Moving Forward with Cancer Care in West Virginia

2014 CAMC Cancer Services Report
National accreditation for cancer care

The Commission on Cancer (CoC) of the American College of Surgeons (ACoS) has granted three-year accreditation with commendation to the cancer program. There are three separate awards for the three-year accreditation with commendation based on the number of commendations received. These levels are bronze for 1 to 3 commendations, silver for 4 to 6 commendations, and gold for all 7 commendations available. CAMC received the gold rating and is eligible for the Outstanding Achievement Award that will be awarded in 2015. CAMC has been continuously accredited since 1947.

CAMC was awarded commendations for the following standards:

- Clinical Trial Accrual: To receive commendation status, a facility must accrue at least 8% of their cancer population into clinical trials each year of the survey. CAMC accrued 17% to 27% during the survey years.

- Cancer Registrar Education: For commendation status, each Certified Tumor Registrar (CTR) must attend a national or regional meeting once every three years. CAMC currently has 5 CTRs (the most of any hospital in WV) and all have attended national meetings within three years of their credentialing.

- Public Reporting of Outcomes: CAMC produces an annual report each year to provide the public, the medical community and decision makers with critical information about CAMC’s performance in cancer care.

- College of American Pathologist (CAP) Protocols: All cancer containing pathology is reported in a synoptic format and follows the CAP protocols 100% of the time. This is tightly monitored by the Pathology Department, and in the case of any identified errors, the pathology report is corrected.

- Nursing Care: Specialty trained nurses are credentialed as Oncology Certified Nurses (OCN) and receive specific training in chemotherapy administration. For commendation, the percentage of nurses with this credential and specialist chemotherapy training must be at least 25%. During the survey year, CAMC had 26% to 60% of the staff with these designations.

- RQRS Participation: The National Cancer Data Base (NCDB) has a voluntary program known as the Rapid Quality Response System (RQRS) that allows facilities to monitor real time treatment and quality metrics. CAMC began participating with the RQRS as soon as it was available and have proven success with helping to prevent patients from missing treatment timeliness guidelines.

- Data Submission and Accuracy of Data: Each accredited facility is required to submit data to the NCDB annually by January 31. In order to be awarded the commendation level of performance, the data must be submitted by the deadline and be 100% accurate according to data edits at the NCDB. CAMC met this criteria each year of the survey.
To earn voluntary CoC accreditation, a cancer program must meet or exceed 34 CoC quality care standards, be evaluated every three years through a survey process, and maintain levels of excellence in the delivery of comprehensive patient-centered care. Three-year accreditation with Commendation is only awarded to a facility that exceeds standard requirements at the time of its triennial survey.

Because it is a CoC-accredited cancer center, CAMC takes a multidisciplinary approach to treating cancer as a complex group of diseases that requires consultation among surgeons, medical and radiation oncologists, diagnostic radiologists, pathologists and other cancer specialists. This multidisciplinary partnership results in improved patient care.

The CoC Accreditation Program provides the framework for CAMC to improve its quality of patient care through various cancer-related programs that focus on the full spectrum of cancer care including prevention, early diagnosis, cancer staging, optimal treatment, rehabilitation, life-long follow-up for recurrent disease, and end-of-life care. When patients receive care at a CoC facility, they also have access to information on clinical trials and new treatments, genetic counseling and patient-centered services including psycho-social support, a patient navigation process, and a survivorship care plan that documents the care each patient receives and seeks to improve cancer survivors’ quality of life.
During the past few years, many people have raised money, celebrated milestones and toured the construction site.

Now the 100,000-square-foot cancer center will open its doors to patients in 2015.

Many services will be more effectively and efficiently served by the new center including: radiation oncology, medical oncology, oncolgical surgery office space, clinical trials and an infusion center.

Other and cancer-related services will be combined in the new center as well including a library, pharmacy and café.

The center has 29 exam rooms, 32 ambulatory patient infusion rooms and four patient infusion rooms.

A boutique has also been added to help patients take care of themselves from wigs to pedicures.

The CAMC Breast Center will move to the new facility and feature a private entrance with exam rooms, stereo procedure rooms, ultrasound rooms, a bone density room, a tomography room and mammography rooms.
The Radiation Oncology department currently encompasses the lower floor of the CAMC David Lee Cancer Center. This year a joint venture partnership bringing CAMC together with Charleston Area Radiation Therapy Consultants (CTRC) physicians and Alliance Oncology, an industry leader in radiation oncology services was formed. The Radiation Oncology Services partnership is dedicated to providing excellence in patient-centered care.

Alliance Oncology will lead the development and construction of the new Radiation Oncology department at the new Cancer Center located at 3100 MacCorkle Avenue in Charleston, W.Va., opening in summer 2015. In addition to the current services offered in the department, plans are underway to introduce new state-of-the-art cancer treatment technology that will provide the people of West Virginia the most advanced treatment options and also offer patients and their families the exceptional quality and care they deserve locally.

The Radiation Oncology department team consists of five American Board Certified Radiation Oncologists, three full-time American Board Certified Medical Physicists, Dosimetrists, Radiation Therapists, Radiation Oncology Nurses, support staff and a Site Administrator.

**Radiation Treatment at CAMC:**

- 3D Conformal Radiation Therapy (3DCRT)
- Intensity Modulated Radiation Therapy (IMRT)
- Image Guided Radiation Therapy (IGRT)
- 4D CT-based treatment planning
- Stereotactic Radiosurgery (SRS)
- Stereotactic Body Radiation Therapy (SBRT)
- Superficial Radiation Therapy (skin cancer treatment)
- Advanced Brachytherapy Program
  - High Dose Rate (HDR) Intracavity Brachytherapy (uterine/cervical cancer)
  - HDR Interstitial Brachytherapy (soft tissue sarcoma)
  - Mammosite Brachytherapy (accelerated partial breast radiation)
  - Prostate Seed Brachytherapy
- Pediatric Radiation Therapy
- Radiation Oncology Research and Education
The David Lee Cancer Center (DLCC) is CAMC’s center for adult medical oncology and hematology care. A Joint Commission accredited facility, DLCC 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.

David Lee Cancer Center’s infusion center treats on the average of 60 patients daily while the hematology/oncologists have full schedules Monday through Friday from 8 a.m. to 5 p.m.

To address the growing access-to-care needs of our community, we have incorporated a physician assistant in our daily outpatient clinic. Dr. Terrance Rhodes continues to provide educational programs to expand the knowledge of our physician extenders in an ever changing Oncology realm. DLCC currently has four physician assistants, who complement our physician team. This has proven an enhancement to our inpatient and now our outpatient care.

The Teays Valley office, staffed by Dr. Ron Chitta Sarker, is now open and fully operational to meet the needs of our patients in the Teays Valley and surrounding area. This office will offer the services of hematology and oncology specialty, with privileges at CAMC Teays Valley Hospital, and a complete chemo infusion area.

The majority of DLCC’s nurses are certified in oncology and the cancer center was honored to receive a plaque from the oncology nursing certification corporation for promoting certification and maintaining the majority of certified nurses. DLCC is also privileged to have two board certified oncology pharmacists on staff and we have just recently hired the third to assist with the increased volumes of Teays valley.
Patient navigation remains a focus of DLCC. Currently there is a dedicated navigator for colorectal cancer patients, breast cancer and lung cancer patients. The navigator follows the patients from diagnosis through treatment and recovery and is there to assist with any barriers or concerns experienced during the cancer care continuum. There will be additional breast cancer patient navigator in 2014.

DLCC has a dedicated financial navigator and new patient coordinator for the oncology population. The financial navigator assists patients in obtaining health care coverage, indigent medication assistance, and access to local and national organizations that provides support to cancer patients. The new patient coordinator is a dedicated scheduler that provides a contact for patients and referring physicians.

The PET Therapy program at DLCC continues to thrive and is thoroughly appreciated by staff and patients. Inspired by the innovative patient-centered care initiated by our pediatric hematology oncology colleagues and supported by the adult oncology collaborative practice committee, this program has been warmly embraced by our DLCC patients and families. “Barney” and “Bailey,” certified pet therapy dogs, have been a “big hit” and we look forward to expanding this unique initiative for our patients undergoing active chemotherapy treatments.

The DLCC physician team has continued its’ participation in numerous quality improvement, medical staff, graduate medical education and clinical cancer research activities. Our physicians actively participate in the weekly multidisciplinary CAMC tumor board conference led by Dr. Steven Jubelirer which facilitates peer-reviewed input in the initial and/or ongoing management of individual patients. Patients presented at this conference also contribute to the Breast Cancer Center of Excellence program led by Dr. Roberto Kusminsky. There has also been a monthly gastrointestinal tumor board that has been well attended by multiple disciplines. In addition, DLCC physician representation at the monthly meetings of the oncology collaborative practice committee and CAMC cancer committee provide essential physician leadership in the support of inpatient-outpatient adult cancer care initiatives and medical center wide activities necessary for ongoing Accreditation by the American College of Surgeons Commission on Cancer. This year DLCC received certification with commendation. DLCC Physician Leaders continue to play an important role in IHCPI, department of medicine activities as well as medicine quality improvement committee, performance improvement committee and presentations to the CAMC board on quality on topical issues. The DLCC physicians and staff have achieved certification by the American Society of Clinical Oncology’s Quality Oncology Practice Initiative (QOPI), a volunteer initiative of self-assessment in the quality delivery of cancer care with participating oncology practices throughout the United States. DLCC currently holds the honor of being the first and only cancer center to receive the QOPI accreditation by ASCO.
Nurses at DLCC continue to participate with the state Oncology Nursing Society chapter.

In addition to patient care and quality improvement activities, DLCC physicians participate in the education of internal medicine residents of the WVU School of Medicine Charleston-Division at CAMC. Our physicians with volunteer faculty appointments provide clinical training in adult hematology oncology for the newly created four-week block rotations as well as providing year-round formal academic lectures on topics in hematology oncology. Trainees also have the opportunity to work with DLCC 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. In this issue, Dr. Dan Lucas summarizes our cancer center's contributions to this ongoing effort over the past year. At DLCC, Dr. Jubelirer has been the physician champion for this research effort in partnership with the CAMC Health Education and Research Institute (CHERI) and fellow DLCC physicians. Dr. Jubelirer has expanded physician mentorship and co-leadership for these activities to include Dr. Ahmed Khalid for National Surgical Adjuvant Breast and Bowel Project (NSABP) Clinical Trials and Dr. Arun Nagarajan for Eastern Cooperative Oncology Group (ECOG) Clinical Trials. Each DLCC physician entering patients into clinical cancer research trials is approved by the CAMC Investigational Review Board and National Cancer Institute. Under the auspices of the West Virginia Oncology Society, DLCC physicians and CHERI leadership, in joint collaboration with other cancer clinical trial sites and cancer care practice sites in WV, continue to address expanding clinical trial access to West Virginians.

DLCC physicians and staff continue their collaborative participation in activities relating to the development of a new cancer center for our health care system. CAMC foundation began the “Power of Many” campaign to increase awareness of the project in 2012 and construction began during the summer 2013. The planning for the new center includes involvement from patients, families and staff. The positive momentum demonstrated to date makes the dream of a new cancer center within reach. The new cancer center will include multidisciplinary care in one location including the Breast Center, David Lee Cancer Center and radiation oncology. The center is expected to open to patients in 2015. This center will lead to enhanced multidisciplinary collegial opportunities in service to our patients and their families in a modern and nurturing environment of care.
Publications of physicians of the David Lee Cancer Center:
A 10 Year Retrospective Analysis of Carotid Stenosis in Patients with Polycythemia Vera or Essential Thrombocythemia

Arun Nagarajan, MD1, Rahul Lanka2*, Aravinda Nanjundappa, MD3* and Stephanie Thompson, PhD4*

David Lee Outpatient Cancer Center, Charleston, WV; Charleston Area Medical Center, Charleston, WV; Charleston Area Medical Center Vascular Center of Excellence, Charleston, WV; Health Education and Research Institute, Charleston Area Medical Center, Charleston, WV

Patients with polycythemia vera (PV) or essential thrombocythemia (ET) are at an increased risk for thrombotic events. The pathophysiology of hyperviscosity, leukocyte-induced endothelial damage and the over-expression of JAK2 and STAT5 genes contributing to the development of atherothrombosis is poorly understood. As such, the goal of our study was to retrospectively examine carotid stenosis severity in patients with PV or ET and to determine if carotid stenosis is associated with thrombotic events in this patient group.

We examined patients in a ten year period (2004 to 2014) who were under the care of a hematologist at our tertiary care-teaching hospital for either PV or ET, and, having one or more carotid duplex. Patients having diagnoses of secondary polycythemia or secondary thrombocytosis were excluded. Data obtained from patient charts included demographics, cardiovascular risk factors, thrombotic events, platelet and hematocrit levels, medications, and carotid stenosis severity. Clinically significant carotid stenosis was defined as >50 % stenosis. We compared patients with carotid stenosis to those without stenosis using Fisher exact tests.

Of the 31 patients meeting study inclusion, only 9 (29%) presented with clinically significant carotid stenosis with 1 (3%) patient having increasing carotid stenosis severity during the study period. Elevated cell counts did not correlate with carotid stenosis. Elevated hematocrit levels of >45% or elevated platelet counts >400x 109/L, had no statistical difference in the incidence of carotid stenosis versus no stenosis (50% vs. 18%, P = 0.16) and (63% vs. 64%, P = 1.00) respectively. There was no difference between the two groups with the use of either anti-platelet therapy (P = 0.68) or cytoreduction medications (P = 1.00) at the time of duplex.

A total of 21 patients had 1 or more thrombotic event during the 10 year period. A total 35 thrombotic events occurred, with the distribution of events being 29% deep venous thrombosis, 28% stroke, 23% transient ischemia attack (TIA), 11% myocardial infarction, 3% peripheral arterial thrombosis, 3% pulmonary embolism and 3% retinal artery or vein occlusion. Rates of thrombotic events were comparable between ET and PV patients, with 10 of 15 patients with PV, 10 of 15 patients with ET and 1 patient with ET + PV experiencing a thrombotic event (P = 0.75). Carotid stenosis did not associate with increased rates of stroke or other thrombotic events. Stroke/TIA after duplex occurred in 22% of
patients with carotid stenosis versus 9% of patients with no carotid stenosis (P = 0.56). Likewise, the rate of all thrombotic events after duplex was similar in patients with and without carotid stenosis (33% and 41%, respectively, P = 1.00).

Two patients received carotid revascularization during the study period. Carotid endarterectomy appeared to be successful in one asymptomatic patient who presented with severe bilateral internal carotid artery stenosis. The other patient who received angioplasty for fibromuscular dysplasia and found to have carotid stenosis of <30% stenosis, later required neurological consults months post procedure due to TIA like symptoms. Thus, in this patient’s case, the underlying cause of the recurring symptoms may have been related to ET.

This preliminarily study suggests that carotid stenosis may not predict thrombotic events in patients with ET or PV. Furthermore, patients with suspected carotid stenosis and/or presenting with stroke and having sustained elevated platelet/hematocrit levels may need to be evaluated for an underlying hematological disorder.

The David Lee Cancer Center, known for focused patient-centered care in Southern West Virginia, recognizes that when a patient or family member receives a cancer diagnosis it can be overwhelming. Patients and caregivers can present with a wide range of symptoms as a result of distress, including depression, anxiety, and sleep dysfunction to name a few. Distress can be exacerbated by financial need, transportation difficulties, managing conflicting appointments, or underlying mental health issues. Ultimately, these concerns can either impede care or affect the patient’s ability to maintain the treatment plan. Because the David Lee Cancer Center recognizes these real concerns and believes in the importance of “whole patient care,” we have created a team with an integrated approach to care: the Comprehensive Support Team.

The Comprehensive Support Team consists of professionals from multiple disciplines including Behavioral Health, financial navigation, patient navigation, Chaplin services, nutrition, and social work. Based on distress level and the area of concern, these selected disciplines become part of the patient’s care team and facilitate communication with the treating oncologist to ensure that the patient will have the best care possible.

The Quality Oncology Practice Initiative (QOPI) assists the David Lee Cancer Center in determining where our practice’s strengths are and where there is room for improvement. As the David Lee Cancer Center continues to strive for excellence, several new or improved initiatives have been implemented. These initiatives include more patient education on the following topics: understanding of the implications of chemotherapy, pain management, and emotional well-being. We are reconsidering how we utilize screening procedures such as the Distress Thermometer (DT). As part of QOPI Certification we are required to administer the Distress Thermometer to all patients. We want to ensure that the information, which can assist the care team in understanding the patient needs and reducing barriers to treatment, is fully utilized. The information is reviewed by the oncologist and the clinic nurse to assess the level of distress and target areas responsible for the distress. Depending on the level of distress, information regarding services or a consultation is provided to the patient. In most cases, a “warm handoff” can be obtained from one of the Comprehensive Support Team Professionals to expedite services and reduce the number of visits needed to acquire services.
The Breast Center at CAMC continues its contribution to the community with a range of services accessed by patients with increasing frequency. Among these, the ability to evaluate patients quickly has resulted in an influx of women who otherwise would have been forced to endure some of the processes associated with an older model of care. Now, the sequence of mammography, further diagnostic tests if needed, biopsy if indicated and treatment decisions follows a rapid sequence which enables patients to be taken care of in a short period of time.

The Breast Center infrastructure has been tested by time, and the results have proven to be nothing short of spectacular. Each step of the processes linked to the gamut of services offered is firmly supported by skillful providers. The role of the Breast Navigator is now mature, with the support thus provided touching a progressively larger population of patients. Mammographic and imaging services are streamlined so physicians referring patients to the Breast Center can choose to participate in the RAPID CALL BACK and RAPID DIAGNOSTIC programs, which allow them to expedite the care of their patients. These and other processes of care are currently being offered to an expanded population of patients and doctors. The results are a simpler and more effective way to provide access to important services and quickly solve all problems of patients with breast diseases.

Outstanding progress is being made in several service areas. For instance, the routine risk evaluation that is given to any patient who enters the Breast Center has been redesigned and a formal Risk Clinic has opened its doors under the direction of physicians with years of advanced expertise in the diagnosis and care of patients with breast diseases. The Risk Clinic provides risk evaluation, risk analysis, genetic counseling and genetic testing to patients in need of these services. These 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 Risk Clinic now offers the expert services of Elizabeth Monast, M.S, an experienced genetic counselor who trained and graduated from one of the few prestigious and accredited schools in the country. The comprehensive genetic risk assessment performed by Ms. 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 risk-related situations in adults. Once the results of testing become available, our genetic counselor reviews the findings with the patient and discusses appropriate cancer screening and risk-reducing recommendations. Ms. Monast also facilitates referrals as needed. These services are at present being
offered to patients and physicians throughout the state. 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. Plans are now under way to create a Risk Surveillance Clinic, which will support and assist with the standardization of surveillance and treatment programs needed to care for patients at risk.

Outreach programs to help the community and the state have been implemented. At the beginning of 2014, the Breast Center initiated a yearly Breast Conference which was quite well attended by health care providers from different regions of the state. Plans include the establishment of a program of formal conferences for the public which will be transmitted to various places across the state, to inform and educate on issues of prevention and treatment of breast cancer. Currently, the Breast Center travels to a variety of venues to provide information and promote dynamic discussions to groups in a multiplicity of settings.

These and many other programs undergo routine scrutiny and evaluation by the group of experts that manages the operations of the Breast Center. The result of these activities is a clear direction for the Breast Center, which continues its advancement using the most current and proven scientific methods in use to assist patients with breast concerns. The gamut of services and programs available at The Breast Center are offered in a pleasant physical environment which is warm and welcoming because of its skillful and compassionate staff.

Please, feel free to call us and we will be delighted to schedule a tour for individuals or groups.
Comprehensive Children’s Cancer Care

State of the art care for young children and adolescents with cancer and other blood diseases is offered at the CAMC Children’s Cancer Center on the campus of Women and Children’s Hospital.

“Oftentimes at diagnosis, families will tell us they did not know that we [Women and Children’s] treat children with cancer,” said Christi Bissett, child life specialist. “The great thing about having a facility close to home is that patients do not have to completely disrupt their lives for treatment. Any other children in the home can continue their schooling while the patient receives treatment, and at least one parent can continue to work.”

“Because more than 40,000 children undergo treatment for cancer each year, having a cancer center dedicated to pediatric patients here in the Charleston area provides the necessary expertise to provide high quality care, close to home,” said Chibuzo O’Suoj, MD, assistant professor in pediatric hematology/oncology for West Virginia University-Charleston Division. “The patient is able to retain the support system that the extended family and community can offer at this difficult time.”

The CAMC Children’s Cancer Center is a member institution of the Children’s Oncology Group (COG). COG is a worldwide, cooperative children’s cancer research organization. The best and brightest from around the world actively refine treatments for children with cancer. Their efforts have resulted in dramatic improvements in the rates of cure for children with cancer. Most children in West Virginia and around the country, who are diagnosed
with cancer, grow up to be normal adult survivors of these previously fatal diseases.

“As a fully independent member of the Children’s Oncology Group, we have access to the most up-to-date treatment protocols available for children with cancer,” said Howard Grodman, MD, associate professor in pediatric hematology/oncology for West Virginia University-Charleston Division. “Through this consortium, we participate in the latest clinical research working toward the cure of all children with cancer.”

“Each child is treated at the CAMC Children’s Cancer Center with the same COG protocols that you would find at larger facilities anywhere in the country,” said Melissa Appleton, RNC. “Not having to travel to those facilities means that each family can continue to have a home life that is as normal as possible. It also helps with financial burdens.”

The collaboration of Charleston Area Medical Center and West Virginia University Physicians of Charleston benefits CAMC patients through excellence in care, and with CAMC’s distinction as a teaching hospital, it also helps area physicians through educational resources and consultation. The benefits from the affiliation are also reflected in the education of medical students and residents from a current practice perspective.

Comprehensive care at the center is provided to patients by a multidisciplinary team which includes two board-certified pediatric hematology/oncology physicians, one pediatric hematology/oncology nurse practitioner, an infusion center nurse, psychologist, chaplain, child life specialist, dietitian, social worker, physical therapist and pharmacists.
“Our facility has the resources to treat all children with cancer or blood disorders,” Grodman said. “In addition to cancer services, we also have two pediatric surgeons, a pediatric neurosurgeon and a pediatric intensive care unit. We also have access to all radiologic services, including radiation oncology, as they are needed.”

Children treated at the CAMC Children’s Cancer Center have unique qualities, and the team of specialists makes sure to treat them in ways that cater to their personal needs.

“We become very close to each child during treatment and get to know what likes and preferences make the treatments easier,” Appleton said.

“My role as the child life specialist is to find out what the children understand about their hospitalization and diagnoses and help them cope when they have questions and concerns,” added Bissett. “I have a great medical doll so the children can do procedures. I work closely with their entire family, listen to their struggles and give suggestions about how to include siblings who may be struggling as well.”

Patient and family-centered care is one of the trademarks of Women and Children’s Hospital. We are the only uniquely Women and Children’s free standing hospital in the state. That provides services and amenities uniquely appropriate for children.

“We provide a range of resources beyond what is needed to treat the disease. We recognize that every member of a family with a child diagnosed with cancer is affected by that diagnosis,” Grodman said. “So we are fully-equipped to support them throughout their therapy and beyond.”

This is important because the diagnosis of cancer does not end when treatment is completed.

“These children are at lifelong risks for long term or late effects of their therapy,” O’Suoji said. “At the CAMC Children’s Cancer Center, we are able to follow these patients until adulthood. This enables us to detect early, and intervene in, any complications of therapy that may arise. We are then able to transition them to our adult oncology team for lifelong follow-up.”

O’Suoji also said that having a children’s cancer center in Charleston helps raise awareness of childhood cancer in the community and across the state.

“It can help attract needed resources to the area for both treatment and further research into childhood cancer, and for the support of families that are dealing with this dreaded disease,” she said.
RESEARCH AND OUTCOMES

CAMC Cancer Statistics by Stage
CAMC Benchmark and Survival Rates
US Cancer Statistics
Continuing to fulfill a central purpose of providing access to the latest cancer treatment for citizens of mid-to-southern West Virginia, CAMC Health Education and Research Institute’s (CHERI) Center for Cancer Research effectively offers many of the same treatments possible at reputed institutions such as MD Anderson, Sloan Kettering or Johns Hopkins. Moreover, enabling patients to stay closer to home and family support provides improvement in quality of life and reduces the costs of travel for treatment. We are also contributing to the understanding of disease and its treatment through the Institute’s Center for Health Services and Outcomes Research section, all of which supports Charleston Area Medical Center’s mission of striving to provide the best health care to every patient, every day.

According to the American Association for Cancer Research’s recent report, the number of cancer survivors has tripled from 40 year ago, suggesting science may be slowly catching up to the disease. New scientific tools have allowed researchers to explore the genetic basis of cancer and target molecular triggers that exacerbate the disease.

The Center for Cancer Research has been conducting state of the art clinical trials for more than 30 years and actively participates in the worldwide trend of exploring cancer treatment based on tumor genomics and molecular markers utilizing targeted cancer therapy. For example, we are participating in a South West Oncology Group (SWOG) for Lung Cancer research trial utilizing biomarker assessment and four different targeted therapies based on genomic analysis. This future landmark study has a nationwide accrual goal of 10,000 patients with great potential to alter our approach to the treatment of lung cancer.

The West Virginia Cancer Genomics Network is in its second year of five, funded by the state’s Higher Education and Policy Commission. This state-wide project locally lead by Dr. Todd Kuenstner, medical director of CAMC’s pathology department, and coordinated by Angel a Henderson RN, BSN, is a collaboration between CAMC, Marshall University and WVU. The project’s purpose is to collect tumor tissue from various anatomical sites for whole genomic sequencing, combining relevant clinical data for researchers from the partnering institutions. Aside from being a platform for solving relevant clinical problems, we are hopeful that the infrastructure will serve as fertile ground for economic development within our state.

In March 2014, as a result of the Institute of Medicine (IOM) report, the National Cancer Institute Cooperative Group program was replaced by the new National Clinical Trials Network (NCTN). The nine former cooperative groups are now consolidated into four groups in the U.S. and one in Canada. The goal of the change is to promote a more efficient collaboration system for protocol development
and implementation. We are participating in the NCTN through the CTSU which is a centralized access point for all NCTN protocols. As a result of these changes, we anticipate increasing accrual expectations, and importantly, increased access to protocols previously unavailable to a community cancer center.

We have expanded our pharmaceutical industry participation in collaboration with the Institute’s Clinical Trials Center adding new focus and staff dedicated to search out and implement new oncology studies that dovetail with current NCI protocol availability while maintaining our goal of accessing high quality research addressing critical questions in the treatment of cancer patients. A randomized, phase 2 study to assess the safety and efficacy of CRLX101 in combination with bevacizumab in patients with metastatic renal cell carcinoma versus standard of care was added to our local patient offerings.

CRLX101, a novel chemotherapeutic agent, is used in treating a heavily pre-treated population of patients with kidney cancer that have progressed after two to three previously unsuccessful therapy regimens. A randomized, double-blind, multicenter, phase 3 study comparing veliparib plus carboplatin and paclitaxel versus placebo plus carboplatin and paclitaxel in previously untreated advanced or metastatic squamous non-small cell lung cancer is ongoing. This trial adds to our armamentarium, PARP inhibitors, a relatively new class of drugs that target certain markers on the tumors themselves (i.e., “targeted therapy”) in patients who present with metastatic disease.

As with our larger cancer research program, we remain hopeful as we study the various modalities’ impact on human health.

Significant for CAMC’s cancer research program is the active participation of clinicians and clinical research scientists. Dr. Steven Jubelirer continues to be the principal investigator (PI) for our NCTN trials while Drs. Nagarajan and Khalid are participating as PIs for our pharmaceutical industry trials. Our research team, led by these PIs, works closely with other David Lee Cancer Center (DLCC) physicians, nurses, pharmacists and additional staff, collaboratively making available research opportunities to our community. Besides the DLCC, referrals for research trials come from other area physicians, which are welcomed. We are developing an interactive website for the community and area physicians, further expanding patient opportunity.

Largely driven by our community’s medical needs, research offerings are in the areas of breast, colon, lung, prostate, bladder, kidney, pancreas, lymphoma, leukemia, myeloma, melanoma, head & neck, and esophageal cancer. A complete list of research protocols may be requested by speaking with Augusta Kosowicz, PA, Senior Research Coordinator at (304) 388-9940.
Protocol committee, consisting of physicians, study coordinators and regulatory specialists, is critical in determining the research agenda for our community. Besides opening and closing new studies, they are vital in assessing protocol logistics, accrual plans, and updates necessary for the team to know to improve efficiency and care of our of cancer patients. Staff and physicians also attend NCI Cooperative group meetings to get updates on the state of cancer research nationwide and network with colleagues on a national level.

Concern for safety and research participants is always paramount in our quest for discovery. Particularly important to our team are our research regulatory specialists who work closely with local and central Institutional Review Boards (IRBs), assisting in fulfilling this objective. A highlight for this team as they unrelentingly adapt to the constant changes in federal regulatory requirements is their ability to have a research protocol “up and running” within three weeks. Recognizing our high standard of putting patients’ welfare first coupled with antiquated rules and regulations, this is a considerable feat unparalleled in most research institutions.

Cancer clinical trial enrollment is an integral part of the American College of Surgeons’ (ACoS) accreditation program, enabling our cancer care to stand out locally and be among an elite group of cancer centers nationally. With the collaboration from DLCC, CHERI, WVU-Charleston and community-based clinicians, Charleston Area Medical Center not only met the requirement to be represented as an Academic Comprehensive Cancer Program, but did so receiving commendations in all areas of its evaluation, including research.

Highlighted hematology/oncology scholarly activities for 2014 include the following investigator-initiated projects:

**Dr. Justin Cohen, David Lee Cancer Center**
Two forms of Immune Thrombocytopenic Purpura in Adults: Severe-Remitting and Mild-Chronic. Presented at CAMC Research Day and now being prepared for journal submission.

**Dr. Samuel Deem, CAMC Urology**
Prognostication of prostate needle biopsy outcomes. Data collection in progress.


Penile Cancer: Local Disease outcomes and Epidemiology. Data collection ongoing and manuscript being prepared.

Radical Prostatectomy: Positive Surgical Margin Affect on Oncologic Outcomes. Data being updated.
**Dr. James Frame, David Lee Cancer Center**

**Book Published (co-editor):**

**Book Chapters recently published**


**Dr. Steven Jubelirer, David Lee Cancer Center**


Inpatient Oncology Satisfaction which will be presented at the Palliative Care in Oncology Symposium in Boston October 2014.

Utilization of adjuvant therapy among resected non-small cell lung cancer patients at CAMC. A comparison to the NCCN outcomes database project. Presented at CAMC Research Day

Thrombotic Thrombocytopenic Purpura (TTP) Following Coronary Artery Bypass. WV Medical Journal (accepted)

Metformin Use and Survival in Diabetic Patients with Renal Cell Carcinoma: CAMC Experience. Ongoing data collection.

Laboratory Characterization of Congenital and Acquired Platelet Disorders. Sample collection underway.
Dr. Roberto Kusminsky, WVU-Charleston Division General Surgery

Dr. Arun Nagarajan, David Lee Cancer Center
A 10 year Retrospective analysis of Carotid Stenosis in Patients with Polycythemia Vera or Essential Thrombocythemia. Ongoing data collection.

Poster presentation “Life Threatening Pancytopenia Secondary to Severe Cobalamin Deficiency; Case Report and Literature Review” Won best poster presentation at the WV Geriatric Society competition 2014.

Dr. Terence Rhodes, David Lee Cancer Center
Effects of Dioxin Based Chemicals on Cancer Rates in Western Kanawha County West Virginia. Submitted for approval August 2014.

A retrospective investigation of red cell transfusion thresholds for cancer patients with anemia. Data collection and analysis in progress.

A retrospective investigation of obesity and its implication on recurrence of cancer. Data collection initiated summer 2014.

Dr. Brian Richmond, WVU-Charleston Division General Surgery
False-negative results with the Bethesda System of Reporting Thyroid Cytopathology: Predictors of Malignancy in Thyroid Nodules Classified as Benign by Cytopathologic Evaluation. Published in Am Surg. August, 2014
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 and is reported both nationally to the National Cancer Data Base (NCDB) and to the West Virginia state cancer registry. Because of Charleston Area Medical Center’s (CAMC) accreditation status with the Commission on Cancer (CoC), we are required to maintain a cancer data registry that collects information on all patients diagnosed and/or treated in one of our facilities.

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 their performance with the performance of other CoC accredited facilities so that they can look for ways to improve patient outcomes while a researcher may identify that one treatment is more effective than another. Such is 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 which breast cancer has been treated in recent years.

Throughout this annual report you will see graphs of data collected by CAMC’s cancer registry and how we compare to other CoC accredited facilities. Here are some interesting statistics from the cancer registry:

- CAMC has the highest volume for cancer care in West Virginia.
- In 2013, CAMC accessioned 1,667 new cancer patients into the registry but CAMC has a total of 44,816 cancer cases in the cancer registry database. Of this total population 36,638 patients have been diagnosed and/or treated since Jan. 1, 1985.
- CAMC is required to follow-up on a minimum of 80 percent of all patients in the registry and we currently have a follow-up rate of 95.74 percent.
- Follow-up of patients diagnosed within the past five years is required to be at 90 percent and we currently are at 93.94 percent.
- Only 4.29 percent of our cancer patients have been lost to follow-up which is remarkable considering our highly mobile society; the impact from the Health Information Portability and Accountability Act (HIPAA) on providers willing to share patient information; and that we are tracking patients over the past 29 years.
- Facilities are encouraged to collect cancer information, including initial treatment, within six months from the date of first contact. CAMC averaged 5.03 months for data collected on 2013 patients.
One of the CoC’s newer endeavors is to require Certified Tumor Registrar (CTR) credentials for anyone working in the cancer registry by Jan. 1, 2015 or within three years of their start date in the registry. Long before this was a requirement, CAMC recognized the need for educated, informed and skilled cancer registrars and began by enrolling all registry employees in an online training program leading to the CTR credential. This has resulted in the successful credentialing of all registry employees with one exception (working toward credentialing and is within the 3-year timeframe). This has resulted in CAMC having the most credentialed staff in all of West Virginia. Your credentialed staff members include:

- Susan Thompson, CTR
- Melissa Roebuck, CTR
- Erin Cunningham, CTR
- Marsha Crowder, CTR
- Ebenetta Rhinehart, MBA, RHIA, CCS, CTR

In order to further the goal of reliable and valid data, the CoC requires that a minimum of 10 percent of all abstracted cases are reviewed by a physician and any errors are corrected. The cancer registry has been fortunate to have S. Willis Trammell, MD working closely with the registry to perform a number of data quality projects including this review. This is a summary of some of Dr. Trammell’s findings in his 2013 reviews:

- Review was completed on approximately 15 percent of the cases abstracted.
- Each case was reviewed for 11 different key data elements.
- Data accuracy was noted to be 97.2 percent.
- The largest problem identified was with collaborative staging which showed an 86 percent accuracy rate. Interestingly, this has been deemed so difficult to perform, it is being phased out.
- Casefinding is the process by which cancer cases are identified for accessioning into the registry. An audit performed by Melissa Roebuck, CTR, demonstrated 100 percent accuracy for casefinding in 2013.
- The annual Call for Data for the NCDB was performed Jan. 24, 2013, and resulted in zero quality problems and zero cases being rejected on the first submission. This resulted in a commendation from the CoC.
- Furthering the need for an educated and skilled workforce, CAMC has committed to sending each registrar to a national meeting once every three years. Ebenetta Rhinehart attended Survey Savvy in June 2013; Melissa Roebuck attended Survey Savvy in June 2014; and, Susan Thompson attended the National Cancer Registrar Association’s (NCRA) annual meeting in May 2014. Erin Cunningham and Marsha Crowder will attend meetings in 2015.
- CAMC also provides training through webinars from the NCRA and the North American Association of Central Cancer Registrars (NAACCR). Registrars also attend the annual West Virginia State Cancer Registrar’s Meeting annually.
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 measures are displayed in graph format, comparing CAMC’s performance on the measures to West Virginia (WV) facilities, facilities in the Southeast Region and to all facilities who are accredited by the Commission on Cancer (CoC).

AdjRT is the NCDB designation for “Radiation therapy is considered or administered within 6 months (180 days) of diagnosis for patients under the age of 80 with clinical or pathologic AJCC T4 N0 M0 or Stage III receiving surgical resection for rectal cancer.”

As noted in this graph for this rectal cancer measure, CAMC has met or exceeded performances when compared to facilities in WV, the Southeastern United States and all CoC-accredited facilities in the nation since 2010. In fact, CAMC attained a 100% compliance with this quality measure in 2010 and has maintained that perfect measure since.

It is important to note that the denominators meeting this measure are small and may affect the performance rates. In order from 2008 to 2013, the denominators are 7, 7, 2, 5, 7, and 4.
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 1 year (365 days) of diagnosis for women with AJCC T1c N0 M0, or Stage II or III hormone receptor positive breast cancer.”

As noted in the graph for this breast cancer measure, CAMC has led in performance when compared to facilities in WV, the Southeastern United States and all CoC-accredited facilities in the nation. This result is an example of CAMC’s continued journey toward excellence in cancer treatment.

The denominators for the cases meeting this measure, in order from 2008 to 2012, are 94, 81, 81, 94, and 100.
RQRS Comparison Information

Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR

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

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. As can be seen in the graph, CAMC has always led the state in performance on this measure. However, we have fallen behind in comparison to the Southeast region and all other accredited facilities until 2013. In that year we were able to exceed performance in comparison to the latter and CAMC has had continued improvement in this measure since 2010.

The denominators for this measure, in order from 2008 to 2013, are 65, 74, 63, 61, 60, and 62.

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![12RLN Graph](image-url)
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 1 year (365 days) of diagnosis for women with AJCC T1c N0 M0, or Stage II or III hormone receptor positive breast cancer.”

As noted in the graphs for this breast cancer measure, CAMC has always led in performance when compared to facilities in WV, the Southeastern United States and all CoC-accredited facilities. This result is an example of CAMC’s continued journey toward excellence in cancer treatment.

ACT is the NCDB’s designation for one of the colon quality measures. The definition states, “Adjuvant chemotherapy is considered or administered within 4 months (120 days) of diagnosis for patients under the age of 80 with AJCC Stage III (lymph node positive) colon cancer.”

For this measure, CAMC remains at pace with the WV state performance but WV and CAMC are exceeding performance when compared to the Southeast region and all CoC-accredited facilities.

It is interesting to note that CAMC has a small number of cases meeting the definition on this measure which may affect the percentages. The denominators are 21, 26, 28, 21, 21, and 17 in order from 2008 through 2013.
MAC is one of the NCDB designations for breast cancer. The definitions states, “Combination chemotherapy is considered or administered within 4 months (120 days) of diagnosis for women under 70 with AJCC T1c N0 M0, or Stage II or III hormone receptor negative breast cancer.”

For this quality measure, CAMC has met or exceeded state performance. It is interesting to note that CAMC and the state have a similar pattern over the recent years; however, in contrast to the Southeast region and all CoC-accredited facilities, CAMC lost ground in 2011 and 2012 but has exceeded all three comparison groups in 2013. Review of the data for this measure in 2011 and 2012 shows that CAMC had a few extraordinary cases in which treatment was delayed or not carried out due to significant co-morbidities or complications that impacted performance rates.

It is interesting to note that CAMC has a small number of cases meeting the definition on this measure which may affect the percentages. The denominators are 21, 26, 28, 21, 21, and 17 in order from 2008 through 2013.
## 2013 CAMC Top Cancer Diagnoses by Gender

<table>
<thead>
<tr>
<th>Primary Site</th>
<th>Percent</th>
<th>Men 799</th>
<th>Women 860</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>20.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung and Bronchus, non-small cell</td>
<td>14.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colon and rectum</td>
<td>9.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney and renal pelvis</td>
<td>6.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hodgkin's Lymphoma</td>
<td>4.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leukemia</td>
<td>4.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bladder</td>
<td>4.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pancreas</td>
<td>3.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stomach</td>
<td>3.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown/Ill-defined</td>
<td>2.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung, small cell</td>
<td>2.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other sites</td>
<td>22.4%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary Site</th>
<th>Percent</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>29.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung and Bronchus</td>
<td>10.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corpus Uteri</td>
<td>10.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colon and rectum</td>
<td>9.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hodgkin's Lymphoma</td>
<td>4.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ovary</td>
<td>3.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney and renal pelvis</td>
<td>3.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid</td>
<td>3.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leukemia</td>
<td>2.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pancreas</td>
<td>2.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cervix Uteri</td>
<td>2.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other sites</td>
<td>18.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Looking at the top male cancer sites over the past four years, we see that Prostate is consistently ranked at the top cancer site treated at CAMC, followed by Non-small Cell Lung Cancer. Colon cancer was ranked third by volume for every year except 2012 when it dropped to the fifth rank, having been outnumbered by both Kidney and Urinary Bladder cancers that year.

Fourth ranked Kidney cancer did increase to the third rank in 2012. Urinary bladder and Non-Hodgkin’s Lymphoma continue to move in and out of the top five site for men treated at CAMC.
Top female cancers treated at CAMC over the past four years remain much more consistent in that Breast, Lung and Bronchus, Corpus Uteri and Colon cancers are ranked first through fourth, respectively. Non-Hodgkin’s Lymphoma and Kidney cancer remain relatively close in volume, swapping between the 5th and 7th ranking. Interestingly, Non-Hodgkin’s Lymphoma was not even in the top 10 sites for women in 2010.
Reviewing the top cancer sites, regardless of gender, over the past seven years, definite patterns emerge. As can be seen on the graph, Lung cancer as ranked first in volume at CAMC until 2009 when it was replaced by breast cancer as the top cancer site. Likewise, colon and prostate swapped third and fourth rankings until 2009 when prostate was consistently ranked third and colon fourth.

The fifth rank is currently kidney and renal pelvis cancer. Kidney and uterine cancers switched ranks for a few years but the interesting trend here is that the span in volume has increased in 2013 so that there is a definite separation between the two now.
2013 Incidence of New Cancer Cases

Oncology Services

CAMC

Source: CAMC Cancer Registry, American College of Surgeons, Commission on Cancer, Accredited by the American College of Surgeons Commission on Cancer.
A look at Breast Cancer Care at CAMC, 2011 data from the National Cancer Data Base

Stage Distribution - Breast Cancer Diagnosed in 2011, My Hospital vs. All CoC

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>NA</th>
<th>UNK</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Facility</td>
<td>14.23%</td>
<td>42.28%</td>
<td>25.2%</td>
<td>10.37%</td>
<td>4.41%</td>
<td>0%</td>
<td>3.25%</td>
</tr>
<tr>
<td>All CoC</td>
<td>20.24%</td>
<td>41.35%</td>
<td>23.85%</td>
<td>8.29%</td>
<td>3.89%</td>
<td>0.09%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

In/Out Migration Breast Cancer, 2009 - 2011 - My Facility

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosed Here and Treated Elsewhere</td>
<td>0%</td>
<td>0.43%</td>
<td>0.41%</td>
</tr>
<tr>
<td>Diagnosed and Treated Here</td>
<td>81.74%</td>
<td>84.55%</td>
<td>80.49%</td>
</tr>
<tr>
<td>Diagnosed Elsewhere and Treated Here</td>
<td>18.26%</td>
<td>15.02%</td>
<td>19.11%</td>
</tr>
</tbody>
</table>
Reported Race/Ethnicity - Breast Cancer, 2011

Distance Traveled - Breast Cancer, 2011
### First Course Treatment Stage I Breast Cancer, 2011

#### My Facility vs. All CoC

![Graph showing treatment stages and percentages for My Facility and All CoC](image)

<table>
<thead>
<tr>
<th>Treatment Stage</th>
<th>My Facility</th>
<th>All CoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery Only</td>
<td>13.46 %</td>
<td>15.56 %</td>
</tr>
<tr>
<td>Surgery &amp; Radiation</td>
<td>3.85 %</td>
<td>9.3 %</td>
</tr>
<tr>
<td>Surgery &amp; Radiation &amp; Chemotherapy</td>
<td>4.81 %</td>
<td>5.8 %</td>
</tr>
<tr>
<td>Surgery, Radiation &amp; Hormone Therapy</td>
<td>0.96 %</td>
<td>5.97 %</td>
</tr>
<tr>
<td>Surgery, Radiation, Chemotherapy &amp; Hormone Therapy</td>
<td>38.46 %</td>
<td>31.88 %</td>
</tr>
<tr>
<td>Surgery, Radiation, Hormone Therapy</td>
<td>27.88 %</td>
<td>16.18 %</td>
</tr>
<tr>
<td>Surgery, Chemotherapy, Hormone Therapy</td>
<td>7.65 %</td>
<td>6.73 %</td>
</tr>
<tr>
<td>No 1st Course Rx</td>
<td>0.96 %</td>
<td>3.95 %</td>
</tr>
<tr>
<td>Other Specified Course Rx</td>
<td>0 %</td>
<td>224 %</td>
</tr>
</tbody>
</table>

### Days to First Treatment Breast Cancer: Cases Diagnosed and Treated at My Facility, 2011

![Graph showing days to first treatment](image)

<table>
<thead>
<tr>
<th>Quartile</th>
<th>1st (0-14 days)</th>
<th>2nd (15-27 days)</th>
<th>3rd (28-41 days)</th>
<th>4th (&amp;=42 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Facility</td>
<td>17.54 %</td>
<td>40.35 %</td>
<td>22.81 %</td>
<td>10.3 %</td>
</tr>
</tbody>
</table>
A look at Colon Cancer Care at CAMC, 2011 Data from the National Cancer Data Base

Stage Distribution - Colon Cancer Diagnosed in 2011, My Hospital vs. All CoC

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>NA</th>
<th>UNK</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Facility</td>
<td>3.88%</td>
<td>5.03%</td>
<td>30.1%</td>
<td>31.07%</td>
<td>15.53%</td>
<td>0%</td>
<td>13.59%</td>
</tr>
<tr>
<td>All CoC</td>
<td>5.95%</td>
<td>19.79%</td>
<td>24.36%</td>
<td>24.56%</td>
<td>19.27%</td>
<td>0.16%</td>
<td>5.92%</td>
</tr>
</tbody>
</table>

In/Out Migration Colon Cancer, 2009 - 2011- My Facility

- Diagnosed and Treated Here
- Diagnosed Elsewhere and Treated Here
Reported Race/Ethnicity - Colon Cancer, 2011

Distance Traveled - Colon Cancer, 2011
Days to First Treatment: Colon Cancer Cases Diagnosed and Treated at My Facility, 2011

![Bar chart showing days to first treatment for colon cancer cases at a facility.]

<table>
<thead>
<tr>
<th>Quartile</th>
<th>My Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Quartile (0–6 days)</td>
<td>72.88%</td>
</tr>
<tr>
<td>3rd Quartile (7–23 days)</td>
<td>18.64%</td>
</tr>
<tr>
<td>4th Quartile (≥ 24 days)</td>
<td>8.47%</td>
</tr>
</tbody>
</table>

Days to First Treatment: Colon Cancer Cases Diagnosed at My Facility or Elsewhere; Treated at My Facility, 2011

![Bar chart showing days to first treatment for colon cancer cases diagnosed elsewhere and treated at a facility.]

<table>
<thead>
<tr>
<th>Quartile</th>
<th>My Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Quartile (0–6 days)</td>
<td>61.04%</td>
</tr>
<tr>
<td>3rd Quartile (7–23 days)</td>
<td>21.68%</td>
</tr>
<tr>
<td>4th Quartile (≥ 24 days)</td>
<td>14.29%</td>
</tr>
</tbody>
</table>
Stage Distribution - Non Small Cell Lung Cancer Diagnosed in 2011, My Hospital vs. All CoC

Reported Race/Ethnicity - Non-Small Cell Lung Cancer, 2011
Days to First Treatment Non-Small Cell Lung Cancer: Cases Diagnosed and Treated at My Facility, 2011

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st (0-9 days)</td>
<td>42.40 %</td>
</tr>
<tr>
<td>2nd (10-27 days)</td>
<td>15.04 %</td>
</tr>
<tr>
<td>3rd (28-47 days)</td>
<td>15.04 %</td>
</tr>
<tr>
<td>4th (≥ 48 days)</td>
<td>27.43 %</td>
</tr>
</tbody>
</table>

Days to First Treatment Non-Small Cell Lung Cancer: Cases Diagnosed at My Facility or Elsewhere; Treated at My Facility, 2011

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st (0-9 days)</td>
<td>34.67 %</td>
</tr>
<tr>
<td>2nd (10-27 days)</td>
<td>18 %</td>
</tr>
<tr>
<td>3rd (28-47 days)</td>
<td>19.33 %</td>
</tr>
<tr>
<td>4th (≥ 48 days)</td>
<td>28 %</td>
</tr>
</tbody>
</table>
Reported Race/Ethnicity - Prostate Cancer, 2011

![Bar chart showing race/ethnicity distribution](chart1.png)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>My Facility</th>
<th>All CoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>90.06%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Black</td>
<td>0.32%</td>
<td>15.36%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0%</td>
<td>4.59%</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>0.82%</td>
<td>4.18%</td>
</tr>
</tbody>
</table>

Distance Traveled - Prostate Cancer, 2011 - My Facility

![Bar chart showing distance traveled](chart2.png)

<table>
<thead>
<tr>
<th>Distance Traveled</th>
<th>My Facility</th>
<th>All CoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=5 miles</td>
<td>2.40%</td>
<td>14.04%</td>
</tr>
<tr>
<td>6-10 miles</td>
<td>22.30%</td>
<td>17.83%</td>
</tr>
<tr>
<td>11-24 miles</td>
<td>25.19%</td>
<td>28.40%</td>
</tr>
<tr>
<td>25-49 miles</td>
<td>19.63%</td>
<td>16.13%</td>
</tr>
<tr>
<td>50-99 miles</td>
<td>24.22%</td>
<td>9.46%</td>
</tr>
<tr>
<td>&gt;=100 miles</td>
<td>0.62%</td>
<td>8.16%</td>
</tr>
<tr>
<td>Unknown</td>
<td>1.24%</td>
<td>6.01%</td>
</tr>
</tbody>
</table>
First Course Treatment Stage I & II Prostate Cancer, 2011
My Facility vs. All CoC

<table>
<thead>
<tr>
<th></th>
<th>Surgery Only</th>
<th>Radiation Only</th>
<th>Surgery &amp; Radiation</th>
<th>Radiation &amp; Hormone Therapy</th>
<th>Surgery &amp; Hormone Therapy</th>
<th>Hormone Therapy Only</th>
<th>No 1st Course Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I - My Facility</td>
<td>48.33 %</td>
<td>26.67 %</td>
<td>0 %</td>
<td>16.7 %</td>
<td>0 %</td>
<td>3.33 %</td>
<td>20 %</td>
</tr>
<tr>
<td>Stage I - All CoC</td>
<td>35.66 %</td>
<td>30.73 %</td>
<td>1 %</td>
<td>5.17 %</td>
<td>9.65 %</td>
<td>1.14 %</td>
<td>23.38 %</td>
</tr>
<tr>
<td>Stage II - My Facility</td>
<td>61.67 %</td>
<td>11.67 %</td>
<td>1.87 %</td>
<td>3.33 %</td>
<td>3.33 %</td>
<td>5 %</td>
<td>13.33 %</td>
</tr>
<tr>
<td>Stage II - All CoC</td>
<td>55.49 %</td>
<td>16.86 %</td>
<td>0.87 %</td>
<td>13.84 %</td>
<td>1.45 %</td>
<td>2.45 %</td>
<td>6.97 %</td>
</tr>
</tbody>
</table>

Days to First Treatment Prostate Cancer: Cases Diagnosed and Treated at My Facility, 2011
Days to First Treatment Prostate Cancer: Cases Diagnosed at My Facility or Elsewhere; Treated at My Facility, 2011

<table>
<thead>
<tr>
<th>Quartile</th>
<th>My Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quartile (0-35 days)</td>
<td>24 %</td>
</tr>
<tr>
<td>2nd Quartile (36-62 days)</td>
<td>15.2 %</td>
</tr>
<tr>
<td>3rd Quartile (63-95 days)</td>
<td>40.8 %</td>
</tr>
<tr>
<td>4th Quartile (&gt; = 96 days)</td>
<td>20 %</td>
</tr>
</tbody>
</table>
Unadjusted 5 Year Breast Cancer Survival Rates by Stage, 2003 - 2006

Unadjusted 5 Year Colon Cancer Survival Rates by Stage, 2003 - 2006
Unadjusted 5 Year Non-Small Cell Lung Cancer Survival Rates by Stage, 2003 - 2006

<table>
<thead>
<tr>
<th>Stage</th>
<th>My Facility</th>
<th>All CoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>44.3%</td>
<td>46.8%</td>
</tr>
<tr>
<td>II</td>
<td>18.8%</td>
<td>27.8%</td>
</tr>
<tr>
<td>III</td>
<td>6.4%</td>
<td>11.2%</td>
</tr>
<tr>
<td>IV</td>
<td>3.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>OVERALL</td>
<td>16.8%</td>
<td>16.7%</td>
</tr>
</tbody>
</table>

DISCLAIMER: (Includes patients of all ages, deaths from all causes, and there has been no adjustment for co-morbidities or other risk factors. If no result is shown, too few cases were submitted). Survival not calculated if less than 30 cases.

Unadjusted 5 Year Prostate Cancer Survival Rates by Stage, 2003 - 2006

<table>
<thead>
<tr>
<th>Stage</th>
<th>My Facility</th>
<th>All CoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>83%</td>
<td>90.8%</td>
</tr>
<tr>
<td>II</td>
<td>99.0%</td>
<td>91.1%</td>
</tr>
<tr>
<td>III</td>
<td>34.4%</td>
<td>31.0%</td>
</tr>
<tr>
<td>IV</td>
<td><em>Too few cases</em></td>
<td><em>Too few cases</em></td>
</tr>
<tr>
<td>OVERALL</td>
<td>78.2%</td>
<td>87.9%</td>
</tr>
</tbody>
</table>

DISCLAIMER: (Includes patients of all ages, deaths from all causes, and there has been no adjustment for co-morbidities or other risk factors. If no result is shown, too few cases were submitted). Survival not calculated if less than 30 cases.
Prevention and screening

Kristy Fidler

CAMC continues to reach out to our community providing a variety of prevention and screening opportunities.

CAMC has focused on Breast Health in 2014. In March, “The Future of Breast Care” conference was offered to health care professionals targeting gynecologists, family practitioners, nurses and radiology technologists. The conference focused on the most current topics affecting the diagnosis and treatment of breast cancer. Topics included presentations on risk, screening, genetics, surgery, radiation therapy, prevention and the future of those modalities. 132 participants registered for the event.

A new breast cancer awareness campaign is being kicked off in October 2014 with CAMC’s first Pink Pumpkin event. This will be a creative way for employees and affiliates of CAMC to show their support and bring awareness to the importance of breast cancer screenings.

An annually, CAMC hosts “HealthFest “at the Charleston Civic Center on the first Saturday in June. Various cancer screening and prevention topics were offered including a skin analysis booth, nutrition, breast health and tobacco cessation. A unique feature for 2014 was the “Strollin’ Colon.” This inflatable colon model gives participants a large scale look at colon cancer and the importance of colonoscopies in identifying colon cancer in its earliest stages.

CAMC and the American Cancer Society are working together to reduce cancer mortality by sending a reminder letter out to patients who are past due for a recommended cancer screenings including colonoscopies, regular pap tests, clinical breast exams and annual mammograms for women age 40 and older. On an ongoing basis, CAMC offers free information regarding a variety of health and wellness screening and prevention topics through the Health Information Center on camc.org. In addition, PhysicianMatch is offered to individuals seeking a physician.

This service is free and available to anyone in the community.

The 2014 Run For Your Life run/walk was one of the most successful events so far. Revenues were up by nearly 40 percent over last year. Sponsored by the CAMC Foundation, Run For Your Life featured 271 participants and raised $25,400 to support colorectal cancer awareness and screening.
Inpatient Oncology Unit  
Jennifer Ferrell, RN, OCN, nurse manager

The inpatient oncology unit completed renovations in the fall of 2013 and now has 29 private rooms and baths. This has created an environment that is conducive to individualized care and promotes healing for patients and their families. There is also a family resource room on the unit that 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.

We are constantly striving to provide our patients with the best experience while they are in the hospital. In the fall of 2014, we are excited to lay the groundwork for an art therapy program in hopes to enhance that experience. It can provide a distraction allowing patients to focus on something positive as well as giving them an outlet for creativity. In addition to the art therapy program, we have added a piano to the unit to create a healing environment. Music can be soothing and comforting to a patient during a difficult time.

The nursing staff is excited about the additional services we will be able to provide to our deserving patients and we hope to continue to grow upon these services.
ONCOLOGIC SURGERY
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.

The oncologic surgeons have frequently been the first in the state to introduce treatment modalities for complex surgical oncologic problems. Such was the case, for instance, with intra-arterial delivery of chemotherapy for patients with head and neck tumors, or the use of hyperthermic arterial infusions for melanoma, or the insertion of pumps in the hepatic artery to deliver chemotherapy to hepatic tumors.

Every week the section’s surgeons treat patients with tumors of the breast, thyroid, colon, rectum, pancreas, liver, melanoma, esophagus, stomach and many others. James Lohan, MD and Benjamin Dyer, MD are using the advanced technology of robotic surgery to aid in the surgical resection of colon cancer, and with assistance of the plastic surgery department, are able to have patients receive immediate or delayed breast reconstruction. A large number of patients have benefited from the surgical skill of Bryan Richmond, MD whose vast experience includes thyroid and pancreatic cancer. The expertise in the areas of hepato-biliary surgery has been enhanced with the recruitment of Michael Elmore, MD, a surgical oncologist who has rapidly taken charge of patients with liver, pancreas and biliary tumors.

Dr. Elmore is a surgical oncologist who specializes in surgery of hepatic and biliary tumors, many of which he approaches laparoscopically. He has successfully removed metastatic liver tumors using advanced techniques, such as radio frequency ablation. When all tumor burden can thus be removed from the liver and treatment is coupled with chemotherapy, patients have a chance to survive that can be as high as 40% at five years, an outcome not commonly seen in years past.

The team of surgeons in this section consistently applies the latest technological advances used in surgery of solid tumors.
CAMC Physicians Group urologists offer a unique, team approach to cancer care
Urologists with CAMC Physicians Group specialize in all areas of urologic care, including cancers of the kidneys, prostate, bladder and testicles.

“Our goal is to improve the quality of care for West Virginians,” said James P. Tierney, DO, medical director of the CAMC Physicians Group Urology practice and vice chief of urology at CAMC. “We are treating two of the top five cancers at CAMC, prostate and kidney, which speaks to the volume of what we are dealing with here.”

According to the American Cancer Society, prostate cancer is the second leading cause of cancer death in American men, behind only lung cancer. About 1 in 7 men will be diagnosed with prostate cancer during his lifetime, and 1 in 36 will die of the disease.

In addition to minimally-invasive treatment options for prostate cancer, such as robotic-assisted surgery, CAMC Physicians Group urologists now offer a test called Prolaris™ that analyzes genes from a patient’s prostate cancer to determine the best course of treatment. Prolaris® is a breakthrough in prostate cancer testing because it can predict whether a tumor will be aggressive or slow-growing.

“As a clinician, I advocate for evidence-based medicine,” said Tierney. “The Prolaris® test accurately tells me if a patient has an aggressive prostate cancer or not and guides my treatment decisions. I must ask the same question for every patient: should I use surgery or radiation, or should I use active surveillance and watchful waiting? Prolaris® helps me answer these critical clinical questions.”

Cancer of the bladder is also among the most common cancers in men diagnosed at CAMC. Nationally, bladder cancer is the fourth most common type of cancer in men, and the eighth most common in women. Smoking is the most common cause of bladder cancer. The most common initial sign of the disease is red-colored urine, which calls for urine cytology (a test performed on cells in urine to detect cancer), imaging of the kidneys and cystoscopy.

CAMC is one of a select number of medical centers nationwide offering a new technology for the detection of papillary cancer of the bladder in patients with known or suspected bladder cancer.

Cysview® is used to detect bladder cancer in individuals suspected or known to have lesions in the bladder, based on a prior cystoscopy (examination of the bladder and urethra using a cystoscope, which is a thin, tube-like instrument with a light and a lens for viewing). It also helps to better treat early bladder cancer by improving the ability to remove early tumors that are not yet visible with traditional white light cystoscopy.

Cysview® is used with a photodynamic diagnostic system, which includes a white light setting to illuminate the bladder during a routine cystoscopy, and a blue light setting to induce and view fluorescence, thereby enabling physicians to detect lesions in the bladder.
“Bladder cancer is difficult to visualize and treat effectively,” said Samuel Deem, DO, who is fellowship trained in urologic oncology. “A missed diagnosis or less than optimal resection can result in delayed or incomplete treatment, which may lead to serious complications and a lower chance of survival for patients with potentially aggressive tumors. Cysview® has been shown in multiple clinical trials to significantly improve tumor free recurrence rates when compared to white light cystoscopy.”

In the summer of 2014, CAMC Physicians Group welcomed Ramanathapura N. Haricharan, MD, specializing in Pediatric Surgery and Pediatric Urology. Dr. Haricharan graduated from Mysore Medical College and Research Institute before completing a General Surgery residency at University of Alabama Medical Center. He then completed a fellowship in both Pediatric Surgery and Pediatric Urology at Children’s Hospital of Eastern Ontario. He is certified by the American Board of Surgery in General Surgery and Pediatric Surgery.

The addition of Dr. Haricharan has expanded and updated cancer care for children.

For more information, visit camc.org/urology or call (304) 388-1900.
Endoscopic Ultrasound (EUS)
Jeremy R. Stapleton, DO

Endoscopic Ultrasound (EUS) combines endoscopy and ultrasound in order to obtain images and information about the digestive tract and the surrounding tissue and organs.

“When the procedure is performed, conscious sedation is administered. Once the patient is sedated, a special endoscope is inserted which has a camera for direct visualization of the esophagus, stomach, small bowel, or colon; as well as an ultrasound probe for examination of surrounding structures,” said Jeremy R. Stapleton, DO.

At that time, the physician observes the inside of the intestinal tract on a television monitor and the ultrasound image on another monitor. The entire procedure takes about 30 to 90 minutes, depending on the complexity and whether or not fine needle aspiration (FNA) is performed.

“Endoscopic ultrasound has become a crucial part of the diagnosis, staging and management of numerous gastrointestinal and mediastinal diseases,” Stapleton said.

EUS can help diagnose via FNA and stage gastrointestinal cancers including pancreatic, esophageal, gastric, duodenal, ampullary, and colorectal cancers. Other indications for EUS include; evaluation for chronic pancreatitis, evaluation of pancreatic masses, detection of common bile duct stones, assessment of enlarged stomach folds or submucosal masses that may be unreachable by surface biopsies, and safely and accurately collect fluid samples from the abdominal cavity or pancreatic cysts for analysis.

“There are probably fewer than five physicians performing this procedure throughout the state, and three of them are here at CAMC,” Stapleton said. “Endoscopic ultrasound can have extremely important implications in diagnosis and management through diagnostic FNA and staging of cancers.”
Gynecologic Oncology

Michael Schiano, MD, is an ABOG board certified Gynecologic Oncologist and head of the Gyn-Oncology department, having 20 years of clinical practice and research experience. This is one of the busiest and most experienced Gyn-Oncology departments in the state.

A Gynecologic Oncologist is an Obstetrician/Gynecologist who specializes in the diagnosis and treatment of women with cancer of the reproductive organs. This includes cancer of the ovary, uterus (endometrial), cervix, vagina, vulva, as well as trophoblastic disease. In order to become a Gynecologic Oncologist the physician must complete a 4-year residency training program in Obstetrics and Gynecology followed by a 3-4 year clinical fellowship in Gynecologic Oncology. This additional training provides the skills needed for optimal care of women with gynecologic cancer.

There are only a limited number ABOG (American Board of Obstetrics and Gynecology) certified Gyn-Oncology specialty training programs and as a result, a relatively small number of Gynecologic Oncologists are available throughout the country. Gynecologic Oncologists are trained in providing comprehensive, multidisciplinary care and in that way are unique among surgical oncologists. They are skilled surgical oncologists who are also trained in administering chemotherapy. The Gynecologic Oncologist is also trained to optimally direct and place brachytherapy devices for radiotherapy when required (this is performed with the radiation oncologist). Therefore the gynecologic oncologist is able to provide an outstanding degree of continuity of care for their patients.

Dr. Schiano is also an Associate Clinical Professor for the WVU/CAMC division School of Medicine and provides clinical/surgical training for Resident physicians from the CAMC Obstetric-Gynecology residency training program. Dr. Schiano and his team’s dedication to the education of future specialists and the multidisciplinary approach to female cancer care helps to insure optimal outcomes for women in our community.
CAMC Hemophilia Treatment Center
The CAMC Hemophilia Treatment Center (HTC) is a comprehensive program funded in part through 2 federal grants. People throughout the life span are seen who have a congenital bleeding disorder, such as hemophilia and von Willebrand disease. Clinics are offered for both pediatrics and adults at CAMC Memorial Hospital with three clinics in Teays Valley annually. Dr. Steven Jubelirer is the medical director and adult hematologist. Dr. Chibuzo O’Suoji and Dr. Howard Grodman are the pediatric hematologists.

The federally funded Hemophilia Treatment Centers were originally a pilot program through the Centers for Disease Control and Prevention for provision of comprehensive care. During clinic visits, approximately 180 patients annually are seen by a hematologist (adult or pediatric), RN, social worker and a physical therapist. People with congenital bleedings disorders who receive care in a HTC have fewer complications, live longer and a reduction in hospital admissions.

A 340B factor program is offered to all eligible patients seen at the HTC. This program distributes required factor products to the patients’ homes through a contract pharmacy. This gives the patients the additional choice of providers and allows the HTC revenue to be used for program and patient costs.
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.

Associated Radiologist, Inc., comprised of 17 full-time board certified radiologists with expertise in nearly every specialty and diagnostic modality, staffs the Department of Radiology. Faculty members have received training in outstanding medical centers throughout the United States, many completing postgraduate work and fellowship training. The department is composed of highly dedicated physicians, nurses, technologists and staff who specialize in cancer screening, diagnosis, intervention and surveillance.

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 equipment. We have three full-field (1.5 tesla) MRI scanners and one three tesla MRI scanner. One of the 1.5 and the 3T are large diameter bore for claustrophobic and larger patient accommodation. CAMC’s newest MRI scanner, the Philips Ingenia 3T, provides unique capabilities in many areas of study, specifically neurological imaging. One feature of this technology is the NeuroQuant®, which is a special analysis that is added to a brain MRI. The NeuroQuant® is a tool that screens for Alzheimer’s disease and other neurological disorders. It automatically measures the size of the structures in the brain and compares scans against a national database, the Alzheimer’s Disease Neuroimaging Initiative. Functional MRI (fMRI) is another capability of the 3T MRI. The 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.

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 World Wide 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. Mammography is performed at the Breast Center and both outpatient imaging locations. The Breast Center is a Center of Excellence as awarded by the American College of Surgeons.
In CT we have a fixed 16 slice CT scanner combined with a fixed PET scanner; one 256-slice CT scanner, two 128-slice scanners, two 64-slice CT scanners and two 16-slice CT scanners.

In 2012, CAMC Women and Children’s Hospital unveiled its newest 128-slice CT machine. This scanner produces faster scans and is equipped with low-dose technology allowing a lot less radiation to be used – while a computer program boosts the quality of the image. The renovated CT room also features an ambient experience which creates a friendly atmosphere for both children and adults. The room is specially-designed with curved walls for projecting images, providing a movie theatre-like experience without glasses or headphones needed. An important aspect of the system is the patient actually chooses the room theme before their scan using a special control pad. This interaction between patient and equipment is designed to make people more relaxed and move their attention away from any anxiety caused by the impending procedure. This atmosphere also reduces the need for conscious sedation in children.

CAMC is privileged to have our 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 over the last few years, CAMC has maintained production to allow for Nuclear Medicine procedures for our patients and community providers.

CAMC Imaging Services uses PACS or Picture Archiving, Communication and Storage system which eliminates standard X-ray film. This technology allows for faster interpretations and provides improved accuracy, efficiency and satisfaction by patients and clinicians. We have a shared VPN with several facilities such as Logan Regional Medical Center, Raleigh General, Greenbrier Valley Medical Center, WVU Hospitals and Summersville Regional Medical Center so we can share images with clinicians at these locations to assist in the transition of care for patients transferring out of or in to CAMC. In 2014 patients can view and download their imaging reports within 36 hours of their exam completion thru a patient portal once provisioned through the hospital.
Pathology
CAMC Department of Pathology Laboratory Medicine is accredited by the College of American Pathologists. The department’s 13 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.

CAMC’s Department of Pathology has approximately 35,000 surgical cases and 24,000 cytology cases per year. 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 weekly Tumor Board Conference with oncologists, radiologists, and surgeons. Pathologists also present cases discussed at Genitourinary Pathology Conference, Neuroscience Rounds, and Orthopedic Conference. There are intradepartmental conferences held twice a week for evaluation of problematic cases.

The Department of Pathology is affiliated with West Virginia University’s Pathology Residency Program, and WVU residents regularly rotate through the various laboratory areas.
Palliative Care
Deborah J Cotes, DO
Medical Director, Palliative Care Services

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.

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

Our services now include an outpatient clinic offering the same services with a physician referral.