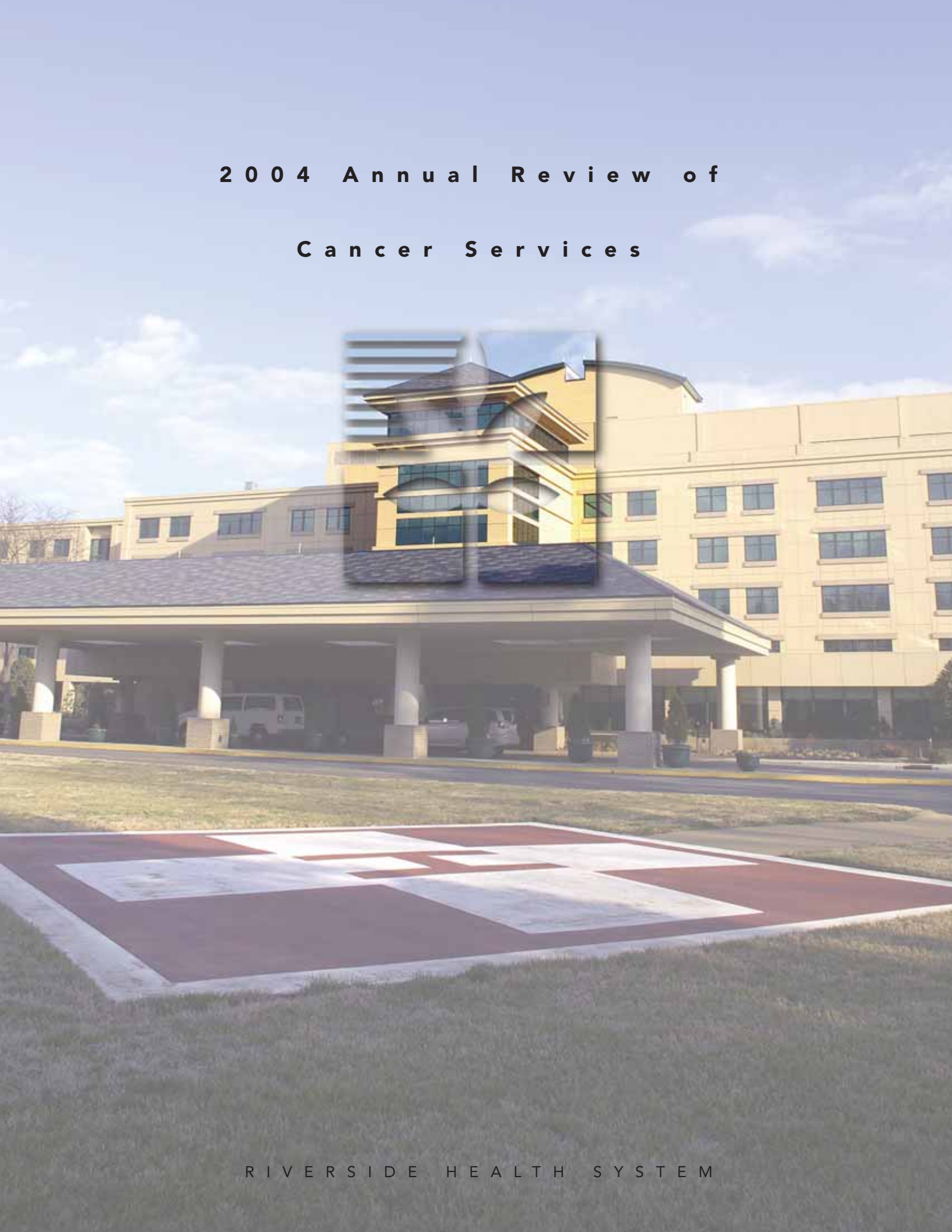
2004 Annual Review of Cancer Services



RIVERSIDE HEALTH SYSTEM

Mission

WHY WE ARE HERE

To improve the health and well being of the people in the communities where we provide care.

Vision

WHAT WE ASPIRE TO BE

Riverside will be where people turn when they need compassionate care, leading edge technology, and the service and support they deserve.

Values

WHAT WE BELIEVE IN, WHAT WE STAND FOR

We believe in the ability of healthcare to make a difference in the lives of others and we believe in the people who make that difference.

RIVERSIDE

Improving Health and Saving Lives

Published by Riverside Cancer Services

Riverside Regional Medical Center

500 J. Clyde Morris Boulevard • Newport News, VA 23601

Cancer Registry 594-3054

Oncology Committee Members 2003

Elizabeth Harden, MD, Chair .....Medical Oncology
Richard A. Hoefer, DO, ACoS Liaison .....Surgical Oncology
John Q. A. Mattern, DO.....Medical Oncology
Bruce Booth, MD .....Medical Oncology
Joseph D. Layser, MD.....Radiation Oncology
James A. Wassum, MD .....Radiation Oncology
Curtis Stoldt, MD .....Radiology
Carl Lindemann, MD.....Family Practice
John C. Maddox, MD.....Pathology
Christina Marcuson, MD.....Dermatology
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Susan Falen.....Service Line Director, Oncology
Beverly Voglewede .....Director of Cancer Services
Paula Burcher.....Administrative Director, Radiology
Doug Watson .....Pastoral Care
Ora Mae Jackson .....Protocol Manager
Yvonne Pike.....Hem/Oncology Care Coordinator
Kendra Cooper .....Performance Improvement
Nancy Grant .....Nurse Manager, 5 West
Pat Emerson .....Hem/Onc Clinical Coordinator
Sharron Nichols .....Hospice/Support Group Coordinator
Ann Tatterson .....Dir. Clinical Operations, Home Health/Hospice
Martha Petit.....Hospice
Michelle Wooten .....Dir. Med/Surg. Svcs/Oncology Services
Evie Sutton .....Staff Development
Paige Williams .....Dietary
Fran Holcomb .....Cancer Education/Outreach
Brad Kirby .....Cancer Registry
Pauline Shofner .....Cancer Registry
Carol Richards .....Cancer Registry
Kathie Waters .....Home Health
Karen Babb .....American Cancer Society

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For additional information regarding Riverside Cancer Services, please call (800) 520-7006.

For comments or questions regarding this Annual Report or the Cancer Registry, please call (757) 594-3054.

Annual Review of Riverside Regional Medical Center's Cancer Program

The care of the patient with cancer presents a challenge to each and every health care professional. This annual report reflects the multidisciplinary approach provided at Riverside Regional Medical Center. Included within this annual report are a summary of Oncology-related services and two studies. The first study reviews Riverside's experience with adult acute leukemia over the last 13 years since the opening of the Oncology Unit. The second report outlines the multidisciplinary approach to the diagnosis, staging and treatment of lung cancer, the leading cause of cancer deaths for both men and women.

Elizabeth Harden, MD
Chair, Oncology Committee, 2003

Riverside Cancer Services

500 J. Clyde Morris Blvd., Newport News

Mission Statement

It is our mission to provide the highest quality health care information, treatment and social support to those families in Southeastern Virginia who encounter Cancer.

To ensure continuity and growth, we will fulfill this mission in an economically responsible manner.

If in any case we are unable to provide appropriate support for a patient, family, or physician, we will enthusiastically aid in the search for that support.

AMERICAN COLLEGE OF SURGEON'S ACCREDITATION

The Commission on Cancer of the American College of Surgeons (ACoS) has provided national leadership in their assurance of high quality cancer care for over 50 years.

The goal of the ACoS program is to decrease morbidity and mortality of the cancer patient. The general strategy is to encourage qualified hospitals to improve cancer control through cancer-related programs. The ACoS is continually refining the standards for approval to reflect the changes taking place in today's health care environment.

Approval of a program by the ACoS demonstrates that the necessary elements are in place and functioning at a level consistent with predetermined quality control standards. Those essential components include 1) state-of-the-art clinical services 2) a multidisciplinary cancer committee, 3) a cancer registry to monitor the quality of care, 4) patient-oriented case conferences, and 5) a quality improvement program for improving patient outcomes.

Riverside Regional Medical Center and the entire Riverside Health System are dedicated to maintaining a Community Hospital Comprehensive Cancer Program. The Riverside Cancer Program has been approved since 1982 and obtained a 3-year approval in December 2003. This level of accreditation requires a full range of diagnostic and treatment services, AJCC staging, clinical research, oncology nursing, pain management, rehabilitation, support services, and prevention/early detection programs.

Bradley W. Kirby, MPH, CTR – Cancer Registry Supervisor
(757) 594-3054

ONCOLOGY COMMITTEE

Riverside Regional Medical Center has an Oncology Committee for the purpose of providing superior care to patients with cancer. It is a multidisciplinary committee comprised of medical staff and representatives from each of the departments involved with the care of cancer patients. The committee convenes every other month and provides leadership and professional guidance for the Riverside Cancer Program. The focus of this committee is to: develop annual goals and objectives for programs related to cancer, promote an organized approach to patient management, oversee weekly consultative Cancer Conferences (Tumor Boards), review patient care evaluation studies, oversee Performance Improvement activities, supervise the Cancer Registry to ensure accuracy, and to provide leadership for community screening and education programs.

In 2003, the committee met six times and reviewed reports from the Cancer Registry, Radiation Oncology, Inpatient Oncology Service, Oncology Staff Education, Cancer Services, Hospice, Oncology Care Management, Cancer Education/Outreach, and the Riverside Diagnostic and Breast Imaging Center. Other cancer care related activities were announced or reviewed as appropriate.

Bradley W. Kirby, MPH, CTR – Cancer Registry Supervisor
(757) 594-3054

CANCER REGISTRY

500 J. Clyde Morris Blvd., Newport News

The Riverside Cancer Registry is an integral part of the hospital cancer program and is a requirement for approval of a cancer program by the American College of Surgeon (ACoS). This registry is a data collection system designed for the collection, management, analysis, and dissemination of data on cancer cases diagnosed and/or treated at Riverside Regional Medical Center. Riverside's registry has been active since 1979.

The goal of the Registry is to provide data that supports the appraisal of the results of diagnostic and therapeutic effects at Riverside Regional Medical Center (RRMC). The data maintained by the Registry is available for use by the medical staff and administration. To provide surveillance and meaningful reporting, each case is followed and updated annually.

Data from this registry is reported to the Virginia Cancer Registry and the National Cancer Data Base (NCDB). The NCDB serves as a comprehensive clinical surveillance resource for cancer care in the United States and contains oncology outcomes for 1,438 hospitals in 50 states. The purpose of this database is to improve the quality of cancer care by providing physicians, cancer registrars, and others with a comparison of their cancer care management to the care of other facilities throughout the nation.

The Riverside Cancer Registry now includes a database of 26,640 cases and 1,113 cases were added to the Registry for 2003. This Annual Report contains a review of 2003 accessions (new cases), as well as site-specific reports on lung cancer and acute leukemias.

Carol Richards, CTR – Certified Tumor Registrar
(757) 594-3054

Staff Education

CANCER CASE CONFERENCE (TUMOR BOARD)

500 J. Clyde Morris Blvd., Newport News

Cancer Case Conferences are a major educational element in the Riverside Cancer Program and are a requirement for accreditation by the American College of Surgeons (ACoS).

Patient-oriented Cancer Case Conferences (Tumor Boards) are held weekly for discussion of the most appropriate management of cancer patients. This conference consists of a multi-disciplinary team of physicians and ancillary staff members whose primary goal is to educate and improve cancer care at Riverside Regional Medical Center. The conference provides prospective case review and assures the patient access to consultative services that include pre-treatment evaluation, staging and treatment recommendations. The managing physician and the patient make all final treatment decisions. During 2003, 52 Tumor Boards were held with 185 individual cases studied and discussed.

Pauline C. Shofner – Tumor Registrar
(757) 594-3054

DIDATIC LECTURES

Didactic lectures were held during 2003 featuring guest speakers from a variety of medical centers and universities. Speakers were invited through the office of the Medical Education Department, often based on direct requests from members of the Riverside medical staff.

FEBRUARY
"Cytoprotection For Combined Chemotherapy/Radiation"

MARCH
"Cancer of Prostate and Erectile Dysfunction"

APRIL
"Aspects of Colon Cancer Screening"
"Breast Reconstruction"

MAY
"Lymphedema Treatments and Prevention of Chronic Lymphedema"

SEPTEMBER
"Lymphedema Treatments"
"Ocular Oncology Update"

OCTOBER
"Management of Hereditary Cancers"

NOVEMBER
"Innovations in Lung Cancer Care – Advisory Board Teleconference"

DECEMBER
"Surgical Management of Ovarian Cancer"

STAFF DEVELOPMENT

500 J. Clyde Morris Blvd., Newport News

Staff Development provides educational programs and workshops to assist the healthcare professional attain and maintain competence and expertise in oncology. Oncology education includes chemotherapy certification, clinical skills, and oncology updates focusing on current and projected medical and surgical cancer treatment.

Staff Development is committed to providing the highest quality education to assist healthcare professionals in achieving and maintaining the knowledge and expertise to provide the highest quality care to the population with oncology conditions.

Guidelines for patient/family education are available to encourage patient teaching across the continuum of cancer care services. Additionally, the patient education television channel, offers oncological-related topics, and is available to patients at Riverside Regional Medical Center for viewing in their rooms.

Patient Care Services

HOSPICE

11815 Rock Landing Dr., Newport News

Riverside Hospice affirms life and regards dying as a natural process. The hospice program exists to provide support and care for persons, their families and caregivers in the last phases of incurable disease so the patient might live as fully and comfortably as possible. Hospice services neither hasten nor postpone death.

The goal of hospice care is to achieve the best possible quality of life through relief of suffering, control of symptoms and restoration of functional capacity. Palliative treatment for pain and symptom management includes a wide variety of therapies and treatments as agreed upon by the interdisciplinary team. Routine hospice care is delivered in a variety of settings to include: patients' homes, assisted living facilities, and nursing homes. Respite and acute pain and symptom management may be delivered by hospice in acute care settings or skilled nursing facilities. During care and follow-up services, Riverside Hospice remains sensitive to personal, cultural and religious values, beliefs and practices.

The concepts utilized by Riverside Hospice to provide effective care are: the interdisciplinary team approach, treatment of the patient and family as a unit of care, physician supervision, comprehensive care (ensuring continuity between settings), symptom management, spiritual and psychosocial support, provision of durable medical equipment and medication related to pain and symptom management, provision of on-call services twenty-four hours a day seven days a week, utilization of volunteers, bereavement counseling for at least one year after patient's death and staff training and support.

In 2003, Riverside Hospice Program admitted two hundred and seventy (270) patients and their families; four hundred sixty-four (464) families and caregivers participated in the bereavement program. Volunteers donated many hours of service to hospice patient care.

Riverside Hospice actively participates in community sponsored educational programs through community talks, seminars, and volunteer training programs.

Riverside Hospice, a nonprofit organization, is CHAP-accredited, state licensed, Medicare and Medicaid certified, and works with many third party payers. In addition, Riverside Hospice is a member of the NHPCO, NAHC, and VHA.

Ann Tatterson, RN – Director, Hospice
(757) 594-2745

HOME CARE

856 J. Clyde Morris Boulevard, Suite C
Newport News, VA

Riverside Home Care provides a variety of services to patients on the Peninsula, Middle Peninsula, and Northern Neck including Home Health, Infusion and Pharmacy, and Hospice. The health care professionals that make up the Home Care Division are dedicated to providing high quality services and work closely

with the patient's physician to plan and deliver the most effective and individualized care possible. Admission begins with a referral from the physician and a visit from a registered nurse, physical therapist, or speech therapist to identify needs, establish goals for treatment, and begin planning for continued care when home care services are no longer needed.

Home care is a valuable service for many different kinds of patients and can be especially helpful to those with cancer. The home health team can assist patients with nursing and therapy needs, nutritional and pain management issues, activities of daily living, and in locating community resources as appropriate. Home health patients have the assurance of a nurse on call 24 hours a day, 7 days a week.

When a cure is no longer possible and treatment shifts from a curative approach to a quality of life approach, hospice care is available to meet end of life needs. The hospice team works with patients and their families and caregivers to address the physical, emotional, and spiritual needs associated with a terminal illness. Patients with a life expectancy of six months or less are eligible for services and all care is guided by the patient's own physician and the Hospice Interdisciplinary Team. Hospice patients also have the assurance of a nurse on-call 24 hours a day, 7 days a week.

Sharon Whitley – Community Liaison, Home Care
(757) 594-5600

5-WEST ONCOLOGY UNIT

500 J. Clyde Morris Blvd., Newport News

Five-West is a 29-bed unit that specializes in the care of the oncology patient. Two lead-lined rooms in the unit accommodate cesium implants and radioactive iodine therapy patients.

The goal of the 5-West staff is to provide expert care that improves health and well being for patients in all stages of cancer. The unit has six Oncology Certified Nurses and the RN staff is certified to administer chemotherapy. Nurses on the unit care for the newly diagnosed patient, those receiving cancer treatment such as chemotherapy or radiation therapy, those receiving care for symptom control (both from the disease or the side effects of treatment), and those needing palliative care. The staff has extensive knowledge and skill in pain management.

Regardless of the stage of illness, supportive care and education is provided to patients and their families. Patients are encouraged to participate in the decision-making process and to optimize available resources to enhance their quality of life. Care of the oncology patient requires the support of many disciplines. Five-West provides the services of an oncology pharmacist, care managers, a discharge planner, dietitian, physical therapist and a chaplain. All are available to help with the physical, emotional and spiritual healing of the patient. The 5-West staff has a close relationship with the Hospice Program and the Hematology/ Oncology Unit teams.

Nancy J. Grant, RN, BSN, OCN – Nurse Manager
(757) 594-2564

HEMATOLOGY/ONCOLOGY UNIT

500 J. Clyde Morris Blvd., Newport News

The Hematology/Oncology Unit (Hem/Onc) is a six-bed specialty care unit that is designed to care for the critically ill oncology patient by providing high quality patient-focused care in accordance with standards of excellence. The design of the unit facilitates the complex needs of the oncology patient with multi-body system support needs. This includes those individuals who need care following complex surgical procedures; stem cell transplants, and newly diagnosed leukemia patients. All patients are provided care by the interdisciplinary team collaborating to support the wellness of the patient.

Criteria for admission to Hem/Onc is an oncology diagnosis, as well as patients with stem cell transplants, patients requiring hemodynamic monitoring, ventilator support, or vasoactive drips. The Hem/Onc Unit has 3 oncology certified nurses. The unit anticipates meeting increased demands for more specialized and sophisticated medical care in the upcoming years. The Hem/Onc, unit in cooperation with Virginia Oncology Associates, participates in clinical trials through National Surgical Adjuvant Breast (NSABP), Cancer and Leukemia Group B (CALBG), Duke Oncology Consortium and US Oncology.

Patricia Emerson, RN, BSN, OCN – Nurse Manager
(757) 594-3222

PAIN MANAGEMENT

James River Comprehensive Pain Management, PC
11848 Rock Landing Drive, Suite 303,
Newport News

The Comprehensive Pain Management Center opened in August 1999. Since that time the pain specialist has seen patients with many types of cancer including: breast, lung, pancreatic, and cervical cancer.

The Center offers a wide variety of treatment modalities ranging from conservative, non-invasive therapy to invasive interventional techniques for patients with all types of chronic and acute pain. Chronic pain patients require a multidisciplinary management approach, which can include but is not limited to pharmacotherapy (i.e. medications), injections, physical therapy and rehabilitation, surgical consultation, and management of depression/mood. Early intervention is the key to any successful treatment.

Lynn F. Dahl, DO – Diplomate, American Board of Anesthesiology
Diplomate, American Board of Pain Medicine
(757) 591-2260

ONCOLOGY CARE MANAGEMENT

500 J. Clyde Morris Blvd., Newport News

From the time of a cancer diagnosis and throughout follow-up and treatment, patients and their families encounter the healthcare system at many entry points. Often this experience brings overwhelming physical, psychosocial, and spiritual distress, which is unique to each person. To help patients and their supporters better maneuver this time and maintain the greatest degree of wellness and quality of life, the Oncology Care Management team is available to intervene and assist.

Care Coordinators work closely with physicians and other healthcare professionals to monitor quality of care and assure efficient use of resources to promote the best possible outcomes. Ongoing dialogue is held with patients, families, and the entire interdisciplinary care team to reassess and address changing needs. An ongoing attempt is made to meet these needs and anticipate challenges to reduce their impact where possible. One central goal of care management is to bridge the gap in care that can occur when a patient leaves the hospital. The Care Manager collaborates with the physician's office, Home Health, and Hospice agencies to help with this transition. Patients are thereby prepared for the "next step" in cancer care. Attending to current needs and anticipating future ones, patients and their families are assured timely and supportive services. By pooling resources and working together, our goal is for patients to feel more supported and cared for during this frightening experience.

Yvonne Pike, M.Ed – Patient Care Coordinator
(757) 594-2063

MAMMOGRAPHY SERVICES

500 J. Clyde Morris Blvd., Newport News VA

Riverside Regional Medical Center provides Mammography services at the following locations: Riverside Regional Medical Center, Riverside Diagnostic and Breast Imaging Center-Oyster Point & Riverside Diagnostic Center-Williamsburg.

Routine Mammography, supported with self-examination and clinical breast examination, provides women and a small population of men, with a method to detect breast disease early.

In July 2002, the Stereotactic modality at the Riverside Diagnostic and Breast Imaging Center-Oyster Point passed a 3-year accreditation with the American College of Radiology (ACR), becoming the seventh (7th) accredited facility in Virginia.

Ultrasound is another modality that has been offered since the center opened in 1998, and became re-accredited by the American College of Radiology in 2004.

All facilities meet MQSA (Mammography Quality Standards Act) requirements and maintain standards of excellence as demonstrated by ACR accreditation.

Suzanne Riley, R.T.(R)(N) CNMT – Director Outpatient Diagnostics
(757) 595-6363

PET SERVICES

500 J. Clyde Morris Blvd., Newport News

In February 2002, Riverside Regional Medical Center purchased the first Positron Emission Tomography (PET) scanner on the Peninsula. Positron emission tomography (PET) is a molecular imaging technique that uses molecular probes such as 18F-fluoro-2-deoxy-D-glucose (18F-FDG), a radioactive form of glucose, to image physiologic processes in the body. After intravenous administration of 18F-FDG, images of the body are obtained which can help to accurately discriminate benign from malignant processes in the body. Information from the PET images provides physicians important information concerning diagnosis, staging and re-staging of cancer, as well as the monitoring and planning of cancer treatments.

PET imaging is currently used for single pulmonary nodules, non small cell lung cancer, head and neck cancers, lymphoma, colorectal cancer, breast cancer, esophageal cancer, melanoma and thyroid cancer. PET scanning demonstrates substantially higher accuracy than CT alone for staging and re-staging of many of these cancers. The number of PET scans performed in 2003 rose 50% compared to 2002 as this imaging modality is becoming standard of care in the work-up and follow-up of cancer patients.

In October, Dr. Steven W. Falen, M.D., Ph.D joined the staff of Riverside Regional Medical Center and will serve as Director of Nuclear Medicine and PET Services. Dr. Falen was formerly the Director of PET Imaging at the University of North Carolina at Chapel Hill prior to joining our staff.

PET imaging services are currently provided to Riverside Regional Medical Center and the Diagnostic Imaging Center in Williamsburg. Service will be provided to Riverside Tappahannock Hospital and Riverside Walter Reed Hospital starting in early 2004. There are also plans to upgrade the current mobile PET facility to a new PET/CT combined scanner by January of 2004. The combined scanner will allow for fusion of the PET images onto the corresponding high-resolution anatomical images provided by CT. The combined study will allow for more accurate evaluation of the PET data.

Steven W. Falen, M.D., Ph.D. – Director of Nuclear Medicine and PET Services
(757) 595-6363

Cancer Treatment

CANCER TREATMENT CENTER

Riverside Radiation Oncology Services
500 J. Clyde Morris Blvd., Newport News

Riverside Radiation Oncology continues to provide the community with comprehensive radiation treatment close to home. The Radiation Oncologists provided therapy to 630 new patients in 2003. In addition to the radiation oncologist, an interdisciplinary team of specialists consisting of physicists, dosimetrists, therapists, nurses, dietician, social workers and ancillary support staff work together to provide individualized treatment plans.

Radiation Oncology Services continue to grow in technical expertise both for external beam irradiation and brachytherapy. Planning for implementation of IMRT (Intensity Modulated Radiation Therapy) continued in 2003. IMRT is a sophisticated treatment modality that allows the tumor to receive a high dose of radiation contoured to the exact shape and size of the tumor with minimal dose to surrounding normal tissue.

A full range of brachytherapy services include cesium and HDR for cervical cancer, HDR for bile duct and lung cancer, Prostate Seed Implants for prostate cancer and Strontium for bone metastases. The radiation oncology department continues to participate in National Cancer Institute approved clinical trials in cooperation with the medical oncologists at Virginia Oncology Associates (VOA).

In 2003 the department received ACR (American College of Radiology) accreditation maintaining the thirteenth consecutive year of excellence in radiation oncology.

(757) 594-2644

WILLIAMSBURG RADIATION THERAPY CENTER

3901 Treyburn Drive, Suite B, Williamsburg

Williamsburg Radiation Therapy Center (WRTC), a joint venture between Riverside Regional Medical Center and Williamsburg Community Hospital (WCH), provided radiation therapy to over 400 new patients in 2003 to members of Williamsburg, James

City, West Point and Middle Peninsula communities.

The program continues to grow in technical excellence and is one of five accredited by the ACR (American College of Radiology) in Virginia. The prostate seed implant program provides services to patients from multiple areas in cooperation with the urologists and Williamsburg Community Hospital. Implementation of IMRT continued in 2003 with computer and treatment machine upgrades. The radiation oncology department continues to participate in the National Cancer Institute's approved trials in cooperation with the medical oncologists at VOA.

(757) 220-4900

RIVERSIDE MIDDLE PENINSULA CANCER CENTER

7544 Medical Drive, Gloucester

Riverside Middle Peninsula Medical Cancer Center, a service of Riverside Walter Reed Hospital, completed construction in 2003. The radiation oncology department is equipped with the most up to date equipment to provide a full array of patient treatment services to the members of the middle peninsula community and surrounding areas. Dr. James Wassum, Medical Director, will work with a highly qualified team of radiation therapists, physicist, nurse, dietician and other support staff to provide quality patient care. The center will be open to treat the first patient in February of 2004.

Beverly Voglewede, Radiation Therapy Director
(804) 693-4900

CLINICAL TRIALS IN CANCER MANAGEMENT

895 Middle Ground Blvd., Building 200, Newport News
500 J. Clyde Morris Blvd., Newport News

In 2003, 215 patients were accrued to various cancer related clinical trials to include cooperative group treatment and prevention studies, and industry/pharmaceutical-sponsored studies. All studies are overseen by the Institutional Review Board (IRB), a combination of care professionals and community members. Informed consent and appropriate follow through of clinical research issues are elements of the IRB's responsibility. Other clinical trials available to patients in this area were:

NSABP (National Surgical Adjuvant Breast and Bowel Project). Joseph J. Schulz, MD, Principal Investigator.

NSABP P-2 STAR Study. Bruce Booth, MD, Principal Investigator.

3. GOG (Gynecological, Oncology Group). Robert Squatrito, M.D. Principal Investigator.

CALGB (Cancer and Leukemia Group B). Joseph J. Schulz, MD, Co-Investigator.

USO (U S Oncology). Joseph J. Schulz, MD, Principal Investigator.

Duke Oncology Consortiure (DOC), Joseph J. Schulz, MD, Investigator

Sarah Cannon Center (SCCC), Paul Conkling, M.D. Principal Investigator

Clinical Trials Support Unit (CTSKU), Paul Conkling, M.D. Principal Investigator

Sue DeOliveira, CCRA – Director of Clinical Research, Virginia Oncology Associates
(757) 873-9400

Rehabilitation

RIVERSIDE REHABILITATION INSTITUTE

245 Chesapeake Ave., Newport News

The philosophy of Riverside Rehabilitation Institute is to improve quality of life for survivors of cancer and other chronic and episodic situations. The goal is to provide an opportunity for the patient to return to his highest achievable level of function. This is accomplished through therapeutic interventions and patient/family education, both of which facilitate the cancer survivor's return to the home setting.

A board-certified physician, specializing in rehabilitation, coordinates a team of healthcare professionals in determining goals specific to the needs of the individual. The medical oncologist and the radiation oncologist also provide valuable input in determining a structured program to accomplish these goals. Transportation is provided for patients who need to receive chemotherapy at other facilities.

Following discharge, a range of home health and outpatient services is available.

Kris Nunn – Director of Marketing and Business Development/RRI
Anne Moffat, Director of Nursing/RRI
Shelley Brown – Director of Clinical Services/RRI
(757) 928-8000

ENTEROSTOMAL THERAPY & EDUCATION

500 J. Clyde Morris Blvd., Newport News

The Enterostomal Therapy (ET) Department can evaluate a variety of conditions from ostomies, draining wounds, fistulas, pressure sores, and minor skin irritations, to other skin problems related to incontinence. For those patients requiring ostomy surgery the ET department works with surgeons to provide education and support to patients and their families, both prior to and after surgery.

An enterostomal therapist is available in the acute care, long-term care, home care, or outpatient setting to assist patients with ostomy, wound, or skin problems.

Phyllis Kohlman, RN, BSN, CWOCN – Enterostomal Therapy Coordinator
(757) 594-2559

NUTRITION SERVICES

500 J. Clyde Morris Blvd., Newport News

Good nutrition is essential in the treatment and management of cancer. Appropriate nutrition choices can help individuals to fight infection, cope better with side effects of treatment, re-build body tissues that may be affected during therapy, help maintain or regain strength, and improves quality of life.

At Riverside Health System, dietitians are an integral part of the interdisciplinary team specializing in the nutritional care for people with cancer. Dietitians work closely with patients, families and friends to develop nutritional care plans to guide patients in dealing with the challenges of eating to maintain adequate nourishment during and after treatments. Dietitians complete nutritional assessments, provide interventions to improve nutritional status, offer diet instructions, and any other aspects of nutritional care requested by physician, staff, or family members. As part of the interdisciplinary team, dietitians also participate in weekly team meetings to discuss the care of each patient.

Nutritional services are available to all oncology patients including those receiving radiation therapy treatments. Dietitians also provide community education and staff in-services through Riverside Cancer Services.

Paige Williams, RD – Clinical Dietician
(757) 594-2615

PASTORAL CARE

500 J. Clyde Morris Blvd., Newport News

The chaplain at Riverside Regional Medical Center can be a valued member of the cancer care team. The Pastoral Care Department provides ministry to all patients, families, and visitors who desire it. Pastoral care may include conversation, prayer, liturgy, worship, sacraments, scripture reading and reflection. The pastoral care service is interfaith, personal, and specific for the individual and family in need.

The purpose of pastoral care is to help persons in identifying, appreciating, and effectively making use of faith or spiritual values in order to work creatively and hopefully with the diagnosis of cancer. Community clergy and lay volunteers support the pastoral care program. There are 6 full-time chaplains with one being assigned to cancer patients specifically.

The chaplains lead an ecumenical worship service each Wednesday at 3:00 p.m. in the RRMC chapel located in the Lower Lobby area of the main hospital building. A more informal daily chapel service is also held each weekday from 12 until 12:15. The chapel is open 24 hours a day 7 days a week for prayer and meditation.

Doug Watson, M.Div., D. Min., BCC, ACPE Supervisor – Director of Pastoral Care
(757) 594-2273

Support Groups

PENINSULA CANCER SUPPORT GROUP (PCSG)

500 J. Clyde Morris Blvd., Newport News

The Peninsula Cancer Support Group (PCSG) was started in 1988 to answer the needs expressed by cancer survivors and their loved ones for practical support. Riverside resources have supported the PCSG since its inception.

These meetings provide an opportunity for support group interaction. Group members are encouraged to share questions, resources, experiences, feelings, and strategies for coping. The group member is considered to be the "expert". Healthcare professionals trained in facilitating group support host these sessions. Support meetings are open to anyone who has a cancer diagnosis or is supporting someone through cancer diagnosis, treatment, and/or survivorship.

Monthly newsletters are sent to everyone on the mailing list to announce dates, times, and topics for upcoming meetings. New members are always welcome. It is the goal of this group and its facilitators to be available and accessible to anyone affected by cancer.

PCSG meets the first Wednesday of every month at 2:00 PM in the Cancer Treatment Conference Room.

Martha Petit, M.Ed., Ed.S. - Hospice Counselor and Coordinator of Bereavement Services
(757) 594-2745

BEREAVEMENT GROUPS

500 J. Clyde Morris Blvd., Newport News

Riverside Hospice provides a Bereavement Aftercare Program to support adults through adjustments they must make after experiencing the death of a loved one. Most people do not understand the changes that occur during the grief process, so they attempt to avoid these changes, forcing themselves to "get on" with their lives. This is all done in an effort for them to help themselves to feel "normal" once again.

Riverside Hospice offers a support group and one-on-one support to assist those who are grieving with developing an understanding of the grief process. Community education is provided as an invitation to the community at large to learn about the same. The evening group is provided to allow time for the participants to talk about the issues related to loss and the different ways each person copes with his or her own loss. This group meets the second and fourth Thursdays of each month at 7:00 p.m. These meetings are designed for adults, 18 years of age or older, and are open to the community.

Bereavement Support is available for a limited number of sessions to assist with understanding the grief process and to encourage the development of new coping skills.

Bereavement Education is provided to assist local groups, such as physicians' offices, universities, schools, places of worship, and service organizations to learn more about loss and how they might be of assistance in helping others with the grief process.

Riverside Bereavement Services are free of charge, open to our local community and are available on a self-referral basis.

Martha Petit, M.Ed., Ed.S. - Hospice Counselor and Coordinator of Bereavement Services
(757) 594-2745

Community Cancer Education/Outreach

EVERY WOMAN'S LIFE

In 1990 the Breast and Cervical Cancer Mortality Prevention Act authorized the Centers for Disease Control and Prevention (CDC) to develop and implement a national program to reduce breast and cervical cancer morbidity and mortality in women through early detection. As a result, the CDC launched the Breast and Cervical Cancer Early Detection Program (BCCEDP) in the U.S. and began early detection testing using mammograms, clinical breast examinations and Pap smears. During the development of the BCCEDP, the CDC identified the priority population at risk. The CDC established that lower income, uninsured and minority women face multiple barriers to screening. To be eligible, women

must be age fifty and older, meet the current federal income guidelines, and be uninsured or underinsured. Screening tests are performed in accordance with the current American Cancer Society recommendations for screening of the breast and cervix.

In 1998, Riverside Health System expanded its Cancer Services goals to include breast and cervical health by becoming a main provider for Virginia localities in which we serve. Areas that comprise Riverside's EWL program include: Peninsula Health District - Newport News, James City County, Poquoson, Williamsburg, York County, the Three Rivers Health District - Tappahannock City, Northern Neck region, and the counties of Mathews, Gloucester, Middlesex, King William, King and Queen, Lancaster, Richmond, Westmoreland, and Northumberland. Riverside has received over three thousand calls or referrals from women interested in the EWL program. All callers were evaluated for eligibility. The eligibility process takes seven to twelve minutes to complete over the phone. Since the establishment of the program at Riverside, 1,960 women have been enrolled in the program with 827 women not meeting eligibility requirements. To date over 1,770 have been screened. Twenty-six breast cancers and two cervix cancers have been diagnosed within Riverside Health System.

As the local EWL program developed, Riverside incorporated community partners to oversee and promote Riverside's program. Our partners include members from the Peninsula and Three Rivers Health Districts, Riverside Cancer Services, Riverside Regional Medical Center, Riverside Walter Reed Hospital, Riverside Tappahannock Hospital, the American Cancer Society, the Peninsula Cancer Prevention Coalition, the Peninsula Institute for Community Health and the Peninsula Agency on Aging. In addition, Riverside recruited medical providers to perform screenings and provide follow-up care. Our physician providers include: 9 Gynecologists, 1 Forensic Nurse Examiner, 5 Surgeons, 5 Pathologists, and 10 Radiologists. Women have Pap smears and clinical breast examinations at three sites, which includes one free clinic. For mammography screening Riverside has 5 sites available to perform screening and follow-up examinations. Other resources include a medical oncology group and radiation oncology group as well as community agency resources.

Historically, women enrolled in BCCEDP facing breast or cervical cancer were treated by Riverside providers who donated their services and fees. In 2001 the Breast & Cervical Cancer Prevention and Treatment Act was enacted. This Act permits women who are enrolled in the Virginia EWL program who are diagnosed with breast or cervical cancer while in the program to be eligible for Medicaid during the treatment phase of cancer care.

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BREAST HEALTH ALLIANCE PROGRAM (BHAP)

The Susan G. Komen Breast Cancer Foundation (Komen) has been a worldwide leader in the fight against breast cancer. This is accomplished through support of research and community-based outreach and education programs. The Komen Foundation was established as a result of a promise made between two sisters – Susan Goodman Komen and Nancy Goodman Brinker. In 1978 Susan was diagnosed with breast cancer. Little was known about breast cancer when Susan died at age 36. Before her death Susan asked her sister to bring an end to breast cancer by doing what she could to learn more about the disease through research and education. Nancy kept her promise by establishing the Susan G. Komen Breast Cancer Foundation in 1982 in Susan's memory.

The Komen Foundation became the largest private source of breast cancer research funding in the United States. In addition to funding national research, the Komen Foundation and its 116 affiliates fund community-based health education, breast cancer screening and treatment projects for the medically under-served.

In 2000, 2002 and 2003 Riverside Health System was a recipient of a grant through the Komen Foundation, Tidewater Affiliate. The program, called the Breast Health Alliance Program (BHAP), received funding through the grant to provide 125 mammograms for eligible women. The eligibility criteria are based on the EWL program with changes in the age of the participant and additional service area. Women enrolling in the BHAP must be under age fifty and live on the Peninsula, Three Rivers or Hampton Health Districts. Since the inception of the program, over 325 women have been screened for

breast cancer using mammography. Of those screened, 6 women have been diagnosed with breast cancer. All eligible women were referred to the EWL program prior to diagnosis to maintain eligibility for the Breast and Cervical Cancer Early Detection Program Treatment Act.

In addition to providing mammography screenings, free Pap smears and clinical breast examinations are offered to all participants. This initiative is funded through Riverside Cancer Services as part of their outreach activities to the community. Over 150 women have taken advantage of this free offering to date.

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CANCER SERVICES/ CANCER RESOURCE LIBRARY

In the 1980's, medical research suggested that early detection of cancer decreased mortality and morbidity. Efforts were launched to begin to educate the U.S. population about cancer issues. Recognizing that health promotional activities could improve the health of the communities it served, Riverside Cancer Services established objectives to provide outreach activities that focused on cancer education and screening. Activities were initiated originally on the Peninsula but currently extend to the Riverside Tappahannock community.

Working with the medical staff, oncology nurses, allied health care professionals, and community partners, such as the American Cancer Society, and with the leadership of the Riverside Oncology Committee, Cancer Services develops an annual plan of action that incorporates cancer prevention and early detection activities. Seminars, health classes, health fairs and other health screenings provide opportunities for the community to take part and learn more about cancer, cancer prevention/early detection. In 2003, 62 activities were held, with over 1200 people participating in the different programs. Activities included: community health fairs, prostate cancer screenings, cervical cancer screenings, Look Good Feel Better classes, Tell-A-Friend programs, I Can Cope programs, nutritional seminars focusing on cancer prevention, a colon cancer screening, a breast cancer awareness seminar, breast self examination certification classes, skin cancer screenings, monthly cancer prevention and early detection topics at the Healing Eagle Free Clinic, colon cancer prevention seminar, and breast health presentations.

In 1989, Riverside established a Cancer Resource Library for those in the community or for staff who require assistance in learning more about cancer issues. This area provides cancer information through books, pamphlets, videos and the Internet. The Library had over 100 visitors in 2003.

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RIVERSIDE CANCER SERVICES PARTNERING WITH THE AMERICAN CANCER SOCIETY

Reducing cancer morbidity and mortality in the United States through prevention and early detection is fundamental. Utilizing a strategic plan that provides the community with the tools to facilitate awareness of prevention methods and annual cancer screening examinations is the foundation of changing health practices. Each year, in addition to the annual Cancer Services Education Plan, Riverside Cancer Services partners with the American Cancer Society to incorporate activities that provide cancer information within the communities we serve. Combining resources and support services to promote mutual objectives only strengthens the mission to decrease cancer. Riverside and the American Cancer Society collaborated to educate the community on the following health initiatives in 2003: decreasing tobacco use, increasing breast cancer screenings among age-appropriate women, nutrition and physical activity related to decreasing cancer, and raising awareness of prostate and colon cancer screenings. Other activities include promotion of the American Cancer Society's "Health Kids Network", "Lets Talk About", "Tell-A-Friend" and Patient Support programs.

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Review of 2003 Accessions

Riverside Regional Medical Center is dedicated to providing the newest, most specialized cancer care to patients in Southeastern Virginia. Each cancer patient diagnosed and/or treated at Riverside Regional Medical Center is included in our Cancer Registry. The Cancer Registry compiles incidence and survival amongst other statistics for the hospital and forwards these statistics to the Virginia Cancer Registry and the National Cancer Data Base (NCDB).

The Riverside Regional Medical Center Cancer Registry identified 1113 new cancer cases for 2003. One hundred of these cases were non-analytic, meaning that they were not originally diagnosed and/or treated at this facility. The patient could have entered the system for a later course of therapy such as palliative radiation, surgery, or chemotherapy. Of the 2003 cases, 77% were Caucasian, 22% were African American, and 1% were Asian.

In 2003, lung cancer comprised the largest single group of analytic cases. The 204 cases of lung cancer represent a 13% increase in cases from 2002. Men comprised 59% of the cases and 41% of cases were women. Unfortunately, 62% of these cases were diagnosed with either stage III or stage IV cancer. Hopefully, with the development of a proper screening test for this disease, the disease will be detected earlier and related mortality will decrease.

The next two leading cancer groups were sex-specific: breast and prostate cancer. Breast cancer was responsible for 199 cancer cases, while 123 prostate cancer cases were diagnosed. Over 85% of breast cases were localized disease (stage 0, I, or II), in which the prognosis is best. Localized disease was responsible for 93% of prostate cancer cases. Educational efforts and screening techniques (mammograms and the prostate-specific antigen (PSA) test) have helped in diagnosing both breast and prostate cancers at an early stage, preventing the spread of disease.

Colon cancer was the fourth leading tumor group in 2003, as it accounted for 10.4% of cancer cases. Of the 115 colon cancer cases, 55% of them were men and 45% were women. Early stage and late stage disease for colon cancer was even with stages 0, I, and II contributing 50% of cases and stages III, IV, and unknown stage contributing the other 50%. Colon cancer has been called the most curable of the cancers; however, due to a lack of screening colonoscopies, many cases go undetected. Hopefully, with education efforts and the prevalence of colonscopies increasing, early detection will be achieved.

The fifth leading tumor group in 2003 is melanoma, which is different than in 2002 when it was non-Hodgkins lymphoma. Melanoma has risen from 43 cases in 2002 to 61 in 2003, which is a cause of concern. However, 91% of these were early stage (0, I, and II) cases and are likely to result in a very high cure rate. Skin cancer education and routine physical examinations have lead to this early detection and hopefully, this trend will continue, resulting in less metastatic melanoma cases in the future.

The rest of the top 10 cancer sites are as follows: urinary bladder, non-Hodgkins lymphoma, leukemia, pancreas, and kidney/renal pelvis. As a reminder, these statistics are facility-based, meaning they only pertain to Riverside Regional Medical Center. For national and state statistics, the National Institutes of Health and the American Cancer Society must be recommended.

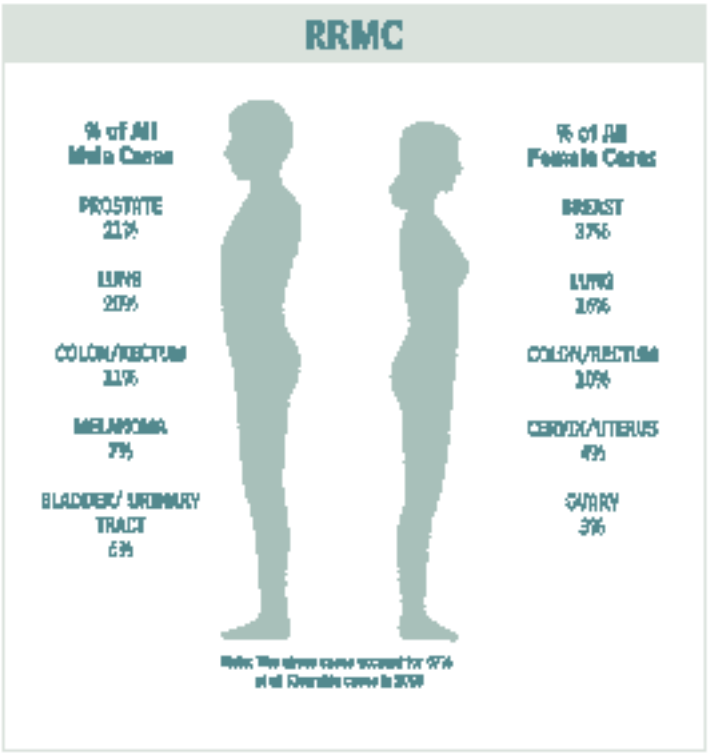
Bradley W. Kirby, MPH, CTR
Cancer Registry Supervisor, Oncology Research Coordinator

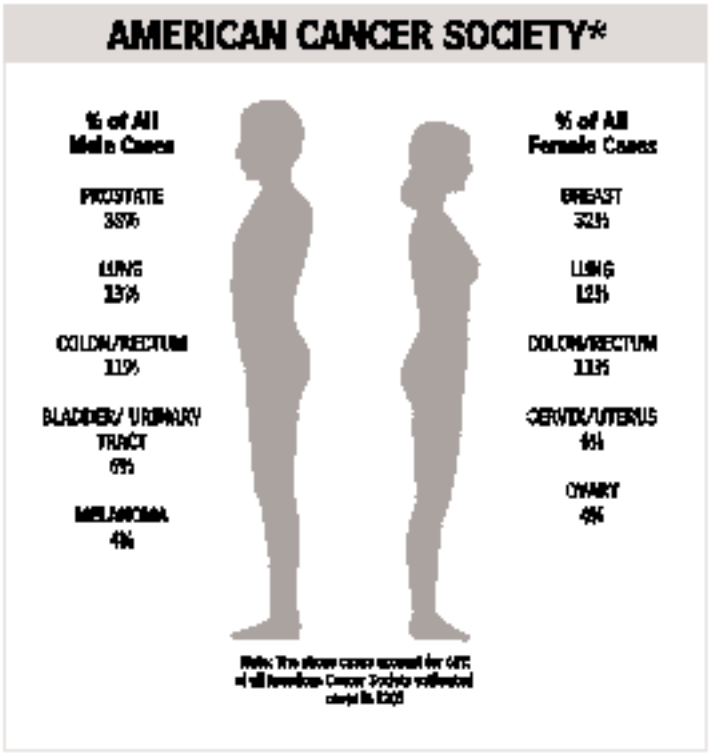
Review of 2003 Accessions

	PATIENTS		CLASS*		SEX*		RACE*			DIST. OF AJCC STAGE AT DIAG.						
	#	%	A	NA	M	F	W	B	O	0	I	II	III	IV	UNK	N/A
ALL SITES	1113	100	1013	100	586	527	862	239	12	72	259	228	146	143	40	125
BUCCAL CAVITY & Pharynx	35	3.1	33	2	26	9	28	7	0	2	8	4	8	7	4	0
Lip & Oral Cavity	18	1.6	17	1	13	5	14	4	0	1	5	2	4	4	1	0
Base of Tongue	7	0.6	7	0	6	1	6	1	0	0	3	0	2	1	1	0
Pharynx	7	0.6	6	1	6	1	5	2	0	1	0	1	1	1	2	0
Salivary Gland	3	0.2	3	0	1	2	3	0	0	0	0	1	1	1	0	0
DIGESTIVE SYSTEM	172	15.5	160	13	98	75	127	42	3	2	29	40	34	36	13	6
Esophagus	11	1.0	11	0	8	3	7	4	0	0	2	2	2	1	4	0
Stomach	9	0.8	9	0	8	1	6	3	0	0	0	0	2	6	1	0
Small Intestine	7	0.6	7	0	3	4	5	2	0	0	0	1	0	3	1	2
Colon & Rectum	115	10.3	104	11	63	52	87	26	2	2	23	27	26	16	7	3
Gallbladder	2	0.2	2	0	0	2	2	0	0	0	0	0	2	0	0	0
Pancreas	22	2.0	21	1	10	12	18	4	0	0	2	8	1	10	0	0
Liver & Biliary Tract	4	0.4	4	0	3	1	1	2	1	0	2	1	1	0	0	0
Anus	2	0.2	1	1	2	0	1	1	0	0	0	1	0	0	1	0
RESPIRATORY SYSTEM	220	19.8	204	16	131	89	182	35	3	2	50	13	61	71	6	1
Larynx	15	1.3	15	0	10	5	13	2	0	1	7	0	3	2	2	0
Lung	204	18.3	188	16	120	84	168	33	3	1	43	12	58	69	4	1
Nose, Nasal Cavity	1	0.1	1	0	1	0	1	0	0	0	0	1	0	0	0	0
LEUKEMIA	33	3.0	27	6	19	14	27	6	0	0	0	0	0	0	0	27
Lymphocytic Leukemia	12	1.1	9	3	9	3	11	1	0	0	0	0	0	0	0	9
Myeloid/Monocytic																
Leukemia	17	1.5	15	2	7	10	13	4	0	0	0	0	0	0	0	15
Other Leukemia	4	0.4	3	1	3	1	3	1	0	0	0	0	0	0	0	3
MYELOMA	8	0.7	8	0	6	2	4	4	0	0	0	0	0	0	0	8
MELANOMA	61	5.5	53	8	40	21	61	0	0	8	31	3	6	1	4	0
SKIN (NOS)	2	0.2	2	0	1	1	2	0	0	0	2	0	0	0	0	0
BREAST	199	17.9	188	11	5	194	153	43	3	37	77	56	12	4	2	0
GENITOURINARY ORGANS	226	20.3	197	29	173	53	161	65	0	21	18	7	0	6	4	0
Cervix/CIN III	8	0.7	7	1	0	8	2	6	0	0	5	1	1	0	0	0
Uterus	11	1.0	11	0	0	11	10	1	0	0	9	0	2	0	0	0
Ovary	16	1.4	13	3	0	16	12	4	0	0	0	0	8	5	0	0
Other Female	3	0.2	3	0	0	3	2	1	0	0	1	1	0	1	0	0
Prostate	123	11.0	104	19	123	0	79	44	0	0	0	97	4	3	0	0
Other Male	3	0.2	3	0	3	0	3	0	0	0	2	0	1	0	0	0
Bladder/Other Urinary	44	4.0	39	5	37	7	38	6	0	21	9	4	0	1	2	0
Kidney	18	1.6	17	1	10	8	15	3	0	0	8	3	0	5	1	0
BRAIN/CENTRAL NERVOUS SYSTEM	37	3.3	36	1	22	15	28	8	1	0	0	0	0	0	0	36
LYMPHOMA (NON HODGKIN)	36	3.2	29	7	19	17	30	6	0	0	13	1	6	6	1	2
HODGKIN'S DISEASE	5	0.4	5	0	3	2	4	1	0	0	2	2	0	0	0	1
THYROID	9	0.8	9	0	1	8	6	3	0	0	6	1	0	1	1	0
MESOTHELIOMA	14	1.3	13	1	13	1	11	3	0	0	3	1	0	1	4	4
BONES, JOINTS, CARTILAGE	2	0.2	2	0	1	1	2	0	0	0	0	0	0	0	1	1
RETROPERITONEUM/PERITONEUM	1	0.1	1	0	1	0	1	0	0	0	0	0	0	0	0	1
SOFT TISSUE	11	1.0	8	3	7	4	7	3	1	0	3	1	3	1	0	0
THYMUS/OTHER ENDOCRINE	6	0.5	4	2	4	2	1	5	0	0	0	0	0	0	0	4
UNKNOWN PRIMARY	35	3.1	34	1	16	19	26	8	1	0	0	0	0	0	0	34

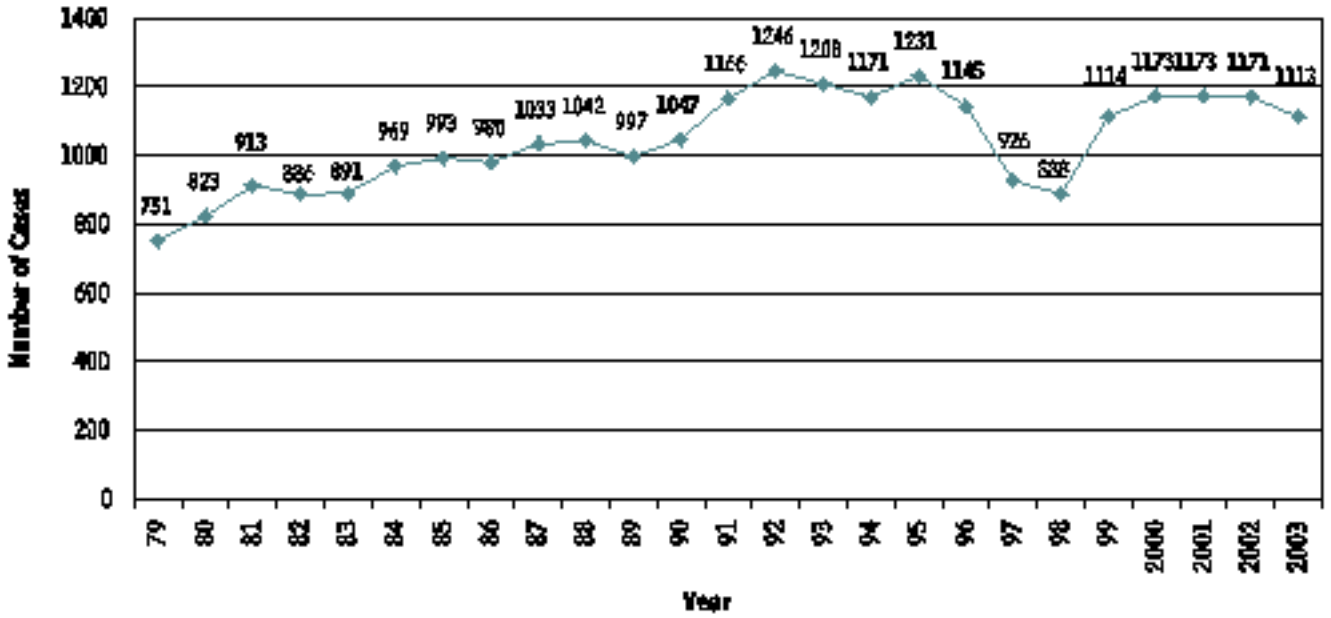
* A – ANALYTIC M – MALE W – WHITE O - OTHER NA – NON-ANALYTIC F – FEMALE B – BLACK

2003 Cancer Incidence in Leading Sites

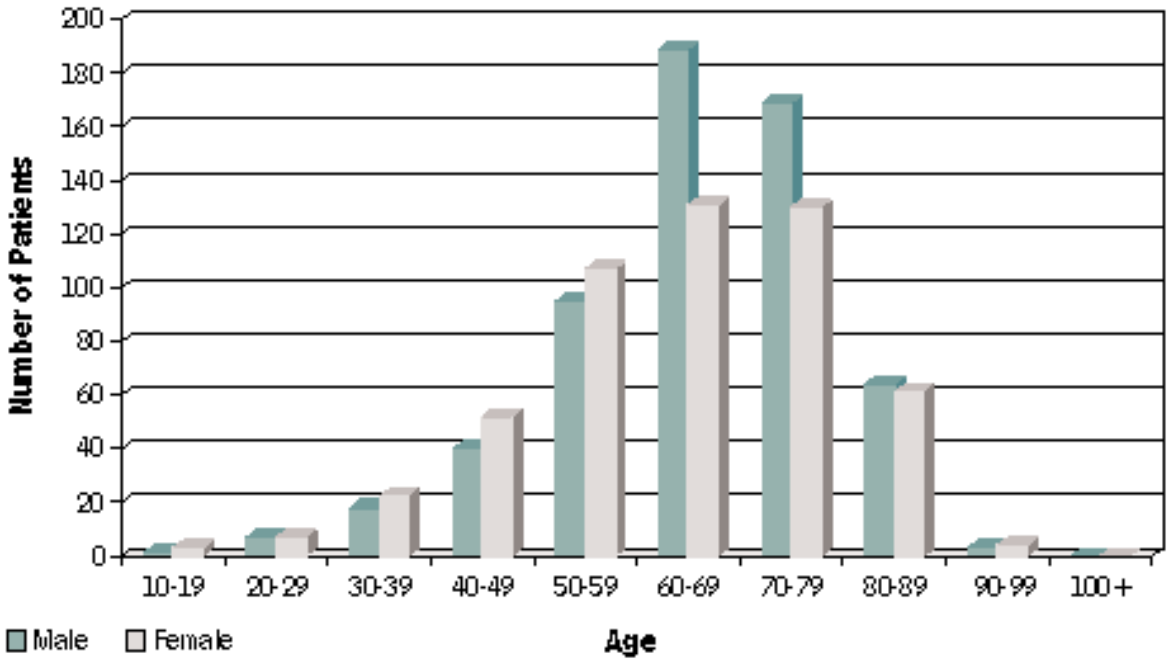




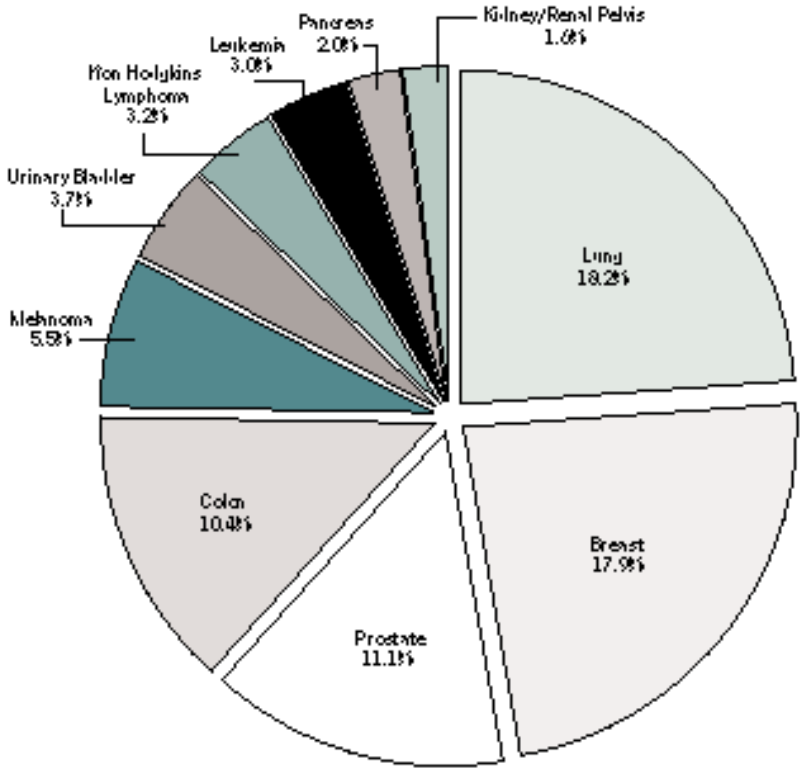
Cancer Registry Data Base 1979-2003



2003 Cases by Age and Sex at Diagnosis



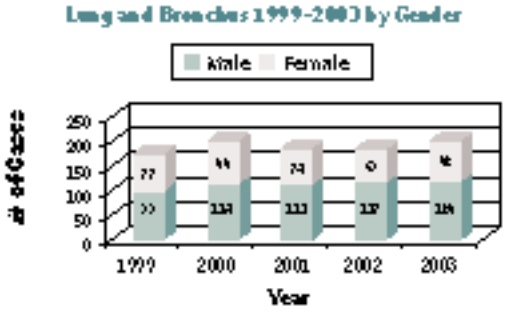
2003 Top 10 Sites



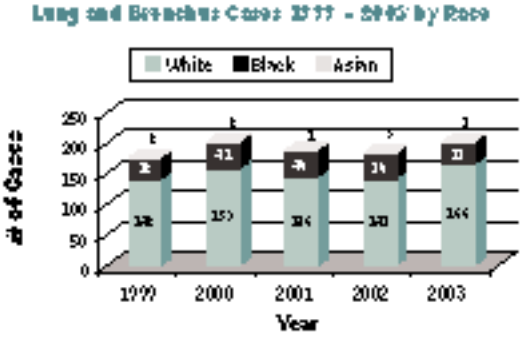
Lung Cancer Treatment at Riverside

Lung cancer patients require a team of medical specialists during their diagnosis, treatment, and follow up care. Specialists from Pulmonary Medicine, Surgery, Medical Oncology, Radiation Oncology, Radiology, Pathology and Oncology Nursing are all brought into the clinical management of each patient. Improved surgical techniques, comprehensive postoperative management, and multi-modality treatment have been instrumental in increasing lung cancer survival rates. Riverside's team of caring physicians, dedicated to diagnosing and treating cancer patients, graciously submitted the following information on what role they have in the management of lung cancer patients.

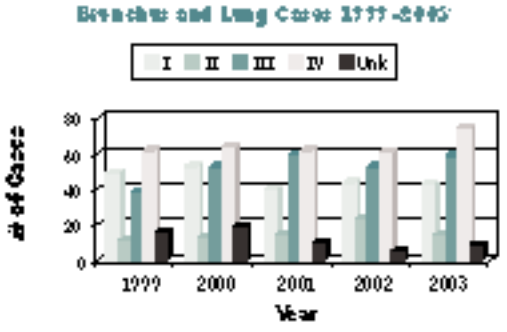
Riverside Cancer Registry Data



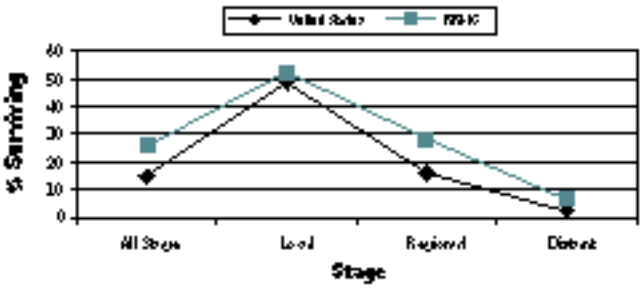
From 1999 to 2003, more men than women were diagnosed with lung cancer at Riverside Regional Medical Center. This is consistent with both state and national statistics. The cases for men and women have remained stable from 1999 to 2003.



From 1999 to 2003, lung cancer among whites had the highest incidence followed by African Americans and Asians. This reflects the demographic make-up of the local area as well.



From 1999 to 2003, stage I (localized) lung cancers decreased from 49 cases to 43 cases, while stage IV (distant) lung cancers rose from 62 cases to 75 cases. This is very concerning and reflects the trend across the nation. Screening procedures for those at risk for lung cancer should be discussed and implemented.



Lung cancer survival for RRMC was compared to national data derived from the National Cancer Data Base. RRMC's survival rate for all stages was higher than the national average.

The Radiologist

Steven W. Falen, MD, PhD
Peninsula Radiology Associates

Lung cancer causes as many cancer deaths as the next four leading causes of cancer deaths combined.[1] Radiology plays an important role in the initial detection, diagnosis and staging of thoracic malignancies. Pretreatment staging is important in identifying patients with localized disease who would benefit from surgical resection. Chest radiography, computed tomography (CT), bone scans and positron emission tomography (PET) have been the primary imaging modalities used to diagnose, stage and re-stage thoracic malignancies.[2]

The detection of lung cancer usually begins with a chest radiograph. Chest x-rays are routinely performed on symptomatic patients. However, abnormalities are sometimes identified in patients with no symptoms who have a chest radiograph for an unrelated reason such as a routine physical exam. The appearance of lung cancer on a chest radiograph is variable. It can range from a subtle finding in an early cancer to a dramatic presentation. Often the first presentation of a lung cancer is the finding of a single pulmonary nodule (SPN). Certain characteristics of the SPN such as size, shape, calcification, and growth rate can help differentiate between benign and malignant lesions. Once a nodule reaches a size greater than 3 cm, it is more likely to be malignant. However, the incidence of malignancy in smaller lesions is substantial enough that size alone is insufficient for differentiation.

CT can help to further characterize abnormalities seen on the chest radiograph. CT can accurately define a tumor's size, shape, location and delineate its relationship to the pleura, chest wall and other chest structures. However, many lesions seen on CT are indeterminate as to whether they are benign or malignant and further investigation is warranted. Definition of the tumor cell type and the true stage of the disease are important in directing therapy. Patients may require an invasive biopsy procedure for further evaluation. Depending on the size and location of the lesion, CT-guided fine needle aspiration biopsy, transbronchial biopsy, mediastinoscopy or thoracotomy may be considered to determine the nature of the lesion. Fine needle aspiration biopsy is often performed by the radiologist. There are risks associated with any of the invasive procedures and they can sometimes be nondiagnostic. Also, greater than 50% of indeterminate lesions that are thoracoscopically resected are found to be benign.

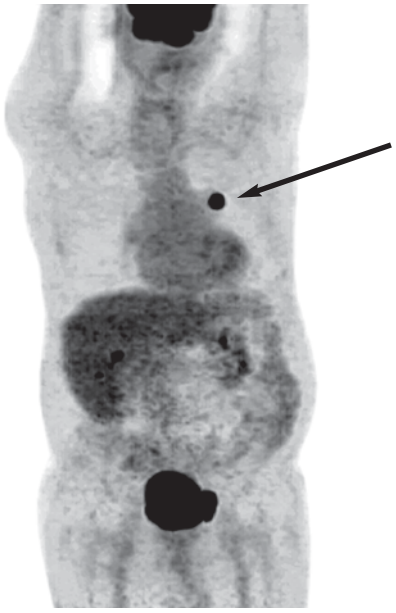


Figure 1 PET image showing a focal area of hypermetabolism in the left lung (arrow) in this patient with lung cancer.

One of the more recent advances in oncologic imaging that has generated a renewed interest in diagnosis, staging and response to therapy is positron emission tomography or PET. PET imaging with 18F-fluorodeoxy glucose (FGD), a radioactive form of sugar, allows for the evaluation of the relative level of metabolic activity in the lesion with respect to other tissues. PET imaging with 18F- FDG is based on the principle that there is increased utilization of glucose in malignant cells compared to most normal tissues. PET has been shown to be an accurate, noninvasive imaging test for the assessment of pulmonary nodules.

When a lung mass is shown to be malignant, it is important to stage the extent of the disease accurately. Appropriate clinical management depends on the stage of the disease, whether there is spread of tumor outside the primary site and if so, where this has occurred. Several studies have shown that PET is more accurate than CT for the staging of non-small cell lung carcinoma (NSCLC). A tabulated summary of the literature from 1993 through June 2000 showed PET to have a sensitivity of 96% for the diagnosis of malignancy versus 67% for CT. For NSCLC staging, the sensitivity and specificity for PET were 83% and 91%, respectively, versus 64% and 74% for CT. [3]

In summary, once an abnormality suspicious for lung cancer is identified on a chest x-ray, CT is the next step in the diagnostic work-up. The CT study will help confirm the diagnosis by identifying features that would more likely suggest cancer and to help

stage the disease. PET is emerging as an exciting diagnostic tool that can quantify metabolic activity of a tumor or lymph node and can reveal additional sites of disease unsuspected on the CT scan.

1. *Detterbeck FC and Falen SW. Seeking a home for PET: Defining the place for positron emission tomography (PET) in the work-up of patients with suspected lung cancer. Diagnosis and treatment of lung cancer: Updates Vol. 3, No. 1, 2002. W.B. Saunders Company.*

2. *Bouchard EW, Falen SF and Molina PL. Lung Cancer: A radiologic overview. Applied Radiology, Vol. 31, No. 8, August 2002.*

3. *Gambhir SS, Czernin J, Schwimmer J, et al. A tabulated summary of the PET literature. J Nucl Med. 2001;42(5Suppl):1S-92S.*

The Pathologist

C. Lee Bridges, M.D.
Peninsula Pathology Associates.

The pathologists' role in the treatment of lung cancer mainly concentrates on the diagnosis, and pathologic staging of the tumor. By microscopic evaluation of one of a variety of different tissue / cell samples, a pathologist can accurately diagnose and stage the patient. This is important so that an accurate prognosis can be assigned. Additionally, it allows the appropriate implementation of therapies in a multi-disciplinary therapeutic approach.

Exfoliative cytology is one method used to evaluate lung tissue. This method is the least invasive and best tolerated means with which to make the diagnosis. Through exfoliative cytology, the pathologist analyzes the cells that are in the fluid that bathe the inner lining of the lung. The sample may constitute a sputum sample, obtained through a deep cough, or it may constitute a bronchial washing / brushing sample, which is a slightly more invasive technique performed by the pulmonologist with an endobronchial fiberoptic scope.

Fine needle aspiration biopsy is another slightly more invasive method of obtaining a tumor sample. This technique utilizes the placement of a thin needle (23-25 gauge) into the lung mass. Either the needle is guided into the lesion by a pulmonologist using an endobronchial fiberoptic scope, or through the chest wall by a radiologist using CT scan guidance. The pathologist is generally present during the procedure to provide an immediate analysis of the smears for adequacy and a preliminary diagnosis.

Surgical biopsy of the tumor is another way that lung cancer may be diagnosed. In this method, a surgeon removes a small piece of lung tumor for the pathologist to analyze, often with an immediate interpretation by frozen section. This is generally the most diagnostic method, but it is also the most invasive. Sometimes, however, it is the only way to make the diagnosis.

Once a tissue sample is obtained, ancillary studies may be performed to assist in making the diagnosis. Immunohistochemical stains are an important adjunct to routine sections. Markers such as thyroid transcription facter-1 (TTF-1), and differential cytokeratins (CK7 and CK20), are helpful in differentiating primary lung tumors from metastatic tumors in the lungs from other sites. Markers such as chromogranin, synaptophysin, NCAM (Neural cell adhesion molecule) aid in differentiating small cell carcinoma from non-small cell carcinoma.

Once the diagnosis of non-small cell carcinoma is made, and if the tumor is considered resectable, the patient will undergo surgery. At this stage, the pathologist will receive the tumor with variable amounts of surrounding lung tissue. Frozen sections and permanent sections are often performed to assess the tumor for some or all of the following: a) confirm the presence of tumor, b) subclassify the type of tumor as small cell or non-small cell type, c) determine if the surgical resection margins are clear of tumor, and d) determine if any lymph nodes may be involved. This information is important in the pathologic staging of the tumor, and ultimately aids in determining the patient's treatment and prognosis.

The Surgeon

Charles S. Drummond, III, M.D.
Tidewater Thoracic and Cardiovascular, Ltd.

Lung cancer is the leading cause of cancer-related death for both men and women in the United States. There are two main types of lung cancer: small cell and non-small cell. Small cell lung cancer is essentially a non-surgical disease and carries a dismal prognosis. Surgical resection offers the only real chance for long-term survival in patients with non-small cell lung cancer. Unfortunately, most patients with non-small cell lung cancer are not candidates for resections.

The initial role of the surgeon, however, in lung cancer management is to participate in its diagnosis and staging. These two concepts are related but address very different questions, respectively: is it cancer, and if so, how advanced is it? Diagnosis of lung cancer requires a tissue specimen for pathologic examination. Staging requires information about the tumor characteristics (T status) and about lymph node involvement (N status). Moreover, staging may be "clinical," which is based on clinical impression of the patient and radiographic test results, or "pathologic," which is based on actual tissue acquired from diagnostic and/or therapeutic interventions.

The diagnosis of lung cancer is not always straightforward. Often a tissue diagnosis may be achieved percutaneously with a CT-guided technique, or endoscopically with a bronchoscopic biopsy. But not infrequently, patients with lung lesions present to surgeons with no tissue diagnosis. In these patients, a choice must be made between observation and surgical biopsy. This choice is often not easy, and depends on patient characteristics and degree of suspicion about cancer and its stage. Surgical biopsy may require a thoracotomy, but may be amenable to video-assisted thoroacic surgery (VATS), which is much less invasive.

The staging of lung cancer is also not always straightforward. Any patient with nodal spread of tumor outside of the primary lung site (N2 or N3 status) or tumor invading an essential mediastinal structure (T4 status) has advanced stage disease (at least stage III disease). Any patient with advanced stage disease is generally not a candidate for lung resection. Conversely, any patient without advanced stage disease (i.e. stage I or II) is potentially a candidate for curative resection. This situation highlights the importance of staging, and underscores the difference between "clinical" and "pathologic" staging.

"Clinical" staging is often regarded as adequate to rule out advanced stage disease. That is, if a patient is N2, N3, and T4 negative on radiographic assessment then continued evaluation for resection is appropriate. "Pathologic" staging, however, is generally regarded as necessary to rule in advanced nodal disease. That is, a biopsy is generally in order to label a patient N2 or N3 positive and therefore not a candidate for resection. Some mediastinal lymph node levels are accessible to endobronchial biopsy. Surgical biopsy/exploration, however, is often required. Procedures include mediastinoscopy, where a small incision is made in the neck and paratracheal nodes are sampled with a special scope, mediastinotomy, where the left anterior chest is entered with a small incision, and VATS exploration.

All patients considered for possible pulmonary resection, must first undergo an aggressive evaluation of their cardiopulmonary status. That is, a pulmonary resection might be desired but not indicated if the patient cannot tolerate the surgery. Optimal pulmonary resections for non-small cell lung cancer include lobectomies and sometimes pneumonectomies. Sometimes simple wedge resections are employed, but these procedures are associated with considerably higher rates of local recurrence. Pulmonary resections may be performed through traditional thoracotomies, or sometimes with VATS techniques, which employ much smaller incisions.

Surgical procedures are an integral part of the diagnosis, staging, and treatment of lung cancer. Pulmonary resection is almost always done with the intent to cure. However, recent advances in thoracic surgery have also made it applicable to cases where palliation is indicated. Specifically, endobronchial techniques have been developed (e.g. laser ablation and stent placement) to open major airways obstructed by tumor. Surgery, therefore, offers a great deal to the management of lung cancer, but its application should ideally be part of a multidisciplinary approach.

The Medical Oncologist

Elizabeth Harden, MD
Virginia Oncology Associates

The role of medical oncology in the management and treatment of lung cancer varies depending on the subtype of lung cancer. For small cell carcinoma of the lung, chemotherapy is the primary treatment. Response rates to combination chemotherapy are excellent with over 80% of patients responding to initial chemotherapy. Unfortunately, despite these excellent response rates, relapse is common and only a small percentage of patients are fully cured.

For non-small cell lung cancer, treatment depends on stage. For resectable disease, surgery is the primary therapy and can be curable. Data now suggests that postoperative chemotherapy can increase the cure rates in resected stage IB and stage II disease. Clinical trials are available for patients with stage IIIA disease.

For patients with locally advanced or metastatic non-small cell lung cancer (stage IIIB and IV), combination chemotherapy, while not curative, can be successful in controlling the disease and its symptoms. In 2004, the FDA approved two new agents for non-small cell lung cancer: pemetrexed and erlotinib. Both of these target the epidermal growth factor receptor.

Virginia Oncology Associates is actively involved in a number of clinical trials exploring the role of chemotherapy in non-small cell lung cancer.

The Radiation Oncologist

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Radiation therapy is a treatment that has proven to be effective in lung cancer for a variety of uses. Most commonly, radiation is given as photon irradiation in a series of treatments lasting between 2 and 7 weeks. When given in this manner, each treatment would be expected to destroy tumor cells. As tumor cells are destroyed, the lung cancer mass should diminish in size and many symptoms are frequently relieved.

For patients who have unresectable lung cancer or are not well enough for surgical resection, radiation provides a non-surgical alternative. Frequently, radiation will be combined with chemotherapy, which improves the chance for controlling the cancer. Side effects include: fatigue, bronchial irritation, cough, esophageal irritation, discomfort when swallowing, and a loss of appetite. Treatment is not usually painful. Nausea is generally mild and controllable. Twenty to thirty percent of lung cancer can be successfully controlled with the combination of chemotherapy and radiation.

Radiation can also be used to control symptoms in the chest such as hemoptysis, cough, and pain from growth into the rib cage or brachial plexus area. Other less common tumor complications can be avoided such as airway blockage, venous obstruction or spinal cord injury. If lung cancer spreads to other parts of the body, radiation can frequently be valuable especially in cases of brain or bone metastases. Brain metastases can cause neurological symptoms and bone metastases can cause pain and radiation frequently alleviates these symptoms.

Acute Leukemias, Cancer Registry 1991-2003

13-Year Study

Veronica Eisen, MD and Elizabeth Harden, MD

Diagnosis

The term "Acute Leukemia" encompasses a group of related blood malignancies, which develop and progress rapidly. All subtypes arise from the white blood cells, the immunologic component of the blood, which serves to protect the body from various forms of infection and even malignancies. The other type of cells found in the blood includes the red blood cells, which deliver oxygen to tissues. The malignant cells divide rapidly but fail to undergo all necessary developmental steps to become a fully competent mature form with normal immunologic function. The bone marrow which is responsible for the production of red and white blood cells (RBCs and WBCs) as well as platelets (elements which function in blood clotting) become occupied with this more aggressive cell type leaving less room and material for the production of the fully functioning blood elements. As a result, the patient may develop anemia, a shortage of RBCs characterized by shortness of breath, fatigue and pale skin. The lack of mature WBCs will predispose patients to infection and the lack of platelets makes them more susceptible to bleeding and bruising.

The physical exam findings are often lacking or non-specific. Blood and bone marrow samples are necessary for the accurate diagnosis of acute leukemia. Acute myeloid (AML) and lymphoid leukemias (ALL) differ in the type of progenitor white cell which gives rise to a transformed population of cells.

Treatment

Eradication of all detectable disease in the blood and bone marrow, and the restoration of normal function of all blood cells is often the goal of treatment. However, patient age, coexisting serious medical conditions and some other important factors must be taken into consideration. Ideally, therapy must continue to eliminate microscopic disease (the remainder of malignant cells too few to be readily detected).

While undergoing treatment, each patient must be followed with regularly scheduled lab work to assess side effects as well as efficacy of therapy. Various side effects may arise during treatment and differ depending on combination of chemotherapeutic agents used and individual patient response. Maintenance therapy may be necessary for a prolonged period of time after the initial therapy is completed. Despite adequate therapy, disease may recur some time following an apparent remission.

Choice of chemotherapy

Many different chemotherapeutic agents have been tested in randomized clinical trials (RCTs) for their efficacy against a given type of leukemia. The choice of chemotherapy may depend on acute leukemia type, chromosomal alteration, patient age, pre-existing hematologic disorders, and other factors. Each type of ALL and AML may have slightly different regimens and some may vary drastically. Of special mention is the diagnosis and treatment of acute promyelocytic leukemia (APL), a type of AML, which is unique in its chromosomal alteration of chromosomes 15 and 17. All-Trans Retinoic Acid (ATRA) overcomes the maturation block induced by chromosomal aberrancy and results in successful procession of cell development. This is an example of genetically targeted therapy. Some very potent chemotherapeutic agents destroy healthy blood cells as well as the transformed precursors and do not target particular changes in cellular processes. The goal of future chemotherapeutic agent development is to precisely target the molecular alteration of the malignant cells and to have a specific treatment for each type of malignancy.

Results

Between 1991 and 2003, there were 146 acute leukemia cases identified in the Riverside Regional Medical Center Cancer Registry. Men were slightly more likely to develop acute leukemia (Figure 1). Caucasians and African Americans were the two predominant ethnic groups to present with acute leukemia (Figure 2). The differences in occurrence between the two ethnic groups closely correlate with the proportion of individuals in this area. Disease free survival differs between subtypes of disease and in this particular study, it was divided into a feasible way to analyze the available data, which included AML, APL, and ALL (Figure 3). Acute promyelocytic leukemia is a rare but highly curable subtype of acute myeloid leukemia. Of the 5 patients treated in this group, all entered remission and were alive at one year. Four of the remaining 5 remain in remission at 10 years, while one patient died of an unrelated illness. One and 10-year disease free survival was calculated using a Kaplan-Meier survival curve for the remaining subtypes of AML and ALL. For AML, 1-year survival was 49% and 10-year survival was 23%. For ALL, the 1-year survival was 67% and 10-year survival was 46% (Figure 3). AML disease free survival was further analyzed for those below and above 60 years of age at the time of original diagnosis. The 1- and 5-year survival rates were 65% and 33% respectively for those less than 60 years of age and 40% and 15% for those greater than or equal to 60 years of age. These data compare favorably with national survival data.

Discussion

Acute leukemias are a form of hematologic malignancy arising from the precursors of white blood cells. There is no definitive answer as to why some people develop the disease while others do not. Genetic and environmental factors often play a role. They affect millions of people worldwide and approximately 33,000 new cases are diagnosed in the United States each year. In this study, Riverside Regional Medical Center's experience with acute leukemias was reviewed. The survival data obtained closely resembles the national data for acute leukemias. The treatment and prognosis may vary depending on several critical factors. As mentioned previously, acute promyelocytic leukemia differs greatly in treatment and prognosis and represents a success story in designing specifically targeted therapy against cancer. While many valuable therapeutic options exist, there is a propensity towards continued improvement of medical management for leukemias. Targeting specific molecular pathways of each malignancy type is the current goal of further drug development. In recent years, some very specific molecular mechanisms have been found and some very promising chemotherapeutic agents are being tested in clinical trials currently.

Figures

Figure 1: Total Leukemia Cases Diagnosed and/or Treated at Riverside Regional Medical Center 1991-2003 by Sex

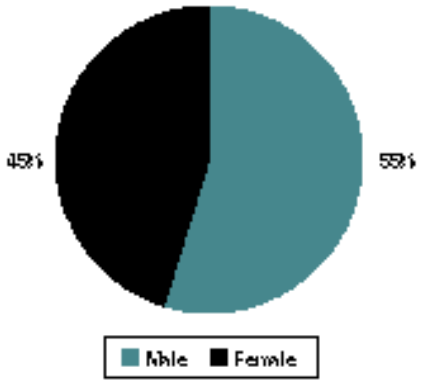


Figure 2: Total Acute Leukemia Cases Diagnosed and/or Treated at Riverside Regional Medical Center 1991 - 2003

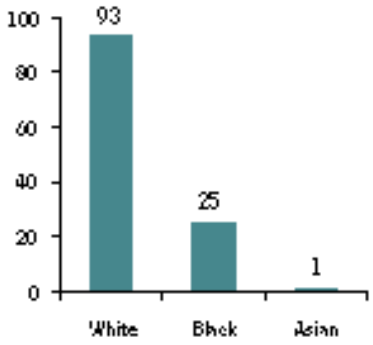


Figure 3: 10-year Survival for Leukemia Cases Diagnosed and/or Treated at Riverside Regional Medical Center 1991-2003

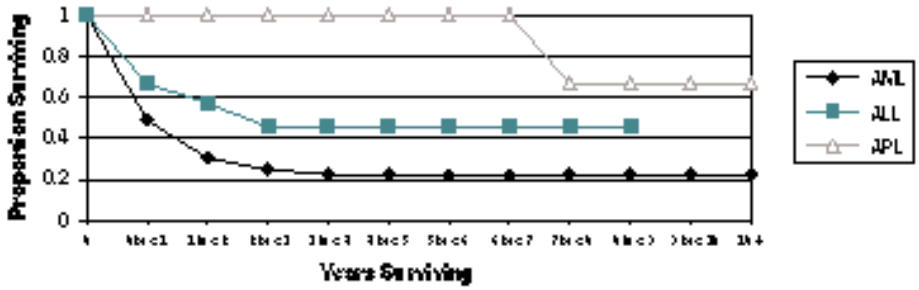
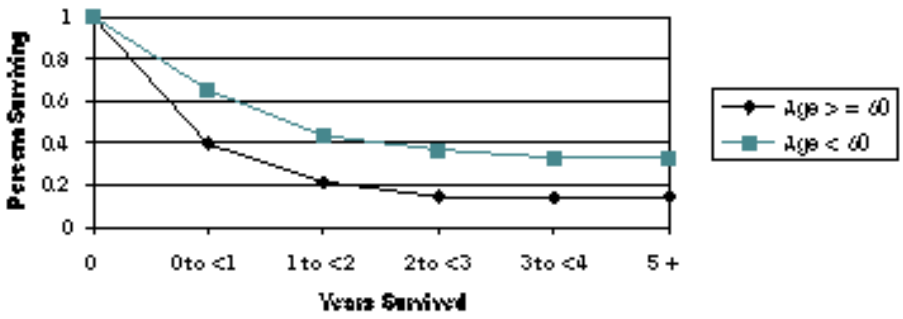


Figure 4: Adjusted Kaplan Meier Survival for AML Diagnosed and/or Treated at Riverside Regional Medical Center 1991 - 2003



Glossary of Terms

- ACCESSION -

The addition of new cancer cases to the Riverside Cancer Registry.
Each patient is assigned a separate and permanent accession number.

- CLASS OF CASE -

The determination of a patient's diagnosis and treatment status at first admission to Riverside Regional Medical Center.

Analytic- Any case first diagnosed and/or receiving all or part of the first course of treatment at Riverside (Class 0, 1, 2).

Non-Analytic: Any case diagnosed prior to RRMC's reference date (1/1/79), or diagnosed elsewhere and receiving the first course of treatment at that facility, or diagnosed at autopsy (Class 3, 4,5).

-STAGE OF DISEASE-

A process by which the extent of disease at the time of diagnosis is rated according to a recognized system of classification. This process allows morbidity, mortality and treatment efficacy to be reviewed across similar categories of patients.

Summary Stage: General staging system to categorize most cancer sites.
In situ - Non-invasive cancer. Also termed pre- invasive, non-filtrating, or Stage 0. A cancer in this category has not spread beyond the immediate area of diagnosis.
Local - Tumor confined to tissue of organ of origin.
Regional - Tumor that has spread directly to adjacent organs or tissues and/or to regional lymph nodes, but has spread no further.
Distant - Tumor that has spread to parts of the body remote from the organ of origin.
Unknown - Stage cannot be determined.

TNM Staging: The American Joint Commission on Cancer Staging System is used at RRMC and is based on assessment of three components:
T - Extent of primary tumor.
N - Extent of regional lymph node metastasis.
M - Absence or presence of distant metastasis.

- AGE OF PATIENT -

Analytic cases: Age is recorded in completed years at time of diagnosis.
Non-Analytic cases: Age is recorded as patient's age when first entered into RRMC Cancer Registry.

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