We’re extremely pleased to report to you on the accomplishments and activities of Midwest Cancer Care in 2010.

In the past 12 months, we have continued to grow our program, adding physicians, expanding our clinical services and bolstering our community offerings. Midwest Cancer Care has three accredited facilities – Menorah Medical Center and Research Medical Center, accredited as community hospital comprehensive cancer programs, and Centerpoint Medical Center, accredited as a community hospital cancer program. As accredited cancer centers, Midwest Cancer Care hospitals submit data on key clinical measures which validate the consistent quality of our care. We’re very proud to report that in 2010, our hospitals exceeded the national average on the six key clinical measures for the care and treatment of breast and colorectal cancer patients. Each of our facilities has made collective and individual strides in offering an exceptional level of patient care and in enhancing the services upon which our patients and their families rely.

Menorah Medical Center was recognized by the Commission on Cancer with the prestigious 2009 Outstanding Achievement Award, an award granted to cancer programs exceeding national standards during an accreditation survey. The hospital continues to build upon its reputation for exceptional breast health services, adding equipment and services to accommodate the growing number of women who turn to Menorah for their breast health diagnostic and treatment needs. In fact, breast care expertise is a hallmark of Midwest Cancer Care overall. Four of our hospitals have been granted a three-year/full accreditation designation by the National Accreditation Program for Breast Centers (NAPBC), a program administered by the American College of Surgeons. Following a rigorous evaluation process, Centerpoint Medical Center, Menorah Medical Center, Overland Park Regional Medical Center and Research Medical Center have received this prestigious designation.

During 2010, Research Medical Center established a Multidisciplinary Thoracic Clinic, home to a multispecialty team of physicians dedicated to offering fast diagnosis and effective treatment options for lung conditions. The clinic is the only one of its kind in the area and has dramatically reduced the number of days between cancer diagnosis and treatment for lung cancer patients. Additionally, the hospital’s new Center for Integrative Therapy premiered Healing Through Wellness, a holistic approach to well-being, nutrition, pain management and more for cancer patients.

Midwest Cancer Care at Centerpoint expanded its services in 2010, establishing a palliative care team and a pain management team. The hospital prepared the way for its new
oncology outpatient clinic (opened in 2011) and added oncology physicians Larry Rosen, MD, and Robert Talley, MD to the Midwest Cancer Care staff.

In addition to our three accredited cancer centers, Midwest Cancer Care’s outreach sites provide residents in smaller, more rural communities access to premier cancer expertise in the outlying communities where they live and work.

Midwest Cancer Care hospitals actively participated in clinical research trials, operating more than 60 oncology trials in 2010, an increase of more than 30 percent from 2009. These trials continue to yield valuable treatment learnings and offer patients access to advanced options unavailable elsewhere in the region.

Our multidisciplinary oncology clinical case conferences, based on various tumor sites, continue to be a differentiator for Midwest Cancer Care hospitals. These conferences are a valuable forum for our team to work toward developing customized care plans for each patient in a collective manner.

Ongoing education and training remains a focus for our nursing and support staff. An ever-increasing number of nurses are oncology-certified, signifying an expertise that is clear to the patients we serve. In addition, Midwest Cancer Care partnered with The Cleveland Clinic in a joint oncology symposium for physicians and other cancer specialists.

From the community perspective, we continue to take an aggressive stance with early detection and prevention education efforts. As in 2009, Midwest Cancer Care’s 2010 “No excuses, get screened” program and efforts during Breast Cancer Awareness Month received a positive response from area residents.

These are just a few of the advances that our team has made in the past year. We expect to see even more progress and achievements in 2011 as we consistently strive for excellence in all aspects of our cancer program.

Sincerely,

Bradley Koffman, MD
Menorah Medical Center Cancer Committee Chair, Radiation Oncology

William T. Stephenson, MD
Research Medical Center Cancer Committee Chair, Medical Oncology

Robert Talley, MD
Centerpoint Medical Center Cancer Committee Chair, Oncology
Kansas City’s resource for exceptional care and treatment expertise

Midwest Cancer Care is known throughout greater Kansas City for the breadth of its cancer resources. With board-certified, fellowship-trained physicians, advanced cancer-fighting technology and a highly trained and compassionate support staff, we are committed to delivering the best possible care and outcomes for our patients.
Midwest Cancer Care is a physician and hospital network serving the metro area and communities throughout the region. Our network has three accredited facilities – Menorah Medical Center and Research Medical Center, accredited as community hospital comprehensive cancer programs, and Centerpoint Medical Center, accredited as a community hospital cancer program.

Advanced, quality care close to home
Core to the Midwest Cancer Care operating philosophy is our commitment to provide quality cancer diagnosis and treatment resources in the communities where our patients live and work. To that end, Midwest Cancer Care’s seven community-based outreach sites, located throughout the region, offer oncology clinics where patients are seen and treated by Midwest Cancer Care specialists. These outreach sites offer services such as lab testing, infusion services, chemotherapy and others so patients can undergo treatment in the most convenient and comfortable way possible. The outreach sites’ affiliation with Midwest Cancer Care accredited cancer hospitals ensures access to more specialized cancer services and technologies if needed.

All-encompassing care
Midwest Cancer Care offers the complete range of services for cancer patients and their families, from community education, screenings and diagnostics, to surgery and hospital services, and some of the most advanced treatment technology available. Among our offerings:
- advanced diagnostics and testing
- inpatient oncology services with a dedicated leukemia, lymphoma unit
- surgical services
- radiation oncology services
- outpatient infusion and chemotherapy facilities
- nurse navigators and educators
- genetic counseling
- clinical trials and research studies
- support, education and screening programs

Midwest Cancer Care locations:

ACCREDITED CANCER CENTERS
1. Centerpoint Medical Center in Independence, Mo.
2. Menorah Medical Center in Overland Park, Kan.
3. Research Medical Center in Kansas City, Mo.

COMMUNITY OUTREACH SITES
(within HCA Midwest Health System)
4. Allen County Hospital in Iola, Kan.
5. Cass Regional Medical Center in Harrisonville, Mo.
7. Lee’s Summit Medical Center in Lee’s Summit, Mo.
8. Overland Park Regional Medical Center in Overland Park, Kan.
9. Research Belton Hospital in Belton, Mo.
10. Research Medical Center Brookside Campus in Kansas City, Mo.

www.cancercaremidwest.com
• Toll Free: 1-888-953-3322
• Missouri: 816-751-3775
• Kansas: 913-236-8003
Midwest Cancer Care patients receive the benefit of our unique Clinical Case Conferences. These multispecialty conferences provide a setting where a team of medical professionals representing specialties such as hematology, oncology, surgery, radiology and others, share insights and expertise to ensure the fastest, most effective treatment plan and best overall level of care for patients.

Midwest Cancer Care at Menorah Medical Center is home to The Sarcoma Institute, a regional center of excellence where a multidisciplinary team of doctors and staff focuses on care and treatment of bone and soft tissue tumors. The Sarcoma Institute is led by Howard G. Rosenthal, MD, a board-certified, fellowship-trained, and nationally recognized orthopedic oncology surgeon.

The Multidisciplinary Thoracic Clinic at Research Medical Center offers a multispecialty team of lung disease and lung cancer specialists dedicated to offering fast diagnosis and effective treatment options for lung conditions. The clinic is the only one of its kind in the Kansas City area and includes pulmonologists, medical oncologists, radiation oncologists and surgeons who are specially trained to care for lungs and other parts of the respiratory system.

Research Medical Center is also home to one of the region’s premier treatment referral centers for cancer and other diseases of the liver, pancreas and biliary tract. The Liver and Pancreas Institute delivers specialized, multidisciplinary expertise, advanced treatments and comprehensive care. With cutting-edge medicine, access to research trials and case conferences, the Liver and Pancreas Institute offers hope to patients who thought they were beyond treatment options.
Our team of cancer experts ensures the most advanced technology to improve the likelihood of recovery from cancer.

Advanced cancer-fighting technology

Midwest Cancer Care offers some of the latest technologies available to diagnose and treat cancer

THE REGION’S ONLY CYBERKNIFE® – A radiation treatment that pinpoints and destroys harmful tumors without surgery or anesthesia, and with few, if any, side effects

THE AREA’S ONLY GAMMA KNIFE® – A non-invasive radiation treatment that leads the industry as the most precise radiosurgical treatment for difficult brain tumors

MAMMOSITE® – An advanced breast cancer technology that targets cancer cells and limits the exposure of healthy tissue to radiation and minimizes treatment time

BREAST MRI & MINIMALLY INVASIVE BIOPSY CAPABILITIES – Tools for accurate evaluation of suspicious breast lesions

LINEAR ACCELERATORS to deliver image-guided intensity modulated radiation therapy – Enables radiation oncologists to more precisely deliver high doses of external radiation to cancerous tumors of the lung, liver, pancreas and potentially other areas

64-SLICE CT SCANNER – for the clearest images to diagnose and stage tumors

PROSTATE BRACHYTHERAPY – A minimally-invasive treatment that involves placing radioactive seeds into the prostate gland using ultrasound image-guidance

IMAGE-GUIDED BRACHYTHERAPY OPERATING ROOM SUITE – for treating prostate, breast, cervical and other types of cancer using brachytherapy

MR SPECTROSCOPY – for biochemical imaging

INTRA-OPERATIVE BIG BORE CT – for better visualization and staging of tumors during surgical procedures.

RADIATION ONCOLOGY – to treat cancer with beams of high-energy radiation.

POSITRON EMISSION TOMOGRAPHY (PET) FOR ONCOLOGY – images the function of cells to show the difference between normal and diseased tissue

RADIOFREQUENCY ABLATION (RFA) – uses heat to destroy abnormal tissue
Midwest Cancer Care physicians are board certified and fellowship trained in oncology with expertise ranging from medical oncology to radiation oncology and specialties such as gynecologic oncology and surgery. The physicians work hand-in-hand with their primary care physician counterparts to ensure the most appropriate and effective treatment plan for each patient in their care.

David Bouda, MD, FACP, serves as medical director for cancer services at Midwest Cancer Care at Menorah Medical Center. Dr. Bouda is board certified and fellowship trained in internal medicine, medical oncology and quality assurance. A fellow of the American College of Physicians, he has practiced medicine for more than 30 years, three as an associate professor of medicine at the University of Nebraska Medical Center and as chief of oncology at the Omaha Veterans Medical Center.

Shalina Gupta-Burt, MD, is one of the area’s few dual board-certified and fellowship-trained specialists in both medical and radiation oncology. She graduated from the University of Missouri-Kansas City and completed her internal medicine residency at Baylor College of Medicine. With a passion for molecular biology research and what it could mean to cancer patients, Dr. Gupta-Burt completed rigorous dual fellowships in medical and radiation oncology at the National Institutes of Cancer, an environment known for pioneering the latest advancements in cancer care. She served as an assistant professor in both medical and radiation oncology at Presbyterian-St. Luke’s Medical Center at University in Chicago.

Jaswinder Singh, MD, is board certified in internal medicine and specializes in hematology-oncology. Dr. Singh serves as medical director for clinical research at Midwest Cancer Care at Research Medical Center. Prior to joining Midwest Cancer Care, Dr. Singh completed his hematology-oncology fellowship at the University of Kansas Medical Center. Dr. Singh received his medical degree from Medical College, Chandigarh in India and served an internal medicine residency at Mount Sinai VA Medical Center in New York.

Jaswinder Singh, MD, is board certified in internal medicine and specializes in hematology-oncology. Dr. Singh serves as medical director for clinical research at Midwest Cancer Care at Research Medical Center. Prior to joining Midwest Cancer Care, Dr. Singh completed his hematology-oncology fellowship at the University of Kansas Medical Center. Dr. Singh received his medical degree from Medical College, Chandigarh in India and served an internal medicine residency at Mount Sinai VA Medical Center in New York.

William T. Stephenson, MD, serves as medical director for cancer services at Midwest Cancer Care at Research Medical Center. Dr. Stephenson is board certified in internal medicine and medical oncology-hematology. He received his medical degree from the University of Kansas School of Medicine and completed his residency at the University of Virginia Health Sciences Center. Dr. Stephenson completed fellowship training at Indiana University-Purdue University Indianapolis and the University of Utah in Salt Lake City. He has been practicing in the field of oncology in Kansas City for more than 15 years.

John C. Weed, Jr., MD, is board certified in gynecology and oncology. Dr. Weed has taught the field of gynecologic oncology at universities throughout the United States and has authored multiple papers and articles on his specialty. He received his medical degree from Tulane University in New Orleans and served his internal medicine residency at Duke University and the University of Alabama. Dr. Weed completed his fellowship training at Duke University.
New Physicians in 2011

Sukumar Ethirajan, MD, obtained his medical degree from the Government Stanley Medical College, University of Madras. He competed a residency in clinical pathology from the Boston University Medical Center, a residency in internal medicine from North Shore Medical Center/Massachusetts General Hospital, a fellowship in hematology/oncology from the University of California and a fellowship in medical oncology from the University of Minnesota. He has served on medical advisory boards, scientific advisory boards, medical education boards and institutional review boards as well as director of several cancer departments and as chairs of cancer committees. He has been honored by the Physician Recognition Award from the American Medical Association and is a member of the American Society of Clinical Society, the Metropolitan Medical Society of Greater Kansas City and the Missouri State Medical Association.

Stephanie Graff, MD, offers cancer patients outstanding clinical care, coupled with a warm and compassionate bedside manner. In fact, during her residency, she was recognized for both her clinical skills and understanding, compassionate care. Dr. Graff specializes in breast treatment options, and is fellowship-trained in both hematology/medical oncology and breast oncology. In addition, she has strong cancer research experience. Dr. Graff received her medical degree from the University of Missouri-Kansas City (UMKC) School of Medicine. She completed her internal medicine residency at the UMKC internal medicine residency program and her hematology/medical oncology fellowship and breast oncology sub-fellowship at the University of Kansas Medical Center. Dr. Graff is board certified in internal medicine and board eligible in medical oncology and hematology.

Muzaffar Iqbal, MD joined Midwest Cancer Care at Research from the Dreiling-Schmidt Cancer Institute in Hays, Kan. Prior to that, he served as director of medical oncology at Central Cancer Care in Osborne, Kan. During his career in western Kansas, Dr. Iqbal served in several leadership and supervisory positions, such as medical director of Osborne County Hospital and chair of medical oncology for the Dreiling-Schmidt Cancer Institute. He also served as a member of the Cancer Committee for Hays Medical Center and on the Midwest Cancer Alliance. He received his medical degree from Sind Medical College, Karachi, Pakistan and completed his residency at Bronx Lebanon Hospital in New York. He completed his medical oncology and hematology fellowship at the University of Kansas Medical Center.

Larry Rosen, MD, received his medical degree at the University of Kansas Medical Center and trained at St. Luke's Hospital and Trinity Lutheran Hospital in Kansas City, Missouri. Dr. Rosen is board-certified in internal medicine and is an active member of a variety of medical associations, including the Missouri State Society of Clinical Oncology, the Missouri State Medical Association and the Jackson County Medical Society.

Robert Talley, MD, received his medical degree from the University of Texas Medical Branch at Galveston and completed an internship, residency and fellowship at The Ohio State University in Columbus. Dr. Talley is a member of the American Society of Hematology and the American Society of Clinical Oncology. He is board-certified in internal medicine, medical oncology and hematology.
Midwest Cancer Care’s services extend beyond diagnosis and treatment of cancer.

Midwest Cancer Care: Education & Support Programs

A team committed to exceptional care

Midwest Cancer Care team members work closely together on every aspect of patient care, ensuring a coordinated, multidisciplinary approach. Our nursing and allied health team consists of skilled, experienced cancer practitioners, many of whom have added special certifications in various areas of oncology. Our physicians and staff are committed to partnering with each cancer patient’s primary care physician to ensure the best possible patient outcomes, quality of life and support both during treatment and well into survivorship.

Cancer Registry

A cancer registry is affiliated with each hospital within Midwest Cancer Care. The cancer registrars are responsible for collecting diagnosis and treatment information for newly diagnosed cancer cases, annual follow-up on patient status, coordinating weekly cancer conferences, monthly reporting to state cancer registries and annual reporting to the National Cancer Data Base. The data collected by the cancer registrars aids in achieving the national goal of reducing cancer deaths. In addition, the facility-based cancer committees use the registrars’ expertise in data management and analysis to develop and assist in data reviews, quality studies and improvement projects.

Community Support & Education Programs

Midwest Cancer Care offers a wide range of support and free educational programs for cancer patients and their families and friends. In 2010, our hospitals continued the “No excuses, Get screened” program, a highly effective community-wide education and screening initiative. Among the Midwest Cancer Care Programs:

- Movement and Exercise Programs
- Energy Healing Therapies
- Educational Programs
- Appearance and Self Image
- Genetic Counseling
- Pastoral Care
- Psycho-educational Programs
- Wellness Programs
- Cancer and caregiver counseling

Midwest Cancer Care is committed to supporting community health initiatives, raising both funds and awareness to support cancer research. Among the 2010 organizations and initiatives we supported were the Light the Night Walk, the Leukemia & Lymphoma Society’s annual fundraiser, the American Cancer Society’s Relay for Life and the Making Strides Against Breast Cancer Walk. Midwest Cancer Care was the primary sponsor for The Kansas City Affiliate of Young Survival Coalition (YSC) for its annual In Living Pink Gala.
Midwest Cancer Care partnered with the renowned Cleveland Clinic and The Sarah Cannon Cancer Center in 2010 to host Emerging Trends in Cancer Care, an oncology symposium for healthcare professionals. Approximately 100 physicians, nurses and other cancer care professionals gathered for this insightful forum that featured speakers from the Cleveland Clinic, Brigham and Women’s Hospital, and Sarah Cannon, as well as some of the Kansas City area’s top cancer professionals.

The sessions and presentations were specifically designed to provide primary care physicians, surgeons, medical and radiation oncologists, oncology nurses, and others with information and news about the latest trends in care for cancer patients. Sessions were both insightful and information-rich with topics ranging from advances in treatment of gynecological cancers to oncology clinical research to breast cancer and the latest progress in managing low grade lymphoma, and more. Continuing education credits were awarded to attendees, and feedback from the health professionals was positive and helpful as we plan for future events.
### 2009 Midwest Cancer Care

**Overall Analytic Cases by County**

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### 2009 Frequency of Cancer, Total Analy 

**IDWEST CANCER CARE**

- **Breast**
- **Prostate**
- **Other**

**Frequency of Cancer (above):** Midwest Cancer Care saw nearly 3,000 analytic cases in 2009 — those diagnosed at one of our hospitals or who received all of part of their initial treatment at a Midwest Cancer Care facility. The two most prevalent analytic diagnoses were breast cancer and lung and bronchus cancer.

**Cases by County (left):** Most 2009 Midwest Cancer Care patients came from the local counties of Johnson County, Kan., and Jackson County, Mo. We did, however see and treat patients from throughout the two states, likely due to our outreach locations and our specialized expertise in areas such as breast cancer, liver and pancreatic diseases and lung conditions.
The remainder of this report is dedicated to the premier cancer programs at our accredited hospitals, Centerpoint Medical Center, Menorah Medical Center and Research Medical Center. Please visit www.cancercaremidwest.com to learn more about Midwest Cancer Care services.

Midwest CANCER CARE

www.cancercaremidwest.com
• Toll Free: 1-888-953-3322
• Missouri: 816-751-3775
• Kansas: 913-236-8003
Centerpoint Medical Center is HCA Midwest Health System’s newest accredited cancer center.

Midwest Cancer Care at Centerpoint Medical Center

Centerpoint Medical Center in Independence, Mo., is known for its stellar patient care. With a highly trained oncology staff, exceptional breast imaging and treatment service, and physician expertise, the hospital is committed to providing comprehensive cancer care for Eastern Jackson County. Midwest Cancer Care at Centerpoint is accredited by the American College of Surgeons Commission on Cancer as a community hospital cancer program with commendation for exceeding national standards.
2010 Cancer Program Highlights

Clinical and Treatment Advancements

- The Breast Center at Centerpoint submitted its application to become a National Accredited Program for Breast Centers (NAPBC) accredited facility in 2010, and it was approved in 2011. Patients receive multidisciplinary, integrated, and comprehensive breast care services.

- The hospital continues to bolster its advanced technologies with the purchase of a 3 Tesla MRI. The 3T MRI has better clarity of images and some scan times are reduced. The addition of this MRI also doubles our current MRI capacity.

Patient Services

- The cancer staff at Centerpoint continues its commitment to advanced education and certification with 30 of 36 nurses now chemotherapy certified.

- Midwest Cancer Care at Centerpoint continues to expand its services to meet the needs of our community. A palliative care team and a pain management team were established in 2010 and a new Oncology Outpatient Clinic opened in mid-2011.

Community Leadership

- Midwest Cancer Care at Centerpoint hosted four “Pink Parties” during October 2010 for Breast Cancer awareness. Women also received bone density screenings at the events. A total of 116 women were screened.
Quality care in a patient-centered environment

Quality care delivered by compassionate professionals forms the cornerstone of Midwest Cancer Care at Centerpoint Medical Center. Our mission is to improve the health of those who live in the communities we serve. To accomplish this, our program focuses on:

- Prevention and early detection initiatives to help our residents prevent cancer whenever possible or to detect it early when there is the best chance of a cure.
- Multidisciplinary Care – Our physicians represent multiple specialties and our case conferences ensure that patients receive the benefit of highly qualified specialists in addition to other health professionals for cancer diagnosis, treatment planning and the management.
- Palliative Care – The team at Centerpoint offers palliative care and symptom control. We offer pain and symptom management, support groups, social services and other resources.

Centerpoint Medical Center’s highly skilled oncology care

Our hospital is known for its oncology care delivered by a skilled and compassionate staff. We offer comprehensive services, including a 36-bed medical-oncology unit as well as other services such as chemotherapy and infusion services. Our nurses and support staff are specially trained in chemotherapy and oncology, with the vast majority of nurses chemotherapy-certified.

In addition to general oncology, Centerpoint’s staff has a particular expertise in caring for patients with lung and gastrointestinal cancers, as well as in meeting the unique needs of patients suffering complications of chemotherapy.
Breast Diagnostics and Imaging

The Breast Center at Centerpoint Medical Center, accredited by the National Accreditation Program for Breast Centers (NAPBC), provides some of the most advanced diagnostic procedures available for breast cancer. The center offers advanced digital mammography and options such as MammoPad® for a softer, more comfortable mammogram procedure which enables the technician to obtain the clearest and best images possible.

The center complements its digital mammography technology with additional diagnostic procedures such as magnetic resonance imaging (MRI) of the breast and breast ultrasound – all to provide the most thorough evaluation possible of breast conditions. The Breast Center offers women access to innovative biopsy techniques, including less invasive stereotactic and image-guided procedures.

Oncology Nurse Navigator

Midwest Cancer Care at Centerpoint offers the services of a nurse navigator to lead breast patients through their entire experience – from initial diagnostic procedures through treatment, if needed, and into recovery. The nurse navigator is an invaluable resource to patients and families, often facilitating a patient’s testing, oncology appointments and treatment, all of which helps reduce the amount of time from point of diagnosis to start of treatment.
**Case Conferences**

Cancer care team members, led by Robert Talley, MD, a board-certified, fellowship-trained oncology-hematology specialist, work together on every aspect of care delivery to ensure a coordinated, multidisciplinary approach. Our case conferences help ensure a cohesive treatment regimen, faster time to treatments and an overall view of a patient’s health.

**Community Support**

Midwest Cancer Care at Centerpoint offers a variety of education, informational and support services for patients, families and the community, including health education on cancer risk factors and how to reduce them. In 2010, the hospital continued the highly effective “No excuses, Get Screened” initiative with a specific focus on early detection of breast cancer. As a result, mammogram volumes during October increased year over year. In 2009, we saw 655 mammography patients, and in 2010, we saw 706.
Centerpoint Medical Center 2009 Frequency of Cancer, Total Analytic Cases
n = 413

Frequency of Cancer (left): Centerpoint Medical Center saw more than 410 analytic cancer cases – those diagnosed at our hospital, or who received all or part of their initial course of treatment there. Lung and bronchus cancer continues to be the number one site of analytic cases with breast and colon cancers second and third respectively.

Bronchus/Lung Cancer (below): Lung cancer continued to be the primary cancer diagnosis at Centerpoint. Similar to the National Cancer Data Base, the majority of patients at Centerpoint presented between the ages of 70 and 79 with a more advanced stage – stage IV – at the time of diagnosis.
Breast Cancer: Breast cancer was among the top cancer types seen at Centerpoint. Nearly 40 percent of cases were seen in stage 1, likely due to community education around screening mammograms and early detection. The majority of patients were between 60 and 69 at the time of diagnosis.

Colon Cancer: Colon cancer was the third most common analytic cancer seen at Centerpoint. The majority of patients were seen at stage 2 of the cancer, with most patients being diagnosed between 80 and 89 years of age.
**Introduction**

According to the American Cancer Society, non-Hodgkin lymphoma is one of the most common cancers in the United States, accounting for approximately 4 percent of all cancers. The American Cancer Society’s most recent estimates (2010) for the occurrence of non-Hodgkin lymphoma are:

- An estimated 65,540 people (35,380 males and 30,160 females) will be diagnosed with non-Hodgkin lymphoma. This includes both adults and children.
- Approximately 20,210 people will die from this cancer (10,710 males and 9,500 females).

In this study, we have focused on variables related to age at diagnosis, gender, nodal vs. extranodal primary site, stage at diagnosis, and five-year survival rate. The data presented is for analytic cases of non-Hodgkin lymphoma (NHL) diagnosed at Centerpoint in 2009.

**Results**

Centerpoint had 20 analytic NHL cases in 2009, which was 5 percent of all new cancer patients seen in that year.

**Age At Diagnosis**

The average age at diagnosis is in the 60s, with nearly half of patients older than 65. The risk of developing non-Hodgkin lymphoma increases throughout life. The aging of the American population is likely to lead to an increase in non-Hodgkin lymphoma cases during the coming years. In our study, five (25 percent) of our patients were between the ages of 60-69 and 10 (50 percent) of our patients were older than 65.

**Graph 1. Age at diagnosis.**

![Graph 1. Age at diagnosis.](image-url)
Gender Differences

Overall, the risk of NHL is higher in men than women. In our study, nine (45 percent) were male and 11 (55 percent) were female.

Graph 2. Gender

Nodal And Extranodal Primary Sites

Lymphomas arise when DNA damage or changes occur to a lymphocyte. Lymphoma tumors may form in the lymph nodes or spread to other areas of the lymphatic system, such as the spleen or bone marrow. Lymphoma can also spread or first appear outside the lymphatic system -- and is called extranodal disease. In our study, 10 (50 percent) of the cases were nodal and 10 (50 percent) of the cases were extranodal.

Five Year Survival Data

In order to compare five-year survival data for Centerpoint and the National Cancer Data Bank (NCDB), Centerpoint’s 2004 and the NCDB’s 2003 NHL data was used. Centerpoint’s small numbers make it difficult to do a head-to-head comparison, but Centerpoint’s survival surpassed that of the NCDB for all stages except stage 1 patients.

Table 3. Stage of NSCLC by hospital.

The Centerpoint Medical Center’s Cancer Committee supports the use of national guidelines and evidence-based practice in the care of all cancer patients. While other guidelines may apply, the cancer committee recommends consideration of the National Comprehensive Cancer Network (NCCN) guidelines in treatment planning.
Menorah Medical Center is one of two comprehensive accredited Midwest Cancer Care sites for delivery of specialized cancer treatment.

Midwest Cancer Care at Menorah Medical Center

Midwest Cancer Care at Menorah Medical Center has established itself as an exceptional resource for cancer care. The facility is home to The Breast Center at Menorah and The Sarcoma Institute – both renowned as centers of excellence. Menorah complements those unique cancer resources with some of the most advanced technology in the metro area, unparalleled cancer expertise and a reputation for exceptional patient care. Menorah Medical Center is accredited by the American College of Surgeons Commission on Cancer as a community hospital comprehensive cancer program with commendation for exceeding seven national standards.
**2010 Cancer Program Highlights**

Menorah Medical Center’s 2010 milestones and highlights were charted across various areas of the cancer program.

**Clinical Expertise and Treatment**

- Menorah Medical Center was recognized by the Commission on Cancer with the prestigious 2009 Outstanding Achievement Award. The award is granted to cancer programs exceeding national standards during an accreditation survey.
- The Menorah cancer committee designated the National Comprehensive Cancer Network (NCCN) guidelines as the standard of care for oncology practice at Menorah. Other national guidelines may be referenced in treatment decision and care planning documentation.
- Menorah Medical Center’s most recent data for the Commission on Cancer’s Cancer Program Practice Profile Reports (CP3R) is above the state, local and national benchmarks for all quality measures for breast cancer.
- Shalina Gupta-Burt, MD, joined Midwest Cancer Care at Menorah. She is one of the area’s few dual board-certified and fellowship-trained specialists in both medical and radiation oncology. Dr. Gupta-Burt’s unique expertise and emphasis on patient-centered care is a strong complement to Menorah’s robust cancer program.
- Midwest Cancer Care at Menorah officially opened its new offices in Medical Office Building #2 on the Menorah campus, providing a bright, comfortable and spacious environment to accommodate our growing number of patients. As part of our community outreach, several open houses were held to invite our neighbors to tour the facility, meet the staff and learn about the cancer program.
Clinical Expertise and Treatment (continued)

- Electronic ordering, an important safety and quality initiative, was implemented for chemotherapy orders in the cancer center.
- The Breast Center at Menorah continues to experience steady growth. A new ultrasound machine and a second reading station were added to accommodate the increasing number of women choosing the center for breast care:
  - 1,635 new patients came to the Breast Center in 2010
  - 1,430 women took advantage of the Breast Center’s 2010 walk-in screening mammogram program.
  - Since beginning the program in October 2009, we have been able to accommodate a total of 1,659 women.
- The Breast Center began the process for becoming an accredited breast center, an accomplishment that occurred in 2011.
- Menorah treated 39 patients with MammoSite® advanced technology in 2010, celebrated our 100th patient and reached a cumulative total of 132 patients who have undergone this procedure since Menorah began offering MammoSite®.
- A Positron Emission Tomography/Computed Tomography (PET/CT) machine was added to provide a dedicated on-site service.
- The radiation therapy department was expanded with the addition of a new exam room to accommodate additional patients.
- Initial steps were taken to expand the oncology clinical research program with the purchase of a advanced laboratory freezer for storing clinical trial specimens.
- Midwest Cancer Care at Menorah played a leadership role in oncology professional education, including teaching an Oncology Nursing Society Chemotherapy and Biotherapy course and co-hosting a city-wide Oncology Symposium which featured local and national experts.

Patient Services

- Menorah Medical Center welcomed two exceptional new executives to complement the hospital’s existing leadership. Jennifer Eslinger joined as Chief Operating Officer and Becca Burgess took on the role of Director of Oncology. Numerous staff members and volunteers also joined the expanding cancer program.
• Our staff continues to improve its expertise in all areas of cancer care by achieving additional certifications: Ashley Wiegert is now a registered health information tech; Melissa Herlein is now a certified orthopedic nurse; Dillon Dreher is now a certified specialist in oncology nutrition.

• Other staff achievements included:
  – Tracy Slimmer, RN, was honored with the Marilyn Jacobs Oncology Nurse Award.
  – Kate Call, RN, co-authored an article on hospice care vs. palliative care for the Oncology Nursing Journal.
  – Kim Haynes, RN, presented at the Musculoskeletal Tumor Society.
  – Howard Rosenthal, MD, presented at the Connective Tissue Oncology Society.
  – David Bouda, MD, co-authored a book on Facing Cancer Together.

• New programs to benefit patients and families were created in 2010:
  – A breast and bone program created by Rose Cargile from the Breast Center is being developed to encourage women to get both a mammogram and a bone density scan when appropriate. The program idea earned Rose the Innovator Award for Menorah.
  – A bereavement program was implemented for families who were not receiving hospice care.

**Community Support**

• Midwest Cancer Care at Menorah joined its fellow Midwest Cancer Care facilities in participating in the city-wide Cancer Survivor Day activities.

• Menorah offered several October activities to raise awareness about breast cancer. Several women had their first mammogram during these events.
  – The month was celebrated with walk-in mammograms, Muffins and Mammograms, Saturday screenings, and a special awareness event.
  – Menorah was also the starting venue for the local Pink Power motorcycle ride.
  – Employees participated in the Komen Race for the Cure.

• The Sarcoma Institute sponsored a fun Sarcoma Day at the “K” (Kauffman Stadium) this summer as part of National Sarcoma Awareness Week. Sarcoma patients and their families joined The Sarcoma Institute staff in raising awareness about sarcoma.

• Menorah Medical Center’s cancer support services include the Facing Cancer Together program, TOUCH healing services, and monthly samples of various complementary therapies for patients and the community. A free massage continues to be offered to Menorah oncology patients.
Breast Care
The Breast Center at Menorah Medical Center is known for its state-of-the-art risk assessment, testing, diagnostic and treatment options. In addition to advanced digital mammography, the center offers breast magnetic resonance imaging (MRI) and ultrasound procedures. Menorah’s center offers women access to innovative biopsy techniques, including less invasive stereotactic and image-guided procedures. The Breast Center offers MammoPad®, which provides a softer, more comfortable procedure for patients, enabling technicians to get the best and clearest image.

The Center has a dedicated onsite female radiologist to read results, and offers walk-in screening mammograms and evening/weekend hours. The availability of walk-in hours has resulted in 1,600-plus patients undergoing screening mammograms. Menorah’s highly skilled breast surgeons specialize in primary breast cancer surgery and in breast reconstruction techniques. Menorah is the only hospital in Johnson County to offer MammoSite® technology, an advanced breast cancer treatment that targets cancer cells and limits the exposure of healthy tissue to radiation. With MammoSite®, the treatment plan is typically only five days versus the usual five-to-seven weeks. Additionally, lymphedema services are available pre-or post-operatively.

Radiation Oncology
Menorah’s radiation oncology department provides a full array of external beam radiation therapies including intensity-modulated radiation therapy (IMRT) and image-guided radiation therapy (IGRT) routinely for curative cases. Primary areas of the body treated with external beam radiation therapy include lung, breast, head and neck cancers, gynecologic cancers, prostate, brain, sarcomas, and metastatic diseases. Menorah also uses high dose rate (HDR) brachytherapy to treat other tumors using MammoSite® or a multi-catheter approach to better reach and isolate the treatment area. The treatment of early stage, inoperable lung tumors with CyberKnife® continues to increase, supporting mature published data.
Menorah Medical Center

2010 REPORT TO THE COMMUNITY

**CyberKnife®**

Menorah is the only facility in the greater Kansas City area to offer CyberKnife® Stereotactic Radiosurgery, technology that destroys harmful tumors without surgery or anesthesia, and with few, if any, side effects. It is a painless, outpatient option without the risks and complications associated with conventional surgery, and more convenient than weeks of daily radiotherapy. The CyberKnife® Stereotactic Radiosurgery unit at Menorah is now in its seventh year of operation.

CyberKnife® advanced technology allows us to treat tumors and lesions that were previously thought to be untreated or inoperable, delivering high doses of focused radiation to many areas that other technologies are unable to reach, such as sites outside of the brain or areas previously treated with radiation. This approach offers hope to those with otherwise inoperable tumors. Primary sites being treated at Menorah include lung, liver, pancreas, sarcomas, brain, bone including the spine, and various areas of metastatic disease. Benign diseases being treated include acoustic neuromas, schwannomas, meningiomas, and ependymomas.

**The Sarcoma Institute**

The Sarcoma Institute is considered a regional center of excellence for the treatment of bone and soft tissue tumors. It is one of the busiest orthopedic oncology centers in the nation, attracting numerous patients from throughout the Midwest. Under the direction of Howard Rosenthal, MD, one of the few orthopedic oncology surgeons in the nation, nurses, and other allied health professionals are dedicated to the care and treatment of patients of all ages with these tumors. Special consideration is given to tumor resection so that reconstructive surgery can preserve and/or restore function of the limb. The Sarcoma Institute utilizes several highly specialized prostheses to achieve this goal. Many of these prostheses are being used by only a small group of physicians in the country and Dr. Rosenthal has been involved in the development of some of them. The Sarcoma Institute team also surgically treats metastatic carcinoma to the bone such as breast, kidney, lung, prostate and thyroid.

**Oncology Rehabilitation Services**

Oncology rehabilitation can often help a patient overcome, compensate or cope with the negative effects from surgery, tumor involvement and side effects of chemotherapy. Information on ways to reduce the chance of developing problems such as lymphedema can also enhance quality of life.
Oncology rehabilitation patients are seen at Menorah in both inpatient and outpatient settings. Services such as physical therapy, occupational therapy, and speech and language pathology are all available.

**Inpatient Specialty Unit**

The Menorah inpatient specialty unit provides patients with quality care throughout their cancer experience. Our staff works together to provide care, education and support to the patients and their loved ones. The nurses provide pre-operative chemotherapy, care during surgery, and post-operative chemotherapy.

**Cancer Clinical Case Conferences**

Multidisciplinary cancer conferences are held weekly at Menorah Medical Center as a forum to provide a multidisciplinary view of patient cases. They allow an opportunity to share insights and expertise to ensure the fastest, most effective treatment plan and best overall level of care for our patients. Menorah’s cancer conferences focus on general oncology, breast cancer, orthopedic oncology and/or CyberKnife® cases.

Case presentations may address prevention, detection, diagnosis, treatment and/or palliation of cancer. Cases are selected to provide a broad range of topics, disease sites and case management situations for discussion.

**Cancer Support and Survivorship Services**

Midwest Cancer Care at Menorah offers a comprehensive range of free education, support and survivorship programs for cancer patients and their families and friends. Among the programs offered as part of a complementary approach to treatment and wellness:

- Exercise and nutrition courses
- Sessions on understanding and coping with “chemo brain”
- Appearance-related classes
- Comfort massage
- Disease-specific education and resources for families
- Activity bags for pediatric patients
- Assorted comfort items made by our volunteers

**Clinical Trials**

Midwest Cancer Care at Menorah also offers clinical trials, giving patients access to cutting-edge treatment options they might not otherwise have.
Oncology Genetic Counseling & Testing

Menorah offers the services of certified genetic counselors to conduct a detailed risk assessment for those at risk because of a personal or family history of cancer. The genetic counselor can help people make an informed decision about whether to have genetic testing, and counsel them on the results when testing is done. In addition, the genetic counselor can explore screening guidelines and other health care decisions related to their risk factor.

Oncology Volunteer Program

We continue to be blessed with a special group of oncology volunteers, many of whom are survivors themselves. The Menorah Cancer Care volunteers function as supporters in the following areas:

- radiation oncology
- 4th floor specialty unit
- cancer registry
- Sarcoma Institute
- The Cancer Center
- The Breast Center

Volunteers also assist us in areas including Breast Cancer Awareness Month activities, providing cancer educational bags, making comfort items, and many other special projects when requested.
Frequency of Cancer (left): Menorah Medical Center continued to see an increase in the number of analytic cancer cases. Analytic cases are those diagnosed at our hospital or cases where patients received all or part of their first course of treatment at Menorah. In 2009, Menorah had 990 analytic cancer cases. The distribution of types of analytic cases is illustrated in the chart.

Breast Cancer (below): Given the comprehensive resources available through The Breast Center at Menorah, breast cancer was the primary cancer seen at Menorah. The majority of the 439 breast cancer cases seen at the hospital were early stage disease. This can be attributed to extensive education, screening mammograms and breast self exams. Over one-half of women were between the ages of 50-69 at the time of diagnosis.
Bronchus and Lung Cancer: The second most common cancer seen at Menorah was lung cancer. This is partially due to the CyberKnife® program, which offers stereotactic surgery for early stage lung cancer patients when conventional surgery is not medically recommended. In 2009, the age at diagnosis was earlier than in years past, with slightly more patients being diagnosed in their 60s versus their 70s.

Soft Tissue and Bone Cancer: The Sarcoma Institute is one of the busiest orthopedic oncology units in the country, and rivals much larger institutions in the number of benign and malignant bone, joint and soft tissue tumors seen. There were numerous diagnoses within the category of malignant soft tissue and bone cancers. Some of these cancers affected a greater number of younger patients with 25 percent of Menorah cases under age 40.
Excluding skin cancers, colorectal cancer is the third most common cancer diagnosed in both men and women in the United States. The American Cancer Society’s most recent estimates for the number of colorectal cancer cases in the United States are for 2010 with an estimated 102,900 new cases of colon cancer (49,470 in men and 53,430 in women). Although the death rate from colorectal cancer has been dropping in both men and women for more than 20 years, colorectal cancer is the third leading cause of cancer-related deaths in the United States when men and women are considered separately, and the second leading cause when both sexes are combined.

Menorah’s cancer committee selected colon cancer as the site study for this year. In order to use cancer registry data for a complete year, the data presented is from 2009. Thirty-two patients were diagnosed and/or received their first course of therapy for colon cancer at Menorah in 2009. One additional patient was diagnosed with an adenocarcinoid tumor of the appendix which will not be included in this study due to the unique features of this type of tumor. Four of the patients had colon cancer diagnosed in two separate sites. Therefore, for the purpose of this study, 36 cases of colon cancer are analyzed. Overall, the lifetime risk in men for developing colorectal cancer is about 1 in 19 (5.2 percent). The risk is slightly lower in women (1 in 20). In our study, 12 (33.3 percent) of our cases were men and 24 (66.7 percent) of our cases were women.

It is estimated to take 10 to 15 years for abnormal cells in the colon to develop into colorectal cancer. This makes regular colorectal cancer screening one of the most powerful weapons for preventing colorectal cancer. Regular screening can, in many cases, prevent colorectal cancer by detecting polyps so they can be removed before they become malignant and/or finding colorectal cancer early, when it is highly curable. Current guidelines from the American Cancer Society recommend colon screenings starting at age 50 for people with a normal risk of the disease. Risk factors should be evaluated in all patients and those with significant risk factors should begin screenings at an earlier age.
Four of Menorah’s 36 cases were under the age of 50. One was diagnosed in his 20s, two in their 30s and one in his 40s. Only one of these patients carried a known risk factor for colon cancer. A 36-year-old female had a strong family history of colon cancer and thus had a colonoscopy at an earlier age. A polyp was found and pathology revealed a cancer. Genetic testing confirmed hereditary nonpolyposis colorectal cancer.

The goal of screening is to find and remove precancerous lesions whenever possible. While we found one stage 0 colon cancer, the most frequent stage at diagnosis for our patients was stage 1 colon cancer. A summary of the order of frequency by stage is as follows: stage 1 (34.38 percent), stage 3 (28.12 percent), stage 2 (21.88 percent), stage 4 (12.50 percent) and stage 0 (3.12 percent). By far, the most common histology was adenocarcinoma.

The most common sites of cancer were the ascending colon and the cecum. Four of our cases had colon cancer diagnosed in two separate sites. Two cases were diagnosed with both a descending colon site and either a hepatic or splenic flexure site. Two of the transverse colon sites were also diagnosed with sites in the cecum. While both sigmoidoscopy and colonoscopy are acceptable screening tools, the sigmoidoscopy only examines the last third of the colon and would have missed more than 40 percent of our cancer cases. Physicians at Menorah provided 85 flexible sigmoidoscopies and 2,978 colonoscopies in 2009.
In reviewing the National Quality Forum’s quality measures for colon cancer, Menorah was 92 percent compliant with the standard for removing and pathologically examining at least 12 regional lymph nodes for resected colon cancers that met the criteria. The average number of lymph nodes examined was 21 nodes.

In order to compare five-year survival data for Menorah and the National Cancer Data Bank (NCDB), Menorah’s 2004 and the NCDB’s 2003 colon data was used. Menorah’s small numbers make it difficult to do a head-to-head comparison, but the hospital’s survival rates surpassed that of the NCDB for all stages except stage 1 patients.

![Menorah Medical Center 2004 Colon Cancer Five Year Survival Rates](chart.png)

The Menorah Medical Center Cancer Committee supports the use of national guidelines and evidence-based practice in the care of all cancer patients. While other guidelines may apply, the cancer committee recommends consideration of the National Comprehensive Cancer Network (NCCN) guidelines in treatment planning.
The physicians and staff at Midwest Cancer Care at Research Medical Center are consistently striving for the best, most innovative ways to care for patients. Our goal is to provide a supportive treatment environment that gives cancer patients everything they need during care. The hospital is known for its progressive cancer resources such as the Liver and Pancreas Institute, the Multidisciplinary Thoracic Clinic, Gamma Knife® Program and the newly established Center for Integrative Therapy. These comprehensive treatment environments are complemented by the latest cancer-fighting technology, expert specialists and of course, our multidisciplinary, collaborative clinical case conferences. Research Medical Center is accredited by the American College of Surgeons Commission on Cancer as a community hospital comprehensive cancer program with commendation for exceeding three national standards.
Throughout 2010, Midwest Cancer Care at Research cited numerous accomplishments:

**New programs and patient services**

- A breast navigation program was initiated with a goal of supporting the patients who need further diagnostic imaging, biopsy or subsequent treatment. This program was foundational in our facility receiving its National Accreditation Program for Breast Centers accreditation in 2011.
- The Multidisciplinary Thoracic Clinic, which uses the expertise of multiple specialists in lung cancer and other diseases, was established in 2010. The main thrust of care is centered on decreasing the amount of time from patient diagnosis to treatment.
- Healing Through Wellness, a program through the Center for Integrative Therapy, debuted in 2010. The program utilizes a wellness-based, holistic approach to well-being, pain management, nutrition, exercise and more for cancer patients.
- Life “after” cancer, a survivorship program led by an oncology nurse practitioner is also available through the center.
- Two new medical oncologists, Stephanie Graff, MD, and Muzaffar Iqbal, MD, were recruited and joined the team in mid-2011.
- Living Through Cancer, an educational and support program offered to patients and families, led by David Bouda, MD, and professional life coach, Joann Bouda was initiated.
**Clinical Research**

Midwest Cancer Care at Research Medical Center continues to be highly active in clinical trials. The hospital is offering clinical trials for:

- Glioblastoma
- Gliosarcoma
- Breast (neo and adjuvant, Ductal Carcinoma In Situ, stage I-IV)
- Sickle cell
- Chronic Lymphocytic Leukemia
- Peripheral T-Cell Lymphoma
- Colorectal (locally advanced and metastatic)
- Esophageal/GE junction
- Prostate (stage IV)
- Renal (stage IV)
- Urinary Tract (locally advanced or metastatic)
- Head/Neck (stage I – IV)
- Myelodysplastic Syndrome
- Chronic Myeloid Leukemia
- Acute Myeloid Leukemia
- Lung (NSCLC and SCL, all stages)
- Lymphoma (grades 1-3)
- Melanoma (stage IV)
- Multiple Myeloma and Monoclonal Gammopathy of Undetermined Significance
- Bony Metastasis (biphosphonate therapy)

- In mid-2010, to further highlight the clinical research program, cancer specialist Jaswinder Singh, MD, was named as medical director for clinical research. The support staff was also increased to accommodate the growing number of trials.
- We enrolled 60 patients in clinical trials, equaling 5 percent of our analytic cases.
- At year’s end, the program was operating 61 active oncology clinical trials, a 30 percent increase from 2009.
- Data collection and regulatory compliance were monitored on a regular basis by our outside pharmaceutical sponsors.
Multidisciplinary Case Conferences and Treatment Planning

- Research Medical Center initiated a site-specific breast case conference in 2010. This case conference was a tremendous success, with 38 percent of breast tumor cases being presented and discussed at the conference.
- Through the site-specific case conferences for breast, thoracic, and liver and pancreas, 385 prospective cases were discussed using a multidisciplinary physician approach. This represents a 59 percent increase over the number of cases presented in 2009. These multidisciplinary case conferences offer the best available plan of care for cancer patients in an expeditious timeframe.
- Case conferences generally include 12 physician specialists, clinical research specialists, genetic counselors and occupational therapists — ensuring a true multidisciplinary approach that is tailored individually to the patient.

Community and Educational Leadership

- The cancer team at Research Medical Center participated in 21 community education and screening events in 2010, with a combined total of 2,500 attendees. Screenings were offered for skin, colorectal and prostate cancers.
- Out of the individuals screened, 13 percent were identified as needing further evaluation.
- Midwest Cancer Care served as the supporting sponsor for the American Cancer Society’s Relay for Life, and as a major corporate sponsor for the Leukemia Lymphoma Society Light the Night event.
Midwest Cancer Care at Research - Centers of Excellence

**The Midwest Gamma Knife® Center**

For more than 15 years, patients with brain tumors have been offered new hope and treatment options through the Midwest Gamma Knife Center. This non-invasive radiation treatment continues to lead the industry as the most precise radiosurgical treatment for difficult brain tumors. Since the opening, 1,642 patients have been treated.

**Liver and Pancreas Institute of Kansas City**

The Liver and Pancreas Institute (LPI) is one of the region’s premier treatment referral centers for cancers of the liver, pancreas and biliary tract. The LPI delivers specialized expertise, advanced treatments and comprehensive care – giving hope to those who thought they were beyond treatment. Our team of specialists – hepatologists, oncologists, radiologists, surgeons, and others — works collaboratively with primary care physicians to help diagnose patients, personalize a treatment regimen, and get them into treatment faster. The LPI offers access to clinical trials, new, emerging and experimental treatments unavailable anywhere else in the region, and advanced endoscopic and interventional treatment.

**The Multidisciplinary Thoracic Clinic**

The Multidisciplinary Thoracic Clinic, established in 2010, is home to a multispecialty team of physicians dedicated to offering fast diagnosis and effective treatment options for lung conditions. The clinic is the only one of its kind in the area and has dramatically reduced the number of days between cancer diagnosis and treatment for lung cancer patients. Our team of lung disease and lung cancer specialists includes pulmonologists, medical oncologists, radiation oncologists and surgeons who are specially trained to care for lungs and other parts of the respiratory system. Our thoracic navigators guide patients through all phases of treatment and recovery, and coordinate care to ensure the most prompt and effective treatment. Cancer patients within the clinic receive the benefit of our bi-monthly case conferences.

**Breast Care Program**

By navigating patients who need further evaluation, this program has decreased the amount of time from initial mammogram to biopsy. We use MRI-guided breast biopsies for the most accurate evaluation of suspicious breast lesions and MammoSite® radiation treatment, which allows women to complete their breast-conserving therapy in just five days.
Radiation Oncology
Midwest Cancer Care at Research offers progressive radiation oncology treatments not available elsewhere in the community, such as Gamma Knife® for brain tumors, among others. Research Medical Center was the first hospital to provide respiratory-gated radiotherapy, which synchronizes the radiation beams with breathing to deliver the most precise and pinpointed dose. The hospital offers advanced treatments such as MammoSite® and high-dose rate (HDR) brachytherapy – technologies that target cancer cells, limit the radiation exposure of healthy tissue, and offer patients faster treatment and recovery times. We offer the area’s only high-dose rate brachytherapy treatment for pelvic and gynecologic cancers. The facility is set up with a highly specialized HDR/OR suite, allowing the patient to combine surgery and radiation in one area. We use linear accelerators to deliver image-guided intensity modulated radiation therapy, and 64-slice CT scanning capabilities for the clearest images to diagnose and stage tumors for treatment.

Oncology Case Conferences
Patients at Midwest Cancer Care at Research receive the benefit of not just one cancer specialist, but an entire team through our unique clinical case conferences. This forum enables physicians to share insights and collaborate on each patient’s care. The hospital offers eight oncology case conferences during each month. There are site-specific conferences related to liver and pancreatic diseases, breast cancer and thoracic (lung) cancer. General case conferences are held three times a month allowing for other types of cancer cases to be shared and discussed among the physicians attending. All of these conferences are supported by a team of physicians representing surgery, radiology, pathology, medical oncology, radiation oncology, pulmonology and gastroenterology. Additional support staff representing genetic counseling, clinical research, cancer registry and nurse navigation also attend each conference.
Midwest Cancer Care at Research offers expertise in:

- **Brain Tumors** – Gamma Knife® for brain tumors, as well as clinical trials offered for glioblastoma

- **Liver and Pancreatic Cancers** – Detection and treatment options using the most advanced endoscopic, radiologic and radiation therapy services and offering clinical trials as treatment options for these patients

- **Lung Cancer** – Offering a place where the patient can see multiple physicians from various specialties in one appointment, drastically speeding up time from diagnosis to treatment

- **Gynecologic Cancers** – Offering a minimally invasive combined radiation oncology and surgery treatment option

- **Support Services** – Genetic counseling, lymphedema therapy, nutritional support, patient financial coordination and others

**The Center for Integrative Therapy**

Wellness as a treatment tool was the driving force behind the new Center for Integrative Therapy, a unique health, wellness and integrative medicine resource at Research Medical Center. The new center is led by medical director Gazala Parvin, MD, a board-certified family physician who is also fellowship trained in integrative medicine. With an eye toward complementing and supporting our advanced cancer treatment services, the center offers the Healing Through Wellness program for patients. It encompasses:

- well-being through the Rejuvenate program and counseling psychologists
- alternative therapies for pain
- nutrition educational classes
- yoga, massage, meditation, water aerobics and exercise
- life “after” cancer survivorship program led by an oncology nurse practitioner

**Inpatient Oncology Unit**

Research Medical Center offers its cancer patients a dedicated medical oncology/surgical oncology unit, where they are cared for by a highly-skilled team of certified cancer professionals. This 23-bed unit has 17 private rooms and six neutropenic suites. This unit has consistently had the highest patient satisfaction scores within the hospital. All of the oncology nurses working at Research are committed to the highest level of clinical excellence. Forty-one percent of the unit nurses are oncology-certified, with that number anticipated to reach 75 percent in 2011.
RESEARCH MEDICAL CENTER
2009 Frequency of Cancer, Total Analytic Cases
n =1,042

Frequency of Cancer (left): Research Medical Center (RMC) saw more than 1,000 analytic cancer cases in 2009 – those cases diagnosed at Research, or where the patients received all or the first part of their first course of treatment at Research. The distribution of types of analytic cases is demonstrated in the chart.

Bronchus/Lung Cancer (below): Lung Cancer was the leading cancer diagnosis at Research, based on the 2009 Cancer Registry Data. This could be contributed to Research’s expertise on this type of cancer with offerings such as the newly established Multidisciplinary Thoracic Clinic and the hospital’s lung/thoracic clinical case conferences. There are no feasible mechanisms available today to screen for lung cancer. Research focuses on the education around risk factors and the importance of routine health examinations. The majority of our patients presented with Stage IV disease and most patients were between the ages of 70 and 79 at the time of diagnosis.

Research Medical Center 2009 Bronchus/Lung Cancer
n = 166

[Diagrams showing frequency and stages of cancer diagnoses]
Breast Cancer: Breast cancer overtook prostate cancer to become the second most common analytic cancer diagnosis at Research. This can likely be attributed to the breadth of services for screening, identifying and treating breast cancer patients. The majority of cases seen were in the early stages, with the majority of patients between the ages of 60-70.

Prostate Cancer: Prostate cancer is one of the main types seen at Research Medical Center, in large part due to the availability of advanced prostate brachytherapy technology. Over 90 percent of analytic cases were diagnosed at Stage II of the disease with most patients diagnosed at 60-70 years of age.
Background:

Positron emission tomography (PET) scanning has become increasingly useful and important in the initial staging and diagnosis of solid tumors, and has been studied extensively in lung cancer. The purpose of this retrospective study was to determine whether tumors of varying histologies can be differentiated based on PET data.

Method:

140 patients with lung cancer were identified from the Research Medical Center tumor registry, and data elements on these patients were abstracted from the medical records. Demographic information, disease characteristics, and PET SUV_{max} for the largest lesion were collected.

Results:

Of the 140 patients, 79 were female, and 61 were male. PET SUV_{max} was obtained for 122 of these patients. AJCC staging was available for 98 patients. The most commonly reported histological types were adenocarcinoma (34 percent) and squamous carcinoma (33 percent). The mean SUV for adenocarcinoma patients was significantly lower than that of squamous or NSCLC that was not otherwise specified.

Conclusions: Based on this retrospective review, there is evidence to support the idea that PET scanning can be used to differentiate between lung tumors of various histology. Further research is necessary to determine the extent to which this information would be useful in practice.
Research Medical Center
2010 LUNG CANCER STUDY

Retrospective reviews have also provided evidence for a correlation between PET standardized uptake values (SUVs) of primary lung lesions and overall survival. Downey et al reviewed 100 lung cancer cases and found that median maximal SUV (SUV$_{\text{MAX}}$) was 9. By splitting the cases by the median SUV$_{\text{MAX}}$, the researchers found that the 2-year overall survival for patients with an SUV$_{\text{MAX}} < 9$ was 96 percent, compared to only 68 percent in the group of patients with SUV$_{\text{MAX}} > 9$.5.

In addition to the potential benefits of PET scanning during the initial staging and diagnosis of lung cancer patients, PET may also provide beneficial information with regard to histological type. Retrospective reviews have found that SUV is higher among squamous cell carcinomas than tumors of adenocarcinoma histology5-7.

The primary objective of this retrospective study was to investigate whether metabolic differences exist for various histological types of lung cancer. It was hypothesized that cancers of small cell histology would exhibit higher SUVs compared to non-small cell types. Within the non-small cell types, it was hypothesized that squamous cell histology would exhibit higher metabolic activity than adenocarcinoma. The ability of PET scanning to differentiate between histological types would prove useful in the initial diagnosis and staging of lung cancer, and may prevent unnecessary surgical staging in some cases.

Method
Patients diagnosed with lung cancer from January 2006 to December 2007 were identified from the Research Medical Center tumor registry. The following data elements were abstracted from the patients’ medical records: age, race, sex, AJCC stage, histology, and PET SUVs for the largest lesion present. Data elements were analyzed using PASW Statistics version 18.

Results
Data was collected for 140 patients identified from the Research Medical Center tumor registry. Of the total sample of 140 patients, there were 79 females and 61 males. The median age at diagnosis was 69.5 years (range: 34 – 90 years). The most commonly reported histologies were adenocarcinoma (34 percent) and squamous (33 percent). Detailed patient characteristics are provided in Table 1.
Table 1 – Characteristics of the sample (N = 140)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number of patients (%)</th>
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<tbody>
<tr>
<td>Median age, years (range)</td>
<td>69.5 (34 – 90)</td>
</tr>
<tr>
<td>Male</td>
<td>61 (44%)</td>
</tr>
<tr>
<td>Female</td>
<td>79 (56%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Histology</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>adenocarcinoma</td>
<td>48 (34%)</td>
</tr>
<tr>
<td>squamous</td>
<td>46 (33%)</td>
</tr>
<tr>
<td>NSCLC</td>
<td>28 (20%)</td>
</tr>
<tr>
<td>Small cell</td>
<td>13 (9%)</td>
</tr>
<tr>
<td>Large cell</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (3%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AJCC stage</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>30 (21%)</td>
</tr>
<tr>
<td>II</td>
<td>5 (4%)</td>
</tr>
<tr>
<td>III</td>
<td>31 (22%)</td>
</tr>
<tr>
<td>IV</td>
<td>32 (23%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>42 (30%)</td>
</tr>
</tbody>
</table>

*Median SUV, range 10 (2-39)

*SUV available for 122 of the total 140 patients.

SUV\textsubscript{MAX} for the patient’s largest mass or lymph node was available for 122 patients (87 percent). These values ranged from 2-39 (median: 10). There were no significant differences in standardized uptake values between male and female patients, and SUV did not correlate with the patient’s age at diagnosis. Table 2 shows mean SUV\textsubscript{MAX} for the 4 most dominant histologies. The cases were split by whether the histology was small cell (11 patients) or non-small cell (111 patients) and the mean SUVs for these two groups were 11.692 and 10.885, respectively, although these differences were not statistically significant ($t (120) = -0.407, p = 0.685$). The non-small cell patients were further analyzed by specific histology. For 23 patients, there was no further specification available on histology, and these are analyzed together as NSCLC (NOS). A one-way ANOVA was used to test for differences in SUV among three groups of non-small cell patients: adenocarcinoma (47 patients), NSCLC NOS (23 patients), and squamous (38 patients). A Tukey’s B post hoc analysis showed that the mean SUV\textsubscript{MAX} for adenocarcinoma patients...
was significantly lower than the mean of the other two groups (F(2,105) = 5.799, p<.01). No significant differences in SUV were found in the NSCLC NOS and squamous histology groups.

**Table 2 – Standardized Uptake Values by Histology**

<table>
<thead>
<tr>
<th>Histology</th>
<th>Number of Patients</th>
<th>Mean SUV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenocarcinoma</td>
<td>47</td>
<td>8.852</td>
</tr>
<tr>
<td>Squamous</td>
<td>38</td>
<td>12.900</td>
</tr>
<tr>
<td>NSCLC (NOS)</td>
<td>23</td>
<td>12.530</td>
</tr>
<tr>
<td>Small cell</td>
<td>11</td>
<td>11.692</td>
</tr>
</tbody>
</table>

AJCC stage and PET SUV were available for a total of 86 patients. Mean SUVs are shown in Table 3. A one-way ANOVA and Tukey's B post hoc test did not reveal significant differences in PET SUV by stage. However, when the data were collapsed and Stage I/II versus Stage III/IV patients were compared, statistical differences were evident. The mean SUVs for the Stage I/II group (n = 30) and Stage III/IV group (n = 56) were 8.330 and 12.031, respectively. An independent samples T-test was significant for mean differences between these two groups (t(84) = -2.847, p = 0.006) regardless of histology or other factors.

**Table 3 – Standardized Uptake Values by AJCC Stage**

<table>
<thead>
<tr>
<th>AJCC Stage</th>
<th>Number of Patients</th>
<th>Mean SUV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>25</td>
<td>8.420</td>
</tr>
<tr>
<td>Stage II</td>
<td>5</td>
<td>7.880</td>
</tr>
<tr>
<td>Stage III</td>
<td>29</td>
<td>13.122</td>
</tr>
<tr>
<td>Stage IV</td>
<td>27</td>
<td>10.858</td>
</tr>
</tbody>
</table>

**Conclusions**

Our results suggest that tumors of squamous histology exhibit higher metabolic uptake than those of adenocarcinoma histology, which is consistent with traditional studies of tumor doubling time. However, no significant differences were demonstrated between tumors of small cell versus non-small cell histologies. This lack of statistical significance may be due to the relatively large difference in subset size between non-small cell (n = 111) and small cell (n = 11) with available PET data. It is interesting to note, however, the differences between early stage (I/II) and advanced stage (III/IV) disease. The difference in mean SUV for these two groups indicates a trend toward increased metabolic uptake with more advanced disease, which we would intuitively expect.
Our findings are limited by the large number of NSCLC – not otherwise specified patients (20 percent) in the sample. Based on what is known about lung cancer in the United States, we might expect that a large portion of these patients are actually poorly differentiated adenocarcinoma, which would exhibit a lower metabolic rate, and therefore lower SUV. This potentially confounds the differences seen among histologies in this study.

The ability for PET scans to predict histology may prove useful when sufficient tissue cannot be obtained for pathology or when a patient is unable to tolerate a surgical staging procedure. Larger prospective studies should be conducted to further characterize the data obtained from PET scanning in the diagnosis and staging of lung cancer. A more robust data set that includes the size of the primary lesion, or T stage, would allow for greater statistical control, and may explain some of the variation in SUVs collected. It would be of interest to determine whether metabolic differences seen in this study would remain were we able to control for size of the primary lesion. Additional research is necessary to further refine the type of information, as well as the conclusions drawn, from PET scan data.

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References
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