Transforming Research and Statistics into Patient Care

2011 CAMC Cancer Services Report
Cancer Program Survey 2011
By Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR

CAMC’s cancer program was surveyed by the American College of Surgeons’ (ACoS) Commission on Cancer (CoC) on April 25, 2011. The purpose of the survey was to assess the quality of the cancer program and services and it resulted in CAMC being awarded a three-year accreditation with contingency.

The surveyor, Dr. Magesh Sundaram, recognized CAMC’s commendation level accomplishments in three distinct areas:

- **Standard 5.2 Clinical Trial Accrual:** “Over 7% of patients were accrued to clinical trials each year.”
- **Standard 6.2 Prevention and Early Detection:** “There were numerous prevention and early detection programs offered to the community each year.”
- **Standard 7.2 Cancer Education for Cancer Registry Staff:** “Registry staff participated in educational activities each year. The CTR attended national activities during the survey cycle.”
**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.
RESEARCH AND OUTCOMES

CAMC Cancer Statistics by Stage
CAMC Benchmark and Survival Rates
US Cancer Statistics
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 82 protocols at the center, opening additional protocols for cancer patients each month. More than three hundred 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, clinical research opportunity has been expanded for a larger sector of the Charleston community. 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. 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 is located in 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. New patient referrals are taken immediately, allowing clinic patient flow to continue without interruption.

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 email karen.shirey@camc.org, augusta.kosowicz@camc.org or kim.baria@camc.org.

**Staff**

Steven Jubelirer, MD, Senior Research Scientist

Karen Shirey, RN, BSN, Research Coordinator

Augusta Kosowicz, PA-C, Research Coordinator

Kim A. Baria, RN, BSN, Research Coordinator

Megan Ware, Research Assistant

Jongie Shelton, Research Assistant

B. Daniel Lucas, Jr., PharmD, Director
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 2010, 1,562 cancer cases were accessioned into the registry; a total of 39,639 cancer cases have been entered in 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. Occasionally phone calls will be made with patients in order to capture follow-up information including the patient’s current contact information and health status. This contact serves as a reminder to former patients to continue their follow-up exams with physicians. Currently, CAMC has approximately 11,776 patients in active follow-up. In order to meet the ACoS CoC standards, CAMC must maintain current follow-up information on at least 80% of all patients diagnosed since 1/1/1985 and 90% of all patients diagnosed within the past five years. The CAMC cancer registry has maintained their follow-up rates at 91.12% and 95.14% which exceeds the requirements.

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 11 data requests for research presentations during 2010 and was responsible for coordinating cases for 49 cancer conferences in which 181 cases were presented.

Two patient care evaluation studies (PCEs) conducted in 2010 included evaluation of the mammogram follow-up rates for CAMC benchmarked with state and national averages. The mammogram follow up is the rate at which patients are asked to return for follow-up studies after undergoing a routine mammogram. The study shows 8.1% as the national average and suggests a lower limit of 8% or less is too lax and an average of 14% or higher is too aggressive. West Virginia demonstrates an average of 8.8% for the follow-up rate and CAMC is showing a 9.1% rate in 2007 and a 9.8% rate in 2008. After discussion with the Cancer Committee, it was not felt that further study needed to be done as CAMC’s follow up rate was appropriate.
The second PCE centered on the CP3R (Cancer Program Practice Profile Report) where the National Cancer Data Base (NCDB) benchmarks CAMC’s quality indicators with other accredited cancer programs. The quality measure selected was “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.” For the diagnosis year of 2008, CAMC was showing that only 56% of the patients fitting this definition were receiving Tamoxifen or a third generation aromatase inhibitor. Physicians were certain this was incorrect. An audit of every non-concordant case was performed and this resulted in the current CP3R data displaying a 95.2% concordance rate for this measure for 2008.

The goal of the cancer registry is to provide the medical staff with data that will enable them to study the outcome of their diagnoses 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 shared with the WV State Cancer Registry to help it gather information on the incidence of cancer in West Virginia. Being a CoC approved program, CAMC must also send its data to the NCDB where CAMC’s data is compared nationally with other institutions in its category.

**CAMC participates in CoC Rapid Quality Reporting System (RQRS)**
*By Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR*

According to the CoC, “The Rapid Quality Reporting System (RQRS) promotes and facilitates evidence-based care for patients at the CoC-accredited programs by actively monitoring and assessing compliance with four National Quality Forum-endorsed measures and two surveillance measures of cancer care for breast and colorectal cancer patients in real clinical time.” CAMC benefits from this participation in that…

- The real clinical time performance rates allow us to improve patient care as we monitor our concordance with each measure
- We can develop interventions that improves the quality of care
- Alerts in RQRS will serve as a reminder to prevent patients from experiencing delays in treatment
• Quarterly updates to the data allows CAMC to compare our performance with other accredited programs in our state, our region, our accreditation category and with all accredited programs participating in RQRS

• Incentivizes CAMC to collect timely and accurate adjuvant treatment information

• There is potential to negotiate favorable reimbursement with payers by demonstrating the quality of our cancer program

The six measures being monitored through RQRS involve the breast, colon and rectal cancer sites. Each of these measures is listed below with their corresponding dashboard. These dashboards indicate CAMC's year-to-date performance for each measure. Areas on the dial shaded with green demonstrate top quartile performance (75% to 100% percentile); yellow is the 50th to 75th percentile; red is 25th to 50th percentile. The dashboards that display an orange area behind the needle, demonstrates the rate if all cases reported as pending adjuvant treatment information were not concordant. The value of the performance rate and the number in the denominator of the calculation are displayed at the center of the dial.

It is very important to note here that this is year-to-date information, meaning it is the 2011 cases that were diagnosed at CAMC in the first four months of 2011 (remember, tumor registries abstract six months behind to allow time for the majority of first course of treatment to begin). Many of these patients are still within the acceptable range of time to begin these treatments but CAMC Cancer Registry has not collected and abstracted that data yet. This delay will impact where the dial falls in quartiles of performance.
Radiation therapy is administered within 1 year (365 days) of diagnosis for women under age 70 receiving breast-conserving surgery for breast cancer.

Combination chemotherapy is considered or administered within 4 months (120 days) of diagnosis for women under 70 with AJCC T1cN0M0, or Stage II or III hormone receptor positive.

Tamoxifen or third generation aromatase inhibitor is considered or administered within 1 year (365 days) of diagnosis for women with AJCC T1cN0M0, or Stage II or III hormone receptor positive.

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

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.

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 disease.
The CoC maintains information from data submitted each year, sorting the cancer cases by site and by stage. Once the facility reviews the data and agrees it is accurate, the facility may allow the CoC to share this data publicly. The Cancer Committee reviewed this data in April for the 2008 data and asked that the Cancer Registry trend this data over time to see if there are any trends that could be identified.

This information was presented in graphical form for ease in review at the June Cancer Committee meeting. CAMC’s top five cancer sites, at the time, were studied. These are colon, prostate, breast, lung, and uterine. Interestingly, during the 2010 treatment year, CAMC’s top five changed to colon, prostate, breast, lung and kidney.

Points of interest in these graphs include a marked improvement in the staging as can be demonstrated in every graph by the sharp decline in “unknown” stage for each of these cancers in 2008. Of note, CAMC began working diligently at collecting staging information with 2008 cases, aiming for 100% staging each year. For 2008, there were also increases in stage II and IV uterine cancer, stage I and IV lung cancer, stage 0 and II breast cancer, stage II and III colon and prostate cancers. The Cancer Committee will continue to monitor this data over time to see if this is a new trend or if it is the result of more staging information being available, or if it might be related to attempts to improve screening and early prevention.
Standard 2.11 of the ACoS CoC Accreditation Standards requires that CAMC review cancer survival statistics as benchmarked against national data. In July, Dr. Trammell presented graphical representation of CAMC’s top five cancer sites against data from the NCDB for the facilities accredited as teaching facilities and for all accredited facilities. It is important to note that these graphs represent any cause mortality so that deaths are not purely cancer-related. The Cancer Committee is interested in getting death information from the state department of Vital Statistics; however, HIPAA regulations are preventing the sharing of data between CAMC and the WV Vital Statistics. The following graphs were reviewed and discussed.
Non-Small Cell Lung Cancer Survival at 5 Years by Stage at Diagnosis Cases Diagnosed 1998 - 2002

Prostate Cancer Survival at 5 Years by Stage at Diagnosis Cases Diagnosed 1998 - 2002
Colon Cancer Survival at 5 Years by Stage at Diagnosis
Cases Diagnosed 1998 - 2002

Uterine Cancer Survival at 5 Years by Stage at Diagnosis
Cases Diagnosed 1998 - 2002
Compliance with National Comprehensive Cancer Network (NCCN) Guidelines
By Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR

In accordance with ACoS CoC guidelines, S. Willis Trammell, M. D. conducted an audit of all 2010 breast cancer cases looking at concordance with NCCN guidelines for first course of treatment. A total of 251 cases were reviewed in this audit and the findings discussed with the Cancer Committee to fulfill Standard 4.3 of the accreditation standards. This audit demonstrated a 99.6% accuracy rate in applying the appropriate NCCN guidelines for these 251 breast cancer cases.

Fifteen cases were excluded because surgery was performed elsewhere, chemotherapy and/or radiation were given prior to surgery, or the patient declined surgery. One case is left as inaccurate; however, it is suspected this case has surgery conducted elsewhere. Based on the findings at the time of the Cancer Committee presentation, the following graphs were presented. Please note that the one inaccurate case was later found to have had surgery elsewhere and was moved to join the 15 excluded cases, leaving a 100% accuracy rate for CAMC. As one can see in the last graph, CAMC is well above the accuracy levels found in other accredited programs.
Cancer Program Practice Profile Reports (CP3R)
By Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR

In order to allow facilities to monitor quality initiatives, the CoC produces the CP3R site. This allows CAMC to monitor compliance with quality initiatives related to breast, colon and rectal cancers and to compare performance with other accredited facilities such as others in the state, others in the region, others in the same classification, or all other accredited facilities. CAMC can also monitor its performance over time looking for trends that might indicate a success with a process improvement, or a problem. Many times these trends may be related to changes in data capture or difficulty in obtaining the correct information on a timely basis. The CAMC Cancer Registry audits these cases periodically and takes extra measures to collect missing data and update these reports. It is the responsibility of the CAMC Cancer Committee to monitor this data, identify any issues, and work to resolve these issues appropriately.
Interpreting This Report: The estimated performance rates shown below provide 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>Select Breast &amp; Colorectal Measures</th>
<th>Estimated Performance Rates (click rate for comparisons)</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>89.1% 92.5% 95.4% 81.8% 82.4%</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 ER+ and PR+ breast cancer. [MAC]</td>
<td>88.9% 100% 77.8% 70% 78.9%</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 ER+ and/or PR+ positive breast cancer. [HT]</td>
<td>87.3% 98.5% 90.1% 84.3% 95.2%</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% 71.4% 80% 90.9% 88.9%</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>50% 53% 81.7% 63.2% 86.9%</td>
<td>12 RLN</td>
</tr>
<tr>
<td>Radiation therapy is considered or administered within 6 months (180 days) of diagnosis for patients under the age of 80 with clinical or pathologic AJCC T4N0M0 or Stage III receiving surgical resection for rectal cancer. [AdjRT]</td>
<td>100% 100% 100% 100% 85.7%</td>
<td>Adj RT</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.
In order to really understand CAMC performance, review of the following graphs will demonstrate performance benchmarked against other accredited centers in West Virginia, all centers in the United States accredited as teaching facilities and all accredited centers in the United States.
**CoC National Cancer Data Base**

**Cancer Program Practice Profile Reports (CP3R)**

**Colon Cancer Measure 12RLN**

12RLN: At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer.

**CoC National Cancer Data Base**

**Cancer Program Practice Profile Reports (CP3R)**

**Rectal Cancer Measure AdjRT**

AdjRT: Radiation therapy is considered or administered within 6 months (180 days) of diagnosis for patients under the age of 80 with clinical or pathologic AJCC T4 N0 M0 or Stage III receiving surgical resection for rectal cancer.
CAMC's Cancer Committee monitors the number of cases accessioned over time to identify trends and to identify any issues that may exist with casefinding. Casefinding is the function of identifying every patients treated and/or diagnosed with cancer at CAMC or at any of the physicians' offices on CAMC's medical staff.

Cancer programs commonly monitor and report on top five cancer sites in their annual case mix. For many years, breast, lung, prostate, colon and uterine were our top five sites. As noted above, in 2010 uterine cases were replaced with kidney. With two of the top five sites being urological, CAMC’s Cancer Committee has taken action to have a urologist on the Cancer Committee.
For a broader view of the CAMC cancer case mix, the top 15 cancer sites diagnosed in 2010 are displayed.
In 2010, 656 men and 629 women were diagnosed with cancer. The top sites for men were prostate, lung, colorectal, kidney and urinary bladder. For women, the top sites were breast, lung, uterine, colorectal and kidney.
CAMC monitors five-year survival rates as compared to other accredited facilities. Here the survival rates are compared to other accredited facilities in the Southeast region, all facilities accredited as a Teaching cancer program and all accredited facilities in the United States. Of note, there were insufficient cases at CAMC for Stage III and IV to display the survival rates.
The second graph displays CAMC’s five year survival rate by year of survival. It is important to note that these are cases diagnosed in the year 2003 so time has lapsed to allow for collection of five years of survival data for these patients.

There are an insufficient number of cases in Stages 0, II and III to display survival rates for CAMC.
There were an insufficient number of cases in Stages 0 and IV for CAMC to display the survival rate.
Stage II was the only stage with sufficient data to present survival statistics for CAMC.
As a newcomer to the CAMC top five list, there was insufficient kidney cancer cases in 2003 to track for the five year survival rates; however, survival rates by stage for each of the other types of accredited facilities is displayed.
A representation of the histologies diagnosed at CAMC in 2010 by volume.

Cancer cases represented by the age at diagnosis. There were 450 cases diagnosed between the ages of 60 to 70 with 73.8% of the cases diagnosed between the ages of 50 to 80.
Over 93% of CAMC’s cancer experience is with caucasian patients, representative of the racial and ethnic populations in West Virginia.

Nearly 51% of CAMC’s cancer cases are diagnosed at Stages I and II. It is worthy to note here than only 7 cancer cases from 2010 were not staged at the time of this publication.
CAMC
Oncology Services
2010 Incidence of New Cancer Cases

Primary Service Area (75% of discharges)
Secondary Service Area (additional 15% of discharges)
Hospital
Hospital — Accredited by the American College of Surgeon’s Commission on Cancer

Source: CAMC Cancer Registry,
American College of Surgeon website,
CAMC Planning Department 10/31/11
2011 American Cancer Society Data

This information was provided by the American Cancer Society and demonstrates trends in national cancer statistics over time. Graphs and notes were reproduced with permission from the American Cancer Society.

The death rate for all cancers combined decreased by 1.9% per year from 2001 to 2007 in men and 1.5% per year from 2002 to 2007 in women. Compared to the peak rates -- in 1990 for men and 1991 for women -- the cancer death rate for all sites combined in 2007 was 22.2% lower in men and 13.9% lower in women.
Most of the increase in cancer death rates for men prior to 1990 was attributable to lung cancer. However, since 1990, the age-adjusted lung cancer death rate in men has been decreasing; this decrease has been estimated to account for nearly 40% of the overall decrease in cancer death rates in men. The death rate for stomach cancer, which was the leading cause of cancer death early in the 20th century, has decreased considerably since 1930. Death rates for prostate and colorectal cancers have also been declining.
The lung cancer death rate in women has finally begun to decline after increasing since at least 1930. The lag in the decline in lung cancer in women compared to men reflects differences in smoking patterns; smoking rates peaked in women a couple of decades later than in men. In comparison, breast cancer death rates changed little between 1930 and 1990, but decreased 31% between 1989 and 2007. Since 1930, the death rate for stomach cancer has decreased steadily and the death rate for uterine cancer declined until 1997 and has since been fairly stable. Colorectal cancer death rates have been decreasing for more than 50 years.
About 898,000 cancer deaths were averted from 1991 through 2007 as a result of the continued decline in cancer deaths rates.
Incidence rates of prostate cancer have changed substantially over the last 20 years: rapidly increasing from 1988 to 1992, declining sharply from 1992 to 1995, remaining stable from 1995 to 2000, and decreasing from 2000 to 2007, due, in part, to changes in prostate cancer screening with the prostate-specific antigen (PSA) blood testing. Incidence rates for both lung and colorectal cancers in men have been declining for many decades.
Breast cancer incidence rates in women decreased by 1.6% per year from 1998 to 2007, likely due in part to a reduction in use of hormone replacement therapy and a slight decline in mammography utilization from 2003 to 2005. However, close inspection of the data show that after dramatically decreasing from 2002 to 2003, breast cancer incidence rates remained relatively unchanged from 2003 to 2007. Similarly, although incidence of lung cancer has increased slightly by 0.4% per year since 1991, rates in the most recent several years have plateaued; in fact, analysis of a larger data set (that only goes back to 1992) shows a significant decrease of 0.3% per year in lung cancer incidence rates in women from 2003 to 2007. Colorectal cancer incidence rates have been decreasing rapidly by 2.2% per year since 1998.
The Quality Oncology Practice Initiative (QOPI) was designed by the American Society of Clinical Oncology (ASCO) in recognition of the importance of integrating continuous quality improvement into patient-centered clinical practices. This is a voluntary program that allows physician practices to monitor quality initiatives against benchmarks established through ASCO’s member oncologists and quality experts using clinical guidelines and published standards such as the National Initiative on Cancer Care Quality (NICCQ), ASCO/NCCN Quality Measures, and ASTRO/ASCO/AMA PCPI Oncology Measures.

Participation in the quality initiatives of QOPI offers certification and the following benefits:

• Practice improvement: Benchmarking performance against performance thresholds in QOPI helps practices set specific improvement goals. The process of preparing for and completing the site assessment leads to implementation of improved systems.

• An assurance of quality: QOPI certification is evidence of a commitment to quality. Increasingly, oncologists and their practices are asked by payers, patients, and others to attest to the quality of care they provide. The QOPI Certification seal indicates that a practice not only benchmarks against national standards that are reliable and credible but also has acted to incorporate standards and processes which safeguard the practice and patients.

• Improved Efficiency and Effectiveness: QCP requires oncology practices to make sure not just that policies and procedures are in place but also that they are documented and translated into practice. These policies and processes often cut across several departments. As a result, a certified practice tends to have more streamlined policies and procedures and better interdepartmental communications. These practices also typically keep better records and are more likely to avoid costly errors.

• Public Trust and a Competitive Edge: Health plans and increasingly more patients recognize that a certified practice has more efficient operations and provide high quality care.

The following slides are the results from the initial data submission to QOPI by the David Lee Cancer Center. Areas where DLCC excelled in the QOPI measures are documentation of pathology report results, chemotherapy plans, emotional problems being addressed, chemotherapy consents, and administration of Bisphosphonates or Denosumab for bony metastasis from breast cancer. DLCC will continue ongoing QOPI activities to include continuous quality improvement activities in documentation of pain intensity, smoking cessation, family history, genetic testing and counseling, and Hepatitis B testing before Rituximab. The final slide demonstrates DLCC’s scoring that is above the QOPI certification minimum. Congratulations DLCC!
Areas the DLCC Exelled In:

Pathology Reports

<table>
<thead>
<tr>
<th>Percentage</th>
<th>David Lee Cancer Center</th>
<th>QOPI Aggregate</th>
<th>Compared to 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.00%</td>
<td>100.00%</td>
<td>98.6%</td>
<td></td>
</tr>
</tbody>
</table>

Spring 2011

Areas the DLCC Exelled In:

Chemotherapy Plan

<table>
<thead>
<tr>
<th>Percentage</th>
<th>David Lee Cancer Center</th>
<th>QOPI Aggregate</th>
<th>Compared to 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.00%</td>
<td>100.00%</td>
<td>82.8%</td>
<td></td>
</tr>
</tbody>
</table>

Spring 2011
Areas the DLCC Exelled In:

**Emotional Problems Addressed**

![Bar chart showing emotional problems addressed in Spring 2011.](image)

- David Lee Cancer Center: 77.27%
- QOPI Aggregated: 76.3%
- Compared to 100%

**Chemotherapy Signed Patient Consent**

![Bar chart showing chemotherapy consent in Spring 2011.](image)

- David Lee Cancer Center: 100.0%
- QOPI Aggregated: 68.5%
- Compared to 100%
Overall

QOPI Certification Overall Quality Score = 80.42%
72.62% is required for certification

Adjuvant Measure Score = 88.24%
80% minimum score is needed for certification
Navigators: steering patients from diagnosis to recovery
By Roberto Kusminsky, MD

You just picked up the mail and found your mammogram report, that says “there is a density that needs to be evaluated” in your left breast.

You don’t know what that means, you don’t know what you are supposed to do and you don’t have the faintest idea of what might happen. You call your doctor, only to find out he’s out of town. “I’ll have him call you the minute he’s back,” the nurse assures you.

But you’re not reassured.

Your mouth is dry, your husband looks at you anxiously, and you want to know something more NOW!! And what is “a density” anyhow? They probably don’t want to tell you it is cancer, you think. Maybe you could call your friend Anne? Didn’t she have the same problem a year ago?

You decide to ask your neighbor, who is a nurse. So you ring her doorbell and tell her what’s going on. She smiles and says, “Just call the Navigator at the Breast Center at CAMC Women’s and Children, and she will explain everything to you.”

So, what is a “navigator?”

A navigator (the word means “to sail” or “to steer a ship”) is a nurse who specializes in a field like breast diseases or cancer and who knows the system from beginning to end. Her special training allows her to help patients move or “navigate” through the system with ease. The Breast Navigator can answer questions about your mammogram results, about your appointments, about your insurance, and just about anything you might need to ask. She can find you a doctor, schedule appointments, arrange consultations, explain what may have to be done next, and sometimes she might even stay with you if you should need to have a procedure done. She can discuss with you the results of your tests, explain something you might have forgotten after you talked to your doctor, and point you in the right direction if there is anything you need and don’t know how to go about it.

And she can certainly explain the meaning of a density in the breast!

The Breast Navigator is headquartered at the Breast Center, and almost everything that might be needed for a patient with a breast problem can be taken care of at the center, and therefore the navigator is readily available and can easily assist you every step of the way.

To contact her, just call her at (304) 388-2861.
Patient Navigation at David Lee Cancer Center
By Jo Thomas, RN, BSN, OCN, CNIV, Jennifer Bass, CMA, pre-certification specialist, Sarah Huff, RN, BSN, OCN, CNII

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. Attempting to maneuver through the health care system can be just as overwhelming as receiving the initial diagnosis of cancer.

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 healthcare provider. The patient will be followed at intervals including abnormal test result, diagnosis, treatment, and survivorship.

In the spring of 2011 DLCC launched a patient financial navigation program. The services currently offered under this new program are assistance applying for WV Medicaid, Social Security Disability, and grants through a variety of local, state, and national nonprofit oncology organizations. The financial navigator also facilitates applications through manufacturing companies for assistance with co pays for infusion therapies as well as oral medications and nutritional supplements. In addition the financial navigator can assist with insurance denials and appeals, coordinate insurance benefits, and provide out of pocket cost analysis for outpatient infusion services.

The financial navigation program has served to virtually eliminate our private pay patients in the oncology setting. Since the program began this spring, the recordable amount of assistance provided is $827,729.30. We have gone beyond the healthcare setting to also aid in finding transportation, housing, food, and social services. The program will continue to add services and resources in the coming year.

The colorectal patient navigator at David Lee Cancer Center is a registered nurse, certified in oncology. The main goal of this role is to eliminate any barriers to the health care for cancer patients. The focus of having a colorectal navigator is to assist patients with suspicious findings or malignancy and to follow them throughout their journey through the health care system. A patient navigator can be a critical role for patients who have a new
diagnosis of cancer. This is a very traumatic and confusing time in a patient’s life and having to maneuver through the health care system on their own can increase their stress levels.

The colorectal navigator serves as a liaison to patients who have been diagnosed with colon or rectal cancer. One of the goals as a navigator is to assure that patients are following up with their health care providers and receiving appropriate and timely care. This may involve assuring the patient is set with an oncologist in a timely manner after surgery in order to assure the appropriate treatment is ordered in a timely manner. Starting treatment in a timely fashion can mean life or death for some patients. Another goal is to assist patients and their family members in resolving any barriers that may keep them from receiving the care they need. This may include transportation, financial, or support issues. The patient navigators’ job is to make certain that the patient is connected to the resources that they need in order to receive the care that they need.

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.

Support Groups

In 2011, the David Lee Cancer Center sponsored the start up of two new support groups. We have received much interest and support in both of these groups.

The first support group was started in January of this year and lends support to patients and family members who are dealing with terminal illness and loss. The group strives to honor and memorialize patients and family members during this difficult time of life. The group is mediated by Denise Burgess, RN, MA, LPC, NBCC and meets monthly.

The second support group initiated this year is the breast cancer support group. This group held its first meeting in July. Although several oncology nurses from the DLCC help facilitate the group, it is set up as a patient led support group. The goal of the group is to offer support, guidance, reassurance, and education to patients and family members who have experienced breast cancer. Each survivor receives a “goody bag” for attending. The group has also had guest speakers, such as a registered dietician. This group also meets monthly and is supported by a grant received from Mountains of Hope.
The support groups are a way for CAMC to give back to its cancer community. These support groups give patients and families the opportunity to express their thoughts, feelings, and experiences in an environment that includes individuals with similar life experiences. The goal of the groups is to provide encouragement and support for cancer survivors.

**Collaborative Practice**  
*By Martha B. Taylor RN, OCN, CN III*

The Oncology Collaborative Practice Group is a subgroup of the Cancer Committee.

Keeping with ACS standards, this multidisciplinary team meets monthly to discuss identified concerns relating to the delivery of care to our inpatient and outpatient population of oncology patients.

The team consists of physicians, nurses, therapists, dieticians, pharmacists, case coordinator, pastoral care, administration, and we are proud to have the input from a patient representative.

This patient centered group is focused on continually improving their processes in order to deliver the best and safest care to our patients.

**Multidisciplinary Cancer Care**

CAMC has dedicated inpatient and outpatient specialty areas that offer a collaborative approach to medicine. Our physicians follow the National Comprehensive Cancer Network (NCCN) guidelines, and provide cancer treatment to patients of all ages.

Developing a patient’s optimal treatment 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 and nursing students.
The David Lee Cancer Center (DLCC) is CAMC’s center for Adult Medical Oncology and Hematology care. A Joint Commission Accredited facility, DLCC provides personalized multidisciplinary cancer care, access to innovative clinical cancer research trials and hematological care for a diversity of benign and malignant conditions in a caring environment.

In 2010, DLCC provided care for 39,898 beneficiary encounters including 29,597 patient visits and 10,301 chemotherapy-related infusions. Annualized care encounters for 2011, based on year-to-date information available through June 2010, showed 42,472 beneficiary encounters including 32,250 patient visits and 10,222 chemotherapy-related infusions. Compared with year 2001 (baseline), in 2010 and 2011 (projected) there has been a 46 percent and 55 percent increase in total beneficiary encounters, respectively.

To address the growing access-to-care needs of our patients, families and referring physicians, DLCC Hematology Oncology Staff added two physicians to our DLCC Physician Team in 2010 bringing the total number of Staff Physicians to eight. 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, Rochester, MN, respectively. In the summer of 2012, West Virginia native, Dr. Terrance Rhodes, will join the DLCC Physician Team following completion of his Hematology Oncology Fellowship Training at Duke University Medical Center, Durham, NC. In addition, we gratefully acknowledge our Physician Assistant Team: Jennifer Parsons PA-C, Whitney Eastwood PA-C and Rechelle Hall PA-C who have been instrumental in enhancing our inpatient care activities.

In 2010, expansion of DLCC clinical spaces was completed to include a new cancer care suite on the 2nd Floor, Medical Staff Office Building, to accommodate our growing physician and support staff. In addition, we are pleased to welcome three additional Nurses to our DLCC Nursing Team: Mikaela Riley, RN, BSN, OCN, Sarah Huff, RN, BSN, OCN (Colorectal Cancer Patient Navigator), Carrie Thaxton, RN, Shannon Davis, RN, and Karin Martin, RN.

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

A PET Therapy program at DLCC was introduced in 2010. Inspired by the innovative patient-centered care initiated by our Pediatric Hematology Oncology colleagues and supported by the Adult Oncology Collaborative Practice Committee, this program has been warmly embraced by our DLCC patients and families. “Barney” and “Bailey”, certified Pet Therapy Dogs, have been a “big hit” and we look forward to expanding this unique initiative for our patients undergoing active chemotherapy treatments.

The DLCC Physician Team has continued its’ participation in numerous quality improvement, Medical Staff, Graduate Medical Education and clinical cancer research activities. Our physicians actively participate in the weekly multidisciplinary CAMC Tumor Board Conference led by Dr. Steven Jubelirer which facilitates peer-reviewed input in the initial and/or ongoing management of individual patients. Patients presented at this conference also contribute to the Breast Cancer Center of Excellence Program led by Dr. Roberto Kusminsky. 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 2011, DLCC Physicians began participation in the American Society of Clinical Oncology's Quality Oncology Practice Initiative (QOPI), a volunteer initiative of self-assessment in the quality delivery of cancer care with participating oncology practices throughout the United States. The goal of this activity will be to achieve QOPI Certification for DLCC and continuance of our commitment to demonstrated high quality cancer care.

In 2011, DLCC Physician and Nursing Senior Staff have been actively involved in leadership activities at the State and National Level. These organizational activities include: West Virginia Oncology Society (President; Board of Directors; WV-Clinical Trials Network Working Group), American Society of Clinical Oncology (Member, Practice Guideline Implementation Network; Chairperson, Risk Evaluation Mitigation Strategies Working Group; Member, Clinical Practice Committee) and Oncology Nursing Society (Member, Presenter, Spring WVOS Meeting; Local chapter President, President-Elect, Treasurer, and Secretary).
In addition to patient care and quality improvement activities, DLCC Physicians participate in the education of Internal Medicine Residents of the WVU School of Medicine Charleston-Division at CAMC. Our physicians with volunteer faculty appointments provide clinical training in Adult Hematology Oncology for the newly created 4-week block rotations as well as providing year-round formal academic lectures on topics in hematology oncology. Trainees also have the opportunity to work with DLCC Staff Physicians on research projects leading to academic presentations/publications integral to their training requirements.

CAMC’s Clinical Cancer Research activities have been central to providing state of the art cancer care opportunities for our patients for 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 Healthcare Education and Research Institute (CHERI) and fellow DLCC Physicians. Dr. Jubelirer has expanded physician mentorship and co-leadership for these activities to include Dr. Ahmed Khalid for National Surgical Adjuvant Breast and Bowel Project (NSABP) Clinical Trials and Dr. Arun Nagarajan for Eastern Cooperative Oncology Group (ECOG) Clinical Trials. Each DLCC physician entering patients into clinical cancer research trials is approved by the CAMC Investigational Review Board and National Cancer Institute. Under the auspices of the West Virginia Oncology Society, DLCC Physicians and CHERI Leadership, in joint collaboration with other cancer clinical trial sites and cancer care practice sites in WV, continue to address expanding clinical trial access to West Virginians.

DLCC Physicians and Staff continue their collaborative participation in activities relating to the development of a new Cancer Center for our health care system. The positive momentum demonstrated to date makes the dream of a new Cancer Center within reach. This Center will lead to enhanced multidisciplinary collegial opportunities in service to our patients and their families in a modern and nurturing environment of care.

Publications from physicians of the David Lee Cancer Center (2010-2011):


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)

Abstracts

Oral Presentations


Hood WA, Jubelirer SJ, Trammell SW, Welch CW. A Study of Compliance with National Comprehensive Cancer Network (NCCN) Guidelines for the Treatment of Resectable Gastric Cancer at CAMC. CAMC Resident Research Day. First Place Winner

Posters

Jubelirer, SJ, Davis EA, Hodges B, Morris LD, Miller KS. Decreasing Adverse Events From Warfarin In a Community Hospital Setting. 52nd Annual ASH meeting Dec. 2010. Poster number 2554


Journal Articles


Regional 3 Hemophilia Meeting February 2011

Intracranial hemorrhage in patients on warfarin: a review of the CAMC experience and outcomes

Jubilerer, SJ. Welch, C. Bottorff, JM. Charleston Area Medical Center, Charleston, WV

Background: Warfarin is an oral vitamin K antagonist that is used worldwide as an anti-coagulant to prevent thromboembolisms in a variety of patient populations.

Methods/Design: A retrospective review of patients with Intracranial Hemorrhage (ICH) and Charleston Area Medical Center during 2008 and 2009.

Results: After exclusions 16% (n = 82) of all ICH were taking warfarin at admission. Males represented 56% of the 92% white population which had a mean age of 72 ± 13. A-fib (41%) was the most common indication for warfarin use followed by DVT or PE (16%) and prosthetic valves (11%). The mean INR at admission was 3.9 and when grouped 44% had an INR > 3, while 29% were from 2 to 3 and 27% were < 2. In 86% of the patients the INR was < 2 or corrected with the use of treatments which included vitamin K (80%), fresh frozen plasma (71%), burr hole drainage (12%), and rFVIIa (7%). Vitamin K was given IV 57% of the time, while the subQ route was used 22%, PO 13% and IM 7.4%. Poor outcomes were observed in the majority of the study population. Patients were discharged to facilities such as nursing home or hospice in 38% while 37% died in the hospital. Within 180 days 55% of the study population was deceased. Univariate analysis revealed that diabetes, NSAID’s (p = .02), Glasgow Coma Score (p < .0001), and large hematoma size (p = .008), and those with follow-up INR that was not corrected or > 2 (p = .01) were associated with death in 30 days. Logistic regression showed those on NSAID’s were 7.3 time more likely to be deceased in 30 days, while having an INR > 2 or not corrected and diabetes was associated with 6.1 and 4.4 times more likely to be deceased in 30 days, respectively.

Conclusions: Mortality and morbidity from warfarin-associated was high in this study. Factors associated with 30 day mortality included, diabetes, NSAID use, hematoma size, Glasgow Coma Score on admission, and initial INR>2 or failure to correct INR to therapeutic or subtherapeutic levels.
2554 Decreasing Adverse Events From Warfarin In a Community Hospital Setting

**Program:** Oral and Poster Abstracts  
**Session:** Health Services and Outcomes Research: Poster II  
Sunday, December 5, 2010, 6:00 PM-8:00 PM  
Hall A3/A4 (Orange County Convention Center)  
Poster Board II-434

Steven J Jubelirer, MD, Elaine A Davis, RN, EdD, Brian Hodges, Pharm, D, Lillian D Morris, RN, MS and Karen S Miller, RN, MBA

1Hematology/Oncology, Charleston Area Medical Center, Charleston, WV  
2Vascular Center of Excellence, Charleston Area Medical Center, Charleston, WV  
3Pharmacy, Charleston Area Medical Center, Charleston, WV  
4Safety, Charleston Area Medical Center, Charleston, WV  
5Care Mgmt Institute- Six Sigma, Chaleston Area Medical Center, Charleston, WV

Background: Millions of patients across the USA received warfarin to prevent and treat thromboembolism each year. Despite its effectiveness warfarin is associated with a risk of bleeding. The Joint Commission has brought attention to the safety of warfarin and challenged hospitals to “reduce the likelihood of harm associated with the use of anticoagulation therapy” as one of two new national patient safety goals for 2008. At CAMC (Charleston Area Medical Center, Charleston, WV) an anticoagulation safety task force was formed to address this challenge.  

Purpose: This study was initiated to document and reduce harm from warfarin at CAMC. Methods: This is an ongoing retrospective review of inpatients that received warfarin and had an INR of ≥4.0. Variables collected included, INR values, warfarin administration (dose and frequency), comorbidities, other current medications, other laboratory values, harm level (as defined by the Institute for Healthcare Improvement), presence of major or minor bleeding, use of blood transfusions, fresh frozen plasma, or vitamin K (and dose).  

Results: During baseline period there was a 3 month average of 15.86 episodes of harm/1000 warfarin doses while post implementation 9.69 episodes of harm were noted. At baseline, of those with harm 83.7% were temporary harm in which patients required an intervention (FFP or vitamin K) and 30.2% of the critical INR’s occurred when warfarin was ordered daily instead of after the result was obtained and reviewed by the physician. From baseline April-July 08 compared to Aug 08-Feb 09 the frequency of vitamin K administration for INR < 5 and no bleeding has decreased by 33% (p=0.144). Overall there were 4.15% critical INR’s before compared to 0.88% after implementing improvements representing a 79% improvement.  

Conclusions: Baseline data suggested a need for improvement in the safety of warfarin. Implementation of education, order sets (warfarin administration, warfarin reversal, physician pocket cards, and inpatient to outpatient handoff order sets, and warfarin workflow) and drug/drug interaction alerts to reduce adverse events. This study showed a decrease in the episodes of harm and the percent of critical INR’s. It is estimated that the annual cost savings (RN time to treat critical INR’s, excluding nursing time to administer vitamin K, and length of stay from complications of treatment) was $50,445.
The treatment of primary melanoma at a community teaching hospital: A study of compliance with NCCN guidelines.

Sub-category: Outcomes Research
Category: Health Services Research
Meeting: 2011 ASCO Annual Meeting

Session Type and Session Title: This abstract will not be presented at the 2011 ASCO Annual Meeting but has been published in conjunction with the meeting.

Abstract No: e16634

Citation: J Clin Oncol 29: 2011 (suppl; abstr e16634)

Author(s): I. Ashley, S. Jubelirer, C. A. Welch; West Virginia University, Charleston, WV; Charleston Area Medical Center, Charleston, WV

Abstract:

Background: With the increasing incidence of primary melanoma a greater number of physicians will need to be knowledgeable in the appropriate treatment of melanoma patients. Compliance with NCCN guidelines may lead to less morbidity, more accurate staging, and improved outcomes. Methods: We retrospectively studied 301 patients seen at Charleston Area Medical Center, (a large university affiliated community hospital) from 2000-2007 with primary melanoma identified from out cancer registry. We confirmed treatment data by reviewing pathology and operative reports and reviewing outpatient records. Results: Our overall compliance with NCCN guidelines with respect to surgical margins and sentinel lymph node staging was 71% and 69%, respectively. Documented margins of excision conformed to NCCN guidelines in 67% of Tis tumors, 66% of T1 tumors, 82% of T2 tumors, 74% of T3 tumors, and 59% of T4 tumors. Compliance with sentinel node biopsy guidelines was documented in 90% of Tis tumors, 45% of T1 tumors, 79% of T2 tumors, 88% of T3 tumors, and 92% of T4 tumors. The most important factor found to be associated with noncompliance was age > 80 years. Conclusions: We found that treatment conformed to NCCN guidelines in only two-thirds of our patients. Further investigation is needed to determine the effect of this on patient outcomes.
A study of in-patient oncology satisfaction.

Sub-category: Outcomes Research
Category: Health Services Research
Meeting: 2011 ASCO Annual Meeting
Session Type and Session Title: This abstract will not be presented at the 2011 ASCO Annual Meeting but has been published in conjunction with the meeting.
Abstract No: e16629
Citation: J Clin Oncol 29: 2011 (suppl; abstr e16629)

Author(s): S. Jubelirer, V. Jividen; West Virginia University, Charleston, WV; Charleston Area Medical Center, Charleston, WV

Abstract:

Background: A Study of In-patient Oncology Satisfaction Methods: Prospective study design. To determine patients’ satisfaction with their care at discharge using the EORTC-IN-PATSAT32 survey tool. Setting was an oncology floor at Charleston Area Medical Center a large university affiliated community hospital. Patients were enrolled if they had been hospitalized for 3 or more days and consented to participate in the study. Results: Thus far 177 surveys have been completed. The average age was 60.7 ± 11.9 years, 51% were completed by males, 97% were Caucasian, and 68% were married. Disease status reported by enrollees was 29.86% local, 26.12% metastasis and 44.03% did not know. Overall 84.4% rated their stay as very good or excellent. Patients ranked physicians and nurses highest for their technical skills 89 ± 17 and 86 ± 19, respectively. This was followed by interpersonal skill (physicians 88 ± 18; nurses 85 ± 20) and the information they provided (physicians 84 ± 21; nurses 78 ± 25). For the hospital services and care organization the patients rated information exchange at 74 ± 25, wait time 76 ± 24, hospital access 69 ± 25 and building and environment at 69 ± 28. Unmarried patients were significantly more satisfied with nurses interpersonal skill (p = 0.02), and hospital access (p = 0.01) than married counterparts. Patients treated by a medical oncologist were more satisfied with the medical follow-up (p = 0.03), the comfort and support given (p = 0.02) and information provided by their physician (p = 0.03) compared to other specialties. Conclusions: The majority of patients were satisfied with their care. For physicians, the lowest scores were for information about medical tests. For nurses, the lowest scores were for promptness in answering the buzzer calls. Patient marital status and physician specialty were significant factors in determining satisfaction.
THE CAMC BREAST CENTER in the year 2011.
By Roberto Kusminsky, MD

The Breast Center at CAMC is a mature system which has become the first facility of this type in the state to be accredited by the American College of Surgeons, through a program in place sponsored by the National Accreditation Program for Breast Centers.

Even though the CAMC Breast Center was the first ever in the state, accreditation is a significant step that separates it from others attempting to emulate these improvements. Before a breast center can be accredited, it must undergo a rigorous change focusing on the services offered and the processes associated with them.

What is the meaning of accreditation?

The National Accreditation Program for Breast Centers (or NAPBC) details a basic set of standards – at least 27 – that must be present to qualify. These standards impose a specific performance and range from services such as patient evaluation to the actual manner in which procedures are performed, following the most current scientific information to ensure that patients are given state of the art care with state of the art technology.

The central piece of the available services is the multidisciplinary evaluation given to patients with breast cancer, which requires the engagement of radiologists, breast surgeons, oncologists, radiation oncologists, plastic surgeons, pathologists, nurses specialized in breast diseases and a variety of support specialized personnel which includes radiology and ultrasound technicians.

These multitude of participants in patient care have come together 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.

Many of these decisions are done in a specially designed Breast Conference held weekly, during which all the diagnostic information is reviewed by the group of specialists engaged in breast care. This leads to a treatment consensus, which is then implemented rapidly. This personalized care is made possible by the changes in place required for accreditation.

But there is much more that distinguishes the CAMC Breast Center from other facilities. It has an impact on the care of patients throughout West Virginia through programs unique to the Breast Center:

- There are community outreach programs focusing on facts about breast cancer and impacts prevention and early diagnosis.
• The Breast Center provides free mammography to a specific group of patients at risk, made possible through grants from the Susan G Komen Foundation.

• Innovative research is conducted steadily.

• Quality improvement studies are performed annually.

• A group of specialists meets regularly to decide how services to patients with breast diseases should be improved.

• Support services include care of postoperative patients by specially trained physical therapists, who are up to date in all the techniques available to prevent and treat problems such as lymphedema.

• Risk assessment, including genetic risk, is part of any visit to the Breast Center. A special Risk Clinic to evaluate patients with possible genetic risk will soon be in place.

• 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.

• A physician wishing a patient evaluation is guaranteed access to the Breast Center within 24 hours, and frequently the same day in which the need arises.

• 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 can help patients with second opinion consults, psychosocial support referrals, and many other issues requiring in depth knowledge of the system.

• The CAMC Breast Center is the only one in the region where Radiologists with specific expertise perform MRI guided biopsies.

• Pathological analysis of prognostic and predictive indicators is routinely done in patients diagnosed with breast cancer.

• Oncologist evaluating patients with breast cancer identify patients who might benefit from special tests to determine their recurrence score, which alerts the physician to the possibility of the cancer coming back in the future.

• Oncologists commonly discuss the possibility of special drug use to prevent the appearance of breast cancer in patients at high risk.
• 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.

• Educational programs on breast health for groups and for individual are also available through a website and continue to be developed with additional contents.

• Educational materials spanning the spectrum of breast diseases are available at the breast center. A breast library for patients is on the planning stages, as is the availability of a boutique for patients with special needs.

• Access to enrollment in clinical research studies is readily available.

The Breast Center at CAMC offers also an exceptional set of programs – the only ones of this kind – to facilitate patient care for the individual and their physicians:

RAPID CONSULTATION PROGRAM - A referral to the Breast Center will result in a consultation that can be scheduled the same day or within 24-48 hours, depending on the circumstances. This is applicable to second opinions, wound checks, surveillance, risk assessment, and it is equally available to patients who are self-referred.

RAPID CALL BACK PROGRAM - Finding an abnormality on X-ray triggers an automatic call from the Breast Center to the physician's office for approval of additional views, if needed. The results of the imaging sequence are reported to the patient by The Breast Center staff. This reduces the need for the physician office to keep track of these patients' needs, and expedites their care. If a biopsy is needed, the Breast Center will place the patient in the Rapid Diagnostic Program, if her physician agrees.

RAPID DIAGNOSTIC PROGRAM - Once the imaging determines the need for a procedure, the patient is scheduled to undergo a minimally invasive biopsy with imaging guidance. The procedure is done by one of the breast surgeons who are credentialed to perform it, all of them certified and approved by the NAPBC. In general, the patient will have the biopsy performed within 24-48 hours of the imaging, on weekdays. The results will be communicated to the patient by the surgeon, and further management will proceed as needed unless the referring physician chooses otherwise. All of these elements are set at the time health care providers choose to be included in the growing list of participants.
RAPID ASSISTANCE PROGRAM - At the time of consultation or biopsy, the patient will meet The Breast Center Navigator, who will become a point-person to assist the patient(s) with their needs relating to the health care system. The Navigator assists the patients with appointments, referrals, insurance questions, financial assistance, and many other issues requiring resolution. Often, health care providers or their designees can contact the Navigator to explore care issues before a patient is seen.

These services are provided in the newly remodeled Breast Center, in the second floor of CAMC Women and Children’s Hospital. The patients are seen and cared for in the comfort of private quarters, where they can be accompanied by their families and friends.

For inquiries or appointments, please call (304) 388-2861.

**Oncology unit renovation will create comfortable, healing environment**

*By Valerie Jividen, RN*

Something exciting is happening on the inpatient oncology floor! A complete renovation is underway to create a comfortable environment that will promote healing for patients and their families.

All of the 29 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 over-night guests.

Other improvements include the addition of a new conference room for meetings and staff education, a larger break room for staff, a physician dictation room, and a better patient and family resource room stocked with the most up-to-date health information available.

Renovations should be complete by the summer of 2012.

The oncology unit has a dedicated, highly skilled and efficient team of professionals available to meet the diverse needs of patients during an intensely challenging time in their lives. The nursing staff is excited about the positive changes that are happening in the department. They look forward to caring for the patients they love in a beautiful, well designed space.
Robot helps physicians and patients

More physicians practicing at CAMC are using the da Vinci surgical robot for more procedures than at any other hospital in West Virginia.

At least 11 physicians are performing a variety of urological, gynecological and general surgical procedures with the help of this cutting-edge surgical technology. More physicians in other specialties are in the process of being trained and credentialed. Three surgeons practicing at CAMC are considered proctors by Intuitive Surgical and four have performed more than 100 cases.

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.

“The program is rapidly expanding as more patients hear about their family and friends experiences with the robot-assisted surgery,” said Dr. Stephen H. Bush, associate professor and chairman, department of obstetrics and gynecology, West Virginia University-Charleston Division. “The patients stay overnight, although it is possible to send some home on the same day as surgery.”

The da Vinci robot virtually extends the surgeon’s eyes and hands into the surgical field. It offers improved viewing resolution, clarity and detail of tissue planes and critical anatomy while providing surgeons with improved precision, dexterity and control.

“The da Vinci robot mainly reduces recovery time in half,” said Dr. Gina Busch. “The pain and blood loss are significantly reduced from conventional surgery including less than other minimally invasive laparoscopic surgeries. Patients should know that robot-assisted procedures mean decreased pain, blood loss, faster recovery, smaller incisions and fewer postoperative complications.”

Connie Marano, clinical management coordinator, 2 West Memorial, called it the simplest surgery she’s ever had.
“I felt so good, that it was hard to believe I just had a major surgery,” Marano said. “I had surgery Thursday. Friday morning I walked down the hall and made some coffee. On Sunday I went to church.”

Physicians say one of the advantages is the visualization and magnification available. Blood vessels and dissection planes are easily identified, which reduces the risk of injury to other structures. The ease of stitching and tying knots is also an advantage over traditional laparoscopy.

“General surgery covers the body from head to toe. We perform many different operations for many different diseases and the robot is well designed to operate on many different conditions,” said Dr. Edward Tiley, III. “As surgeons gain experience, the robot is being used to assist in even more operations.”

CAMC is taking robot-assisted surgery to the next level with its latest purchase: a new da Vinci robot model that includes a teaching console (with controls for the resident as well as the attending physician). CAMC will also receive a robot simulator for the simulation center.

“This recent purchase brings the most sophisticated robotic instrument available,” said Dr. J.P. Tierney. “Teaching instruments to train the surgeons of the future will be an additional element to the program. CAMC and the surgeons practicing here are on the leading edge of surgical techniques.”

“As a training hospital, our residents have a great interest in learning this skill,” Tiley added. “Robotics is growing for education purposes in addition to patient usages.”

This program could not have been successful without the total commitment and hard work by an extremely efficient team.

“The level of dedication has been incredible and the staff is really the backbone of this service,” said Marian Campbell.
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.
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 17 full-time board certified radiologists with expertise in nearly every specialty and diagnostic modality, staffs the Department of Radiology.

Faculty members have received training in outstanding medical centers throughout the United States, many completing postgraduate work and fellowship training. The department is composed of highly dedicated physicians, nurses, technologists and staff who specialize in cancer screening, diagnosis, intervention and surveillance.

The department of diagnostic imaging offers a full complement of screening, diagnostic and non-vascular interventional radiological technologies. Modalities offered include X-ray, fluoroscopy, ultrasound, 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 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; two 256-slice CT scanners, a 128-slice scanner, one 64-slice CT scanner and two 16-slice CT scanners.

Construction is underway to install a second 128 slice scanner at Women and Children’s Hospital, which will also include the Phillips ambient experience room.

Once that project is complete, all of our sites will have the newest low dose CT technology called Idose, which has allowed us to cut dosage 20 percent in the heads, 50 percent in the abdomen and pelvis exams and 60 percent in the chest.

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 13 pathologists are all certified by the American Board of Pathology. Many of them hold subspecialty board certifications, including hematopathology, immunopathology, neuropathology, cytopathology, and transfusion medicine. Several pathologists have particular areas of expertise and interest in fine needle aspiration, gynecologic oncology, renal pathology, and bone and soft tissue tumors.

CAMC’s Department of Pathology has approximately 35,000 surgical cases and 24,000 cytology cases per year. The Department offers in-house ancillary diagnostic modalities: flow cytometry, immunohistochemistry,
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 Conference 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.

**Pediatric Oncology**
*By Allen Chauvenet, MD*

We continue to be the only full member of the Children’s Oncology Group (COG) in West Virginia. The COG is recognized as the largest cooperative group in the world with a focus on childhood cancer.

**CLINICAL CARE AND COG RESEARCH PARTICIPATION**

Our pediatric oncology service continues to expand. From 15 new patients in 2009 to 19 in 2010, we have had 28 new patients in the first 10 months of 2011. This has led to new records in COG protocol entries which have grown from 35 and 38 (a record) in the prior two years to 60 through the end of October of 2011.

Dr. Chauvenet serves as the Medical Director of the Children’s Infusion Center. Melissa Hill, RN, has recently assumed the nursing position in the Infusion Center. Pam Smith, FNP, is working on patient education while Alicia Harper, RN, has assumed much of Pam’s former responsibilities and will be expanding her role in the summer of 2012 when she receives her FNP certification.

Dr. Lisa Palmer is leaving to assume a position at Cincinnati Children’s Medical Center at the end of December. Dr. Chibuzo O’Suoji, a graduate of the superb Pediatric Hematology/Oncology fellowship program at Northwestern University in Chicago, will become our second physician at the beginning of January 2012. We have 12 other individual members of the COG and received an excellent evaluation on our audit in September 2010.

With continued support from child life, pastoral care, clinical psychology, nutrition as well as pathology, radiation oncology, diagnostic imaging and our pharmacy program, we are well positioned to maintain and expand the excellent of our childhood cancer program.
TEACHING
We provide three hours of instruction for all 3rd year students on the pediatric rotation and present two to three pediatric grand rounds each year. Dr. Chauvenet and Dr. Julia Cruz have provided 2 hours of teaching to 2nd year medical students in Morgantown in October 2010 and 2011, dealing with leukemias, lymphomas, stem cell transplant and general bone marrow disorders.

ADMINISTRATIVE
Dr. Chauvenet continues as a member of the COG Hodgkin Disease Steering Committee and the National Cancer Institute-sponsored Pediatric Central Institutional Review Board (Peds CIRB).

In March of 2011, Dr. Chauvenet was one of four Principal Investigators among the >200 worldwide to be elected by the PIs to the COG Executive Committee. This 19-member body is the ultimate source of policy for the COG. Dr. Chauvenet is the only person to have ever served on both the Peds CIRB and the COG Executive Committee.

Our CRA, Donna Pauley, continues to do an exemplary job in data submission as our timeliness and compliance remain in the upper cohort of all COG institutions. We are now looking to train a part-time assistant (and future lead CRA) to keep up with our growing program.

We continue to receive support from the CAMC Foundation which allows our annual family picnic to take place, helps make our summer camp free for patients and provides support funding for families in need. Additionally, in 2010 we were one of approximately 65 programs nationwide to receive a “Hope on Wheels” grant from the Hyundai car corporation. This $100,000 grant has supported improvements for our camp and clinic, nursing education, and additional funding for all of our newly diagnosed patients during 2011.

The annual Celebration of Hope, sponsored by the CAMC Foundation, honors children and families touched by pediatric cancer at CAMC Women and Children’s Hospital. This celebration is an opportunity for families to share stories about loved ones with others who have traveled similar paths while enjoying food and entertainment. The celebration culminates with a butterfly release to honor all of those who have fought a battle with pediatric cancer.
**Palliative Care**  
*By Deborah Cotes, DO*

Palliative care is an in-patient service at CAMC that helps cancer patients and their families cope with the multiple dimensions of their disease. Attention focuses on quality of life and relief from pain and symptoms that can interfere with daily life. Assistance is also provided with goal clarification, advance care planning and discharge options.

As part of the cancer team, palliative care collaborates with the oncologists, supporting curative treatment or helping with options when cure no longer is the goal. Psychosocial, emotional and spiritual needs are addressed through family meetings with patients and their loved ones. Hospice referrals can be made if appropriate.

**Pastoral care**  
*By Ravi Isaiah*

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.

CAMC Chaplains come from a variety of faith backgrounds to offer spiritual care to anyone on their spiritual journey. There is a chaplain available full for consultation. Currently, there are three full time chaplains and eight on-call chaplains available.

All chaplains are trained and/or Board Certified. All chaplains are 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.
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.