From Diagnosis to Survivorship
2017 CAMC Cancer Services Report
Diagnosis, treatment and spreading the word

A patient’s own words

My name is Angi Swearingen. I am 46 years old. If I had waited until I was 50 years old, which is the recommended age for the first screening colonoscopy in individuals with no history of colon cancer, I probably wouldn’t have survived.

I became sick after returning from a mission trip in Mexico in June 2016. For the next two months, I made several visits to my doctor who ordered a series of tests, and all would return normal. One weekend the pain was so severe that I went to the emergency room. The results were vague and the CT scan was inconclusive. Even though I am extremely cautious on our mission trips, I honestly thought I had acquired a parasite.

On Sept. 2, I was on the way to the hospital to have an upper endoscopy and a colonoscopy, and I remember praying even then that I would be healed of all parasites. I had no idea that I would awaken to my gastroenterologist kneeling beside my bed to tell me that I had cancer that he would call my surgeon, and that I would at least need chemotherapy. There were way too many c’s in those sentences for me. I can’t even begin to describe what that news is to someone who has never been diagnosed with cancer.

The next business day, I was getting a full CT scan and seeing my surgeon. An appointment was made for surgery. Shortly afterward, I had the right side of my colon removed.

Through the pathology report, I found out that the cancer was approximately 3 inches long, yet all 95 lymph nodes taken out were negative. “Hallelujah,” was all I could say. I still don’t know how something that large could not have made it to my lymphatic system without God stopping it. I should have opened up my story with… I love Jesus. I have an amazing family that I adore, consisting of two daughters, one son-in-law, one son-in-law on the way, and two grand babies. And, just in case you didn’t hear it the first time, I love Jesus.

I am human and went through all the normal fears and doubts that come with the words cancer and chemo. I grieved like anyone would. I knew this experience would change me. From this moment on, I would never be the same. I had a choice. When this was all over, was I going to be better or worse? After meeting with the oncologist and discovering that chemotherapy was a definite yes, I grieved all over again. Until this point, I had been praying to be healed quickly without chemo and for a “button” to
be hit to fast forward me through this season of my life. It was then that I changed my prayer and asked God to help me enjoy this journey. If this was going to be my new ministry, then I wanted to enjoy it. Why not? If all things are possible with God, and I know they are, why couldn’t this be possible?

As I am writing this, I am three days away from being halfway through chemotherapy. I can honestly say what I have experienced has had His grace all over it. Because the cancer stage was 2, I only have one chemotherapy drug instead of two. I am experiencing fewer side effects than I thought possible. In fact, I’m gaining weight. I actually enjoy going to the Christ Center (my new name for the Cancer Center). The staff at the infusion center is amazing. They are truly a breath of fresh air in the midst of a very frightening time for many. I ask every time before they access my port if we can pray, and they never turn me down. I applaud them and brag on their attitudes and professionalism every chance I get.

I am blessed. We just had the best Christmas ever —nothing like a little cancer to put everything in perspective. Seriously, my faith has grown to new heights. I am downright grateful for my family and all that my kids have sacrificed through this experience. I am overwhelmed with the generosity that I have received from many ladies, whom I call girlfriends.

I have been so impressed with all the individuals and different churches who have prayed and continue to pray for me and my family. The outpouring of community is nothing short of beautiful.

I am different. If I were given the chance to go back to September and have all cancer erased, I wouldn’t change a thing. I would’ve missed the wounds, but I would’ve also missed seeing the wonders in the wounds. I would’ve missed the miracles, the grace and the beauty.

However, not all experiences are like mine. Cancer is a horrible disease, with colorectal cancer being the second leading cause of cancer death in the U.S. The survival rates drastically reduce in stages 3 and 4. Thankfully, through screening and education, in many cases, it is preventable.

I don’t know where my story ends, but I do know a part of it involves educating and encouraging people to have routine colonoscopies.
CAMC Cancer Center

The Cancer Center is for adult medical oncology and hematology care. A DNV (Det Norske Veritas) accredited facility, the CAMC Cancer Center provides personalized multidisciplinary cancer care, access to innovative clinical cancer research trials and hematological care for a diversity of benign and malignant conditions in a caring environment.

The Commission on Cancer survey was conducted in April 2017. CAMC received an accreditation status for three years without contingency.

The CAMC Cancer Center is accredited by the QOPI Certification Program (QCP™), an affiliate of the American Society of Clinical Oncology (ASCO). The Quality Oncology Practice Initiative (QOPI) was designed by the American Society of Clinical Oncology (ASCO) in recognition of the importance of integrating continuous quality improvement into patient-centered clinical practice. This voluntary program allows facilities to monitor quality initiatives against benchmarks established through ASCO’s member oncologists and quality experts using clinical guidelines and published standards.

The Cancer Center:

- Provides infusion for an average of 60-70 patients daily.
- Teays Valley office offers hematology/oncology services and infusion for patients in that area.
- Features a majority of nurses certified in oncology.
- Nurses continue to participate with the state Oncology Nursing Society chapter.
- Has two board certified oncology pharmacists.
• Physicians help educate internal medicine residents of the West Virginia University School of Medicine Charleston-Division. Trainees also have the opportunity to work with Cancer Center staff physicians on research projects leading to academic presentations/publications integral to their training requirements.

• CAMC’s Clinical Cancer Research activities have been central to providing state-of-the-art cancer care opportunities for our patients for more than 25 years.

New multidisciplinary clinic facilitates comprehensive, coordinated care for breast cancer patients

When a patient receives a breast cancer diagnosis, it can be a scary and confusing time. In addition to coping with the emotional and psychological effects, patients must prepare for the physical treatment of their disease, which can include chemotherapy, radiation and surgery. Keeping track of all the doctors, appointments and mountains of information can be overwhelming.

At the CAMC Breast Center, a new multidisciplinary clinic is now available that allows for more collaborative, comprehensive care of breast cancer patients. Breast cancer is one of the most commonly diagnosed cancers in West Virginia, but it is also highly treatable.

“The good news is patients have many treatment options available, but every case is different and it can be difficult to try to figure out which one is right for you,” said Missy Bohan, RN, manager of the Breast Center. “The multidisciplinary clinic is available to help patients make those decisions with a team of experts and to guide them throughout their cancer journey.”
“Treating cancer is a multi-stage process and involves the collaboration of many medical disciplines to provide comprehensive care for the patient, said Beverly Farmer, RN, CAMC Cancer Center Director. “CAMC has found a way to provide that care in a more streamlined and collaborative way for our breast cancer patients.”

The CAMC Breast Center Multidisciplinary Clinic operates out of the Breast Center on the third floor of the CAMC Cancer Center in Kanawha City. After a patient receives a positive diagnosis from a biopsy, her case will be reviewed by a multidisciplinary group of physicians who will discuss each case in-depth and develop an individualized treatment plan.

The patient is then scheduled the next week to come to the clinic and meet one-on-one with each of the doctors on her care team, which can include a breast surgeon, radiation oncologist, medical oncologist, plastic surgeon, genetic counselor and patient navigators. The patient is seen again in the clinic following her surgery or other treatment to determine next steps.

Between clinic meetings with physicians, patients are encouraged to rely on their patient navigator throughout treatment. Navigators are available to help answer questions, coordinate services and provide support.

“This type of clinic allows the patient to see all disciplines necessary for care and treatment in a single visit as opposed to multiple appointments,” Farmer said. “It gives patients and their families the opportunity to speak one-on-one with each of their doctors, ask questions and see the whole picture of their care.”

“The clinic allows for better coordination of care in a complex system,” Bohan said. “We want these patients to know that they’re not in this alone – we’re all here to help them every step of the way.”

Comprehensive Assistance with Resources and Education (CARE) Team

By Jennifer Hancock, PsyD, Psychologist

Coping with cancer can be incredibly stressful, and can cause many challenges, including completing complicated medical and insurance forms, figuring out how to pay the bills if one can’t work while undergoing treatment, arranging for transportation to treatment, and coping with anxiety and stress. Luckily the Comprehensive Assistance with Resources and Education (CARE) Team is here to help. Located on the first floor of the CAMC Cancer Center in the Patient Resource Center, this multi-disciplinary team consisting of nurse navigation, financial navigation, social work, psychology, nutrition, and spiritual care helps patients address stressors and barriers which may interfere with their cancer treatment and care. Patients can also obtain free information on their specific disease in the Patient Resource Center.
In 2017, the CARE Team has continued to expand support services for the patient and community. In an effort to promote physical activity and well-being, we offered Healthy Steps exercise classes. Healthy Steps is a medically based exercise program with published studies on the positive effects for cancer survivors, especially those having or at risk for lymphedema as a result of their therapy. The program has been successful for all cancer patients and survivors, and in people suffering from any chronic disease, people who are elderly, or anyone having difficulty with mobility, posture and energy levels, and weakened immune system. In 2017, two additional instructors were certified. One of our instructors attended the Healthy Steps Chantilly International Conference in Washington, D.C. To date, approximately 50 community members and patients have participated in this program.

Individual and group psychotherapy services are offered to patients, their caregivers and family members during and after treatment. Once patients complete treatment for their cancer, mixed emotions can follow: excitement that treatment is over, guilt for surviving when others have not, and fear of recurrence. Discussing these concerns with others who have had similar experience is beneficial. The survivorship groups are led by the Cancer Center psychologist, survivorship coordinator and a nurse navigator.

Weekly breast cancer survivorship groups were held for eight weeks, and then transitioned to ongoing monthly sessions with invited speakers on relevant topics (balance and lymphedema therapy, medical concerns presented by physicians, survivorship guilt and spirituality presented by the cancer center chaplain, prosthetic fittings, alternative therapies/holistic health, etc.). The monthly breast cancer survivorship groups with invited speakers are open to any breast cancer survivor regardless of where they are in the treatment trajectory. Eight-week intensive survivorship groups are planned to help any cancer survivor achieve their “new normal” as they adjust to life post-treatment.

Survivorship care has expanded as well. Breast cancer patients that are diagnosed and treated at CAMC have a survivorship visit and receive a care plan. All patients treated with a curative intent have survivorship visits and receive a care plan. Care plans include prevention and early detection of new and recurrent cancers, surveillance plan, interventions for long-term and late side effects of treatment, and coordination of care.

To promote support for patients and survivors, a communication workshop was held in June 2017. The event included a screening of “What to Say: Supporting Breast Cancer Patients and Survivors,” a video filmed by support group members. The event included topics such as what to say and do to help those going through the different stages of cancer, including diagnosis, treatment and survivorship. Our child psychologist presented on how to talk to children about cancer. Both presentations are available to patients for viewing during infusion on iPads.
Preventing cancer and identifying cancer in the early stages encompass goals for the CARE Team. In 2017, the CAMC Cancer Center organized the first Cancer Prevention and Screening Day. Approximately 250 community members participated in screenings, including colon, skin, lung, breast and prostate cancer screenings. We hope to educate the public about the importance of early detection and education. Our nurse navigator and social worker visited area income-based apartment complexes, offering colorectal screenings, smoking cessation counseling and advanced directives. The CARE Team also attended area health fairs to provide prevention education.

CAMC Cancer Center provides support for patients, survivors, family members and staff through our cancer center chaplain. Spiritual Care events for included the Inter-Faith Thanksgiving Service, Inter-Denominational Ash Wednesday Service, Inter-Faith Nurses’ Week Service of Blessing, and Inter-Denominational Cancer Center Christmas Caroling. Services offered include patient/family support, staff support, crisis intervention, prayer, rituals, sacraments, pastoral counseling, bereavement support and ethical consultations.

Referrals to the CARE Team are multi-faceted. An initial visit with the oncologist also includes a visit with a CARE team member who completes an assessment of any potential barriers or stressors which may impede care, and aids the patient in accessing resources. At oncology appointments, patients complete the Distress Thermometer, a screener to assess for distress related to various domains including practical and financial, emotional, spiritual and physical concerns. High distress scores trigger a consultation with the appropriate CARE team member. Patients can also call or stop in at the Patient Resource Center and speak with someone.

In addition to providing support services for adults, the CAMC Cancer Center offers help for children as well. Gigi’s Place is an area dedicated to the emotional and psychological well-being of children who have a loved one undergoing treatment or who have lost a parent to cancer. Counseling services are provided to children by a licensed child psychologist. Gigi’s Place was created in honor of a young mother who lost her battle with cancer.

To talk with someone from our CARE Team, please stop by the Patient Resource Center, call (304) 388-8612.

For more information about Gigi’s Place, call (304) 388-9690 or visit camc.org/cancercenter.
Patient support and community outreach

Patient support involves a team approach to improving the quality of life of patients and their families as they face the distress associated with a life-threatening illness. Services are offered through a variety of CAMC departments including education, palliative care, pastoral care and the cancer patient support program. Other resources including community agencies such as the American Cancer Society, hospice, WVDHHR and local, state and national patient and family support services also are utilized to meet psychological, social and economic challenges. Community outreach efforts are coordinated by all cancer services and include prevention and awareness education as well as early detection and screening programs.

Community education

The CAMC Health Education and Research Institute (CAMC Institute), education division leads the oncology team in providing opportunities in professional education and research activities, patient and family health education and community information programs. Various forums are available for community to access information and education: Online resources, formal lectures, workshops health fairs and screenings were provided in 2017.

Health Information

Thousands of people visit the CAMC Health Information Center website: http://healthinfo.camc.org/ annually. The site contains a variety of topics including cancer prevention, treatment and living with cancer are available in video and printed materials for easy access.
The CAMC Cancer Center hosted a “Coping with Cancer” communication workshop in June. Certified psychologists and staff presented supportive ways to communicate with cancer patients throughout their journey. The event included a presentation on how to talk to children about cancer and an open house of Gigi’s Place, an area dedicated to the emotional and psychological well-being of children who have a loved one undergoing treatment or who have lost a parent to cancer. A panel of survivors also answered questions on a variety of topics including experiences during diagnosis and treatment.

HealthFest
Nearly 2,000 community members participated in HealthFest (a one day health fair event with multiple free and low cost health screenings and educational activities). Nearly 300 people participated in cancer care and prevention activities at HealthFest. Activities included: PSA, skin care analysis, palliative care information, tobacco prevention, cessation class sign ups, carbon monoxide testing and clinical trial information and various cancer materials and resources were distributed by oncology clinical staff members.

Patient and family education
The multidisciplinary patient and family education council promotes a process for providing patient education standards of care across the continuum. Patient and family education resources are identified, developed and reviewed by oncology experts and then processed via the council to promote consistency in education to all cancer patients and their families. The pediatric patient handbook and adult patient and family instructional handbooks were developed in-house to promote ownership and
individualize facility information. Additional customized patient education resources are available within the EHR and online at: http://healthinfo.camc.org/

Between August 2016 and August 2017, 38,254 educational videos (all topics) were viewed by patients and families during their inpatient stay at CAMC. Oncology “on demand” educational video topics include hospice, nutrition and cancer, pediatric video (Why Charlie Brown? Why?), stress and relaxation techniques, tobacco cessation, with Palliative Care topics added in 2016. In addition, serenity videos run 24/7, 365 days a year to provide guided imagery, music and relaxation images to enhance healing and relaxation.

The Breast Center and imaging staff work hard to make the community at-large aware of breast health by participating in events such “Holiday in Pink,” the Susan G. Komen walk and run, and speaking to groups such as local ladies Veterans of Foreign Wars auxiliaries, churches and multiple breast cancer awareness month events.

Each October is breast cancer awareness month. Once again various departments at CAMC decorated real and artificial pumpkins and placed them in a “Pink Pumpkin Patch” in the lobby of the new CAMC Cancer Center. The pumpkins were judged based on people’s choice and best breast cancer awareness message.
Look Good…Feel Better

Cancer may take away a woman’s energy or appetite, but it does not have to take away her self-confidence. The American Cancer Society’s Look Good…Feel Better program is a free, community-based, hands-on, group workshop dedicated to helping female cancer patients cope with and combat the appearance-related side effects of chemotherapy and radiation treatment.

A volunteer, licensed esthetician, leads the program that includes a 12-step skin care and makeup program to help restore a positive self-image.

Each participant receives a free kit of full size name-brand cosmetics for use during and after the workshop. This program is a partnership between the American Cancer Society, the Personal Care Products Council Foundation and the National Cosmetology Association.

The Look Good…Feel Better program is offered at the CAMC Cancer Center and CAMC Teays Valley Hospital.

The boutique at the CAMC Cancer Center offers free haircuts and wigs to patients (who qualify) receiving chemotherapy. Caregivers and the general public can also receive haircuts (prices vary depending on service) if appointment times are available.

Additionally, the boutique has a variety of new items in stock for patients including, but not limited to, wig care products, pre-tied scarves, turbans, cloche/sleep caps, fashion hats and skin and hair care products.
Modifying your wardrobe to accommodate changes

Treatment for cancer can cause temporary or lasting changes including hair loss, scarring, and bodily changes which can all affect how one dresses, looks, and feels. But with the right fashion and accessories, patients can help regain control and sense of self during and after treatment.

The inaugural CAMC Cancer Center Fashion show was held Oct. 20, 2017, featuring cancer center patients and survivors who modeled clothing, jewelry, prostheses and accessories to highlight how to fashionably adapt to changes throughout the cancer journey.

The event showcased the latest designs in post-mastectomy/lumpectomy prostheses and garments, colostomy/ostomy garments, compression garments, wigs, scarf and hat stylings, and more. The show was designed to educate cancer patients/survivors where to find these garments and how to afford them (i.e. insurance reimbursement).

The purpose of the fashion show was to understand the unique needs faced by patients going through treatment and into survivorship.

Patients helped to plan, organize, dress and entertain.

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This event was made possible by support from the CAMC Foundation.
Cancer Services

Breast Center
The CAMC Breast Center takes a multifaceted approach to breast health, from routine screenings and diagnosis to innovative treatments and supportive care. It was the first of its kind in the state and the first to be fully accredited by the American College of Surgeons.

The Breast Center team treats the largest number of patients with breast cancer in West Virginia. Board-certified surgeons specialize in all aspects of breast health. Experienced radiologists use the latest, most-advanced technologies to diagnose a full range of breast diseases.

The CAMC Breast Center is a comprehensive system that cares for patients from beginning to end rapidly, using the skills of a multidisciplinary team of experts on a routine basis.

The Breast Center’s services include:

- NEW 3-D mammography (known as digital tomosynthesis)
- Digital 2D mammography
- Breast ultrasound
- Minimally-invasive breast biopsies
- Rapid diagnostic program and rapid consultation program (within 24-48 hours)
- Breast cancer risk assessment
- Genetic counseling and testing
- Multidisciplinary care from breast specialists, surgeons and oncologists
- Nurse navigators to provide care coordination
- Bone density screenings
- Pelvic ultrasounds

The Breast Center is located on the third floor of the CAMC Cancer Center in Kanawha City at 3415 MacCorkle Ave., SE in Charleston. Office hours are Monday through Friday from 7 a.m. to 4:30 p.m. Please schedule an appointment for any of our imaging services by calling (304) 388-9677. For referrals/appointments to see a breast surgeon regarding breast health issues, please call (304) 388-2872. For more information, call (304) 388-2861 or visit camc.org/breastcenter.
**Genetic Risk Clinic**

Led by Elizabeth S. Monast, MS, The Breast Center is the only center in the region to provide a Cancer Genetic Risk Clinic.

Patients are identified by their referring physicians, or by a screening tool completed upon entry through our Breast Center. This instrument draws a patient profile which is analyzed at the Breast Center by specially trained nurses.

The comprehensive cancer genetic risk assessment performed by Monast includes counseling and testing of patients with multiple conditions besides those with breast cancer risk, such as colorectal, gynecological, pancreatic, renal and most other possible cancer risk-related situations in adults.

Once the results of testing become available, the genetic counselor reviews the findings with the patient and discusses appropriate cancer screening and risk-reducing recommendations.

Monast also facilitates referrals as needed. This effort links this service with those offered by the Cancer Center and in this manner it creates a seamless process which clearly improves the quality of patient's services. These improvements have already facilitated the decision-making of the multi-disciplinary group that convenes weekly to determine the best options of treatment for patients diagnosed with breast cancer.

**Hemophilia Treatment Center**

The CAMC Hemophilia Treatment Center (HTC) is a comprehensive program funded in part through two federal grants for the diagnosis, treatment and prevention of bleeding. People throughout the life span are seen who have a congenital bleeding disorder such as hemophilia, von Willebrand disease and other bleeding disorders.

CAMC is part of the MidAtlantic/ Region 3 hemophilia centers.

The comprehensive team includes an adult and pediatric hematologist, nurse, social worker and physical therapist. Collaboration between providers and the patient/family provides education of bleeding disorders, home infusion teaching and support. This collaboration begins at birth or with a new diagnosis of a bleeding or clotting disorder. Clinics are held at CAMC Memorial Hospital. A 340B factor program is offered to patients who require factor at home.

Free genetic testing is offered for patients along with carrier testing for family members. Education and outreach for patients and their family members who have a bleeding disorder are focuses of the HTC.
Inpatient Oncology Unit
The inpatient oncology unit has 29 private rooms and baths. A family resource room on the unit is stocked with the latest health information available.

The unit has a dedicated, highly skilled and efficient team of professionals available to meet the needs of our patients. More than 20 percent of the nurses have oncology certification that provides them advanced knowledge and a great resource for their peers.

An art and music therapy program allows patients to focus on something positive as well as giving them an outlet for creativity.

Palliative care
Palliative care is an inpatient service at CAMC that helps cancer patients and their families cope with the multiple dimensions of their disease. Attention focuses on quality of life and relief from pain and symptoms that can interfere with daily life. Assistance is also provided with goal clarification, advance care planning and discharge options. As part of the cancer team, palliative care collaborates with the oncologists, supporting curative treatment or helping with options when cure no longer is the goal.

Psychosocial, emotional and spiritual needs are addressed through family meetings with patients and their loved ones. Hospice referrals can be made if appropriate.

The team consists of a social worker, pharmacist, physicians and nurse practitioners available week days from 8 a.m. to 5 p.m. for inpatient consultations.

Pathology
CAMC Department of Pathology Laboratory Medicine is accredited by the College of American Pathologists. The department’s 12 experienced pathologists actively participate in the cancer care at CAMC. The pathologists are all certified by the American Board of Pathology. Many of them hold subspecialty board certifications, including hematopathology, immunopathology, neuropathology, cytopathology, and transfusion medicine. Several pathologists have particular areas of expertise and interest in fine needle aspiration, gynecologic oncology, renal pathology and bone and soft tissue tumors.

The department offers in-house ancillary diagnostic modalities: flow cytometry, immunohistochemistry and automated quantitative image analysis. The department has telepathology capability for intraoperative consultation between hospitals (Memorial, General, and Women and Children’s).

Pathologists participate in conferences and tumor boards including: general and breast tumor board, urology tumor board, gynecology tumor board, neuroscience rounds, orthopedic conference and soon-to-come gastrointestinal tumor board and thoracic tumor board.
Radiation Oncology Services

Radiation therapy has been used for more than a century to treat cancer. The treatment is performed as an outpatient procedure, with little to no recovery time. Radiation therapy treatments are quick and painless, with minimal to no side effects, and most patients return to their normal daily routines following each treatment session. Radiation therapy may be an option for patients with medically inoperable or surgically complex tumors or those who seek an alternative to surgery or conventional radiation therapy, patients with recurrent cancer or metastatic tumors that have spread to other areas of the body from the main tumor site, and those who have a high risk of developing complications after surgery.

Radiation Oncology Services at Charleston Area Medical Center, a department of CAMC in partnership with Alliance Oncology, the nationwide leader in radiation oncology and radiosurgery programs, offers current, advanced radiation therapy treatments, provided by a team of experienced and caring radiation oncology physicians and team members. Radiation therapy and stereotactic radiosurgery, a precise and accurate method of delivering radiation to a tumor target, is delivered safely, painlessly and does not involve cutting or surgery.

The team at Radiation Oncology Services at CAMC treat early-stage, recurring and advanced cancer using several forms of radiation therapy technologies, including two new high-tech linear accelerators called the TrueBeam® Radiotherapy Systems, one of the most advanced cancer treatment options available. The TrueBeam System with RapidArc® Radiosurgery and Real Time Patient Tracking delivers radiation therapy and radiosurgery treatment to cancerous and noncancerous tumors in the brain and body.

The radiation oncology department team consists of board-certified radiation oncologists and medical physicists, dosimetrists, radiation therapists, radiation oncology nurses, support staff and a site administrator.

Pediatric Radiation Therapy

Radiation treatment is often an integral part of optimal treatment for cancers in the pediatric population. Depending on each child’s specific diagnosis, radiation therapy may be used as the primary form of treatment, or may be used before or after other types of treatment such as surgery or chemotherapy. Radiation Oncology Services at CAMC are on the leading edge in offering state-of-the-art radiation therapy options for childhood cancer. The pediatric radiation therapy program builds upon CAMC’s well established and experienced Pediatric Oncology department. Along with CAMC pediatric oncologists and their staff, the radiation oncologists, medical physicists, and other scientists actively participate in research through the national Children's Oncology Group.
Radiation Oncology Research and Education

Radiation Oncology Services at CAMC is dedicated to providing patients with the most up-to-date radiation treatment options. We are affiliated with the internationally renowned Radiation Therapy Oncology Group (RTOG) and offer enrollment in RTOG clinical trials for qualifying patients. Through this affiliation, multiple clinical trials for patients with higher risk prostate cancers have recently been made available for enrollment. The radiation oncologists also participate as assistant clinical professors for the West Virginia University School of Medicine and offer elective educational rotations for medical students as well as for CAMC training resident doctors interested in oncology. The multidisciplinary approach to cancer care, coupled with the use of cutting edge technologies and dedication to research and education, help provide better outcomes and experiences for patients.

Radiology

The Department of Radiology provides diagnostic and interventional imaging services for the clinical and research programs at CAMC. Imaging Services are provided at seven convenient locations; Memorial, General, Women & Children’s and Teays Valley Hospitals and outpatient imaging centers in Kanawha City and Southridge in addition to the Breast Center. All locations are staffed with registered and licensed technologists and nurses.

The department of diagnostic imaging offers a full complement of screening, diagnostic and non-vascular interventional radiological technologies. Modalities offered include X-ray, fluoroscopy, ultrasound, fetal ultrasound, digital mammography, bone density (DEXA), computed tomography (CT), magnetic resonance imaging (MRI) including diagnostic and interventional breast care and MR spectroscopy, nuclear imaging, positron emission tomography (PET) and image-guided biopsy services.

Some of our highlights are our state-of-the-art:

- MRI scanners including 3T magnet
- Large diameter bore MRI for claustrophobic and larger patient accommodation
- Functional MRI (fMRI) examines the anatomy of the brain, helps to determine critical functions of the parts of the brain (brain mapping) and helps neurosurgeons plan for procedures.
- Latest technology increased quality of ultrasound images
- Upgraded PET/CT imaging services with a new scanner
- Low-dose radiation capability.
- Radiation dose tracking software which allows for the CT protocols to be inputted into the software server and analyzed.
- Breast Tomography, 3D Mammography
All of these enhancements better serve patients by allowing physicians to make informed decisions regarding their patients’ care.

In The Breast Center, CAMC offers all digital mammography and the MammoPad for softer imaging. All images are acquired in digital format, interpreted on electronic workstations, filed and stored electronically, and distributed to clinicians by an in-house network and the worldwide web. The Breast Center works with the Cancer program in a multidisciplinary approach to treating breast disease and patient care is coordinated with a patient navigator.

CAMC is privileged to have its own hospital-based nuclear pharmacy. This allows for CAMC to maintain USP 797 certification for compounding and supply of Radiopharmaceuticals to CAMC Health System and the local Charleston Area Nuclear Medicine providers. The Nuclear Pharmacy is operated by one of the few Board Certified Nuclear Pharmacists in the state. During national drug shortages the last few years, CAMC has maintained production to allow for Nuclear Medicine procedures for our patients and community providers.

CT Lung Screenings are performed at our convenient outpatient imaging centers. Both locations are ACR accredited lung screening centers. The lung screening program includes an imaging navigator for patient education, criteria evaluations and follow up management. A cancer navigator helps coordinate care if diagnosed with lung cancer. A multidisciplinary team meets monthly to review lung screenings with suspicious findings. Further recommendations are provided to the ordering physician and an immediate referral to CAMC pulmonology is also available to assist with interpretation of results, procedures, follow up care and surveillance as needed.

Surgery
Charleston Area Medical Center is fortunate to have a very experienced and well-trained group of surgeons that can effectively treat the cancer patients of the region. The section of oncologic surgery has advanced steadily over the years, supported by a long history of cutting-edge approaches to the treatment of solid tumors.

Every week, surgeons treat patients with tumors of the breast, prostate, kidney, thyroid, colon, rectum, gynecologic, pancreas, liver, skin (including melanoma), esophagus, stomach, lung and many others.

A unique feature of the surgeons at CAMC is the collaborative effort put forth to ensure that the best care is provided for each patient. It is not unusual to have surgeons from different specialties or expertise to assist each other on some of the more complicated procedures when a multidisciplinary approach is needed. This teamwork approach assures the patient of better recovery and outcomes.
Urology Services

Urology cancer services continue to grow at CAMC with new additions of staff, cutting edge services offered, and academic growth.

New to our staff is Dr. Nathan Hale, a specialist in Urological Oncology. Dr. Hale recently completed his fellowship at the University of Pittsburgh. Dr. Hale will complement Dr. Samuel Deem, another urological oncologist on our staff.

Prostate cancer is Dr. Hale’s special interest, along with the latest developments for prostate cancer, which includes:

- MRI Fusion Biopsy
- Tumor Transperineal Biopsy that increases cancer detection and is more comfortable, safer and virtually eliminating the risk of infection.
- Personalized gene testing of one’s biopsy to assess risk for treatment or no treatment
- Hereditary cancer gene testing with myRisk, this test blends gene testing with personal/family cancer history into a clinically actionable risk assessment and follow up.
- PHI testing, a blood test, now available from Mayo Clinic labs to better sort out risk for patients with abnormal PSA tests.
- Space Oar, a new gel developed to protect the intestine near the prostate for the patient receiving radiation therapy for their prostate cancer.
- And CAMC recently passed their 10 year anniversary of Robotic Surgery, having performed several thousand procedures.

Academically

The CAMC Urology Residency is nationally accredited by the Accreditation Council for Graduate Medical Education.

Urologic cancer conferences are held twice each month that brings five specialties together to review cancer care for patients. All treatment recommendations are based on national best practice guidelines.

Many academic projects are underway that are published and presented at local, regional and national conferences.

CAMC Urology is one of nine centers in the United States included in a multicenter trial to evaluate Cysview. Cysview helps detect bladder cancer earlier and decrease the recurrence rates.
Children’s Cancer Center

The CAMC Children’s Cancer Center is accredited by the Children’s Oncology Group (COG). Comprehensive care is provided by a multidisciplinary team from CAMC and WVU Physicians of Charleston, which includes a pediatric hematology/oncology physician and nurse practitioner, an infusion center nurse, psychologist, chaplain, child life specialist, dietitian, social worker, physical therapist and pharmacists.

The CAMC Children’s Cancer Center is a member institution of COG, a worldwide cooperative children’s cancer research organization.

The Center provides infusions of chemotherapy and other drugs to hematology/oncology patients, as well infusion services for patients with other illnesses. These include blood or genetic disorders, gastrointestinal, immune and endocrine disorders.

There are two pediatric oncologists working in the Children’s Cancer Center.

Ashley E. Meyer, DO, completed a pediatric residency at Upstate Golisano Children’s Hospital and a pediatric hematology/oncology fellowship at Riley Children’s Hospital. Dr. Meyer is certified by the American Board of Pediatrics.

Mohamad H. Badawi, MD, specializes in pediatrics and pediatric hematology/oncology. He completed a pediatrics residency at CAMC and a pediatric hematology/oncology fellowship at Cohen Children’s Medical Center of New York. Dr. Badawi is certified by the American Board of Pediatrics.
Typically pediatric visits average between 100 and 120 per month.

Services provided by this center accommodate those pediatric patients receiving care in which inpatient hospitalization is not required. Care is based on a family-centered approach.

Infusion Services at the Children’s Cancer Center include:

- IV infusions of chemotherapy
- Blood product transfusions
- Administration of immune disorder solutions
- Enzyme replacement therapy
- IV antibiotic therapy
- Serial laboratory work
- Intramuscular (IM) injections
- Management of centrally placed lines/ports

The Children’s Cancer Center is equipped with comfortable recliners and offers games, televisions, DVDs and a play room, as well as snacks and drinks. All of the patient rooms are private which allows for added safety and comfort for those who are sick or are immune compromised.

2017 Center for Cancer Research Status Report

CAMC Health Education & Research Institute’s Center for Cancer Research continues to provide local access to the most current clinical trials, diagnostics and treatments to the people of West Virginia. We have an active protocol list that covers a broad range of malignancies. We have National Cancer Institute sponsored protocols available for most major malignancies, Breast, Lung, Colon, and Prostate as well as Melanoma, Multiple Myeloma, Ovarian, Pancreatic and Head and Neck. We have 24 protocols available for patient enrollment. We also manage several investigator initiated projects for our CAMC providers.

Dr. Steven Jubelirer, our great research advocate, continues to be our lead Principal Investigator for our National Cancer Institute Cooperative studies and, industry trials. Outcome and patient oriented research has been a mainstay of his extensive research career.

An increasing number of investigators have been active over the past year. In anticipation of the national recommendations for implementation of geriatric screening tools, Moussa Sissoko, MD, and Jennifer Hancock, PsyD, have a project with new geriatric cancer patients to assess the feasibility of Geriatric Screening and their needs of support services. Dr Hancock is also working with Dr Cristian Sirbu on initiating a study examining the “Relationship between meaning in life, physical health and
psychological functioning among cancer patients." Another supported study for our community is Dr. Jubelirer’s project entitled, “Barriers to Mammograms in West Virginia Populations” an attempt to identify all potential barriers that may prevent WV women from obtaining mammogram screening.

We are excited by the new addition of our newest members of the research team: Drs. Malik, Garcia, Fonebi, Kedia and Heider. All are very energetic and research oriented! Their credentialing through the NCI is underway. Drs Khalid, Zhang, Sissoko and Sayed continue to be active in research activities and their participation is greatly appreciated!

West Virginia Cancer Genomics Network project, a statewide study, is in its fifth year, lead locally by Dr. Jubelirer, is collecting tumor samples for genomic sequencing in patients with lung cancer. Combined with clinical data, the genomic analysis may lead to technology to further tailor cancer treatment to individual patients. Additional precision medicine related research includes the nationwide “NCI-MATCH” trial. In this trial, patients are assigned to receive treatment based on the genetic changes found in their tumors through genomic sequencing and other testing. Patients whose tumors have genetic changes that match one of the treatments in the trial may receive that treatment, if they meet other eligibility criteria. The trial seeks to determine whether treating cancer based on these specific genetic changes is effective.

In November 2016, Heather Thaxton, RN, OCN, joined the department as research nurse Coordinator. Heather comes to us from the Cancer Center where she has been an oncology nurse for 15 years. She brings strong clinical oncology experience to the research department. She is tackling the steep learning curve of research methodologies and processes. Our regulatory department, Megan Ware, BA, and Jongie Shelton, BA, keep up with the ever changing NCI Central IRB rules and language requirements while also working with the local Institutional Review Board to streamline the process of protocol submission and maintenance. Christine Welch, MS, a statistician with the CAMC Research Institute’s Center for Health Services and Outcomes Research, coordinates the regulatory submission and management of our investigator initiated projects. She also performs the data collection and analysis on all of these projects. Our team continues to actively participate in the tumor board conference and the CAMC Breast Center Leadership committees. We also attend research and cancer related continuing education to maintain our certifications as research professionals.

The CAMC Cancer Center Program underwent accreditation evaluation by the American College of Surgeons, and, as part of that process, research was found to exceed the required standards. We are pleased to have met the criteria for commendation by the ACoS. Further, The Center for Cancer Research works closely with the CAMC Breast Center to facilitate their accreditation requirement of Clinical Research. The Breast Center recently completed the NAPBC re-accreditation process and research was identified as exceeding their requirements. Lastly, we assisted the institution’s Research Review Board’s recent accreditation by AHRRP, providing assistance with policy and procedure development.
Cancer Registry

Marsha Crowder, CTR

Cancer Registries have existed since 1913 as a means to systematically collect diagnostic and treatment data on cancer patients. This data collection involves cancer occurrence type, extent, treatment and outcomes as reported both nationally to the National Cancer Data Base (NCDB) and to the West Virginia state cancer registry. As an accredited cancer program with the Commission on Cancer (CoC), Charleston Area Medical Center is required to maintain a cancer data registry to collect information on all patients diagnosed and/or treated at a CAMC facility.

Since the NCDB was formed in 1989 physicians, researchers, facilities, and other interested parties have a means by which we can study the efficacy of cancer treatments for cancers diagnosed at varying stages of disease. A facility can compare performance with the other CoC accredited facilities to assist in evaluating and improving patient outcomes. A researcher can use this data to help identify when one treatment is more effective than another. Such as the case with the treatment of breast cancer when data showed that breast conserving therapies were as effective as the radical mastectomies performed in the past and resulted in major changes in how breast cancer has been treated in recent years.

Throughout this annual report there are graphs of data collected by CAMC’s cancer registry demonstrating how CAMC compares to other CoC accredited facilities. The following statistics may be of interest:

- CAMC has the highest volume for cancer care in West Virginia
- In 2016, CAMC accessioned 2,204 new cancer patients into the registry. CAMC has a total of 52,257 cancer cases in the cancer registry database. Of this total population 41,885 patients have been diagnosed and/or treated since Jan. 1, 1985.
- CAMC’s follow-up rate of all patients in the registry is currently 88.68 percent, well above the CoC’s required standard of 80 percent. Likewise, CAMC’s follow-up rate for patients diagnosed within the past five years is at 91.69 percent, above the required 90 percent rate.
- The annual Call for Data for the NCDB was performed Feb. 23, 2017, and resulted in zero quality problems and zero cases being rejected on the first submission. This awards CAMC a commendation from the CoC.
- CAMC underwent our 3 year accreditation survey April 3, 2017 and passed with 3 year with contingency.
- Registrars attend the West Virginia State Cancer Registrar’s Meeting annually. CAMC staff also receives training through monthly webinars from the NCRA and the North American Association of Central Cancer Registries (NAACCR).
The CoC requires personnel working in the cancer registry to obtain the Certified Tumor Registrar (CTR) credential within three years. This standard was implemented Jan. 1, 2015. CAMC recognized the importance of having educated staff in the registrar role and began enrolling all registry staff in training programs well before the CoC made this requirement Jan. 1, 2015. All staff has now completed the training program and is credentialed. Staff members include:

- Marsha Crowder, CTR
- Sean Robinson, CTR
- Melissa Roebuck, CTR
- Susan Thompson, CTR

### 2016 CAMC Top Cancer Diagnoses by Gender

<table>
<thead>
<tr>
<th>Primary Site</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>20%</td>
</tr>
<tr>
<td>Lung</td>
<td>18.7%</td>
</tr>
<tr>
<td>Colon and Rectum</td>
<td>10.7%</td>
</tr>
<tr>
<td>Bladder</td>
<td>7.8%</td>
</tr>
<tr>
<td>Kidney and Renal Pelvis</td>
<td>6.2%</td>
</tr>
<tr>
<td>Non-Hodgkin’s Lymphoma</td>
<td>4.4%</td>
</tr>
<tr>
<td>Melanoma</td>
<td>3.4%</td>
</tr>
<tr>
<td>Pancreas</td>
<td>3.1%</td>
</tr>
<tr>
<td>Stomach</td>
<td>2.3%</td>
</tr>
<tr>
<td>Esophagus</td>
<td>1.8%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>1.3%</td>
</tr>
<tr>
<td>All other sites</td>
<td>20.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary Site</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>28.6%</td>
</tr>
<tr>
<td>Lung</td>
<td>15.3%</td>
</tr>
<tr>
<td>Colon and Rectum</td>
<td>10.7%</td>
</tr>
<tr>
<td>Corpus Uteri</td>
<td>7.2%</td>
</tr>
<tr>
<td>Kidney and Renal Pelvis</td>
<td>4%</td>
</tr>
<tr>
<td>Thyroid</td>
<td>4%</td>
</tr>
<tr>
<td>Non-Hodgkin’s Lymphoma</td>
<td>3.2%</td>
</tr>
<tr>
<td>Bladder</td>
<td>2.1%</td>
</tr>
<tr>
<td>Ovary</td>
<td>2%</td>
</tr>
<tr>
<td>Cervix Uteri</td>
<td>1.4%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>1%</td>
</tr>
<tr>
<td>All other sites</td>
<td>20.5%</td>
</tr>
</tbody>
</table>
Looking at the top male cancer sites over the past four years, prostate cancer was ranked the top cancer site treated at CAMC, followed by lung cancer. Colon cancer has been ranked third by volume since 2013 when it rose from fifth rank.

Kidney cancer ranked third 2012, dropping to fourth in 2013, and moving to fifth in 2014, having been outranked by urinary bladder cancers. Non-Hodgkin’s lymphoma and Urinary bladder cancers continue to move in and out of the top five sites for men treated at CAMC. Top cancer sites remained the same as in 2014.
Breast cancer is consistently ranked the top cancer site in females at CAMC, followed by lung cancer. Colon and corpus uteri primary cancers remained third and fourth, consecutively, since 2014 when colon cancer outranked corpus uteri. Kidney cancer moved up to fifth place from sixth in 2016, while Non-Hodgkin lymphoma remained at seventh place. Thyroid was ranked number six in 2016.
Reviewing the top cancer sites, regardless of gender, over the past seven years, definite patterns emerge. Breast cancer has consistently remained the top cancer site at CAMC based on volume since 2008, with lung cancer ranking second; until 2016 when they switched places. Lung being number one and breast number two. Prostate and colon cancer have remained in the third and fourth rankings until 2013, when colon volume increased. Colon and prostate have consistently switched places since. For 2016 colon moved up to third and prostate down to fourth.

Kidney has remained in fifth rank since it took over uterine in 2011. Uterine cancer has continued to fluctuate between fifth and eighth place, resting at seventh in 2015, where it stayed for 2016.
Cancer Cases Accessioned by Year of Diagnosis

The chart shows the number of cancer cases accessioned by year of diagnosis from 1989 to 2016. There is a clear trend of increasing cases over time, with the number of cases more than doubling from 1989 to 2016.
The Rapid Quality Reporting System (RQRS) is a voluntary program of the National Cancer Data Base (NCDB) that allows facilities to review and track performance on a more concurrent basis. Charleston Area Medical Center (CAMC) chose to participate at the inception of RQRS because the Cancer Committee realized the potential value in being able to identify patients who may be nearing deadlines for evidence-based guidelines. The Cancer Registry submits data and monitors RQRS monthly to identify and alert providers to patients who are at risk for not receiving timely medical treatment.

Each of the current RQRS measure are displayed in graph format, comparing CAMC’s performance to West Virginia (WV) facilities, facilities in the Southeast Region and to all facilities who are accredited by the Commission on Cancer (CoC).

ACT is the NCDB’s designation for one of the colon quality measures. The definition states, “Adjuvant chemotherapy is considered or administered within 4 month (120 days) of diagnosis for patients under the age of 80 with AJCC Stage III (lymph node positive) colon cancer.”
12RLN is the NCDB’s designation for lymph node removal for colon cancers. This measure is defined as, “At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer.”

This is a measure that CAMC continues to improve upon. The difficulty with this measure is multifactorial. Looking at the graph, CAMC has always led the state in performance on this measure. However, during 2009 through 2012 CAMC fell behind both the Southeast region and all other CoC-accredited facilities. Since 2013, CAMC has improved on this measure and exceeded performance in comparison to WV, the Southeast region and all other CoC-accredited facilities.
BCS is the NCDB’s designation for radiation therapy in breast cancer. The definition states, “Radiation therapy is administered within one year (365 days) of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer.”

CAMC remains on pace with the state performance on this quality measure, with the exception of 2010 and 2013. Review of the data for this measure shows that CAMC had a few cases where the patients chose alternate forms of treatment, deviating from standard care. This measure will continue to be monitored for improvement. *As of printing, the data are being looked at and re-run for clarifications CAMC’s percentage will likely improve.
HT is the designation by the NCDB for the breast measure for hormone therapy. This measure is defined as, “Tamoxifen or third generation aromatase inhibitor is considered or administered within one year (365 days) of diagnosis for women with AJCC T1cN0M0, or stage IB-III hormone receptor positive breast cancer.

As noted in the graph for this breast cancer measure, CAMC has led performance when compared to facilities in WV, the Southeastern United States and all CoC-accredited facilities in the nation with the exception of 2012. This result is an example of CAMC’s continued journey toward excellence in cancer treatment.
MAC is the NCDB designation for chemotherapy in breast cancer. The definition states, “Combination chemotherapy is considered or administered within four months (120 days) of diagnosis for women under 70 with AJCC T1cN0M0, or stage IB – III hormone receptor negative breast cancer.”

For this quality measure, CAMC has met or exceeded state, Southeastern region and all CoC-accredited facility performance with the exceptions of 2015 and 2016. This is a multifactorial issue, including cases which treatment was delayed due to significant co-morbidities or complications that impacted performance rates. *As of printing the data are being looked at and re-ran for clarifications CAMC’s percentage will likely improve.
2016 Incidence of New Cancer Cases

Oncology Services

Source: CAMC Cancer Registry, American College of Surgeons website