A Tradition of Quality

2009 CAMC Cancer Services Report
CAMC CANCER SERVICES

CAMC cancer services have been accredited since 1956 and offer the most, highest trained, nationally certified health care professionals in the region.

“In 1952-1953, the only tumor clinic in town was at Charleston Memorial, a free tumor clinic that met once a week. We’d take a patient who had no other means of getting health care,” said David Gray, MD, a retired surgeon. “The merger of Charleston General and Charleston Memorial hospitals to form CAMC changed the face of cancer care. It improved the quality of medical care in the valley beyond what people realized.”

Since the clinics of the 1950’s, there have been advancements in equipment and treatment, doctors have come and gone and the names of hospitals and services have changed.

But one thing remains, the dedication of health professionals to providing the best cancer care.

CAMC has dedicated inpatient and outpatient areas and offer a collaborative approach to medicine. It provides comprehensive care in tune with patients’ medical, practical and emotional needs. The multidisciplinary team includes radiation oncologists, gynecologic oncologists, pediatric oncologists, medical oncologists, oncology pharmacists, psychologists dedicated to the care of cancer patients and their families, oncology case coordinators, oncology social workers and skilled oncology registered nurses.

Services also include a cancer patient support program for families.

The articles in this report highlight CAMC’s quality programs, services and treatments available to cancer patients in West Virginia.
CAMC’s cancer program has been accredited by the American College of Surgeon’s (ACoS) Commission on Cancer (CoC) program since the 1950’s.

CAMC’s cancer program was last surveyed on April 14, 2008, and was awarded full accreditation with commendation. Only a third of ACoS approved programs receive this status.

The commendation for CAMC was awarded in two areas: prevention and early detection and cancer-related improvements. The College stated “There were many prevention and early detection programs offered to the community each year. At least three cancer-related quality improvements were implemented each year by the cancer committee.”

CAMC’s next survey is April 2011 when we plan to achieve an Outstanding Achievement Award (OAA) through the ACoS, which is awarded to only 15% of ACoS approved programs. This will require CAMC to maintain its compliance with all 36 ACoS standards and receive a commendation for nine of those standards.

The cancer program is well on its way to accomplishing this monumental task by already receiving commendations in two of these areas. The OAA criteria are: Outcomes analysis, Abstracting, Data quality, Clinical trial accrual, Community Outreach and Quality Improvements.

All members of the cancer program at CAMC are dedicated to maintaining high program standards and providing our patients with the best possible cancer care.
MULTIDISCIPLINARY CANCER CARE:

CAMC Multidisciplinary Cancer Conference (Tumor Board)

By Prem Raja, MD

Cancer treatment has improved dramatically in the last 10 years due to advances in medical, radiation, and surgical oncology. Advancements in diagnostic imaging and pathology have also contributed greatly to this evolution. Developing a patient’s optimal treatment has become very complicated, and often necessitates the opinion and contribution of multiple specialists. CAMC oncologists strongly promote and support a multidisciplinary approach for cancer treatment.

Multidisciplinary care can be broadly defined as “an integrated team approach to health care in which medical and allied health care professionals consider all relevant treatment options and develop collaboratively an individual treatment plan for each patient” (National Breast Cancer Centre, 2005). Studies demonstrate that multidisciplinary management for cancer leads to improved outcomes. Multidisciplinary care is the hallmark for consistent high quality cancer management and is demonstrated through multidisciplinary consultation and participation in multidisciplinary cancer conferences.

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. The Cancer Conference has the following primary and secondary functions:

- Primary Function:
  - To ensure that all appropriate diagnostic tests, all suitable treatment options, and the most appropriate treatment recommendations are generated for each cancer patient discussed prospectively in a multidisciplinary forum.

- Secondary Function:
  - To provide a forum for the continuing education of medical staff and health professionals. Tumor conferences create an environment for physicians from a variety of disciplines to learn from each other. As a result, both patient and physician gain from the sharing of this information.
Contribute to the development of standardized patient management protocols.

Contribute to innovation, research, and participation in clinical trials.

Contribute to linkages between practitioners and to ensure appropriate referrals, timely consultations, and to optimize patient care.

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 department, WVU medical students, Residents (physicians in training), and nursing students. The conference also welcomes participation from any physician or healthcare worker interested in oncology including practitioners from regional referral centers who wish to present or have a case presented. Attendance is strong and consistently between 30 to 40 people who meet weekly at the WVU Education building at CAMC Memorial Hospital.

Dr. Steven Jubelirer, a CAMC practicing medical oncologist with more than 30 years of clinical and research experience, is the Cancer Conference chair and facilitator. CAMC’s administration acknowledges the importance of the Cancer Conference (Tumor Board) and provides optimal facilities, equipment (pathology slide/x-ray film projectors, video-teleconferencing equipment, computers, IT support, etc.) and dedicated staff. A Cancer Conference Coordinator and staff are also essential individuals who work with Dr. Jubelirer and colleagues to promote and facilitate participation, timeliness and quality of patient information, confidentiality, and to ensure the continuity of the Tumor Board.
DAVID LEE CANCER CENTER
By Beverly Farmer, RN, OCN, CNIII; James N. Frame, MD, FACP

The David Lee Cancer Center (DLCC) is CAMC’s center for adult Medical Oncology and Hematology care. A Joint Commission-accredited facility, DLCC provides individualized 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 2008, DLCC provided care for 39,137 beneficiary encounters including 29,876 patient visits and 9,261 chemotherapy infusions. Compared with 2001 data, DLCC oncology encounters, chemotherapy infusions and total encounters increased by 44%, 39% and 43%, respectively. Inpatient visits increased by 60% from 2007 data aided by three Physician Assistants recruited to assist DLCC physicians.

The DLCC physician staff has grown to six board certified full-time and one part-time Staff Hematologist/Oncologists to serve the health care needs of our patients. DLCC Physician Staff completed their Hematology Oncology training at leading centers such as Boston City Hospital, Memorial Sloan-Kettering Cancer Center, University of Wisconsin Comprehensive Cancer Center, University of Arkansas Health Sciences Center, Temple University and San Antonio Uniformed Services Health Education Consortium at Wilford Hall. Our Physicians serve also as Clinical Teaching Faculty for Internal Medicine Trainees at WVU School of Medicine-Charleston Division where they provide vital post-graduate medical education experiences. In addition, our physicians participate actively in weekly tumor board conferences, adult oncology collaborative practice with inpatient/outpatient cancer care stakeholders, cancer committee and a variety of quality improvement, research and academic activities.
We are pleased to announce that Dr. Suzanne Cole from the University of Texas M. D. Anderson Cancer Center, and Dr. Ni Gorsuch, from the Mayo Clinic, will be joining the DLCC Physician Staff after completing their Hematology Oncology Fellowship Training in the summer of 2010. In addition, West Virginia native Dr. Terrance Rhodes will join the DLCC Physician Staff in 2012 after completing his Hematology Oncology Fellowship at Duke University Medical Center.

To further support the growing health care needs of our patients and the expansion of our physician staff, additional construction at the Medical Staff Office Building is planned for the spring of 2010. In addition, a long-anticipated opportunity to develop a Multidisciplinary Cancer Center at the Watt-Powell property is gaining strong traction. Exciting developments in this arena are actively evolving.

DLCC support staff includes OCN certified and experienced oncology nurses who provide compassionate care and support for our patients. Our cadre of skilled oncology nurses has expanded to meet our physician and patient needs. In addition, DLCC incorporates a certified Oncology Pharmacy. Among our pharmacy staff are two full-time Board Certified Oncology Pharmacists who provide leadership and supervision for safe hematology oncology drug preparation to meet state and national quality standards. Their professional interaction with DLCC Physicians and patients enhances the quality of patient care delivered. Moreover, our high level of outstanding patient satisfaction is impacted directly by the professional, compassionate care rendered by our staff.

DLCC participates in the Center for Medicare and Medicaid Services Physician Quality Reporting Initiative (PQRI) as well as other state-wide and national cancer registry databases. DLCC reporting measures include metrics for a variety of disease states that include: Stage I-III hormone receptor positive breast cancer, colon cancer, multiple myeloma, chronic lymphocytic leukemia and myelodysplastic syndrome. Moreover, DLCC provides demographic, treatment and outcomes data to the CAMC Cancer Registry which is included in the WV Central Cancer Registry database. CAMC is a participant in outcome programs lead by the American College of Surgeons Commission on Cancer of which CAMC is a designated Teaching Hospital Cancer Center with commendations.

We continue to offer many free services to our patients. Services include quarterly “Look Good Feel Better” programs sponsored by the American Cancer Society, bi-monthly new patient chemotherapy orientation classes and weekly dietician services.
ONCOLOGY PHARMACY SERVICES
Carla Hively, RPh, BCOP

David Lee Cancer Center possesses a “state of the art” USP 797 compliant pharmacy. USP 797 is a far-reaching enforceable regulation that governs the compounding of sterile preparations. It is designed both to cut down on infections transmitted to patients through pharmaceutical products and to better protect staff working in pharmacies in the course of their exposure to pharmaceuticals. David Lee Cancer Center has invested considerable resources to provide one of the largest 797 compliant chemotherapy-compounding rooms in West Virginia. Our facility, in conjunction with the latest cutting edge technology such as total exhaust, non-recirculating biological safety cabinets, continuously monitored negative and positive pressure rooms, and protective exposure compounding devices allows for the preparation of our patient’s treatments in a “best practice setting.” David Lee Cancer Center is the only oncology practice in the state serviced by two board certified oncology pharmacists and four nationally certified technicians.

The oncology pharmacy staff at David Lee Cancer Center works as a team to provide treatment to over 40 patients on a daily basis. Their role involves the challenge of assisting the Center’s six oncologists in selecting the best evidence based treatment for each individual patient. Our pharmacy staff monitors patients over the continuum of care, which includes the clinic setting, hospital, home and specialized treatment centers. Assessment of each course of therapy with recommendations for adjustments is only one component of services provided by the oncology pharmacists. Patients are counseled and educated over the course of their cancer treatment, especially as their treatment evolves, requiring modifications in the course. Care is taken to ensure that patients understand their dose modifications, side effect management and compliance. Oncology pharmacists assist David Lee Cancer Center’s physicians with supportive care issues such as pain management and anticoagulation, as well as addressing drug information requests from patients, nurses and physicians. The pharmacists are also involved in the administrative aspects of the Cancer Center through formulary management and inventory control as well as state and federal regulation compliance with regard to purchasing, storage, administration, dispensing and disposal of pharmaceuticals.

Cancer treatment is constantly changing, now more than ever, and cancer patients demand and deserve the best up-to-date treatments. Oncology pharmacists and technicians are proud to be an integral part of the professional team that is committed to improving the quality of treatment and life of cancer patients.
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.
PEDIATRIC ONCOLOGY

By Allen Chauvenet, MD and Elizabeth Kurczynski, MD

CAMC cared for 19 new pediatric oncology patients. All of whom were entered on the COG registry and research network studies. There were 10 patients entered on COG Biology studies and 8 of 8 eligible patients were entered on COG Treatment studies. We entered an additional patient on the International Pleuorpulmonary Blastoma Registry. The remaining patients presented with diseases for which there were no open study at the time of their diagnosis. Our total number of all protocol enrollments with the COG was 35, up from 21 and 17 in the two previous years.

Dr. Chauvenet serves as the Medical Director of the Children’s infusion center. We had 1,211 individual visits (the great majority being oncology) during 2008.

TEACHING

Our residents continued to improve their scores in the Hematology/Oncology section of the pediatric board examination, reaching a mean of 470 in 2008 and representing steady improvement from 453 and 457 in the two previous years. We presented 3 hours of small group instruction (anemia, coagulation and pediatric oncology) to each 3rd year medical student group. Dr. Chauvenet presented Pediatric Grand Rounds on Statistics (October 2008) and Dr. Kurczynski presented Pediatric Grand Rounds on “Acute Myelogenous Leukemia and Myelodysplasia Syndrome (March 2008).

Major Non-Departmental Presentations in 2008 included:

“Late Effects of Childhood Cancer” (Kurczynski, WVU Cancer Symposium, January)
“Single Payer Health Plan” (Kurczynski, Fam Practice Grand Rounds, Marshall, March)
“Is it Cancer?” (Chauvenet, West Virginia Pediatric Society, April)
“Pediatric Hodgkin Disease” (Chauvenet, Bluefield Cancer Conference, April)
“Thrombophilia” (Kurczynski, OB/Gyn Grand Rounds, CAMC, April)
ACADEMIC: Publications in major subspecialty journals included the following:


Additionally, Dr. Chauvenet completed his 10 year term on the American College of Radiology Appropriateness Criteria (Hodgkin Disease) committee. Dr. Chauvenet served as an invited reviewer for four different medical journals during 2008.

ADMINISTRATIVE: Dr. Kurczynski attended the spring 2008 COG meeting and Dr. Chauvenet attended the fall COG meeting along with Nurse Practitioner Pam Smith and our CRA Donna Pauley. Steps were initiated for Dr. Chauvenet to assume the position of Principal Investigator for our COG membership.
CANCER PATIENT SUPPORT PROGRAM

By Martha Taylor, RN

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 diagnosis of cancer. Psychological and supportive services are offered through the CAMC 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 involved to assist with psychological, social and economic challenges.

CAMC’s Cancer Patient Support Program (CPSP) helps to strengthen support networks during and after cancer treatment. We believe that there is an important link between psychological well-being and health and that coping with distress — such as fear, stress, anxiety and depression — is an important part of the overall care of our patients. Some of the services offered or arranged through the CPSP include:

- Individual and family counseling
- Patient and family education about cancer and treatment options
- Support groups
- Stress management and coping skills training
- Hospital visits
- Access to educational resources
- Special events and programs
- Bereavement support

Outreach and preventive activities involving CPSP participation during 2008 include:

- Breast Health Education and Liaison Program (Breast HELP) offered monthly from July to December, 2008; education and prevention services provided via a Susan G. Komen for the Cure grant in Boone, Fayette, Logan and Putnam Counties
- Mountains of Hope Cancer Coalition
- HealthFest
- Cancer Awareness Program sponsored by the US Postal Service at the Charleston Main Post Office
THE BREAST CENTER
By Roberto Kusminsky, MD

The delivery of breast care at CAMC has been for many years a fundamental element of the services offered to patients, and an integral piece of the available cancer care opportunities. Issues of detection, prevention and diagnosis of breast diseases affect thousands of potential and established patients. This institution provides care to more patients with cancer than any other facility in the state: among these, at least 240 women with breast cancer are treated at CAMC every year.

Typically, across the country the services offered to this group of patients have been somewhat fragmented. For this reason, the American College of Surgeons has launched an initiative, which attempts to standardize and improve the manner in which breast care is delivered. Sensitive to these efforts, CAMC undertook a major physical and administrative restructuring of The Breast Center, now in the final phases of a project that began approximately two years ago.

The Breast Center offers services that have always been available in a setting of comfort and relaxation, which will surely reduce the anxiety always associated with breast diseases. Patients will be evaluated and treated promptly, with the assistance of experts in radiology, medical oncology, radiation therapy, pathology and breast surgery. Skilled nursing, navigator services—helping patients navigate the complexities of modern breast care—high risk evaluation and genetic counseling, will incrementally fill the gaps which sometimes lead to a lengthening of the care processes.
A multidisciplinary breast conference allows an integrated team approach required for making treatment decisions. In that way, optimal treatment plans can be generated for women with breast cancer before the first step is taken.

Databases being created will allow physicians to draw conclusions regarding quality improvement initiatives. A leadership group of experts in several specialties will evaluate the results and monitor the performance of the Breast Center continually.

Services will also include programs of detection, prevention, support, risk evaluation, clinical trials availability, and others. Diagnosis will continue to be done using modern techniques of minimally invasive procedures. Outreach, quality and outcomes studies, patient education, survivorship programs and a variety of other standards will improve the experience of women and the occasional man with breast diseases that must embark on a difficult journey.

Eventually, the Breast Center will function as a paperless system, which will afford clinicians and nurses more time for direct patient involvement.

A web site is now under construction, offering women the opportunity to find answers to the difficult questions that emerge when they face the uncertainty of a breast problem.

All these elements of The Breast Center are no longer a vision: they are now a reality rapidly approaching completion, which will benefit everyone wishing to access services designed to simplify, expedite and solve the burden of breast diseases.
When the need for more acute cancer care arises, the inpatient unit at CAMC Memorial Hospital is available to provide a variety of necessary services. The 29 bed unit, located on 5 South, has a dedicated, highly skilled and efficient staff available to meet the diverse needs of our patients during an intensely challenging time in their lives.

We provide a multidisciplinary approach to guide the care given by a team of experts to continually assess and plan our patients’ treatment and organize their discharge needs.

Realizing that family involvement is an integral part of patients’ recovery and recuperation, we have very liberal visiting hours and encourage families to become involved. Loved ones are welcome to stay at the bedside to provide support. Our staff is available to provide the education and tools needed as they make the transition to caregiver.

The nursing staff is encouraged to receive ongoing Oncology specific education. In fact, 29% of the RNs on 5 South have successfully attained certification by the Oncology Nursing Certification Corporation. As additional nurses meet the criteria for attaining certification, our institution fully supports their professional growth and development.

Our multidisciplinary team includes a social worker and a case coordinator who formally meet with the nursing staff every week to discuss in depth the individual needs of each patient. Our goal is to make the transition from hospital to home as smooth and problem free as possible.

Additionally, a physical therapist and dietician are available to evaluate and make recommendations to meet patient needs under the direction of the physician. A clinical psychologist and pastoral care are available to assist with the emotional and spiritual needs that present themselves during hospitalization.

In our quest to provide excellent care for our patients, we routinely perform quality improvement studies to evaluate our performance and identify opportunities for improvement in areas such as pain control, fall prevention, infection control, and pressure ulcer prevention. Patient satisfaction questionnaires are utilized and are the most important tool we have to measure our performance from our patients’ perspective. In addition, we have formed focus groups to speak one on one with former patients and get their feedback to assist us in making any necessary changes to improve the inpatient experience.

We are on the cusp of an exciting new renovation period in our department. Over the next year, seven more rooms will be added on the east wing of the fifth floor, increasing our bed capacity to 36. All rooms will be private and have individual bathrooms for added comfort. Our goal is to create inviting spaces that encourage rest and personal growth during the healing journey.
ROBOT USED IN VARIETY OF SURGERIES

Most hospitals are using the *da Vinci* surgical robot for prostate-related surgeries. But when CAMC became the first medical center in West Virginia to begin using the high definition version of Intuitive Surgical’s *da Vinci* Surgical System, the door was opened to a variety of specialty surgeons and procedures.

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.

Surgical specialists practicing at CAMC are using it beyond prostate surgery including general and gynecological surgeries.

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.

Due to the extensive robotic surgical activity performed at CAMC, Intuitive Surgical, the parent company for the *da Vinci* Robotic System, has designated at least two CAMC surgeons experts in robotic surgery.
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 a limited number of 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 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 commitment to the multidisciplinary approach for female cancer care helps to insure optimal outcomes for women in our community.
PATHOLOGY
By Phyllis Sawyer, MD

CAMC Department of Pathology Laboratory Medicine is accredited by the College of American Pathologists. The department’s 14 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, and Women and Children’s hospitals).

Pathologists participate in weekly Tumor Board Conferences with oncologists, radiologists, and surgeons. Pathologists also present cases discussed at Gynecology 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.
The Department of Radiology provides diagnostic and interventional imaging services for the clinical and research programs at Charleston Area Medical Center. Associated Radiologist, Inc., comprised of 18 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. Some of our highlights are our state of the art equipment. We have 4 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; the states first 256-slice CT scanner in addition to a 64-slice CT scanner and four other multislice 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 (PACS) system has eliminated standard X-ray film. This new technology provides improved accuracy, efficiency and satisfaction by patients and clinicians.
PALLIATIVE CARE SERVICES

Palliative Care is a holistic consult service that helps cancer patients and their families cope with the multiple dimensions of their disease. Attention focuses on quality of life and relief of pain and symptoms that can interfere with life on a daily basis.

Our team also assists with goal clarification and advance care planning. Palliative Care provides service simultaneously with curative therapies such as chemotherapy, transfusions and radiation. We work closely with the oncologists, helping patients maximize their quality of life by relieving problematic symptoms and complex pain.

In 2008, Palliative Care completed 454 consults; 36% of those had a cancer diagnosis. We look forward to serving more cancer patients in the future.

PASTORAL CARE

Rev. Dr. Ravi Isaiah

The Pastoral Care Department is available 24 hours a day, seven days a week. It is our mission to meet the spiritual, emotional needs of patients and families regardless of their spiritual status or connection to any faith. We are also available for any ethical dilemma which may arise out of a decision making process. We also work collaboratively with Palliative Care. We can be reached through the hospital operator.

In 2008 hospital chaplains made 122 visits to Oncology related calls. This includes funeral services and one wedding for those who did not have a pastor.

There is one chaplain available full time and six on-call chaplains available through the weekends and nights. All chaplains are trained and or certified. Each are ordained clergy who are endorsed by their respective religious body.
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.

This past year, the David Lee Cancer Center offered the American Cancer Society Look Good…Feel Better program onsite. The program was a success with nine sessions being held and an outreach of over 50 women.
CANCER REGISTRY OVERVIEW
By Kathi McCormick, BA, CCS, CTR

The cancer registry is a data system designed to collect, manage and analyze data on patients with all types of cancer diagnosed or treated in the hospital, and to perform yearly clinical follow-up on the patients identified. In 2008, 1,638 cancer cases were accessioned into the registry; a total of 36,376 cancer cases have been entered into the registry since January 1, 1985.

Annual lifetime follow-up of former patients is a very important part of the program. This is accomplished through letters to the attending physicians or by letters to patients and their family members.

This registry serves as a reminder to former patients to continue their follow-up exams with physicians. Currently, about 11,067 patients are in active follow-up. The Commission on Cancer requires that the cancer registry maintain a follow-up rate for living patients of 80 percent; our current follow-up rate is 92 percent well above the standard.

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 cancer registry provided information for 17 data requests for research presentations during 2008 and was responsible for coordinating cases for 43 tumor board conferences in which 168 cases were presented. Patient care evaluation studies conducted in 2008 included studies on breast, prostate and colon cancers diagnosed and treated at CAMC.

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 Database where our data is compared nationally with other institutions in our category.
CANCER INCIDENCE AND STATISTICAL OVERVIEW

By Kathi McCormick, BA, CCS, CTR

Charleston Area Medical Center’s cancer registry recorded 1,636 new cases in 2008. Breast, lung, prostate, colon and bone marrow cancer were the types of cancers seen most often, accounting for 84.5 percent of the cases.

Among the cases added to the cancer registry, the majority of patients (1,590) were analytic cases, which means they were diagnosed and/or received part of their initial treatment at CAMC. Among the analytic cases, 45 percent were male and 55 percent were female. The age range was less than one year of age to 96; the median age was 69.

A geographical distribution by primary service area counties revealed that most of the cases diagnosed and treated at CAMC in 2008 were from Kanawha, Boone, Logan, Fayette, Raleigh and Putnam counties. As shown in Table 1, cancer of the lung, breast, prostate, colon and bone marrow are the leading cancer sites at CAMC. Table 2 shows the leading five sites of new cancer cases for both sexes at CAMC compared to the West Virginia average estimates. According to the West Virginia Cancer Registry, on an average day in West Virginia, 29 people are diagnosed with invasive cancer, including five who are diagnosed with invasive lung cancer, four with invasive colorectal cancer, four with invasive prostate cancer and four with invasive female breast cancer.

Lung cancer continues to be the most common cancer in men at CAMC and the most deadly in both sexes. Since 1987, more women have died each year of lung cancer, which has remained the major cause of cancer death in women for more than 40 years. The latest report shows that from 2002-2006 lung cancer was estimated to take the lives of more than 7,618 West Virginians, while approximately 9,979 new cases of the disease were diagnosed. The frequency of chronic tobacco use in West Virginia also contributes to the higher rate of lung cancer cases observed. According to the American Cancer Society, the total number of West Virginians who smoke is 26.6 percent, well above the national average of 20.6 percent.

Breast cancer is the second most common cancer diagnosed in West Virginia. From 2002-2006, there were 6,565 West Virginians diagnosed with breast cancer and approximately, 1,481 West Virginians died from the disease. According to the American Cancer Society, West Virginians 40 years and older getting yearly screening mammograms was 58.1 percent, the national average is 58.3 percent. Persons 40 to 64 years old received one 57.6 percent above the national average of 56.8 percent. Early detection is the key to preventing breast cancer.

According to the Centers for Disease Control, cancer is the second leading cause of death in the United States. One out of every four deaths in the United States is due to cancer. The American Cancer Society estimated that in 2008, about 1,437,180 Americans were diagnosed with an invasive cancer, and 565,650 Americans died of this disease. That is more than 1,500 people a day. The National Cancer Institute (NCI) recently estimated that on January 1, 2004, 10.8 million Americans were alive with a history of invasive cancer.

![Top Five Cancer Sites for 2008](image-url)
Interpreting This Report: The estimated performance rates shown below provides your cancer program with an indication of the proportion of breast and colorectal patients treated according to recognized standards of care by diagnosis year. These proportions are computed based on data directly reported from your registry to the NCDB. This Cancer Program Practice Profile Reports (CP3R) application provides cancer programs with the opportunity to examine data to determine if these performance rates are representative of the care provided at the institution. Cancer programs have the ability to review and modify cases by clicking on “case review” for the measure of interest. Displayed performance rates are immediately updated once modifications via the CP3R are completed by cancer program staff, comparison rates are updated nightly. Note: Any modifications made online should be reflected at the local cancer registry. Cancer programs are encouraged to resubmit reconciled cases to the NCDB.

<table>
<thead>
<tr>
<th>Estimated Performance Rates for Selected Breast, Colon and Rectum Cancer Measures Diagnosis Years 2004 - 2006</th>
<th>Performance Rates (click rate for comparisions)</th>
<th>Case Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiation therapy is administered within 1 year (365 days) of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer. [BCS/RT]</td>
<td>88.4% 92.3% 96%</td>
<td>BCS</td>
</tr>
<tr>
<td>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 ERA and PRA negative breast cancer. [MAC]</td>
<td>88.9% 100% 86.7%</td>
<td>MAC</td>
</tr>
<tr>
<td>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 ERA and/or PRA positive breast cancer. [HT]</td>
<td>90.7% 98.5% 91.4%</td>
<td>HT</td>
</tr>
<tr>
<td>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. [ACT]</td>
<td>94.7% 75% 80%</td>
<td>ACT</td>
</tr>
<tr>
<td>At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer. [12RLN]</td>
<td>46% 53% 79.7%</td>
<td>12RLN</td>
</tr>
<tr>
<td>Radiation therapy is considered or administered within 6 months (180 days) of diagnosis for patients under the age of 80 of with clinical or pathologic AJCC T4N0M0 or Stage III receiving surgical resection for rectal cancer. [AdjRT]</td>
<td>100% 100% 100%</td>
<td>AdjRT</td>
</tr>
</tbody>
</table>

Background: The National Quality Forum (NQF) brought public and private payers together with consumers, researchers, and clinicians to broaden consensus on performance measures for breast and colorectal cancer. The performance rates shown in the Cancer Program Practice Profile Reports (CP3R) match the specifications of the breast, colon and rectal cancer care measures endorsed by the NQF in April, 2007. The Commission on Cancer has been actively engaged in this process. The CoC has instituted the CP3R as a facility feedback mechanism to promote awareness of the importance of charting and coding accuracy in line with evidence-based practice guidelines. In light of the national movement towards Pay for Performance (P4P), these reports provide CoC-Approved programs with the ability to examine program-specific breast, colon and rectal cancer care practices.
CAMC
Oncology Services
2008 Incidence of New Cancer Cases

Hospital

Hospital – Designated as a Cancer Treatment Center on American Cancer Society Website.

Source: CAMC Info. Center, Somanec
Case Report

ACUTE ISCHEMIC CEREBROVASCULAR ACCIDENT (CVA) AFTER BEVACIZUMAB THERAPY.
CASE REPORT & REVIEW OF THE LITERATURE
Biswar RM, Jubelirer SJ, Rosencrance JG,

Presented at XXII Congress of the International Society of Thrombosis and Haemostatis, Boston, USA, July 11-16, 2009. Abstract number 3087 Program number PP-TH-354

Abstract

Description: A 62-year-old female with a known left frontal grade III astrocytoma was admitted with a 2-hour history of right-sided weakness, clumsiness, and hazy vision. She had no history of prior CVA, hypertension, diabetes, or hyperlipidemia. A contrasted brain MRI revealed an acute infarction in the left semiovale/lacunar region. A transesophageal echocardiogram (TEE), EEG, EKG, and carotid duplex, were normal. The patient was started on aspirin.

One year prior to admission, she underwent a craniotomy for her astrocytoma. She then received Temozolomide and radiotherapy. Three months after therapy was completed she developed a recurrence. She then received Irinotecan and bevacizumab (10 mg/kg) every 2 weeks for 17 cycles. She received her last cycle 1 week prior to her CVA. One month after discharge, her neurologic signs/symptoms resolved and her repeat brain MRI showed marked improvement. She received no further bevacizumab.

Summary: Five randomized trials initially done on 1,745 patients with metastatic colorectal breast, or lung cancer revealed that combined chemotherapy with bevacizumab compared to chemotherapy alone was associated with an increased risk for arterial thromboembolic events (HR=2, p = 0.031). Four of 782 (0.5%) in the control group and sixteen of 936 (1.7%) in the bevacizumab treated group developed an ischemic CVA. Only one of 336 patients in nine published phase II trials of Irinotecan/bevacizumab for gliomas developed an ischemic CVA. Whether the dose and duration of bevacizumab, age, or aspirin use influence the risk of and morbidity from CVA are questions that are unanswered.
Published Research

USE OF RADIATION AFTER BREAST CONSERVING SURGERY (BCS) FOR DCIS AND EARLY INVASIVE Breast Cancer at Charleston Area Medical Center (CAMC): A Study of Compliance with National Comprehensive Cancer Network (NCCN) Guidelines.

Dean CT, Jubelirer SJ, Plants BA, Welch CA. WV Med J. 2009;October:34-38

Abstract
The national comprehensive cancer network (NCCN) recommends that patients with ductal carcinoma in situ (DCIS) and stage I/II invasive breast cancer receive radiation therapy following breast conserving surgery (BCS). The purpose for our study was to determine 1) the percentage of patients with DCIS and stage I/II breast cancer who received radiation therapy following BCS and 2) the clinical factors associated with the use of radiation.

We retrospectively studied 606 patients treated between 2000 and 2007 with BCS for DCIS (n=104) and stage I/II breast cancer (n=502). Overall 93 percent of patients in our study received radiation therapy. We found that almost 85 percent and 95 percent of patients with DCIS and stage I/II breast cancer respectively received radiation therapy. Patients with invasive breast cancer who were less than 70 years of age and who received adjuvant systemic therapy were significantly more likely to receive radiation.

The data from our study indicate that the use of radiation following BCS is high at our institution. Periodic review of treatment practices at local hospitals is valuable in assessing compliance with national guidelines and in improving quality of care.

DOES SEX MAKE A DIFFERENCE IN SURVIVAL OF PATIENTS UNDERGOING RESECTION FOR EARLY STAGE NON-SMALL CELL LUNG CANCER (NSCLC)?


Abstract
Objective: To determine if sex associated differences exist in presentation and survival of patients undergoing resection for early stage nonsmall cell lung cancer (NSCLC).

Patients and Methods: Retrospective review of 2,207 patients with Surveillance, Epidemiology, and End Results (SEER) Summary Stage I, II or III (local or regional disease) patients eligible for surgery, nonsmall cell lung cancer diagnosed and treated in WV between 1993 and 2000, which underwent surgery as a first course of treatment. Data set obtained from the West Virginia Cancer Registry.

Results: 1,332 male cases and 875 female cases were reviewed. No statistically significant difference was found with mean age of diagnosis (men 66.5 years; women 67.2 years). A greater proportion of women had adenocarcinoma (p<0.0001), lower grade (p=0.002), and lower SEER summary stage (p=0.009). There was no difference in laterality of tumor, 30-day post surgery survival or surgical procedure between men and women. Regression analysis showed a higher hazard ratio was associated with a increasing stage, grade, and those >65 years of age while lower hazard ratio was associated with adenocarcinoma.

Conclusions: This study found that stage, grade, age, and histology, but not sex was the significant prognostic indicators of death in five years.
PSYCHOSOCIAL ONCOLOGY SERVICES IN WEST VIRGINIA
Carolyn H. Suppa, EdD; John Linton, PhD, ABPP; WV Med J. 2009;October:12-15

Cancer Patient Support Program, Charleston Area Medical Center, Charleston, WV 25304, USA and Department of Behavioral Medicine and Psychiatry, West Virginia University School of Medicine, Charleston, WV 25304, USA. Both are members of the West Virginia Psychological Association.

Abstract
While the field of psychosocial oncology has been recognized for several decades, specialized psychosocial services to West Virginians with cancer have been limited. Considering the increase in the incidence of cancer and the recognized burden of cancer-related emotional distress, healthcare providers must screen for emotional distress as the sixth vital sign and develop an array of evidence based interventions and services for patients with cancer and their families along the cancer trajectory.

BREAST CANCER IN SOUTH-CENTRAL WEST VIRGINIA
Roberto E. Kusminsky, MD, MPH, FACS; Professor of Surgery, West Virginia University. WV Med J. 2009;October: 42-47.

Study Summary
Background: It is estimated that 185,000 new cases of female breast cancer will be diagnosed this year in the US, with approximately 2,000 additional cases appearing in men. Breast cancer is the leading type of female cancer and the second cause of cancer-related deaths in women. In 2005 West Virginia ranked 48th in the US for invasive breast cancer at 114.4/100,000 persons, while the US rate was 117.7/100,000.

Objective: To report the demographics, cancer characteristics, treatment modalities, and survival of those diagnosed with breast cancer from 1998 to 2007 in South-Central West Virginia.

Results: From 1998 to 2007, 2401 cases were recorded in the institution’s registry and were available for analysis. Women aged 50-69 accounted for 50% of the reported cases while those under the age of 39 were 4.25% of the cases. Ten percent of the cases were stage 0, 34.8% stage I, 26.6% stage II, 7.0% stage III, 2.8% stage IV and 18.5% were unknown. Invasive ductal carcinoma in situ was the most frequently diagnosed at 61% followed by DCIS at 19.3%. About 65% were ER/PR positive, 25% ER/PR negative and 10% ER positive and PR negative. Overall hormonal and radiation therapy were utilized more than chemotherapy. In 62% of the cases chemotherapy was not recommended however in those aged 40-59 it was the most common treatment modality. Five-year cancer survival ranged from 95% for stage 0 to 79% for stage III.

Conclusions: The findings in this report confirm an increase in the incidence of stage 0 and I cases and a decrease in the numbers of patients with stage IV over the period of interest. Thirty-five years ago approximately 75% of women diagnosed with breast cancer survived their disease 5 years, whereas today nearly 90% of them do. Information such as reported here should be used to promote the proven mechanisms of prevention and early detection, particularly in light of reports underscoring the elevated mortality currently seen in young women and the rising incidence of breast cancer among female cancer survivors.
A STUDY OF COMPLIANCE WITH NATIONAL COMPREHENSIVE CANCER NETWORK (NCCN) GUIDELINES FOR THE TREATMENT OF PRIMARY MELANOMA AT CHARLESTON AREA MEDICAL CENTER (CAMC).

Ashley I, Jubeirer SJ, Welch CA.

Abstract

Background: The incidence of malignant melanoma is increasing rapidly, at a rate of 4% to 8% per year. In the United States in 2009, it is estimated that there will be 68,720 new cases of invasive melanoma and 8,650 deaths. Appropriate surgery remains the mainstay of treatment for primary cutaneous melanoma and is curative in most cases of localized disease. However, variation in the surgical treatment of melanoma occurs despite efforts to standardize care. This may lead to inaccurate staging, increased morbidity, and poor outcomes. The purpose of our study was to evaluate our institutional compliance with NCCN guidelines for the treatment of primary melanoma. A summary of these guidelines is shown in Table 1.

<table>
<thead>
<tr>
<th>Tumor thickness (mm)</th>
<th>Surgical margins (cm)</th>
<th>Sentinel node biopsy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma-in-situ</td>
<td>0.5 cm</td>
<td>no</td>
</tr>
<tr>
<td>≤1.0 mm</td>
<td>1.0 cm</td>
<td>noB</td>
</tr>
<tr>
<td>1.01 to 2.0 mm</td>
<td>2.0 cm</td>
<td>yes</td>
</tr>
<tr>
<td>≥2.0 mm</td>
<td>2.0 cm</td>
<td>yes</td>
</tr>
</tbody>
</table>

A. And complete lymph node dissection upon discovery of a positive sentinel node
B. Unless ulceration is present or the tumor is Clark level IV or V

Methods: We studied 301 clinically node-negative melanoma patients (2000-2007) identified from the CAMC cancer registry. Treatment data were obtained by individual review of pathology and operative reports. Data obtained were age; sex; depth of lesion (mm); excision width (cm); +/- sentinel node biopsy; presence/absence of ulceration; Clark level; histologic type of melanoma (e.g. superficial spreading, nodular, lentigo maligna, etc); and primary tumor location (i.e. lower/upper extremity, trunk, head/neck).

Results: Documented margins of excision conformed to NCCN guidelines in 67% of Tis, 66% of T1, 82% of T2, 74% of T3 and 59% of T4 tumors. Sentinel lymph node guideline compliance was documented in 90% of Tis, 45% of T1, 70% of T2, 88% of T3, and 92% of T4 tumors. Overall compliance with both margin and lymph node guidelines was 71% and 69%, respectively. Intended clinical margins were not described in the operative notes of 21% of cases overall. Completion of lymph node dissection was performed after a positive sentinel lymph node biopsy in 55% of cases. In the non-compliant group, over treatment (more extensive resection than necessary) was more common than under treatment for tumors ≤1 mm in thickness whereas the converse was true for tumors >1 mm in thickness. Nodular histology, Clark level IV and V lesions and stage Tis, T3 and T4 lesions were associated with greater adherence to recommended lymph node staging and treatment guidelines.

Conclusions: Despite widespread publication of treatment guidelines for the management of primary cutaneous melanoma, we found that treatment conformed to NCCN guidelines in slightly over two-thirds of our patients. Further investigation is needed to determine 1) the reasons for non-compliance with NCCN guidelines; 2) Whether noncompliance with guidelines affects patient outcomes (i.e. recurrence or mortality).
A STUDY OF IN-PATIENT ONCOLOGY SATISFACTION: PRELIMINARY RESULTS.
Jubelirer SJ, Jividen VS.

Objective: To determine oncology patients’ satisfaction with their care at discharge using the EORTC in PATSAT32 survey tool.

Design. Prospective study design

Setting and Patients: Oncology floor at CAMC. Patients are enrolled that have been hospitalized for 3 or more days and consent to participate in the study.

Results. Thus far 139 surveys have been completed. The average age was 61 + 11.8 years, 52% were completed by males, 96% were Caucasian, 52% had a high school education or less, 71% were married, 40% were retired, 5.3% said they were enrolled in a clinical trial and 70% had or had a family member look up their disease on the internet. Overall 87.5% rated their stay at very good or excellent. Disease status reported by enrollees was 31.5% local, 27.8% metastasis and 40.7% did not know. Respiratory cancers represented the largest proportion of patients at 23% followed by gastrointestinal at 22%, and head and neck cancers at 17%. Chemotherapy was the current treatment for 71% of the patients, while 23% were undergoing radiation and 17% surgery. Chemotherapy was a future treatment for 50.4% while radiation was being considered by 10.8%. Patients ranked physicians and nurses highest for their technical skills 90 ± 15 and 86 ± 17, respectively. This was followed by interpersonal skill (physicians 89 ± 16; nurses 84 ± 18), the information they provided (physicians 85 ± 18; nurses 78 ± 24) and availability (physicians 85 ± 20; nurses 77 ± 23). For the hospital services and care organization the patients rated information exchange at 76 ± 23, other hospital staff 79 ± 19, wait time 77 ± 23, hospital access 71 ± 24 and building and environment at 70 ± 27.

Group comparisons showed that those < 65 (88 ± 19) were more satisfied with the comfort and support provided by the nurses than those > 65 (80 ± 21), p = 0.04. Unmarried patients were significantly more satisfied with the information provided by the doctor (p = 0.03), the nurses technical skills (p = 0.03) the nurses interpersonal skill (p = 0.01), the availability of the nurses (p = 0.04), the information between caregivers (p = 0.0004), the interpersonal skills between staff (p = 0.03), hospital access (p = 0.02), the environment of the building (p = 0.04), and their general satisfaction (p = 0.002).

Conclusions. The majority of the patients were satisfied with their care. For physicians, the lowest scores were for information about medical tests, the frequency of visits, the time devoted during the visit. For nurses, the lowest scores were for promptness in answering the buzzer calls, information they gave about medical tests or about patients care in general. For the hospital, the lowest scores were for ease of access or finding one’s way to different departments, environment (i.e. cleanliness spaciousness, calmness, etc), and information provided on patients’ admission to the hospital. Marital status, age, physician specialty (medical oncologist vs. others) were significant factors in determining satisfaction with care.
Cooperative work

BUILDING A STATEWIDE CLINICAL TRIALS NETWORK FOR CANCER CARE IN WEST VIRGINIA
Jame Abraham, MD1, II James Keresztury, ACSW1 John Azar, MD2 Manish Monga, MD3 Timothy Bowers, MD4
Matthew Page Jones, MD5 Maria Tria Tirona, MD6 Jondavid Pollock, MD3 Craig Coonley, MD7 Steven Jubelirer, MD8;
James Frame, MD8; Patti Fogg, MS9; Molly Getto, BSN1; Shannon Filburn, BSN, MBA1; John Naim, PhD1; Dan Lucas,
PharmD8; William Petros, PharmD1,10; Sharon Hall, MSM11; Scot C. Remick, MD1

1Mary Babb Randolph Cancer Center, West VirginiaUniversity School of Medicine, Morgantown, WV; 2West Virginia
Oncology Society, Fairmont, WV; 3 Schiffler Cancer Center, Wheeling Hospital,Wheeling, WV; 4Private Practitioner,
Martinsburg, WV; 5West Virginia University School of Medicine, Eastern Division, Martinsburg, WV; 6Edwards
Comprehensive Cancer Center, Marshall University School of Medicine, Huntington, WV; 7United Hospital Center,
Clarksburg, WV; 8David Lee Cancer Center, Charleston Area Medical Center, Charleston, WV; 9American Cancer
Society, Glen Allen, VA; 10School of Pharmacy, West Virginia University,Morgantown, WV; 11Charleston Area
Medical Center Health Education and Research Institute, Charleston

Abstract
In the United States, mortality rates have been declining for certain tumors. For the majority of advanced stage
cancer types, cure is unattainable but treatment is still evolving. Advances in the treatment of cancer can be achieved
by enrolling patients in cancer clinical trials. Presently, less than 3% of adult cancer patients participate on clinical
trials in the United States. Providing cancer care and access to clinical trials are a challenge in a rural state, with a
dispersed population base, such as West Virginia. Building upon recognition of barriers to clinical trials awareness
and access, oncology leaders in the state are in the formative stages of developing a statewide cancer clinical trials
network. Realization of this network will have an enormous impact on cancer care in our state and perhaps can
serve as a model for other community and physician teams for other diseases.

TRIPLE-NEGATIVE BREAST CANCER IN WEST VIRGINIA
Jame Abraham, MD, FACP1; Melina Flanagan, MD, MSPH2; Hannah Hazard, MD3; Steven Jubelirer, MD, FACP4; Maria
Tria Tirona, MD, FACP5; Linda Vona-Davis, PhD6

1Bonnie Wells Wilson Eminent Scholar and Distinguished Professor in Breast Cancer Research, Chief of
Hematology /Oncology, Director of Comprehensive Breast Cancer Program, Medical Director of Mary Babb
Randolph Cancer Center, West Virginia University, Morgantown 2Assistant Professor of Pathology & Director of
Cytopathology, West Virginia University, Morgantown 3Assistant Professor of Surgery, Division of Surgical Oncology, West Virginia University, Morgantown 4Professor
and Chief of Hematology/Oncology, West Virginia University, Charleston Division, Charleston Area Medical Center, Charleston 5Professor and Chief of Hematology/Oncology,Director of Medical Oncology, Edwards Comprehensive Cancer Center, Marshall University,Huntington6Associate Professor of Surgery, Breast Cancer
Research Program, Mary Babb Randolph Cancer Center, Morgantown

Abstract
In 2007, the American Cancer Society ranked West Virginia 43rd in breast cancer incidence rates for individual
states. Despite our improvements in medical care, the advanced pathological characteristics of breast cancer at
diagnosis receive little attention. Consequently, we compared the changing pattern of early breast cancer in several
cohort studies conducted at regional medical centers in West Virginia. The data used in this analysis was derived
from 320 women presenting at West Virginia University Hospital (WVUH) in Morgantown between 1999 and 2004, with a diagnosis of invasive breast cancer. Details of age, tumor size and axillary lymph node status were compared with tumor registry information published from a cohort study of 191 patients from the Charleston Area Medical Center (CAMC) between 1990 and 1991. Only histologically documented adenocarcinomas of the breast were included. Tumor size was characterized using the TNM system and staged according to AJCC criteria. For comparative purposes, details from the two regional centers were compared with tumor characteristics from a large longitudinal cohort of 2,484 breast cancers from the Women’s Health Initiative (WHI) study. Baseline median age at diagnosis of women screened at WVUH was younger than patients at CAMC (52 vs. 60). Women diagnosed with triple-negative breast cancer at WVUH and CAMC had similar age distributions. Within the triple-negative patients at WVUH, 44% of patients were less than 50 years of age and 20% were less than 40 years of age. At CAMC, 35% were less than 50 years of age and 7% were less than 40 years of age. For women at WVUH, 61.5% presented with T1 tumors compared to 65.5% at CAMC. These figures were lower than the WHI average of 80.3%. In contrast, more women presented with larger T2 tumors at our medical centers compared with the national study, 32.6% versus 17.4% respectively. At WVUH, 2.3% of women had T3 tumors (≥5 cm) compared with 1% at CAMC. Similar to the WHI study, 35-42% of women at WVUH and CAMC were diagnosed at the T1c stage. Approximately, 30% were diagnosed with positive lymph nodes, compared to 23% in the national study. Combined breast cancer data from our medical centers show an increase in more advanced tumors and positive regional lymph node involvement at the time of diagnosis compared to national reports. Other factors such as obesity, diabetes, poverty and access to mammography screening could be influencing the poorer outcomes for women with breast cancer in West Virginia.