CANCER PROGRAM
2008 ANNUAL REPORT
Published December 2009

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# TABLE OF CONTENTS

HOLMES REGIONAL MEDICAL CENTER/PALM BAY HOSPITAL CANCER ............................................................ 1
PROGRAM OFFICE—A MESSAGE FROM THE DIRECTOR

AMERICAN COLLEGE OF SURGEONS COMMISSION ON CANCER .......................................................... 2
2008 CANCER LIAISON PHYSICIAN STATEMENT

CANCER REGISTRY ................................................................................................................................. 3
CANCER PROGRAM OFFICE .................................................................................................................. 6
ONCOLOGY UNIT ................................................................................................................................. 7
RADIATION ONCOLOGY SERVICES .................................................................................................... 8
DEPARTMENT OF RADIOLOGY ............................................................................................................ 9
MEDICAL REHABILITATIVE SERVICES .............................................................................................. 11
NUTRITIONAL SERVICES .................................................................................................................. 12
HOSPICE OF HEALTH FIRST ............................................................................................................... 14
DEPARTMENT OF PATHOLOGY ............................................................................................................ 15
PASTORAL CARE ................................................................................................................................. 16
PHARMACY .......................................................................................................................................... 17
QUALITY OUTCOMES MANAGEMENT ............................................................................................. 18
HYPERBARIC OXYGEN ......................................................................................................................... 19
ARTS IN MEDICINE PROGRAM .......................................................................................................... 20
BLOOD BANK ......................................................................................................................................... 21
AMERICAN CANCER SOCIETY ............................................................................................................. 22
CANCER REGISTRY DATA ..................................................................................................................... 23
2008 SITE-SPECIFIC STUDY: LUNG CANCER .................................................................................... 26
HOLMES REGIONAL MEDICAL CENTER/PALM BAY HOSPITAL NEOPLASTIC DISEASE COMMITTEE ...... 36
PARTICIPANTS IN 2008
Holmes Regional Medical Center and Palm Bay Hospital are two of the hospitals within the Health First healthcare system in Brevard County, Florida. As a local, not-for-profit integrated healthcare network, we strive to provide the highest possible level of cancer care and services to our community. Our accreditation by the American College of Surgeons Commission on Cancer as a Comprehensive Community Hospital Cancer Program is a distinguished designation that honors the collaborative work of Oncologists, Surgeons, Pathologists, other physicians, nurses, Cancer Registry staff, and ancillary personnel in the specialized care of cancer patients in our hospitals.

This report highlights the work of many of the departments that deliver the excellent and compassionate health care for which our hospitals have become known. From Laboratory and Pathology services to specialized Nursing care, and from inpatient services to community-based support groups, we are there to provide cancer patients at our hospitals with professional, comprehensive, and loving care.

In 2008, all Health First facilities, including Holmes Regional Medical Center and Palm Bay Hospital, became “tobacco-free” campuses (inside and outside on the grounds of all our facilities). We are proud of the message that this brings to our community. We worked with organizations such as the American Cancer Society and Florida Department of Health educators to make this important transition. Since smoking has such an impact on cancer incidence, our site study in this annual report focuses on Lung Cancer. I am sure you will find reading of the report both useful and informative.

Sincerely,

Patricia N. Donahue, RNC, MSN
The Cancer Program for Holmes Regional Medical Center/Palm Bay Hospital has been accredited since the program’s inception in 1985. With this accreditation, we are able to meet the needs of cancer patients and their families in our community by continuing to evaluate existing programs, improving their quality and availability, as well as creating new services and events.

The Holmes Regional Medical Center/Palm Bay Hospital Cancer Registry’s analytic and non-analytic 2008 patient cases reflect a significant increase in Breast Cancer cases — from 285 cases in 2007 to 347 cases in 2008. Our Lung, Stomach, Liver, Pancreas, Esophageal and Head/Neck Cancer cases also increased. These increases can be directly related to the addition of new medical specialty physicians at our hospitals in Pulmonary Medicine, Gastroenterology, Otolaryngology, and General Surgery who are diagnosing and/or treating more of these types of cancers in our hospitals.

We noted a decrease in the number of Prostate and Bladder Cancer cases admitted to our facilities in 2008. These decreases directly reflect the availability of diagnostic procedures such as prostate biopsy and bladder excisional biopsies in physician offices, thereby eliminating the need for inpatient or outpatient hospital admissions. Radiation therapy, chemotherapy and hormone therapy are now primarily administered in physician offices. We are certain that patients who are diagnosed and/or treated with Prostate and Bladder Cancer continue to receive the best care at any of our Urology physicians’ diagnostic and/or treatment areas.

Our two hospitals’ Cancer Registry data was submitted to the National Cancer Data Base (NCDB). In this way, our Cancer Registry data is compiled with data from other hospitals and medical facilities throughout the nation. The NCDB compilation data are important for data comparison and aids us in comparing incidence of cancers at our facilities with the nation and Florida. We continue to monitor newly released yearly information for the NCDB Benchmark Colon Cancer (CPR-3) Site Study and update our patient information accordingly. In fact, we are at 100% in the adjuvant treatment follow-back on our Colon and Breast Cancer cases.
Holmes Regional Medical Center/Palm Bay Hospital Cancer Registry — Cases in 2008

The Cancer Registry at Holmes Regional Medical Center maintains the Cancer Registries for Holmes Regional Medical Center and Palm Bay Hospital. The two combined Cancer Registries reported a total of 1904 cases in 2008, including both analytic and non-analytic malignancies.

What is a Cancer Registry?
A Cancer Registry is an information system designed for the collection, management, and analysis of data on persons with the diagnosis of a malignant or neoplastic disease (cancer). The Cancer Registries at Holmes Regional Medical Center and Palm Bay Hospital maintain all data on all patients diagnosed and/or treated for cancer at their facility and all patients diagnosed elsewhere with active disease upon admission to our facilities. We report cancer cases to Florida Cancer Data Systems, a division of the Florida Department of Health, as required by state law.

Why maintain a Cancer Registry?
Maintaining a Cancer Registry ensures that health officials have accurate and timely information, while ensuring the availability of data for treatment, research, and educational purposes.
- Local, state, and national cancer agencies use cancer registry data in defined areas to make important public health decisions that maximize the effectiveness of limited public health funds, such as the placement of screening programs.
- Cancer registries are valuable research tools for those interested in the etiology, diagnosis, and treatment of cancer.
- Fundamental research on the epidemiology of cancer is initiated using the accumulated data.
- Lifetime follow-up is an important aspect of the cancer registry. Current patient follow-up serves as a reminder to physicians and patients to schedule regular clinical examinations and provides accurate survival information.

How is cancer registry data used?
Public health and medical providers utilize cancer registry data in a wide variety of ways. Specifically, the data is used to:
- Provide follow-up information for cancer surveillance
- Calculate survival rates by utilizing various data items and factors
- Provide information for cancer program activities
- Analyze referral patterns
- Allocate resources at the healthcare facility, the community, region, or state level
- Develop educational programs for healthcare providers, patients, and the general public
- Report cancer incidence as required under state law
- Evaluate efficacy of treatment modalities

How do cancer registries ensure patient confidentiality?
Confidentiality of patient-identifying information and related medical data is strictly maintained at each cancer registry. Aggregate data can be and is analyzed and published without any patient identifiers.

Holmes Regional Medical Center/Palm Bay Hospital Cancer Registry Staff
The Certified Tumor Registrar (CTR) and Oncology Abstractor for the Cancer Registry at Holmes Regional Medical Center report cancer cases to the Florida Cancer Data Systems by summarizing patients’ medical records and translating clinical information into standard Oncology coding language. All treatment information is required to be obtained for all patients diagnosed and/or treated at Holmes Regional Medical Center and Palm Bay Hospital, regardless of where the treatment is performed.

The Registry Data Assistant provides lifetime follow-up of all patients diagnosed and/or treated at our facilities. Follow-up data is acquired through physician offices,
the Social Security Death Index, and online access to county public records.

**National Cancer Data Base (NCDB) reporting**
Annually, the Cancer Registry at Holmes Regional Medical Center submits information to the NCDB to be compiled into a national database for survival and outcome studies.

**Quality review of our Cancer Registry’s data**
Quality reviews of our Cancer Registry data are performed by physicians’ reviews with the Certified Tumor Registrar (CTR). The CTR provides outcome of the quality review audits in QA reports to the Neoplastic Disease Committee. These QA reports strengthen the Neoplastic Disease Committee’s monitoring of compliance throughout the year.

**About the Holmes Regional Medical Center and Palm Bay Hospital monthly Tumor Board**
The Holmes Regional Medical Center/Palm Bay Hospital Certified Tumor Registrar coordinates and facilitates a monthly Tumor Board meeting, which is open to all Medical Staff members, Cancer Registry staff, and allied health professionals. Our Tumor Board meetings provide an arena to discuss management and current knowledge of cancer prevention, early detection, diagnosis, treatment, and follow-up care of newly diagnosed cancer patients and also serve as an educational forum for Medical Staff, Cancer Registry staff and allied health professionals. In 2008, Medical Staff members began receiving one (1) hour of Continuing Medical Education (CME) credit for each Tumor Board meeting they attended.

**2008 professional education**
Continuing Medical Educational activities ensure that the members of our cancer care team possess current knowledge of cancer prevention, early detection, diagnosis, treatment, and follow-up care.

During 2008, the Neoplastic Disease Committee in conjunction with the Holmes Regional Medical Center/Palm Bay Hospital Continuing Medical Education Committee promoted increased knowledge through offering the following (see top of next column):

<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Presentation/Speaker</th>
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<tbody>
<tr>
<td>1/11/2008</td>
<td>“Hyperbaric Oxygen Therapy in 21st Century” Richard E. Moon, MD, CM, FRCPC Duke University Medical Center</td>
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<tr>
<td>2/29/2008</td>
<td>“Standard of Care for Metastatic Colorectal Cancer Still a Shifting Paradigm” George P. Kim, MD Mayo Clinic College of Medicine, Jacksonville Florida</td>
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<tr>
<td>3/28/2008</td>
<td>“Selected Updates on Non-Hodgkin’s Lymphoma from Recent ASH Meeting” Michael W. Schuster, MD Weill Medical College of Cornell University</td>
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<tr>
<td>4/4/2008</td>
<td>“Neuroimaging in Neuro-oncology” Laszio L. Mechtler, MD State University of New York at Buffalo</td>
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<tr>
<td>5/2/2008</td>
<td>“Current Standards and New Advances in the Treatment of HER-2 Positive Breast Cancer” Sanjay R. Jain, MD, PhD Emory University School of Medicine</td>
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<tr>
<td>6/27/2008</td>
<td>“Breast Cancer Management: Updates, Advances, and New Options” Issam Makhoul, MD University of Arkansas</td>
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<tr>
<td>10/31/2008</td>
<td>“Tobacco-Free Campuses — 11/20/2008” Michael Ott, MD, Pulmonary Medicine Holmes Regional Medical Center Medical Staff Member (See Dr. Ott’s Lung Cancer Site Study in this report.)</td>
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<tr>
<td>11/21/2008</td>
<td>“Hereditary Cancer Syndromes” Lisa Duhaime, MD, Medical Oncology Holmes Regional Medical Center Medical Staff Member</td>
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2008 Cancer Registry staff education:
Ongoing cancer-related education enhances knowledge and skills. To facilitate accurate data collection and gain or maintain credentials, all members of the Cancer Registry staff participate in ongoing cancer-related education at the local, state, regional, and national levels.

The Holmes Regional Medical Center/Palm Bay Hospital Cancer Registry staff attended educational conferences, including but not limited to the following topics:
- Cancer Diagnosis and Treatment and Outcomes
- Changes in State Cancer Program Standards
- Changes in Data Collection Requirements

The following conferences were attended during 2008 by the Cancer Registry staff at Holmes Regional Medical Center and Palm Bay Hospital as follows:

<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Educational Conference/Topic</th>
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<tbody>
<tr>
<td>3/10/2008</td>
<td>Quality Control Abstract Record Review Findings — FCDS Webinar Presentation</td>
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<tr>
<td>3/15/2008</td>
<td>AHCA Follow-back Online Process for Hospitals — FCDS Webinar Presentation</td>
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<tr>
<td>5/22/2008</td>
<td>AHCA Follow-back Online Process for Ambulatory Surgery Centers — FCDS Webinar Presentation</td>
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<td>7/24 to 7/25/08</td>
<td>FCDS/DOH Annual Conference Sawgrass, Sunrise, Florida:</td>
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<td></td>
<td>Meeting Agenda/Topics: FCDS Updates — FCDS — MacKinnon</td>
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<td></td>
<td>DOH Update — DOH — Hylton</td>
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<td></td>
<td>CDC and NPCR Program news — CDC</td>
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<td></td>
<td>NAACCR 11.2/Collaborative Stage 0104</td>
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<tr>
<td></td>
<td>GIS — Address Edits — WHY? — FCDS</td>
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<tr>
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<td>Paperless Office — FCDS</td>
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<tr>
<td></td>
<td>Environmental Public Health Topics — DOH</td>
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<td></td>
<td>NAACCR Update — NAACCR</td>
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<td>Bladder Cancer: A Pathologist’s View Kaposi Sarcoma: Is it a Single Primary? — Dr. Nadji — UM</td>
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<td>Disparities in Cancer Care in Florida: What the FCDS tells us. Dr. L. Koniaris, UM</td>
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<td></td>
<td>Coding Ethnicity — Dr. P. Pinheiro, FCDS</td>
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<td></td>
<td>QC Annual Update — FCDS — Manson</td>
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<tr>
<td></td>
<td>FCDS Process Improvement — FCDS &amp; Meeting Attendees</td>
</tr>
<tr>
<td></td>
<td>Advanced Training — Lymphoma &amp; CNS — Instructor — April Fritz, CTR</td>
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<tr>
<td>9/3/2008</td>
<td>FCDS Death Clearance Online Follow-back — FCDS Webinar Presentation</td>
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<tr>
<td>10/20/2008</td>
<td>FCDS Quality Assurance Audit Review — FCDS Webinar Presentation</td>
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CANCER PROGRAM OFFICE

Community Cancer Programs
The Cancer Program Office promoted and supported community awareness and education for cancer prevention and screening for Prostate, Breast, Skin, Lung, and Colorectal cancers. Some of the other community outreach activities our Cancer Program Office participated in or sponsored in 2008 included:

• Provided a skin cancer prevention event in association with 25th Annual Melbourne Arts Festival, April 26 & 27, 2008, in historic downtown Melbourne, Florida.
• Participated in the Melbourne area Relay For Life, May 16 & 17, 2008, with Health First Diagnostic Center’s “Bev’s Buddies Team” and achieved the Silver Award Level in funds raised by submitting more than $6,400 to the American Cancer Society (ACS).
• Participated in the Men’s Health Summit on June 14, 2008, which provided prostate screening for 75 men, some of whom were referred for follow-up.
• Sponsored a community lecture, “Updates on Prostate Cancer — the Latest in Diagnosis and Treatment Options” on August 28, 2008. The featured speaker was Anthony Saracino, MD, a board-certified Urologist with Osler Medical in Melbourne, Florida.
• Sponsored a Breast Cancer Awareness and Education Conference at Calvary Chapel of Melbourne on October 11, 2008. Topics for free lectures offered to the public included Medical Oncology, Radiation Oncology, and Diagnostic Radiology.
• Health First implemented its Tobacco-Free Campus Policy on November 20, 2008, to coincide with the American Cancer Society’s Great American Smokeout® Day.
• Hosted the annual “Celebration of Survivorship” event in the Atrium of The Heart Center at Holmes Regional Medical Center on December 16, 2008.

Oncology Social Work
Activities and accomplishments
• Provided Clinical Social Work Services to both inpatients and outpatients and their families and significant others utilizing one full-time and one part-time Oncology social worker.
• Demonstrated clinical knowledge about the psychological and social impact of cancer on patients and their families relative to their ages and developmental stages.
• Assessed, implemented, and evaluated clinical interventions to assist patients and their family members and friends through the disease process. Examples of interventions included psychosocial assessments, counseling for patients with a new cancer diagnosis and their family members, assisting patients with developing Advance Directives as requested, providing grief/burial plan/bereavement counseling, providing information and education about Hospice services and assisting with referrals to the Patient Advocate and/or Ethics Committee, assisting with complex discharge planning, and providing counseling during medical crises and due to adjustments to illness issues.
• Maintained professional ongoing relationships with other community agencies and collaborative resources as needed including community Oncology social workers, Hospice staff, skilled nursing home staff, home healthcare agencies, American Cancer Society, and the Leukemia/Lymphoma Society.
• Provided printed literature on community resources for cancer patients to them and their family members.
• Participated in instrumental live music for listening pleasure during the Holidays and other times throughout the year for the Oncology Unit.
• Assisted with coordination of post-acute care services such as rehabilitation centers, home care, medical equipment providers, as well as with patients’ financial needs.
• Participated in interdisciplinary rounds, Neoplastic Conferences, and Tumor Board.
• Planned agendas and facilitated the following Support Groups:
  • “Friend to Friend,” a twice-monthly support group that targets any individual, including patients, family members, and friends whose life has been touched by a cancer diagnosis;
  • “Live Life Now,” a monthly Leukemia/Lymphoma support group; and
  • our annual “Putting the Pieces Together” one-day workshop, which is designed for children who have a loved one who has been diagnosed with cancer.
ONCOLOGY UNIT

Activities and accomplishments

Inpatient Oncology Unit
- Our Oncology Unit (6 East) provides a working atmosphere that encourages input, openness, opportunity, and teamwork.
- 6 East is a 36-bed unit specializing in the care and treatment of patients with cancer diagnoses.
- The Oncology Unit includes 45 nurses dedicated to educating, motivating, and supporting Oncology patients and their families at various stages of disease progression.
- Nurses participated in multiple committees to plan for changes, education, and implementation of initiatives to improve patient care services and patient satisfaction.
- Performance improvement activities include monitoring patient and staff compliance with oral care protocols and the effectiveness of early mouth care interventions.
- Additional performance improvement activities include effective skin care protocols to eliminate skin breakdown.

Nursing education
- Nursing education programs offered throughout the year include the Oncology Nursing Society Chemotherapy and Biotherapy Course, providing a comprehensive review of the knowledge needed to administer cytotoxic and biotherapeutic agents. Completion of this 14-hour course validates the participants have the theoretical foundation needed for chemotherapy administration. This course was offered twice during the year at no charge to the Oncology nurses.
- 100% of our unit's Oncology nurses are expected to complete certification for chemotherapy administration within 18 months of hire. Recertification is required every two years.
- Additional programs that are targeted to Oncology nurses include:
  1. The Impact of Grief
  2. Multiple Myeloma Update: Nursing Implications for Better Patient Management
  3. A New Targeted Agent for Advanced Renal Cell Cancer: A Nurse Perspective
  4. Compassion Fatigue & Nurse Burn Out
  5. Anemia Management
  6. Pearls of Wisdom from People Living with Cancer…Improving the Management of Chemotherapy-induced Nausea

7. Clinical Update: Managing Ascites and Pleural Effusions
8. Late Effects in Cancer Survivorship
9. Frosted Pink with a Twist Party: Women’s Cancer Awareness
10. Acute Leukemias
11. An Update on Adult Acute Myelogenous Leukemia

Two eight-hour Oncology Nursing Conferences were offered including:
1. 2008 Pain Conference: Pain Matters
2. Oncology Palliative Care Conference 2008

6 East nurses continued their involvement in the Oncology Nursing Society's Space Coast Chapter.

Eleven 6 East nurses are Oncology Certified Nurses (OCN)

Each nurse completed one Oncology Nursing inservice during 2008

Community activities
- Participation in Annual “Practice Safe Sun” booth at the Melbourne Art Fair.
- Participation in American Cancer Society’s “Relay for Life”, helping raise funds for various programs. The Relay is also an opportunity to celebrate the lives of those who have experienced cancer.

2009 goals
- Develop and implement a Falls Prevention Analysis Tool in an effort to eliminate all patient falls in the Oncology Unit.
- Continued to follow skin care protocols to eliminate skin breakdown.
- Continue oral care initiatives.
- Continue monthly workshops for nursing education.
- Continue attending Chemotherapy and Biotherapy Course.
RADIATION ONCOLOGY SERVICES

Radiation Therapy is provided to our cancer patients by several freestanding Radiation Oncology treatment centers outside of our hospitals. These radiation centers maintain the newest state-of-the-art radiation treatment equipment and planning tools.

These centers offer various treatments and support services, which include but are not limited to:

- **IMRT — Intensity-Modulated Radiation Therapy**
  IMRT is an advanced mode of high-precision Radiotherapy that utilizes computer-controlled X-ray accelerators to deliver precise radiation doses to a malignant tumor or specific areas within the tumor.

- **IGRT — Image-Guided Radiation Therapy**
  IGRT is conformal radiation treatment guided by imaging equipment, such as CT, ultrasound, or stereoscopic X-rays that are taken in the treatment room just before the patient is given radiation treatment. IGRT allows radiation to be delivered to tumors with more precision than traditionally possible.

- **SRS — Stereotactic Radiosurgery**
  SRS uses sophisticated computerized imaging to precisely target a narrow X-ray beam. Using this method, it is possible to effectively destroy small tumors or close down abnormal blood vessels.

- **SBRT – Stereotactic Body Radiation Therapy**
  SBRT is a technique that delivers high radiation doses to tumor targets in a hypo-fractionated schedule. The schedule is usually two to five fractions over one to two weeks without increasing complications when compared to conventional radiotherapy.

- **Internal Radiation Therapy (IRT)**
  IRT is a form of treatment where a source of radiation is put inside the body. One form of IRT is called Brachytherapy. In Brachytherapy, the radiation source is a solid in the form of seeds, ribbons, or capsules, which are placed in the body in or near cancer cells.

- **Cyberknife**
  Cyberknife, a robotic radiosurgery system (new in 2007) allows physicians to provide a targeted, painless alternative to open surgery and a treatment option for certain tumors that are otherwise untreatable. Use of Cyberknife treatment continued to grow in 2008. Cyberknife treatment compensates for patient movement during treatment, which constantly ensures accurate targeting. The following conditions can be treated by Cyberknife:
  - Intracranial tumors and lesions
  - Extracranial tumors and lesions
  - Spinal cancer and spinal cord tumors
  - Malignant tumors (primary & metastases)
  - Benign tumors which include Acoustic Neuromas, Schwannomas, Meningiomas, and Pituitary Adenomas.
  - Arterial Venous Malformations

Accomplishments in 2008 included:

- Supported Oncology Social Workers
- Hosted and attended Cancer Survivor Support Groups
- Hosted American Cancer Society “Look Good Feel Better” monthly program
- Hosted multi-disciplinary Tumor Board meetings
Activities and accomplishments

New Digital Mammography equipment/technology was made possible by funds raised at the Health First Foundation Annual Ball in 2008.

The Health First family of diagnostic imaging centers, including CCH Women’s Center at Cape Canaveral Hospital, Health First Diagnostic Centers in Melbourne and on Merritt Island and at Palm Bay Hospital, are working toward improving women’s health by offering Digital Mammography to all of their patients. The Digital Mammography technology was installed beginning in May 2008.

Digital Mammography creates images that help Radiologists detect Breast Cancer at an earlier, more treatable stage, to improve treatment options and to save lives.

Mammography continues to be the Gold Standard for early Breast Cancer detection, and new advances in digital technology have propelled Digital Mammography to the forefront of breast imaging.

Our team and services

The Radiology Department utilizes a team of highly dedicated associates and Board-certified, fellowship-trained physicians covering a variety of sub-specialties. This team works side-by-side with our Medical Oncologists, Radiation Oncologists and Surgeons in the battle with cancer.

The Department of Radiology’s weapons against cancer are some of the most high-tech diagnostic tools available in the region and include:

- State-of-the-art Philips 64-slice PET/CT scanner, utilizing the newest TruFlight software to pinpoint cancerous lesions in the highest resolution possible.
- PET/CT scanners, which play a significant role as physicians plan precise radiation therapies targeting cancer cells but avoiding healthy cells. They are also useful in detecting the recurrence of cancer, especially tiny tumors that cannot be seen on other imaging devices, such as those tumors obscured by scarring from previously destroyed cancer cells. PET/CT scans are patient friendly, with the ability to scan the entire body in 10 minutes, whereas most comparable technology in Brevard requires 30 to 40 minutes for the same scan.
- Magnetic Resonance Imaging (MRI) is a powerful tool available for diagnosing a variety of cancers.
- Holmes Regional Medical Center has three, high-field MRI systems with the latest technology packets and 16-channels that provide clearer, more detailed, and easier to read scans.
- On a high field, or closed MRI system, the slices can be thinner, improving the information the physician uses to diagnose the problem. High-field MRI units also take less time due to the higher magnetic strength. Their scans can be one and a half to two times faster than an “open” MRI scanner.

Interventional Radiology/Special Procedures

- Interventional Radiologists continue to utilize state-of-the-art ultrasound and CT-guided images for performing biopsies of suspected cancerous areas, including the breast, liver, and kidneys. They also perform uterine fibroid embolization (a non-surgical alternative for treating uterine fibroids) and chemo-embolization and radiofrequency ablation for the treatment of rare liver cancers, as well as follow-up exams that are coordinated with the patient’s Oncologist or Surgeon.

Department of Radiology — “Part of the Cancer Care Team”

- Our Radiologists are an integral part of the Neoplastic Disease Committee and Holmes Regional Medical Center/ Palm Bay Community Tumor Board. The Radiologists are active physician members of the Holmes Regional Medical Center and Palm Bay Community multi-disciplinary Tumor Board team in
cancer diagnosis and treatment and are part of the Health First Physicians medical group within the Health First healthcare system.

- Our patients benefit from a Brevard-based, comprehensive approach to the diagnosis, treatment, and, when necessary — palliative treatment — of cancer. Ultimately, most patients want to stay close to home when being treated following a cancer diagnosis.

**Department of Radiology — Continuing to improve our patients’ Radiology experience.**

The following improvements to enhance patient care were accomplished in 2008:

- Access to Care — Patient access to quicker diagnostic appointments, i.e., expanded hours of operation in diagnostic areas to include evenings and weekends.
- Outpatient Registration — Planning direct registration for cancer patient outpatient exams in Department of Radiology instead of Outpatient Registration.
- Diagnostic exams — Appointments on target, diagnostic exam start and stop times improved.
- Continue to improve Radiologist review, interpretation, and dictation turnaround of radiographic exams in all diagnostic areas that include diagnostic X-ray, CT, MRI, or Ultrasound exams. This continued turnaround improvement allows ordering physicians expedited access to diagnostic results, thus improving patient treatment and care decisions.
- Continue to support Web-based diagnostics utilizing Picture Archiving Clinical System (PACS) Radiology system — Expanded physician access and utilization of Web-based diagnostic image review improves times for physician office visits as well as patient diagnostic care.
- Continue to provide diagnostic images to patients on CD-Rom for reduced image film cost and ease of review by attending physicians.
MEdiCAl REHAbilit AtivE
SERVICES

Activities and accomplishments
Health First Medical Rehabilitative Services supports the Cancer Program at Holmes Regional Medical Center/Palm Bay Hospital as active members of the interdisciplinary Oncology Team. Our therapists work closely with one another as well as with other disciplines such as Nursing and Case Management to make sure cancer patients’ needs are met. We are also represented on the Neoplastic Disease Committee.

Occupational Therapists, Physical Therapists, and Speech-Language Pathologists evaluate and treat cancer patients who are referred to our services by their physicians. Our goal is always to improve patients’ functional abilities and quality of life. Sometimes our patients have very special and specific goals of their own, such as gaining enough strength to attend their granddaughter’s wedding. Our therapists emphasize education of both cancer patients and their caregivers to ensure carryover of therapy techniques, which leads to increased independence.

Occupational Therapists:
• Teach patients and their families energy conservation techniques, work simplification, and performance of activities of daily living.
• Provide practical education on a variety of adaptive equipment to increase their independence.
• Perform therapeutic exercises to increase upper-extremity strength and coordination.
• Work with patients on a-vocational interests to increase their tolerance to hobbies such as knitting and artwork.

Physical Therapists:
• Work with cancer patients and their families to achieve safer and more independent bed mobility, transfers, and ambulation.
• Recommend assistive devices such as walkers and wheelchairs as needed.
• Assist patients with strengthening exercises to improve lower extremity strength and endurance.
• Instruct caregivers on how to safely assist with the mobility of their loved ones to prevent injury.

Speech-Language Pathologists:
• Assist cancer patients by helping them regain communication skills following laryngectomies.
• Determine each cancer patient’s aspiration risk through bedside swallow tests or modified barium swallow studies.
• Evaluate and treat cancer patients with expressive, receptive, or global aphasia.
• Identify and treat cancer patients with cognitive dysfunction and provide family education.

Certified Lymphedema Therapist:
Health First Rehabilitative Services also have a Certified Lymphedema Therapist on staff who works with both inpatients and outpatients. This therapist is specially trained in the management of patients with lymphedema — a condition which can occur following cancer treatment or surgery. She provides hands-on treatment of these patients including manual lymph drainage, compression, and therapeutic exercise, as well as patient education for self-management of this condition.

The Lebed Method:
Health First Rehabilitative Services also offers group classes for outpatients featuring the “The Lebed Method,” which is a therapeutic movement and dance program designed to promote lymph drainage.

Laryngectomy Patients Support Group:
Three of our Speech Language Pathologists are trained to provide pre-surgical consultations for patients to review their post-surgical speech options, as well as fit and change the speaking valves of post-laryngectomy patients. They work with these patients on an inpatient and outpatient basis. Our Speech Therapists participate in the quarterly Laryngectomy Support Group of The Space Coast New Voice Club.
NUTRITIONAL SERVICES

Activities and accomplishments

• Provided medical therapy nutrition counseling for cancer patients to assist them in managing nutrition-related side effects and complications of cancer therapy and to promote optimal outcomes.
• Provided outpatient nutrition consultation for cancer patients. Holmes Regional Medical Center dietitians work hard to educate patients on the importance of wholesome, cancer-fighting nutrition.
• Provided tube-feeding formula recommendations and nutrition education for Hospice of Health First patients.
• Participated in unit/floor rounds with other interdisciplinary Oncology Team members during Oncology rounds.
• Participated in quarterly Neoplastic Disease Committee meetings.
• Provided nutrition information and education for staff members.
• Continued to provide cancer patients with post-cancer nutrition treatment information.
• Provided continuing education in nutrition support and wound management.
• Worked with Health First Pharmacy and the Pharmacy & Therapeutics Committee to add nutritional supplements to our systemwide Formulary.
• Provided nutrition class attendees with cancer prevention diet information and American Cancer Society (ACS) cancer prevention literature as part of the community outreach class. Our cancer prevention literature includes information from the American Cancer Society and a prevention plan based on the following 2008 American Institute of Cancer Research Prevention Guidelines:

  “1. Be as lean as possible without becoming underweight.
  2. Be physically active for at least 30 minutes every day.
  3. Avoid sugary drinks.
  4. Limit consumption of energy dense foods (particularly processed foods high in added sugar, or low in fiber, or high in fat).
  5. Eat more of a variety of vegetables, fruits, whole grains and legumes such as beans.
  6. Limit consumption of red meats to no more than 18 oz per week (such as beef, pork and lamb) and avoid processed meats.
  7. If consumed at all, limit alcoholic drinks to 2 for men and 1 for women a day.
  8. Limit consumption of salty foods and foods processed with salt (sodium).
  9. Don’t use supplements to protect against cancer.”

Special Population Recommendations

“10. It’s best for mothers to breastfeed exclusively for up to six months and then add other liquids and foods.
11. After treatment, cancer survivors should follow the recommendations for cancer prevention.
12. And always remember —do not smoke or chew tobacco.”

We strive to provide balanced, wholesome meals, for all our patients, including cancer patients at Holmes Regional Medical Center and Palm Bay Hospital. We’ve added a number of elements this year to enhance our offerings specifically for cancer patients, such as having necessary supplements and other nutritional food items conveniently located for quick access as well as providing an alternate menu for increased food selection.

Receiving a cancer diagnosis can be quite overwhelming. However, eating healthy and making the best food choices does not have to be difficult, especially when you have the right information available. Simple steps, one day at a time provides the best approach. Seeking a Nutrition professional who understands the relationship between diet and cancer to come alongside the patient as part of the cancer treatment team is vital in accomplishing optimum outcomes before, during, and after cancer treatment.

Vital nutrition for the Oncology patient

By Lori Drummond, RD, LD, Clinical Dietitian

Nutrition is the cornerstone of prevention; therefore, the value of a solid nutrition plan for the cancer patient cannot be overstated. Regardless of the cancer diagnosis, clinical studies have shown that optimal nutrition for the cancer patient plays a vital role in the holistic approach to care and should be considered as part of the overall treatment plan for best outcomes.
It is widely known that cancer and some cancer treatments/therapies can change nutritional needs and impair one's ability to eat, digest, absorb and utilize food. Many patients suffer from nausea, vomiting, diarrhea, loss of appetite, taste changes, and early satiety. The need for caloric and protein intake can be increased during cancer treatment. Therefore, proper nutrition plays a vital role before, during, and after cancer treatment to promote favorable outcomes.

Patrick Quillin, PhD, RD, CNS, a well-known Oncology dietitian* notes several reasons for utilizing nutrition as part of a comprehensive cancer treatment program:

• Clinical studies have shown that aggressive, scientifically-based nutrition therapy may decrease the likelihood of cancer recurrence.
• Diet can help to selectively starve cancer cells.
• Nutrients make chemotherapy and radiation more of a selective toxin against the cancer and less damaging to the patient.
• Statistically, 40% or more of cancer patients die from malnutrition, therefore, nutrition can counteract this possibility.
• Nutrients improve immune function that works to defend against and destroy cancer cells.

Furthermore, proper nutrition helps to proactively manage cancer treatment-related side effects, prevent weight loss or gain, reduce risk of other chronic diseases, and improves quality of life.


What does this really mean in practical terms?
Unfortunately, food choices are often made according to taste, cost, convenience, and gratification rather than nutritional quality and cell nourishment potential. French fries, white bread, donuts, and coffee are some of the most commonly eaten foods in America, supporting the common claim that America might be the most over-fed and undernourished nation in the world.

Increasing the intake of fruits, vegetables, grains, and legumes is of primary importance. All have significant nutrients and cancer-fighting substances such as antioxidants, phytochemicals, and carotenoids to name a few.

For example, antioxidants — molecules that protect cells from free radical damage — can be found in oranges, apricots, or berries. Lycopene, a phytochemical in tomatoes, has been found to help fight against prostate cancer. Carotenoids help support immune function and are found in foods such as carrots, spinach, and kale.

As few as two or three large carrots can provide up to 30 mg of beta-carotene. Cruciferous vegetables such as broccoli, cabbage, cauliflower, and Brussels sprouts contain anti-carcinogens called isothiocyanates and are a main component of the anti-cancer arsenal.

To help patients to make better food choices, the following foods have high anti-cancer potential**:

**Source: 101 Foods That Could Save Your Life by David Grotto, RD, LD/N**

<table>
<thead>
<tr>
<th>Cruciferous vegetables</th>
<th>Red grapes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avocados</td>
<td>Oranges, lemons, citrus</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>Papayas</td>
</tr>
<tr>
<td>Carrots</td>
<td>Berries</td>
</tr>
<tr>
<td>Peppers</td>
<td>Green tea</td>
</tr>
<tr>
<td>Figs</td>
<td>Sweet potatoes</td>
</tr>
<tr>
<td>Flax</td>
<td>Wheat grass</td>
</tr>
<tr>
<td>Seaweed</td>
<td>Cinnamon</td>
</tr>
<tr>
<td>Prunes</td>
<td>Turmeric</td>
</tr>
<tr>
<td>Fermented vegetables</td>
<td>Garlic</td>
</tr>
<tr>
<td>(i.e., soy, sauerkraut)</td>
<td>Ginger</td>
</tr>
<tr>
<td>Watercress</td>
<td>Licorice root</td>
</tr>
<tr>
<td>Kale</td>
<td>Nuts</td>
</tr>
<tr>
<td>Mushrooms</td>
<td></td>
</tr>
</tbody>
</table>
Hospice of Health First

Activities and accomplishments

• A total of 1,045 patients were admitted to Hospice of Health First Program during 2008, with an average length of stay of 90 days in the field and 4.9 days at our program’s William Childs Hospice House facility. Hospice care included a total of 66,820 days of routine home care, and 433 inpatient days, with 5,372 hours of continuous care (a 65% increase over 2007 for continuous care hours). At our William Childs Hospice House, located in a secluded area on the campus of Palm Bay Hospital, we provided 2,900 days of care (2,662 inpatient days and 181 respite care days.) Our specially trained volunteers, who have a vital and unique role in hospice care, contributed 18,364 hours (10,095 in the field and 3,235 at the William Childs Hospice House) valued at $249,415 for direct patient/family care. Visits by other members of our Hospice interdisciplinary team included: 16,053 visits by RN case managers, 19,369 visits by home health aides, and 5,851 visits by social workers.

• A total of 136 referrals were made to the Bright Star Center for Grieving Children & Families, and yearlong attendance for the Center’s programs was 546 individuals. Camp Bright Star, our one-day grief workshop for children who have lost a loved one, was offered twice (in October 2007 and May 2008) and was attended by a total of 79 children. Bright Star broadens the scope of Bereavement Support Services available in our community as well as provides a unique opportunity to volunteer at Hospice of Health First.

• Hospice Bereavement Support Services staff made 1,726 visits complemented by an additional 67.75 hours of service by our trained Keep-in-Touch volunteers.

• Hospice of Health First continued its “Inpatient Palliative Care” program across the Health First healthcare system in Brevard County, which includes Holmes Regional Medical Center and Palm Bay Hospital, as well as Cape Canaveral Hospital, with 63 admissions systemwide during 2008. There continues to be further decrease in Inpatient Palliative Care admissions since we opened the Hospice House; which amounted to 59% fewer inpatient hospital admissions than in 2007.

• Providing high-quality hospice care is important. One of our Quality Improvement initiatives for 2008 was improving medication management across the continuum of care, specifically as it relates to a change in level of care, such as a change from routine field care to inpatient hospital care. Our Hospice program focused on ensuring that a current medication list accompanies the Hospice patient during any change in level of care as well as providing documentation of level of care changes with a physician order. By the 4th Quarter of 2008, Hospice of Health First met the goal of a 15% improvement over the 81.2% at end of FY’07.

• Our second Quality Improvement initiative involved “reducing the likelihood of patient harm associated with the use of anticoagulation therapy” or National Patient Safety Goal 3E. A Health First Policy & Procedure was developed and Hospice successfully implemented a means to identify patients receiving this therapy.

• Other Hospice program projects and achievements of note included:
  – creation of a Patient Safety Practice Portal for tracking of nine National Patient Safety Goals;
  – completion of construction for eight additional William Childs Hospice House inpatient beds;
  – a successful Joint Commission Accreditation Survey in March 2008; and
  – increased regulatory oversight by the Center for Medicare and Medicaid over all Hospice programs beginning with the reporting of visits in the inpatient setting in July 2008.
The Department of Pathology is an active and vital participant of the Comprehensive Community Hospital Cancer Program at Holmes Regional Medical Center and Palm Bay Community Hospital. Once a tissue diagnosis of cancer is made by the Pathologists, the patient can then begin to access all the services offered by our Cancer Program. As a result, the timing of our reports is both critical and sensitive. We proudly complete all pathology cases within two days at most.

Advances in imaging techniques have allowed clinicians to identify smaller lesions and detect cancer at an early stage. Our Pathologists routinely analyze smaller biopsy specimens of these lesions, including thin-needle core tissue biopsies and fine-needle aspiration biopsies. Interpretation of these small biopsies allows for less-invasive diagnostic procedures that often occur in outpatient settings and require little or no anesthesia, thus reducing patient morbidity and expense.

Our Pathologists are members of the Neoplastic Disease Committee at Holmes Regional Medical Center and Palm Bay Hospital and actively participate in our Cancer Program’s Bi-monthly Tumor Board meetings. The Pathologist attending the Bi-monthly Tumor Board reviews selected photomicrographs of cancer case pathology specimens selected by the Tumor Board’s members. The pathologist’s review of photomicrograph pathology cases is an integral part of the case presentations and enhances the multi-disciplinary team approach in the management of our hospitals’ cancer patients.

The Department of Pathology continues to implement innovations, as technology becomes available. Our Laboratory is accredited by the College of American Pathologists and the American Association of Blood Banks.

Drs. Smedberg, Masih & Chodorow simultaneously review pathology slides on the multi-head microscope.
PASTORAL CARE

Activities and accomplishments

• Our Chaplaincy team took part in the multi-disciplinary Oncology Team’s regular rounds on the Oncology Unit, receiving valuable information in preparation for our personal visits with hospitalized cancer patients and their family members.

• Our Chaplaincy team contacted patients’ local communities of faith for further spiritual support according to their requests.

• As a part of the Health First Tiger Team, which promotes organ and tissue donation awareness at our hospitals, our Chaplaincy team participated in the annual planning of the Tiger Team’s Organ Transplant educational conference. The 2008 conference included valuable insight about bone marrow transplant patients’ need of ongoing emotional and spiritual support during their sometimes extended hospital stays.

• Our Chaplaincy team participates in patient/family consultations as part of the Holmes Regional Medical Center Ethics Committee when requested.

• Our Chaplaincy team also worked closely with department leaders and other Ethics Committee members to complete an Ethics Committee landing page on the Health First intranet, Inside Health First. The Ethics Committee site includes our Advance Directives brochure, Living Will brochure— both in English and Spanish, Ethics Consultation brochure, and Surrogate Responsibilities brochure, all accessible on Inside Health First from any PC within the Health First system (any Health First facility). The target ‘go live’ date was February 2009, upon which we launched the comprehensive HF Ethics Committee web pages, effectively replacing our Ethics Handbook.

• Our Chaplaincy team offered emotional and spiritual support, counseling, and prayers for all professional clinical staff on the floor as needed or requested by physicians, nurses, clinical nurse specialists, dedicated Oncology social workers, Health Unit Coordinators, Cancer Registry staff, and members of the Respiratory Services team.

• Our Chaplaincy team encouraged systemwide awareness of Oncology courses and cancer support groups, public meetings, and workshops. We helped inform patients about our annual Holiday Season “Celebration of Life” sponsored by our Cancer Program Office and hosted by our Cancer Program’s Friend-to-Friend Support Group.

• Our Chaplaincy team sends out systemwide monthly Health First “Holy Days’ Cultural/Faith Updates.

• Our Chaplaincy team promotes Prayer Request Boxes and Prayer Cards at Palm Bay Hospital — a program that began in October 2008.

• Our Chaplaincy team promotes the Palm Bay Hospital Prayer Team that started meeting in October 2008.
Activities and accomplishments

The Department of Pharmacy’s activities and accomplishments for 2008 included:

- Dedicated services such as 24-hour/seven-day-a-week Pharmacist (and Pharmacy Technician) availability for:
  - providing medication information to physicians and Nursing staff,
  - preparation and dispensing of chemotherapeutic agents,
  - discharge prescription services for indigent cancer patients, and
  - delivery of pharmaceutical care for Hospice of Health First patients.
- Coordination with Health First Family Pharmacy to provide onsite discharge prescription service.
- Intensive focus on medication safety with respect to chemotherapeutic agents and processes including ordering by physicians, preparation by Pharmacy, and administration by Nursing by the Corporate Medication Safety Committee for reporting to the Corporate Patient Safety Committee and the Board Quality Committee for Health First.
- Continued Pharmacist participation for the Neoplastic Disease Committee’s Tumor Board with physician groups as well as interdisciplinary rounds involving cancer patients.
- Numerous lectures and seminars were facilitated by the Clinical Pharmacy Staff to cancer survivor groups and cancer patient caregivers.
- Participation and support by Pharmacy Department in various community events supporting cancer awareness.
- Review of utilization of chemotherapeutic agents by Clinical Pharmacy Team and Director of Pharmacy.
- Review of policies and procedures related to chemotherapy ordering, dispensing, and administration to ensure safe and timely medication delivery.
- Continued monitoring of epoetin alfa and filgrastim use in the Oncology patient population.
- Ongoing efforts to continuously improve central Pharmacy distributive functions and outpatient chemotherapy medication administration with the goal of providing better coordination of Nursing, Pharmacy, and patient needs to produce improved customer/patient satisfaction with the program.
QUALITY OUTCOMES MANAGEMENT

Activities and accomplishments

Quality at Holmes Regional Medical Center and Palm Bay Hospital involves the level of care and services provided to our patients and reflects our healthcare system’s culture in which Quality Improvement and Patient Safety are dynamic initiatives. Quality ensures safe, effective, patient-centered, timely, efficient, and equitable health care for all our patients. Communication is key to providing Quality care. We have encouraged patients and their family members to report any Patient Safety concerns to our staff members.

Designated as a Community Hospital Comprehensive Cancer Program (COMP), we adhere to the Commission on Cancer’s (CoC) COMP Standards. In doing so, we ensure that our cancer services, patient care, and outcomes are evaluated and improved so that our patients receive care comparable to these national standards. We focus on Quality-related issues in any area of Cancer Program activity relevant to the facility and the local patient population.

Through the leadership of a Quality Improvement Coordinator, the Neoplastic Disease Committee annually completes one study based upon Cancer Registry data and one additional study of its choosing. For each study undertaken, we establish the study topic, define the Quality measures for evaluating data related to the Quality measure, design and initiate the Quality initiatives to be performed, and monitor the effectiveness of the Quality Initiatives that are performed.

Improved Patient Safety measures continue to be a highlight of our CCPM plan this year. We are demonstrating this through monitoring our nurses and the requirement of a two-RN patient identification check, to include the physician order, name of patient to receive medication, the medication name, dose, route, and time.

Two Quality Performance Improvement goals related to Oncology patients included:
1. To decrease the incidence of hospital-acquired Foley catheter care.
2. All handwritten Medication Administration Records (MARs) completed will have legible signatures, dates, and times.

The Oncology Unit reviews data each month for these two indicators. In doing so they gave achieved better Oncology patient outcomes, a decrease in urinary tract infection rates, and Medication Safety for Oncology patients.

The Holmes Regional Medical Center/Palm Bay Hospital Tumor Board maintains a very strong, Quality-conscious program. We have total engagement and partnership with our Tumor Board staff, which includes our Certified Cancer Registrar, Oncology Abstractor, General Surgeons, Head/Neck Surgeons, Trauma Surgeons, Urologists, Medical Oncologists, Radiation Oncologists, Pathologists, Radiologists, Clinical Quality Coordinator, and others. This very focused group of professionals meets twice a month to review newly diagnosed cancer cases. The cancer case presentations are selected based on institutional case mix and physician request. Our Tumor Board is devoted to the best possible outcomes for our patients and also serves as a monitor of standards of care, best practice, and current trends in cancer treatment.
HYPERBARIC OXYGEN

In July 2007, Health First opened a comprehensive Wound Management Program including hyperbaric oxygen as one of its treatment options. To receive hyperbaric oxygen patients sit inside a pressurized chamber and breathe 100% oxygen. The chamber is a large, comfortable multiplace chamber capable of treating up to eight patients at a time.

In relation to cancer care, hyperbarics is most useful in treating delayed injuries caused by radiation therapy.

Radiation therapy damages microscopic blood vessels and leaves tissue vulnerable to difficult healing because of this decreased blood supply. Hyperbaric oxygen is able to dramatically increase the growth of microscopic blood vessels and previously radiated tissue to allow this tissue to heal properly should a wound develop; or in the setting of surgery in the site of previously radiated tissue. Hyperbaric oxygen is also useful in the treatment of radiation related injury to the GI tract and bladder. The oral cavity is particularly susceptible to injury from radiation and, in fact, hyperbaric oxygen is routinely utilized both before and after any dental or oral surgery including teeth extractions for prevention of osteoradionecrosis.

Additional non-cancer related indications for hyperbaric oxygen include selected infections including chronic refractory osteomyelitis, gas embolism, crush injury, Wagner Diabetic Grade III or above lower extremity wounds, SCUBA™ diving-related injuries, and carbon monoxide poisoning. We have successfully treated 15 late-effect radiation patients since opening and currently have three patients with this diagnosis undergoing hyperbaric chamber treatment.
The Arts in Medicine Program at Holmes Regional Medical Center and Palm Bay Hospital features a specially-outfitted cart with aids for creating an environment of relaxation—to help reduce stress for patients, family members, and staff members—as it is taken to various waiting areas at our hospitals. This “mobile relaxation station” is equipped with a DVD player showing soothing nature scenes and playing music, a waterfall fountain, chair massage, foot massage, and shoulder massage. Chocolates and candies, soothing teas, aromatherapy, and scented lotions for hand massage help add to the complete experience. These complimentary services are available to patients, visitors, staff, and physicians who need to take a break from the stress associated with hospitalization or working within the hospital setting.

In addition to the relaxation station, Licensed Massage Therapists offer patients gentle massage, and a certified Healing Touch Practitioner and Certified Reflexologist offer complimentary services. Local musicians, including harpists, violinists, guitarists, and flutists volunteer their time and talents to play for patients, visitors, and staff as well. A portable art therapy cart is available for patients who would like to use art to help the healing process.

Our Health First employee-giving program (EAGLES—Every Associate’s Gift Leaves Everlasting Spirit) Steering Committee is the main sponsor of our hospitals’ Arts in Medicine Program. However, families of the volunteers have also contributed financially to the success of the program. The Arts in Medicine Program is always looking for others who wish to volunteer with this service, which is sure to provide special memories for a lifetime. Please contact the Holmes Regional Medical Center or Palm Bay Hospital Volunteer Offices for more information about our Arts in Medicine Program.
Activities and accomplishments

Health First Laboratories and Blood Banks went “live” with a new Laboratory Information System and Blood Bank computer system (SoftBank) on June 17, 2008. This two-year process change affected almost all areas of Health First. The implementation was brought about by the challenge to create compatible communications with other hospital computer systems and processes throughout our healthcare system’s hospitals. Improved safety, patient outcomes, and efficiency can be attributed to this immense achievement.

Additional safety improvements in 2008:

- **Computer:** Electronic crossmatch compatibility testing was implemented at all facilities.
- **Automation** is in the process of being implemented at Holmes Regional Medical Center. Two ProVue™ analyzers were purchased to perform routine blood type and screen, antibody identification testing, as well as unit confirmation. The greatest advantage to automation is an *increase in patient safety*. Automation reduces the risk of human error in Blood Bank testing by reducing the number of process steps/error opportunities (from 36 with manual gel to 4 with ProVue™) and completely automating the actual test function (barcode sample/reagent identification). Increased testing capacity and improved workflow provide an efficient work process with centralization options.
- **Patient specimen collection / monitoring:** The requirement for a second verifier of the Blood Bank sample at collection was implemented and added to the current Blood Administration policy. Utilization of the Safety Zone Portal to monitor specimen collection errors and other incidents has been implemented with resulting improvement in the evaluation process.
- **Components:** Provision of FP24 as an interchangeable option to FFP was implemented to support the plan for meeting TRALI reduction compliance.
Each year, an estimated 3,863 Brevardians and more than 100,000 others across Florida will be newly diagnosed with cancer. The American Cancer Society (ACS) is the one place these new cancer patients can turn 24 hours a day, seven days a week.

As the nation’s community-based volunteer health organization dedicated to eliminating cancer as a major health problem, the ACS assists with cancer prevention and helps to diminish suffering and save lives through research, education, advocacy, and service. Our volunteers make the difference. About 130,000 Floridians — including about 3,480 volunteers in our area — serve on ACS boards and committees; educate our neighbors about cancer risk-reduction, detection, and treatment; provide hope and support for cancer patients and their families; and serve as advocates to make cancer a government priority during Advocacy Day in the Florida's Capitol (Tallahassee). Our volunteers also organize ACS signature fundraising events: Relay For Life; Making Strides Against Breast Cancer; as well as ACS Balls and Galas.

Making a difference in our community
Our volunteers and donors have a major impact around the globe, across the nation, and throughout Florida, including right here in Brevard County by providing access to ACS cancer research, cancer education; ACS advocacy programs; and ACS services. Each of these areas is discussed briefly below:

Research
Prevention and treatment is better for nearly every cancer patient in our community because of ACS-funded research. Our research has led to a wide range of new detection methods, cutting-edge therapies and cancer drugs as well as improved treatment options. We have funded 42 scientists who went on to win the Nobel Prize.

Education
• We provide life-saving cancer information through partnerships with most major hospital systems and healthcare organizations in our area, as well as other major businesses and organizations through our systems approach.
• We are addressing cancer disparities in our community through partnerships with diverse organizations, community education grants, and other awareness campaigns.

Advocacy
• Residents in our community are protected from the dangers of secondhand smoke in virtually all workplaces because of our efforts to pass a constitutional amendment.
• Youth in our community will be educated about tobacco prevention because of our success in securing permanent funding for the state's tobacco prevention program.
• We have secured vital state funding to build Florida's cancer research infrastructure.

Service
• Local cancer patients and their families received 4,298 services through our 24/7 toll-free phone line and Patient Services Center.
• Local residents benefit from our support programs, from the nationwide Cancer Survivors Network to our community-based programs. In our area, 100 patients found support through Reach to Recovery for breast cancer and Man to Man for prostate cancer.
• 171 patients from our community received 2,519 transportation services to and from treatment.
• 29 patients from our area received free lodging at one of Florida’s Hope Lodges while undergoing treatment.
• 13 local children and families received support through our Reaching Out to Cancer Kids program. Six children from our area enjoyed a camp experience through R.O.C.K. Camp in partnership with Camp Boggy Creek; six young cancer survivors attended college on a R.O.C.K. College Scholarship, and one family took part in our educational and inspirational Families R.O.C.K. Weekend.
CANCER REGISTRY DATA

A graphic presentation of our data for 2008 appears in the charts that follow on the next two pages. The data is based on all cases for the year appearing in Holmes Regional Medical Center and Palm Bay Hospital. Chart 1 is a representation of cancer cases by site, gender, and classification (“Analytic” or “Non-analytic”). Charts 2 through 4 reflect the top five sites by gender—men and women cancer patients combined, male cancer patients only, and female cancer patients, respectively—for our two hospitals.
<table>
<thead>
<tr>
<th>PRIMARY SITE</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Analytic</th>
<th>Non-Analytic</th>
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<tbody>
<tr>
<td>Base of Tongue</td>
<td>13</td>
<td>12</td>
<td>1</td>
<td>11</td>
<td>2</td>
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<tr>
<td>Other Parts of Tongue</td>
<td>8</td>
<td>4</td>
<td>4</td>
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<td>Floor of Mouth</td>
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<td>2</td>
<td>1</td>
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<tr>
<td>Palate</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>Other Parts of Mouth including Lips and Gum</td>
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<td>Parotid Gland</td>
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<td>Other Major Salivary Glands</td>
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<td>Pyriform Sinus</td>
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<td>Hypopharynx</td>
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<td>26</td>
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<td>Rectosigmoidal Junction</td>
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<td>160</td>
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</tr>
<tr>
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<td>Hematopoietic &amp; Lymph Nodes</td>
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<tr>
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<td>335</td>
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<tr>
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<td>2</td>
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<tr>
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<td>63</td>
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<td>23</td>
<td>51</td>
<td>12</td>
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<tr>
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<tr>
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<td>87</td>
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<td>23</td>
<td>4</td>
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<tr>
<td>Brain</td>
<td>26</td>
<td>17</td>
<td>9</td>
<td>23</td>
<td>3</td>
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<tr>
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<td>4</td>
<td>9</td>
<td>0</td>
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<td>17</td>
<td>36</td>
<td>7</td>
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<td><strong>TOTAL</strong></td>
<td><strong>1939</strong></td>
<td><strong>902</strong></td>
<td><strong>1037</strong></td>
<td><strong>1591</strong></td>
<td><strong>348</strong></td>
</tr>
</tbody>
</table>
Our top five sites in 2008 were Breast, Lung, Colorectal, Lymphatic/Hematopoietic, and Gynecologic malignancies. Of the cases presenting at our facilities in 2008, 45.8% were males and 53.2% were females. This is consistent with recent years. The national mix for 2008, which also tends to fluctuate, was 51.9% males and 48.1% females.

Lung Cancer incidence in men at our facilities rose slightly in 2008 — from 17% to 19.9%. For more information about Lung Cancer in our community, please see the site study on Lung Cancer in the back of this annual report.

Our Prostate Cancer incidence in 2008 was 12.8% of all cancer sites at our facilities, a decrease from 2007. As mentioned in our 2007 Cancer Program Annual Report, practice and referral patterns have changed the options in our community where a man can have his Prostate Cancer diagnosed. With the private practice offering of biopsies and treatment choices, a large portion of men never enter the doors of our hospitals.

Colorectal Cancer and Lymphatic/Hematopoietic Cancer diagnoses in men at our facilities are similar to those in the nation.

Breast Cancer is the leading cancer diagnosed in women at our facilities. Our Breast Cancer incidence increased from 29% in 2007 to 33% in 2008. Our incidence is slightly higher than the nation, which is 26%.

Female Lung Cancer in our community is slightly higher than average for the nation. The numbers fluctuate but seem to be similar to the national incidence. (Please see the site study on Lung Cancer in this report for more information on incidence, risks, treatment, and prognoses for Lung Cancer patients.)

Our incidence for Colorectal Cancer and Lymphatic/Hematopoietic Cancer diagnoses in women at our facilities are similar to that of the nation for these cancer sites.

Gynecologic/Oncologic malignancies diagnoses continue increasing at our facilities, with 2008 diagnoses up almost a full percent at 13.5% over 12.2% in 2007. As discussed in our 2007 Cancer Annual Report, the addition of a Gynecologic Oncology Specialist to our Medical Staffs in 2005 is allowing the diagnosis, treatment, and management of these cancers to take place locally in our Comprehensive Community Hospital Cancer Program setting.
Lung Cancer — Overview
Lung cancers (both small cell and non-small cell) are the leading cause of cancer death in both men and women. More people die of lung cancer than from colon, breast, and prostate cancers combined. Both types of lung cancers are rare in people under the age of 45.

An estimated 215,020 new cases of lung cancer, including both non-small cell (87%) and small cell (13%), account for about 15% of cancer patients.

The average lifetime chance that a man will develop lung cancer is about 1 in 13. For a woman it is 1 in 16. These numbers include both smokers and non-smokers. For smokers, the risk is much higher, while for non-smokers the risk is lower.

Detection and screening
Since most people with early lung cancer do not have any symptoms, only a small number of any type of lung cancer is found at an early stage. When lung cancer is found early, it is often because tests were being done for something else.

Screening is the use of tests or exams to find a disease (such as cancer) in people who don’t have any symptoms. Because lung cancer often spreads beyond...
the lungs before it causes symptoms, a screening test for detecting lung cancer early could save lives.

**Chest X-rays and sputum (spit) samples checked by microscope** for cancer cells have primarily been used to detect lung cancer in the past. Studies show that this kind of screening does not detect lung cancers early enough to improve a person’s chance for a cure. For this reason, lung cancer screening is not usually advised even for people at higher risk, such as those who smoke.

**Spiral CT Scans** have shown some promise in detecting early lung cancer in smokers and former smokers. But it’s not yet known if this type of diagnostic testing will lower the chances of dying from lung cancer. One major problem is many other types of disease other than lung cancer are normally found.

**PET CT Scans** are the most recent advance in diagnostic radiology, pinpointing cancerous lesions with the highest resolution and most sensitivity. A PET CT Scan has a reasonable specificity for differentiating benign from malignant lesions as small as 1 cm and is an integral diagnostic tool recommended in the staging of the mediastinum in non-small cell lung cancer under the current “National Comprehensive Cancer Network” Lung Cancer Staging guidelines. PET CT Scans have improved the selection of patients who may able to have surgical resection of lung lesions vs. chemotherapy and radiation therapy alone. This diagnostic test is available in our Nuclear Radiology departments at both Holmes Regional Medical Center and Palm Bay Hospital.

People who smoke, have smoked in the past, or who have been exposed to secondhand smoke, as well as those working around materials that increase the risk for lung cancer need to be aware of their risk and should talk to their doctors about their chances of getting lung cancer as well as the pros and cons of lung cancer screening. While some studies have shown that CT Scans can find lung cancer at a stage that it can be cured, it may not be possible to determine for sure if a person has lung cancer with a CT Scan. In these cases, the person would need further tests, some of which may cost a lot and have serious side effects. If, after talking all of this over with your doctor, you decide in favor of testing, be sure to choose a place with experience in lung screening that can evaluate those at higher risk.

People who smoke should keep in mind that the best way to avoid lung cancer is to stop smoking.

**Risk factors**

A risk factor is anything that affects a person’s chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, such as smoking, can be controlled. Others, like a person’s age or family history can’t be changed.

If you have had lung cancer, you have a higher risk of getting lung cancer again. Brothers, sisters, and children of those who have had lung cancer may have a slightly higher risk for the disease. Research is being done on this, but having several risk factors including smoking can make you more likely to develop non-small cell lung cancer.

**Smoking risks**

**Smoking** is by far the leading risk factor for lung cancer. **Tobacco smoke** causes nearly nine out of 10 cases of lung cancer. The longer a person has been smoking and the more packs per day smoked, the greater the risk for developing lung cancer. If a person stops smoking before lung cancer starts, the lung tissue slowly returns to normal. Stopping smoking at any age lowers the risk for lung cancer.

**Cigar and pipe smoking** are almost as likely to cause lung cancer as cigarette smoking. Smoking low tar or “light” cigarettes increases lung cancer risk as much as regular cigarettes. Menthol cigarettes may also increase the risk even more since the menthol allows smokers to inhale more deeply.

**Secondhand smoke** occurs in people who don’t smoke but who breathe the smoke of others. These people may also be at a higher risk for lung cancer. Non-smoking spouses who live with a smoker, for instance, have about a 20% to 30% greater risk of developing lung cancer than do spouses of non-smokers. Non-smokers exposed to tobacco smoke in the workplace are also more likely to get lung cancer.

**Hookah (water pipe) smoking** has become popular among young people in recent years. It is often marketed as being safer than cigarettes. Although there is less tobacco in the product used for hookahs, it is still dangerous and addictive. And hookah smoking may lead to cigarette smoking in the future.
Lung Cancer survival experience at Holmes Regional Medical Center/Palm Bay Hospital non-small cell and small cell lung cancer comprise 17.5% of cancers diagnosed and treated at Holmes Regional Medical Center and Palm Bay Hospital. Out of our 278 total cases we have documented tobacco use in 92%, which could account for the higher rate of lung cancer within our patient population. During 2008 we added four new Pulmonologists, which increased the number of patients who were actively evaluated for lung illnesses, including lung cancer.

The five-year American Joint Commission on Cancer (AJCC) survival by stage graph represents our non-small cell lung cancer patients. The AJCC TNM staging system is used primarily for non-small cell lung cancer. Small cell lung cancers are usually classified as “limited” or “extensive” stage. “Limited stage” is equivalent to AJCC Stages 1 through 3b and “extensive stage” is equivalent to AJCC Stage IV disease in the AJCC TNM system. Smoking is one of the primary causes of both types of lung cancer.
Lung Cancer and smoking cessation — How quitting reduces your risk over time!


**12 hours after quitting:** The carbon monoxide level in your blood drops to normal. (US Surgeon General's Report, 1988: 202).


**1 to 9 months after quitting:** Coughing and shortness of breath decrease; cilia (tiny hair-like structures that move mucus out of the lungs) regain normal function in the lungs increasing their ability to handle mucus, clean the lungs, and reduce the risk of infection. (US Surgeon General's Report, 1990: 285-87, 304).

**1 year after quitting:** The excess risk of coronary heart disease is half that of a smoker's. (US Surgeon General's Report, 1990: vi).

**5 to 15 years after quitting:** Your stroke risk is reduced to that of a nonsmoker. (US Surgeon General's Report, 1990: vi).

**10 years after quitting:** The lung cancer death rate is about half that of a continuing smoker's death rate. The risk of cancer of the mouth, throat, esophagus, bladder, cervix, and pancreas decrease. (US Surgeon General's Report, 1990: vi, 131, 148, 152, 155, 164, 166).

**15 years after quitting:** The risk of coronary heart disease is that of a non-smoker's risk. (US Surgeon General's Report, 1990: vi).

**The high cost of tobacco use**

**Example:** If you started smoking when you were 16 years of age (born 1987):

- How much would you pay for a pack of cigarettes? (Average of $5.50 per pack)
- How many cigarettes are you smoking each day? (20 per pack)

<table>
<thead>
<tr>
<th>Cost per day</th>
<th>$ 5.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per week</td>
<td>38.50</td>
</tr>
<tr>
<td>Cost per month</td>
<td>154.00</td>
</tr>
<tr>
<td>Cost per year</td>
<td>2,007.50</td>
</tr>
<tr>
<td>Cost if you continue smoking for 5 years</td>
<td>10,037.50</td>
</tr>
<tr>
<td>Total cost to date:</td>
<td>$12,248.50*</td>
</tr>
</tbody>
</table>

Find out how many cigarettes you smoke over a period of time with the American Cancer Society Cigarette Calculator at www.Cancer.org (search: cigarette cost calculator).

**And just a few of the other smoking-related costs not included in the above tobacco use total. Some of these will surprise you...**

- Proposed higher health insurance premiums for smokers
- More frequent doctor visits overall than non-smokers
- Frequent colds and associated respiratory infections with longer recovery time requiring more doctor visits and over-the-counter medicines
- Frequent earaches and sore throats with longer recovery time requiring more doctor visits and over-the-counter medicines
- Frequent doctor visits for ear infections and upper-respiratory infections by children who live in homes of smokers due to secondhand smoke exposure
- Frequent doctor visits for lung cancer
- Frequent doctor visits and lung cancer treatment — surgery, chemotherapy, and radiation
- Frequent doctor visits for blood in urine to rule out Bladder Cancer, which is also a related smoking risk
- Frequent doctor visits for elevated blood pressure
- Frequent doctor visits for pulmonary vascular disease
- Frequent doctor visits for chronic obstructive pulmonary disease (COPD)
- Frequent doctor visits for secondary polycythemia — a hematologic smoking-related illness in patients with COPD
- Frequent doctor visits due to higher risk of heart disease
- Surgery for heart valve replacement
- Frequent lab tests to monitor any of the above illnesses
- Higher health insurance rates now being accessed to smokers
- Higher life insurance cost or inability to get life insurance
- Higher repair and refurbishment costs when selling or renting a home or car where a smoker resided — repainting, carpet replacement, seat/sofa cleaning costs
Step One: February 1, 2008 kickoff of our “Tobacco-Free Campus Initiative” at Health First hospitals

In 2008 there was a major positive step to the future reduction of newly diagnosed lung cancers at with our facilities when Health First announced the kickoff of our “Tobacco-Free Campus Initiative” on February 1, 2008, with activation on November 20, 2008.

From the March 2008 Associate’s Press (Health First internal employee newsletter):

“Health First announced its intent to implement a Tobacco-Free Campus Initiative on February 1. Eliminating tobacco use on hospital campuses is becoming the standard to ensure a healthier environment for everyone in our facilities. The Tobacco-Free Campus Campaign policies and guidelines, which are currently being developed, will be rolled out over the next ten months. The policy itself will become effective November 20, the Great American Smoke-out Day promoted by the American Cancer Society. This new effort will take our Health First hospitals and facilities from being tobacco-free within our buildings, which they have been for some time, to being completely tobacco-free throughout all our campuses, including all outdoor grounds and parking areas.”

Step Two: November 2008 “Tobacco-Free Campuses” Smoking Cessation begins!

Starting November 20, the American Cancer Society’s (ACS) “33rd Great American Smoke-out Day” smoking was no longer allowed on any HF campus, including all outdoor grounds and parking areas.

In advance to November 20, 2008, and on an ongoing basis Health First actively provides resources for associates who are trying to quit smoking at all the Health First campuses and facilities.

To assist with the smoking cessation efforts, Health First Health Plans (HFHP) recently added coverage of Chantix®, an oral medication to help stop smoking. Chantix® carries a $45 co-pay and is available to all Health First associates and family members, regardless of participation in HFHP coverage. Coverage for associates not insured through HFHP was made through special arrangement with ourHF Family Pharmacy. Nicorette® gum and Nicoderm-CQ® patches are also available through the HF Family Pharmacy.

Health First employees (associates) are encouraged to go online to the HF intranet, Inside Health First, and click on “Quit Smoking Now!” This link directs associates to the schedule of the “Quit Smoking Now” Classes are continuously offered at Health First hospitals. There is no fee for this four-week smoking cessation program. Together we can reduce tobacco use and save lives!

Smokers, including visitors to our facilities, can also call the toll-free “Florida Quit Line” at 1-877-822-6669 to speak with a Florida Department of Health smoking cessation counselor and to arrange for free smoking cessation patches, gum, and lozenges. You’ll need to check in periodically with the Florida Department of Health counselor to report on your progress to receive additional smoking cessation aids.

Conclusion

It is our hope that you find this lung cancer site study will be useful in the understanding of lung cancer and its primary causes. If you don’t smoke, please don’t start; if you do smoke, please quit. We don’t want you to become one of our future statistics,…so please protect your health.
Lung Cancer (Non-Small Cell Carcinoma)
By Michael C. Ott, MD, Pulmonologist

Lung cancer is the most common cause of cancer mortality for men and women worldwide. Lung cancer is responsible for approximately 1.2 million deaths per year. The latest available information for 2008 indicates 215,000 new cases of all lung cancer types with an estimated 162,000 deaths, or 29% of all cancer deaths, are caused by lung cancer in United States. Colorectal, breast, and prostate cancers, in contrast, are responsible for only 124,000 deaths combined.

Lung cancer is the most preventable cancer. Smoking accounts for more than 8 out of 10 lung cancer cases. To date, no screening test has been shown to reduce the mortality from lung cancer. However, this remains an area of active interest and research. Because symptoms often do not appear until the disease has progressed, early detection is difficult.

Treatment options for Lung Cancer
Surgery, chemotherapy, and radiation therapy either in combination or alone remain the most common treatment modalities for lung cancer, depending on the cancer type and stage.

Smoking cessation initiatives at our hospitals
Holmes Regional Medical Center in Melbourne, Florida, and Palm Bay Hospital in Palm Bay, Florida, began Tobacco-free Campus and cessation initiatives in February 2008 along with our sister Health First hospital, Cape Canaveral Hospital in Cocoa Beach, Florida, and all other hospitals in our county (by an allied agreement that was initiated by Health First, our parent healthcare system).

During 2008, I had the pleasure of making a Continuing Medical Education presentation to the Medical Staffs at each of the three Health First hospitals to raise awareness about Health First’s upcoming “Tobacco-Free Campus Initiative,” which was officially implemented on November 20, 2008 to coincide with the American Cancer Society’s “Great American Smokeout Day”.

The presentation was well attended by area physicians, pharmacists, and other allied health professionals. The Florida Department Health’s smoking cessation educator distributed smoking cessation information to all attendees at the presentation.

Beginning in February 2008, Holmes Regional Medical Center and Palm Bay Hospital (as well as Cape Canaveral Hospital) began offering ongoing six-week “Quit Smoking Now” classes taught by Florida State Department of Health Instructor Lynette Fodor, MPH. The upcoming smoking cessation class schedule is posted on www.Health-First.org.

“Stop Smoking, Start Dialing Program — Freedom is within Reach” smoking cessation support is also offered free of charge through the Florida Department of Health’s Division of Health Access and Tobacco Prevention Program. Smoking Cessation Hotline information is provided through the Florida Quit Line (toll-free hotline) at 1-877-822-6669. This toll-free smoking cessation support program provides 24/7 smoking cessation support/counseling by trained professionals. The Florida Quit Line also provides coupons to acquire free smoking cessation patches, gum, and lozenges. Information posters are posted throughout our hospitals to aid in the efforts of smoking cessation.

This Lung Cancer Site Study contains a 5-year non-small cell lung cancer survival graph comparing Holmes Regional Medical Center and Palm Bay Hospital with the Nation and Southeast region of the United States. Our hospitals’ survival rates equal if not exceed national and regional survival rates.

I hope that the information contained this site study is helpful. I cannot stress the importance of smoking cessation in the control of all lung cancers.

Sincerely,

Michael C. Ott, MD
The Medical Oncologist may meet a new lung cancer patient at any stage of his or her illness. From consultation for abnormal Radiology studies to decisions on obtaining histologic specimens, to staging and treatment administration, to long-term and sometimes terminal care, the care that is provided at each phase of a lung cancer patient’s history has changed steadily over the last 30 years. I will briefly examine the history of the medical treatment of lung cancer, provide a thorough review of currently available treatments, and offer a few final thoughts on where we might be headed.

Small Cell Lung Cancer
A distinction must be made between the management of small cell lung cancer (SCLC) and the non-small cell lung cancers (NSCLCs), which include squamous cell carcinoma, adenocarcinoma, large cell carcinoma, and bronchoalveolar carcinoma.

SCLC represents a minority of lung cancer diagnoses both nationally and here in Brevard County and accounts for about 20% of all lung cancers. Approximately 30,000 cases will be diagnosed in the United States in the current calendar year. This presents an apparent contradiction in that it is a highly responsive disease to treatment in qualified candidates but relapses frequently and spreads early. SCLC is managed with chemotherapy in most patients who receive treatment, which may be combined with radiation in those whose disease is localized within the chest. Clinical trials may be appropriate for those who qualify.

The use of prophylactic cranial irradiation, or PCI, has been a long standing area of study in the management of patients who have a complete response to systemic chemotherapy with SCLC. A problem arises because of the propensity of SCLC to relapse in the brain, a protected “sanctuary” site where chemotherapy agents do not penetrate in sufficient concentration to eradicate cancer cells. Controversy has dogged this issue because of the sometimes serious cognitive effects PCI may have over time. The current belief is that it is of benefit in selected patients who are well informed of the risks.

Treatments for NSCLC — The Past
The advent of effective treatment for NSCLC with chemotherapy came with the 1978 introduction of CisPlatinum, which remains the single most effective agent in the treatment of lung cancer. It is also one of the most difficult chemotherapy drugs to take and its use before the introduction of Ondansetron in 1991 was cause for a three- to five-day hospital stay requiring IV hydration and antiemetic therapies. The introduction of Carboplatin in 1989 provided a better tolerated but slightly less effective drug, which has supplanted Cisplatin for most lung cancer treatments.

Taxanes, Paclitaxel, and Docetaxel were introduced in the 1990s and have gained wide use in the treatment of NSCLC. Paclitaxel has been used in combination with Carboplatin and radiation as a safe, generally well-tolerated and effective therapy for patients with locally advanced or unresectable NSCLC for nearly 15 years.

Treatments for NSCLC — The Present
Positron Emission Tomography (PET) scanning has had a major impact on the selection of patients for surgery with the intent to cure lung cancer. PET is able to reliably demonstrate metastatic involvement of lymph nodes in the mediastinum, which conveys an extremely high risk of relapse and avoids surgery for many patients who would not derive a benefit from it.

A landmark study, published in the New England Journal of Medicine (NEJM) in 2004 by the International Adjuvant Lung Cancer Trial demonstrated a statistically significant improvement in five year survival for early (Stage III) stage NSCLC patients who received platinum based chemotherapy after complete resection of their lung cancer. This is usually given for three to four months and is a new standard of care for eligible patients.

Bevacizumab is an antibody against VEGF, which cancer cells produce to gain access to a blood supply for their growth. Without new blood vessels, cancer cells cannot increase their numbers effectively, making them more susceptible to other treatments. Bevacizumab is usually combined with chemotherapy in
the treatment of metastatic lung cancer and an everincreasing number of other cancers.

Recent advances in lung cancer management have focused on the use of histology and tumorspecific genetic information to guide treatment decisions. **Pemetrexed** has been demonstrated to be superior to other available agents when combined with **carboplatin** for patients who do not have squamous cell histology, a level of distinction we are just beginning to make with the promise of more to come as more genetic changes unique to the cancer cell are examined for their effect on response to different therapies.

**Erlotinib**, which works by inhibiting an enzyme inside the cell and is not a traditional “chemotherapy” drug, may be an effective therapy in certain populations, namely women and nonsmokers with lung cancer. While it is attractive to many patients because it does not carry the chemotherapy stigma, it can have serious side effects and patients must be carefully educated about reporting persistent symptoms to their Oncologist.

**NSCLC — The Future**
The advances described above represent incremental improvements and insights in our treatment of NSCLC. Combinations of growth inhibitors like EGFR targeting agents, VEGF inhibitors, intracellular and cellmembrane enzyme interaction inhibitors, and chemotherapy will form a multipronged approach to the management of patients with advanced disease. These treatments can easily cost $200,000 in one year and will, again, have just a small, additional effect on survival for most people. We are beginning, as a nation, to question the wisdom of astronomical expense for, on average, improvements in survival measured in months. Some have called for a Manhattan Project like effort to find a cure for cancer. It appears it will be many years before the technology is available to repair the genetic mistakes that lead to cancer formation unless some quantum leap in our understanding of these processes is at hand.

Prevention remains the single most effective way of limiting lung cancer's impact on the individual and society as **95% of lung cancer occurs in smokers**. It is estimated that the number of deaths annually from lung cancer could be reduced by 80% in 20 years if tobacco is banned. However, tobacco's role in our history and culture makes this unlikely anytime soon.

*Respectfully submitted,*

*Craig J. Badolato, MD, FACP*
Lung cancer is the most common non-skin cancer worldwide. In the United States, it is the second most common cancer, in both men and women. Lung cancer is the number one cause of cancer death, both in the United States and world. In 2009, there will be an estimated 219,000 new lung cancer cases and 159,000 deaths in the United States alone. In contrast, the combined death rates of colorectal, breast, and prostate cancers will be 118,000. More than 90% of lung cancer cases are associated with active or passive smoking.

Lung cancer is divided into two main types for staging, prognosis and treatment: non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). This review is limited to NSCLC.

Nearly 75% to 80% of all lung cancers are NSCLC in type. Main pathological types include adenocarcinoma, squamous cell, large cell, and bronchioalveolar. Carcinoid tumors are rare.

Work-ups for lung cancer should consist of: History & Physical, including performance status and weight loss, hematological tests of CBC, CMP, and Radiology investigations such as chest X-Ray, CT and PET scans. An MRI of the brain is included for neurological symptoms for cancer greater than Stage III. Pulmonary function tests are a pre-requisite in surgical candidates. Optimal values are FEV1>75% and DLCO > 60%. Bronchoscopy, CT-guided biopsy, and thoracocentesis can yield pathological diagnosis. In select groups, mediastinoscopy can aid in staging and treatment.

Staging for NSCLC is by the tumor, node, and metastasis (TNM) system. A major revision of the TNM system for lung cancer staging was undertaken and approved in August 2009 by the International Association for the Study of Lung Cancer (IASLC). A discussion of the new TNM staging is beyond the scope of this overview. Readers are requested to review the 7th edition of the TNM Manual.

Treatment for NSCLC depends on the stage and performance status of the patient. In early stage NSCLC (Stages I & II), a complete surgical resection offers the best potential for long-time survival and cure. A lobectomy is preferred over a pneumonectomy. A wedge resection is not oncological surgery. Post-operative chemotherapy may have a role in completely resected tumors greater than or equal to 4 cm. In those patients who undergo marginal resection, with close and/or positive margins, or nodal extracapsular extension, post-operative XRT can be considered. In patients with inoperable Stage I & II NSCLC, definitive XRT to primary with involved nodes can be undertaken. The role of dose escalation using radiosurgical techniques and radiofrequency ablation is under investigation. Chemotherapy may be considered.

In patients with clinical Stage III NSCLC, a combined modality approach is preferred. Surgery can be performed in carefully selected T3 patients with negative mediastinal lymph nodes. In marginally operable Stage IIIA NSCLC patients, preoperative chemotherapy or preoperative chemoradiation can be performed. The patient is then re-staged. If there is no progression, then surgery may be performed. Post-operative chemotherapy with or without radiation can then be considered, based on the final pathological stage. If the tumor is inoperable after neoadjuvant therapy, then definitive chemoradiation should be undertaken.

For inoperable Stage IIIA NSCLC patients, concurrent chemoradiation followed by adjuvant chemotherapy is the preferred modality of treatment. Rarely, induction chemotherapy followed by concurrent chemoradiation may be considered.

In patients with Stage IIIB NSCLC, standard treatment consists of concurrent chemoradiation, followed by adjuvant chemotherapy. Should the patient have poor performance status, induction chemotherapy followed by concurrent chemoradiation may be undertaken. If the patient is diagnosed with pleural effusion, the effusion is tapped and then the patient may be treated as in Stage IV.

In good performance Stage IV (ECOG 0-2) NSCLC patients, the treatment of choice is chemotherapy. Palliative radiation can be considered.
In those patients with poor performance (ECOG 3-4), best supportive care with or without chemotherapy can be considered.

For operable superior sulcus tumors, the preferred treatment consists of concurrent chemoradiation followed by surgery, then post-operative chemotherapy. Alternatively, surgery followed by post-operative chemotherapy and radiation for close margins or nodal disease may be considered. In marginally resectable tumors, concurrent chemoradiation and restaging is performed. If there is no progression, then surgery is performed. For inoperable superior sulcus tumors, the treatment of choice is definitive concurrent chemoradiation.

The role of prophylactic cranial radiation (PCI) in advanced NSCLC patients who have completely responded to primary treatment has been investigated. PCI has delayed and reduced incidence of brain metastasis, but has had no impact on overall survival.

Treatment of metastatic disease depends on site and number of metastases, clinical symptomatology, performance status, and the patient’s choice. Brain metastasis can be treated with surgery and/or radiation. Dyspnoea due to central airway disease may be palliated with external radiation, brachytherapy, stenting, laser surgery, or cryoablation.

**Prognosis of NSCLC:** The greatest impact on prognosis depends on the TNM staging at presentation. Survival decreases progressively with advancing stage, from a median of 59 months for Stage IA to four months for Stage IV. Other clinical predictors of survival include performance status and weight loss. Pathological parameters that influence survival include tumor differentiation and lymphatic invasion. There is no single molecular marker that constantly predicts outcome. Gene expression profiling is under investigation. The use of PET-CT as a prognostic tool is also under study.

Follow-up of patients treated for NSCLC includes History & Physical and chest X-ray every three to four months for two years, then semi-annually for three years. A CT chest scan should be performed annually. PET scans are optional.

*Respectfully submitted,*

*Ravi A. Shankar, MD*
HOLMES REGIONAL MEDICAL CENTER/
PALM BAY HOSPITAL
NEOPLASTIC DISEASE COMMITTEE PARTICIPANTS IN 2008

Nicola Ally, MD
Radiation Oncologist
Kathy Bauman, BA
Oncology Abstractor
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Director, Pastoral Care
Susan Burgess, RN
Oncology Nurse Manager, 6 East
Jan Catchpole, PT
Rehabilitative Services
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Oncology Nurse Manager, 6 East
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Pathologist
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Director, Oncology Services Community Outreach Coordinator
Mike Edwards, PharmD
Pharmacy Director
Katherine Freeman
Cancer Registry Data Assistant
Karrie Gibson
Wellness Coordinator
Pro-Health & Fitness Centers
Karrie Gonzalez
Area Patient Representative American Cancer Society
Donna Howell, ARNP
Pain Management
Terri Kleger, BA, MSW
Oncology Social Worker
Patty Mankowski, RN, CQC
Quality Improvement Coordinator
Aneal Masih, MD
Pathologist
Chris McGahee
Marketing, Communications, Holmes Regional Medical Center
Diana Monda, BA, MSW
Oncology Social Worker
Susan Ohlin, CTR
Certified Tumor Registrar Holmes Regional Medical Center/ Palm Bay Hospital Tumor Board Coordinator Quality Control Cancer Registry Data Coordinator
Fe Panciito, MD
Radiation Oncologist
José Ramos, MD
Diagnostic Radiologist
Ursula Rigsby, RN, BSN, OCN
Oncology Nurse
Victor Rodriguez, RD
Clinical Dietician
Ronald Stern, MD
Anesthesiologist Pain Control Physician
Agnes Straker, RN
Case Manager
Jared Thomas, MD
Diagnostic Radiologist
Roberta Van Dusen, LCSW
Executive Director Hospice of Health First