CAMC Oncology Services

The future of cancer care has arrived at CAMC and all of it with the patient in mind.

Patients will notice it in enhancements we’re making such as involving patients and the community in a collaborative practice program, adding patient navigators to assist patients’ needs during their treatment, to equipment upgrades and adding new physicians.

The public will notice the importance CAMC is putting on cancer care when construction begins on the state-of-the-art cancer center. CAMC already has the busiest cancer center in West Virginia (more new patients each year and more research protocols than any other hospital in the state) and the number of patients continues to climb. The new center will consolidate adult oncology outpatient services, provide more space for anticipated growth and provide better flow and throughput for patients.

CAMC’s cancer program was last surveyed on April 14, 2008, and was awarded full accreditation with commendation. CAMC’s next survey is April 2011.

The following articles show how far CAMC has come since cancer services were first accredited 60-years ago, and current efforts to take that tradition of quality to new levels.
**Working toward a stand-alone outpatient cancer center**

For more than 60 years, cancer services in Charleston have been accredited by the American College of Surgeons. Before the creation of Charleston Area Medical Center, care was provided at Charleston Memorial Hospital.

This tradition of quality cancer care lives on today at the David Lee Cancer Center (DLCC) on the CAMC Memorial Hospital campus. But there’s a problem, the number of patients continue to grow faster than available space.

If current trends continue, DLCC expects to treat about 34,000 patients in 2017, nearly double the number it saw in 2004.

There is a need in southern West Virginia for comprehensive outpatient cancer care based on an increase in cancer, both regionally and across the United States.

Even with recent renovations, the David Lee Cancer Center has major space constraints. Due to this issue, CAMC has been limited to seven oncology specialists.

Administrators believe a comprehensive, consolidated and freestanding outpatient cancer center will bring hospitals, physicians, allied health professionals and communities together to provide quality and convenient care.

The estimated cost is more than $39 million. It will be built on the old Watt Powell Park property, a vacant lot across the street from CAMC Memorial Hospital. The building will be three floors and will include street level parking (no garage). The exact floor plans are not complete.
“CAMC has the busiest cancer center in West Virginia – we have more new patients each year and more research protocols than any other hospital in the state,” said David Ramsey, CAMC President and CEO. “We expect oncology patient volume at CAMC to grow significantly in the years ahead, largely due to our state’s aging population and concentration of Baby Boomers.”

To meet the soaring patient need, two new oncologists joined the DLCC in 2010 with an additional oncologist scheduled to arrive in 2013. However, there is no additional office space or patient treatment space in the current facility to accommodate our new physicians. Right now demand is outpacing capacity.

“The new center will move many ambulatory cancer patients off-site, creating significantly more capacity for other services on the Memorial campus,” said Jeff Goode, Vice President, CAMC Ambulatory Services. “We will have the ability to provide regular multi-disciplinary clinics in one location to streamline both diagnosis and treatment.”
Many cancer and cancer-related services will be more effectively and efficiently served by the new center including: radiation oncology, medical oncology, oncological surgery office space, clinical trials and an infusion center.

Additionally, CAMC expects to cut patient wait times, add more infusion bays, add four new linear accelerator vaults and add 25-30 physician offices and exam rooms.

The outpatient center will allow for improved patient experience through a soothing atmosphere that will imbue the center with “life” with features that include: an open, light-filled environment; multiple, comfortable waiting areas; family and community meeting space; patient reference library; coffee shop and/or café; wig and prosthesis shop; and healing garden.

**Multidisciplinary Cancer Care**
Developing a patient’s optimal treatment has become very complicated, and often necessitates the opinion and contribution of multiple specialists.

The cornerstone and a crucial element for multidisciplinary management is the Cancer Conference (Tumor Board). CAMC’s cancer conference is a well established and consistently well attended weekly multidisciplinary meeting.

Studies demonstrate that multidisciplinary management for cancer leads to improved outcomes.

Core members and case presenters include multiple practitioners from each medical oncology, radiation oncology, surgery/surgical oncology, pathology, and diagnostic radiology specialties. Other participants with important contributions include oncology nurses, palliative care specialists, hospice specialists, psychology, pharmacology, tumor registry (data management representatives), clinical trials and research, WVU medical students, residents (physicians in training) and nursing students.
The David Lee Cancer Center (DLCC) is CAMC’s outpatient 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.

In 2009, DLCC provided care for 39,314 beneficiary encounters including 29,444 patient visits and 9,870 chemotherapy-related infusions. Annualized care encounters for 2010 based on data available through October showed 39,802 beneficiary encounters including 29,441 patient visits and 10,361 chemotherapy-related infusions. In 2010, inpatient admissions or observation care was provided for 2,618 beneficiary encounters. Compared with 2001 data, in 2009 there was a 42% increase in patient visits and a 49% increase in chemotherapy-related encounters.

To meet the growing access-to-care needs of our patients and families, DLCC Hematology Oncology Staff added two physicians to our care team in 2010 bringing the total number of Staff Physicians to seven plus one part-time physician. We are pleased to welcome Dr. Suzanne Cole and Dr. Ni Gorsuch who completed their training at MD Anderson Cancer Center, Houston, TX and Mayo Clinic.
Clinic, Rochester, MN, respectively. Expansion of DLCC clinical space now includes a new cancer care suite on the 2nd floor, Medical Staff Office Building, added in the summer of 2010 to accommodate our growing physician staff. In addition, we are pleased to welcome three additional Nurses to our DLCC Nursing Team: Mikaela Riley, RN, BSN, OCN, Sarah Huff, RN, OCN (Colorectal Cancer Patient Navigator) and Carrie Thaxton, RN. Compared with 2001, we have expanded our physician staff by 100% (from 4 to 8) and support staff by over 103% (from 25.2 to over 50). Activities are underway to seek expansion of our Hematology Oncology Physician Assistant Team from three to four PAs and enhance the educational and training activities for this valuable cadre of Mid-level Providers.

2010 has been a novel year with the November introduction of a formal Pet Therapy Program. Inspired by the innovative patient-centered care initiated by our Pediatric Hematology Oncology colleagues and supported by the Adult Oncology Collaborative Practice Committee, the introduction of 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 that 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. 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. 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. In preparation for the Cancer Center of the Future, with a hopeful ground-breaking in 2012, DLCC Physicians and leadership Staff have contributed to numerous center-wide activities in preparing for this enhancement to our Medical Center’s cancer support mission.

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 faculty appointments provide clinical training in Adult Hematology Oncology for the newly created four-week block rotations as well as providing year-round formal
clinical 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.

Clinical Cancer Research activities have been central to providing state of the art cancer care opportunities for our patients for over 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. Steven Jubelirer has been the Physician Champion for this research effort in partnership with the CAMC Health Education and Research Institute (CHERI). He 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 by the National Cancer Institute. Recently, DLCC Physicians and CHERI Leadership in joint collaboration with other cancer clinical trial sites and oncology practice sites in WV have agreed to establish a program of statewide access to important cancer clinical trials with the West Virginia Oncology Society (WVOS). This West Virginia Clinical Trials Network has the potential to provide Oncologist’s and their patients clinical trial access not otherwise provided outside of the state’s few sites offering clinical cancer research trial access. As the 2011 President-Elect for the WVOS, Dr. Frame will be working with statewide cancer care leaders to build upon current efforts to establish the WV-CTN as a 501c (3) non-profit organization accessible to all participating oncology practice sites in WV.

Publications from Physicians of the David Lee Cancer Center (2009-2010):


Frame JN, Spence C. Health economics of subcutaneous desirudin relative to argatroban in patients with clinically-suspected or confirmed heparin-induced thrombocytopenia (HIT): The PREVENT-HIT Study. (Accepted for Poster Presentation and publication in Proceedings of the Society of Critical Care Medicine; for January 2011 National Mtg, San Diego, CA)

Meeting Abstracts (posters)


Steven J Jubelirer, MD, Elaine A Davis, RN, EdD, Brian Hodges, Pharm, D, Lillian D Morris, RN, MS and Karen S Miller, RN, MBA. Decreasing Adverse Events From Warfarin In a Community Hospital Setting. 52nd ASH Annual Meeting and Exposition, Orlando, FL. December 2010. Poster number 2554.

Publications


Oncology Collaborative Practice
Jo Thomas, RN, OCN, BSN, CNIV

The Oncology Collaborative Practice committee at Charleston Area Medical Center is a multi-disciplinary group that meets monthly to discuss issues surrounding cancer care.

The goal of the committee is to improve the quality care that is provided daily to cancer patients and their families. The group is comprised of physicians, pharmacists, nurses, dieticians, a physical therapist, social workers, a chaplain, and patient representatives.

The group was pleased to announce the first patient member of the group in 2010. The patient representative was added to demonstrate patient centered care within the collaborative group.

The committee has written and approved policies, made suggestions for improvement to other committees, and resolved issues among departments, all while focusing on quality patient centered care.

Submitted in memory of Tim Taylor, the first patient member of the Oncology Collaborative Practice.

Patient Navigation
Jo Thomas, RN, BSN, OCN, CNIV

CAMC cancer services takes a patient focused approach in which trained individuals proactively guide patients through and around barriers in the complex cancer care system. This method is referred to as “patient navigation.” The purpose of patient navigation is to ensure that all patients with suspicious findings receive timely diagnosis and treatment. Assisting the underserved by navigating them through the system can have a substantial impact on reducing cancer related health disparities.

Currently CAMC has two disease site specific patient navigators, a breast cancer navigator and a colorectal cancer navigator. The breast cancer navigator is located at The Breast Center at Women and Children’s hospital.

Deborah Lindell was a patient member of the Oncology Collaborative Practice. She passed away Dec. 15.

(Sarah Huff, David Lee Cancer Center and Amy Beaver, The Breast Center)
This navigator specializes in providing support to patients that have a suspicious finding or that are diagnosed with breast cancer. The colorectal navigator is a new position at David Lee Cancer Center and will focus on assisting patients with suspicious findings or malignancy in the colon and rectum.

The process of patient navigation is important, as it uses a collaborative approach to meet the needs of the patient. Navigation facilitates communication between the patient and the health care provider. The patient will be followed at intervals including abnormal test result, diagnosis, treatment and survivorship.

Patient navigation is a benefit to the community and to the patient by saving lives through outreach and education, eliminating barriers to care, and providing a timely delivery to care.

Pet therapy
They have names like Barney, Bailey, Choe, Mazie and Kijana. They aren’t employees, but they can still help patients coping with cancer.

Clinical research has shown that people who participate in pet therapy have lower blood pressure readings, decreased heart rates and overall lower stress levels. Programs such as this are gaining in popularity across the country. CAMC is pleased to be part of this growing trend.

The pet therapy program provides the patient therapeutic opportunities to interact with trained therapy dogs. Local volunteers and their therapy dogs allow the patient to interact and play with their four-legged friends. These interactions often result in reduced anxiety, reduced pain, and a more positive outlook on the hospital experience.

Children are not the only patients who can benefit from interacting with specially trained dogs while hospitalized. Adults who receive treatment at the David Lee Cancer Center, and those who are admitted to the inpatient oncology department for care, may have the opportunity to spend time with therapy dogs.

Although participation is voluntary, and certain health concerns may be prohibitive, patients who take advantage of this service find the experience to be worthwhile.
The Breast Center at CAMC: Offering personalized care for women

by Roberto Kasminsky, MD

The concept of a breast center is an evolutionary approach to the care of breast diseases. A breast center like the one CAMC has had in operation for many years offers patients a mature system of centralized services provided by a multidisciplinary team of expert breast care physicians, nurses, technicians and therapists, using state-of-the art technology. The services are specifically designed to ensure a speedy evaluation and diagnosis of breast problems. The multidisciplinary/consensus-based decisions of care used for each patient with breast cancer produces options of treatment unique to each patient. This rapid personalized care is made possible by a bundle of services now available through the CAMC Breast Center.

**EVALUATION**

- In most cases, a physician wishing a patient evaluation should have access to the Breast Center within 24 hours, and frequently the same day in which the need arises.
- Patients who are self-referred will also receive speedy access to evaluation, simply by calling (304) 388-2861.
- Specialized breast nurses offer advice on early detection and prevention programs.
- Risk assessment, including genetic risk, can be accomplished at the Breast Center during any visit. Depending on the risk value results, referrals to the appropriate experts can be expedited.
- Imaging studies are performed the day of the evaluation. These studies include digital mammography, ultrasonography and, occasionally, MRI.
- Minimally invasive diagnostic procedures can be performed the same day the patient comes in for an exam. These often consist of ultrasound or stereotactic guided core needle biopsies, sparing patients the need for operating room access.
- An expert breast nurse navigator guides patients through the complexities of a highly sophisticated system, providing them with support, symptom management and coordination of care. She ensures clear understanding of the patient’s medical reports and recommendations, and makes available specific help from the variety of resources at hand.

If the patient is found to have breast cancer, her specific circumstances are discussed in a multidisciplinary breast conference with a team of experts including breast radiologists, breast surgeons, oncologists, radiation oncologists, breast pathologists and reconstructive plastic surgeons. The resulting recommendations produce a personalized and unique plan of care with options which will be discussed with the patient (and family, if desired) prior to a decision on definitive treatment.
ADDITIONAL SERVICES

- Radiologists with specific expertise perform MRI guided biopsies when indicated.
- Radiation therapy services include stereotactic radiation treatments for specific problems, minimizing in this manner some possible side-effects and cutting effectively the total time otherwise required for conventional treatment modalities.
- Oncologists frequently discuss the possibility of chemoprevention with patients at high risk.
- Evaluation of patients with breast cancer includes identification of patients who might benefit from tests to determine their recurrence score.
- Pathological analysis of prognostic and predictive indicators is routinely done in patients with the histological diagnosis of breast cancer.
- Evaluation, prevention and treatment of post-surgical needs by physical therapists trained to assess specific risk associated with breast surgery, such as lymphedema and shoulder range of motion.
- Psycho-social support
- Access to enrollment in clinical research studies
- Second opinions by experts on breast diseases on any issues affecting patients with newly or previously diagnosed breast cancer, or benign disease.
- Educational programs on breast health for groups, and for individuals through a website currently in development. Available programs include information on breast cancer prevention and early detection.
- Educational materials, which span the spectrum of breast diseases, are available at the Breast Center. A breast library for patients is in the planning stages, as is the availability of a boutique for patients with special needs.

These services are provided in the newly remodeled Breast Center, on the second floor of the medical staff office building at CAMC Women and Children’s Hospital. Patients are seen and cared for in the comfort of a private setting, where they can be accompanied by their families and friends.
Endoscopic Ultrasound (EUS)

Endoscopic ultrasound has become a crucial part of the diagnosis, staging, and management of numerous gastrointestinal and mediastinal diseases. Access to this technology is extremely beneficial to the patients of this area. Our patients can now have complete care at our institution with diagnosis, staging, and treatment. There are fewer than five physicians performing this procedure throughout West Virginia, and three of them are here at CAMC.

Endoscopic Ultrasound (EUS) combines endoscopy and ultrasound in order to obtain images and information about the digestive tract and the surrounding structures. Local staging of malignant processes can be obtained with information on depth of invasion and local lymphadenopathy. Ultrasound guided fine needle aspiration or core biopsy can be performed for diagnostic purposes.

Listed are just a few of the indications for Endoscopic Ultrasound:

- Diagnose and Stage gastrointestinal (esophageal, gastric, duodenal, rectal, ampullary and pancreatic) and mediastinal cancers
- Assess and sample (FNA) mediastinal and peri-enteric lymphadenopathy or masses
- Detect common bile duct stones (EUS is less invasive than ERCP with equal accuracy and more accurate than trans-abdominal ultrasound)
- Assess and sample (FNA or core biopsy) submucosal masses of the gastrointestinal lining such as carcinoids, lipomas, gastrointestinal stromal tumors or other spindle cell tumors
- Assess and sample (FNA) enlarged stomach folds that may be involved with cancer deep in the stomach wall and unreachable by surface biopsies
- Most accurate imaging study to evaluate for the presence of chronic pancreatitis
- Assess and sample (FNA) cysts of the pancreas or other organs

Ultrasound guided celiac plexus block or neurolysis for pain control in pancreatic cancer or chronic pancreatitis.

superDimension

The human lungs are like tree branches because there are many divisions within them. A regular scope cannot reach the outer two-thirds of the lungs, meaning that, in the past, people with suspicious nodules were put primarily on a “wait and watch” course of treatment, which is frightening for all involved. With the superDimension system, a bronchoscope can extend to regions deep within the lung.
“It works like GPS works in a car,” said Tom Takubo, DO. “A catheter is used to look at sensors placed on the chest and is guided through the complex lung system.”

Using these sensors, a three-dimensional roadmap of the lung is transferred to a special software system to track the real-time position of the guide catheter. This targets lesions in the lungs. Once arriving at a target, the location sensor is removed and the guide catheter provides a channel for diagnostic or therapeutic tools.

“This system will allow us to catch lung cancers much earlier,” Takubo said. “This is the first significant advancement in years that actually might increase the survival rate of those diagnosed with lung cancer, and right now only 5 percent of hospitals in the country are using it.”

**Oncology unit expands to accommodate more inpatients**

*Valerie Jividen, RN, BSN, OCN, Nurse Manager*

With the addition of 5-East, there are 36 total beds dedicated to the oncology patient population. The seven rooms on 5-East are private and, when renovation is complete on 5 South (29 rooms), all 36 rooms will be private.

All of the rooms are designed so that patients’ family members and loved ones may visit without being crowded. In fact, there are sofa beds in every room to accommodate overnight guests.

Renovations should be complete by the end of spring 2011.

The goal of the unit is to create inviting spaces that encourage rest and personal growth during the healing journey.

The renovations add to some very liberal visiting hours. Family members already are encouraged to become involved to provide support for patients during their treatment and recovery.

The oncology unit has a dedicated, highly skilled and efficient staff available to meet the diverse needs of patients during an intensely challenging time in their lives.

The staff also provides the education and tools needed as family members make the transition to caregiver.
Robot used for oncology surgeries
CAMC now has six surgeons using the high definition version of Intuitive Surgical’s da Vinci Surgical System for a wide-range of surgeries.

Surgeons have performed about 50 kidney cancer procedures, removing only the tumor instead of the entire kidney which used to be the standard. Doctors also have done several lymph node staging procedures for cancer patients.

While the da Vinci robot has been in use for a few years, this upgraded version takes surgery a step further by integrating 3D high definition endoscopy and state-of-the-art robotic technology to virtually extend the surgeon’s eyes and hands into the surgical field. It offers twice the effective viewing resolution, providing improved clarity and detail of tissue planes and critical anatomy. In addition, the da Vinci S shares the same core technology as the standard da Vinci System, providing surgeons with unparalleled precision, dexterity and control.

Physicians say one of the advantages is the visualization, which is 3D, and the magnification available. Blood vessels and dissection planes are easily identified, which reduces the risk of injury to other structures. The ease of suturing and tying knots is also an advantage over traditional laparoscopy.
CHARLESTON RADIATION THERAPY CONSULTANTS (CRTC):
AN IMPORTANT ALLY IN THE FIGHT AGAINST CANCER
By Prem Raja, MD

CRTC is CAMC’s Radiation Oncology Department encompassing the lower floor from the CAMC David Lee Cancer Center, where its dedicated team of medical experts utilizes the latest in state-of-the-art technologies to help fight cancer.

The Radiation Oncology Department involves a 45-member team consisting of Radiation Oncologists, Medical Physicists, Medical Dosimetrists, Radiation Therapists, Radiation Oncology Nurses, and support staff, each dedicated to providing excellence in patient-centered care. This includes five American Board Certified (ABR) Radiation Oncologists and three full-time, on-site American Board Certified Medical Physicists ensuring the highest standard of quality assurance.

CRTC is fully accredited by the American College of Radiation Oncology (ACRO). This accreditation process involves an in-depth appraisal of the practice facility, equipment, policies, procedures, staff and clinical treatment methods. The American College of Radiation Oncology (ACRO) concluded the CRTC Radiation Oncology practice to be “a well organized and operated radiation oncology practice that not only meets but in many aspects exceeds the ACRO Standards of practice accreditation”.

Radiation Treatment Options Available at CRTC:

- 3D Conformal Radiation Therapy (3DCRT)
- Intensity Modulated Radiation Therapy (IMRT)
- Image Guided Radiation Therapy (IGRT)
- 4D (four dimensional) CT-based treatment planning
- Stereotactic Radiosurgery (SRS): for brain
- Stereotactic Body Radiation Therapy (SBRT)
  - Stereotactic tools/systems (3): Radionics XKnife, Brain Lab’s ExacTrac, Sieman’s MVision.
- Superficial Radiation Therapy (skin cancer)
- Advanced Brachytherapy Program
  - High Dose Rate (HDR) Intracavitary Brachytherapy (uterine/cervix cancer)
  - High Dose Rate (HDR) Interstitial Brachytherapy (soft tissue sarcoma)
  - Mammosite Brachytherapy (accelerated partial breast radiation)
  - Prostate Seed Brachytherapy
- Radiation Oncology Research and Education
3D Conformal Radiation Therapy (3DCRT)

In the past, radiation oncologists could only plan using two dimensions (width and length), due to limitations in imaging technology. With current advanced imaging and computer technology, CRTC’s Radiation Oncologists can plan treatment in three dimensions (length, width, and depth). This process is known as 3D Conformal Radiation Therapy (3DCRT).

The process starts with a CT scan, which gives a three dimensional picture of the patient’s body, including the tumor to be treated as well as all normal anatomy. This picture can be supplemented with additional information from other 3D images such as PET and MRI scans which can be “fused” or superimposed with the planning CT.

Using this picture as a map of the body, the Radiation Oncologist identifies the target to be treated and any sensitive healthy tissue that needs to be avoided. The Radiation Oncology team then uses powerful computers to design a radiation treatment plan with multiple beams aimed at the target. Each beam is shaped to deliver the optimal dose to the target, while avoiding surrounding sensitive normal structures. Thus, the radiation “conforms” to the target volume.

Intensity Modulated Radiation Therapy (IMRT)

Intensity Modulated Radiation Therapy (IMRT) is a specialized form of 3DCRT that allows radiation to be more precisely shaped to fit the tumor. With IMRT, the radiation beam can be broken up into many “beamlets” and the intensity of each beamlet can be adjusted individually. This allows for better control over shaping the radiation delivery to the target volume while avoiding healthy tissue. In many situations, this can allow a higher dose to the tumor while improving normal tissue avoidance, increasing chance for cure.

Image Guided Radiation Therapy (IGRT)

3D-CRT/IMRT is further enhanced with use of daily image guidance (IGRT). One challenge that the radiation oncology team faces is how to accurately and consistently position the patient for their daily treatments. Tumors are not always where they are expected to be because of patient movement/breathing and normal tissue filling (GI tract, rectum, bladder, etc.) which can change between each treatment and during treatment.
With IGRT an image is obtained daily before and during radiation treatments. This identifies precisely where the tumor and other critical normal structures reside at the most important time, when the treatment is being given. In some cases, we implant a tiny piece of metal called a fiducial marker near or in the tumor to further help localize the tumor during IGRT. Changes in set up can be made to insure optimal daily targeting.

CRTC offers the most advanced Image Guided Radiation Therapy currently available. We utilize daily infra-red visualization and kilovoltage-based tumor tracking using BrainLab’s Exac-Trac 6-dimensional X-ray system. This allows day-to-day accuracy to within one to two millimeters, a level of precision that is higher than what has ever been achieved before.

**4D (four-dimension) CT-based treatment planning**

A technique that provides information to help plan when breathing impacts tumor motion. This allows us to conform the radiation dose to the tumor’s motion. By accounting for tumor motion during breathing, doses to critical normal organs can be limited allowing the delivery of higher doses to the tumor. This tool along with other technologies allows Stereotactic Body Radiation Therapy (discussed later below).

**Brain Stereotactic Radiosurgery (SRS)**

Stereotactic Radiosurgery is a highly precise form of radiation therapy used primarily to treat tumors and other abnormalities of the brain. This has been performed by CRTC Radiation Oncologists for more than ten years, which is longer than any other department in the state. Despite its name, stereotactic radiosurgery is a non-surgical procedure that delivers a single high dose of precisely targeted radiation using highly focused X-ray beams aimed at the brain tumor. This is usually provided in a single treatment however is sometimes provided in multiple sessions for larger tumors. SRS requires a collaborative effort between the Neurosurgeon, Radiation Oncologist, and Medical Physicist. When being treated with such high doses in a single or very few sessions, patient immobilization becomes much more important. For that reason a head frame (halo) is often placed by the Neurosurgeon. Newer devices also allow for less invasive frame-less based immobilization.
Stereotactic Radiosurgery (SRS) for the brain has been around for more than 40 years by the Gamma Knife system. Newer tools for Stereotactic Brain Radiosurgery involve LINAC based systems where a Linear Accelerator is used to deliver x-rays by way of a gantry that rotates around the patient to deliver the radiation from different angles (Gamma Knife delivers multiple beams while being stationary). The LINAC based system has a technical advantage over Gamma Knife in circumstances where the tumor is relatively large, being able to deliver a more uniform dose. CRTC utilizes such LINAC based stereotactic systems to provide SRS. The Brain Radiosurgery suite has also been updated with the latest technology. We currently use the Radionics X-knife system for SRS.

Stereotactic Radiosurgery (SRS) is an important alternative to invasive surgery, especially for tumors located deep within or close to vital areas of the brain or for patients not able to tolerate traditional neurosurgery.

**Stereotactic Body Radiation Therapy (SBRT)**

Stereotactic Body Radiation Therapy (SBRT) is a similar procedure to stereotactic radiosurgery for the brain, except it is used on tumors within the body. This is provided in 5 treatments or less (as opposed to traditional radiation which may take several weeks). SBRT is most commonly used for small tumors within the lung, liver, and spine.

SBRT is a relatively recent advancement as opposed to SRS. In the past, the ability to direct such a localized ablative form of radiation to the body was limited by previous imaging techniques, lack of optimal daily patient/tumor set-up verification, and the fact that tumors within the body move. Tumors move on a daily basis dependent on normal organ filling, emptying (GI tract, bladder) and during breathing (diaphragm). Recent advancements in imaging techniques (see 4D-CT planning above), immobilization tools (vacloc, body frames, etc.), and precise daily patient/tumor positioning verification (see IGRT above) have allowed radiation oncologists to provide SBRT.

With SBRT, local control for small tumors in many cases is as good as with surgery or better than invasive procedures. It is often utilized in circumstances where surgery is not an option. With better target localization via image guided planning and delivery, and patient immobilization, more healthy tissue near the tumor is unharmed with SBRT.

CRTC Radiation Oncologists have been providing SBRT for more than two years.
Names for Stereotactic Radiation

There is often confusion regarding the brand naming for equipment separate from the terminology of SRS or SBRT. Stereotactic radiation may be delivered by a number of different devices. Brand name stereotactic treatment machines/systems include: Axesse, BrainLab’s ExacTrac, CyberKnife, Elekta, Gamma Knife, Novalis, Primatom, Radionic’s X-Knife, Sieman’s MVision, Synergy, Tomo Therapy, Trilogy, Varian, etc.

It is important not to confuse these brand names with the actual type of stereotactic radiation under consideration. There are some technical advantages/disadvantages between the various systems, however, there has been no significant clinical advantage demonstrated between the various brand names. What is clinically significant is that the appropriate case be chosen for SRS or SBRT (stereotactic radiation) and that the optimal radiation dose/volume and fractionation (# of treatments) is provided. This will be determined by the Radiation Oncologist.

The CRTC radiation oncology practice currently has three such brand name machines/systems for delivering SRS or SBRT namely, Radionic’s X-Knife, Sieman’s MVision, and BrainLab’s ExacTrac. CRTC and CAMC are also committed to staying ahead of the technology curve through obtaining and appropriately utilizing the latest in state-of-the-art technology to better fight cancer.

Superficial Radiation Therapy (Skin Treatment)

Radiation therapy is an extremely effective method for treating (non-melanoma) skin cancer. Non-melanoma skin cancer includes basal cell and squamous cell skin cancers. Superficial (on the skin) treatment for such skin cancers can be provided by a special machine that has a better ability to treat the skin while avoiding and preserving underlying tissues. Superficial treatment machines are not commonly found at most radiation oncology practices, however, CRTC houses just such a machine, namely, the Picker superficial x-ray unit. Radiation treatment for skin cancer (non-melanoma) has excellent control rates and cosmetic outcome. Such treatment allows many patients to avoid the alternative option of surgery, which can often result in scarring/cosmetic changes.

High Dose Rate Brachytherapy (HDR)

High Dose Rate Brachytherapy (HDR), also referred to, as “internal radiation therapy” is a radiation treatment, which uses a small radioactive source temporarily, placed inside or near the tumor. Interstitial HDR Brachytherapy is performed for Soft tissue sarcomas as an adjunct to surgery. Intracavitary HDR Brachytherapy is provided as a definitive treatment (along with external beam radiation) for advanced uterine cervix cancer and as an adjunct (alone) following hysterectomy for higher risk uterine endometrial cancer (vaginal cuff).
Under computer control the position and timing of the radiation source placement can be precisely controlled, allowing the physician to shape the radiation dose to the target. Because of the high dose rate characteristics, this brachytherapy treatment is provided during a short time frame on an outpatient basis. This avoids the hospitalization (and related complications with extended patient immobilization) that was required with previous low dose rate techniques (LDR).

**Mammosite Brachytherapy (Accelerated Partial Breast Treatment)**

CRTC radiation oncologists and Charleston surgeons offer Mammosite Brachytherapy as a treatment option for selected early stage breast cancer in conjunction with a lumpectomy. This treatment option uses an Iridium-192 radioactive source, which delivers radiation to the lumpectomy cavity (partial breast) by way of a Mammosite balloon. At the time of the lumpectomy or shortly after, the surgeon will place the deflated mammosite balloon into the cavity, which is inflated by catheter conforming to the lumpectomy cavity prior to the radiation delivery. This radiation treatment is delivered two times a day for five days as opposed to standard fractionated treatment, which is delivered daily for five to six weeks.

**Prostate Seed Brachytherapy**

With this technique, radiation can be delivered to the prostate alone by implanting radioactive seeds (permanent seed implants using Iodine-125 or Palladium-103). For high risk category prostate cancer the seed brachytherapy should be combined with a shortened course of external beam radiation therapy (5 weeks). For low risk category prostate cancer the seed brachytherapy is provided alone. The major advantage for seed implant is the ability to give a high radiation dose while confining the treatment more tightly to the prostate, which leads to excellent tumor control and fewer long-term complications. Prostate brachytherapy is a combined effort where CRTC radiation oncologists perform this procedure along with CAMC urologists. The Prostate Brachytherapy program has been refined at CAMC for nearly 10 years representing one of the strongest experiences in the state (over 300 cases performed).

The recommendation for prostate seed brachytherapy (implants) depends on a number of patient and tumor factors: this includes pre-treatment prostate size, urinary symptoms, previous prostate surgical history (TURP), cancer risk profile (low vs. intermediate vs. high risk category), and the patient’s surgical candidacy and desires. Depending on these factors many patients may better be served by treating the prostate with modern external beam radiation therapy (see IMRT/IGRT above) or prostatectomy (also see daVinci Robotic surgery discussed elsewhere in this book). The breadth of treatment options available allows the physician and patient to select the specific treatment, which is best suited to each patient’s particular medical needs.
CRTC radiation oncologists strongly favor a multidisciplinary approach for making decisions regarding optimal treatment for prostate cancer and encourage patients to seek consultations with a urologic surgeon as well as a radiation oncologist. CAMC radiation oncologists, urologists, and medical oncologists meet regularly during “peer review conference” where we collectively review and discuss optimal treatment options for urologic cancer cases.

**Pediatric Radiation Therapy**

CRTC radiation oncologists have experience treating common and very rare forms of childhood cancers at CAMC. 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. CRTC and CAMC are also 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, CRTC radiation oncologists, medical physicists, and other scientists actively participate in research through the national Children’s Oncology Group (COG).

**Radiation Oncology Research and Education**

CRTC and CAMC are dedicated to providing patients with the most up-to-date radiation treatment options. CRTC and CAMC 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 cancer have recently been made available for enrollment.

The radiation oncologists also participate as Assistant Clinical Professors for the WVU 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.

**Radiation Physics**

Dimitris Mihailidis, PhD is CRTC’s Chief Medical Physicist and head of the Physics Department. One of his primary interests is to make improvements upon existing radiation treatment planning techniques. He has authored/co-authored over 40 scientific publications regarding radiation oncology treatment planning techniques and solutions. Dr. Mihailidis’ efforts ensure the highest quality and standard in radiation treatment planning at CRTC/CAMC.
Radiation Oncology Publications

2009-2010

Articles in Refereed Journals


Abstracts:

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 Ob/Gyn 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.

There are only a limited number of 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.

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.

Radiology
The Department of Radiology provides diagnostic and interventional imaging services for the clinical and research programs at CAMC. Associated Radiologist, Inc., comprised of 19 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, digital mammography, 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.
One highlight is our state of the art equipment. We have four, full-field (1.5 tesla) MRI scanners, one of which is a large bore or open style for claustrophobic and larger patients. In CT we have a fixed 16 slice CT scanner combined with a fixed PET scanner; a 256-slice CT scanner (with a second 256-slice CT ordered) in addition to a 128-slice CT scanner, a 64-slice CT scanner and four other multi-slice CT scanners.

In women’s imaging we offer all digital mammography.

At CAMC, 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. This conversion to an integrated Picture Archiving, Communication and Storage system has eliminated standard X-ray film. This new technology provides improved accuracy, efficiency and satisfaction by patients and clinicians.

**Pathology**

CAMC Department of Pathology Laboratory Medicine is accredited by the College of American Pathologists. The department’s 16 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, automated quantitative image analysis, and electron microscopy. The Department has telepathology capability for intra-operative consultation between divisions (Memorial, General, Teays Valley and Women and Children’s hospitals).

Pathologists participate in weekly Tumor Board Conference with oncologists, radiologists, and surgeons. Pathologists also present cases discussed at Gynecology Pathology Conference, Neuroscience Rounds, and Orthopedic Conference. There are intradepartmental slide 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.
**Pediatric Oncology**

*by Allen Chauvenet, MD*

Pediatric Oncology—Allen Chauvenet MD, Lisa Palmer DO, Elizabeth Kurczynski MD and Pam Smith, NP

Personnel: Dr. Lisa Palmer joined our section in October of 2009. Dr. Elizabeth Kurczynski continues to participate on a part-time basis while serving as acting Chair of the Department of Pediatrics.

**CLINICAL CARE and COG RESEARCH PARTICIPATION**

We continued to maintain and expand our pediatric oncology service. In 2009, we saw 15 new oncology patients and in 2010, we saw 19 new patients. During 2009 we had 35 entries on COG protocols which tied the record for our institution and in 2010 we set a new record with 38 COG protocol entries.

Dr. Chauvenet serves as the Medical Director of the Children’s Infusion Center. We had 1530 individual visits during 2009 and 1394 visits during 2010 (these compare to 1211 in 2008) with the great majority being oncology.

We had our COG audit in September of 2010 and were commended for our work. Our next audit will be in three years (the maximum time between audits allowed; our prior audit was in September of 2007).

We competed for and were awarded one of 65 Hyundai “Hope on Wheels” grants, which was awarded to us in September 2010 and will provide $100,000 for various needs at our institution including research, patient support, nursing education, camp support and improved equipment and supplies for our clinic during 2011.

**TEACHING**

Our residents continue to improve their scores on the Hematology/Oncology section of the pediatric board examination, achieving a mean of 576 in 2009. This is the highest score our residency program has achieved and well above the national average (2010 data not yet available). All residents rotate on the hematology/oncology service. Additionally we present three hours of small group instruction to each third year medical student group. Currently these are on anemia (Dr. Chauvenet), Coagulation (Dr. Palmer) and pediatric oncology (Pam Smith, NP).

We presented the following Pediatric Grand Rounds:
- 7/10/2009 “Single Payer Health Plan” (Dr. Kurczynski)
- 8/2/2009 “Iron Deficiency Anemia in the 21st Century” (Dr. Kurczynski)
- 12/4/2009 “How to do it Wrong” (Dr. Chauvenet)
- 8/27/2010 “Pediatric Blood Banking” (Dr. Palmer)
12/3/2010 “Pictures of Pediatric Oncology” (Dr. Chauvenet with Dr. Pam Philips of Radiology)
12/10/2010 “ITP Update” (Dr. Kurczynski)

We also facilitated two grand rounds presentations by members of the Marshall University Faculty:
11/20/2009 “Common Pediatric Bone Tumors” by Dr. Felix Cheung (Orthopedics)
12/18/2009 “Spinal Cord Tumors” by Dr. Richard Coulon (Neurosurgery)

ADMINISTRATIVE:
Dr. Chauvenet assumed the position of Principle Investigator April 2009. He attended the
Children’s Oncology Group meetings in the spring of 2009, fall of 2009 (joined by Nurse
Practitioner Pam Smith and CRA Donna Pauley) and spring of 2010 (the spring meetings are
restricted attendance). Dr. Lisa Palmer represented our institution at the fall 2010 COG meeting
along with Nurse Practitioner Pam Smith, RN Alecia Harper and CRA Donna Pauley.

Dr. Chauvenet continues as a member of the COG Hodgkin Disease Steering Committee and in
July 2009 accepted an appointment to the National Cancer Institute-sponsored Pediatric Central
Institutional Review Board on which he continues to serve.

Major Non-Departmental Presentations in 2009 and 2010 included the following:
“Acute Leukemia in Childhood,” Ned Shott Cancer Conference, Bluefield, WV April 4, 2009
(Kurczynski)

“Abdominal Masses in Childhood” at CAMC Oncology Conference, April 30, 2010 (Chauvenet)

“Late Effects of Childhood Cancer” Ned Shott Cancer Conference, Bluefield, WV, May 15, 2010
(Chauvenet)

“Leukemias, Lymphomas, Marrow Disorders and Transplant,” to 2nd year medical students in
Morgantown, WV, October 5, 2010 (Chauvenet and Dr. Julia Cruz, WVU Physicians of Charleston
Department of Medicine)

“Pediatric Oncology and End of Life Care” WV Hospice and Palliative Nurses Association Meeting
October 21, 2010 (Kurczynski)

ACADEMIC: Publications and major national presentations included the following:
Schwartz, CL, Constine LC, Villaluna D, London WB, Hutchison RE, Sposto R, Lipschultz SE,
Turner C, deAlercon P, Chauvenet A. A Risk-Adapted, Response-Based Approach Using ABVE-
PC for Children and Adolescents with Intermediate and High Risk Hodgkin Lymphoma: The

CT Imaging in the Detection of Relapse in Hodgkin Lymphoma. Society for Pediatric
Radiology, April 2010 (Presenter S. Voss)
**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 offered in Charleston and throughout the state of West Virginia dedicated to helping female cancer patients cope with and combat the appearance-related side effects of chemotherapy and radiation treatment.

A volunteer cosmetologist leads the program that includes a 12-step skin care and makeup program as well as demonstrations on hair/wig techniques to help restore a positive self-image.

Each participant receives a free gift 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.

In 2010, the Look Good…Feel Better program was offered at the David Lee Cancer Center and Teays Valley Hospital.
Patient support
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.

Education
The CAMC Health Education and Research Institute (CAMC Institute) education division leads the oncology team in providing opportunities in professional education, patient and family health education and community information programs.

In addition, CAMC Institute sponsors a monthly Didactic Tumor Board presentation.

The patient and family education council promotes a process for providing 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 handbook were developed internally to promote ownership and individualize facility information. Resources are available online for clinical access with preprinted documentation.

Each year, thousands of education videos (all topics) are requested by patients and families during their inpatient stay at CAMC. Oncology “on demand” educational video topics include hospice, nutrition and cancer, pediatric video, stress and relaxation techniques and tobacco cessation. In addition a Continuous Ambient Relaxation Environment (C.A.R.E.) Programming channel runs 24/7/365 days a year to provide guided imagery, music and relaxation images to enhance healing and relaxation.

Various forums are available for community to access information and education: online resources, formal lectures, workshops health fairs and screenings are scheduled throughout the year.
Palliative care
Palliative care is a holistic service 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 life on a daily basis. Assistance is provided with goal clarification, advance care planning and family involvement.

As part of the cancer team, palliative care collaborates with the oncologists, supporting curative treatment or helping with options when cure may no longer be the goal. Family meetings provide time to reflect on available support – in the home, as well as psychosocially and spiritually. It often helps for families to consider community support groups and respite needs. Referrals can be made to hospice, if that becomes appropriate.

Pastoral care
The Pastoral Care department is available 24 hours a day and seven days a week. Its mission is to meet the spiritual, emotional needs of patients and families regardless of their spiritual status or connection to any faith. The department is available for any ethical dilemma which may arise out of a decision making process. Each year, hospital chaplains make hundreds of visits to offer spiritual counseling, offer religious rites, and be available in a short notice. Each chaplain is trained professionally to offer spiritual care in the hospital setting.

There is one chaplain available full time and seven on-call chaplains available through the weekends and nights. All chaplains are trained and/or certified. Each is an ordained clergy endorsed by their respective religious body. The services of a chaplain can be requested by way of a nurse or dialing the hospital operator.
RESEARCH AND OUTCOMES
The Center for Cancer Research is primarily involved in cooperative group treatment and prevention studies sponsored by the National Cancer Institute (NCI). Current affiliations include: the National Surgical Adjuvant Breast and Bowel Project (NSABP), Eastern Cooperative Oncology Group (ECOG), and the Southwest Oncology Group (SWOG). Additionally, the Cancer Research Center is now opening new pharmaceutical sponsored trials of interest to clinicians and patients.

The Cancer Research Center currently maintains fifty-eight protocols at the center, opening additional protocols for cancer patients each month. More than three hundred thirty patients are currently enrolled in adult cancer research trials at CAMC. Referrals to the research center come from private physicians, oncologists, surgeons, urologists, radiologists, and from patients themselves. The Center works closely with the David Lee Cancer Center, which also is part of Charleston Area Medical Center.

Having an ambition of extending research options to the public, we have welcomed the opportunity to work with Drs. Shah and Jogenpally at Thomas Hospital. With their becoming more directly involved with the program in 2010, clinical research opportunity has been expanded for a larger sector of the Charleston community. This initiative was made possible through partial funding from a research grant with West Virginia University and CAMC. Thus far, this collaboration has enabled our public extension and proved beneficial to these partnering medical oncologists and their patients.

Participation in research, a surrogate for a versatile and leading edge cancer program, is a requirement for our status with the American College of Surgeons. The College provides standards for cancer programs, such as the one established at Charleston Area Medical Center, assuring patients and their families of optimal care. The goal of the Cancer Research Center is to provide opportunities to participate in research trials for a variety of cancers to patients in this area, allowing patients of the Kanawha Valley opportunities to participate in research trials here at CAMC. Important to patients and their families, having these trials available at CAMC allows patients of this area to participate in research, and at the same time remain close to family and friends.

In addition to the aforementioned partnering NCI affiliations, we have access to several cooperative group trials through the CTSU (Clinical Trials Support Unit). Sponsored by the NCI, the CTSU allows sites access to protocols without the requirement of group membership. We have recently become active members with RTOG (radiation treatment group trials), allowing for prostate cancer treatment in cooperation with Charleston Radiation Therapy Associates. This has complimented CAMC’s movement toward offering a focused center of excellence in prostate health.

With increased funding via NIH and private industry in the area of cancer research, we are pleased to be a small part of bringing the resulting accelerated research innovation to our community. Recently, we have added several research protocols that involve state of the art technology, such as gene
mapping, and molecular markers to determine therapies for cancer treatment. We also have protocols utilizing novel chemotherapeutic agents for frontline therapy, as well as protocols for advanced cancers, both of which give cancer patients at various stages of disease ready access to cutting-edge research in their home communities.

Data management and regulatory functions are often opaque aspects of a research program; however they are substantively important in maintaining a quality research program. We have undertaken efforts to improve related processes over 2010. There has been improvement in our working through a centralized IRB review of cancer protocols, allowing a more timely and less burdensome delivery of approved research protocols to our patients. Implementing revised local IRB guidelines for submissions has greatly streamlined paperwork flow (often times hundreds of pages for review and approval) between internal and external offices. Access to David Lee Cancer Center’s medical records area, the oncologist’s transcriptions through EMON, and Medical Manager have also helped to reduce data delinquency rates by allowing our staff more ready access to the information necessary for the patient reporting to the study groups.

The Center for Cancer Research recently relocated to Suite 203 of the CAMC Medical Staff Office Building, one floor above the David Lee Cancer Center, allowing for more convenient physician and patient access. This move has allowed for a more ready presence of research staff in the Cancer Center and more ready follow-up with patients in treatment/follow-up. New patient referrals are taken immediately, allowing clinic patient flow to continue without interruption. Referrals and patient accruals to cancer research trials have more than doubled in 2010, largely believed to be a result of a combination of factors, including our proximity to patients, selection and prompt opening of viable research protocols, and cooperation of a caring and engaged physician community committed to advancing patient care through clinical research trials.

The Cancer Research Center welcomes referrals from all disciplines, and looks forward to serving well the West Virginia community. In addition to referrals, availability of specific research protocols may be known by contacting us via phone (304) 388-9936 or (304) 388-9940 or e-mail karen.shirey@camc.org, augusta.kosowicz@camc.org or kim.baria@camc.org.

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Cancer Registry Overview
By Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR

Data registries have been in existence since the 16th century but registries for the study of cancer did not emerge until the early 1900’s. These registries were started by individual physicians or institutions and were largely stored in card files that were largely inaccessible and unused. Today cancer registries are computerized and standardized through the National Cancer Data Base (NCDB) so that we have the opportunity to monitor patterns of care and outcomes to improve care to cancer patients.

The careful collection and management of this data by registry staff contributes to treatment planning, continuity of care, administrative planning and research investigations at the local level. This data also assists in the development of guidelines and standards of practice to benefit future patients, as well as contributes to cancer control planning activities of national, professional organizations.

The goal of the cancer registry is to provide the medical staff with data that will enable them to study the outcome of their diagnosis and therapeutic efforts. The data also provides our staff and residents with information with which to improve the care of cancer patients, either directly or indirectly, in the form of special studies, audits or research. The data is also sent to the WV State Cancer Registry to help them gather information on the incidence of cancer in West Virginia. Being a Commission on Cancer approved program, we must also send our data to the National Cancer Data Base where our data is compared nationally with other institutions in our category as a Teaching Hospital Cancer Program.
Charleston Area Medical Center continues to see increases in the volume of cancer patients being evaluated and treated at one of its facilities as can be seen in the graph above. In 2009, 1,682 patients were accessioned into the CAMC cancer registry; and a total of 38,482 cancers are currently stored in to the registry database for those patients diagnosed with cancer since January 1, 1985. The cancer registry was responsible for coordinating cases for 46 cancer conferences in 2009 in which 171 cases were presented. Staff also provided information for 13 data requests.

One of the vital functions of the cancer registry is the follow up on every patient, every year. This function is carried out through a number of measures such as monitoring hospital databases to identify when patients were last seen, monitoring the area obituaries and the Social Security Death Index, and through the follow-up letters that are sent to the physician offices and to patients. CAMC has 11,468 patients in active follow-up with 8,673 with current follow-up information in the database. The Commission on Cancer (CoC) requires that the cancer registry maintain a follow-up rate for living patients of 80 percent; our current follow-up rate is 91.04%.
Cancer Incidence and Statistical Overview
By Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR

Charleston Area Medical Center’s cancer registry accessioned 1,682 newly diagnosed cancer cases in 2009. The top five sites were identified as breast, lung (non-small cell), prostate, colon and corpus uteri and accounts for 65% of the cases diagnosed. Other significant sites by volume, in order by highest volume) were renal, lung (small cell), non-Hodgkin’s lymphoma, bladder, leukemia, brain, thyroid, melanoma, pancreas and rectum.

In reviewing CAMC’s incidence of cancer by site for 2009 and comparing it to the American Cancer Society’s estimated incidence for 2010, CAMC treats significantly higher percentages of breast, lung and uterine cancer than is expected nationally. Leukemia, brain, renal and colon also have higher incidences at CAMC while melanoma incidence is lower.
Charleston Area Medical Center wanted to see the 2009 data compared to the last NCDB data looking at the stage at diagnosis to see if opportunities exist for screening and early detection. The most recent NCDB data is cases diagnosed in 2008 and when compared to the 2009 CAMC data, the results are very similar. The national data peaks at Stage II while CAMC data peaks at Stage I; however, there does appear to be some opportunity to improve the Stage 0 category through screening and early detection measures. CAMC has chosen to look at this data closer by studying the data by cancer site, pending IRB approval.
Comparison of CAMC’s data to the NCDB for cancers by age group is significant only for a slightly higher incidence of cancer in the 50-59 range and a slightly lower incidence of cancer in the 80-89 range at CAMC.
Comparison of CAMC data to the National Cancer Data Base demonstrates no real surprises. West Virginia is less culturally diverse than the nation as a whole.
CAMC Oncology Services
2009 Incidence of New Cancer Cases

No County Listed 21
Out of State 8

Primary Service Area (75% of discharges)
Secondary Service Area (addl. 15% of discharges)
Hospital
Hospital – Designated as a Cancer Treatment Center on American Cancer Society Website.

Source: CAMC Cancer Registry, American Cancer Society
CAMC Planning Department 1/11/11