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Cancer Overview

The Nebraska Medical Center and University of Nebraska Medical Center is proud to offer one of the most respected oncology and hematology departments in the country. Patients across the United States and around the world visit The Nebraska Medical Center and University of Nebraska Medical Center to receive innovative treatment from some of the top specialists in the world.

With the search for new and innovative treatments, our primary focus is people. Our healthcare providers and all of our employees put our patients and their families first— treating them with warmth and compassion — just like we'd want our own family members treated. The Nebraska Medical Center specialists realize cancer is a life changing experience. The Survivorship Program is in place to help transition survivors back into the standard health care system and return to their primary physician.

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Lymphoma

Lymphomas are cancer cells that began, and are present, in the lymphatic system; a network of bean-shaped nodes located throughout the body with the job of fighting infection.

Lymphoma refers to a cancer that originates in the nodes or glands of the lymphatic system, whose job it is to produce white blood cells and clean body fluids, or in organs such as the brain and breast. Lymphomas are classified into two categories: Hodgkin's lymphoma and non-Hodgkin's lymphoma.

Although there are many variations of Lymphoma, they are broadly classified into Hodgkin's disease and non-Hodgkin's Lymphoma. The two main distinctions between them are how the cancer cells develop (and spread) and the type of treatment required.

Each year more than 60,000 Americans are diagnosed with lymphomas. Nearly eight times as many lymphoma patients fall into the Non-Hodgkins category than Hodgkin's disease.

The University of Nebraska Medical Center is renowned for the diagnosis, therapy, and research of lymphoma. UNMC has treated patients from all over the world. Our patients come for consultation, initial diagnosis, second opinions, standard chemotherapy, participation in clinical research trials, and bone marrow/stem cell transplants.

So what tips the scale for a lymphoma patient in choosing UNMC for their care?

Time – Both patients and doctors appreciate the amount of quality time they're able to spend during each visit. Our patients are being cared for, not processed.

Education – New and innovative therapies are being discovered constantly. It's important to keep patients informed of procedures as they come available. Education gives our patients control over a condition that they may have once felt helpless against.

Clinical Studies – Education isn't enough without the choices. UNMC offers all of the latest clinical trials for Lymphoma. Giving our patients the opportunity, as well as the education, to choose what they feel is best for them.

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Hematology/Oncology

The Section of Oncology and Hematology is interested in the diagnosis and treatment of all malignancies (cancers) that occur in adults. Treatment may include chemotherapy and immunotherapy, including vaccines and radioimmunoconjugates. High dose therapy with bone marrow or peripheral stem cell transplantation is also available.

The section boasts a world-renowned peripheral stem cell transplantation program, directed by Anne Kessinger, M.D., who pioneered the technique.

The section of Oncology's physicians specialize in many types of cancers including: lymphomas, leukemia, urologic, breast, lung, gastric and pancreatic, brain cancer, melanoma, hepatocellular and solid tumors. Care for patients with incurable cancers is also available.

Hematology is interested in the treatment of patients with blood diseases such as anemia, bleeding disorders, and clotting problems. The section is home to the Nebraska Regional Hemophilia Treatment Center which treats adult and pediatric patients from across the state with bleeding disorders.

The Section of Oncology and Hematology is a member of the National Comprehensive Cancer Network (NCCN), an alliance of the nation's 15 leading cancer centers. NCCN centers develop and institute standards of care for the treatment of cancer and perform outcomes research with the good of ensuring the delivery of high quality, cost-effective services to cancer patients nationwide.

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Leukemia

Leukemias are malignancies of the bone marrow. There are several different types of leukemia. Optimal treatment for leukemia depends on the exact type of leukemia as well as other factors such as patient age, the presence of DNA (cytogenetic) abnormalities within the leukemia cells, and previous treatment. Making treatment recommendations for patients with leukemia can be quite complex and is best done by physicians with special expertise in this area, such as the physicians of the Leukemia Team at the University of Nebraska Medical Center (UNMC).

The Leukemia Team physicians dedicate their practice to the treatment of leukemia only. Through the UNMC Leukemia Team, patients have access to the latest research findings and innovative clinical trials. Diseases that are commonly treated by the Leukemia Team at UNMC include Acute Myelogenous Leukemia (AML), Acute Lymphoblastic Leukemia (ALL), Chronic Myelogenous Leukemia (CML), and Myelodysplastic Syndrome (MDS). In addition, the UNMC Leukemia Team commonly treats patients with bone marrow failure problems, such as Aplastic Anemia, Large Granular Lymphocyte Leukemia and Pure Red Cell Aplasia.

The UNMC Leukemia Team provides consultations and second opinions as well as state-of-the-art treatment. Treatment may be a standard treatment or participation in a clinical research trial. Furthermore, the UNMC Leukemia Team offers a full spectrum of bone marrow and stem cell transplantation options, including mini transplants, unrelated donor transplants and cord blood transplants. The UNMC Leukemia Team works together closely with your referring oncologist or primary care provider to customize your treatment according to your needs and preferences.

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Breast Cancer

There are several types of breast cancer, including:

The most common type begins in the lining of the ducts and is called ductal carcinoma. Another common type, called lobular carcinoma, occurs in the lobules.

When breast cancer metastasizes, or spreads outside the breast, cancer cells are often found in the lymph nodes under the arm. If the cancer has reached these nodes, it may mean that cancer cells have spread to other parts of the body.

Cancer that spreads is the same disease and has the same name as the original, or primary cancer. When breast cancer spreads, it is called metastatic breast cancer, even though the secondary tumor is in another organ. This may also be called "distant" disease.

Types of breast cancer, in alphabetical order, are:

- adenocarcinoma
- ductal carcinoma in situ (DCIS)
- infiltrating (or invasive) ductal carcinoma (IDC)

- infiltrating (or invasive) lobular carcinoma (ILC)
- inflammatory breast cancer
- lobular carcinoma in situ (LCIS) (also called lobular neoplasia)
- medullary carcinoma
- mucinous carcinoma
- Paget's disease of the nipple
- phyllodes tumor (also spelled phylloides)
- tubular carcinoma

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Lung Cancer

The Pulmonary, Critical Care and Sleep Medicine Section is interested in the diagnosis and treatment of diseases of the lungs and respiratory system. Areas of expertise include chronic obstructive pulmonary disease (COPD), asthma, cystic fibrosis, environmental and occupational lung disease, lung cancer, sleep medicine, and the treatment of critically ill adult patients.

The Section's research labs, located at both the University of Nebraska Medical Center and the Omaha VA Medical Center, are focused on research in airway inflammation injury and repair. The Section also has a very active Clinical Studies Unit involved in clinical trials for asthma, COPD, smoking cessation, and cystic fibrosis.

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GI Cancer

The Section of Gastroenterology and Hepatology (GI) is interested in the diagnosis and treatment of diseases of the gastrointestinal system. Areas of expertise include irritable bowel syndrome, liver disease, inflammatory bowel disease, pancreatic disease, cancer of the upper and lower GI tract and motility disorders. The Section has active clinical and basic research programs at UNMC and at the OVAMC including a world-renown liver transplant program and Alcohol Research Center.

Patients come from across the country and from around the globe for liver transplantation at UNMC. Dr. Michael Sorrell and our team of hepatologists manage the patient's care before and after transplantation and are active members of UNMC's world-renown transplantation program.

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Liver Cancer

The Nebraska Medical Center is home to one of the largest and most successful transplant centers in the world. People

from all over the United States and foreign countries come to our center for transplantation. Established in 1985, The Liver Transplant Program at The Nebraska Medical Center has become one of the most active and innovative transplant programs in the world. The program consistently achieves better outcomes than the national average and performs more successful high-risk pediatric liver transplants than almost any other program in the nation.

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Urologic Cancer

Welcome to the website for the University of Nebraska Medical Center Urologic Oncology Program in the Section of Oncology/Hematology. This program brings together the expertise of individuals from multiple disciplines (radiation oncology, surgical oncology and medical oncology) who have a specific interest in malignancies of the urologic system (prostate, kidney, bladder, and testicular cancers). Assisted by the state-of-the-art technology available at the Nebraska Medical Center, we provide cutting edge therapies, both in standard-of-care as well as in clinical research, to patients diagnosed with any of these cancers.

The University of Nebraska Medical Center, in conjunction with Clarkson Hospital, forms part of the Nebraska Medical Center. The Nebraska Medical Center has been recognized for many years as one of the leading institutions in the region, as well as the state, for their level of healthcare. In some specific areas such as oncology, this care has been recognized at both national and international levels.

Located on the Omaha campus, and affiliated with the University of Nebraska Medical Center, is the Eppley Institute for Cancer Research; the only cancer center in the region that has received a National Cancer Institute designation. In collaboration with researchers of the Eppley Institute as well as researchers in other departments, the clinicians from the Urologic Oncology Program at UNMC strive to advance research in the diagnosis, prevention and treatment of patients with urologic malignancies.

We invite you to continue reading for more information on our program, including details on our dedicated faculty and staff, the various treatments we offer, also our facilities and research programs. You may find our multidisciplinary clinic of particular interest.

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Prostate Cancer

Prostate cancer is a tumor that develops in the prostate gland of men. The prostate gland is located at the base of the penis and surrounds the bottom part of the bladder and urethra.

Prostate cancer is the most common cancer in American men. It is the second most common cause of cancer death (after lung cancer). Two to three times more African-American men get prostate cancer than white men. The risk of prostate cancer increase with age, usually occurring after the age of 50.

There is no known cause for how prostate cancer occurs. Although research continues into a possible link, some of the possible contributing factors include:

- Increased fat in the diet.
- Previous Vasectomy. (Controversial)
- Cadmium Intake
- Exposure to high levels of male hormones.
- Cigarette smoking.
- Heredity.

Prostate cancer often has no symptoms, and can sometimes be similar to the symptoms associated with non-cancerous growth of the prostate (benign prostatic hypertrophy, or BPH). Symptoms of prostate cancer can vary depending on the size of the tumor and how far the cancer has spread. Some possible symptoms are:

- The need to urinate frequently and with urgency.
- Difficulty beginning a stream of urine and decreased force.
- Increased need to urinate at night.
- Inability to urinate.
- Bone or back pain if the cancer has spread.

Prostate cancer can be diagnosed even though no symptoms are present. Prostate cancer can sometimes be detected during a rectal exam. In addition, a lab blood test is now used to help with the screening process. A Prostate Specific Antigen (PSA) test can be helpful in conjunction with other tests for determination of prostate cancer. Prostate biopsies are sometimes performed if the rectal exam or PSA test is abnormal. Recommended screening for prostate cancer is important for men over the age of 40, which includes a rectal exam. The American Cancer Society recommends that all men over the age of 50 have their serum PSA level checked every year, especially for those men who are at high risk for getting prostate cancer.

Treatment decisions are dependent on how large the tumor is, the status of spread of the cancer to other areas of the body, and your overall physical condition. Treatment options will be discussed with you by your urologist and primary physician. Additional consultations maybe obtained with a radiation oncologist or medical oncologist.

Treatment options for localized prostate cancer include:

- Watchful Waiting.
- Prostatectomy.
- Radiation Therapy.
- Hormonal Therapy.
- Cryosurgery.

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Pancreatic Cancer

Pancreatic cancer is a disease characterized by a lack of symptoms at an early, curable stage. Currently, there are no screening tools available for pancreatic cancer; therefore, by the time it is detected, the disease has already spread to other organs, making for a poor prognosis. Pancreatic cancer is an aggressive malignancy with a dismal prognosis. Treatment with chemotherapy is often ineffective.

With this diagnosis, patients often die before any clinical research can be done. Therefore, hope lies in the early diagnosis of pancreatic cancer, which lies in research of the patient's family and lifestyle information. Down the road, researchers hope this information will help identify the gene(s) responsible for pancreatic cancer and a possible means of early detection.

The ability to conduct research for pancreatic cancer is severely hampered by the lack of available human tissue. Scientists need this valuable resource to help better understand the cause of pancreatic cancer with the ultimate goal of improving patient care.

Here at the University of Nebraska Medical Center we have a dedicated team of doctors and scientists devoted to pancreas cancer research.

We have the only program in the country that allows patients with pancreatic cancer to donate their bodies for research. If you or your family are interested please call Dr. Sasson or Karen Taylor at the number listed above for a free consultation.

Based at the Eppley Institute, the mission of the PCCR is to unite centers with expertise in pancreatic cancer research. The registry is set to facilitate the uniform collection of critical information and biological samples to develop prevention and treatment strategies against this devastating disease.

There are currently 10 centers involved in the registry, including: UNMC, Creighton University, New York Medical College, Johns Hopkins Hospital, University of Washington, Evanston Northwestern University Healthcare, University of Pittsburgh, Mayo Clinic, University of Alabama Birmingham, and the National Cancer Institute.

Pancreatic cancer patients at these centers are presented with the option of participating in the study. To participate, patients simply fill out questionnaires and, in some cases, donate blood and/or tissue samples. The standard data collected from participants includes: personal background information, medical and family history, dietary habits, and environmental exposure. Participants are able to access their own data and can print their own family tree of cancer incidence.

Participating centers are currently gathering and putting data into the registry. Each center can only view and query its own data at this time. The next step is to build a data warehouse where the information can be pooled in one (on-line) location and searched for specific information (called data mining) by all participants. The NIH grant is funding this phase of the project.

Dr. Sherman and his group are currently working with physicians at UNMC and The Nebraska Medical Center to also develop similar registries for breast and lung cancers.

Dr. Hollingsworth focuses his research on pancreatic cancer and other diseases of the pancreas, pancreatitis and cystic fibrosis.

Using modern techniques of molecular biology, biochemistry, cell biology and immunology, Dr. Hollingsworth and his colleagues work towards finding new therapies and methods of detecting pancreatic diseases. Several of Dr. Hollingsworth's main projects center on the study of MUC1, a glycoprotein which scientists believe plays an important role in the normal function of the pancreas. These studies shed light on the development of new antibodies and tumor vaccines for uses that target known tumor-associated antigens.

Dr. Hollingsworth is a professor in the Department of Biochemistry and Molecular Biology and the Department of Pathology and Microbiology. He earned his Ph.D. in 1982 from Wake Forest University in Winston-Salem, N.C.

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Gynecologic Cancer

The Section of Gynecologic Oncology provides comprehensive care for women with neoplasms of the reproductive system. In addition to the provision of advanced medical care, there is an emphasis on the holistic approach to cancer. There is emphasis on quality-of-life issues including an appreciation for the patient's body image and femininity. Emotional support for the patient and her family is provided as she and her family cope with her cancer diagnosis and treatment. The care of the patient and her family is enhanced by cooperative relationships with other disciplines involved in cancer care, including medical oncology, radiation therapy, urology, orthopedics, nutrition, social work, and others within the The Nebraska Medical Center community.

Efforts continue to develop an area of the hospital dedicated to the care of the gynecologic and gynecologic oncology patient. Currently, nurses on 4-West are certified in the administration of chemotherapy in order for patients to remain in a familiar, supportive environment for all of their surgical and medical care. As remodeling proceeds within the hospital, a specialized unit will be developed.

The Gynecologic Health Directory contains a variety of topics on gynecologic health and cancer.

The Nebraska Medical Center/UNMC has an advanced Gynological Cancer treatment program offered through its multidisciplinary oncology team.

The cervix is the opening from the uterus into the vagina. Cervical cancer is one of the most common types of cancer. If detected early with Pap smear tests and pelvic examinations, cervical cancer is highly curable. Cervical cancer is strongly related to sexual activity.

Most at risk are:

- Women who began having sexual intercourse at a young age (shortly after reaching puberty).
- Women who have had multiple partners.
- Women who have genital herpes or have had genital wart infections.

To Lower Your Risk:

- Have a Pap smear test and pelvic examination done every year.
- If you smoke, quit.
- Refrain from having multiple sex partners.
- Use protection against sexually transmitted diseases

The genital organs in women are the most common sites of cancer found today. Gynecologic cancers are curable if treated in a precancerous stage. Early detection and diagnosis of gynecologic cancers is one advantage to the possible cure. Upwards of a 90% cure rate can be achieved if these cancers are found when they are less than 1 cm. in diameter. One such test that aids in this is the PAP smear.

Included in this area of gynecologic cancers are cervical cancer, endometrial cancer, ovarian and vulvar cancers, vaginal and fallopian tube cancers and gestational choriocarcinomas.

Cervical cancer, if caught in its early stages is highly curable. Screening for cervical cancer is recommended starting at the age of 18, or earlier if the woman is sexually active. The only significant symptom with cervical cancer is abnormal bleeding, which may signal the need for immediate examination. Persistent aching pains may also occur in the lower quadrants or low back.

Endometrial cancers are the most common type of female genital cancer in the United States and is one of the six leading causes of cancer death. The cure rate for endometrial cancer is very high because these tumors tend to be well-differentiated and localized. Endometrial cancer is more prominent in post-menopausal women, with a peak incidence around 58-60 years of age. The only significant clinical sign is bleeding, which would signal ulceration.

Ovarian cancers are difficult to detect in their early stages. Regular abdominal-pelvic examinations and other diagnostic tests are useful in those women who are of high risk. Ovarian cancer is known to run in families. In approximately 2/3 of the cases, at the time of diagnosis ovarian carcinoma has spread to involve pelvic and abdominal organs. Symptoms are very mild and somewhat vague. These include abdominal discomfort, flatulence, bloating and digestive disturbances.

The other forms of gynecologic cancers are not as predominant as the others, but do impose a problem as the others. It is recommended to have regular visits with your primary physician or OB/GYN physician to maintain status of these areas. In most of these cases, radiation therapy is used in conjunction with other treatments to minimize the spread of the disease. Treatment options will be discussed and the best treatment plan will be chosen.

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Radiation Oncology

The diagnosis of an inoperable brain tumor doesn't have to mean certain death. A spinal tumor does not have to mean paralysis and a tumor that pushes on the auditory nerve doesn't have to mean a life of silence. Instead, patients like 41-year-old Doug Reedy are finding options in technology, and hope at The Nebraska Medical Center.

When he first heard he had a large brain tumor, Reedy said he "just shut down." He was told his only chance was an invasive and dangerous brain surgery that could lead to a stroke, blindness and possibly a coma.

A second opinion led Reedy to The Nebraska Medical Center and where he found a second option in the Novalis radiation therapy system, which became available to patients in May.

"There's always got to be an option," Reedy said. The Novalis system is a good one for Reedy who says he has not suffered any side effects from the therapy.

"Novalis uses multi-directional radiation beams that shape a three-dimensional volume of radiation dose around the tumor while avoiding critical structures that may surround it such as the optic nerve in Mr. Reedy's case," said Robert Thompson, M.D. medical director of radiation oncology at The Nebraska Medical Center, which is one of only 21 Novalis treatment sites in the country and the only place in the region to offer this state-of-the-art technology.

Dr. Thompson says Reedy has probably had the tumor for as long as 20 years and while it is not cancerous, it is dangerous.

“The tumor is about the size of a large egg. It is compressing the hypothalamus and threatening his vision as well as the brain’s blood supply,” said Arun-Angelo Patil, M.D., neurosurgeon at The Nebraska Medical Center.

Reedy has lost sight in his left eye and the vision in his right eye is impaired. But since starting treatment about a month ago, he says he is seeing some signs of improvement.

Another patient, Chrisie Butler, was being tested for multiple sclerosis when doctors found the unexpected.

“There is a walnut-sized tumor at the base of Chrisie’s skull,” said Britt Thedinger, M.D., an otologist-neurotologist at The Nebraska Medical Center. “Surgery to remove the benign tumor carries serious risks like injury to the nerves controlling hearing, balance, voice, swallowing and shoulder movement.”

In Chrisie’s mind those risks were too high. Reluctantly, she scheduled the surgery still hoping for another option. Then she got a call from neurosurgeon George Green, M.D., telling her to cancel the surgery, he found a better option while training on the Novalis at UCLA.

“Novalis offers several different options for shaping the radiation dose. The ability to deliver the treatment in several fractions (treatments) instead of a single one can very significantly reduce the risk of side effects in many cases,” said Charles Enke, M.D., Chairman of radiation oncology for the University of Nebraska Medical Center. With Novalis Chrisie has experienced sporadic headaches and an occasional metallic taste in her mouth.

“This is a piece of cake compared to surgery,” Chrisie said. She has a better than 70% chance that the tumor will stop growing and even shrink without damaging her cranial nerves. Those are odds she’ll gladly take, “if it works, I don’t have to have that surgery,” she says.

The Novalis system by Brain Lab is the most innovative and advanced option available to treat tumors of the brain, head, neck, spine, liver, lung and prostate without harming surrounding healthy tissue. This sophisticated approach to stereotactic radiosurgery and radiotherapy is quickly becoming the standard of care for advanced cancer treatment.

“Gamma knife has been available for decades as a way of delivering focused radiation in a single treatment,” Dr. Enke explained. “Novalis can treat any clinical problem that the gamma knife can treat, but the converse is not true. For example, Novalis can treat areas in the skull base that gamma knife cannot reach. It can deliver a single fraction dose when appropriate but also has the ability to deliver fractionated treatment which may be desirable in certain clinical applications. In addition, Novalis is FDA approved to treat locations anywhere in the body while gamma knife is strictly limited to the brain and skull,” he said.

What makes it so appealing to patients is the non-invasive delivery of a precise dose of high-energy radiation, which can shrink or control the growth of a tumor by killing tumor cells or interfering with their ability to grow. It is virtually painless; the patient remains awake throughout the procedure, which is usually performed on an outpatient basis.

Reedy said he was thrilled when he heard about this option. “I was walking on air when I left the hospital that day,” Reedy recalled. His wife Stacy said, “It was like music – it was too good to be true. I thought it can’t be this easy!”

Both Chrisie Butler and Doug Reedy have been able to continue working full-time and enjoying their homes and families. Both are thrilled to have an option that wasn't available to them a couple of months ago. They say the fact that they are among the first patients in the region to undergo Novalis radiation therapy can only be described as "a God thing."

Transplant Overview

The Nebraska Medical Center is home to one of the most reputable and well-known organ transplant programs in the country. As a noted leader in organ transplantation, we have helped shape the field of transplantation through our dedicated efforts in clinical and basic research. Our state-of-the-art transplant programs provide Nebraskans with comprehensive treatment for diseases of the liver, small intestine, kidney, pancreas, heart and lungs. The world-class reputation of our programs and physicians attracts patients from across the country and around the world. In fact, more than half our patients come from states outside of Nebraska and from foreign countries.

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Bone Marrow/Stem Cell

Bone Marrow/Stem Cell Transplant Procedures

UNMC utilizes the state-of-the-art protocols available in the healthcare industry for Stem Cell Transplant procedures. Blood and Marrow Stem Cell Transplantation is a treatment option for many forms of cancer and blood disorders and may be used in the treatment of some genetic or inherited illnesses. High doses of chemotherapy with or without radiation destroy cancer cells. This therapy also destroys the body's bone marrow.

In a transplant, healthy bone marrow and blood cells are infused to recover bone marrow function following high dose therapy. Bone marrow is the spongy tissue found inside of bones. It produces the body's blood cells and cells of the immune system. The blood cells of the bone marrow, white blood cells, red blood cells, platelets, and others, all come from one type of cell called a "blood stem cell". These stem cells are found in the bone marrow and in circulating blood.

BMT Transplant Team

Adult

Dr. James Armitage joined the University of Nebraska Medical Center in 1982 as an associate professor of medicine. He is currently the dean of the UNMC College of Medicine and is board certified in internal medicine, oncology and hematology. He received his bachelor of science degree from the University of Nebraska at Lincoln in 1969 and his medical degree from UNMC in 1973. He also completed his internship and residency at UNMC. He served a fellowship in hematology-oncology at the University of Iowa Hospitals and Clinics in Iowa City from 1975-77. Dr. Armitage's research interests include bone marrow transplantation and the management and classification of leukemia and lymphoma. He has served on many national and international boards including the American Society for Blood and Marrow Transplantation, ASCO and the National Cancer Advisory Board.

Dr. Gregory Bociek joined the bone marrow transplantation team in September 1998. He received his medical degree, served an internship and completed his residency in internal medicine from the University of Ottawa. He served a fellowship in medical oncology at the University of Ottawa from 1991-93. In 1993-94, he completed a

bone marrow transplantation fellowship at the University of Nebraska Medical Center. He is board certified in internal medicine and medical oncology from the Royal College of Physicians of Canada and is presently completing a master's degree in clinical epidemiology from the University of Ottawa.

Dr. Margaret Kessinger has been a member of the bone marrow transplantation team since it began in 1983. She received her undergraduate, graduate and medical degrees from West Virginia University. Dr. Kessinger served an internship and completed her residency at the University of Nebraska Medical Center. From 1970-72, Dr. Kessinger served a fellowship in clinical oncology at UNMC. She is board certified in internal medicine and medical oncology.

Dr. Elizabeth Reed has been a member of the bone marrow transplantation team since 1988. She received her undergraduate degree from Hastings College, Hastings, NE., in 1977 and her medical degree from the University of Nebraska Medical Center in 1980. She served a residency at UNMC and completed a fellowship in oncology at UNMC in 1985. Dr. Reed was selected senior fellow, Division of Infectious Diseases, Department of Medicine at the University of Washington in Seattle. Dr. Reed is board certified in internal medicine with an oncology subspecialty.

Dr. Julie Vose has been a member of the bone marrow transplantation team since 1990. She received a Bachelor of Science MT (A.S.C.P.) from the University of Nebraska Medical Center in 1979. She received her medical degree at UNMC in 1984. Dr. Vose completed her residency at UNMC in 1987 and was chief resident in 1988. She served a oncology/hematology fellowship from UNMC from 1988-90. Dr. Vose is board certified in internal medicine and oncology.

Dr. Philip Bierman has been a member of the bone marrow transplantation team since 1987. He received an undergraduate degree from the University of Missouri-Kansas City in 1977 and a medical degree from UMKC in 1979. Dr. Bierman completed an internal medicine residency at the University of Nebraska Medical Center in 1982 and was chief resident at UNMC in 1982-83. He served an oncology fellowship at UNMC from 1983-85 and a hematology fellowship at City of Hope National Medical Center in Duarte, Calif., from 1985-86. Dr. Bierman is board certified in internal medicine, oncology and hematology.

Dr. Stefano Tarantolo has been a member of the bone marrow transplantation team since 1991. He earned his undergraduate and graduate degrees from Rutgers University in New Brunswick, N.J. He received his medical degree from St. George's University School of Medicine in Grenada, West Indies in 1985. Dr. Tarantolo served his residency at Jersey Shore Medical Center in Neptune, N.J. from 1985-88 and was chief resident at Jersey Shore in 1987-88. He completed a hematology/oncology fellowship at UMDNJ-Robert Wood Johnson Medical School/University Hospital in New Brunswick, N.J. in 1991, in addition to a transfusion medicine elective at the same institution. Dr. Tarantolo is board certified in internal medicine, hematology and oncology.

Pediatric

Dr. Peter Coccia is director, Section of Pediatric Oncology/Hematology and Pediatric Bone Marrow Transplantation at UNMC and The Nebraska Medical Center. He earned his medical degree from Upstate Medical Center in Syracuse, N.Y. in 1968. He completed his residency training at Upstate Medical Center, Department of Clinical Pathology, and at the University of Minnesota, Minneapolis, and the Department of Pediatrics. Dr. Coccia served a pediatric hematology/oncology fellowship and an American Cancer Society, Junior Faculty Clinical Fellowship Pediatric Oncology at the University of Minnesota Hospital and Clinics. He is board certified in pathology-clinical pathology, pathology-hematology, pediatrics and pediatrics-hematology/oncology. Dr. Coccia is a member of the UNMC Eppley Cancer Center.

Dr. Alfred Grovus is the clinical director of the Pediatric Bone Marrow Transplantation Program at UNMC and The Nebraska Medical Center. He received his M.D. at the University of Nebraska Medical Center in 1985. He completed pediatric residency and fellowship training at the University of California at Los Angeles. Dr. Grovus is

board certified in pediatrics and pediatrics-hematology/oncology.

Dr. Phyllis Warkentin is the director of the Unrelated Bone Marrow Transplantation Program at UNMC and The Nebraska Medical Center. She received her medical degree from the University of Minnesota Medical School, Minneapolis, in 1974. She finished her residency in pediatrics and served fellowships in pediatric hematology/oncology and blood banking at the University of Minnesota Hospital and Clinics. Dr. Warkentin is a board certified physician in pediatrics, pediatrics-hematology-oncology and pathology-blood banking.

Dr. Minnie Abromowitch earned her M.D. at the University of Manitoba in 1973. She completed a pediatric residency at the Hospital for Sick Children in Toronto and was chief resident at Winnipeg Children's Hospital. She served fellowships in pediatric hematology/oncology at Winnipeg Children's Hospital, and in hematology/oncology at St. Jude's Children's Research Hospital in Memphis, Tenn. Dr. Abromowitch is board certified in pediatrics and pediatrics-hematology/oncology.

Dr. James Harper received his medical degree from UNMC in 1985. He served a pediatrics residency at the University of New Mexico, Albuquerque, and completed a fellowship in pediatric hematology/oncology at the University of Florida, Gainesville. Dr. Harper is board certified in pediatrics and pediatrics-hematology/oncology.

Dr. Bruce Gordon received his M.D. from Johns Hopkins University School of Medicine, Baltimore, MD., in 1983. He received a fellowship in pediatrics at University Hospitals of Cleveland. He served two fellowships in pediatric hematology/oncology at University Hospitals of Cleveland and at UNMC. Dr. Gordon is board certified in pediatrics and pediatrics-hematology-oncology.

Bone Marrow Transplant Research

The Nebraska Medical Center/University of Nebraska Medical Center stem cell and bone marrow transplantation team is involved in many research protocols and clinical trials of new protocols of care and therapeutic agents. Some of these promising treatment options are not routinely available and can only be offered in the setting of a clinical trial under controlled conditions.

Research is crucial to the advancement in transplant and other cancer treatments. It is through research we look for better, more effective ways to kill cancer cells. It is also through research that we determine better ways to treat or reduce post-transplant complications.

Before becoming a participant in a research protocol, patients receive a full explanation of the study, its possible risks and possible benefits. Participants must give written consent before being enrolled in a research study. You will be encouraged to discuss this information with your family and personal physician.

Over 400 clinical trials are in progress at The Nebraska Medical Center and involve new therapies for cancer, heart disease, HIV, diabetes, arthritis, and many other ailments and diseases. Clinical research is one more reason why you can expect serious medicine and extraordinary care at The Nebraska Medical Center.

If you are interested in finding out more about participation in a research study please contact our International Healthcare Services office at (402) 559-3090.

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Liver

Liver transplantation has seen a number of advances over the last decade. A shortage of donor organs has kept many hopeful recipients on the waiting list for prolonged periods of time. There are a number of transplant procedures available, developed to circumvent the shortage of donor organs. The following is a brief summary of liver transplantation procedures performed by our transplant team.

Living-Related Transplantation.

Living-related transplantation is a safe alternative to non-living liver transplantation. During this procedure, a portion of a family member's liver is transplanted to the patient.

Reduced-Size Transplantation.

To increase the availability of organs for potential recipients, reduced-size liver transplantation is performed. During the procedure, a larger organ from a non-living donor is surgically reduced in size for a smaller recipient.

Auxiliary Transplantation.

Auxiliary transplantation is a procedure where a portion of the donor liver is inserted next to the patient's own liver and used to temporarily support the patient's existing liver until the patient's own liver recovers.

Hepatocyte Transplantation.

Hepatocyte transplantation is an exciting non-surgical approach. The procedure, featured in the May 14, 1998 New England Journal of Medicine, transplants billions of liver cells from a donor liver through a catheter into the recipient's liver.

Waiting Time

The waiting time for liver transplantation that requires a donation from someone who has died is highly variable. The waiting time depends on the patient's blood type, body size and the severity of their liver disease.

For example, a patient who is well enough not to require hospitalization and who is waiting for a blood type O liver may wait as long as 18 months or more. For patients who are ill enough to require hospitalization, the waiting time ranges from a few days to several months.

Waiting times are dictated by the national liver allocation policy.

Transplant Team

Dr. Alan Langnas is chief of transplantation and director of the liver transplantation program and the intestinal program at The Nebraska Medical Center. Dr. Langnas earned his undergraduate degree from the University of Michigan. He received his D.O. from the University of Health Sciences College of Osteopathic Medicine in

Kansas City in 1982. He served his residency at Botsford General Hospital in Farmington Hills , Michigan , followed by two fellowships in transplantation surgery at Henry Ford Hospital in Detroit and UNMC. He is board certified in surgery and critical care surgery.

Dr. Michael Sorrell, medical director, is co-founder of the adult liver and small bowel transplantation program. He earned a Bachelor of Science degree from the University of Nebraska - Lincoln and his medical degree from the University of Nebraska Medical Center. He completed an internal medicine residency in 1968 and a gastroenterology residency in 1969 at UNMC. He was the driving force in securing the necessary funding to build The Lied Transplant Center. He is board certified in internal medicine.

Dr. Byers (Bud) Shaw is the chairman for the Department of Surgery and is co-founder of the liver transplantation program at The Nebraska Medical Center. Dr. Shaw completed his undergraduate work at Kenyon College in Gambier, Ohio and received his medical degree from Case Western Reserve University School of Medicine in Cleveland . He served his surgical residency at the University of Utah in Salt Lake City where he was chief resident of surgery in 1980-81. Dr. Shaw was granted a fellowship in transplantation surgery at the University of Pittsburgh from 1981-83 and was an assistant professor in the Department of Surgery at the University of Pittsburgh from 1983-1985. Dr. Shaw is board certified in surgery and critical care.

Dr. Ira Fox has been a member of our liver transplant team since 1992. He completed his undergraduate work at Harvard and earned his medical degree in 1976 from Columbia University in New York . He served as senior/chief resident at New England Deaconess Hospital in Boston . Dr. Fox completed an immunology research fellowship from 1979-81 in the Department of Pathology at Harvard Medical School and a transplant fellowship at the University of Pittsburgh School of Medicine. Dr. Fox has active appointments in the Department of Surgery at UNMC and the Omaha Veteran's Administration Hospital . He is board certified in surgery and surgical critical care.

Dr. Debra Sudan has been a member of the liver transplantation team since 1996. She earned a Bachelor of Science degree from Muskingum College in New Concord, Ohio in 1985. Dr. Sudan received her medical degree in 1989 from Wright State University School of Medicine in Dayton , Ohio . She completed her residency in general surgery at Wright State and earned fellowships in transplant research at New York University in 1992 and in transplantation surgery at UNMC from 1994-96. Dr. Sudan is board certified in surgery. She is also the director of the living donor liver transplantation program at The Nebraska Medical Center/UNMC.

Dr. Simon Horslen has been a member of the pediatric transplant team since 1998. The British-born physician earned his medical degree from the University of Bristol, England in 1984. Prior to his appointment at UNMC, Dr. Horslen served as lecturer in pediatrics at Sheffield University , England . This followed periods of training at King's College Hospital , a Hospital for sick children in London and the Royal Children's Hospital in Australia. He is a member of the Royal College of Physicians and has dual accreditation in general pediatrics and pediatric gastroenterology from the Royal College of Physicians.

Dr. Tim McCashland has been a member of the adult liver and small bowel transplantation team since 1993. He earned a Bachelor of Science degree at the University of Nebraska - Lincoln and his medical degree from the University of Nebraska Medical Center in 1987. He completed his residency in internal medicine at UNMC in 1990. Dr. McCashland served a fellowship in gastroenterology at UNMC before completing a fellowship in therapeutic endoscopy at Western General Hospital in Edinburgh , Scotland in 1993. Dr. McCashland is a board-certified physician in internal medicine and gastroenterology.

Dr. Daniel Schafer has been a member of the adult liver and small bowel transplantation team since 1990. He received his undergraduate degree from the University of Nebraska - Lincoln and his medical degree from the University of Nebraska Medical Center. In 1978 he completed his residency at UNMC before moving on to serve as clinical associate, liver diseases section, digestive disease branch at the National Institutes of Health in Bethesda, Md. Dr. Schafer is board certified in internal medicine and gastroenterology.

Dr. Rowen Zetterman has been a member of the adult liver-small bowel transplantation team since 1985. He received a Bachelor of Science degree from Nebraska Wesleyan University and his medical degree from the University of Nebraska Medical Center in 1969. Dr. Zetterman has been chief of the medical staff at The Nebraska Medical Center since 1997 and is chief of the medical staff at the Omaha Veteran's Administration Hospital . Director of clinical operations, department of Internal Medicine. He completed an internal medicine residency in 1971 and a fellowship in gastroenterology in 1972 from UNMC, in addition to a fellowship in hepatology and nutrition in the department of internal medicine at the New Jersey College of medicine at Newark in 1974. Dr. Zetterman is board certified in internal medicine with a specialty of gastroenterology.

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Small Bowel

The University of Nebraska Medical Center developed a liver-small bowel transplantation program in 1990. Due to the success of the program, we began offering isolated intestinal transplants in 1993.

Our dedication to research allows the program to greatly improve patient outcomes and to develop new and more effective treatment methods.

Our multidisciplinary team of medical professionals provides comprehensive patient care. Team members uphold expertise in hepatology, gastroenterology, psychology, child life development and surgery for adult and pediatric patients. Continuity of care is accentuated with specially trained transplant nurse coordinators, social workers, pharmacologists, patient financial advisors and volunteer services.

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Kidney

The Nebraska Medical Center Kidney Transplantation Program offers several types of transplant options for adults, adolescents and pediatrics. Those options include:

- Living Donor Kidney Transplants
- Deceased (Cadaver/Cadaveric) Donor Kidney Transplants
- Kidney/pancreas transplants
- Living Donor Kidney Transplants

For the first time ever, in 2001, living donor transplants exceeded deceased (cadaver) kidney transplants nationally. Living donor kidney transplants are accomplished when a healthy individual with two functioning kidneys agrees to have one of their healthy kidneys removed and “donates” it to someone who is on dialysis or will need dialysis in the very near future. Individuals who need dialysis have been determined by their physician/nephrologists to have end stage renal disease (ESRD) and thus, are potential candidates for a transplant.

Each year, the number of patients needing kidney transplantation increases while the number of cadaver donors has remained about the same. Recent studies show that patients who receive a kidney transplant not only have an improved quality of life but also live longer as a result of transplantation. Studies also show that patients transplanted before the initiation of dialysis or within the first six months of dialysis actually have improved outcomes.

Living donation has been successful because the risk of death and the risk of disease (to the donor) are very low. Donor selection is very important to ensure minimal risk to the donor. It is important for the transplant team to evaluate a donor’s overall health to determine that if it is satisfactory and to provide a safe surgical procedure.

Types of Living Donor Transplants

Living Related Donors - Individuals who are blood relation to the transplant recipient such as a parent, aunt, uncle, brother, sister, nephew, niece, etc.

Living Unrelated Donors - Individuals who are not a blood relation to the transplant recipient and may include a spouse, friend, neighbor, co-worker, brother-in-law, sister-in-law, etc.

Anonymous Donors - Individuals who offer to donate a kidney to an individual who is listed on the waiting list that they do not know. Their donation is made “out of the goodness of their heart” and with no financial gain. Anonymous Donors can further be defined as follows:

- *Altruistic/Good Samaritan* – an individual who wishes to donate to the general pool with no specific recipient in mind.
- *3rd Party Donor* – a relative or friend who wishes to donate but is unable to due to incompatible blood type or cross match. Instead, this individual can donate to the general pool, which in turn gives their friend or relative extra points on the list to improve their chances for a transplant (with a cadaver donor).
- *Paired Exchange* – an individual wishes to donate to a relative or friend but cannot because of incompatible blood types or cross match. If another pair is found in the same circumstance, an exchange may be possible between the two pairs.

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Pancreas

Pancreas Transplant Procedures

Pancreas transplantation has seen a number of advances over the last decade which have helped minimize the shortage and have provided greater options for transplant recipients. There are a number of transplant procedures available, developed to circumvent the shortage of donor organs. The following is a brief summary of pancreas transplantation procedures performed by our transplant team.

Insulin is a hormone that helps the body use glucose for energy. If the beta cells do not produce enough insulin, diabetes will develop. Type I diabetes is an auto-immune process causing the body's immune system to destroy the beta cells. With whole organ pancreas transplant, it is necessary to transplant both the exocrine and endocrine function and it is necessary to provide a method of drainage of the amylase (which is not needed) and provide the insulin (which is needed). There are two options for drainage of the amylase – bladder drainage or enteric (bowel) drainage.

Bladder drainage – the head of the transplanted pancreas is attached to the bladder to allow the pancreatic duct to drain the amylase and enzymes produced into the bladder where it is emptied out with the urine. The bladder drainage provides a unique method of rejection monitoring by measuring the amount of amylase in the urine. The higher the amylase production, the less concern there is for rejection.

The disadvantages of bladder drainage include irritation of the bladder, urethra, and/or head of the pancreas (pancreatitis) leading to bleeding and urinary tract infections. The excess loss of fluid through the pancreatic duct also leads to dehydration particularly in the first few months after transplant.

Enteric (bowel drainage) – the head of the transplanted pancreas is attached to the bowel to allow the pancreatic duct to drain the amylase and enzymes into the bowel. The advantages of enteric drainage include a decrease in urinary tract infections, pancreatitis, and dehydration. The disadvantages of enteric drainage include a bowel leak where the pancreas is connected to the bowel, an abdominal abscess, and the inability to monitor the amylase reading to determine rejection.

The decision regarding the type of pancreas drainage will be made by the transplant team at the time of the transplant and will depend on many factors including type of transplant (pancreas alone versus simultaneous kidney/pancreas), quality of the donor, number of previous transplants, rejection concerns, etc.

Why is pancreas transplant necessary?

Diabetes mellitus is the leading cause of end-stage-renal disease (ESRD) accounting for 33 percent of newly diagnosed patients with renal failure every year. Individuals with Type I Diabetes Mellitus have insufficient insulin production leading to elevated blood sugars, which must be controlled, with insulin injections and diet. Normally, insulin is produced in the pancreas by islet cells. Healthy islet cells respond to the body's glucose level, producing the right amount of insulin and preventing complications caused by blood sugar imbalance. Because of the blood sugar imbalance, diabetics experience many long-term complications to their disease, which can include nephropathy (kidney failure), retinopathy (possible blindness), neuropathy (impairment to the nerves of the hands and feet), gastroparesis (“diabetic” stomach or bowel), and cardiovascular disease (heart attacks, strokes, amputations).

Pancreas transplantation has become an acceptable treatment option in carefully selected Type I diabetic patients. A pancreas transplant involves transplanting a donor pancreas into the recipient's abdomen.

Steroid-Free Protocol

The Nebraska Medical Center Kidney and Pancreas Transplant Program instituted Steroid-Free Protocol in 2001, which eliminates the use of steroids during the transplantation process. Most patients are candidates for this process. Steroids are responsible for many long-term side effects including: weight gain, moon face, acne, osteoporosis, deterioration of the

joints, elevated blood sugars, development of diabetes, cataracts, gastric ulcers, and increased cardiac risk, among others. Eliminating steroid use by using newer, equally effective immunosuppression agents can provide tremendous benefits to the patient without the increased risk of rejection.

Steroids (corticosteroids, prednisone, deltasone, medrol) have been used in organ transplantation for many years and have served as a critical agent to prevent rejection, making transplantation possible. New immunosuppression (anti-rejection) agents have lowered the risk of rejection and furthered the success of transplantation. With the lowered risk of rejection, emphasis has been placed on improving the long-term wellness in transplant recipients.

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Heart

Heart transplantation involves removing the diseased heart and replacing it with a healthy heart from an organ donor. In order to remove the donor heart from the donor, the donor must be declared brain-dead.

Once a patient has been approved for transplant, then he/she is placed on a waiting list. This list is a national data base and includes information that will help to identify the most closely-matched organ possible for the recipient. Waiting time may be only a few days or a few weeks, but sometimes it may take months or longer before an acceptable organ is found. While waiting, the patient will be closely followed by his/her physician.

The patient will remain out of the hospital for as long as his/her condition allows. If the condition worsens, the patient may be admitted to the hospital for more intensive therapy. Sometimes, a few days in the hospital is sufficient to improve the patient's condition and the patient may return home. However, it is possible that the heart's condition may worsen to the point that the patient is unable to leave the hospital. At this point, the patient's condition may be changed on the waiting list to indicate a worsening condition, thus giving that patient a higher priority for suitable organs that become available.

Once a suitable heart has been found, a team of physicians will go to the location of the donor and will examine the heart (and other organs) to make sure it is appropriate to use for transplant. If the heart is acceptable, the physicians will remove the heart from the donor, place it in a special solution to help preserve it, place it in a cooler, then return to the hospital to perform the transplant operation.

While the team of physicians is obtaining the donor heart, the recipient is prepared for the heart transplant operation. Once the hospital receives notification that the donor organ is acceptable, the patient is given final preparation for surgery and is taken to the operating room. The diseased heart is removed, and the donor heart is attached. The patient is then taken to the intensive care unit (ICU) to recover from the surgery.

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Orthopedic Overview

Diagnosis and Treatment

The Department of Orthopaedic Surgery and Rehabilitation is a team of dedicated, caring health professionals who specialize in an interdisciplinary approach to the prevention, diagnosis, and treatment of musculoskeletal disorders in

children, adolescents, and adults. Our department provides quality, cost-effective care to more than 35,000 patients each year from Nebraska, the Midwest, and around the world. Orthopaedic surgeons work closely with caring and experienced nurses and consult with physicians in other medical specialties to provide the latest comprehensive care in the following areas:

Adult Reconstruction and General Orthopaedics:

Surgeons in adult reconstruction specialize in the surgical treatment of bone and joint disorders and play an important role in the development of joint arthroplasties, corrective osteotomies, implants, biomaterials, bone, cartilage, and soft tissue research. Post-traumatic, inflammatory and degenerative problems of all joints including the knee, hip, elbow and shoulder are successfully treated hundreds of times per year. Surgeons perform joint sparing procedures such as tibial, femoral and acetabular osteotomies. Surgeons consult with and receive assistance from the departments of Internal Medicine, Radiology, Psychiatry, and other medical and surgical subspecialties. Hundreds of total knee and total hip arthroplasties are conducted each year, with a strong emphasis on the complex revision cases. The clinical joint replacement activity is supported by a strong biomechanics laboratory which is growing into a leading international simulation and testing research facility for total knee replacement implants.

Foot and Ankle Surgery:

Orthopaedic foot and ankle surgeons are experts in managing both complex and common reconstructive foot and ankle problems. Using an integrated team approach, physicians treat foot deformities resulting from fractures, overuse, or osteoarthritis with conservative management techniques or with surgical reconstruction. Our team of experts also manages disorders such as bunions, and problems in the heel, ankle, toe and forefoot areas.

Orthopaedic Oncology:

Orthopaedic Oncology strives to provide expert interdisciplinary care for a variety of benign and malignant bone and soft tissue malignancies and tumor-like conditions. A team of surgeons, radiologists, pathologists, medical and radiation oncologists, and allied health professionals at UNMC's Eppley Cancer Center render individualized care of the highest quality. Bone and soft tissue tumors in all areas of the axial and appendicular skeleton are addressed. We emphasize a modern approach to preservation of skeletal function, and often use bone allografts and custom prosthetic implants.

Hand Surgery:

Orthopaedic surgeons receive special training in hand surgery to treat conditions affecting the hand and wrist. Conditions such as rheumatoid arthritis, degenerative arthritis, or post-traumatic arthritis can often be relieved by advanced reconstructive surgeries including hand and wrist fusions or joint replacement procedures for the wrist, thumb, and fingers. Advanced methods of nerve decompression surgery are also performed with several techniques of open and arthroscopic carpal tunnel decompression. Hand surgeons also specialize in treating and repairing congenital hand deformities and brachial plexus injuries. Physicians treat patients in consultation with pediatricians, neurologists, and occupational therapists.

Trauma Service:

The hospital of the University of Nebraska Medical Center offers a level 1 Trauma Center. The specialty team evaluates and treats fractures and dislocations, both common and complex. Poly-traumatized patients and those with long-bone and pelvic trauma benefit from a full array of emergency services, diagnostic imaging, and consultation with a variety of subspecialty medical and surgical services. Trauma Team physicians use techniques of internal, intramedullary and external fixation, as well as microvascular techniques for the repair of fractured and damaged joints and soft-tissues. An outpatient clinic is also available for long-term follow-up.

Pediatric Orthopaedics:

Specially trained pediatric orthopaedic surgeons are dedicated to the care of all musculoskeletal problems in infants,

children, and adolescents. These physicians treat limb and spine deformities (clubfeet, scoliosis, hip dislocations, for example); gait abnormalities; bone and joint infections; and fractures and dislocations of the arms, legs, and spine. A full range of supportive care such as physical therapy and medical specialty care ensures the highest level of treatment for complex problems. Children with spina bifida, cerebral palsy, muscular dystrophy and other congenital and developmental problems receive coordinated care in pediatric orthopedics.

Sports Medicine:

Both competitive and recreational athletes can occasionally have injuries or illnesses that limit their optimal performance. The purpose of sports medicine is to treat sports-related injuries and help athletes return to their sport as quickly as possible. The sports medicine physician deals with a variety of ailments including strains and sprains, ligament or cartilage injury of the major joints such as the knee, shoulder and ankle, instability of the major joints, and running injuries.

Shoulder and Elbow:

The Shoulder and Elbow Service, a specialty service of UNMC's Department of Orthopaedic Surgery and Rehabilitation, provides comprehensive evaluation and management for a wide range of shoulder and elbow problems, including arthritis; dislocation or instability; fractures; rotator cuff tears and tendon tears; joint stiffness; and complications due to unsuccessful previous surgery. Our team consists of a shoulder and elbow specialty-trained physician, orthopaedic surgery residents, therapists, and nurses who use a multi-disciplinary approach to care for patients. At UNMC patients also have access to world-class experts that can assist in the formulation of diagnoses and treatment plans. Non-surgical and surgical treatment options are considered. Surgery may be performed in arthroscopic or open fashion depending on the problem. Treatment may range from exercises to reconstructive surgery. Our goal is to maximize joint function. The entire team will be an integral part of rehabilitation with or without surgery.

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Pathology Overview

Clinical Laboratory

Our clinical laboratory continues to meet the enormous challenges of contemporary medicine. Extensive research and development is occurring in the clinical laboratories, especially with the major expansion of laboratory automation and molecular diagnostics. The laboratory staff focuses on quality service to patients.

For example, with over 40 different types of lymphoma, it is imperative that the specific cancer be properly identified in order for the doctors to form the best strategy against this disease. UNMC has expert hematopathologists who are well known nationally and internationally.

Molecular Diagnosis

Genetics Laboratory Evaluation and Treatment

The Munroe-Meyer Institute for Genetics and Rehabilitation (MMI), on the University of Nebraska Medical Center campus, provides a unique range of services for individuals with disabilities. Munroe-Meyer Institute provides comprehensive medical and related health care services through interdisciplinary clinics and evaluations, or single discipline assessments and treatment.

Neurology Overview

Nebraska Medical Center is home to a Comprehensive Epilepsy Center serving Nebraska and the surrounding region and is providing new hope and opportunities to people with Epilepsy. The Center is led by a Board Certified epileptologist, Sanjay Singh, M.D., and employs a comprehensive four-phase monitoring and treatment program using some of the most advanced diagnostic equipment available. This sophisticated technology enables our doctors to accurately pinpoint the site of a seizure and type of Epilepsy.

For hundreds of years, Epilepsy was once a condition that was difficult to treat and that few physicians clearly understood. Today, however, thanks to medical advancements, many of the 2.3 million people affected by Epilepsy, are treated successfully and live normal and productive lives. In Nebraska, approximately 20,000 people are affected by Epilepsy. About 6,000 of these individuals have intractable Epilepsy, the most difficult to treat, and require specialized care.

The UNMC Epilepsy Center offers several new and promising treatment options that are helping patients with even the most difficult to treat Epilepsy cases. Many of these patients do not respond well to medications and may be considered candidates for resective surgery or vagal nerve stimulation. Both procedures offer new hope to patients who in the past, had no options past medications.

Epilepsy is a symptom that can be caused by any disease or trauma that affects the cortex of the brain. Sometimes called a seizure disorder, it is a chronic medical condition produced by temporary changes in the electrical function of the brain, causing seizures that affect awareness, movement or sensation.

The study and treatment of Epilepsy is a rapidly changing and advancing field. In fact, physicians have learned more about the brain in the last few years, than they have in the last 400 years. New advancements in imaging techniques such as MRI, PET and SPECT scans are allowing physicians to see more clearly into the brain and have revealed that many patients develop seizures as a result of developmental abnormalities. Understanding the function and developmental processes of the brain are critical to the treatment and management of Epilepsy. This knowledge has resulted in new and better medications. For instance, 10 years ago, there were only four or five drugs available to treat Epilepsy. Today, there are as many as 12 drugs, in addition to several new surgical techniques.

Types of seizures

Generalized seizures – Massive bursts of electrical energy sweep through the entire brain simultaneously, causing loss of consciousness, falls, convulsions or massive muscle spasms.

Partial seizures – These are the most common type of seizures, affecting 60 percent of people with Epilepsy. The seizures start in one part of the brain and may stay there or move to other parts of the brain and affect whatever physical or mental activity that area controls.

Simple partial seizures – Patients experiencing these types of seizures usually don't lose consciousness, but can affect movement, emotion sensations and feelings.

Complex partial seizures – During this type of seizure, a person cannot interact normally with others and is not in control of his movement, speech or actions and may not have any recollection of the incident later. These seizures often take place in one of the brain's two temporal lobes. This is called “temporal lobe Epilepsy.”

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