

ST ALEXIUS MEDICAL CENTER
Cancer Annual Report
2011



Published December 2011
2010 Data

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*The St. Alexius Medical Center's
Cancer Program is accredited by
the American College of Surgeons
Commission on Cancer (CoC).*



Mission

Based on the Gospel values and our own heritage of healing, the mission of St. Alexius Medical Center is to use our presence as a means of touching and caring for people in a Christ-like manner, and to always exhibit the hospitality as reflected in the Rule of St. Benedict: *“Let all be received as Christ.”*

Vision

The vision of St. Alexius Medical Center is to use our presence to extend Christ’s healing ministry through excellence of service, collaborative relationships and a commitment to quality to those we serve.

Values

Community

A coming together of people who commit themselves to a mission, caring for and challenging each other to use their personal gifts and skills to serve.

Respect

Giving and showing reverence, esteem and consideration for self and others.

Stewardship

Working together to care for all resources for the good of all people.

Healing Presence

An atmosphere that affirms the whole person: body, mind and spirit.

Personal and Professional Growth

An ongoing commitment to expand knowledge and develop skills in order to enhance service, improve quality and reach one’s fullest potential.

St. Alexius Cancer Program

St. Alexius Medical Center is proud to be recognized as an accredited cancer program, approved by the American College of Surgeons Commission on Cancer with commendation. This award means that, in addition to meeting all 36 standards of care, St. Alexius Medical Center was commended for exceeding the standards in multiple areas. The dedicated team of physicians, nurses and staff at St. Alexius is not resting on its laurels and has set a series of goals designed to continually improve our high level of cancer care.



2011 Cancer Committee Members

Physician Members

<i>Tarek Dufan, MD (Chair 04/2010)</i>	Radiation Oncologist
<i>John Watkins, MD (Co-chair 04/2010)</i>	Radiation Oncologist
<i>Ferdinand Addo, MD</i>	Medical Oncologist
<i>William Altringer, MD</i>	Surgeon
<i>Ward Fredrickson, MD</i>	Pathologist
<i>Shiraz Hyder, MD</i>	VP Medical Affairs/Neurologist
<i>Jayaram Bharadwaj, MD (Co-Cancer Liaison Physician)</i>	Medical Oncologist
<i>Doug Peterson, MD</i>	Radiologist
<i>Vijay Rao, MD (Co-Cancer Liaison Physician)</i>	Medical Oncologist

Non-Physicians

<i>Ken Dykes, MPA</i>	Bismarck Cancer Center Director
<i>Donna Gage, MSN</i>	Cancer Program Administrator
<i>Sheila Geffre, RN</i>	Cancer Program Coordinator
<i>Julie Jeske, MBA</i>	Vice President of Community Services
<i>Joan Johnson, RPh</i>	Pharmacist
<i>Shrikant Kubsad, PhD</i>	Medical Physicist
<i>Joan Galbraith, RPh</i>	Clinical Research Director
<i>Liz Meidinger, LSW</i>	Social Worker
<i>Linda Rambough, RN</i>	Oncology Nursing
<i>LeAnn Hokanson, RN</i>	Oncology Nursing
<i>Colette Rudolph</i>	Hospice/HC Coordinator
<i>Tara Schilke, RN</i>	BCC Oncology Program Coordinator
<i>Rosanne Schmidt, RN</i>	Administration
<i>Sandy Tschosik, RN</i>	Community Health Services Coordinator
<i>Karen Waliser, RN</i>	Quality Improvement
<i>Tracy Wildeman, CTR</i>	Cancer Registry Director

Lung Cancer Research

Mindy Sturn, Business Development and Regulatory Specialist
Joan Galbraith, BS, RPh, Pharmacy Quality and Clinical Research Manager
St. Alexius Medical Center's Clinical Research Services

According to the American Lung Association, lung cancer is the second most commonly diagnosed cancer among men and women. Lung cancer is difficult to detect in its early stages, making it the most fatal cancer diagnosis for both men and women. This is why research is so important; not only to find a cure and hopefully extend life expectancy but also to attempt to detect lung cancer in its early stages.

The current treatment options utilized by lung cancer patients are surgery, chemotherapy and radiation therapy. The type of treatment depends on the location, stage, and size of the tumor and also whether it has metastasized to other parts of the body. There has been a recent increase in new treatment options for lung cancer. Some of these are currently underway in clinical trials while others have been approved for use in lung cancer patients. The following are some of the new treatment options:

- **Targeted Therapies:** Targeted cancer therapies are developed to treat only the cancer cells therefore sparing the normal cells in the body from damage. These therapies include monoclonal antibodies, anti-angiogenesis drugs, and growth factor inhibitors.
 - » *Monoclonal antibodies:* These biologically engineered molecules have one portion that zeroes in on the cancer cells while the other part delivers a medication or radiation directly to the cancer cell.
 - » *Anti-angiogenesis:* Angiogenesis is the process of forming new blood vessels which allow cancer cells to grow and spread to other parts of the body. Scientists are currently studying angiogenesis inhibitors that would block the formation of new blood vessels.
 - » *Growth factor inhibitors:* Cancer cells grow rapidly. They often are able to create substances called growth factors that promote their own growth. New drugs have been developed that block the effects of these growth factors, preventing the cancer cells from growing.

Targeted therapies allow for a better way for physicians to customize their cancer treatment options.

Other new cancer treatment options in development are:

- **Photodynamic Therapy:** This type of therapy uses light to illuminate cancer tissue and activate drugs. This is an ongoing area of research that is showing promise.
- **Lung Cancer Vaccines:** Cancer vaccines are being developed to help treat cancer that already exists. Vaccines utilize the body's immune system to fight diseases by transforming cancer cells so that they are no longer cancerous, but still have components that the body's immune system will recognize as foreign and develop a defense against.

- **Gene Therapy:** This is an ongoing area of research that is showing much promise. Scientists are studying the genetic changes in cancer cells and trying to find ways to correct those changes.

Other cancer treatments include:

- **Maintenance Therapy:** The idea behind this type of therapy is to extend the duration of the response to the initial treatment. Patients whose tumors regress during their first line treatment would undergo continual treatment to maintain this response.
- **Palliative Care:** The goal of palliative care is not to cure a disease, but relieve symptoms. Palliative care has been shown in clinical trials to not only improve quality of life but also provide for longer median survival rates. It provides patients with the tools and education needed to make more sound decisions about their medical care.

St. Alexius Medical Center's Clinical Research Services conducts a wide variety of trials through St. Alexius Medical Center, Mid Dakota Clinic, PC, Bismarck Cancer Center, and FEK Addo PC Clinic. St. Alexius Medical Center's Clinical Research Services, along with the physicians we serve, strives to provide cutting-edge research opportunities to lung cancer patients as well as patients suffering from health conditions in all areas.

Clinical Research Services does not currently have any lung cancer studies open for enrollment; however in the past we have completed some very promising trials in a variety of treatment types. We do have studies open in other areas of oncology. Currently, we have a study open for breast cancer patients who have completed treatment with trastuzumab as part of their therapy. After trastuzumab therapy, patients in the trial start on an oral investigational drug to help prevent their erb2 (Her-2 neu) positive breast cancer from returning, or to determine if it may help to delay the time until the cancer returns. We also have a study open for patients with colorectal cancer. This study is being done to see how safe an investigational new drug is when combined with an already approved drug, capecitabine (Xeloda®) without causing serious side effects.

The therapies mentioned in this report are just some of the areas of ongoing research for not only lung cancer but other cancer types as well. Many are showing great promise and some are already approved by the FDA for treatment of patients with cancer. Trials may focus on treatment, extending survival and/or improving the quality of life. It is our hope that research will improve our understanding and knowledge of the disease and increase the options available to our patients at St. Alexius.

Outreach Activities and Support Groups

St. Alexius has a long-standing tradition of meeting the healthcare needs of the communities we serve. It is through this interactive connection we live our mission of letting all be received as Christ. We continue to focus our outreach programs on improving the health and wellness of the people in our region.

In 2009, St. Alexius hired a community health services coordinator. The coordinator's role is to educate the general public on the benefits of early detection and intervention as well as promote health and disease prevention. This is accomplished through a series of St. Alexius sponsored health screens and by planning and participation in numerous health-related events. St. Alexius' Marketing department works with the community health services coordinator to promote the screens and to create awareness regarding the importance of preventative exams.

St. Alexius Medical Center provides low cost or free health counseling, blood pressure, cholesterol, blood sugar and bone density heel scans, as well as weight, height, and body mass index (BMI) checks. Other screens offered include sleep apnea and peripheral vascular.

Screenings

Screening increases the chances of detecting certain cancers early, when they are most likely to be curable. Throughout 2010, St. Alexius Medical Center held 68 low-cost or free health counseling, PSA with DRE and stool for occult blood, pulmonary function (PFT), blood pressure, cholesterol, blood sugar, COPD, memory, balance and dizziness, and bone density heel scans, as well as weight, height, and body mass index (BMI) checks. These screens were conducted at St. Alexius' clinic in Minot and at our Mandan clinic. Other screens offered include sleep apnea and peripheral vascular. In all, 3,450 people were screened

Support Groups

Support groups help maintain interpersonal contact among its members and provide participants with various types of help. The help may take the form of evaluating relevant information, relating personal experiences, listening to and accepting others' experiences, providing sympathetic understanding and establishing social networks.

Hope & Healing Spiritual Support Group meets from 7-9 p.m. at New Song Community Church the first four Tuesdays of every month. Hope & Healing offers community members support for all of life's challenges.

Look Good; Feel Better is held at 2 p.m. the second Monday of each month at Bismarck Cancer Center.

Cancer Support Group meetings begin at 5:15 p.m. the third Thursday of each month at Dr. Addo's Hematology/Oncology office.

Bismarck Cancer Center Spiritual Care Program is coordinated through Bismarck Cancer Center and provides weekly visit to patients and families.

Cancer Support Group is held at Lord of Life Church the second Thursday of each month beginning at 7 p.m.

Caregiver Support Group meets at 12 p.m. the first and third Monday of each month at Good Shepherd Lutheran Church. Good Shepherd also sponsors a general grief support group as well as a widow support group.

Community Education

Freedom From Smoking®

According to the Centers for Disease Control (CDC), cigarette smoking causes lung cancer, and is the major risk factor for lung cancer. In the US, approximately 90 percent of lung cancer deaths in men and nearly 80 percent of lung cancer deaths in women are due to smoking. The CDC also reports people who smoke are 10 to 20 times more likely to get lung cancer or die from lung cancer than people who do not smoke. The longer a person smokes and the more cigarettes smoked each day increases that risk.

Since 2002, St. Alexius Medical Center has played host to the American Lung Association's Freedom From Smoking Program. Freedom From Smoking is sponsored and funded by Bismarck Burleigh Public Health through tobacco settlement dollars. The original facilitators included a registered respiratory therapist (RRT) from St. Alexius and an employee with Bismarck Burleigh Public Health. Today, the classes are facilitated by two RRT's who are specially trained in the program.

The program includes seven sessions in a six week time frame. The program assists the participant with behavior modification, nicotine addiction, as well as maintenance techniques such as weight management, stress relief, and choosing an overall healthy lifestyle. Participants enrolled in the class who attend all sessions receive a voucher (\$100 value) toward nicotine replacement therapy. These vouchers can be redeemed at St. Alexius Community Pharmacy or Gateway Pharmacy (South Dan's location only).

In 2010, approximately 30 participants enrolled in the Freedom From Smoking program held at St. Alexius Medical Center. Burleigh County Health Department reassesses the grant and Freedom From Smoking's success on an annual basis to determine whether another session will be held the following year. For 2011, St. Alexius has been approved to host three classes.

Featured Cancer Site

Lung Cancer

John Watkins, MD, Radiation Oncologist at Bismarck Cancer Center



Throughout the world, lung cancer is the most common cause of death due to cancer in both men and women. In the United States, approximately one out of every 14 men and women will be diagnosed with cancer of the lung at some point in their lifetime. An estimated 221,130 Americans will be diagnosed with primary lung and/or bronchial cancer in 2011, with 156,940 deaths.¹

Lung cancer is predominantly a disease of the elderly; almost 70 percent of people diagnosed with lung cancer are over 65 years of age, while less than three percent of lung cancers occur in people under 45 years of age. Currently, there are more than 400,000 lung cancer survivors in the United States.²

There are two major types of lung cancer; small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). Each is treated very differently. Lung cancers can start in the cells lining the bronchi and parts of the lung such as the bronchioles or alveoli. They are thought to start as areas of pre-cancerous changes in the lung.

The incidence of lung cancer is strongly correlated with cigarette smoking, with about 90 percent of lung cancers arising as a result of tobacco use. The risk of lung cancer increases with the number of cigarettes smoked and the time over which smoking has occurred.

Other risk factors associated with lung cancer include:

- Second-hand smoke
- Asbestos fibers
- Genetics
- Radon gas
- Lung diseases
- Air pollution
- Prior history of lung cancer

St. Alexius Medical Center and Bismarck Cancer Center offer the latest lung cancer treatment options, as well as access to clinical trials of experimental therapies. Treatment is based on the type and stage of tumor present and the patient's overall health. Options include surgery, radiation, chemotherapy or a combination of treatments.

Treating Lung Tumors in 4D

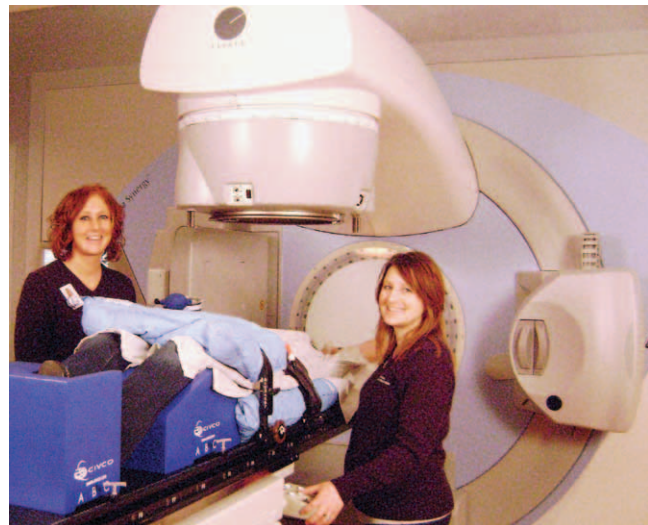
Shrikant Kubsad, PhD, Medical Physicist at Bismarck Cancer Center



Not all tumors are fixed in the body. Because a patient's breathing causes lung tumors to shift position from day to day during the course of treatment, they are one of the most challenging radiation therapy targets. Previously, doctors at Bismarck Cancer Center used external skin surface markers or implanted markers to estimate lung tumor position and then applied the radiation beam only during certain times in a patient's respiration. This required complex, time-consuming planning and delivery, and prolonged treatment with an inefficient stop-start beam delivery...until now.

The groundbreaking Elekta 4-dimensional imaging technology for treating specific cancerous tumors has arrived at Bismarck Cancer Center. The Elekta provides a quicker, more targeted approach to delivering treatments and promises to advance lung tumor radiation therapy by enabling doctors to visually confirm a tumor's position during the breathing cycle.

Dr. Shrikant Kubsad, director of medical physics with Bismarck Cancer Center, states the Center is proactive in obtaining cutting-edge technology. "We are the first and only cancer center in North Dakota to offer patients this groundbreaking technology for treating specific cancerous tumors. Knowing the position of the tumor allows our technicians to deliver higher doses of radiation in fewer treatments with greater effectiveness." This 4D data helps to visualize the tumor position and allows doctors to understand the positional relationship between the target and organs at risk.



According to Dr. Kubsad, Elekta's new 160 leaf collimator, and precision treatment table allows for the patient to be adjusted so the radiation beams accommodate the slightest internal movements of organs and tissues during breathing and deliver the prescribed dose to the tumor with high degree of conformity. Dr. Kubsad is quick to point out that it is their excellent staff and their compassionate service to patients that make Bismarck Cancer Center the outstanding facility it is today. "As our mission statement says, 'we offer hope for the future, help for the community and healing for the whole patient.'"

Looking forward, Bismarck Cancer Center's objective is to match both of its accelerators with the same capabilities. "We want to maintain continuity of treatment to patients and reduce any potential downtime to nearly zero." The new accelerator and upgrade is scheduled for July 2013.

Statistical Analysis

Lung Cancer Diagnosis and Treatment at St. Alexius Medical Center

Based on 2010 Cancer Registry Data

Lung cancer is one of the most widespread types of cancer found in the US. One out of eight tumors reported in the US in 2008 (the year of the most recent national data available) were lung neoplasms.³ The two main histologies of lung cancer, based on microscopic examination of the cells, are small cell lung cancer and non-small cell lung cancer. Non-small cell lung cancer is the most common, and is subdivided into squamous cell carcinoma, large cell carcinoma and adenocarcinoma.

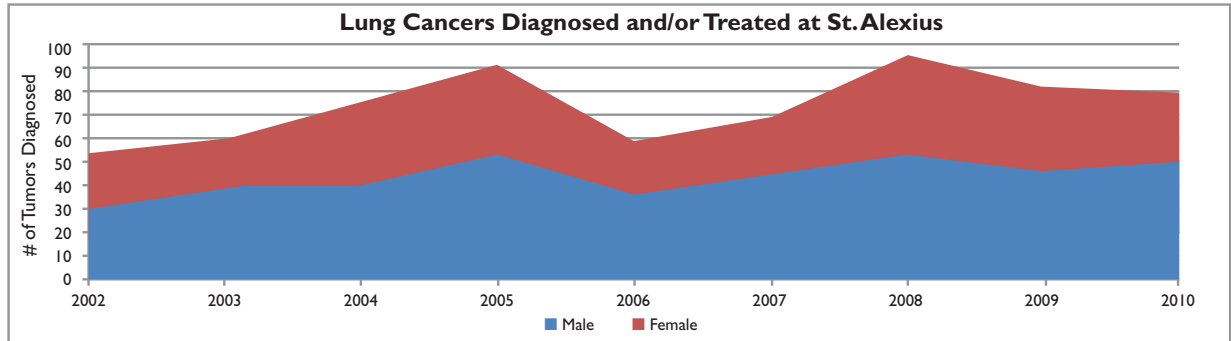
It is projected that one in 14 Americans will be diagnosed with lung cancer in their lifetime. According to the National Cancer Institute, over 221,000 new cases are expected to be diagnosed in the US in 2011.³ Smoking has been proven to be the most common cause of lung cancer. Other risk factors include secondhand smoke, exposure to asbestos and radon.⁴ Living in an area with higher air pollution has also been linked to increased non-small cell lung cancer.⁵

Most Frequently Occurring Cancers Diagnosed or Treated at St. Alexius Medical Center

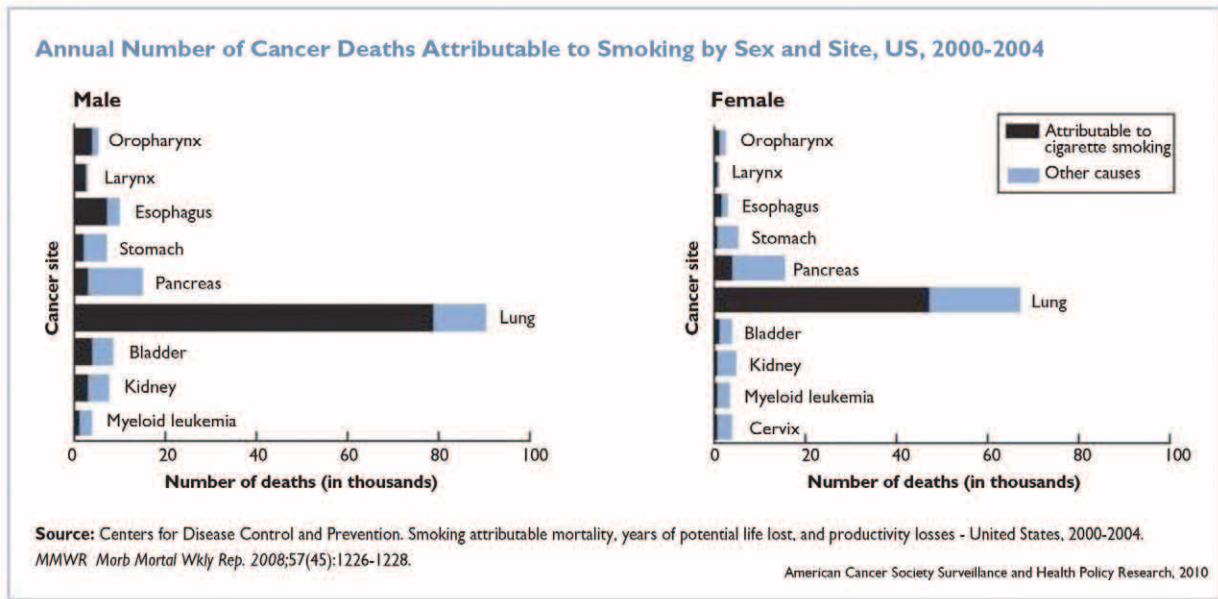
Lung cancer is the third most common cancer at St. Alexius (following prostate and breast tumors) and the second most frequently diagnosed in the nation.

Top Cancer Sites at St. Alexius Medical Center	# 2010	% 2010	# 2002 - 2010	% 2002 - 2010	% US 2008⁷
Prostate	116	18.6%	649	14.8%	11.9%
Breast	100	16.0%	710	16.2%	17.9%
Lung	80	12.8%	667	15.2%	13.8%
Bladder	40	6.4%	210	4.8%	4.1%
Colorectal	31	5.0%	365	8.3%	9.5%
Hematopoietic	30	4.8%	198	4.3%	4.1%
Kidney	25	4.0%	162	3.7%	3.5%
Thyroid	20	3.2%	192	4.4%	2.8%
Leukemia	18	2.9%	105	2.4%	1.2%
Corpus Uteri	17	2.7%	136	3.1%	3.1%

Nationwide, lung cancer incidence is decreasing in men, from a high of 102.1 cases per 100,000 people in 1984 to 71.3 cases in 2006. In women, the rate is approaching a plateau (63.1 per 100,000) after a long period of increasing incidence.⁶ At St. Alexius, however, the proportion of men versus women is increasing from 29 of 54 lung cancer diagnoses (54 percent) in 2002 to 49 out of 80 tumors (61 percent) in 2010.

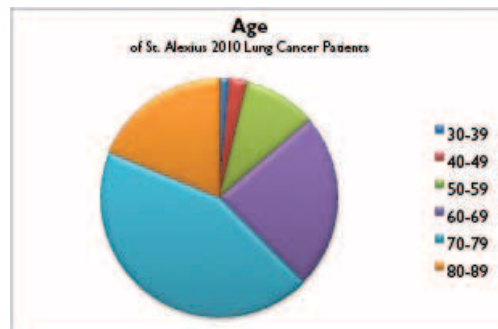


Lung cancer is the leading cause of cancer related deaths in both men and women. It is estimated that 157,300 lung cancer related deaths occurred in the US in 2010, accounting for approximately 28 percent of all cancer deaths. The death rates are following the diagnosis rates between the genders, with death among men declining, while the rate among women is reaching a plateau⁶. Of the 80 lung cancer cases here in 2010, 73 patients were identified as current smokers or had used tobacco in their lifetime.



Age

Nearly half of the lung cancers diagnosed at St. Alexius in 2010 were in patients between ages 70 and 79. Only three patients were less than 50 years old.

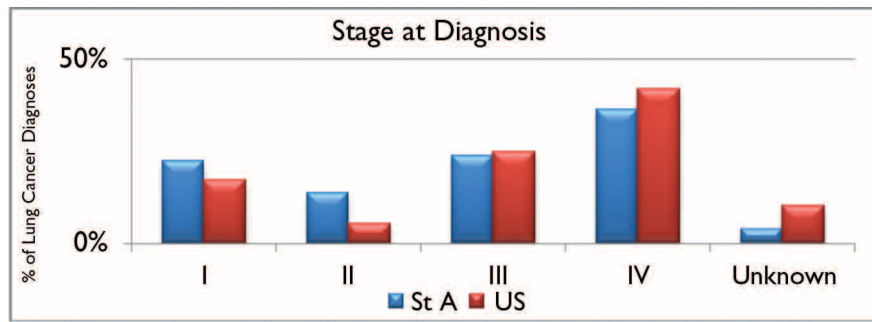


Stage

The stage of cancer describes the extent of the disease in the body, both in size and how much the cancer has spread through the body. This is a common language for physicians to discuss the disease and how to treat it. Using broad generalizations, the stages are:

- Stage I The tumor is confined to the lung. The tumor is smaller than 3 cm.
- Stage II The cancer is confined to the chest, including lymph nodes. The tumor is between 3 and 7 cm in size.
- Stage III The tumor is larger than 7 cm and is still confined to the chest.
- Stage IV The cancer has spread (metastasized) beyond the chest.

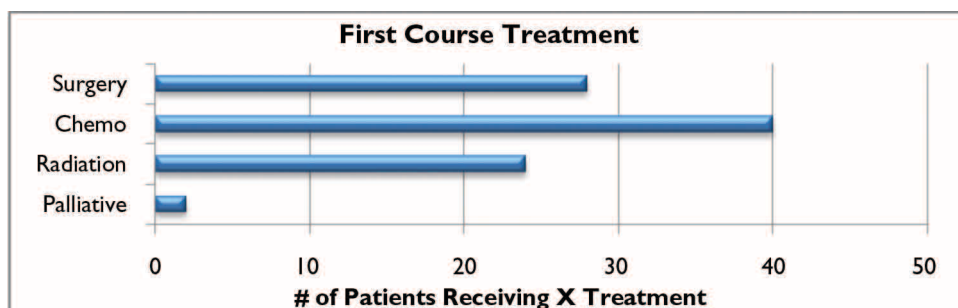
Stage at diagnosis is critical to the prognosis of all cancer, and even more so in lung cancer. The earlier it is detected, the better the chance of survival. Unfortunately, lung cancer is often diagnosed in later stages, both at St. Alexius and nationwide.



Nearly one out of four lung cancers are diagnosed in Stage I at St. Alexius and one in seven is identified in Stage II. Sixty percent of lung cancers that are found at St. Alexius have reached Stage III or IV. As shown in this graph, St. Alexius is ahead of the national averages, where two out of three tumors are not found until Stage III or IV.

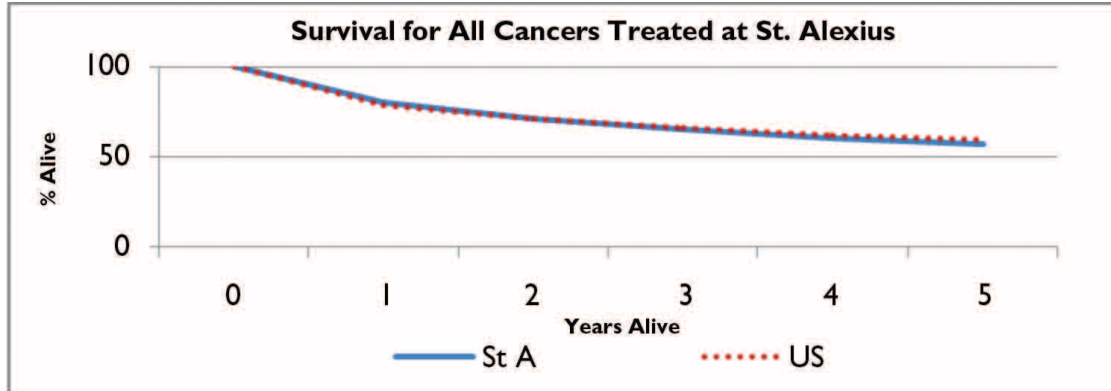
First Course of Treatment

The first course of treatment of lung cancer following diagnosis includes surgery, chemotherapy and/or radiotherapy. If the disease is too advanced, pain management (palliative care) may be the only course of treatment pursued. Of the 67 lung cancer patients diagnosed at St. Alexius in 2010, 15 patients went to other facilities for treatment or chose not to undergo further treatment at all. 13 of the lesions treated at St. Alexius were diagnosed in other facilities. The following chart shows the methods of treatment for patients at St. Alexius. Many patients underwent more than one type of treatment.

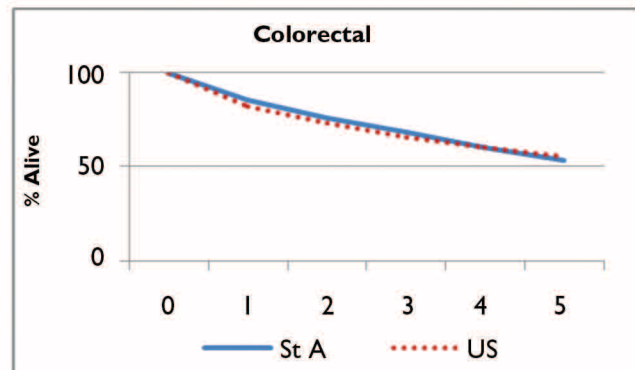
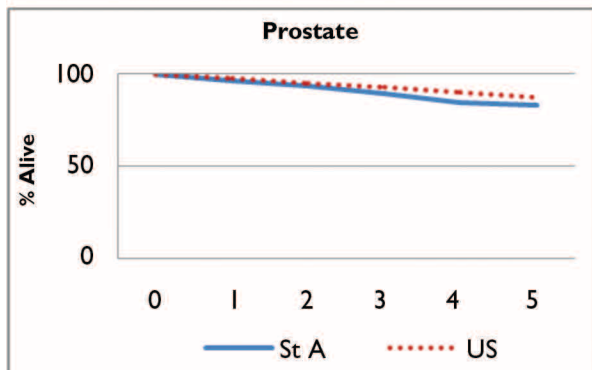
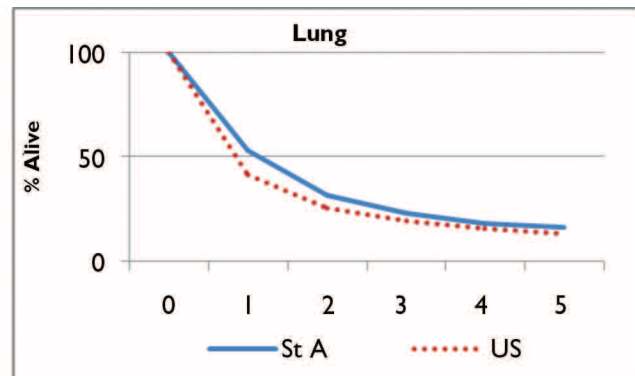
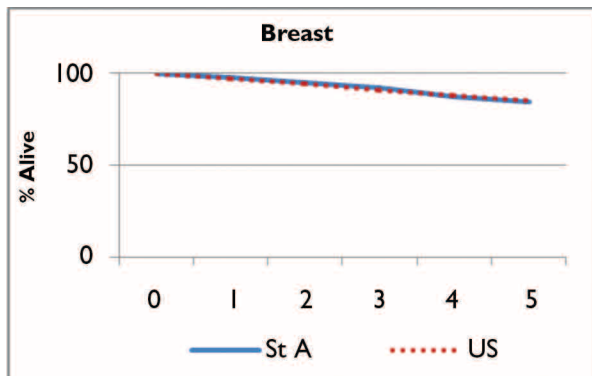


Survival

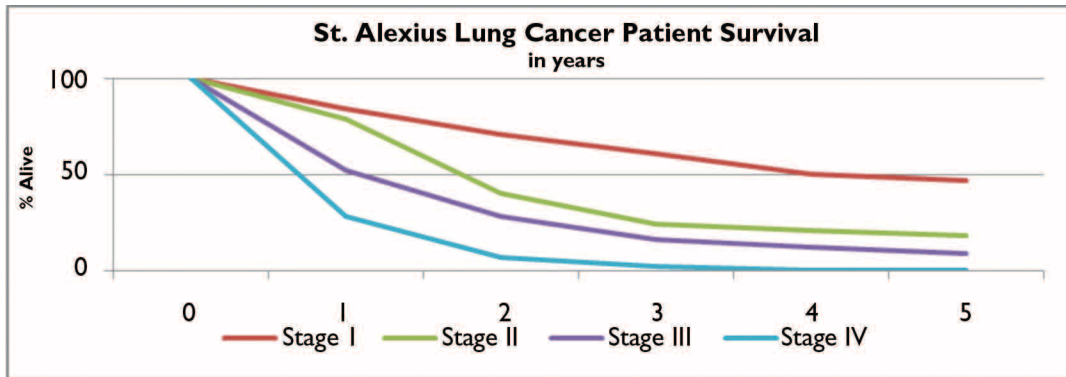
Overall, the success of cancer treatment at St. Alexius Medical Center closely follows the national rate.



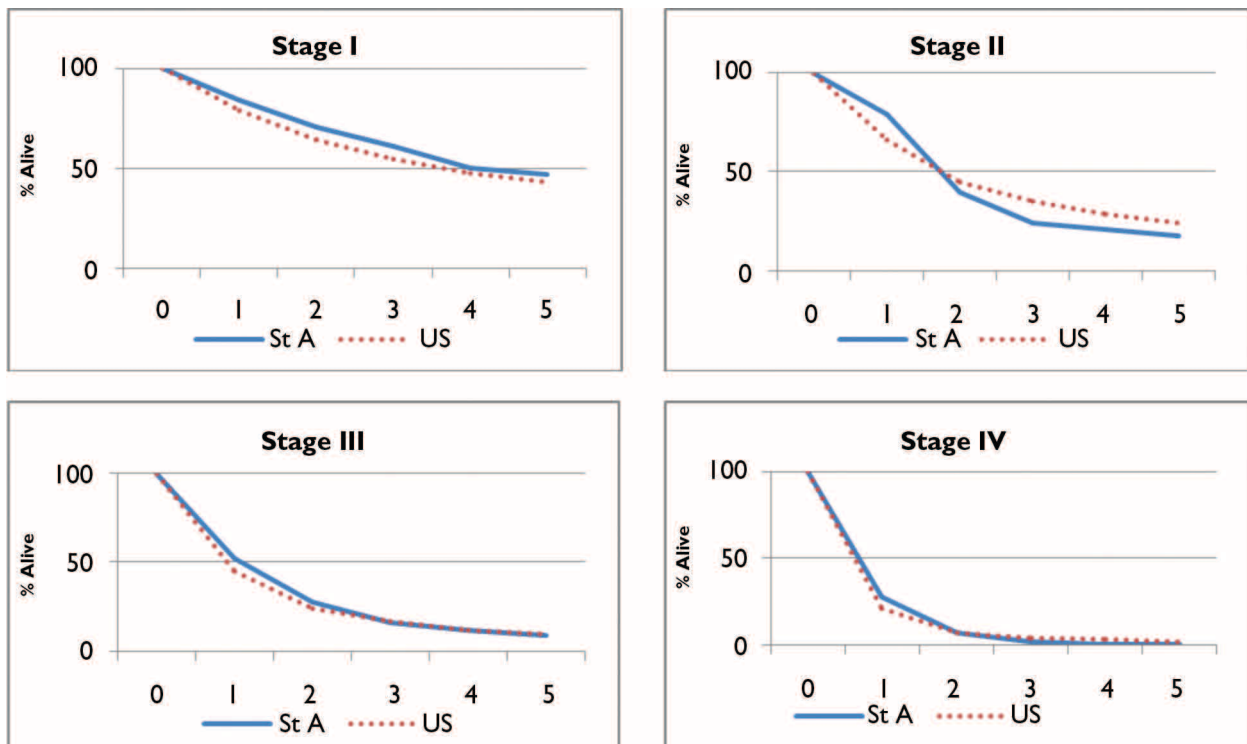
The survival rates for the four most frequently diagnosed neoplasms in the US are also very close to the survival rates at St Alexius. In the chart on the first page of this section, it was noted that breast, lung, prostate and colorectal cancers are the top four cancers in the US. St. Alexius' survival charts are nearly identical in three of these, while leading the US in the success of lung cancer treatment. St. Alexius shows a seven percent greater success rate in the survival of lung cancer patients during the first two years following diagnosis, and continues to have a three percent higher rate after five years.



One of the most significant factors in the longevity of lung cancer survival is the stage of the disease at the time of diagnosis. The stage, as we observed earlier, is a description of the progression of the disease at the time that it is diagnosed and helps the physicians determine the best course of treatment to fight the tumor. The following graph shows the percentage of patients surviving following diagnosis of the four stages of the disease.



Broken out by stage and compared to US survival, St. Alexius has comparable survival rates, and has a stronger survival pattern in Stage I disease. The St. Alexius statistics are based on a total of 615 lung cancer patients diagnosed and/or treated between 2002 and 2010. Neither St. Alexius' nor the US statistics distinguish on the basis of whether the patient died of lung cancer or non-cancerous causes.



Summary

Lung cancer is one of the most life threatening tumors, and has a risk of occurrence that can be almost directly traced to smoking. St. Alexius Medical Center and the affiliated physicians at Mid Dakota Clinic and Bismarck Cancer Center are identifying and treating lung cancer with more success than national statistics show. From smoking cessation program provided by St. A's Respiratory Therapy department to the detection of the disease at an earlier stage to the surgical, systemic and radiological treatments available, St. Alexius Medical Center and its staff are working diligently to improve the diagnosis and treatment of lung cancer in central and western North Dakota and the neighboring states of South Dakota and Montana.

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