Cancer Program Survey 2008
Ebenetta M. Rhinehart, MBA, RHIA, CCS, CTR
CAMC’s cancer program was surveyed by the American College of Surgeon’s (ACoS) Commission on Cancer (CoC) on April 14, 2008. The purpose of the survey was to assess the quality of the cancer program and services. CAMC was awarded a three-year approval with contingency based on resolution of seven deficiencies identified during the survey. Once the deficiencies are cleared, CAMC will have a three-year approval with commendation, recognition that is awarded to only about 1/3 of the teaching facilities surveyed. The surveyor, Dr. Sarap, commended CAMC for the “many prevention and early detection programs offered to the community each year” and for the “three cancer-related quality improvements implemented each year by the cancer committee.”

Many of the deficiencies assigned to CAMC were related to inadequate documentation of actions taken by the cancer committee and steps have been taken to remedy the documentation issues. We expect that the deficiencies will be cleared this fall. In the meantime, the cancer committee has taken the following steps to revitalize the cancer program:

- The staff in the tumor registry is undergoing a two-year online program for cancer registrars to improve the knowledge and skill level of each employee in the tumor registry.
- Consultants have been hired to review the tumor registry database for accuracy and completeness.
- A subgroup has been organized to reorganize the cancer committee and to bring about change that will allow CAMC’s cancer program to receive the Outstanding Achievement Award at the next survey in 2011. Only 15 percent of the accredited programs have received this award. This requires compliance with all 36 standards and commendation status for nine of those standards.

Cancer Services Strategic Plan
Brenda Grant
A multidisciplinary team, led by the planning department and including medical staff, CAMC board of trustees, inpatient and outpatient cancer services administration and staff, CAMC cancer registry, CAMC Foundation, CAMC administration, education and research, and care management participated in oncology services strategic planning beginning in November 2007. The purpose of the planning sessions was to understand the current state of cancer services at CAMC, including market position and to plan for the next five years of cancer services at CAMC. Priority goals were established and work is ongoing in each of the goal areas: administrative oversight; committee structure; accreditation; education, research and clinical trials; outcomes; medical staff recruitment plan; facilities/access; staff recruitment and retention plan; program areas of “excellence” and growth; fundraising: staging.

Cancer Service Focus Group
As part of the cancer services strategic planning process, a focus group was held in March 2008 with eight current and previous cancer patients and one spouse participating. The goals of the focus group were to learn about their experiences with cancer services at CAMC, to find out what we need to do to make their experience the “best it can be” and to obtain input into a new outpatient cancer facility. A summary of comments follows:

- “Feels like family”
- “I was so scared, but the workers were all so nice”
- “I like the fact that everything was written out and explained in detail”
- “I would wait all day to see the doctor because when I get in, I have his total attention”
- “I appreciated the straight talk”

Recommendations made for the new facility/service enhancement:
- Design the first visit so the patient and family have “greeter” and support with paper work
- Provide opportunities for patients/former patients to help with new patients and ability to help with fundraising
- New facility should be a “one stop shop” for services

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

Education
Beverly Withrow-Thornton
The Charleston Area Medical Center Health Education and Research Institute (CAMC Institute), education division leads the oncology team in providing opportunities in professional education and research activities, patient and family health education and community information programs. 2007 educational activities included:

Professional Education
Rose-Ann Prince

This was entitled and held in conjunction with the WVU/ MU Capitol Classic men’s basketball game. Approximately 65 professionals were in attendance. The focus of the conference was to refocus the health care provider’s approach to the treatment of patients with cancer.

Some of the topics covered:
- Latest cancer screening techniques available
- Long-term follow-up strategies for survivors of cancer
- Physiologic and psychological effects of post cancer treatment in children
• Risks and benefits of various approaches to treatment of cancer
• Utilization of alternative therapies in prevention and treatment of cancer
• Genetic studies in clinical medicine
• Treatment of ovarian cancer, and the
• Most common cancers in WV

Our guest speaker was Gary Deng, MD, PhD, from Sloan-Kettering Cancer Center in New York. Dr. Deng presented a public community forum the evening before on alternative medicine and cancer care. He also spoke at medicine grand rounds the morning of the conference.

Plans are underway for another conference to be held on Wednesday, Jan. 14, 2009 again in conjunction with the basketball game.

In addition, CAMC Institute sponsors a monthly Didactic Tumor Board presentation. We have hosted both local and national speakers on topics such as Management of Early Stage Breast Cancer, GIST and Neutopenic Diet in Patients Undergoing Chemo.

Upcoming lectures for the tumor board will cover myelodysplastic syndromes, lung cancer and HER2-positive breast cancer.

**Patient and Family Education**
Beverly Withrow-Thornton

The multidisciplinary patient and family education council promotes a process for providing standards of care across the continuum. Patient and family education resources are identified, developed and reviewed by Oncology experts and then processed via the council to promote consistency in education to all cancer patients and their families. The Pediatric patient handbook and adult patient and family instructional handbook were developed in-house to promote ownership and individualize facility information. Resources are available online for clinical access with preprinted documentation.

More than 4,500 education videos (all topics) were requested in 2007 by patients and families during their inpatient stay at CAMC. Oncology “on demand” educational video topics include hospice, nutrition and cancer, pediatric video (Why Charlie Brown? Why?), stress and relaxation techniques, tobacco cessation, with new topics being added in 2008. In addition a Continuous Ambient Relaxation Environment (C.A.R.E.) Programming channel runs 24/7 365 days a year to provide guided imagery, music and relaxation images to enhance healing and relaxation.

**Community Education**
Beverly Withrow-Thornton

Various forums are available for community to access information and education: Online resources, formal lectures, workshops health fairs and screenings have all been provided in 2007.

More than 20,000 people visited the CAMC Health Information Center web site: www.healthinfocenter.org where a variety of topics including cancer prevention, treatment, and living with cancer are available in video, and printed materials for easy access. More than 160 community members e-mailed or called the toll free telephone line to receive health information regarding a variety of topics including cancer.

Eighteen live programs, screenings and lectures were provided by the CAMC Institute with at least three of the activities focusing on cancer awareness, prevention, psychosocial support and or treatment modalities.

More than 1,200 community members participated in the CAMC HealthFest (a one day health fair event with multiple free and low cost health screenings and educational activities). Nearly 300 people participated in the Cancer Care and Prevention activities at HealthFest. Activities included: PSA and prostate screening, skin care analysis, palliative care information, tobacco prevention, cessation class sign ups, carbon monoxide testing. clinical trial information and various cancer materials and resources were distributed by oncology clinical staff members. The 2007 CAMC Teddy Bear Fair provided pediatric focused cancer awareness and prevention information and activities as well as many other topics to more than 800 community children and their families.

**Palliative Care**
Wayne McDowell, NP

Palliative care is a holistic service that helps cancer patients and their families cope with the multiple dimensions of their disease. Attention focuses on quality of life and relief from pain and symptoms that can interfere with life on a daily basis. Assistance is provided with goal clarification, advance care planning and family involvement.

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

**Pastoral Care**
Rev. Dr. Ravi Isaiah

The Pastoral Care department is available 24 hours a day and seven days a week. It is our mission to meet the spiritual, emotional needs of patients and families regardless of their spiritual status or connection to any faith. We are also available for any ethical dilemma which may arise out of a decision making process. We can be reached through the hospital operator. In the past year hospital chaplains have made 450 visits. This includes funeral services for those who did not have a pastor. There were two Baptisms performed on the floor. There was one visit at the DLCC during this period. We also had a chaplain intern who spent one day a week from September 2007 to March 2008.

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

**Cancer Patient Support Program**
Carolyn Suppa, EdD

CAMC’s Cancer Patient Support Program (CPSP) understands the stress a diagnosis of cancer brings to patients and families
and helps to strengthen the support network during and after cancer treatment. Often patient and family distress can lead to anxiety and depression. We believe that there is an important link between psychological wellbeing and health and that coping with distress is an important part of the overall care of our patients. Some of the services offered through the CPSP include:

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

**Cancer Registry Overview**
Kathi McCormick, BA, CCS, CTR

The cancer registry is a data system designed to collect, manage and analyze data on patients with all types of cancer diagnosed or treated in the hospital, and to perform yearly clinical follow-up on the patients identified. In 2007, 1,667 cancer cases were accessioned into the registry; a total of 34,483 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.

This registry serves as a reminder to former patients to continue their follow-up exams with physicians. Currently, about 10,539 patients are in active follow-up. The Commission on Cancer requires that the cancer registry maintain a follow-up rate for living patients of 80 percent; our current follow-up rate is 91 percent well above the standard.

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

The cancer registry provided information for 16 data requests for research presentations during 2007 and was responsible for coordinating cases for 49 tumor board conferences in which 145 cases were presented. Patient care evaluation studies conducted in 2007 included studies on breast, prostate and colon cancers diagnosed and treated at CAMC.

The goal of the cancer registry is to provide the medical staff with data that will enable them to study the outcome of their diagnosis and therapeutic efforts. The data also provides our staff and residents with information with which to improve the care of cancer patients, either directly or indirectly, in the form of special studies, audits or research. The data is also sent to the WV State Cancer Registry to help it gather information on the incidence of cancer in West Virginia. Being a Commission on Cancer approved program, CAMC must also send its data to the National Cancer Database where CAMC's data is compared nationally with other institutions in its category.

**Cancer Incidence and Statistical Overview**
Kathi McCormick, BA, CCS, CTR

Charleston Area Medical Center's cancer registry recorded 1,658 new cases in 2007. Breast, lung, prostate, colon and corpus uteri cancer were the types of cancers seen most often, accounting for 84.5 percent of the cases.

Among the cases added to the cancer registry, the majority of patients (1,587) were analytic cases, which means they were diagnosed and/or received part of their initial treatment at CAMC. Among the analytic cases, 45 percent were male and 55 percent were female. The age range was less than 1 year of age to 109; the median age was 64.

A geographical distribution by primary service area counties revealed that most of the cases diagnosed and treated at CAMC in 2007 were from Kanawha, Boone, Logan, Fayette, Raleigh and Putnam counties. As shown in Table 1, cancer of the lung, breast, prostate, colon, corpus uteri and melanoma of the skin are the leading cancer sites at CAMC. Table two shows the leading five sites of new cancer cases for both sexes at CAMC compared to the West Virginia average estimates.

Lung cancer continues to be the most common cancer in men at CAMC and the most deadly in both sexes. Since 1987, more women have died each year of lung cancer, which has remained the major cause of cancer death in women for more than 40 years. The latest report shows that from 2000-2004, lung cancer was estimated to take the lives of more than 7,605 West Virginians, while approximately 9,660 new cases of the disease were diagnosed. The frequency of chronic tobacco use in West Virginia also contributes to the higher rate of lung cancer cases observed. According to the American Cancer Society, the total number of West Virginians who smoke is 26.6 percent, well above the national average of 20.6 percent.

Breast cancer is the second most common cancer diagnosed in West Virginia. From 2000-2004, there were 6,593 West Virginians diagnosed with breast cancer and approximately, 1,499 West Virginians died from the disease. According to the American Cancer Society, West Virginians 40 years and older getting yearly mammograms was 58.1 percent, the national average is 58.3 percent. Persons 40 to 64 years old received one 57.6 percent above the national average of 56.8 percent. Early detection is the key to preventing breast cancer.

According to the Centers for Disease Control, cancer is the second leading cause of death in the United States. One of every four deaths in the United States is due to cancer. The American Cancer Society estimated that in 2007, about 1,444,920 Americans were diagnosed with an invasive cancer, and 559,650 Americans died of this disease. The National Cancer Institute (NCI) recently estimated that on January 1, 2004, 10.8 million Americans were alive with a history of invasive cancer.
CAMC
Oncology Services
2007 Incidence of New Cancer Cases

Primary Service Area (75% of discharges)
Secondary Service Area (addtl. 15% of discharges)
Tertiary Service Area (addtl. 5% of discharges)

Hospital
Hospital – Designated as a Cancer Treatment Center on American Cancer Society Website.
David Lee Cancer Center
Beverly Farmer RN, OCN, CNIII

David Lee Outpatient Cancer Center (DLCC) offers a multidisciplinary approach to comprehensive cancer care. This center provides the highest quality of care possible through the coordination of multiple hematology and oncology services in a learning environment using internationally recognized evidence-based standards of care and best practice.

In 2007, DLCC had 20,697 patients visit our center and administered more than 9,685 infusions. Our board-certified hematologist/oncologists saw in excess of 8,500 in-patients consults. To meet these in-patient needs, two additional physician extenders were added to make a total of three.

To meet the growing needs of DLCC, the center was expanded. This expansion included the addition of eight treatment chairs, an updated pharmacy to meet new standards, an expanded waiting area and registration desks, additional exam rooms, and added a physician’s office.

In the spring of 2008, DLCC replaced retiring physician, Dr. Ron Sarker with Dr. Sameh Abeurreish and we are actively recruiting a seventh physician due to increased patient volumes.

In the past year we have added many services free of charge to our patients. These include quarterly look good feel better programs sponsored by the ACS, bi-monthly new patient chemo orientation class, and weekly dietician services.

David Lee Cancer Center is currently participating in the Physician Quality Reporting Initiative with CMS. The measures we are reporting include: myelodysplastic syndrome, multiple myeloma, CLL, stage IC-III ER/RP positive breast cancer and colon cancer.

Nursing staff at David Lee Cancer Center features OCN certified and experienced oncology nurses. DLCC currently has seven nurses setting for the exam this fall. Our nursing staff has been awarded the “Heart & Soul” award at Charleston Area Medical Center. We have two board-certified oncology pharmacists on staff. Cancer support services are provided by an on-site psychologist. The staff of David Lee provides excellent service in a “caring community setting.”

Annual Report for 5-South/Oncology
Valerie Jividen, RN, BSN, OCN

When inpatient hospitalization is needed, 5-South at CAMC Memorial Hospital is the place where patients and their families are cared for by nurses and support staff dedicated to providing excellent service. We offer comprehensive treatment for a full spectrum of hematologic and oncologic disorders. The unit has 29 beds, 21 of which are in private rooms. Two rooms are designed to accommodate those who need treatment involving radioactive materials. Visitation hours are open and loved ones are encouraged to stay if they choose. The emotional support loved ones provide during diagnosis and treatment is very critical during diagnosis and treatment.

The nursing staff is highly trained and receive on-going education specific to oncology. Five nurses have successfully achieved specialty certification as Oncology Certified Nurses through the Oncology Nursing Certification Corporation; a distinction that indicates they are experts in the field. As additional nurses become eligible for certification, our organization fully supports their professional growth and development.

Our multidisciplinary team includes a social worker and a case coordinator who collaborate with the nurses to identify and meet the needs of our patients beginning upon admission and continuing on through discharge. Formal meetings are conducted weekly to discuss each patient’s individual circumstances. We realize that the transition back to home or other facility may be difficult. Our goal is to make this process as problem-free as possible.

We strive for excellence by monitoring quality improvement patient care issues such as pain control, fall prevention, maintenance of skin integrity and overall patient satisfaction. Pain is closely monitored and addressed promptly. Those who are at risk for falling are placed on special low beds that reduce that risk. They are given the extra attention needed to assure they remain safe. Our rate of falls is kept to a minimum. Additionally, there have been no fall related injuries for some time.

Patients who are unable to be out of bed are placed on specialty mattresses and assisted with turning to relieve pressure on the skin. In fact, we have had no patients to develop hospital-acquired pressure ulcers year-to-date. All of these initiatives, as well as others, are part of our mission to provide the best health care to every patient, every day.

There is a brightly decorated nutrition center on the unit stocked with drinks and snacks for everyone. A refrigerator and microwave oven are also available so that food may be brought from home for those who wish to do so. Our dietary department offers a wide variety of nutritious and great tasting food that is delivered by a cheerful and courteous staff. A nutritionist is on-site to assess patients’ nutritional needs and help plan meals that will provide the vitamins and energy needed to fight illness.

Center for Cancer Research
Dan Lucas, PharmD

The Center for Cancer Research is primarily involved in cooperative group treatment and prevention studies sponsored by the National Cancer Institute. Current affiliations include: the National Surgical Adjuvant Breast and Bowel Project (NSABP), Eastern Cooperative Oncology Group (ECOG), Pediatric Oncology Group (POG), and the Southwest Oncology Group (SWOG). Additionally, the Cancer Research Center is now opening new pharmaceutical sponsored trials of interest to their patients.

The Cancer Research Center maintains nearly 90 protocols for patients at the center, opening new protocols for cancer patients each month. More than 225 patients are currently enrolled in cancer research trials at CAMC. Referrals to the research center come from private physicians, oncologists, surgeons, urologists, and from the patients themselves. The Center works closely with the David Lee Cancer Center, which is affiliated with Charleston Area Medical Center. Participation in research is a requirement of the American College of Surgeons. The College provides standards for cancer programs, such as the one established at CAMC, 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. Most important to the patients
and their families, having these trials available here at CAMC
will allow patients of this area to participate in research and at
the same time remain close to family and friends.

The Center for Cancer Research recently participated in a
nationally recognized study that determined the link between
tamoxifen and breast cancer prevention. The Breast Cancer
Prevention Trial, sponsored by the National Surgical Adjuvant
Breast and Bowel Project, with support from the National
Cancer Institute, showed a 45 percent reduction in breast
cancer incidence among the high-risk participants who took
Zeneca Pharmaceuticals’ tamoxifen, a drug used for the past
two decades to treat breast cancer.

While the first breast cancer prevention trial is coming to
a close nationally, a new NSABP prevention trial is now
enrolling patients. The STAR study will test the benefit of
tamoxifen vs. raloxifene in the prevention of breast cancer in
women at high risk of developing this cancer.

The Cancer Research Center opened the SELECT trial in
August 2001. This trial will study the effects of Vitamin E
and Selenium in reducing the incidence of prostate cancer
in men. One hundred men from the Kanawha Valley will
be randomized to participate in the nationwide study. The
trial, sponsored by the Southwest Oncology Group, will
provide free physician follow-up, and free PSA testing for these
participants over a 12-year period.

The B-32 trial, an NSABP trial that compares sentinel node
resection to conventional axillary dissection in clinically node-
negative breast cancer patients, is also currently underway.
Seven surgeons at CAMC are currently participating in this
surgical protocol for women. The primary aims of this trial are
to determine if sentinel node resection alone is equivalent to
sentinel node resection plus standard axillary dissection in the
long-term control of the regional disease, as well as their overall
survival of the disease.

Another primary aim of the B-32 breast cancer study to
determine if the morbidity associated with the sentinel node
resection is significantly less than that associated with sentinel
node resection followed by conventional axillary dissection. It
is hoped that through this nationwide study the standard of
care for women facing breast cancer surgery may not always
require an axillary dissection, therefore reducing the time
necessary for some women to recover from their breast cancer
surgeries.

The Cancer Research Center welcomes referrals from all
disciplines, and looks forward to serving well the members of
the Kanawha Valley. Contact the center at (304) 388-9936 or
(304) 388-9940 for more information or e-mail
karen.shirey@camc.org.

The top ten reported cancers in the state, as well as at CAMC are:

- Lung		Corpus Uteri
- Breast		Non-Hodgkin’s Lymphoma
- Colorectal	Ovary
- Prostate	Cervix Uteri
- Urinary/Bladder	Melanoma

Targeted areas of cancer research are:
- Breast
- Gastrointestinal, including colon and pancreatic
- Head and neck
- Multiple myeloma
- Lymphoma
- Hodgkin’s disease
- Leukemia
- Brain
- Lung
- Sarcoma
- Prostate
- Urothelium
- Melanoma
- Myelodysplastic Syndromes

Investigators
- Steven Jubelirer, MD
- Michael Covelli, MD
- David Ranson, MD
- Ho-Huang Chang, MD
- Lewis Whaley, MD
- Garry Brown, MD
- James Frame, MD
- Arvind Shah, MD
- Roberto Kusminsky, MD
- David Gordon, MD
- Michael Harmon, MD
- Khama Jawalekar, MD
- Justin Cohen, MD
- Narender Jogenpally, MD
- Willis Trammell, MD
- Todd Witsberger, MD

Staff
- Karen Shirey, RN, BSN
- Augusta Kosowicz, PA-C
- Donna Pauley, Research Assistant
- Jerri Walker, Research Assistant
- Lori Robinson, Research Assistant

Cancer Research
Research is conducted with two foci: (1) clinical research
involving randomized trials and (2) outcomes research
examining evidence-based practice. The following report
illustrates the research conducted and in progress.
Questions regarding any of the research maybe forwarded
to Dr. Steven Jubelirer.

Clinical Cancer Research
Adult Patient Population
Patients Randomized Annually
2006	2007	2008
NSABP = 22	NSABP = 9	NSABP = 5
ECOG = 5	ECOG = 10	ECOG = 17
Patients in Treatment or Follow-up in 2008 = 337
Protocols Numbers in 2008
Open to Enrollment =26
Closed to Enrollment (patients in treatment/ follow-up care) = 28
Specific Protocols with Patients in Treatment or Follow-up Care in 2008
NSABP B-26    NSABP CO-6
ECOG E1697
NSABP B-27    NSABP CO-7
ECOG E2501
NSABP B-28    NSABP CO-8
ECOG E2805
NSABP B-30    NSABP RO-4
ECOG E2603
NSABP B-31    ECOG C9344
ECOG E1302
NSABP B-32    ECOG E6290
ECOG E1505
NSABP B-33    ECOG E3885
ECOG E5202
NSABP B-33    ECOG EB193
ECOG 80101
NSABP B-34    ECOG E2197
ECOG 80405
NSABP B-35    ECOG E2198
ECOG E2804
NSABP B-36    ECOG E2898
PACCT-1
NSABP B-38    ECOG E3201
NSABP –P2
NSABP B-39    ECOG E5203
SELECT
NSABP B-42

Outcomes research
Published abstracts in past three years
2. Jubelirer SJ Moghal UH, Yadwadkar TS, Welch CA, Emmett M, Crotty G. The relationship between insurance status and patient morbidity and mortality from colon cancer. UICC World Cancer Congress. 2006. 168-70; 523

Publications in past three years
4. Jubelirer SJ. Quality of life consideration in selecting Raloxifene or Tamoxifen; Community Oncology  Nov. 2006; 700-703.

Book chapters
Studies Completed and Submitted for Publication

1. Does Sex Make a Difference in Survival in Patients Undergoing Resection for Early Stage Non-Small Cell Lung Cancer? Steven J Jubelirer, MD, Nicole L Grieve, MD, Christine A Welch, MS, Mary K Emmett, PhD. Submitted to Clinical Lung Cancer


3. Lymph Node Evaluation in Resectable Colon Cancer Patients: A Community Hospital Experience. Terrence Rhodes, MD; Steven J. Jubelirer, MD; S. Monigi; Christine A. Welch, MS; Mary K Emmett, Ph.D. Submitted to Clinical Colorectal Cancer.

4. Coronary Artery Bypass Grafting in Patients With Immune Thrombocytopenic Purpura (ITP). Steven J. Jubelirer, MD; L Mousa; UP Reddy; M Mir; Christine A. Welch, MS

Unpublished in–progress studies

The following were presented at 2007 Research Day.

1. A Prospective Study of Patient Satisfaction in an Oncology Unit. IRB approved and enrolling patients on 5 South Memorial Unit. Jubelirer SJ; Jividen V. Greater than 60 patients enrolled as of July 2008.

2. Utilization of Health Care Resources by Patients who Died at CAMC, Jubelirer SJ; Rhodes, T. Greater than 500 patients reviewed so far; Presented at 2008CAMC Resident Research Day.

3. Diagnosis and Treatment of Elderly Breast Cancer Patients at CAMC. Marple B; Jubelirer SJ; Welch CA. Presented at summer extern research forum, July 2008.

4. The Prevalence of the use of Radiation as a Component of Breast Conservation Therapy, at Charleston Area Medical Center. Dean C; Jubelirer SJ; Welch CA; Plants B. Presented at summer extern research forum, July 2008. Will be presented at faculty research day, October 2008.

5. The Influence of Young Age on Presentation and Outcome in Early Stage Breast Cancer, at Charleston Area Medical Center. Jubelirer SJ; Welch CA. The following were presented at Resident Research Day, April 2008.


7. A Retrospective Study of Gastrointestinal Stromal Tumors at Charleston Area Medical Center. Witsberger TA.

8. Retrospective Review of Thyroid Cancer Surgery. Trammel SW.

9. Prognostic Factors in Ovarian Cancer. Schiano MA; Kasturi V; Dean S.

Lymph Node Evaluation in Resectable Colon Cancer Patients: The Charleston Area Medical Center (CAMC) Experience.

Steven Jubelirer, MD
T. Rhodes
S. Monigi
Christine Welch
Mary Emmett, PhD

Abstract

Introduction: The National Comprehensive Cancer Network (NCCN), which include the recommendation that 12 lymph nodes be removed for all resectable colon cancers, to insure proper staging.

Purpose: The purposes of this study were to 1) determine the proportion of colon cancer patients who received adequate lymph node evaluation and 2) to identify factors, which predict optimal lymph node evaluation.

Hypothesis: A significant proportion of patients with colon cancer at CAMC receive inadequate lymph node evaluation.

Methods: Retrospective study of 616 patients who underwent surgery for colon cancer from 1992-2006. Source materials included the CAMC Cancer Registry and patient records. Multiple variables were gathered which included the following: the number of lymph nodes surgically removed, age, gender, location and size of tumor, and patient comorbidities. Chi Square and T-test were used for univariate analysis and logistic regression provided for multivariate analysis.

Results: Our study of 616 patients included a relatively equal amount of male and females. The proportion of lymph nodes removed prior to and after NCCN guidelines were 33 percent between 1992-1999 and 36 percent between 2000-2006, with 2004 being the highest point when 52 percent of the patients were adequately sampled. Univariate analysis showed that those < 70 years of age were adequately sampled at a higher rate (42 percent) compared to those > 70 (30 percent), p = .004. Comparing, comorbidities of the two lymph node groups revealed hypertension (p-value, 0.03) as the only correlate. Post surgical factors including pathological stage, the number of lymph nodes positive and grade were noted as significantly different between the two study groups (p-value, 0.0001 to 0.01). In multivariate analysis, age < 70 and right-sided tumors each had odds ratios of 1.9 (p-value, CI 0.006). When the addition of post-surgical factors were added to the logistic regression model, age, location, female gender, and stage had odds ratios of 1.9, 1.9, 1.7, and 1.6, respectively (p-value, 0.0009 to 0.03). Conclusions: Overall, we demonstrated that most patients with colon cancer did not receive adequate lymph node evaluation even after implementation of the NCCN guidelines. Pre-surgical factors, age and location of tumor, were predictors of adequate lymph nodes sampling. Suboptimal removal of lymph nodes hinders treatment decisions because stage III patients are treated with adjuvant chemotherapy whereas Stage II patients are not. Given the association of lymph node retrieval with postoperative treatment and prognosis, especially stage II disease, efforts to improve quality of care could produce substantial improvements in outcome.
Introduction:
Adenocarcinoma of the colon is the fourth most common malignancy in humans and the second leading cause of cancer death in this country. Surgery remains the primary treatment for a patient with this disease. En-bloc removal of nodes is essential. Survival decreases with increasing lymph node involvement.

Because of the high risk for recurrence of colon cancer, adjuvant chemotherapy is recommended for patients with lymph node metastases (stage III) and for selected patients without lymph node metastases (stage II) but with poor pathologic clinical features such as perforation, obstruction, or poorly differentiated histology. Thus, adequate lymph node staging of patients with colon cancer is important for determining prognosis and planning further treatment.

A number of studies have found that increased survival is associated with the evaluation of an adequate number of lymph nodes. Chang et al. performed a systematic review of the evidence for the association between lymph nodes evaluation and survival in patients with resectable colon cancer. They reported that the number of lymph nodes evaluated after surgical resection was positively associated with survival of patients with stage II disease in 16 of 17 studies and stage III disease in four of six studies.

The accepted minimum number of lymph nodes required to reduce the risk of under staging has not yet been precisely determined. In 1991, the Working Party Report to the World Congress of Gastroenterology recommended that a minimum of 12 lymph nodes be examined. This recommendation was subsequently adopted by the American Joint Committee on Cancer (AJCC) and the TNM Committee of the International Union against Cancer. The 1999 Consensus statement by the College of America Pathologists recommended evaluating 12 to 15 lymph nodes in lymph node-negative colorectal cancer patients. The National Comprehensive Cancer Network (NCCN) guidelines for 2005 indicated that patients with stage III (T3N0M0) colorectal cancer from when fewer than 12 lymph nodes are examined are suboptimally staged and considered at high risk for relapse.

A population-based study found that only 37 percent of patients with colon cancer received adequate (i.e. greater than 12 lymph nodes removed) lymph node evaluation. Reasons for this failure may include patient, tumor, surgeon, and/or pathologist – related variables. The two potentially modified influences are the completeness of lymph node evaluation by examining pathologies and the adequacy of surgical resection.

Discussion:
Despite the importance and implications of adequate lymph node evaluation, we found that only one-third of all patients who underwent definitive surgery for colon cancer in our hospital between 1999-2006 received adequate lymph node evaluations. The percentage of patients with adequate lymph node evaluation was 19 in those stage with stage I disease, 40 percent in those with stage II disease, and 41 percent in those with stage III disease. Although lymph node retrieval improved slightly over time, even in 2005 only 48 percent of patients received adequate lymph node evaluation.

Results
Of the 616 patient records examined, 51 percent were female. Ninety-five percent (55 percent) were Caucasian and 57 percent were 70 years of age or greater. The mean age was 70 years (range 11-96).

The median number of lymph nodes examined for all patients was 10. The median number of lymph nodes examined before and after the year 2000 (when the NCI guidelines were instituted) was 10.2 (+ 0.5) and 10.5 (+ 0.3), respectively. The proportion of patients that had 12 or more lymph nodes evaluated before and after the year 2000 was 33 percent and 36 percent, respectively with no statistical difference.

Discussion:
Despite the importance and implications of adequate lymph node evaluation, we found that only one-third of all patients who underwent definitive surgery for colon cancer in our hospital between 1999-2006 received adequate lymph node evaluations. The percentage of patients with adequate lymph node evaluation was 19 in those stage with stage I disease, 40 percent in those with stage II disease, and 41 percent in those with stage III disease. Although lymph node retrieval improved slightly over time, even in 2005 only 48 percent of patients received adequate lymph node evaluation.
Our findings are similar to those of other recent studies. In a study by Baxter et al. that used data from the National Cancer Institute (NCI) Surveillance Epidemiology and End Results (SEER) programs, only 37 percent of 116,995 patients with colon cancer between 1988 and 2001 had at least 12 lymph nodes evaluated. The proportion of patients receiving adequate lymph node evaluation in the above study increased from 32 percent in 1988 to 44 percent in 2001. In a British population-based study8 of 7062 surgically resected colorectal cancer patients between 1995 and 2003, only 41.7% received an adequate lymph node assessment. In a study by Wright et al 9 that used the population-based Ontario Cancer Registry, only 27 percent of 1789 patients diagnosed with stage II disease from 1997 through 2000 had an adequate lymph node evaluation. Finally, in the National Cancer Data Base (NCDB) analysis of lymph node evaluation in patients with stage II colon cancer diagnosed from 1985 through 1991, only 40 percent of 31,515 patients received adequate lymph node evaluation.

Surgical factors reported to be associated with adequate lymph node evaluation include 1) surgeon and/or hospital volume; 2) teaching hospital and 3) specimen length. Pathology factors12 reported to increase lymph node retrieval include 1) the use of templates; 2) the use of specialized techniques such as xylene of alcohol far clearance; 3) use of pathology assistants and 4) continuing education. Patient factors seven associated with adequate lymph node evaluation, as noted in our study and others include age (i.e. younger than 70), right sided colon cancers, stage III disease, and poor differentiation. Finally, biologic behavior of the tumor and/or host may result in differences in both size and number of lymph nodes examined. A lower immune response may lead to smaller lymph nodes with a lower number bring identified. Thus, patients with a small number of lymph nodes retrieved may have a poorer prognosis because of the insufficient immune response. This hypothesis seems to be borne out of a study by Chirieac et al 14. In this study, overall survival in stage II colon cancer was significantly higher for patients with larger lymph nodes (i.e., >7.3 millimeters) regardless of the number of lymph nodes examined.

Our study had several limitations. Therese include 1) the retrospective nature of our study; 2) a lack of information regarding factors influencing lymph node retrieval such as individual surgeon volumes, specimen adequacy, use of specialized techniques (e.g., alcohol fat clearance) or use of pathology assistant 3) the difficulty in determining whether improved lymph node recovery in itself is sufficient to improve outcomes (e.g., survival) or whether it is an important marker of better cancer care such as improved quality of surgery, pathology reporting, or delivery of adjuvant chemotherapy. A recent study by Wong et al 15 may underscore this latter point. These investigators used SEER data from Medicare patients who underwent colon resection from 1995 through 2002. When hospitals were ranked into four groups by the proportion of patients with at least 12 lymph nodes examined, patients were only marginally more likely to have positive nodes in hospitals in which more than 60 percent of patients had adequate lymph node evaluation compared to hospitals in which adequate node retrieval was achieved in less than 20 percent of patients. Similarly, the rates of chemotherapy use and overall survival were not statistically significant among the hospital groups. The implications of this study are evident: that the apparent relationships between the number of lymph nodes examined and patients’ prognosis may be confounded in part by other factors (e.g., immunologic, surgeon, or system factors).

**Conclusion:**

The adequacy of lymph node sampling has important implications. First, patients with stage III colon cancer are routinely offered adjuvant chemotherapy whereas those with stage II disease are often not. Thus it is important to know who is truly node-negative before recommending against postoperative adjuvant chemotherapy. However, finding the reasons behind sub-optimal staging will hopefully encourage lower morbidity and mortality and base treatment decisions for colon cancer patients and their providers.

**References**


The Cancer Program Practice Profile Reports (CP3R) have been designed to provide cancer programs with comparative information to assess their local utilization of adjuvant chemotherapy (ACT) following the resection of Stage III cancers of the colon. Since the early 1990s, it has been recognized that appropriate care of Stage III colon cancers includes the administration of ACT. Findings from clinical trials presented in 1996 clearly demonstrated the survival benefit associated with surgical resection of the primary tumor followed by the administration of a 5-FU based chemotherapy regimen. More recently, organizations such as the National Comprehensive Cancer Network have published and widely disseminated standards for the clinical management of a broad range of cancers. These standards originate from a combination of high-level evidence and expert consensus; among these are specific recommendations for the treatment of Stage III colon disease.

This CP3R shows historical patterns of reported treatment for Stage III colon cancer, using information routinely captured by hospital based cancer registries and reported to the National Cancer Data Base and is used to assess cancer program concordance, or non-concordance, with this widely recognized standard of care. The following chart demonstrates CAMC’s concordance:

---


The Use of Adjuvant Chemotherapy in Patients with Stage III Colon Cancer: A Study of Compliance with NIH Recommendations.

Steven Jubelier, MD
A. Gilliland
Christine Welch
Mary Emmett, PhD

Hematology/Oncology WVU and Charleston Area Medical Center, 3100 MacCorkle Ave, SE, Charleston, WV 25304

Colorectal cancer is diagnosed in approximately 107,000 people annually in the United States, and 55,000 people die from this disease, making it the third most common malignant cause of death in this country.1 Randomized clinical trials have demonstrated that adjuvant chemotherapy improves survival for patients with stage III colon cancer.2,3 In 1990, the National Institute of Health (NIH) Consensus Conference4 strongly recommended that adjuvant chemotherapy be given to all patients with stage III colon cancer who were not enrolled in a clinical trial and who had no medical or psychological contraindications. Despite these benefits, prior studies have indicated that many potentially eligible patients with colon cancer do not receive adjuvant chemotherapy.

The purposes of our study were to 1) assess to what extent the 1990 Consensus Conference recommendations have been followed in our community hospital; 2) identify patient clinicopathologic or demographic factors which might predict the use of adjuvant therapy; and 3) ascertain reasons why eligible patients were not treated. Our hypotheses were that 1) the majority of patients with stage III colon cancer at CAMC received adjuvant chemotherapy; 2) there is an underutilization of adjuvant therapy in elderly patients.

Materials and Methods

From the CAMC cancer registry, we identified all patients diagnosed between 1990 and 2003 with stage III adenocarcinoma of the colon using staging criteria of the American Joint Committee on Cancer.5 We included patients who had undergone surgical resection and survived at least 30 days. Hospital cancer registrars abstracted each case according to a standardized set of data elements and definitions based on information provided by both the patients and the hospital medical information systems. To supplement registry data on adjuvant therapies and ascertain reasons why they were not used, we reviewed outpatient records.

The following variables were studied: sex, age, race, location of the primary tumor, (right or left-sided), tumor differentiation, number of lymph nodes positive and number of lymph nodes examined, income, distance traveled to the treatment site (based on zip code of residence), marital status, and insurance status.

The CAMC Institutional Review Board approved the study. SAS (Cary, N.C) was used for data analysis and statistical tests were considered significant at the p < .05 level.

Results

A total of 257 patients with stage III colon cancer were reported between 1990 and 2003. Slightly more than half of these patients (52.6 percent) were women and 95 percent were Caucasian. The mean age was 68.8 years in all patients; 67.4 years in males and 70 years in females. The primary site was left sided in 60 percent and right sided in 40 percent of the patients. Seven percent of the cancers were well differentiated, 76 percent were moderately differentiated, and 15 percent were poorly differentiated.

Of the 257 patients 177 (69 percent) received chemotherapy. Among the 28 of 80 patients who did not receive chemotherapy and had information available, the most common reasons for not providing this therapy were patient refusal (24 patients) and clinical contraindication (four patients).

As noted in Table I, patients who did not receive chemotherapy were more likely to be older, unmarried and live farther than 30 miles from the hospital. The mean age of the non-treatment group was significantly greater than that of the treatment group (77 + 1.3 vs 65 + .9, p <.001). A logistic regression model also revealed that age > 70 (odd ratio (OR) 4.5, CI 2.8-8.8; p <.001), distance to the hospital > 30 miles (OR 2.3, CI 1.2-4.3; p <.05) and patients who were unmarried (OR 2.5, CI 1.4-4.7; p <.01) were significantly less likely to receive treatment. Sex, income, site of the primary, tumor differentiation, insurance status, number of lymph nodes positive or lymph nodes examined, were not significant adjusted predictors of adjuvant therapy.

Discussion

Although the efficacy of adjuvant chemotherapy in prolonging survival for those with stage III colon cancer has been subsequently well-documented, limited community or population-based information is available on the actual use of chemotherapy. Among hospital tumor registries in the National Cancer database (NCDB), only 43 percent of patients with stage III colon cancer were reported to receive chemotherapy in 1993.6 In a population-based study of patients diagnosed with colorectal cancer during 1996 and 1997 in Northern California7, two-thirds of patients potentially eligible for adjuvant chemotherapy received these treatments. In a study involving a suburban community hospital, Mahoney el al8 reported that only 49 percent of 69 eligible patients with stage III colon cancer received adjuvant therapy. In our study 69 percent of eligible patients initiated chemotherapy.

Patient age was the strongest predictor of not receiving chemotherapy, consistent with prior studies.9,10 The mean age of those not receiving chemotherapy in our study was statistically older than those receiving it. Physicians may have reasonable concerns about poor outcomes in older patients with colon cancer but randomized studies and observational studies demonstrate that older patients with good performance status experience survival benefits similar to those of younger patients.11,12 Our study as well as others underscore the need of randomized clinical trials to assess the risks and benefits of adjuvant therapy for colon cancer among elderly patients.

Married patients had higher rates of chemotherapy use than unmarried or widowed patients in our study, possibly reflecting spouses’ encouragement of these patients to seek additional therapy and their ability to provide transportation to medical appointments. Other studies have also found
associations between marital status and more comprehensive cancer care.13

This study's limitations include its retrospective design, small number, and missing data particularly with respect to reasons why patients did not receive therapy. We did not analyze the duration or intensity of adjuvant therapy or directly analyze the clinical appropriateness of decisions regarding adjuvant therapy.

Our findings indicated that adjuvant chemotherapy is still underutilized for eligible patients with colon cancer, well after an evidenced-based National Consensus Statement strongly endorsed these treatments. Because lower rates of adjuvant therapy were concentrated in elderly patients, further research is warranted to determine the benefits and risks of such therapy in these patients. The differences in treatment by marital status and distance to the treatment center in our study and others underscore the importance of social, demographic, and cultural forces as well as biomedical factors in decisions regarding adjuvant therapy. The results of this study have stimulated other questions for future research. These include: 1) how do spouses’ influence the nature and quality of decision-making and how might clinicians productively facilitate their involvement in this process? 2) Do patients in certain racial/ethnic or age groups manifest particular beliefs and attitudes about cancer care medical therapies that complicate their ability to rationally weigh risks and benefits.

References

Table I. Use of adjuvant chemotherapy for colon cancer by patient characteristics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Chemotherapy (n = 177)</th>
<th>No chemotherapy (n = 80)</th>
<th>p – value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>65 ± .9</td>
<td>77 ± 1.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Distance traveled (miles)</td>
<td>29 ± 2</td>
<td>39 ± 4</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Marital status (married)</td>
<td>63%</td>
<td>39%</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Marital status (not married)</td>
<td>37%</td>
<td>61%</td>
<td></td>
</tr>
<tr>
<td>Insurance status (commercial)</td>
<td>27.4%</td>
<td>12.5%</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Insurance status (private)</td>
<td>5.5%</td>
<td>2.8%</td>
<td></td>
</tr>
<tr>
<td>Insurance status (public)</td>
<td>67.1%</td>
<td>84.7%</td>
<td></td>
</tr>
</tbody>
</table>

Colorectal cancer at CAMC
James A. Lohan, MD

Colorectal cancer is found in 150,000 new patients in the United States each year and is the third leading cause of cancer related death in the United States yearly. Although colon cancer and rectal cancer are frequently grouped together as one disease they behave and are treated very differently. Rectal cancer is diagnosed in roughly 42,000 new patients in the United States each year. Roughly 8,500 people with rectal cancer die each year in the United States directly from their disease. Recent advances in surgery, chemotherapy, radiation and technology have all improved patients survival, surgical outcomes, and decreased the needs for a permanent colostomy.

Rectal cancer can be diagnosed in a variety of ways. Patients may have abdominal or pelvic pain, rectal bleeding, or the constant sensation to move their bowels known as urgency. They may also have no symptoms at all and the tumor is found on a screening colonoscopy. Currently recommendations are for everyone to have a screening
colonoscopy at the age of 50 years old. It is well established that patients without symptoms have a better prognosis than patients who have advanced symptoms. This fact along with the decrease in mortality rate of colorectal cancer really emphasizes the importance of screening colonoscopy. It can both diagnose tumors earlier as well as allow us to remove some pre-cancerous tumors without major surgery.

Once the tumor is found there are a variety of treatment options which vary depending on the tumor’s location, the patients overall health, size of the patient, and the tumors stage. Staging of the rectal cancer traditionally was done after surgery once it could be examined under a microscope. This involves determining how far the tumor has grown through the intestinal wall, if any lymph nodes have tumor cells within them and if the cancer has spread throughout the body; most commonly the liver or lungs. Now there are ways to accurately stage the cancer before surgery using MRI or ultrasound. These two techniques allow the treating physicians to plan what is the best treatment course for each individual patient. Generally, unless the patient will not tolerate a surgery due to other health problem, surgical resection of the tumor is the mainstay of treatment. Other options such as chemotherapy and radiation are used to decrease the chance of the tumor coming back both in the area where the cancer was resected as well as other places in the body.

I am always amazed when meeting a new patient who has been recently diagnosed with rectal cancer that their main focus is less the cancer and more whether or not they will need a permanent colostomy or stoma. Though historically colostomy rates for rectal cancer have been high, current surgical technologies and options have lowered the numbers of people with rectal cancer who require a permanent stoma. Many factors play into the decision of what type of surgery a patient needs to adequately treat their rectal cancer, but during each one the main focus should be to perform the best cancer operation for the patient to give them the best shot at a cure. There are three main surgical options currently in use today, and each is indicated in varying circumstances.

The first surgical option, and the least invasive, is known as trans-anal excision. This involves removing the tumor through the anus. This should only be performed for the earliest tumors, which have not invaded through the bowel wall and have a low risk of spreading to lymph nodes. It also should be noted that the tumor has to be close enough to the anus for the surgeon to reach the tumor to do an adequate operation. This option spares the patient a colostomy, and there is no abdominal incision so the recovery is very brief, generally only requiring an overnight stay in the hospital. The downside of the operation is that lymph nodes are generally not obtained in the resected tumor. This emphasizes the importance of accurate staging of the tumor before any surgical intervention is planned and carried out.

The second surgical option involves an abdominal incision to remove the main tumor as well as all the blood vessels and lymph nodes involved with the tumor. A newer technique where all of the tissue around the tumor is carefully removed in one continuous piece has shown to decrease the chance for injury to other organs and to lower the risk of the tumor recurring. This is followed by reconnecting the two ends of bowel together. This operation is appropriate for tumors which have grown through the bowel wall or have a higher risk to spread to lymph nodes. There also has to be enough healthy bowels remaining to be able to reconnect the two ends. Sometimes a temporary stoma is required to allow the connected area the necessary time to heal and reduce complications of that area not healing initially. There is growing evidence that this surgery can be performed laparoscopically. Laparoscopy involves using small incisions and a camera to work inside the abdomen without having to make a larger incision. For colorectal cancer it should be performed by experienced surgeons in order to ensure similar cancer related outcomes, while still getting the benefits of less stress on the patient, better cosmetic results and a quicker recovery.

The final surgical option involves an abdominal incision and an incision around the anus to completely remove the rectum and anus. This does require a permanent colostomy and is reserved for larger tumors where there is not enough healthy tissue to safely allow for reconnecting the bowel.

Chemotherapy and radiation have become more important in the treatment of rectal cancer in recent years. They are used together to both decrease the chance of the tumor recurring and possibly improve survival. The current recommendation is to perform these two before surgery for advanced tumors. This again emphasizes the importance of accurate preoperative staging. Early tumors are less likely to recur and therefore these patients do not benefit from these techniques. In more advanced tumors chemotherapy and radiation increase the chance of successful complete resection by shrinking the tumor. Both chemotherapy and radiation do have side effects so they should only be used when appropriate.

In summary, recent developments in technology, surgical technique, chemotherapy and radiation have all improved the treatment of rectal cancer. Surgery remains the mainstay of treatment but the type of surgery, the need for chemotherapy and radiation, and whether a permanent stoma needs to be fashioned are all based on accurate preoperative staging. Rectal cancer treatment should be a team approach including primary care physicians, endoscopists, radiation oncologists, medical oncologists and surgeons. The goal should be to provide patients with treatments adhering to the standard of care while ensuring the best outcomes.

**e-QuIP Reports: Breast and Colorectal Cancers**

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

The Commission on Cancer (CoC) encourages cancer programs and their cancer committees to assess and examine their data for completeness. To assist programs in this endeavor, the CoC publishes each program’s data for their internal review. This initiative is referred to as e-QuIP (electronic quality improvement packets).

Upon receipt of this information, the tumor registry reviewed the information for accuracy and completeness. Initial evaluation of the data showed some opportunities for improvement. We reviewed all of the cases meeting the definitions established but that could not be assessed due to incomplete information. We were able to update the information on all of the cases. We then evaluated every
case that failed the criteria to see if the information was inaccurate or incomplete and corrected the cases where we could identify the appropriate information. We did identify a great deal of difficulty in finding information on the cases where hormone therapy was given. The cancer committee feels another review of the data should be undertaken to identify more cases where hormone therapy was given. This will require extensive review of physician office records to resolve.

**Breast Cancer:**
The e-QuIP for breast cancer is directed toward assessing data completeness for breast cancer patients recorded in each cancer program’s registry. The e-QuIP provides a case-by-case review of breast cancer cases reported to the NCDB identifies cases that lend themselves to the future evaluation of

**Estimated Performance Rates for Selected Breast Cancer Measures Diagnosis Years 2003 - 2005**

<table>
<thead>
<tr>
<th>Estimated Performance Rate</th>
<th>Number of Cases by Diagnosis Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2003</td>
</tr>
<tr>
<td>Patients receiving breast-conserving surgery who are under age 70 should receive radiation therapy. [BCS/RT]</td>
<td>82.2% (148/180)</td>
</tr>
<tr>
<td>Cases that cannot be assessed due to incomplete tumor characteristic information. [I]</td>
<td>0</td>
</tr>
<tr>
<td>Cases not applicable for this measure by definition. [NA]</td>
<td>83</td>
</tr>
<tr>
<td>Patients with Stage I (tumor size &gt; 1 cm and N0) or Stage II/III (any tumor size and N+), with ER/PR- tumors and who are under age 70 should receive or be considered for combination chemotherapy. [MAC]</td>
<td>72.4% (55/76)</td>
</tr>
<tr>
<td>Cases that cannot be assessed due to incomplete tumor characteristic information. [I]</td>
<td>0</td>
</tr>
<tr>
<td>Cases not applicable for this measure by definition. [NA]</td>
<td>86</td>
</tr>
<tr>
<td>Patients with Stage I (tumor size &gt; 1 cm and N0) or Stage II/III (any tumor size and N+), with ER+ or PR+ tumors should receive or be considered for hormonal therapy (Tamoxifen or third generation Aromatase Inhibitor). [HT]</td>
<td>66.5% (149/224)</td>
</tr>
<tr>
<td>Cases that cannot be assessed due to incomplete tumor characteristic information. [I]</td>
<td>0</td>
</tr>
<tr>
<td>Cases not applicable for this measure by definition. [NA]</td>
<td>66</td>
</tr>
<tr>
<td>Cases not eligible for consideration.</td>
<td>98</td>
</tr>
<tr>
<td>Total number of cases as submitted to the NCDB.</td>
<td>242</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 Commission on Cancer has been actively engaged in this process. The CoC has instituted a facility feedback mechanism through this reporting venue, the electronic Quality Improvement Packet (e-QuIP) 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 cancer care practices. **Note** that the performance rates shown in this version of the e-QuIP are evolving toward the exact specifications of the breast cancer care measures endorsed by the NQF in April, 2007.
82.2 percent compliance rate with the percentage of patients under age 70 with breast conserving surgery that received radiation therapy. CAMC has a 72.4 percent compliance rate with patients with the listed tumor characteristics who received or were considered for combination chemotherapy. A compliance rate of 66.5 percent is well below what is believed to be true for the number of patients with the listed tumor characteristics that received or were considered for hormone therapy.

Colorectal Cancer:
The e-QuIP for colorectal cancer is directed toward assessing data completeness for colorectal cancer patients recorded in each cancer program’s registry. The e-QuIP identifies colorectal cancer cases reported to the NCDB and evaluates each case for concordance with the following measures:

- **12RLN**: At least 12 regional lymph nodes are removed and pathologically examined for patients with resected colon cancer.
- **RECRT**: Radiation therapy should be administered to or be considered for surgically resected Stage IIb or III rectal cancer patients.

The Colorectal cancers are tracked from 2003 through 2005 also. Evaluation of compliance with pathological examination of at least 12 regional lymph nodes was at 42 percent with 89 cases of the 212 cases in the study reaching compliance. Compliance with radiation therapy being administered or considered for patients with certain tumor characteristics was at 70 percent with seven of the 10 cases in the study showing documentation of compliance. The chart from the NCDB is displayed for your review.

###电子质量改进包

**e-QuIP for Colorectal Cancers**

<table>
<thead>
<tr>
<th>Estimated Performance Rates for Selected Colorectal Cancer Measures</th>
<th>Diagnosis Years 2003 - 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interpreting this table</strong>: The estimated performance rate shown below provides your cancer program with an indication of the proportion of patients treated according to recognized standards of care. These proportions are computed based on data directly reported from your registry to the NCDB. This e-QuIP 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 using this application. Displayed performance rates are immediately updated as modifications via this e-QuIP are completed by cancer program staff. Note: Any modifications made online should be reflected at the local cancer registry. Cancer programs are encouraged to resubmit data to the NCDB.</td>
<td></td>
</tr>
<tr>
<td><strong>Charleston Area Medical Center</strong></td>
<td>Number of Cases by Diagnosis Year</td>
</tr>
<tr>
<td>Charleston, WV</td>
<td>2003</td>
</tr>
<tr>
<td>Resected colon specimen should have at least 12 regional lymph nodes pathologically examined. [12RLN]</td>
<td></td>
</tr>
<tr>
<td>Estimated Performance Rate</td>
<td>42.0% (89/212)</td>
</tr>
<tr>
<td>Colon cases not assessable due to incomplete node dissection information. [I]</td>
<td>0</td>
</tr>
<tr>
<td>Radiation therapy administered or considered for surgically resected Stage IIb or III rectal cancer. [RECRT]</td>
<td></td>
</tr>
<tr>
<td>Estimated Performance Rate</td>
<td>70.0% (7/10)</td>
</tr>
<tr>
<td>Rectal cases not assessable due to incomplete tumor characteristic information. [I]</td>
<td>0</td>
</tr>
<tr>
<td>Cases not applicable for this measure by definition. [NA]</td>
<td>59</td>
</tr>
<tr>
<td>Total number of cases as submitted to the NCDB.</td>
<td>141</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 Commission on Cancer has been actively engaged in this process. The CoC has instituted a facility feedback mechanism through this reporting venue, the electronic Quality Improvement Packet (e-QuIP) 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 colorectal cancer care practices. Note that the performance rates shown in this version of the e-QuIP are evolving toward the exact specifications of the colorectal cancer care measures endorsed by the NQF in April, 2007.
Two new highly complex treatments are now available to all cancer patients. Intensity-Modulated Radiation Therapy (IMRT) and Image-Guided Radiation Therapy (IGRT) are huge leaps forward in oncologic treatment that combines recent advances in computer technology, medical imaging and radiation physics with time-proven oncologic principles.

Intensity-Modulated Radiation Therapy (IMRT)
IMRT allows the radiation oncologist to deliver more radiation dose to the tumor while giving less radiation to the surrounding normal tissues (ie. heart, lung, brain, bowel, bladder or other critical organs that are near the treatment area) decreases the risk of side effects. Treating tumors with higher doses kills more cancer cells.

“IMRT allows the physician to ‘bend’ the radiation around nearby normal tissues while still delivering tumoricidal doses to the target area,” said Brian Plants, MD, a radiation oncologist practicing with Charleston Radiation Therapy Consultants. “In other words, it enables the oncologist the ability to ‘paint’ radiation doses on the tumor in a way similar to an artist painting a portrait.

“This amazing technology is only in its infancy and there have already been remarkable breakthroughs,” Plants continued. “Patients have been helped with IMRT that would have been considered untreatable or palliative as recent as five years ago.”

Image-Guided Radiation Therapy (IGRT)
IGRT increases the accuracy of radiation treatments. “To appreciate the importance of IGRT, it is necessary to understand the process of radiation therapy,” Plants said.

Before treatment, the patient is “simulated” on an X-ray machine or CT scanner for treatment planning. The patient’s skin is marked with ink or a small tattoo at a specific point in 3-D space so that a treatment plan may be specifically designed to “fit” each patient. The images from simulation are sent to a computer for planning and the patient is brought back on a different day for the start of the actual treatments.

Prior to each daily treatment, the radiation oncology team aligns the patient with room alignment lasers pointed at the patient’s skin marks. Traditionally, portal films were taken once a week to ensure that the patient’s skin marks are still in alignment with bony anatomy. The accuracy of traditional radiation therapy is five to 10 millimeters. “With IGRT, our daily setup error has been reduced to within one to two millimeters,” Plants said. “In addition, daily (instead of weekly) images are taken to assist with accuracy.”

“Our system uses kilovoltage X-rays to decrease radiation exposure and infrared cameras to track the patient at all times before and during treatment,” Plants said. “Unprecedented accuracy and precision are now possible with IGRT.”

The goal of radiation therapy is to get a high enough dose of radiation into the body to kill the cancer cells while sparing the surrounding healthy tissue from damage. Several different radiation therapy techniques have been developed to accomplish this.

Depending on the location, size and type of your tumor or tumors, you may receive one or a combination of these techniques. Your cancer treatment team will work with you to determine which treatment and how much radiation is best for you.

During external beam radiation therapy, a beam of radiation is directed through the skin to a tumor and the immediate surrounding area in order to destroy the main tumor and any nearby cancer cells. To minimize side effects, the treatments are typically given every day for a number of weeks.

The radiation beam comes from a machine located outside of your body that does not touch your skin or the tumor. Receiving external beam radiation is similar to having an X-ray taken. It is a painless, bloodless procedure. The most common type of machine used to deliver external beam radiation therapy is called a linear accelerator, sometimes called a “linac.” It produces a beam of high-energy X-rays or electrons. Using sophisticated treatment planning software, your radiation oncology treatment team plans the size and shape of the beam, as well as how it is directed at your body, to effectively treat your tumor while sparing the normal tissue surrounding the cancer cells.

Several special types of external beam therapy are discussed below. These are used for particular types of cancer, and your radiation oncologist will recommend one of these treatments if he or she believes it will help you.

Three-Dimensional Conformal Radiation Therapy (3D-CRT)
Tumors usually have an irregular shape. Three-dimensional conformal radiation therapy (3D-CRT) uses sophisticated computers and computer assisted tomography scans (CT or CAT scans) and/or magnetic resonance imaging scans (MR or MRI scans) to create detailed, three-dimensional representations of the tumor and surrounding organs. Your radiation oncologist can then shape the radiation beams exactly to the size and shape of your tumor. The tools used to shape the radiation beams are multileaf collimators or blocks. Because the radiation beams are very precisely directed, nearby normal tissue receives less radiation exposure.

Intensity Modulated Radiation Therapy (IMRT)
Intensity modulated radiation therapy (IMRT) is a specialized form of 3D-CRT that allows radiation to be more exactly shaped to fit your tumor. With IMRT, the radiation beam can be broken up into many “beamlets,” and the intensity of each beamlet can be adjusted individually. Using IMRT, it may be possible to further limit the exact amount of radiation that is received by normal tissues that are near the tumor. In some situations, this may also allow a higher dose of radiation to be delivered to the tumor, increasing the chance of a cure.

Stereotactic Radiotherapy
Stereotactic radiotherapy is a technique that allows your radiation oncologist to precisely focus beams of radiation to destroy certain types of tumors. Since the beam is so precise, your radiation oncologist may be able to spare more normal tissue than with conventional external beam therapy. This additional precision is achieved through rigid immobilization, such as with a head frame as is used in the treatment of brain tumors.
Although often performed in a single treatment, fractionated radiotherapy, where patients receive up to five treatments, is sometimes necessary. Stereotactic radiotherapy may be the only treatment if a very small area is affected. In addition to treating tumors, it can also be used to treat malformations in the brain’s blood vessels and certain noncancerous (benign) brain tumors. At CRTC, linear-accelerator based radiosurgery is delivered by a team of experts, including a radiation oncologist, a neurosurgeon, and a medical physicist. This multi-disciplinary team has specific training and many years of experience in the techniques of stereotactic radiosurgery.

**Image-Guided Radiation Therapy (IGRT)**

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. It allows our radiation oncologists to better deliver the radiation dose to the cancer. Normal structures and tumors can move between treatments due to differences in organ filling or movements while breathing. IGRT is conformal radiation treatment guided by imaging equipment in the treatment room that identifies exactly where the tumor and other critical tissues are located at the most important time, when the treatment is being given. 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.

All patients must first undergo a CT scan as part of the planning process. The digital information from the CT scan is then transmitted to the console in the treatment room to allow doctors to compare the earlier image with the images taken just before each treatment. During IGRT, special computer software “fuse” these images to see if the treatment needs to be changed. This allows doctors to better target the cancer while avoiding nearby healthy tissue. In some cases, doctors will implant a tiny piece of material called a fiducial marker near or in the tumor to help them localize the tumor during IGRT.

CRTC offers the full-range of brachytherapy services by professionals specifically trained to deliver this type of radiation. Brachytherapy, also called internal radiation or seed implants, is the placement of radioactive sources in or just next to a tumor. The radioactive sources may be left in place permanently or only temporarily, depending upon your needs. This allows doctors to better target the cancer while avoiding nearby healthy tissue. In some cases, doctors will implant a tiny piece of material called a fiducial marker near or in the tumor to help them localize the tumor during IGRT.

CRTC offers the full-range of brachytherapy services by professionals specifically trained to deliver this type of radiation. Brachytherapy, also called internal radiation or seed implants, is the placement of radioactive sources in or just next to a tumor. The radioactive sources may be left in place permanently or only temporarily, depending upon your needs. This allows doctors to better target the cancer while avoiding nearby healthy tissue. In some cases, doctors will implant a tiny piece of material called a fiducial marker near or in the tumor to help them localize the tumor during IGRT.

There are two main types of brachytherapy: intracavity treatment and interstitial treatment. With intracavity treatment, the radioactive sources are put into a space near where the tumor is located, such as the cervix, the vagina or the windpipe. With interstitial treatment, the radioactive sources are put directly into the tissues, such as the prostate. Often these procedures require anesthesia and brief hospitalization. Patients with permanent implants may have a few restrictions at first and then can quickly return to their normal activities. Temporary implants are left inside of your body for several hours or days. While the sources are in place, you will stay in a private room. Doctors, nurses and other medical staff will continue to take care of you, but they will need to take special precautions to limit their exposure to radiation.

Devices called high dose rate remote afterloading machines allow radiation oncologists to complete brachytherapy quickly, in about 10 to 20 minutes. Powerful radioactive sources travel through small tubes called catheters to the tumor for the amount of time prescribed by your radiation oncologist. You may be able to go home shortly after the procedure. Depending on the area treated, you may receive several treatments over a number of days or weeks. Most patients feel little discomfort during brachytherapy. If the radioactive source is held in place with an applicator, you may feel discomfort from the applicator. There are medications that can help this. If you feel weak or queasy from the anesthesia, your radiation oncologist can give you medication to make you feel better.

**Understanding Cancer Survival Rates from the NCDB**

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

CAMC is able to compare its survival rates against the NCDB (National Cancer Data Base). The following graphs are representations of CAMC’s survival rates for the top five cancer sites treated in 2007 (breast, colon, lung, corpus uteri, and prostate). Because survival rates are calculated five years after the diagnosis, the years studied in these graphs are patients diagnosed between 1998 and 2000. The following standards are applied to the data in the graphs:

- Survival rates are not calculated when fewer than 30 cases are present in any one stage
- Only adult patients (age over 18) that have only one diagnosis of cancer and has a clinical AJCC stage assigned by the managing physician are included in the data
- Rates are computed by the actuarial method, compounding survival in one-month intervals from the date of diagnosis, with death from any cause as the endpoint.

The following graphs display the CAMC survival rates in one graph, the survival rates from our region (southeast) in another graph, and in our approval category (teaching hospitals) in the third. Further study of the data would be
required to identify whether these patients’ deaths were the result of their cancer diagnosis versus other morbidities such as heart disease, stroke, etc. The first set of graphs is the survival rates for breast cancer.
As you can see, CAMC's stage II breast cancer survival at five years is 89.8 percent compared to only 83.1 percent for all teaching facilities and 81.4 percent for all hospitals in the southeast region. The Stage III breast cancer survival rate at CAMC is 69.1 percent at five years compared to 57.7 percent for all teaching facilities and 55.3 percent for all hospitals in the southeast region.
In reviewing the graphs for colon cancer, you will notice that CAMC diagnoses the colon cancers more frequently at Stage 0 and I when compared to the region and category. All teaching facilities have a diagnosis rate of 26.2 percent, the southeast region at 29.2 percent, and CAMC has 36.4 percent of colon cancers diagnosed in the earlier stages. The CAMC survival rates for colon cancer at five years is also lower when compared to teaching facilities and facilities in the southeast region.
In assessing the survival rates for lung cancers, the survival rates in all stages are comparable to the survival rates in the region and the teaching hospital category.
Survival rates for prostate cancers in all stages at CAMC are lower compared to the same stages for the southeast region and the teaching category.
For corpus uteri cancers, CAMC only had sufficient data to display the Stage I cases. There were 105 stage I cases but other stages had 22 or fewer cases and are not displayed for survival.

The Stage I rates at CAMC are comparable to the rates from the region and the teaching category.