The Nebraska Medical Center 2011 Annual Cancer Registry Report

THE NEBRASKA MEDICAL CENTER

Introduction

The UNMC Eppley Cancer Center exists as a partnership between the University of Nebraska Medical Center (UNMC) and its clinical teaching hospital, The Nebraska Medical Center in Omaha.

The mission of the UNMC Eppley Cancer Center to coordinate basic and clinical cancer research, patient care and educational programs and to facilitate the application of new knowledge about the diagnosis, treatment and prevention of cancer.

In a true spirit of collaboration, the goal of the cancer center is to combine research and educational excellence from UNMC colleges and institutes with the exceptional clinical expertise and state-of-the art facilities maintained by The Nebraska Medical Center. Patients from across the country and around the world visit this cancer center to receive innovative treatment from some of the top specialists in the world.

Established in 1983, the center is honored to be one of only 64 centers in the country to receive the National Cancer Institute (NCI) designation. The Nebraska Medical Center is the first hospital in Nebraska to receive the Blue Distinction Center for Complex and Rare Cancers from Blue Cross and Blue Shield of Nebraska. Only 88 other medical centers in the United States have earned the same distinction. Blue Distinction Centers for Complex and Rare Cancers were developed in strategic collaboration with the National Comprehensive Cancer Network (NCCN) and input from a panel of leading clinicians and professional organizations. The Nebraska Medical Center is proud to be a founding member of the NCCN.

Accreditations and Awards

National Comprehensive Cancer Network (NCCN)

National Cancer Institute (NCI) Designation

Foundation for the Accreditation of Cellular Therapy (FACT)

Accreditation of Radiation Oncology by American College of Radiology (ACR)

American College of Surgeons Commission on Cancer (ACoS CoC)

First hospital in the state to receive the Blue Distinction Center for Rare and Complex Cancers from Blue Cross Blue Shield of Nebraska

The Nebraska Medical Center is the only hospital in our area to earn the 2011 Consumer Choice Award for providing the highest quality health care. This is the 13th consecutive year we've received this award from the National Research Corporation (NRC), an independent research firm based in Lincoln, Neb.

Chair Report

By Aaron R. Sasson, MD

Surgical Oncologist, The Nebraska Medical Center

Chief of Gastrointestinal Surgical Oncology and Professor, University of Nebraska Medical Center

Aaron Sasson, MD

I am pleased to present the 2011 Annual Cancer Registry Report for The Nebraska Medical Center. This year we recognize multiple accomplishments. Cancer services continue to have a strong focus on excellent patient care. We are able to provide patients with comprehensive care from experts in multiple cancer specialties. This coordinated approach allows for optimal patient care. In addition to providing these services, we are also keenly aware of the importance of enhancing overall well-being for our patients. To that end, we have opened the Life Renewal Center located at our Village Pointe Cancer Center. This facility provides multiple services including wigs and prosthetic supplies, massage therapy, yoga and exercise classes. There has been a tremendous amount of positive feedback regarding the value and benefit from the services provided at this center.

To enhance our on-going commitment to excellence in patient-directed services, we have further developed the Patient Family Advisory Council. The purpose of this group is to provide assistance in improving current offerings and developing new services that enhance the patient experience during a very difficult time in a patient's life.

As a major tertiary referral center, we continue to provide specialized services. These services often require accreditation from well-respected national organizations. The American College of Radiology certifies radiation oncology programs throughout the country and we are pleased to announce that the cancer center was successful in its re-accreditation process. We also achieved accreditation at satellite facilities including Shenandoah Radiation Oncology, and Village Pointe Cancer Center. The accreditation signifies an exceptional level of treatment planning, patient safety and quality control. Our cancer services team was also successful in achieving accreditation for our cellular therapy program. This is a premier accreditation and allows us to perform advanced and complicated transplant services for our leukemia and lymphoma program. We are the only center in Nebraska to be certified.

We believe it is our responsibility as a leading cancer center to educate the medical community, locally, regionally and nationally. We also have a strong commitment to ensuring our patients receive the educational resources to make them an active participant in their treatment. A wide range of educational opportunities are offered to patients in addition to the clinical services provided. Educational opportunities include symposiums geared toward patients and oncology care providers. Over 20 educational programs were offered this year. In partnership with Optum Health, the medical center campus partners hosted 500 participants at a conference which focused on highlighting our cancer centers of excellence.

Our strong commitment to providing excellent patient care, promoting educational activities and supporting research endeavors continues. For these reasons, The Nebraska Medical Center remains one of the top cancer centers in the country. Please enjoy reading about many of our specialized programs.

Pediatric Oncology

More than 13,000 children are diagnosed with cancer each year. One in 300 will be boys. One in every 333 girls will develop cancer before their 20th birthday. Cancer remains the leading cause of death after accidents in children younger than 15 years in the United States. More than 100,000 person-years of life are lost to childhood cancer each year.

Childhood cancer has been a model for improvements in diagnosis and treatment of malignancy. Over the past 20 years, death rates have declined and five-year survival rates have improved dramatically. Acute lymphoblastic leukemia (ALL) is the most common of all childhood cancers and its survival rate has improved from 50 percent in the mid 1970s to 90 percent currently.

At The Nebraska Medical Center, the Pediatric Oncology/Hematology Program has nine full and part-time physicians and four nurse practitioners who collaborate with an extended team of case managers, nurses, social workers, child life specialists, education support personnel and data managers. Our team treats about 90 newly-diagnosed children each year between our hospital and Children's Hospital & Medical Center.

As active members of the Omaha area Children's Oncology Group (COG), we participate in phase II and phase III biology and correlative studies through the COG. This National Cancer Institute (NCI) funded cooperative group recognizes 230 pediatric medical centers in the United States, Canada, Switzerland, the Netherlands, Australia and New Zealand. More than 90 percent of children younger than 15 years of age diagnosed with cancer are seen at an institution that is a member of the COG.

The medical center offers autologous and allogeneic hematopoietic stem cell transplants for children, adolescents and young adults with high risk or relapsed malignancies, in addition to bone marrow failure syndromes. More than 400 transplants have been performed since the program was established in 1988. The Bone Marrow Transplant Program at the University of Nebraska Medical Center (UNMC) was a founding member of the Pediatric Blood and Marrow Transplant Consortium (PBMTC), the largest clinical trials group focused exclusively on blood and marrow transplants for children and adolescents. This clinical trials group is a core member of the National Institute of Health (NIH) funded Blood and Marrow Transplant Clinical Trials Network (CTN) and has a close collaborative relationship with the COG. In addition to clinical trials, members of the program participate in laboratory and translational research, including phase I studies of novel agents. In order to train the next generation of pediatric oncologists, the program is developing a fellowship opportunity and will continue to play an active role in educating medical students and residents.

Pediatric Radiation Oncology

The Department of Radiation Oncology at the UNMC Eppley Cancer Center at The Nebraska Medical Center is a special place for children and young adults with cancer. Our pediatric clinic has grown significantly in recent years and our goal of providing the best possible care to our children with cancer continues. Our team offers exceptional treatment options and the opportunity to lead a productive adult life.

Our team is proficient at treating all types of childhood cancer including Hodgkin's lymphoma, leukemia, atypical teratoid and rhabdoid tumors, low and high-grade brain gliomas, geminoma, craniopharyngioma, medulloblastoma, ependymoma, rhabdomyoloma, Ewing's sarcoma, neuroblastoma, nasopharyngeal cancer and Wilm's tumor. Innovative radiation therapies are offered, including stereotactic radiotherapy, intensity-modulated radiation therapy, image-guided radiation therapy, brachytherapy and total body radiation. The most advanced technology including PET/CT and MRI fusion imaging, 4D CT scans and respiratory gaiting are available at the medical center. Newly diagnosed cancer cases are discussed bi-weekly with our partners at Children's Hospital & Medical Center. The multidisciplinary tumor board is attended by medical oncologists, surgical oncologists, radiation oncologists, pathologists, radiologists and nurses, all of whom specialize in pediatric cases. Presentations, current literature review and robust discussion of new treatment options fill the agenda, resulting in consensus and recommendations.

The Child Life Program

A new cancer diagnosis is an extremely difficult idea for anyone to process. For a child, this information might be impossible to fully understand. Children need special communication and support in order to grasp the concept of cancer on a level that is respectful of their emotional and mental maturity. The Nebraska Medical Center has an amazing support program called Child Life to help with issues of this nature. Children who receive inpatient treatment at the medical center are provided with a wide variety of services that are designed with sensitivity. Child life specialists are child development experts who help children understand their diagnosis, learn ways to cope with their treatment and strive to help make life as normal as possible during their treatments and hospitalization.

Research overwhelmingly suggests when children are adequately prepared for their medical experience they cope better before, during and after medical events. Children need to know what to expect and the role they will play in their medical treatment. Some cancer treatment procedures can be intimidating to a child who is not able to rationalize the event as an adult could. Child life specialists at the medical center immerse themselves in the cancer care and treatment process so they can speak to children about the experience on their level.

Radiation therapy is a treatment which can be confusing and scary for children to understand. In the photo to the right, a child life specialist experiences the making of a mask for radiation treatment. By participating in this process first-hand, the child life specialist is able to look at the process through the eyes of a child and then prepare them for their treatment.

With extensive training, experience and knowledge, the child life specialist can facilitate the conversations between children, their physicians and the family to best prepare the child for their treatments and procedures. Preparations for diagnostic testing and placement of infusaport or central/PICC lines and even coping with pain can be addressed in an age-appropriate manner, making the event less intimidating for the child. Using tools such as medical play, teaching dolls and pictures, the child life specialists alleviate fear of the unknown associated with clinical encounters and teach them how to cope with scary concepts and the idea of pain. Often distractions such as books, bubbles and iPads are used during encounters.

Keeping children in good spirits, engaged in their care and providing them with an element of fun in their day is an important focus for the child life specialists. Events and special programming are the heart and soul of the Child Life Program at The Nebraska Medical Center.

My Journey Beads is a program developed to engage children in tracking their medical journey. Each child receives a long string to start. For each doctor visit, lab draw, CT scan or MRI, biopsy, radiation treatment, chemotherapy treatment, injection, good day, bad day, birthday, days without food and drink or tutoring session they receive a specific bead.

Take a Pop Share a Smile is made possible with a sponsorship from Jel-Sert and the American Childhood Cancer Organization. A child-friendly freezer is placed in the treatment center with an endless supply of Fla-Vor-Ice frozen ice pops. Children in the treatment center and in clinic can enjoy an ice pop at any time.

Sunshine Kids, International is a non-profit organization committed to providing positive group activities to young cancer patients. Recently, three of our teenage patients and a registered nurse visited Washington, DC, to meet with other patients their age undergoing cancer treatment. The medical center frequently receives tickets for our patients to attend special events in Omaha such as Sesame Street LIVE, the International Omaha horse competition and the Olympic Swim Trials.

Local sponsors support the *Teen Night Out Program* giving patients a chance to have a night on the town. Each year the Omaha Police Department escorts the limo full of teens to an NCAA Men's College World Series game. Other events include attending a Creighton University Bluejay's basketball game, University of Nebraska-Omaha (UNO) Maverick hockey game, a haunted hayrack ride, bowling at Sempeck's Entertainment Center as well as dinner and a movie night.

Returning to school after a cancer diagnosis or at any point during treatment can be stressful for children and their families. There is always a concern about how their classmates will react, especially when the patient's physical appearance changes. The *School Re-Entry Program* is coordinated by the Child Life Program and the patient's school. The child's classmates learn about cancer diagnoses and treatment and are reassured that cancer is not contagious.

Before the Child Life Program was implemented at the medical center, few toys and play opportunities existed for children receiving outpatient treatment. Children would often spend hours in the treatment center and would have to provide their own toys and activities. Now there is an abundance of toys, games and activities available to pediatric patients. Movies, video games, crafts and iPads are also available for entertainment. The furniture in the play rooms is even suited for young children.

Our child life specialists are also seen as assets to parents and families. They often facilitate conversations between adults and pediatric patients in an effort to help everyone in the family understand the diagnosis and discuss the experience in age-appropriate terms.

Research Update

By Matt Winfrey

Associate Director for Administration and External Affairs, UNMC Eppley Cancer Center

The UNMC Eppley Cancer Center at The Nebraska Medical Center is devoted to excellence in cancer research through basic discovery, clinical and translational research and research in control and prevention. Our team is committed to graduate and postgraduate education in cancer research and coordinates the federally-funded training programs in cancer research. We are proud to oversee the graduate degree granting program in cancer research at UNMC which enjoyed many accomplishments in 2011.

The Eppley Cancer Center is currently conducting and planning clinical trials based upon the prior work of lymphoma researchers. In particular, a phase I clinical trial of Carfilzomib, a next generation proteosome inhibitor, is being conducted with patients who have relapsed peripheral T-cell lymphoma. This trial is part of the UNMC and MD Anderson Cancer Center Lymphoma SPORE and is open at both centers. A BTK inhibitor is being tested in relapsed diffuse large B-cell lymphoma. For patients with mantle cell lymphoma and indolent lymphoma, an mTOR/PI3K inhibitor is being tested. In all of these novel

clinical trials, the patient's lymphoma will be tested for the directed pathway and these results will be correlated with the outcome of the patient treated with that agent. In the future, these results will help us determine the most appropriate treatment regimens for specific types of lymphoma.


Qian Zhang, PhD

Every three minutes a woman in the United States is diagnosed with breast cancer. Of those women, approximately one in five test positive for Her2, an aggressive type of breast cancer that is harder to fight because it is less responsive to hormonal therapy. When UNMC Eppley Cancer Center Professor Uwe Wagner, PhD, and former graduate student Qian Zhang, PhD, worked to recreate the findings of a previous breast cancer study to determine therapeutic relevance, they discovered something completely unexpected.


Uwe Wagner, PhD

"It was always thought that by inhibiting a certain protein, Cyclin D1, the growth of breast cancer cells could be stopped or at least slowed," Dr. Wagner says. Instead, he found the opposite to be true. In collaboration with Hallgeir Rui, MD, at the Kimmel Cancer Center in Philadelphia, Pa., Dr. Wagner's team discovered that even though a significant subset of breast cancers produce Cyclin D1, the more deadly Her2-positive cases produce more of a similar protein called Cyclin D3. "Both proteins are known for turning normal cells into cancer cells," Dr. Wagner says.

The new research suggests that only the combined inhibition of both proteins might be enough to stop the uncontrolled growth of Her2-positive breast cancer cells. "The next step will be to test drugs that can do precisely that." His findings were published

in the December 2011 issue of Cancer Research. The work subsequently was selected for inclusion in the Faculty of 1000, a library that features the top-ranked articles in biology and medicine.

A lymphoma collaboration project between UNMC and Tianjin Medical University Cancer Hospital in China has improved cancer care for several patients in that country. The goal of this partnership is to improve the diagnosis and clinical outcomes of Chinese patients with lymphoma. Lymphoma diagnosis in China is still a challenge when it comes to accuracy of certain types of rare lymphoma. The correct classification of subtypes is important because it requires choosing the right treatment for each patient. The Eppley Cancer Center processes tumor samples for accurate diagnosis and shares them with Chinese physicians to tailor treatments for their patients.

Drs. Philip Bierman, James Armitage, Greg Bociek and Julie Vose (left to right)

James O. Armitage, MD, FACP, FRCP, Joe Shapiro Professor of Medicine of the UNMC Division of Hematology/Oncology, along with Julie M. Vose, MD, MBA, Neumann M. and Mildred E. Harris Professor and Chief of the UNMC Division of Hematology/Oncology and their colleagues, have evaluated 30 difficult lymphoma cases from China. Using the latest technology and expertise at UNMC, physicians identified previously undetected information in at least one-third of the cases that changed the diagnoses. Chinese physicians altered the patients' treatment, which resulted in successful response to the tailored treatments. This collaboration completely changed the patients' diagnosis and disease management.

The Eppley Cancer Center continues to aggressively recruit new researchers. This year, two faculty members with significant cancer research experience joined the team.


Jennifer Black, PhD

Jennifer Black, PhD, is a professor at the Eppley Cancer Institute and serves as the program leader for the developing Gastrointestinal Cancer Research Program. Dr. Black has been continuously funded by the National Institute of Health (NIH) since 1999 and is currently the principal investigator on two NIH-funded grants. She has authored or co-authored over 70 publications and participated in numerous NIH study sections.


Adam Karpf, PhD

Adam Karpf, PhD, is an associate professor at the Eppley Cancer Institute. He has authored or co-authored 45 publications and his research is currently funded by the National Cancer Institute (NCI) and the Department of Defense (DOD) Ovarian Cancer Research Program. He serves as a charter member on the NIH cancer etiology study section.

Community Outreach

Many cancers may be prevented through lifestyle changes. The Nebraska Medical Center is focused on community outreach to educate the public on the importance of cancer prevention and early detection and promote general awareness for the disease. Staff members volunteer their time to travel across the state to rural areas and communities considered to be underserved to provide free cancer screenings and education.

Bone Marrow Donor Drive Nets 95 New Donors

Cecily Snyder, now a staff nurse in the Peggy Cowdery Care Center, started her career at The Nebraska Medical Center's Oncology/Hematology Special Care Unit (OHSCU) about three years ago. Throughout her career at the medical center she's cared for patients receiving both autologous (using the patient's own cells) and allogeneic (using a donor's cells) transplants.

"It was a neat experience on OHSCU when a patient was receiving an allogeneic transplant because at times the donor would be from the other

side of the world. I've seen lives saved with those transplants," Snyder says. For this reason she always wanted to join the national bone marrow donor registry. Snyder was one of the first potential donors in line at the registry event hosted recently on campus.

Risa Zimmerman**,** oncology physician assistant, organized the event. "Statistically speaking, a Caucasian patient has a 70 percent chance of finding a donor on a registry," says Zimmerman. "If the patient is a minority, it's only a 30 percent chance of finding a match. Of those cross sections, the chance is less." For example, there is only an 8 percent chance of an African-American or Asian patient finding a donor on the registry. For a Hispanic patient, the chances of finding a donor on the registry is only 5 percent.

"Our thought in hosting a drive on campus was to utilize the diversity at the medical center to increase the donor diversity of the registry," Zimmerman says. The event also included a second donor registry location at Omaha North High School. A total of 95 donors were registered over a two-day period in March. "I was very happy with the turnout," she says. "Here on campus we signed up 56 new donors and we signed up 39 donors at Omaha North High School."

Becoming a donor on the registry is a fairly simple process. Each potential donor fills out a health questionnaire, a consent form, watches a video regarding the expectations of being a donor and swabs the inside of their cheek in four different places with four different cotton swabs. The swabs are sent to the registry lab for processing and logged into the registry, waiting for a

match. If a donor is found to be a match, they would be contacted by a representative from the organization and directed to a donation location like The Nebraska Medical Center.

Snyder recalls the impact finding a donor has on the lives of the patients."I just remember all the faces of the wonderful people I've met who personally have had their life saved by a donor," she says. Now on the registry, she could one day give a total stranger a second chance at life. "If I was ever called as a match, I would do it in a heartbeat," she says. "It would be an honor to do that for someone." To learn more or become a part of the national marrow donor registry, visit www.BeTheMatch.org.

Staff Goes "Bald" to Benefit Cancer Research

Colton Hagemann takes part in shaving Bruce Gordon, MD head during the St. Baldrick's Foundation event in July 2011. Hagemann is assisted by Richard Gomez. Hagemann and Gomez are patients of Dr. Gordon. Twenty-two people shaved their heads in support of those who have lost their hair during cancer treatment.

In a lifetime, an average person will grow 590 miles of hair. We lose 40 to 100 hairs each day, so why not give it all up temporarily in the name of cancer research? That's the message from the St. Baldrick's Foundation, the country's

largest volunteer-supported fundraiser for pediatric cancer research.

Once again, a dedicated group of physicians, nurses, staff members and friends answered that call in joining the St. Baldrick's mission. Twenty-two adults and children took part in the event, raising more than $6,500 for pediatric cancer research. In exchange, they shed their hair to show solidarity with patients who've lost their hair during cancer treatment.

"It's hard enough for kids with cancer to deal with being sick, let alone looking sick too, without their hair," says Mandy Arens, pediatric oncology nurse practitioner at The Nebraska Medical Center. "Now these staff members will sport the same 'do' to show support for how their young patients are feeling."

Each year, childhood cancer takes the lives of more U.S. children than any other disease--more than AIDS, asthma, diabetes, cystic fibrosis and congenital anomalies combined. In spite of that, national funding for childhood cancer research has slipped in recent years and events like this head-shaving challenge help raise money and start conversations.

Free Screening Events Continue to Attract Large Participation

In 2011, nearly 801 individuals received some form of screening during community outreach events hosted by The Nebraska Medical Center. “Screening is the first step in the fight against cancer and it is critical that a comprehensive cancer center provide these activities to the public. This helps educate all about the importance of screening and the ability to catch cancers early and treat, often times, less aggressively,” says Theresa Franco, executive director of the Cancer Care Service Line at The Nebraska Medical Center. “It truly makes a difference in being able to be cured.”

The DermaScan and Skin Scope screenings continue to be popular at many events. Though the DermaScan is not a diagnostic tool, it dramatically shows cancer-causing sun damage on the face of participants. The service also tends to draw a crowd to the cancer care services table at these events where 350 participated in the screening and received more information about cancer prevention and early detection.

As part of the Great Plains Colon Cancer Task Force fecal occult blood test (FOBT) kit project, the medical center processed 200 FOBT kits. At two additional events during the year, 76 more FOBT kits were distributed. Men were provided with prostate cancer screening at the Black Family Health and Wellness Fair hosted at Omaha North High School. Free prostate specific antigen (PSA) lab draws and digital rectal exams (DRE) were administered this year; 54 men were screened.

The annual Oral, Head and Neck Cancer Screening was hosted in April. During this collaborative effort, nine faculty members, 10 medical residents and 18 cancer center staff members worked together to screen 98 participants. Eight of those screened at the event were found to need further examination.

Rockin' the Stache

A group of MRI technologists took a break from shaving during the month of November for a good cause. They took part in the Movember movement, which raises awareness of men's health issues, specifically prostate cancer and other cancers that affect men.

Participating men agree to grow moustaches or facial hair to prompt conversation and raise awareness of the often ignored issue of men's health. The group is pictured on their last day before shaving.

Enhancing the Patient Experience

This year, The Nebraska Medical Center made significant efforts to improve the cancer patient experience by offering clinical services in more locations, extending products and services offered at the Life Renewal Center and establishing a forum where adult cancer patients, their caregivers and families feel comfortable providing feedback related to cancer treatment experiences.

Additional Service Locations

In November 2011, oncology services were made available at Bellevue Medical Center. In partnership with The Nebraska Medical Center, Bellevue Medical Center opened a full-service outpatient hematology/oncology clinic and infusion center to better serve the residents of Bellevue, southeastern Nebraska and southwestern Iowa.

"We felt a strong need to provide these services closer to home and in their own community," says Theresa Franco, executive director of the Cancer Care Service Line at The Nebraska Medical Center. "Easy access and convenience are critical issues for cancer patients who may need multiple treatments and careful monitoring of their condition. These services will make their care more convenient and an easier commute."

The majority of general oncology patients at Bellevue Medical Center can be seen on the Bellevue campus by oncologists from the UNMC Physicians group. Patients have access to a team of experienced cancer specialists, including medical and surgical oncologists, nurse practitioners, case managers, nutritionists and social service workers to provide patients a full-service, multidisciplinary approach to their care. Radiology services and laboratory support are also available at Bellevue.

“Through our partnership with The Nebraska Medical Center, our patients have many of the benefits of receiving care from the premiere cancer program in the region whenever possible, but in their own neighborhood,” says Julie Vose, MD, chief of Hematology/Oncology at UNMC. “Higher risk patients or those using experimental treatments will be seen by our specialists at The Nebraska Medical Center campus.”

Bellevue Medical Center patients also have the opportunity to participate in the same clinical trials available at The Nebraska Medical Center, giving patient access to the newest and most advanced cancer treatments available.

Preventive screenings and early detection services are available, as well as educational programs and a Cancer Survivorship Program. The survivorship program is designed to help patients deal with the physical and emotional challenges of fighting cancers as well as the long-term side effects and learning how to return to a normal life.

“This is a collaboration with the primary care doctors of Bellevue Medical Center and we will continue to develop our cancer program offerings based on their recommendations and the needs of patients in the community,” says Franco.

The Life Renewal Center

About halfway into her six-month treatment regimen, Rhonda Peterson arrived on schedule at the Village Pointe Cancer Center for her weekly chemotherapy treatment. Peterson usually left feeling tired and fatigued. But today she left with a renewed sense of self-confidence, a smile on her face and a new beautiful head of silky blonde hair. Peterson's new look came about as a result of a new program offered at The Nebraska Medical Center's Village Pointe Cancer Center called the Life Renewal Center.

The Life Renewal Center, which opened last spring, is a space that goes beyond the clinical care of patients and allows for a more holistic approach to cancer care. Patients may experience many physical and emotional changes in their bodies while going through cancer treatment. The Life Renewal Center is designed to help them cope with these changes.

The center provides personal care services such as wig fittings, cranial and breast prosthetic fittings, oncology massages and exercise classes as well as items such as skin care products specifically geared for people with or recovering from cancer. In Peterson's case, the wig was made possible through a grant from the Susan G. Komen Foundation of Nebraska.

When Peterson walked into the Life Renewal Center that day, a short, sassy wig sitting on the shelf quickly caught her eye. “I loved it right away,” says Peterson, whose own wig had grown worn and tired-looking. “It was the perfect color, the perfect texture and the perfect cut. It picked me up at a time when I was really low.”


Ann Yager

Providing a more positive and healing experience for patients by supporting their personal and physical needs during treatment and recovery is the goal of the Life Renewal Center.“These products and services are a huge convenience to our patients,” says Ann Yager, director of the Village Pointe Cancer Center. “Normal retail products are not geared for the needs of cancer patients. We have products that can ease the side effects of treatment and make cancer patients feel good about themselves again. Providing supportive products and services like these are important components in supporting a patient’s full healing and long-term recovery process.”

Beth Reed, MD, oncologist and medical director of the Village Pointe Cancer Center, says the Life Renewal Center was a welcome addition to the services provided to patients. “When people are happier and feeling good about themselves, that can help them tolerate therapy better,” says Dr. Reed. “Our goal is to help them get through their cancer experience in the best way possible and to be able to confidently go back to work or to the other parts of their lives.” The Life Renewal Center became a reality due to proceeds donated by the University Hospital Auxiliary’s annual fundraiser, Kaleidoscope.


Beth Reed, MD

Disease Overview Pancreatic Cancer

Introduction

Pancreatic cancer is the fourth leading cause of cancer death in the United States. Each year, about 45,000 new cases of pancreatic cancer are diagnosed and 38,000 deaths are attributed to this malignancy. The term pancreatic cancer represents a spectrum of pancreatic malignancies, the most common of which is pancreatic adenocarcinoma and also includes pancreatic neuroendocrine tumors. Unfortunately, pancreatic cancer often has a poor prognosis due to rapid spread and difficulties with making the diagnosis in the early stages of the disease. At the time of initial diagnosis, approximately 50 percent of patients will have distant disease. Signs and symptoms of pancreatic cancer often do not appear until the cancer has metastasized.

Etiology and Risk Factors

Men are at a slight increased risk of developing pancreatic cancer compared to women, however, this gap has decreased over time. Smoking is the most common environmental risk factor, accounting for up to 30 percent of pancreatic cancer cases. Advancing age is also a risk factor, with almost 90 percent of patients being diagnosed after age 55. Other recognized risk factors include: Type 2 diabetes, chronic pancreatitis, obesity and physical inactivity. Approximately 5 to 10 percent of patients have a genetic pre-disposition to developing pancreatic cancer in forms such as *BRCA2*, Lynch syndrome and others.

Approximately 75 percent of all pancreatic carcinomas occur within the head or neck of the pancreas.

Diagnosis

Patients generally report a gradual onset of nonspecific symptoms such as anorexia, fatigue, malise and midepigastric or back pain. Symptoms may vary based on the location of the cancer. If the body or tail of the pancreas is involved, symptoms generally include pain and weight loss. Patients with cancers in the head of the pancreas may present with steatorrhea, weight loss and jaundice. Pain is present in at least 80 percent of patients with locally advanced or metastatic disease.

Various imaging studies are used to diagnose pancreatic cancer. Computed tomography (CT) scan is utilized to identify the location of the cancer and if other organs or lymph nodes are involved. An endoscopic ultrasound may also be used to visualize the pancreas and also allows for a tissue sample of the tumor to be obtained at the same time. Blood tests may also be utilized in evaluating a patient suspected of having pancreatic cancer. Liver function tests can help determine if bile duct obstruction is present. The tumor marker, CA19-9 is frequently elevated in patients with pancreatic cancer. However, an elevated level is not a definitive indicator of pancreatic cancer. It may be elevated in patients with benign causes of biliary obstruction.

Treatment

Treatment of pancreatic cancer is dependent on the stage and location of the cancer. Other factors which influence treatment decisions are a patient's age, comorbidities and patient preference.

Patients with Localized Tumors

Surgery with a curative intent is possible only for localized cancers. Generally, only 15 to 20 percent of pancreatic cancers are resectable. Surgery may also be performed for palliation if the malignancy is invading or compressing other organs.

The most common surgical procedure for resectable cancers in the head or neck of the pancreas is the Whipple procedure (pancreaticoduodenectomy). The Whipple procedure involves removing the head of the pancreas as well as the duodenum, gall-bladder and may include removal of the antrum of the stomach. The remaining part of the pancreas, stomach and intestine are reconnected to allow the patient to digest food. Up to 40 percent of patients undergoing this procedure may experience significant complications including infection, bleeding and delayed gastric emptying. Historically, this procedure was associated with a very high risk of surgically-related mortality. Significant improvements have resulted in decreases in mortality 20 to 40 percent in the early 1980s to between 1 to 5 percent today. Various research studies and others such as The Leapfrog Group advocate that this procedure should only be performed in hospitals performing a high volume of procedures annually (a minimum of 12 procedures a year, Leapfrog Group).

A distal pancreatectomy is used to resect tumors localized in the tail portion or body of the pancreas. This procedure involves the removal of the portion of the pancreas containing the tumor and frequently the spleen. The mortality rate of this procedure is lower than the Whipple procedure, however, its use is limited as tumors in the body and tail of the pancreas are often detected at a more advanced stage and have a higher unresectability rate.

For patients with a tumor originating or growing into the neck of the pancreas or tumors throughout the pancreas, a total pancreatectomy may be considered. This is a relatively uncommon procedure with a high mortality rate of 8 to 9 percent. The entire pancreas, gallbladder, common bile duct and a portion of the stomach and small intestine are removed. Patients become insulin-dependent diabetics and in some cases, the diabetes can be very difficult to control. Morbidity rates are similar to the Whipple procedure. Following surgery, patients receive adjuvent chemotherapy and radiation therapy may be considered.

Locally Advanced Disease

For patients with disease which has spread beyond the pancreas and invaded surrounding tissues and organs, chemotherapy and radiation are the treatments of choice. In a small percentage of patients, approximately 15 percent, the tumor may shrink enough to make surgical resection an option.

Metastatic Disease

Metastatic pancreatic cancer tends to respond poorly to chemotherapy and survival for these patients is generally less than a year. The treatment focus is on the relief of symptoms and efforts to improve quality of life. Surgery and chemotherapy may be used to relieve symptoms of biliary and intestinal blockages due to the tumor. Biliary stents may be placed to help relieve jaundice and associated symptoms. Management of pain is crucial as these patients often have severe abdominal and back pain.

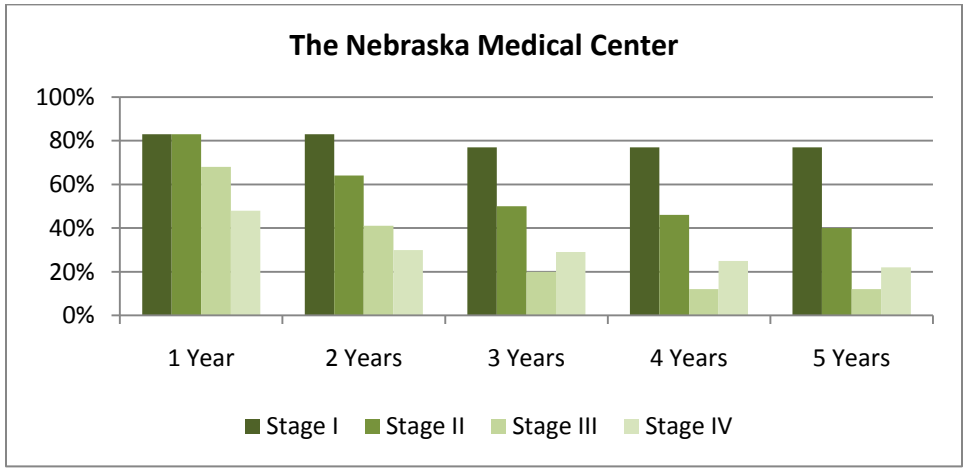
Pancreatic Cancer at The Nebraska Medical Center

At The Nebraska Medical Center, physicians have a significant amount of expertise in pancreatic cancer and a tremendous amount of clinical experience managing these patients. Additionally, the medical center has a robust pancreatic cancer research program which includes basic science, translational and clinical research. There are ongoing investigator-initiated trials as well as several industrial and cooperative group trials running.

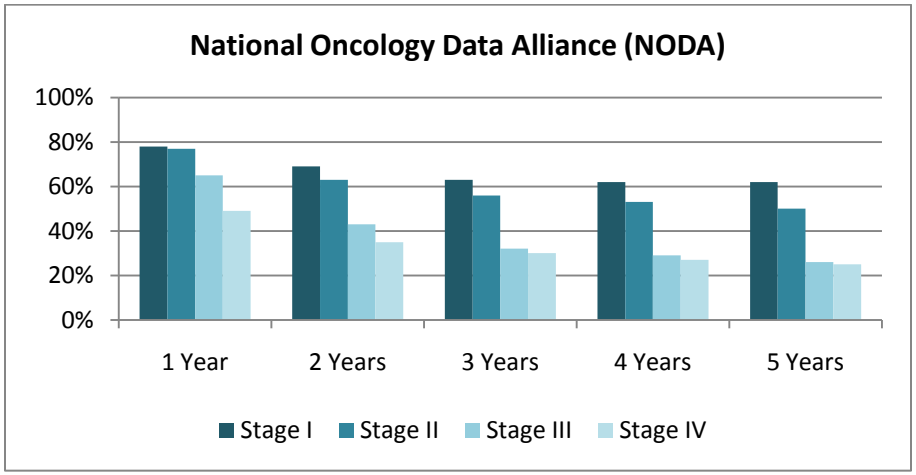
Analysis of survival data from 2003 to 2010 is shown below in the graph. During that period of time, over 500 patients with pancreatic cancer were seen at The Nebraska Medical Center. These patients were treated by a multidisciplinary group involving surgeons, medical oncologists, radiation oncologists, gastroenterologists, radiologists and pathologists. A large group of support professionals including case managers, dietitians, social workers and genetic counselors, work together to ensure the best possible outcome for the patient. As depicted in the graph, survival data for Stage I through Stage IV pancreatic cancers are shown. This data is significantly higher than what is typically seen for pancreatic cancer. This is the result of the comprehensive care and research efforts at The Nebraska Medical Center.

In planning future endeavors, the medical center intends to continue the commitment to excellence in patient care. Plans are in place to increase research endeavors to include screening, as well as attempts at early detection, in addition to developing novel treatment agents. The medical center will continue offering additional support services to help patients during their treatment.

Adjusted Survival by American Joint Committee on Cancer (AJCC) Stage



National Oncology Data Alliance (NODA)



THE NEBRASKA MEDICAL CENTER

The Nebraska Medical Center Cancer Registry Overview 2011

The Nebraska Medical Center keeps a cancer registry as one of the required components for accreditation by the American College of Surgeons Commission on Cancer. Our registry submits data to the National Cancer Data Base (NCDB) which is a joint program of the Commission on Cancer (CoC) and the American Cancer Society.

This database provides an outcomes database for more than 1,500 commission-approved cancer programs in the United States and Puerto Rico. Seventy percent of all newly diagnosed cases of cancer in the United States are captured at the institutional level and reported to the NCDB. The NCDB began collecting data in 1989 and now contains approximately 26 million records from hospital cancer registries across the country. This data is used to explore trends in cancer care, create regional and state benchmarks for participating hospitals and to serve as the basis for quality improvement. Data on all types of cancer are tracked and analyzed. The medical center data is submitted on a routine basis to the Nebraska Cancer Registry. In 1987, cancer was designated as a reportable disease by the state of Nebraska. Since this time, data has been submitted on an annual basis to the Nebraska Cancer Registry.

The registry performs data collection and lifetime follow-up on all cases diagnosed and treated here. It includes The Nebraska Medical Center inpatient and outpatient facilities, as well as Bellevue Medical Center. Some of the data collected includes patient characteristics, AJCC staging, site, histology, first course of treatment, disease recurrence, if applicable, and survival

information. Registry data is an effective resource that dictates and drives how the cancer care program establishes goals and measures accomplishments.

In addition to providing critical information about disease status and treatment outcomes, the follow-up process also performs a valuable service for physicians and patients by reminding patients that regular reassessment of their disease is vital for early detection of local recurrences, possible metastases or development of subsequent primaries. Lifetime follow-up is another important aspect of the Cancer Registry. Follow-up is gathered from hospital visits, physicians and patient follow-up letters.

The registry staff relies on the medical staff to respond to monthly follow-up letters to their offices regarding registry patients. Response to those letters makes it possible for the team to gather meaningful data for inclusion in the registry. It is a continued source of pride for the medical center to maintain compliance with related standards mandated by the Commission on Cancer for an approved cancer program.

The registry is capable of providing a variety of reports for use by our medical staff and for planning purposes. We also have the capability of doing comparative reports with larger databases. The registry at The Nebraska Medical Center contains information on cases diagnosed between 2003 and 2011. It is staffed by six full-time registrars, five who are certified and one who will take her exam for certification in 2013. We are happy to work with you to develop reports to meet your needs based on the cancer experience at The Nebraska Medical Center. Please call 402-596-3167 for assistance.

The Nebraska Medical Center - Cancer Registry

		Sex		Class of Case		Status		Stage Distribution - Analytic Cases Only						
Primary Site Table 2011	**Total (%)**	**M**	**F**	**Analy**	**NA**	**Alive**	**Exp**	**Stg 0**	**Stg I**	**Stg II**	**Stg III**	**Stg IV**	**NA**	**Unk**
ORAL CAVITY & PHARYNX	101 (3.5%)	69	32	85	16	93	8	3	23	5	7	43	2	2
Lip	7 (0.2%)	5	2	6	1	7	0	0	6	0	0	0	0	0
Tongue	35 (1.2%)	23	12	30	5	32	3	2	7	2	5	13	0	1
Salivary Glands	1 (0.0%)	1	0	1	0	1	0	0	0	0	1	0	0	0
Floor of Mouth	5 (0.2%)	4	1	4	1	4	1	0	4	0	0	0	0	0
Gum & Other Mouth	19 (0.7%)	10	9	17	2	17	2	0	4	3	0	8	1	1
Nasopharynx	4 (0.1%)	4	0	3	1	4	0	0	0	0	0	3	0	0
Tonsil	23 (0.8%)	17	6	20	3	22	1	1	1	0	0	18	0	0
Oropharynx	2 (0.1%)	2	0	2	0	2	0	0	1	0	0	1	0	0
Hypopharynx	3 (0.1%)	2	1	1	2	3	0	0	0	0	1	0	0	0
Other Oral Cavity & Pharynx	2 (0.1%)	1	1	1	1	1	1	0	0	0	0	0	1	0
DIGESTIVE SYSTEM	571 (20.0%)	332	239	383	188	414	157	7	61	95	78	112	19	11
Esophagus	37 (1.3%)	30	7	25	12	26	11	0	4	6	7	8	0	0
Stomach	33 (1.2%)	26	7	21	12	23	10	0	2	4	8	6	0	1
Small Intestine	26 (0.9%)	15	11	12	14	23	3	0	0	1	4	7	0	0
Colon Excluding Rectum	136 (4.8%)	59	77	75	61	110	26	4	15	10	18	27	1	0
Cecum	23	10	13	19	4	16	7	0	4	1	6	8	0	0
Appendix	14	5	9	5	9	13	1	0	2	1	0	2	0	0
Ascending Colon	28	9	19	15	13	23	5	1	6	2	1	5	0	0
Hepatic Flexure	1	1	0	0	1	0	1	0	0	0	0	0	0	0
Transverse Colon	8	3	5	4	4	7	1	0	0	0	2	2	0	0
Splenic Flexure	3	0	3	2	1	2	1	0	0	0	0	2	0	0
Descending Colon	6	5	1	3	3	5	1	0	0	0	3	0	0	0
Sigmoid Colon	39	18	21	24	15	35	4	3	3	5	6	7	0	0
Large Intestine, NOS	14	8	6	3	11	9	5	0	0	1	0	1	1	0
Rectum & Rectosigmoid	67 (2.4%)	45	22	38	29	54	13	2	7	6	7	13	1	2
Rectosigmoid Junction	24	19	5	15	9	17	7	1	2	2	5	5	0	0
Rectum	43	26	17	23	20	37	6	1	5	4	2	8	1	2
Anus, Anal Canal & Anorectum	12 (0.4%)	5	7	9	3	11	1	1	1	2	3	0	1	1

The Nebraska Medical Center - Cancer Registry

Primary Site Table 2011	Total (%)	Sex		Class of Case		Status		Stage Distribution - Analytic Cases Only						
		M	F	Analy	NA	Alive	Exp	Stg 0	Stg I	Stg II	Stg III	Stg IV	NA	Unk
Liver & Intrahepatic Bile Duct	96 (3.4%)	66	30	77	19	61	35	0	20	12	14	13	14	4
Liver	75	57	18	60	15	50	25	0	18	10	13	9	7	3
Intrahepatic Bile Duct	21	9	12	17	4	11	10	0	2	2	1	4	7	1
Gallbladder	11 (0.4%)	2	9	10	1	9	2	0	0	6	3	1	0	0
Other Biliary	15 (0.5%)	9	6	11	4	11	4	0	1	6	0	3	1	0
Pancreas	128 (4.5%)	71	57	97	31	77	51	0	10	42	10	32	0	3
Retroperitoneum	3 (0.1%)	2	1	3	0	3	0	0	1	0	0	2	0	0
Peritoneum, Omentum & Mesentery	6 (0.2%)	1	5	4	2	6	0	0	0	0	4	0	0	0
Other Digestive Organs	1 (0.0%)	1	0	1	0	0	1	0	0	0	0	0	1	0
RESPIRATORY SYSTEM	335 (11.8%)	176	159	267	68	225	110	3	67	31	63	92	5	6
Nose, Nasal Cavity & Middle Ear	11 (0.4%)	7	4	9	2	8	3	0	0	1	1	3	4	0
Larynx	25 (0.9%)	20	5	21	4	23	2	1	6	7	3	4	0	0
Lung & Bronchus	298 (10.5%)	149	149	236	62	193	105	2	61	23	59	85	0	6
Trachea, Mediastinum & Other Respiratory Organs	1 (0.0%)	0	1	1	0	1	0	0	0	0	0	0	1	0
BONES & JOINTS	20 (0.7%)	13	7	15	5	20	0	0	10	1	1	3	0	0
SOFT TISSUE	36 (1.3%)	20	16	29	7	34	2	0	13	1	9	4	1	1
SKIN EXCLUDING BASAL & SQUAMOUS	116 (4.1%)	67	49	95	21	109	7	16	32	24	13	2	1	7
Melanoma -- Skin	113 (4.0%)	65	48	93	20	107	6	16	32	24	13	2	0	6
Other Non-Epithelial Skin	3 (0.1%)	2	1	2	1	2	1	0	0	0	0	0	1	1
BASAL & SQUAMOUS SKIN	2 (0.1%)	1	1	0	2	2	0	0	0	0	0	0	0	0
BREAST	357 (12.5%)	5	352	290	67	343	14	52	117	76	27	12	1	5
FEMALE GENITAL SYSTEM	121 (4.3%)	0	121	86	35	111	10	1	46	9	14	11	3	2
Cervix Uteri	21 (0.7%)	0	21	15	6	21	0	0	4	6	3	2	0	0
Corpus & Uterus, NOS	60 (2.1%)	0	60	49	11	59	1	0	35	1	5	6	1	1
Corpus Uteri	57	0	57	47	10	56	1	0	35	1	4	5	1	1
Uterus, NOS	3	0	3	2	1	3	0	0	0	0	1	1	0	0
Ovary	26 (0.9%)	0	26	15	11	19	7	0	5	2	4	3	1	0
Vagina	1 (0.0%)	0	1	1	0	1	0	0	0	0	1	0	0	0
Vulva	9 (0.3%)	0	9	3	6	9	0	1	1	0	1	0	0	0
Other Female Genital Organs	4 (0.1%)	0	4	3	1	2	2	0	1	0	0	0	1	1

The Nebraska Medical Center - Cancer Registry

Primary Site Table 2011	Total (%)	Sex		Class of Case		Status		Stage Distribution - Analytic Cases Only						
		M	F	Analy	NA	Alive	Exp	Stg 0	Stg I	Stg II	Stg III	Stg IV	NA	Unk
MALE GENITAL SYSTEM	186 (6.5%)	186	0	138	48	182	4	0	26	69	22	16	1	4
Prostate	165 (5.8%)	165	0	124	41	161	4	0	20	65	19	16	1	3
Testis	19 (0.7%)	19	0	12	7	19	0	0	6	2	3	0	0	1
Penis	1 (0.0%)	1	0	1	0	1	0	0	0	1	0	0	0	0
Other Male Genital Organs	1 (0.0%)	1	0	1	0	1	0	0	0	1	0	0	0	0
URINARY SYSTEM	148 (5.2%)	100	48	118	30	128	20	17	43	17	15	21	3	2
Urinary Bladder	56 (2.0%)	43	13	44	12	49	7	16	6	13	2	6	0	1
Kidney & Renal Pelvis	87 (3.1%)	52	35	70	17	74	13	0	37	3	13	14	2	1
Ureter	3 (0.1%)	3	0	3	0	3	0	1	0	1	0	1	0	0
Other Urinary Organs	2 (0.1%)	2	0	1	1	2	0	0	0	0	0	0	1	0
EYE & ORBIT	13 (0.5%)	8	5	9	4	10	3	0	1	1	0	0	4	3
BRAIN & OTHER NERVOUS SYSTEM	162 (5.7%)	78	84	127	35	138	24	0	0	0	0	0	127	0
Brain	83 (2.9%)	47	36	63	20	63	20	0	0	0	0	0	63	0
Cranial Nerves Other Nervous System	79 (2.8%)	31	48	64	15	75	4	0	0	0	0	0	64	0
ENDOCRINE SYSTEM	75 (2.6%)	20	55	63	12	73	2	0	37	8	5	5	7	1
Thyroid	65 (2.3%)	15	50	56	9	64	1	0	37	8	5	5	0	1
Other Endocrine including Thymus	10 (0.4%)	5	5	7	3	9	1	0	0	0	0	0	7	0
LYMPHOMA	305 (10.7%)	180	125	168	137	257	48	0	30	31	15	85	0	7
Hodgkin Lymphoma	43 (1.5%)	26	17	24	19	40	3	0	0	11	3	9	0	1
Hodgkin - Nodal	38	23	15	20	18	35	3	0	0	8	3	9	0	0
Hodgkin - Extranodal	5	3	2	4	1	5	0	0	0	3	0	0	0	1
Non-Hodgkin Lymphoma	262 (9.2%)	154	108	144	118	217	45	0	30	20	12	76	0	6
NHL - Nodal	173	98	75	92	81	144	29	0	12	14	11	53	0	2
NHL - Extranodal	89	56	33	52	37	73	16	0	18	6	1	23	0	4
MYELOMA	73 (2.6%)	39	34	49	24	68	5	0	0	0	0	0	49	0

The Nebraska Medical Center - Cancer Registry

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		M	F	Analy	NA	Alive	Exp	Stg 0	Stg I	Stg II	Stg III	Stg IV	NA	Unk
LEUKEMIA	116 (4.1%)	71	45	83	33	83	33	0	0	0	0	0	83	0
Lymphocytic Leukemia	48 (1.7%)	29	19	29	19	44	4	0	0	0	0	0	29	0
Acute Lymphocytic Leukemia	19	11	8	14	5	19	0	0	0	0	0	0	14	0
Chronic Lymphocytic Leukemia	25	15	10	14	11	21	4	0	0	0	0	0	14	0
Other Lymphocytic Leukemia	4	3	1	1	3	4	0	0	0	0	0	0	1	0
Myeloid & Monocytic Leukemia	66 (2.3%)	42	24	52	14	38	28	0	0	0	0	0	52	0
Acute Myeloid Leukemia	48	28	20	35	13	23	25	0	0	0	0	0	35	0
Acute Monocytic Leukemia	3	2	1	3	0	1	2	0	0	0	0	0	3	0
Chronic Myeloid Leukemia	14	11	3	13	1	14	0	0	0	0	0	0	13	0
Other Myeloid/Monocytic Leukemia	1	1	0	1	0	0	1	0	0	0	0	0	1	0
Other Leukemia	2 (0.1%)	0	2	2	0	1	1	0	0	0	0	0	2	0
MESOTHELIOMA	4 (0.1%)	4	0	2	2	3	1	0	0	0	1	0	0	1
KAPOSI SARCOMA	1 (0.0%)	1	0	1	0	0	1	0	0	0	0	0	1	0
MISCELLANEOUS	103 (3.6%)	46	57	68	35	67	36	0	0	0	0	0	68	0
Total	2,845	1,418	1,427	2,076	769	2,360	485	99	506	368	270	406	375	52