

# 2008



**Forsyth** **DERRICK L. DAVIS**  
REGIONAL CANCER CENTER

# Annual Report

with Statistical Data from 2007

## Cancer Committee Members 2007

The committee's composition and number of participants were established with the assistance of the Cancer Department of the American College of Surgeons.

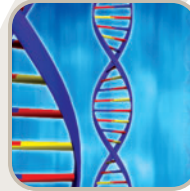
The committee meets 12 times per year and reports to the Executive Committees of Forsyth Medical Center, Medical Park Hospital and Thomasville Medical Center.

The committee is responsible for initiating and assessing all cancer-related activities at the hospitals.

The American College of Surgeons Cancer Department assisted in establishing the number and composition of the joint committee.

Judy Hopkins, MD, Chair  
 Susan Hines, MD, Vice-Chair  
 Andrew Griffin, MD, Urology  
 Morris Friedman, MD, Urology  
 Stan Fuller, MD, Colorectal Surgery  
 Kevin Spangler, MD, Radiology  
 John Faris, MD, Breast Clinic  
 Lisa Evans, MD, Radiation Oncology  
 Dawn Moose, MD, Radiation Oncology  
 Gerald Eggers, MD, Pathology  
 Scott Kilpatrick, MD, Pathology  
 Rolland Barrett, MD, Gynecologic Oncology  
 Patricia Zekan, MD, ACOS Field Liaison  
 Robert Holmes, MD, Gastroenterology  
 Hugh Wallace, MD, Medical Oncology  
 James North, MD, Pain Management  
 Brian Lewis, MD, TMC General Surgery  
 Frank Burton, MD, TMC ENT  
 Joanne Henley, Chaplaincy Services  
 Sue Mason, Care Coordinator  
 Betsy Johnson, Oncology Nurse Manager  
 Sharon Gentry, Breast Cancer Navigator  
 Tim Shelton, MPH Administration  
 Carol Caudle, MPH Nursing  
 Sharon Murphy, Executive Director, Cancer Center  
 Cathy Rimmer, Cancer Data Base  
 Karen Shearin, Oncology Support Coordinator  
 Elizabeth White, Clinical Trials Specialist  
 Hazel Talton, Breast Clinic  
 Cindy Jennings, Rehabilitation  
 Cyndie Tomlin, TMC Administration  
 Lynn Maxwell, TMC Nursing  
 Peyton Wright, R.N., Ambulatory Nursing  
 Elizabeth McGowan, Pharmacy  
 Sarah Bridges, R.N., Hospice  
 Julie Lanford, Nutrition

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# Welcome to Our Annual Report

*We are very proud to have served individuals and families throughout the Western Piedmont of North Carolina with remarkable cancer care. Our accomplishments in the past year show our continued dedication to providing our patients with greater hope and healing.*



Thomas Grote, MD, Medical Director

## DERRICK L. DAVIS FORSYTH REGIONAL CANCER CENTER NETWORK FACILITIES

At the cancer center, we have access to facilities at three Novant Health hospitals: Forsyth Medical Center, Medical Park Hospital and Thomasville Medical Center. In 2006, all three facilities were approved as a network program and received the Outstanding Achievement Award.

### FORSYTH MEDICAL CENTER (FMC)

FMC, one of the largest hospitals in North Carolina, is a progressive 961-bed, not-for-profit, tertiary care hospital, offering a full continuum of emergency, medical, surgical, rehabilitative and behavioral health services.

### MEDICAL PARK HOSPITAL (MPH)

MPH is a 22-bed, not-for-profit hospital that specializes in elective, outpatient surgical procedures. We established the cancer program at Medical Park Hospital in 1990 and received initial American College of Surgeons approval in 1993. The Tumor Registry began collecting data in 1990.

### THOMASVILLE MEDICAL CENTER (TMC)

TMC is a 149-bed, not-for profit community hospital that provides a broad range of services including preventive healthcare, specialty medicine, cutting-edge treatments and rehabilitation. Outpatient chemotherapy is provided on-site. The Cancer Data Base began collecting 2002 data for TMC as part of the approval requirements by the American College of Surgeons. TMC was surveyed and approved for the first time with Forsyth Medical Center and Medical Park Hospital in 2006 as part the Derrick L. Davis Forsyth Regional Cancer Center Network Program.

## Mission

The mission of the Derrick L. Davis Forsyth Regional Cancer Center is to provide state-of-the-art cancer care for our community and region in a personal and responsive manner; with compassion and convenience for our patients, continuously growing to meet their needs through prevention, early detection, education, treatment and research.

### Derrick L. Davis Forsyth Regional Cancer Center Services

Number of Licensed Beds	961
Number of Active Physicians	647
General/Thoracic Surgeons	24
Radiologists	41
Urologists	17
Medical Oncologists	11
Pathologists	12
Radiation Oncologists	5
Gynecologic Oncologists	4

Approved in 2006 by the American College of Surgeons in the Network Program Category

### Medical Park Hospital Cancer Services

Number of Licensed Beds	22
Number of Active Physicians	234
General/Thoracic Surgeons	18
Radiologists	37
Urologists	16
Medical Oncologists	11
Pathologists	12
Radiation Oncologists	5
Gynecologic Oncologists	4

Approved in 2006 by the American College of Surgeons in the Network Program Category

### Thomasville Medical Center Cancer Services

Number of Licensed Beds	149
Number of Active Physicians	198
General Surgeons	4
Radiologists	34
Urologists	2
Medical Oncologists	5
Pathologists	10

Approval in 2006 by the American College of Surgeons in the Network Program Category

## Forsyth Medical Center & Duke University Cancer Center Clinical Trials & Research Agreement

Cancer patients at the Derrick L. Davis Forsyth Regional Cancer Center have access to an even wider range of clinical trial cancer treatments through an agreement with Duke University Health System. The agreement increases the number and types of clinical trials available at Forsyth, as well as broadens the cancer center's research capabilities. In addition, it will provide Forsyth Medical Center patients access to numerous clinical trials that previously have been available only through Duke University Medical Center, an NCI Comprehensive Cancer Center.

In addition to expanding the existing oncology clinical research programs available at Forsyth Medical Center, the agreement will provide for the sharing of research and patient data to improve cancer treatments and the possibility of developing new types of clinical trials for treating all kinds of cancer.

Currently the Derrick L. Davis Forsyth Regional Cancer Center has more than 100 Phase II and Phase III active clinical trials, which test the effectiveness and overall benefits of new cancer drug treatments.

Through the Duke collaboration, Forsyth also will be able to offer patients access to Phase I clinical trials, investigational medical treatments that have shown great promise and offer hope to those for whom other treatments have failed.



# Network Healthcare Services



## RESEARCH PROGRAMS

### Clinical Trials

At Derrick L. Davis Forsyth Regional Cancer Center, patients may access more than 100 active research protocols, allowing them to receive leading-edge cancer treatments close to home. These protocols represent both the National Cancer Institute and global pharmaceutical research. As a member of the Southeast Cancer Control Consortium, a multi-community group within the Clinical Community Oncology Program (CCOP), we offer patients a unique opportunity to participate in a wide range of research. Our patients may participate in trials administered by the following national research groups:

- Cancer and Leukemia Group B (CALGB)
- Gynecologic Oncology Group (GOG)
- National Surgical Adjuvant Breast and Bowel Project (NSABP)
- Radiation Therapy Oncology Group (RTOG)
- Southwest Oncology Group (SWOG)
- Clinical Trials Support Unit (CTSU)

### Prevention Trials

The Derrick L. Davis Forsyth Regional Cancer Center participated in two landmark NCI-sponsored cancer prevention trials: The Breast Cancer Prevention Trial (BCPT) and the Prostate Cancer Prevention Trial (PCPT). Two additional NCI-sponsored prevention clinical trials have opened since these two landmark studies were closed. The Study of Tamoxifen and Raloxifene (STAR) and Selenium and Vitamin E Cancer Prevention Trial (SELECT) are currently following enrolled participants in our effort to decrease the incidence of breast and prostate cancer in



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## FRCC Network Healthcare Services *continued*

our community. Both studies are now closed to accrual. We hope our efforts and the priceless contributions of our study participant volunteers will accomplish this goal.

SELECT will evaluate the role of the dietary supplements, L-selenomethionine and a-tocopherol, in the incidence of prostate cancers found in healthy men during routine medical care. This study will seek to enroll 32,400 men aged 50 and older. Study participants will be randomized into one-of-four double-blind groups for 7 to 12 years:

- Selenium and Vitamin E
- Selenium only and Placebo
- Vitamin E only and Placebo
- Placebo and Placebo

Major emphasis was placed upon the recruitment of minority men for SELECT. African-American men have a higher incidence of prostate cancer than other racial or ethnic groups; approximately 20 percent of all prostate cancers in the U.S. occur in African-American men. SELECT opened for recruitment in July of 2001. Since this time, 45 men have been randomized to the trial at Derrick L. Davis Forsyth Regional Cancer Center. The enrollment goal of 32,400 has been exceeded nationally and accrual is now closed.

STAR opened for enrollment July 1, 1999. This large scale, phase III, double-blind study will determine if long-term Raloxifene therapy is effective in preventing the occurrence of invasive breast cancer in 19,000 post-menopausal women who are identified as being at high risk of the development of the disease, and to establish the net effect of Raloxifene therapy. Women randomized to this trial will take either Tamoxifen 20 mg or Raloxifene 60 mg daily for five years. Since 1999, 71 women have been randomized to the trial at FRCC. The enrollment goal of 19,000 has also been exceeded nationally and accrual is now closed. In 2006, the initial study results demonstrated that Raloxifene is as effective as Tamoxifen in reducing the risk of invasive breast cancer in post-menopausal women who are at increased

risk for the disease. The data suggests that there may be less toxicity with Raloxifene. Patients who were on the Tamoxifen arm of the trial were offered the opportunity to switch to Raloxifene.

### EPIDEMIOLOGIC STUDIES

Patients are identified for eligibility to three state-wide cancer studies:

- Carolina Prostate Treatment Outcomes Study
- NC Colorectal Family Registry
- NC Ovarian Cancer Study

### MEDICAL ONCOLOGY

#### Inpatient

For inpatient services, we currently have FMC's designated 28-bed oncology unit on the 9th floor. Although the people we treat here primarily receive chemotherapy, we also accommodate oncology patients for:

- Radiation therapy
- Blood products
- Antibiotics
- Pain management
- Pre and post-surgical care
- Terminal care
- Symptom management
- Chemo embolizations
- Radioactive iodine

#### Outpatient

Patients have a variety of options in receiving outpatient services for medical oncology. Patients may receive services at the Forsyth Medical Center campus through the oncology unit or within the private physician practice, Piedmont Hematology Oncology Associates, which is adjacent to the radiation oncology department.

#### SATELLITE CLINICS

For patient convenience, satellite clinics are located in Elkin, Kernersville, Mount Airy, Wilkesboro, Statesville and the Davidson Clinic which serves patients from Thomasville Medical Center and Lexington Memorial Hospital.

#### SURGICAL ONCOLOGY

We provide outpatient treatments such as biopsies or surgery at all three medical facilities (FMC, TMC, MPH).

Inpatient services are available with all major surgical specialties. The majority of our patients undergo surgery as part of their first course of therapy.



## FRCC Network Healthcare Services *continued*

### **RADIATION ONCOLOGY**

The radiation oncology department is located on the Forsyth Medical Center campus and treats approximately 1,200 patients each year, delivering external beam, Intensity Modulated Radiation Therapy (IMRT), Image Guided Radiation Therapy (IGRT), linear accelerator based Stereotactic Radiosurgery (SRS) and intracavitary radiation. We feature an array of state-of-the-art equipment, including four linear accelerators, CT Simulator and Conventional Simulator (x-ray/fluoroscopic) capabilities, High Dose Rate brachytherapy (HDR) unit and prostate seed implant program.

The department has five physicians, each sub-specializing in various types of cancer. One physician performs all the prostate seed implants, and another all of the gynecologic brachytherapy. This provides our patients with physicians dedicated to treating their diseases and ensures high volumes which improves patient outcomes and reduces side-effects.

### **GYNECOLOGIC ONCOLOGY**

In our gynecologic oncology department, we are dedicated to the care of women with premalignant and malignant disease of the lower genital tract. We have four Gynecologic Oncologists on staff who provide consultation and treatment for patients from a wide referral area. Our physicians provide surgical and chemotherapy treatment for cancers of the ovary, uterus, cervix, vagina and vulva, and participate in NCI supported clinical trials through the Gynecologic Oncology Group (GOG).

We are one of the nation's leading centers for da Vinci Robotic-Assisted gynecologic oncology surgery.

### **PALLIATIVE CARE SERVICES**

Palliative care specializes in the relief of the pain, symptoms and stress of serious illness. The goal is to prevent and ease suffering and to offer patients and their families the best possible quality of life. Palliative care is offered to adults throughout Forsyth Medical Center in a nine bed unit. If a patient requires more intensive palliative services, an acute palliative unit is available.

The patient care service consists of a team of palliative care experts including doctors, physician extenders, a case manager and chaplain. Nutritionists, pharmacists, therapists, patient representatives and others may also be part of the team when their services are needed. The service is available to patients 18 years and older who are seen at Forsyth Medical Center.

Palliative care is provided for the whole patient – body, mind and spirit – as well as their families, to ensure emotional, physical and spiritual comfort. Our palliative care team concentrates on each patient's goals of care and helps provide the patient with the best quality of life possible, with comfort being the top priority. Approximately 50 percent of the patients on the unit are terminally ill.

The patient's current physician can attend on the unit or may ask a specialist in palliative care to assist or assume care. Any specialists needed to treat the patient's condition may also assist in their care.

## **Quality Improvement Report – 2007**

Three studies were completed for 2007: NCCN Colon Cancer Node Study, Breast Cancer Survival Study, Colon Cancer Medical Oncology Consult Study.

### **IMPROVEMENTS**

- Community Care Center added patient education literature in Spanish and initiated colorectal screening kits from Polymedco
- Clinical Trials expanded to the oncology satellite offices to increase awareness and accruals
- Nutritionist developed a lunch & learn program for the oncology staff on patient nutritional counseling to provide more services to patients
- Nutritionist developed a "Survive and Thrive" survivorship program in conjunction with Cancer Services, Inc.
- Expanded the lymphedema program with the addition of a 2nd certified therapist
- Inpatient oncology unit added more clinical shift managers for additional patient coverage, added a palliative care coordinator, and revised the unit specific chemotherapy administration policy based on evidence based research
- The Genetics program developed two pieces of educational information on the risks for ovarian and endometrial cancer.
- The Neuro Oncology Navigator began working with brain tumor patients



# Wellness & Rehabilitation



## WELLNESS PROGRAMS

Derrick L. Davis Forsyth Regional Cancer Center uses a team approach to respond to the varying physical, emotional and spiritual needs that arise for patients and families during and after cancer treatment. This team is composed of physicians, nurses, mid-levels and physical/occupational therapists, as well as a registered dietitian, chaplain, care coordinator and genetic counselor. This team works together to provide the services listed below.

### Education

We offer programs which focus on educating patients and their families about their disease. Many times, this education occurs in support groups or with other members of the healthcare team. In addition, our *Resource Center*, located in the Derrick L. Davis Forsyth Regional Cancer Center Commons, is a great place to learn about cancer. Here, patients and families can find books, DVDs, tapes, pamphlets and an internal accessible computer offering a wide variety of cancer-related information. All of these materials are available free-of-charge or on loan.

### Nutrition Therapy

Maintaining a proper diet is very important during treatment and is part of cancer rehabilitation. Good nutrition can help lessen side effects, support the immune system and help maintain weight and energy. Our *oncology dietitian* works with patients to develop healthy eating patterns which improve quality of life and aid the recovery process. The dietitian

also helps patients who have experienced weight loss or gain during treatment. Classes as well as individual appointments are available.

### Physical Rehabilitation

We offer a comprehensive physical rehabilitation program with a variety of North Carolina locations, all sharing the same goal; to optimize our patients' functional abilities, improve their quality of life and promote health in our communities, one person at a time. In the outpatient setting, many of our physical rehab programs are held at Martinat Outpatient Rehabilitation Center. The Whitaker Rehabilitation Center provides comprehensive inpatient rehabilitation.

- **Physical, Occupational & Speech Therapy** – We offer comprehensive physical, occupational and speech therapy programs to help patients overcome the effects of cancer and regain the ability to perform daily activities.
- **Gentle Yoga** – Research shows that exercise can improve mental and physical health as well as help patients feel better overall. Our Gentle Yoga class is designed for patients dealing with symptoms, side effects and anxiety over their cancer diagnosis. Participants say it helps to give them more energy and improve the mind-body connection.
- **Muscles in Motion** – Cancer patients are also offered an individualized exercise program during and after treatment. The program requires physician approval and consists of twelve visits to Martinat Outpatient Rehabilitation Center. The initial visit is



a one-on-one session to design a program appropriate for the patient's ability level and treatment regimen.

- **Lymphedema Clinic** – Patients who have had their lymph nodes removed during treatment may experience abnormal swelling. The Lymphedema Specialist provides education on lymphedema and provides treatment to reduce this swelling.
- **Enterostomal Therapy (ET)** – With one full-time ET nurse and one ET assistant, we evaluate care for patients with an ostomy, draining wound/fistula, pressure ulcer or incontinence. We accept referrals for inpatients as well as outpatients.
- **Smoking Cessation** – Through the FMC Preventive Cardiology department, we offer a smoking cessation class to assist patients who want to stop smoking.

### Spiritual Care

Derrick L. Davis Forsyth Regional Cancer Center recognizes the importance of holistic care and provides both inpatient and outpatient pastoral care services to our patients and their families. These services are provided by our *oncology chaplain* through individual support, support groups and programs aimed at exploring meaning and discovering hope in the cancer experience.



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## Cancer Committee Goals – 2007

### COMMUNITY OUTREACH GOAL

Enhance relationship with the Community Care Center by offering cancer screenings and education on breast, colon, prostate, and GYN cancers.

#### ACCOMPLISHMENT

- Colorectal screenings were done with FIT tests to appropriate patients
- Education – information provided in English/Spanish on primary cancer sites, risk reduction (1,000 pieces of literature distributed); plan to follow-up every 6 months to determine additional needs.

### QUALITY IMPROVEMENT GOAL

Increase the completeness and accuracy of documentation of clinical and/or pathologic TNM staging by the managing physician through physician education.

#### ACCOMPLISHMENT

The standard for physician staging changed during the year making the goal less of a priority; the following activities were accomplished:

- Cathy Rimmer met with Paul Welborn and Dr. Stinson to discuss options of electronic signature and electronic staging through the dictation system with no positive end result
- Physician staging issues were discussed at breast cancer conference and at cancer committee meetings
- Physicians gave feedback regarding the completion of the staging form
- Barriers for staging were identified

### PROGRAMMATIC GOAL

Enhance integration of network facilities by creating a cancer committee sub-group to strengthen relationships, communication, and consistent programming.

#### ACCOMPLISHMENT

- The goal was met and will continue for 2008
- Identified areas for improvement
- MPH and FRCC jointly promoted the daVinci program

### CLINICAL GOAL

To further develop the Clinical Trials and Research program throughout the service area and in PHOA satellites.

#### ACCOMPLISHMENT

In our service area – the accruals goal was met; there was a delay in launch of trials the PHOA satellites until 2008.

## Wellness & Rehabilitation *continued*

### Support Groups

Patients and families come to our cancer center at various points during their diagnosis, therapy and treatment. When cancer comes to you, everyone close to you is affected. We offer many of our support programs on a weekly and monthly basis. Our goal is to provide physical, emotional and spiritual comfort to patients and their families through ongoing education, support and referrals to appropriate resources. Weekly or monthly meetings are open to all patients, regardless of hospital affiliation. Some of our current support groups include:

- **UsToo! (Prostate Cancer Support)**
- **Leukemia, Non-Hodgkin's Lymphoma and Myeloma Support**
- **Caregivers Support**
- **Grief Support**
- **Look Good...Feel Better**
- **Feel Good Fridays** – Volunteers provide stress-relieving activities for patients and caregivers on the first Friday of each month.
- **Colorectal Cancer Wellness**
- **Pink Broomstick Program**
- **Lung Group**
- **Gyn Wellness Group**

Other groups are held in conjunction with Cancer Services, Inc. and Wake Forest University Baptist Medical Center. Please see the Derrick L. Davis Forsyth Regional Cancer Center events calendar for more information on dates and times.

### NURSE NAVIGATOR PROGRAM

This program includes nurse educators that teach cancer patients about their diagnosis and treatment. They offer individualized guidance and support throughout treatment. Support is offered for patients diagnosed with breast, lung, esophageal and gastrointestinal cancers. We also have a Care Coordinator who provides assistance with financial needs and accessing community resources for outpatients.

### HIGH RISK CLINIC

Did you know that as many as one in 500 people carry genetic mutations that may put



them at increased risk for cancer? During a counseling session in our *High Risk Clinic*, we seek to help a person with a personal or family history of certain cancers make informed decisions about their medical management. Prior to each appointment, a family medical history is completed and used to determine individual probability of inheriting a genetic mutation, which can increase the risk of developing these cancers. This assessment is reviewed by a medical oncologist and discussed by trained genetic educators. Testing results are discussed at a follow-up appointment.

### COMMUNITY OUTREACH

Derrick L. Davis Forsyth Regional Cancer Center staff and associated physicians take part in community cancer-related events, give educational talks and serve on community boards. Our community outreach programs include:

- **Health fairs for businesses and for the community**
- **Cancer risk assessments**
- **Cancer Care Coalition** – publishes the *Guide to Resources and Services for Cancer Patients and Their Families*
- **Breast Cancer Coalition**
- **Susan G. Komen Triad Race for the Cure** – co-sponsors the annual race and serves on the board of local affiliates
- **Cancer awareness month informational displays**
- **Cancer Screenings**
- **Relay for Life**
- **Hospice Hope Run**
- **Community Partnership for End of Life Care**
- **Lung Cancer Awareness Walk**

# Data Analysis

Judith O. Hopkins, MD, *Chair, Cancer Committee*



## 2007 CASE SUMMARY

In 2007, we diagnosed and treated a total of 3,001 cases which was a one percent increase from 2006. There were 2,817 (94 percent) analytic, or newly diagnosed cases, and 184 (6 percent) non-analytic, or recurrent, cases. The analytic caseload includes 233 Class 6 cases which have traditionally been included in our analytic totals. The average follow-up for the year was 91 percent.

## Review of Primary Malignancies by Site

### ORAL CAVITY/PHARYNX

Cancers of the oral cavity diagnosed at Derrick L. Davis Forsyth Regional Cancer Center are predominantly found in the male population and about 57 percent of cases are diagnosed at Stage III or Stage IV. Our incidence is slightly higher than the U.S. incidence (1.8 percent vs. 2.3 percent).

### DIGESTIVE SYSTEM

Malignancies of the digestive system are predominantly colonic, rectal and anal cancer. In general, 53 percent are diagnosed at Stage 0-II. Our incidence of colorectal/anal cancer was 9 percent, which is lower than the national average (10.9 percent).



Our percentage of pancreatic cancer (2.1 percent) compares favorably to the national average of 2.5 percent.

### LUNG CANCER

At Derrick L. Davis Forsyth Regional Cancer Center lung cancer represents 17.62 percent of malignancies compared to the national average of 14.67 percent. Unfortunately, about 67 percent of lung cancer is diagnosed here at Stages III and IV. It is unfortunate that we live in an area with a high tobacco consumption. Until we decrease this consumption, our incidence of lung cancer will continue to rise.

### SKIN CANCER

Our incidence of melanoma fell below the national average for the fourth year with 2.7 percent compared to the nationwide average of 4.1 percent. Derrick L. Davis Forsyth Regional Cancer Center numbers do represent many of the melanoma cases diagnosed in the pathology department from physicians who are not on our medical staff, but exclude the melanoma cases which are slide review only.

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## Breast Cancer Screening

The Breast Clinic is a comprehensive mammography center, which offers digital mammography, ultrasound, cyst aspirations, needle localizations, needle core biopsies, ductograms and breast MRI. In addition, a mobile mammography unit serves businesses, industry and the community. The Breast Clinic promotes wellness and preventive care by sponsoring educational programs and by participation in health fairs. In 2007, the Breast Clinic performed 35,530 screening mammograms, which includes 5,723 mobile screenings. The mobile unit visited 86 companies and made 138 site visits. The number of total procedures done by the Breast Clinic in 2007 was 55,782.

## Cancer Data Base

The Cancer Data Base collects, manages and analyzes data on patients we have diagnosed or treated for cancer at the facilities that serve the cancer center. Established at Forsyth Medical Center in 1987, the data base expanded to include Medical Park Hospital in 1990, and began reporting the state incidence for Davie County Hospital in 1993. In 1995, we began collecting data from physician practices performing outpatient chemo-therapy. Data collection for Thomasville Medical Center began with 2002 data. Through the Data Base, we submit data on a quarterly basis to the Central Cancer Registry in Raleigh, North Carolina. The American College of Surgeons requires annual data submissions to the National Cancer Data Base in Chicago, Illinois, for approved cancer programs.

## Cancer Data Analysis *continued*

### BREAST CANCER

When looking at our incidence in comparison with the U.S. incidence from the ACS data, it must be remembered that the ACS does not count cases of in-situ cancer of the breast. The comparison numbers and the actual case numbers differ because of difference in calculation. Breast cancer makes up 16.4 percent of the cases of malignancy at Derrick L. Davis Forsyth Regional Cancer Center compared to the nationwide average of 12.4 percent. When Stage 0 cases are included, breast cancer is the leading diagnosis at our cancer center comprising 18.8 percent of our cases. The majority of breast cancer cases are diagnosed at highly curable stages with 83.6 percent being Stages 0-2. We believe that the breast navigator program and the dedicated breast tumor board play important roles for the improvement in early diagnosis, treatment and decreased mortality in breast cancer at our cancer center.

### OVARIAN CANCER

Ovarian cancer made up 2 percent of the cases, compared to 1.5 percent nationwide. This is reflected by our four board-certified gynecologic oncologists and the large referral base that they serve, rather than an overall increase in the amount of ovarian cancer in this region.

### PROSTATE CANCER

We saw an increase in the number of prostate cancer cases for 2006 and 2007. Derrick L. Davis Forsyth Regional Cancer Center had 13.33 percent of new cases as compared to the nationwide average of 15.14 percent. There were 345 new cases in 2007 as compared to 317 in 2006. This includes Class 6 cases.

### BLADDER CANCER

Bladder cancer comprises 4.5 percent of all malignancies at Derrick L. Davis Forsyth Regional



Cancer Center compared to a nationwide average of 4.6 percent. This is the first year that the rates have been comparable. Our incidence may be explained by the high tobacco consumption in this region, which would lead to a higher incidence of bladder cancer.

### THYROID CANCER

In 2007, 38 cases of thyroid malignancy were diagnosed. The incidence is slightly lower than the national average (1.4 percent vs. 2.3 percent). The majority (71 percent) of cases were diagnosed in Stage I, which lead to easy curability.

### BRAIN AND CNS MALIGNANCIES

Brain and CNS tumors are slightly higher in our region than the national average (1.7 percent vs. 1.4 percent); however, we have board-certified neurosurgeons on staff and this may reflect referral patterns rather than increased incidence. Registries are required to collect benign and malignant tumors. Derrick L. Davis Forsyth Regional Cancer Center's percentage reflects both tumor types.

### NON-HODGKIN'S LYMPHOMA

While Non-Hodgkin's Lymphoma has been rising nationwide, there have been fluctuations at Derrick L. Davis Forsyth Regional Cancer Center from 76 cases in 2003 to 81 cases in 2004; 91 cases in 2005 to 76 cases in 2006. In 2007 the number jumped to 98 cases. The cancer center percentage of 3.7 was slightly lower than the nationwide percentage of 4.3 percent. Multiple myeloma incidence continues a trend of lower rates than the U.S. In 2007, the cancer center incidence was 1.7 percent as compared to the national incidence of 1.3 percent.

### SUMMARY

The creation of site specific navigator and tumor board programs should impact the number of patients participating in clinical trials, improve patient access to care and improve outcomes.

## A Patient's Response to the Breast Health Educator/Navigator Program

*"My experience with the Breast Health Educator has been very positive. Just knowing that there was a caring, knowledgeable person (knowledge also in my personal diagnosis and treatment) who was there for me and my family to answer questions and reassure was most important. Putting me in contact with other services that I otherwise would not have known were available has also been very helpful. Being there immediately after surgery and the calls following my surgery were appreciated. This is the kind of support that is needed for breast cancer patients and their families. I feel very fortunate that the Breast Health Educator was there for me during what has been one of the hardest times in my life."*

# Cancer Conferences and Tumor Boards

Our cancer conferences are didactic lectures providing continuing education in oncology for the medical-dental staff in Novant Health Triad Region. Cases from each facility are presented at the conferences held in the Murphy Conference Room at the Derrick L. Davis Forsyth Regional Cancer Center. Some conferences are region-wide through video conferencing with Thomasville Medical Center.

## GENERAL TUMOR BOARD

We hold weekly general tumor board meetings on Mondays to allow oncology-related specialists to consult on specific patient diagnoses and treatments. This collaboration helps us ensure the best possible care for each patient.

## BREAST TUMOR BOARD

This site specific conference was started in order to provide more coordinated care. The Breast Navigator selects the patients each week for case review. An average of five to six patients have interdisciplinary consultation weekly.

## THORACIC TUMOR BOARD

This site specific conference was started in order to provide more coordinated care for patients diagnosed with lung and esophageal cancer. The Thoracic Navigator selects the patients each week for case review. An average of five to six patients have interdisciplinary consultation weekly.

## GI TUMOR BOARD

This site specific conference was started in the spring of 2005. This conference is held on the second and fourth Thursdays of the month with an emphasis on colorectal cancer. NCCN guidelines for GI malignancies are reviewed periodically through the year.

## UROLOGY TUMOR BOARD

This site specific conference was started in the summer of 2006 and was established as a monthly meeting on Friday mornings. The NCCN guidelines were also reviewed for the urological sites at this conference. The conference changed to a monthly noon meeting on the first Tuesday of each month in 2007.

## CONFERENCE SUMMARY

	Prospective	Retrospective	Total
<b>NUMBER OF CASES</b>	753 (97 percent)	24 (3 percent)	777 (31 percent)
<b>MINIMUM REQUIREMENT</b>	75 percent	25 percent	250 (10 percent)



## DLDFRCC SITE DISTRIBUTION, 2007 ANALYTIC CASES

PRIMARY SITE	TOTAL	CLASS		SEX		STAGE						
		0,1,2	6	M	F	0	I	II	III	IV	UNK	N/A
<b>ALL SITES</b>	<b>2817</b>	<b>2584</b>	<b>233</b>	<b>1317</b>	<b>1500</b>	<b>304</b>	<b>683</b>	<b>637</b>	<b>432</b>	<b>393</b>	<b>75</b>	<b>293</b>
<b>ORAL CAVITY</b>	47	47	0	33	14	0	12	6	5	22	2	0
LIP	0	0	0	0	0	0	0	0	0	0	0	0
TONGUE	12	12	0	7	5	0	2	2	3	5	0	0
OROPHARYNX	0	0	0	0	0	0	0	0	0	0	0	0
HYPOPHARYNX	1	1	0	1	0	0	0	0	0	1	0	0
OTHER	34	34	0	25	9	0	10	4	2	16	2	0
<b>DIGESTIVE SYSTEM</b>	419	411	8	210	209	20	74	91	94	97	10	33
ESOPHAGUS	28	25	3	22	6	1	1	5	5	14	2	0
STOMACH	40	39	1	25	15	1	8	2	5	15	1	8
COLON	157	156	1	70	87	11	36	39	45	23	2	1
RECTUM	80	77	3	45	35	3	21	13	23	11	1	8
ANUS/ANAL CANAL	14	14	0	2	12	3	4	5	0	1	1	0
LIVER	14	14	0	9	5	0	2	1	7	2	1	1
PANCREAS	56	56	0	26	30	0	0	20	6	28	2	0
OTHER	30	30	0	11	19	1	2	6	3	3	0	15
<b>RESPIRATORY SYSTEM</b>	495	494	1	287	208	3	118	31	154	169	15	5
NASAL/SINUS	2	2	0	1	1	0	1	0	0	0	0	1
LARYNX	35	35	0	28	7	3	14	4	7	7	0	0
LUNG/BRONCHUS	456	455	1	256	200	0	103	26	147	161	15	4
OTHER	2	2	0	2	0	0	0	1	0	1	0	0
<b>BLOOD &amp; BONE MARROW</b>	130	84	46	70	60	0	0	0	0	0	0	130
LEUKEMIA	71	45	26	38	33	0	0	0	0	0	0	71
MULTIPLE MYELOMA	45	29	16	27	18	0	0	0	0	0	0	45
OTHER	14	10	4	5	9	0	0	0	0	0	0	14
<b>BONE</b>	2	2	0	1	1	0	1	0	0	0	1	0
<b>CONNECT/SOFT TISSUE</b>	11	10	1	3	8	0	3	1	0	2	3	2
<b>SKIN</b>	153	55	98	80	73	76	41	14	4	6	8	4
MELANOMA	146	50	96	76	70	76	41	13	4	5	7	0
OTHER	7	5	2	4	3	0	0	1	0	1	1	4
<b>BREAST</b>	532	531	1	10	522	106	201	138	58	17	10	2
<b>FEMALE GENITAL</b>	199	197	2	0	199	15	98	11	41	17	9	8
CERVIX UTERI	20	20	0	0	20	1	7	2	6	4	0	0
CORPUS UTERI	89	89	0	0	89	1	64	4	12	4	2	2
OVARY	53	52	1	0	53	1	17	4	19	6	3	3
VULVA	25	24	1	0	25	11	6	1	2	3	2	0
OTHER	12	12	0	0	12	1	4	0	2	0	2	3

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**DLDFRCC SITE DISTRIBUTION, *continued***

PRIMARY SITE	TOTAL	CLASS		SEX	STAGE							
		0, I, 2	6		M	F	0	I	II	III	IV	UNK
<b>MALE GENITAL</b>	359	298	61	359	0	1	11	305	23	12	7	0
PROSTATE	345	285	60	345	0	0	0	303	23	12	7	0
TESTIS	10	10	0	10	0	0	8	2	0	0	0	0
OTHER	4	3	1	4	0	1	3	0	0	0	0	0
<b>URINARY SYSTEM</b>	211	207	4	148	63	83	69	19	14	16	8	2
BLADDER	119	116	3	88	31	74	23	12	1	7	2	0
KIDNEY/RENAL	84	83	1	55	29	5	46	5	11	9	6	2
OTHER	8	8	0	5	3	4	0	2	2	0	0	0
<b>BRAIN &amp; CNS</b>	45	45	0	22	23	0	0	0	0	0	0	45
BRAIN (BENIGN)	1	1	0	0	1	0	0	0	0	0	0	1
BRAIN (MALIGNANT)	21	21	0	13	8	0	0	0	0	0	0	21
OTHER	23	23	0	9	14	0	0	0	0	0	0	23
<b>ENDOCRINE</b>	53	53	0	13	40	0	27	1	8	2	0	15
THYROID	38	38	0	7	31	0	27	1	8	2	0	0
OTHER	15	15	0	6	9	0	0	0	0	0	0	15
<b>LYMPHATIC SYSTEM</b>	111	100	11	57	54	0	27	20	31	32	1	0
HODGKIN'S DISEASE	13	12	1	4	9	0	2	5	5	1	0	0
NON-HODGKIN'S	98	88	10	53	45	0	25	15	26	31	1	0
<b>UNKNOWN PRIMARY</b>	36	36	0	20	16	0	0	0	0	0	0	36
<b>OTHER/ILL-DEFINED</b>	14	14	0	4	10	0	1	0	0	1	1	11

**DLDFRCC CANCER INCIDENCE LOCAL & NATIONAL COMPARISON**

Site	DLDFRCC Percentage	US
<b>LUNG/BRONCHUS</b>	17.62	14.76
<b>BREAST</b>	16.46	12.49
<b>PROSTATE</b>	13.33	15.14
<b>COLORECTAL/ANUS</b>	9.04	10.96
<b>BLADDER</b>	4.59	4.64
<b>NHL</b>	3.78	4.37
<b>CORPUS UTERI</b>	3.4	2.7
<b>KIDNEY/RENAL</b>	3.05	3.53
<b>LEUKEMIA</b>	2.74	3.06
<b>MELANOMA</b>	2.7	4.15
<b>ALL OTHER SITES</b>	2.5	2.38
<b>PANCREAS</b>	2.2	2.57
<b>OVARY</b>	2.01	1.55
<b>ORAL CAVITY</b>	1.81	2.38
<b>BRAIN/CNS</b>	1.73	1.42
<b>MULTIPLE MYELOMA</b>	1.73	1.38
<b>THYROID</b>	1.5	2.32
<b>STOMACH</b>	1.5	1.47
<b>LARYNX</b>	1.23	0.78
<b>OTHER GI</b>	1.12	0.72
<b>ESOPHAGUS</b>	1.04	1.08
<b>OTHER FEMALE</b>	0.96	0.39
<b>CERVIX UTERI</b>	0.73	0.77
<b>OTHER ENDOCRINE</b>	0.6	0.14
<b>LIVER</b>	0.54	1.33
<b>HODGKIN'S DISEASE</b>	0.5	0.57
<b>SOFT TISSUE</b>	0.42	0.64
<b>TESTIS</b>	0.38	0.55
<b>OTHER SKIN</b>	0.27	0.35
<b>OTHER RESPIRATORY</b>	0.15	0.33
<b>OTHER URINARY</b>	0.15	0.14
<b>PENIS/OTHER MALE</b>	0.11	0.09
<b>BONE</b>	0.07	0.16

DLDFRCC CASES OMITTED = 230  
DLDFRCC N = 2,587; US N = 1,444,920

## FREQUENCY REPORT, SUMMARY BY SITE BY ACCESSION YEAR CANCER CASES 2003-2007 ANALYTIC + CLASS 6\*

SITE CODE	2003 # cases	2004	2005	2006	2007	Total	Overall
LIP	1	1	2	3	0	7	0
BASE OF TONGUE	8	8	9	5	8	47	0.3
OTHER PARTS OF TONGUE	2	7	12	7	4	35	0.2
GUM	2	2	1	2	0	11	0.1
FLOOR OF MOUTH	4	2	5	5	3	23	0.1
PALATE	0	1	3	1	4	12	0.1
OTHER/UNSPECIFIED PARTS OF MOUTH	8	1	1	2	2	19	0.1
PAROTID GLAND	6	8	3	9	2	34	0.2
OTHER SALIVARY GLANDS	0	2	1	2	1	7	0
TONSIL	8	12	15	14	15	72	0.4
OROPHARYNX	1	4	2	7	0	15	0.1
NASOPHARYNX	6	4	0	0	4	20	0.1
PYRIFORM SINUS	4	5	3	2	3	20	0.1
HYPOPHARYNX	4	6	5	2	1	18	0.1
OTHER ORAL CAVITY	0	0	0	0	0	4	0
ESOPHAGUS	29	17	21	23	28	141	0.9
STOMACH	46	30	40	48	40	246	1.5
SMALL INTESTINE	4	11	11	13	15	63	0.4
COLON	191	215	207	211	164	1147	7
RECTOSIGMOID JUNCTION	15	19	18	16	16	120	0.7
RECTUM	55	71	65	60	64	369	2.3
ANUS & ANAL CANAL	10	13	7	16	14	71	0.4
LIVER & BILE DUCTS	10	16	18	15	14	83	0.5
GALLBLADDER	2	3	3	5	4	24	0.1
OTHER BILIARY TRACT	7	5	9	14	4	53	0.3
PANCREAS	60	53	65	63	56	346	2.1
OTHER DIGESTIVE ORGANS	0	0	0	0	0	1	0
NASAL CAVITY & MIDDLE EAR	1	3	3	2	1	11	0.1
ACCESSORY SINUSES	3	0	1	2	1	8	0
LARYNX	29	34	33	21	35	173	1.1
TRACHEA	1	0	0	0	0	2	0
BRONCHUS & LUNG	385	417	428	431	456	2466	15.1
THYMUS	1	1	3	2	2	11	0.1
HEART MEDIASTINUM PLEURA	2	4	6	1	2	17	0.1
BONES JOINTS & ARTICULAR CARTILAGE	0	1	0	0	0	2	0
BONES JOINTS & OTHER UNSPECIFIED SITES	2	2	1	1	2	8	0
BLOOD & BONE MARROW	116	127	110	110	129	698	4.3
SKIN	167	138	141	134	152	1045	6.4

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**FREQUENCY REPORT, continued**

SITE CODE	2003	2004	2005	2006	2007	Total	Overall
	# cases						
PERIPHERAL NERVES & AUTONOMIC NERVOUS SYSTEM I		0	1	0	1	3	0
RETROPERITONEUM & PERITONEUM	1	2	5	5	10	27	0.2
CONNECTIVE SUBCUTANEOUS OTHER SOFT TISSUE	18	10	12	13	11	69	0.4
BREAST	424	460	455	464	532	2783	17
VULVA	37	17	23	28	26	159	1
VAGINA	1	4	3	3	2	18	0.1
CERVIX UTERI	152	28	22	27	20	389	2.4
CORPUS UTERI	88	88	91	92	89	522	3.2
UTERUS NOS	0	0	0	0	0	2	0
OVARY	60	61	82	56	53	383	2.3
OTH FM. GENITAL ORGN.	1	1	0	6	6	16	0.1
PLACENTA	1	4	3	1	4	14	0.1
PENIS	1	4	0	2	4	13	0.1
PROSTATE GLAND	289	328	276	320	345	1885	11.5
TESTIS	11	6	6	10	11	55	0.3
KIDNEY64	53	60	72	66	70	385	2.4
"KIDNEY, RENAL PELVIS"	4	5	7	6	14	43	0.3
URETER	8	3	2	7	8	32	0.2
URINARY BLADDER	89	86	104	104	119	592	3.6
OTHER & UNSPECIFIED URINARY ORGANS	1	0	2	1	0	5	0
ORBIT, NOS and OVERLAPPING LESION"	0	1	1	1	1	4	0
MENINGES	16	42	46	31	16	171	1
BRAIN	34	40	39	35	22	195	1.2
OTHER NERVOUS SYSTEM	5	10	8	8	7	41	0.3
THYROID GLAND	25	32	30	48	38	209	1.3
ADRENAL GLAND	2	1	0	1	0	7	0
OTHER ENDOCRINE GLANDS	10	9	10	16	15	71	0.4
LYMPH NODES	67	83	103	89	111	515	3.1
UNK PRIMARY	57	44	62	42	36	300	1.8
<b>OVERALL TOTALS</b>	<b>2646</b>	<b>2672</b>	<b>2717</b>	<b>2731</b>	<b>2817</b>	<b>16357</b>	<b>100</b>



# Primary Malignant Brain Tumor

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**Amy Hughes**  
**Cathy Rimmer**

In the years 2001-2005, 58 cases of glioblastoma multiforme (GBM), the most common malignant brain tumor, were diagnosed in Forsyth County. Approximately 72 percent of all patients with glioblastoma multiforme diagnosed in Forsyth County are first treated at DLDFRCC. In 2007, the Cancer Center and the Neurosciences formally coordinated a multi-disciplinary Neuro-Oncology program, including stereotactic radiosurgery and access to selected clinical trials.

## INCIDENCE

The incidence of brain tumors is tracked by the Central Brain Tumor Registry of the United States (CBTRUS; <http://www.cbtrus.org/>), which collects data from 19 state cancer registries that include information on both malignant and non-malignant primary brain tumors, and contains the largest aggregation of population-based data on the incidence of all primary brain and central nervous system tumors in the United States (1). Currently, an estimated 51,410 new cases of primary non-malignant and malignant brain and central nervous system tumors are expected to be diagnosed in the United States annually, with an estimated annual 12,740 deaths. The most frequently reported histology is a predominately non-malignant tumor, meningioma, which accounts for more than 32 percent of all tumors, followed by the highly malignant GBM at 18.5 percent.

## SIGNS AND SYMPTOMS

The most common symptoms are headaches, seizures, lateralized weakness

and/or numbness. Loss of verbal comprehension, speech and personality changes are also frequently seen.

## EARLY DETECTION AND RISK REDUCTION STRATEGIES

There is no known role for routine screening in the general population. There are no known external risk factors, and thus no clearly-defined risk prevention strategies. The effects of cellular telephone use on the incidence of malignant brain tumors is still under investigation; preliminary results from some studies suggest a slightly higher risk with extensive phone use (2-7).

## DIAGNOSIS

For both benign and malignant central nervous system tumors, magnetic resonance imaging (MRI) with contrast is the gold standard for imaging. This provides excellent visualization of the GBM and areas of surrounding brain infiltration by the tumor. MRI registration with the radiation therapy treatment planning CT scan is essential for target definition (8,9). The diagnosis is confirmed, whenever possible, by surgical biopsy. Additional imaging studies include MRI spectroscopy and PET scans. These can reflect the biologic characteristics of CNS tumors, such as tumor metabolism, proliferation, oxygenation and blood flow, and the function of surrounding normal brain, and can also assist in differentiating active tumor versus necrosis after radiation therapy (10-14).

## PROGNOSTIC FACTORS

Factors prognostic for survival after treatment of GBM include age at time of diagnosis, performance status, and extent of resection. These are used to classify patients into four prognostic classes, each with different anticipated survival outcomes after treatment (15-17). A similar classification exists for patients with recurrent GBM (18).

## STAGING AND GRADING

Primary brain tumors are not typically described by TNM staging, but by histology and grade, based on the World Health Organization standardized classification (19). GBM carries the highest malignant grade, IV of IV.

## TREATMENT AND OUTCOMES

Multimodality therapy for CNS tumors may consist of medical treatment, surgical resection for decompression and/or to obtain a tissue diagnosis, radiation therapy and chemotherapy. Of all treatment modalities, radiation therapy has the statistically greatest impact on survival with GBM, followed by temozolomide chemotherapy and then surgical resection (15, 20-22). Patterns of care (POC) in the United States are tracked by the Glioma Outcomes Project (GOP; <http://www.outcomes-umassmed.org/glioma/>), a voluntary, physician-directed project which collects data from both community and academic cancer centers to improve outcomes for patients with glioma. The GOP patterns of care study shows that five percent of all patients enter hospice upon diagnosis (23).

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## Primary Malignant Brain Tumor *continued*

### Medical Treatment

Medical treatment generally consists of steroids with or without mannitol, in order to relieve mass effect of the tumor (24-26). Stabilization of patients having seizures in order to perform imaging and make management decisions is critical, since failure to control seizures can potentially lead to physical injuries, airway compromise, secondary brain hypoxia/injury, or coma (27, 28). There is no clear evidence to support the prophylactic use of anticonvulsants in patients diagnosed with a brain tumor in the absence of documented seizures (29, 30). However, patients potentially at risk for seizures based on tumor size and/or location can be placed on anticonvulsants based on the clinical judgment of the treating physicians.

### Surgical Therapy

Symptoms are usually related to mass effect, so rapid surgical decompression by resection or debulking is the treatment of choice for such problems when surgery can be safely performed based on patient

performance status or tumor location. The GOP patterns of care study has shown that in the U.S., five percent of patients undergo biopsy only, 27 percent undergo subtotal resection and 47 percent undergo gross total resection (23). One large retrospective analysis, one prospective trial, and the RTOG recursive partitioning analysis (RPA) classification system have demonstrated that a more extensive resection predicts for longer median survival (17, 22, 31).

### Radiation Therapy

Radiation therapy typically consists of six weeks of daily treatment, five days a week, for definitive therapy. For palliation, two to three weeks of treatment are commonly given. The GOP patterns of care study has shown that in the U.S., 90 percent of patients undergo external beam radiation therapy (23). Moderate radiation dose-escalation has shown a survival benefit (32-35). Strategies to significantly escalate radiation dose beyond the standard six-week course, notably stereotactic radiosurgery and brachytherapy, have

been evaluated in Phase III studies, but neither approach has yielded a significant improvement in survival or local control (34, 35).

### Chemotherapy

The CBTRUS 2008 report describes the data collected from 1973-2004 (1). During this time period, radiation therapy was given with intravenous chemotherapy for newly-diagnosed GBM, with median survival times ranging from 7.1 to 17.5 months (17). In 2005, the international standard of care for the definitive treatment of GBM changed after the EORTC published a Phase III study demonstrating significantly improved survival with the addition of concomitant and sequential oral temozolomide chemotherapy to radiation therapy (21). The two-year survival rate was 26.5 percent with radiation therapy plus temozolomide and 10.4 percent with radiation therapy alone (36). Table 1 compares the outcomes of patients treated with radiation therapy (RT) alone, the addition of intravenous chemotherapy (BCNU) and the addition of temozolomide.

**TABLE 1: OUTCOMES AFTER TREATMENT OF NEWLY-DIAGNOSED GBM**

		Median survival (months)	1-year survival (%)	2-year survival (%)	3-year survival (%)	5-year survival (%)	Reference
Overall			29.6	9.0	5.2	3.4	(1)
RPA III	RT	15.0		20.0			(36)
	RT + BCNU	17.1	70.0	30.0	20.0	14.0	(15,17)
	RT + Temozolomide	21.4		43.4			(36)
RPA IV	RT	13.0			11.0		
	RT + BCNU	11.2	46.0	17.0	7.0	4.0	(15,17)
	RT + Temozolomide	16.3		27.9			(36)
RPA V/VI	RT	9.0		6.0			
	RT + BCNU	7.5	28.0	5.0	1.0	0.0	(15,17)
	RT + Temozolomide	10.3		16.5			(36)

continued next page

## Primary Malignant Brain Tumor *continued*

### PATIENT MANAGEMENT

The management of GBM is multidisciplinary at DLDFRCC. All patients are evaluated by neurosurgery, radiation oncology, medical oncology and neurology. Primary central nervous system cases are also presented at a regular multi-disciplinary tumor board attended by physicians from the above disciplines as well as from pathology and radiology. The physicians all have specific expertise in the management of primary brain tumors. In addition, all staff caring for brain tumor patients are invited to attend the conference, including physician assistants, nurse practitioners, cancer registrars, nurses and radiation therapists.

### PATIENT OUTCOMES

In order to compare our patient outcomes in the temozolomide era with those described in the peer-reviewed literature, we evaluated all patients diagnosed with GBM in 2006, since this cohort of 23 patients now has two-year follow-up.

**TABLE 2: OVERALL INCIDENCE BY PROGNOSTIC CLASS**

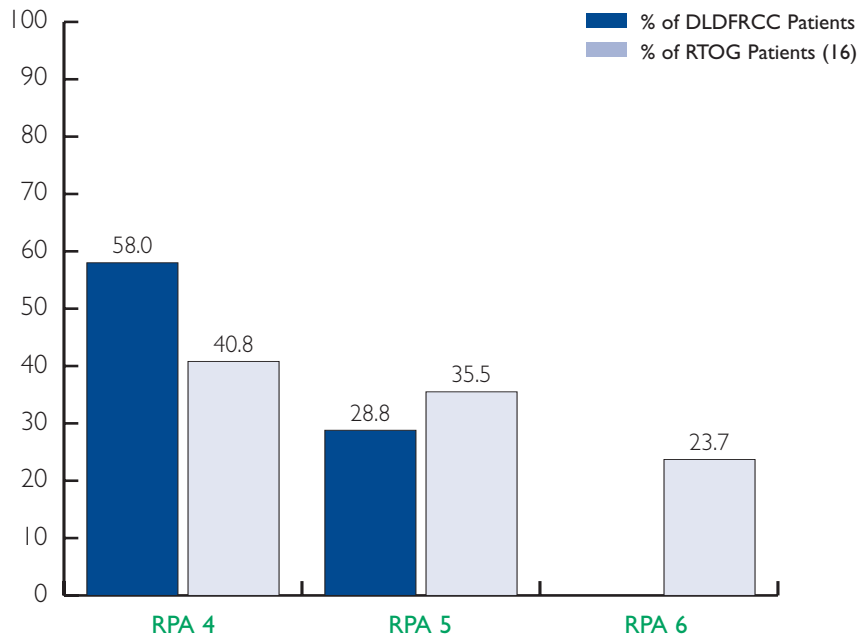


Table 2 shows that in 2006, it appeared that we had less of the patients in the worst prognostic class than the published average. However, due to the small number of patients overall, we cannot state if this was significantly different.

**TABLE 3: TREATMENT COURSE**

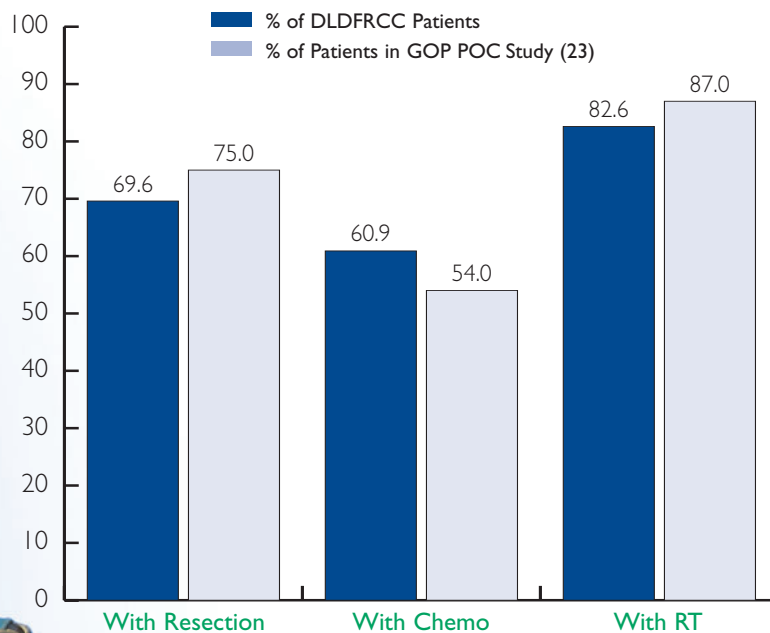


Table 3 shows that at DLDFRCC, the number of patients undergoing surgery, radiation therapy, or chemotherapy did not appear markedly different from the published averages.

continued next page



## Primary Malignant Brain Tumor *continued*



### CLINICAL TRIALS

The GOP patterns of care study showed that approximately 21 percent of patients enter clinical trials (23). Thus, in 2007, the Neuro-Oncology program at DLDFRCC began to make clinical trials available for patients with primary and metastatic brain tumors, with the goal of determining if our patient population would be interested in enrolling on these studies at a community cancer center, since North Carolina is home to two academic Neuro-Oncology programs. We selected one study for each diagnosis (primary brain tumors, brain metastases, and quality of life after treatment) based on our patient population providing adequate numbers for realistic enrollment. While it is not permitted to comment on outcomes before publication of trial results in the peer-reviewed literature, we can disclose that 100 percent of eligible patients are screened for eligibility by our clinical trials staff. Over time and with further experience, we plan to add additional studies if they provide a good match with our patient demographics.

**TABLE 4: SURVIVAL FOR ALL PATIENTS TREATED WITH RADIATION THERAPY AND TEMOZOLOMIDE**

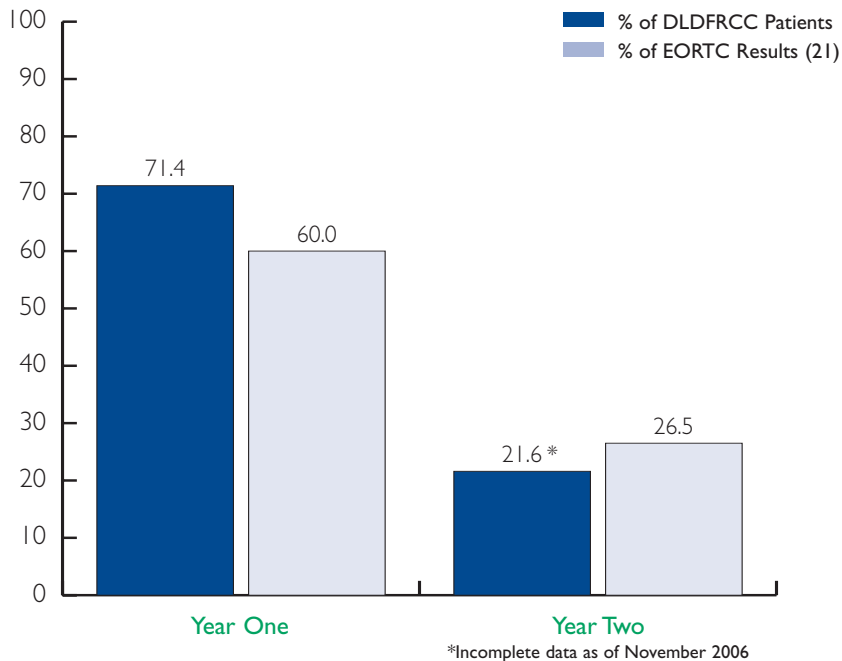


Table 4 shows that the survival of our GBM patients treated with modern standard-of-care therapy is comparable to that seen at academic medical centers.

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## Primary Malignant Brain Tumor *continued*

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