two trials in patients with advanced lung cancer and brain metastases to minimize memory loss
- Trying to improve their quality of life glioblastoma patients experiencing fatigue

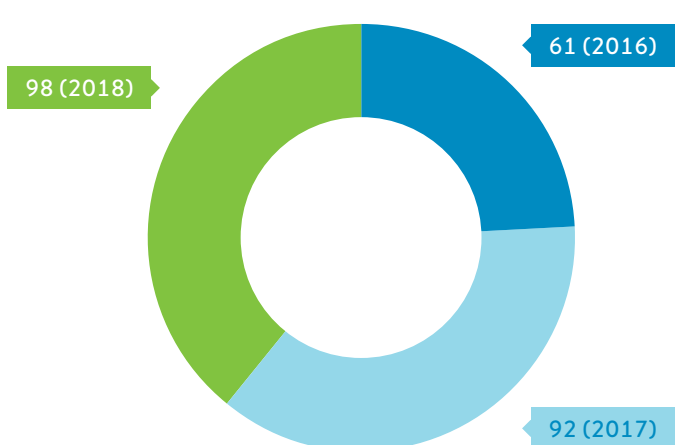
New referrals are seen within 24 to 48 hours allowing convenient access of high-quality brain tumor treatment without leaving Central Illinois. A dedicated brain tumor nurse navigator guides our patients on their journey and serves as a resource for all questions that arise in the process. Social work specialists serve as liaisons for additional patient needs. The bi-monthly brain tumor support group functions to improve education, communication and support of patients and their families. Lastly, the annual Mark Linder Walk for The Mind is the largest regional charity event with all fund supporting basic and translational research at the University of Illinois College of Medicine Peoria.

Andrew J. Tsung, MD
Neurosurgery

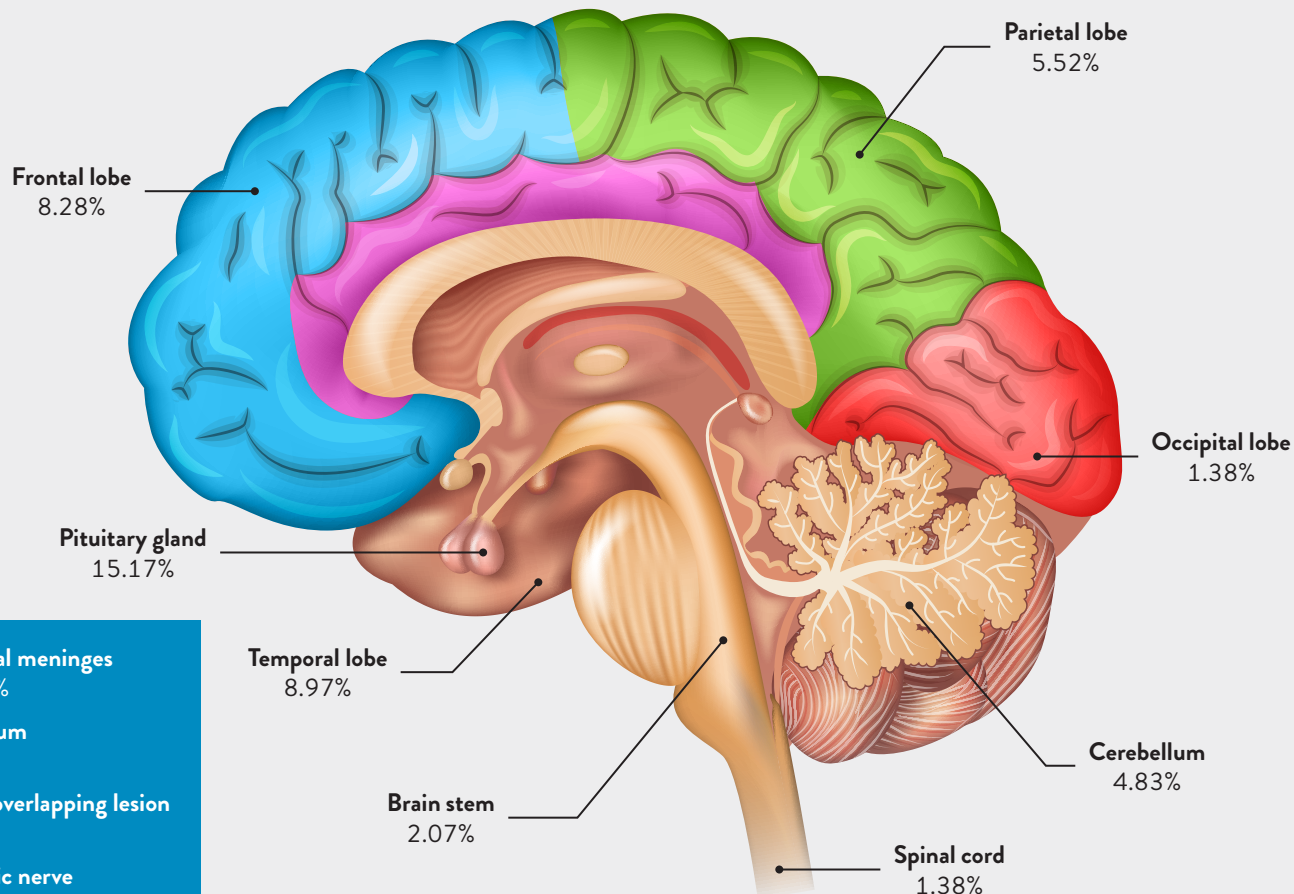
PITUITARY CASES AT OSF HEALTHCARE SAINT FRANCIS MEDICAL CENTER*



GAMMA KNIFE: UNIQUE PATIENTS*



BRAIN SITES



MORTALITY RATE*

2.31%

OSF HealthCare
Saint Francis Medical Center

3.79%

Expected national average

AVERAGE LENGTH OF STAY*

5.16 days

OSF HealthCare
Saint Francis Medical Center

6.67 days

Expected national average



BRAIN SITES

SITE	COUNT (N)	PERCENT
Cerebral meninges	51	35.17%
Spinal meninges	1	0.69%
Meninges, NOS	2	1.38%
Cerebrum	5	3.45%
Frontal lobe	12	8.28%
Temporal lobe	13	8.97%
Parietal lobe	8	5.52%
Occipital lobe	2	1.38%
Ventricle, NOS	3	2.07%
Cerebellum, NOS	7	4.83%
Brain stem	3	2.07%
Brain, overlapping lesion	6	4.14%
Brain, NOS	1	0.69%
Spinal cord	2	1.38%
Acoustic nerve	3	2.07%
Cranial nerve, NOS	2	1.38%
Nervous system, NOS	2	1.38%
Pituitary gland	22	15.17%
TOTAL	145	100.00%

Cancer Experience

OSF HEALTHCARE SAINT FRANCIS MEDICAL CENTER

In 2017, a total of 2,768 cases were recorded and abstracted by the Cancer Registry staff. Of these cases, 2,490 were either diagnosed here and/or received at least part of their initial treatment here. These cases are referred to as analytic. The graphs and tables in this report were compiled from analytic cases unless otherwise indicated.

In 2017, breast cancer was the number one primary site of cancer with 485 cases reported, followed by lung cancer with 464 cases, prostate cancer with 223 cases, and kidney, renal and pelvis cancer with 125 reported cases. The top ten most frequent cancer sites account for over 70 percent of the total cases for the year. The ethnic mix of cancer patients was 92 percent white, 6 percent African-American and 2 percent other ethnicities. Seventy-five percent of cancer patients diagnosed in 2017 were between the ages of 50 and 79.

Of the 2,490 analytic cases diagnosed in 2017, 56 percent reside in the tri-county region including Peoria, Tazewell and Woodford counties. An additional 17 percent of the analytic cases resided in LaSalle, Fulton and Knox Counties. The remainder comes from various bordering counties throughout Central Illinois.

Stage 0 or in-situ cancer accounted for 8 percent of cases. Stage 1 cancer comprised 28 percent, and Stage 2 comprised 16 percent of the cases. Eleven percent of cases were Stage 3, and Stage 4 accounted for 18 percent. The stage of cancer was unknown for 6 percent of patients. No applicable staging systems exist for the remaining 13 percent of cases.

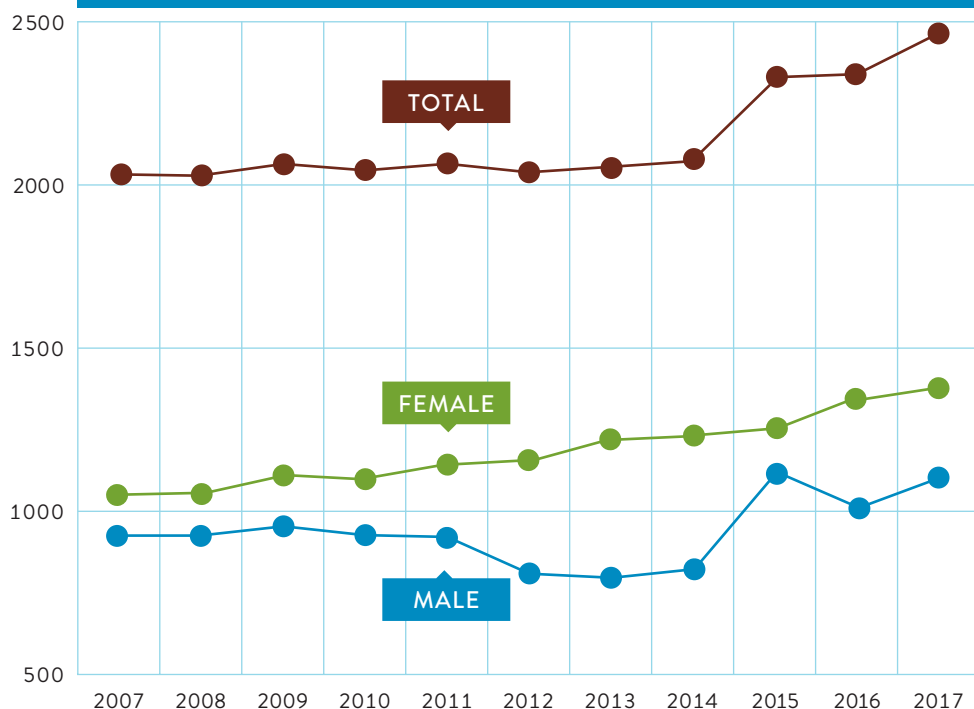
Cancer-directed surgery comprised the only treatment for 29 percent of the cases in 2017. Radiation therapy alone was received by 6 percent of patients. Chemotherapy

alone was received by 4 percent of patients. The two highest multi-modality therapy were a combination of either surgery and hormone therapy or surgery, hormone therapy and radiation therapy for a total of another 11 percent. The remainder of patients received some other form of treatment or multimodality treatment as their first course of treatment.

The importance of multimodality treatment is stressed at the multidisciplinary cancer conferences and tumor boards. All conferences include multidisciplinary physician attendance and have become an excellent forum for decision-making relative to individual patient treatment as well as for the dissemination of information relative to progress in cancer management. A total of 1,364 prospective cancer cases were discussed, representing 55 percent of the newly diagnosed cancer cases.

NEW CANCER CASES

OSF HEALTHCARE SAINT FRANCIS MEDICAL CENTER 2007-2017



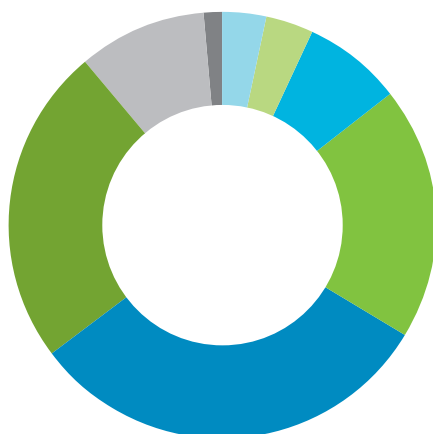
BODY SYSTEM SITES

SITE	COUNT (N)	PERCENT
Lip	1	0.04%
Tongue	12	0.48%
Salivary Glands	1	0.04%
Floor of Mouth	1	0.04%
Gum & Other Mouth	3	0.12%
Nasopharynx	2	0.08%
Tonsil	7	0.28%
Oropharynx	3	0.12%
Hypopharynx	2	0.08%
Other Buccal Cavity & Pharynx	4	0.16%
Esophagus	41	1.65%
Stomach	27	1.08%
Small Intestine	9	0.36%
Cecum	19	0.76%
Appendix	8	0.32%
Ascending Colon	17	0.68%
Hepatic Flexure	7	0.28%
Transverse Colon	18	0.72%
Splenic Flexure	4	0.16%
Descending Colon	9	0.36%
Sigmoid Colon	25	1.00%
Large Intestine, NOS	6	0.24%
Rectosigmoid Junction	8	0.32%
Rectum	58	2.33%
Anus, Anal Canal & Anorectum	8	0.32%
Liver	29	1.16%
Intrahepatic Bile Duct	2	0.08%
Gallbladder	8	0.32%
Other Biliary	9	0.36%
Pancreas	56	2.25%
Retroperitoneum	1	0.04%
Peritoneum, Omentum & Mesentery	4	0.16%
Other Digestive Organs	2	0.08%
Nose, Nasal Cavity & Middle Ear	4	0.16%
Larynx	17	0.68%
Lung & Bronchus	464	18.63%
Trachea, Mediastinum & Other Respiratory Organs	1	0.04%

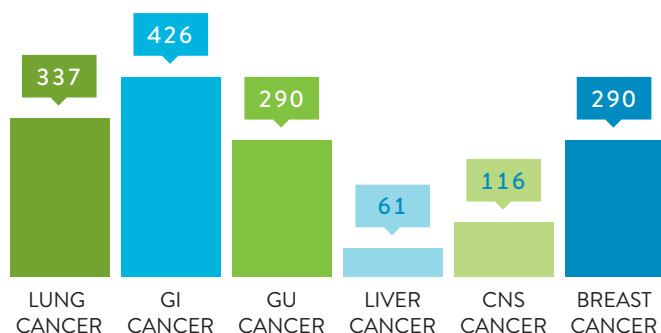
Bones & Joints	4	0.16%
Soft Tissue (including Heart)	4	0.16%
Melanoma -- Skin	69	2.77%
Other Non-Epithelial Skin	7	0.28%
Breast	485	19.48%
Cervix Uteri	34	1.37%
Corpus Uteri	123	4.94%
Uterus, NOS	6	0.24%
Ovary	24	0.96%
Vagina	1	0.04%
Vulva	11	0.44%
Other Female Genital Organs	4	0.16%
Prostate	223	8.96%
Testis	7	0.28%
Penis	2	0.08%
Urinary Bladder	66	2.65%
Kidney & Renal Pelvis	125	5.02%
Ureter	6	0.24%
Eye & Orbit	3	0.12%
Brain	56	2.25%
Cranial Nerves Other Nervous System	61	2.45%
Thyroid	43	1.73%
Other Endocrine including Thymus	23	0.92%
Hodgkin - Nodal	16	0.64%
NHL - Nodal	76	3.05%
NHL - Extranodal	19	0.76%
Myeloma	11	0.44%
Acute Lymphocytic Leukemia	13	0.52%
Chronic Lymphocytic Leukemia	1	0.04%
Acute Myeloid Leukemia	18	0.72%
Acute Monocytic Leukemia	1	0.04%
Chronic Myeloid Leukemia	5	0.20%
Other Myeloid/Monocytic Leukemia	1	0.04%
Mesothelioma	4	0.16%
Kaposi Sarcoma	1	0.04%
Miscellaneous	40	1.61%
TOTAL	2,490	100.00%

AGE AT DIAGNOSIS 2017

AGE	PERCENT
0 - 29	3.37%
30 - 39	3.61%
40 - 49	7.51%
50 - 59	19.28%
60 - 69	31.20%
70 - 79	24.18%
80 - 89	9.72%
90+	1.12%



CANCER SERVICES PROGRAM AND MULTIDISCIPLINARY CONFERENCES



Cancer Registry

OSF HEALTHCARE SAINT FRANCIS MEDICAL CENTER

The Cancer Registry is part of the cancer program at OSF HealthCare Saint Francis Medical Center and functions under the guidance of the Cancer Committee in accordance with standards set by the American College of Surgeons' Commission on Cancer. Cancer registration is the data and monitoring mechanism of the hospital cancer program. The Registry assures that complete and accurate data is collected and maintained for each cancer patient. The Cancer Registry is responsible for reviewing records of all patients with active malignant disease and benign central nervous system tumors and for maintaining a database of all newly diagnosed and/or treated cancers. The Cancer Registry database contains patient identifiers and characteristics (age, race, sex, marital status and occupation), cancer/tumor characteristics (site, histology and AJCC stage of disease at diagnosis), treatment received, and follow-up information. The Cancer Registry is part of the Quality and Safety Department, and the database serves as a vital tool for programmatic and administrative planning,

research and monitoring patient outcomes. Since its reference date of January 1, 2002, more than 34,500 cases have been accessioned into the Registry. The Registry follows all analytic patients on an annual basis and maintains a follow-up rate of 80 percent or greater for patients accessioned into the registry since 2002 and 90 percent or greater for patients accessioned into the registry in the last five years. The current follow-up rate for patients since 2002 is 89 percent and the follow-up rate for the last five years is 96 percent. The Registry also fulfills data requests from physicians and other cancer-related organizations while maintaining strict patient confidentiality. Data requests are welcomed and encouraged. Seventeen data requests were completed in 2017.

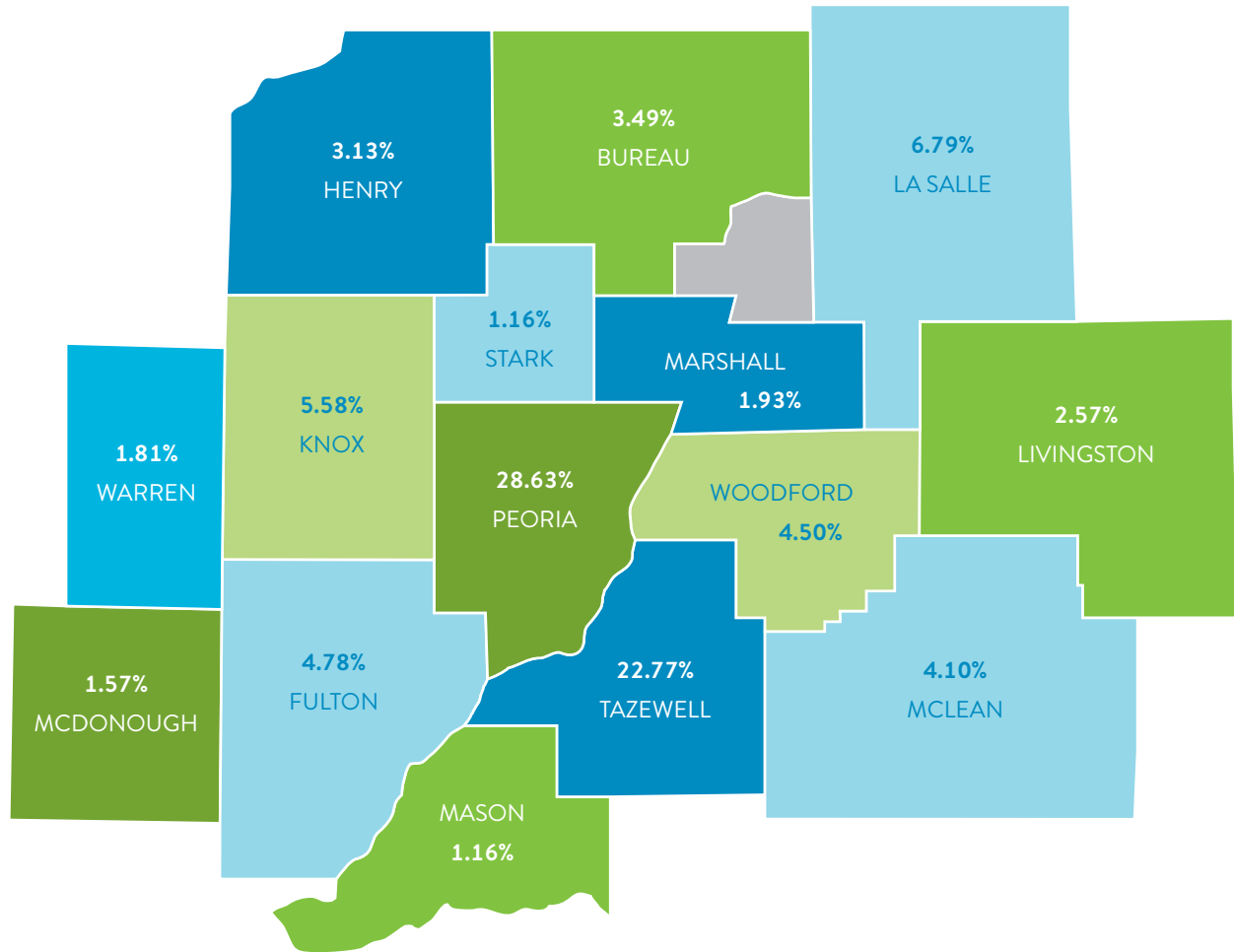
The Registry is also responsible for coordinating the Weekly System Specific and Prospective Breast Cancer Tumor Boards. OSF Saint Francis also holds weekly multidisciplinary cancer conferences for lung, gastrointestinal and genitourinary

cancers. Monthly conferences are held for liver, gynecologic and central nervous system (CNS) cancers. The Cancer Committee meets every other month to discuss and work toward accomplishing the standards required of an accredited Commission on Cancer program. Registry staff holds the committee positions of certified tumor registrar and cancer registry quality coordinator. The Registry staff work closely with the chairman of the Cancer Committee and the cancer liaison physician in planning Cancer Committee meetings and agendas.

The Cancer Registry submits monthly data to the Illinois State Cancer Registry and the Commission on Cancer's Rapid Quality Reporting System. Data is reported annually to the Commission on Cancer's National Cancer Database. Staff includes four registrars: Keren Greenawalt, BSN, MS, CTR; Kayla Clark, BSN, MS, CTR; Mary Jo Myers, BSN; and Jan Donlan, RN. Data requests can be made by contacting registry personnel at (309) 655-3734 or (309) 655-2421.



COUNTY AT TIME OF DIAGNOSIS



TOP 10 SITES BY SEX

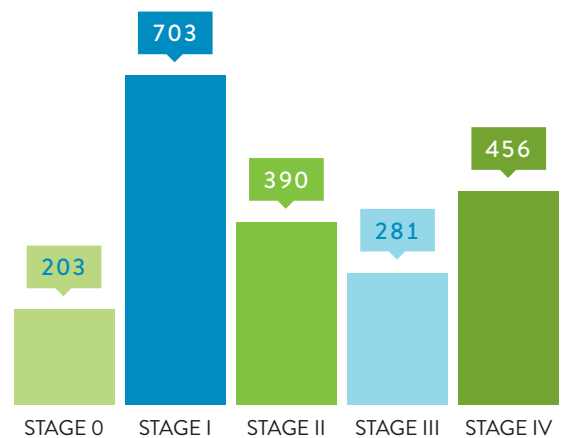
SITE	WOMEN	MEN
Colon	56	57
Bronchus & Lung	220	245
Skin	42	35
Breast	475	11
Corpus Uteri	123	0
Prostate Gland	0	223
Kidney	39	80
Bladder	18	48
Brain	29	31
Lymph Nodes	36	53



WOMEN - 1038

MEN - 783

AJCC AT DIAGNOSIS





2015 DATA

Prepared by
Richard Anderson, MD
Cancer Liaison Physician
September 2018

Cancer Program Practice Profile Reports (CP3R)

These Commission on Cancer's (CoC) Cancer Program Practice Profile Reports (CP3R) demonstrate that improvements in data quality and patient care are possible when the entire cancer committee supports system-level enhancements to ensure complete and precise documentation.

CP3R currently reports estimated performance rates of 23 quality measures from 10 primary sites including breast, colon, rectum, lung, cervix, gastric, ovary, endometrium, bladder and pediatric kidney cancer.

BLADDER

- At least two lymph nodes are removed in patients under 80 undergoing partial or radical cystectomy

CoC Standard: N/A
OSF Saint Francis: 100 percent

- Radical or partial cystectomy; or tri-modality therapy (local tumor destruction/ excision with chemo & radiation therapy) for clinical stage T2-4N0M0 patients with urothelial carcinoma of bladder, first treatment within 90 days of diagnosis

CoC Standard: 90 percent
OSF Saint Francis: 100 percent

- Neoadjuvant or adjuvant chemotherapy recommended or administered for patients with muscle invasive cancer undergoing radical cystectomy

CoC Standard: N/A
OSF Saint Francis: 100 percent

BREAST

- Radiation therapy is administered within one year of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer

CoC Standard: 90 percent
OSF Saint Francis: 98 percent

- Tamoxifen or aromatase inhibitor is recommended or administered within one year of diagnosis for women with AJCC T1c or Stage IB - III hormone receptor positive breast cancer

CoC Standard: 90 percent
OSF Saint Francis: 93 percent

- Radiation therapy is recommended or administered following any mastectomy within one year of diagnosis of breast cancer for women with at least four positive regional lymph nodes

CoC Standard: 90 percent
OSF Saint Francis: 91 percent

- Image or palpation-guided needle biopsy to the primary site is performed to establish the diagnosis of breast cancer

CoC Standard: 90 percent
OSF Saint Francis: 99 percent

- Breast conservation surgery rate for women with AJCC clinical Stage 0, 1, or 2 breast cancer

CoC Standard: N/A
OSF Saint Francis: 63 percent

- Combination chemotherapy is recommended or administered within four months of diagnosis for women under 70 with AJCC T1cN0, or stage 1B-3 hormone receptor negative breast cancer

CoC Standard: N/A
OSF Saint Francis: 100 percent

CERVIX

- Use of brachytherapy in patients treated with primary radiation with curative intent in any stage of cervical cancer

CoC Standard: N/A
OSF Saint Francis: 89 percent

- Chemo administered to cervical cancer patients who received radiation for stages 1B2-4 cancer or with positive pelvic nodes, positive surgical margin and/or positive parametrium

CoC Standard: N/A

OSF Saint Francis: 100 percent

- Radiation therapy is completed within 60 days of initiation of radiation among women with any stage of cervical cancer

CoC Standard: N/A

OSF Saint Francis: 100 percent

COLON

- At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer

CoC Standard: 85 percent

OSF Saint Francis: 86 percent

- Adjuvant chemo is recommended or administered within four months of diagnosis for patients under age 80 with AJCC stage 3 (lymph node positive) colon cancer

CoC Standard: N/A

OSF Saint Francis: 94 percent

ENDOMETRIUM

- Chemo and/or radiation administered to patients with Stage 3C or 4 Endometrial cancer

CoC Standard: N/A

OSF Saint Francis: 100 percent

- Endoscopic, laparoscopic or robotic surgery performed for all endometrial cancer (excluding sarcoma and lymphoma), for all stages except Stage 4

CoC Standard: N/A

OSF Saint Francis: 94 percent

GASTRIC

- At least 15 regional lymph nodes are removed and pathologically examined for resected gastric cancer

CoC Standard: 80 percent

OSF Saint Francis: 50 percent

Within the accepted 95 percent Confidence Interval due to the low number of cases for our facility (4)

KIDNEY (PEDIATRIC)

- At least one regional lymph node is removed and pathologically examined for primarily resected unilateral nephroblastoma

CoC Standard: N/A

OSF Saint Francis: 100 percent

LUNG

- Systemic chemotherapy administered within four months preoperatively or six months postoperatively, or it is recommended for surgically resected cases with pathologic lymph node-positive (pN1 and pN2) NSCLC

CoC Standard: 85 percent

OSF Saint Francis: 86 percent

- Surgery is not the first course of treatment for cN2, M0 lung cases

CoC Standard: 85 percent

OSF Saint Francis: 95 percent

- At least 10 regional lymph nodes are removed and pathologically examined for AJCC stage 1A, 1B, 2A and 2B resected NSCLC

CoC Standard: N/A

OSF Saint Francis: 20 percent

OVARY

- Salpingo-oophorectomy with omentectomy, debulking/ cytoreductive surgery, or pelvic exenteration in Stages 1-3C ovarian cancer

CoC Standard: N/A

OSF Saint Francis: 82 percent

RECTUM

- Pre-op chemo and radiation therapy are administered for clinical AJCC T3N0, T4N0, or Stage 3; or post-op chemo and radiation therapy administered within 180 days of diagnosis for clinical AJCC T1-2N0 with pathologic AJCC T3N0, T4N0, or Stage 3; or treatment is recommended; for patients under age 80 receiving resection for rectal cancer

CoC Standard: 85 percent

OSF Saint Francis: 94 percent





Dr. Jeffrey Klopfenstein, MD

NEUROSURGERY

OSF HealthCare Saint Francis Medical Center is one of the largest central nervous system (CNS) cancer centers in the state of Illinois and the only center of its kind outside the major metropolitan areas of Chicago and St. Louis. This in large part is a product of two key variables: 1) The multidisciplinary interaction between well-trained providers affiliated with multiple local organizations including OSF HealthCare Illinois Neurological Institute, Illinois Cancer Care, and the University of Illinois College of Medicine and 2) a modern and expanding infrastructure that allows those providers to utilize the most technologically advanced tools to care for our cancer patients.

The neurosurgical management of CNS tumors is a cooperative effort involving several neurosurgeons, each of whom are fellowship trained in their respective disciplines. Andrew Tsung, MD, serves as director of the brain tumor center and is largely responsible for the management of intraxial CNS tumors and non-skull base benign lesions. Dan Fassett, MD, is a fellowship trained spine surgeon who provides surgical management for patients with spinal tumors, many of whom require complex spinal instrumentation for reconstruction. I care for patients with benign and malignant complex skull base tumors and also serves as the neurosurgeon component of the Gamma Knife team alongside Dr. James McGee with radiation oncology.

Each of the aforementioned neurosurgeons is also involved in the radiotherapeutic management of our cancer/tumor patients, working with the OSF HealthCare radiation oncology team to devise the best and most advanced treatment plans for each patient's unique needs. The majority of treatment

plans for CNS patients (and essentially all radiosurgical plans) are developed via a multidisciplinary approach. This cross-discipline, cooperative approach is vital to providing the best possible care for our patients as it brings to the table the unique expertise of multiple providers of different specialties. Available to those providers are the most advanced radiation oncology tools including the high definition TrueBeam linear accelerator system with 6 degree of freedom treatment couch and the Gamma Knife Perfexion. We collaborate extensively with the Northwestern Medicine Chicago Proton Center in Warrenville.

Finally, across the U.S. and arguably the globe, the most skilled physicians often if not always are associated with academic centers and are involved with research and education of residents. The OSF INI neurosurgery members are primarily committed to the academic mission and hold faculty appointments at the University of Illinois College of Medicine Peoria. With that

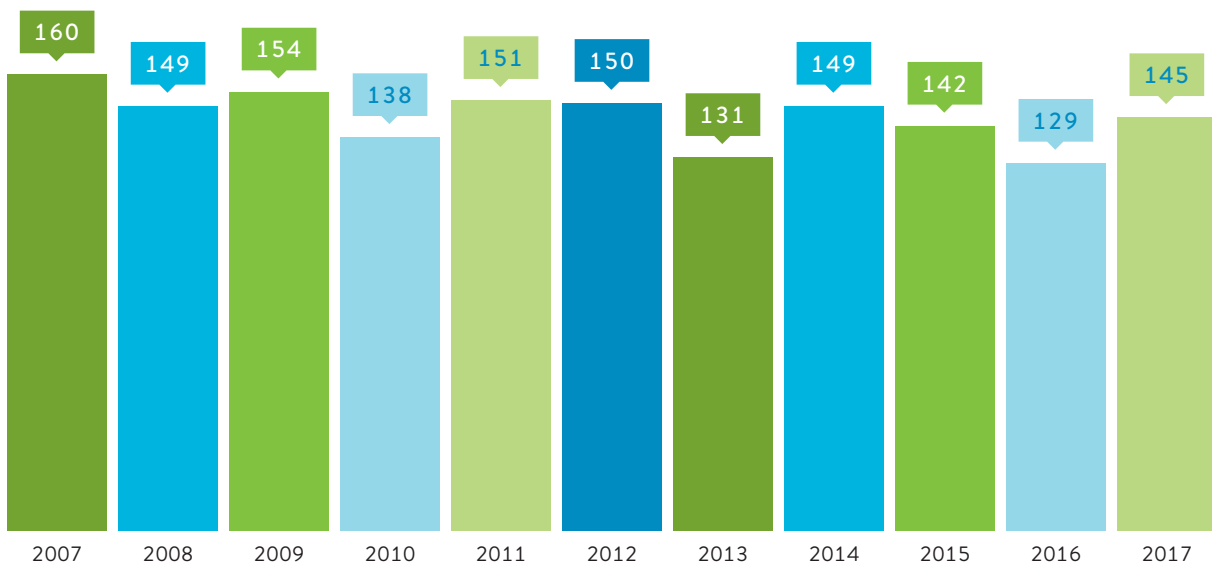
comes the responsibility and privilege of the management and education of our UICOMP neurosurgery residents and rotating medical students. Additionally, each faculty member is committed to research both clinical and basic science. The brain tumor lab located at UICOMP and lead by Dr. Andrew Tsung is heavily grant supported and on the leading edge of CNS tumor research.

In short, CNS cancer care at OSF is truly world class and quite unique for its location. The quality of and academic commitment by its providers, the advanced tools available to those providers and a compassionate approach to patient care throughout OSF result in an approach to CNS oncology that is second to none.

Jeffrey D. Klopfenstein, MD
Neurosurgery



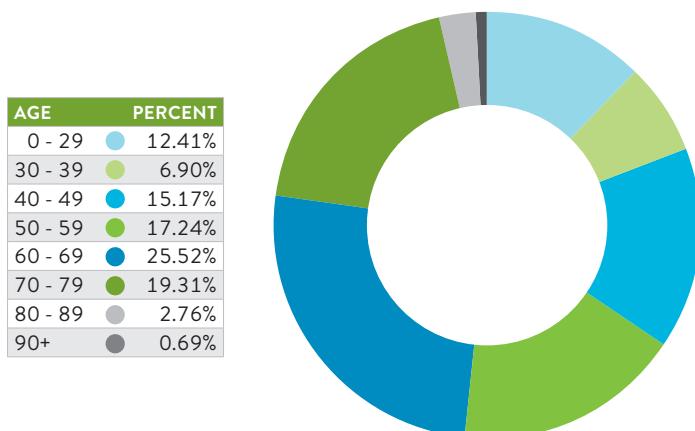
CNS - CANCER CASES



CNS - FIRST COURSE TREATMENT 2017



CNS - AGE AT DIAGNOSIS 2017



Cancer Program Services

OSF HEALTHCARE SAINT FRANCIS MEDICAL CENTER

629 ACUTE MEDICAL/SURGICAL BEDS • 19 SPECIALTY CANCER CARE UNIT BEDS • WEEKLY SITE SPECIFIC • PROSPECTIVE BREAST AND CENTRAL NERVOUS SYSTEM CANCER CONFERENCES • MONTHLY PEDIATRIC CANCER CONFERENCE • WEEKLY CANCER MULTIDISCIPLINARY CONFERENCE • CERTIFIED BY AMERICAN COLLEGE OF SURGEONS COMMISSION ON CANCER • CERTIFIED BY NATIONAL ACCREDITATION PROGRAM FOR BREAST CENTERS

BOARD-CERTIFIED PHYSICIAN ONCOLOGY SPECIALISTS

- Medical Oncologists
- Radiation Oncologists
- Gynecologic Oncologists
- Pediatric Oncologists
- Specialists in Pathology, Hematology, Endocrinology, Urology, Pulmonology, Breast Imaging, Thoracic Imaging, Pediatric Surgery, Thoracic and General Surgery

OTHER ONCOLOGY SPECIALISTS

- Certified Oncology Nurses
- Certified Pediatric Oncology Nurses
- Cancer Psychosocial Counselor
- Clinical Case Manager
- Medical Physicist
- Registered Radiotherapy and Mammography Techs
- Certified Tumor Registrars
- Palliative Care Team
- Navigators
- Clinical Dietitian

CANCER CARE UNIT

- Certified Oncology Nurses
- Chemotherapy Administration
- Pastoral Care
- Home Healthcare Planning
- Sun Patio
- Pain Management
- Symptom Management
- Case Management
- Patient and Family Library
- Bedside Tablet
- Aromatherapy Patches

RADIATION ONCOLOGY

- TrueBeam XLT Linear Accelerator with IMRT and IGRT Including Body Stereotactic RT and Body Radiosurgery
- RapidArc
- RIT-Radioimmunotherapy
- PET-CT Radiotherapy Simulator
- Computerized Four-Dimensional Dosimetry and Treatment Planning
- Linear Accelerator: IMRT, IGRT, Respiratory Gating, Triggered Imaging
- Gamma Knife PERFEXION Radiosurgery
- Complete Brachytherapy Service:
 - High Dose Rate Brachytherapy to Breast, Prostate, GYN and Head and Neck Cancers
 - Low Dose Rate Iridium Treatments
 - Accelerated Partial Breast Brachytherapy

INPATIENT SURGERY FACILITIES

- da Vinci® Xi Robotic Surgery System
- iMRI – Intraoperative MRI for Brain Tumor Resection
- Thoracic Center of Excellence
- Pediatric Surgery
- Specialty Acute and Tertiary Care Services

PHARMACY

- St. Jude Satellite Pharmacy
- Laminar Flow Bio Safety Cabinet for Prep of Chemotherapy Agents
- Pharmacokinetic Drug Monitoring
- Adverse Drug Event Screening/Monitoring
- Drug Interaction/Antibiotic Review
- Drug Culture/Sensitivities Review
- Patient Controlled Analgesic Program
- Pharmacist Available 24 Hours a Day
- Pharmacist Consult and Monitoring
- Renal Function Screening
- Chemotherapy Dose Verification
- Oncology Pharmacist Specialist

LABORATORY

- Oncotype DX - Cancer Genetic Assays
- Prolaris Prostate Cancer Genetic Assay
- Carcinoembryonic Antigen
- CA 125, CA 15-3 and CA 19-9
- PSA and Other Tumor Markers
- Flow Cytometry
- Her2/Neu Protein
- Estrogen/Progesterone Receptor
- Surgical Pathology/Cytology
- Automated Hematology and Coagulation
- Microbiology, Parasitology, Mycobacteriology
- Blood Bank Transfusion Service
- Automated Blood Chemistry Analysis
- Automated Electrophoresis
- TEG (Thromboelastography)
- DNA Mismatch Repair Proteins

MULTIDISCIPLINARY CANCER CONFERENCES

- Prospective Breast Cancer
- Pediatric Cancers
- Lung Cancer
- GU (Prostate and Bladder) Cancers
- GI (Gastrointestinal) Cancer
- Central Nervous System Cancers
- Liver Cancer
- Weekly Site Specific (rare cancers)
- Gamma Knife Clinic
- Spine Cancer Clinic
- Gynecological Cancer

OUTPATIENT SURGERY/ SPECIALTY SERVICES

- SIR-Spheres for Liver Cancer
- Bone Marrow Biopsies
- Paracentesis, Thoracentesis
- Laser Surgery
- Incisional and Excisional Biopsies
- Major and Minor Procedures
- Fine Needle Aspirations

HOSPICE

- Richard L. Owens Hospice House
- Pain Management
- Symptom Control
- Personal Care
- Social Worker
- Spiritual Support
- Volunteer Services
- Grief Support
- Registered Nurses
- Registered Dietitian

REHABILITATION AND ANCILLARY SERVICES

- Nutrition and Dietary Services
- Occupational Therapy
- Pastoral Care
- Physical Therapy
- Speech Therapy
- Lymphedema Clinic
- Enterostomal Teaching
- Lymphedema Therapy

DIAGNOSTIC IMAGING

- Angiography
- Preoperative Embolization/Devascularization of Tumors
- Ultrasonography
- Interventional Intrarterial Chemotherapy of Tumors
- Magnetic Resonance Imaging
- Nuclear Medicine
- Multidetector Spinal Computerize Tomography with Multiplanar and 3-D Reconstruction Capabilities
- Radiology-Directed Needle Biopsies
- Interventional Radiologic Techniques for Relief of Biliary and Urological Obstruction
- Localization and Drainage of Neoplastic and/or Infected Fluid Collections
- Tag Monoclonal Antibodies for Imaging Ovarian and Colorectal Cancers
- Functional MRI Brain Studies for Tumor Resection
- Positron Emission Tomography
- CT/MR Perfusion Studies
- Board Certified, Fellowship Trained, Subspecialties in Nuclear Medicine, Body Imaging, IR, Neuroradiology, Musculoskeletal, Breast Imaging and Pediatric Radiology
- Percutaneous and Open Cryoablation and Radiofrequency Ablation of Primary and Metastatic Neoplasms

COMMUNITY SERVICES

- Smoking Cessation Program
- Public Cancer Education Programs
- Nutrition Classes at RiverPlex

RIVERPLEX RECREATION AND WELLNESS CENTER

- Medically Based Exercise Program
- Combating Fatigue Program
- Weight Loss Center
- Personalized Health Risk Assessment with Clinical Testing
- Individual Consults with Health Professionals

CANCER SCREENINGS

- Low Dose CT Lung Cancer Screenings
- Colonoscopy
- Virtual Colonoscopy
- Sigmoidoscopy
- Fecal Occult Blood Test
- 3D Mammography
- Tomosynthesis
- Skin Cancer Screening

SERVICES AVAILABLE

- Navigation
- Palliative Care
- Social Services
- Dietitian
- Financial Assistance
- Smoking Cessation
- Pulmonary Rehabilitation
- Pastoral Care
- Community Services
- Community Education
- Community Awareness

AMERICAN CANCER SOCIETY SERVICES

- (800) 227-2345 Available 24 Hours a Day, 7 days a week, 365 Days a Year
- cancer.org – Nationwide Website
- Road to Recovery for Free Transportation Services
- Free or Reduced-Cost Lodging Services
- Reach to Recovery, Peer One-On-One Support Services for Breast Cancer Patients
- Free Local Wig Boutique for Women Facing Hair Loss
- Assistance with Insurance, Financial Questions, Questions Regarding Your Diagnosis

OSF SAINT FRANCIS MEDICAL CENTER CANCER SUPPORT SERVICES

- Individual Counseling
- Family Counseling
- Support Groups
- Individual Nutrition Counseling
- Healthy Living Classes
- Therapeutic Massage

CENTER FOR BREAST HEALTH

- NAPBC Accredited Breast Center
- Dedicated MQSA Accredited Mammography Center
- Breast Imaging Center of Excellence Awarded by the American College of Radiology
- Digital Mammography/Tomography
- Breast Ultrasound
- Needle Core Biopsies
- Breast MRI
- Certified Mammography Technologists
- Fellowship Trained Radiology Physician Breast Imaging Specialists
- Registered Nurses Certified as Breast Cancer Patient Navigators
- Comprehensive Breast Center
- Pre-Operative Breast Surgery Class
- Beyond Breast Cancer Support Group
- Survivor for Life Program
- Family Education and Support Group
- Clinical Trials

PATIENT SUPPORT RESOURCES

- Breast Cancer Support Group
- Family Support Group for Leukemia, Lymphoma, Myeloma
- Patient-Family Library
- Just Breathe Support Group, a joint effort with UnityPoint Health, for people affected by lung cancer
- Connections Colorectal Cancer Support Group
- Cancer Support Services
- Survivorship
- Counseling
- Financial Counseling
- Dietitian
- Exercise Classes
- Cancer Survivor Retreats

Call (309) 308-0202 for more information on any of the support resources.



Dr. Francois Geoffroy, MD

MEDICAL ONCOLOGIST/NEURO-ONCOLOGIST
ILLINOIS CANCERCARE

I shall summarize Illinois CancerCare's (ILCC) role and impact on the treatment of primary and metastatic neoplasms involving the central nervous system. There are four main points: the day to day management and treatment of primary CNS neoplasms, our clinical trials availability, our involvement with the Gamma Knife clinic and OSF HealthCare Illinois Neurological Institute regarding treatment of metastatic lesions, and finally our interactions with neuro-pathology with the refinement of molecular classification of primary brain lesions as it evolves and further defines optimal treatment.

SECTION 1 **MANAGEMENT AND TREATMENT** **OF PRIMARY BRAIN CANCERS AT** **ILLINOIS CANCERCARE**

The variety of lesions seen for treatment includes the following: the full spectrum of astrocytomas, grades 1 through 4 (glioblastoma, anaplastic astrocytoma, diffuse glioma, and pilocytic astrocytoma), anaplastic pilocytic astrocytomas, primitive neuroectodermal tumor, primary central nervous system lymphoma, meningioma, the full variety of metastatic cancers to the central nervous system, pleomorphic xanthocytoma, and WHO grades 2/3 oligodendroglioma.

Illinois Cancer Care provides neuro-oncology treatment in our main Peoria office as well as our satellite clinics of Galesburg, Bloomington, Princeton, Peru and Ottawa. With the cooperation of our satellite-based advanced practice nurses (APNs) and medical oncologists, we are able to coordinate care for primary brain cancers in each of these clinics, which allows us to streamline patient care, minimize travel time to appointments and facilitate the treatment process. As a team

we are able to monitor and evaluate patients close to their homes. Patients remain in touch with me with periodic visits to the main office particularly during decision points and reevaluations scans.

Our pharmacy staff continues to provide access to neuro-oncology medications as well as support for copay assistance when needed and education regarding side effects. All patients undergo teaching for their chemotherapy with a focus on scheduling and dosing, potential drug interactions, and potential side effects. Chemotherapy teaching occurs in all our satellite clinics; the goal is to maximize compliance and minimize potential toxicities. Care is taken to coordinate drug treatment with radiation administration and to work closely with radiation oncology and neurosurgery.

We have established, with the tireless dedication of our physicians and APNs as well as the nurses and hospital staff, a smooth and efficient system to treat our primary central nervous system lymphoma patients who require high dose methotrexate based chemotherapy. This can only be administered within the confines of a hospital and requires specific knowledge and training. The seamless interplay between the pharmacy, the oncology inpatient nurses and the advanced practice nurses of ILCC continues to ensure high quality care and a wonderful patient experience.

The brain tumor conference at OSF HealthCare Saint Francis Medical Center is a working tumor board. This platform allows us to present patient cases rapidly and engage our colleagues to discuss these cases thereby optimizing our ability to treat our patients in a timely fashion.

SECTION 2 **TREATMENT OF METASTATIC** **CANCER TO THE CENTRAL** **NERVOUS SYSTEM**

Metastatic disease involving the central nervous system outpaces primary

malignancies by a factor of 10-12. Working closely with our radiation oncology and neurosurgery colleagues through the Gamma Knife/Stereotactic Radiation Surgery (SRS) clinic allows us to offer our patients state-of-the-art treatment for their metastatic brain disease. Treatment options include surgical interventions, stereotactic radiation, whole brain radiation and drug treatments. Optimal therapy can only be provided by the cooperation of the diverse members of the neuro-oncology community; I believe this has continued to expand in Peoria and allowed us to provide outstanding care for our patients.

SECTION 3 **CLINICAL TRIALS AT ILLINOIS** **CANCERCARE**

There are two ongoing clinical trials currently available through Illinois Cancer Care for our primary brain cancer patients. The first is a trial for the initial treatment of grade 3/4 gliomas through our affiliation with the University of Chicago for the addition of a drug acetazolamide to standard of care in a phase I setting. The second is a phase III trial for WHO grade 2 and 3 patients with oligodendroglioma randomizing them to either radiation followed by PCV chemotherapy or temozolomide concomitant with radiation followed by 12 cycles of adjuvant temozolomide. In addition to these active clinical trials, there have been two other trials in patients with advanced lung cancer and brain metastases involving sparing of the hippocampus during radiation in order to see whether this will in fact minimize memory loss, a potential toxicity of radiation. The first of these trials for patients with non-small cell lung cancer accrued four patients in Peoria. It is now closed to further accrual and results are awaited. The second trial was for the far less common small cell carcinoma to which we did not accrue any patients.

Finally, we have a clinical trial for our glioblastoma patients experiencing fatigue to try to improve their quality of life. As with all clinical trials, it is hoped that they will impact survival positively and change the standard of care for our patients.

SECTION 4

MOLECULAR CLASSIFICATION OF BRAIN TUMORS

An important aspect in oncology these past 10 years has been the exponentially expanding knowledge and understanding of the molecular and genetic alterations that actually define cancer. Neuro-oncology has been positively impacted by this progress, and we continue our working relationship with neuro-pathologist, Dr. Sarah Bach, to ensure that molecular signatures are performed on cancer specimens as these define certain malignancies (oligodendrogliomas, for example, are currently defined by the WHO brain tumor classification as requiring both an IDH1 mutation and a 1p19q codeletion) as well as guide our treatment recommendations and protocol enrollment eligibility (the presence of MGMT promoter hyper-methylation in glioblastomas, for example).

The future beckons us to continue to expand our access to clinical trials for our patients. We shall strive to further enhance our relationships with neurosurgery, radiation oncology and neuropathology as I believe the key to the quality of care we provide relates to the degree of interaction, communication and knowledge sharing that this relationship provides.

Dr. Francois J. Geoffroy, MD
Medical Oncologist / Neuro-Oncologist
Illinois CancerCare



2018 CANCER PROGRAM ANNUAL REPORT

Special thanks to:

James McGee, MD, SM

References:

- OSF HealthCare Saint Francis Medical Center Cancer Registry
- American College of Surgeons Commission on Cancer, National Cancer Data Base

This report is available online:
osfsaintfrancis.org

This report prepared by
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Kayla Clark, BSN, MS, CTR

For more information about
cancer services and programs at
**OSF HealthCare Saint Francis
Medical Center:**
(309) 624-4505

OSF HealthCare Saint Francis Medical Center Directory

Cassy Horack
Vice President of Quality and Safety

James McGee, MD, SM
Radiation Oncology
(309) 655-3258

Cancer Care Unit
(309) 655-7191

Cancer Registry
(309) 655-3734

Center for Breast Health
(309) 683-5009

Home Health Services
(309) 683-7700

Hospice
(309) 683-7700

**Cancer Multidisciplinary Clinics
Cancer Support Services**
(309) 308-0200

Lymphedema Services
(309) 624-8575

Pastoral Care
(309) 655-2084

Rehabilitation
(309) 624-8575

Social Work Services
(309) 655-2311

St. Jude Midwest Affiliate
(309) 624-4945

Wellness Services
(309) 282-1600



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HEALTHCARE



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