Cancer Program Annual Report
2013 Calendar Year

Minneapolis VA Health Care System

October 2014

VA HEALTH CARE Defining EXCELLENCE in the 21st Century

Commission on Cancer® ACCREDITED PROGRAM

Minneapolis VA Health Care System Cancer Program
2013 Annual Report

CANCER COMMITTEE MEMBERSHIP

Cancer Committee Chair:

- *Anna Schorer, M.D., Hem/Onc*

Cancer Liaison Physician

- *James Ogilvie, MD (Feb 2013)*
- *Anthony Rezcallah, M.D, Surgery. (Started April 29, 2013)*

Cancer Program Administrator

- *Erik Stalhandske, Associate Director*

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Tumor Registrar
Quality of Registry Data Coordinator

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Imaging Service

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Hematology/Oncology

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Chief, Pathology and Laboratory Medicine

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Oncology Nurse Manager 3F

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Pharmacy Service

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(Started 8/26/2013)

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Cancer Conference Coordinator

Michael Risk, M.D.
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Sandra Sampair, R.H.I.A.
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Mary Schlueter, N.P.
Pulmonary Service

Joaquin Silva, M.D.
Chief, Radiation Oncology

Gobind Tarchand P.A.
Hematology/Oncology Service
Community Outreach Coordinator

Trudy Timmer, LICSW
Social Work Service
Psychosocial Services Coordinator

Minneapolis VA Medical Center Cancer Program
2013 Annual Report

HEMATOLOGY/ONCOLOGY SECTION

The focus of the Hematology/Oncology Section is to provide quality comprehensive cancer patient care, to conduct both clinical and laboratory cancer research programs to improve the care and outcome of our VA cancer patients, and to educate trainees in cancer care. The section has eight full-time staff physicians, four physician's assistants, and an Oncology social worker.

The Hematology/Oncology Section provides both inpatient and outpatient consultative services for the evaluation and care of approximately 30 new patients weekly. The Hematology/ Oncology Section members also provide primary inpatient care on the 3FO Red Medicine Service, which is staffed by a physician's assistant and the staff physicians.

The Hematology/Oncology Section also participates in the residency and fellowship training programs of the University of Minnesota, as well as serving as a training site for PA students from the Des Moines, Augsburg and Bethel programs. Trainees work with a designated staff member in the outpatient clinics and on the consultation service. Generally, patient-based teaching for trainees occurs in the setting of the consulting service and most often includes a Hematology/Oncology fellow, various house staff (primarily medicine or medicine-pediatrics), medical students from the University of Minnesota Medical School, and other trainees.

The Section is an affiliate member of the Alliance/Cancer and Leukemia Group B (CALGB) through the University of Minnesota. This cooperative group/NCI affiliation offers the section the opportunity to provide state of the art clinical trials in breast, lung, genitourinary, and gastrointestinal malignancies, and leukemia and lymphoma. In addition, patients have access to trials for other cancers, sponsored by other cancer groups and pharmaceutical companies. The section members are also members of the University of Minnesota Cancer Center.

Section members are collaborating on a host of quality improvement projects on an on-going basis. These include inter-specialty care coordination agreements, initiatives to improve patient education and medication management, navigation services, and early integration of palliative care services in advanced malignancy

HEM-ONC AMBULATORY CLINIC

Ambulatory evaluation of consultations, follow up of established patients and same day assessment of urgent problems are services provided through the Hem-Onc Outpatient (Ambulatory) Clinic, located on 3V. The Hematology/ Oncology section clinic has approximately 5700 outpatient provider visits annually. In addition, providers manage patients at remote locations via telemedicine visits.

Chemotherapy education is provided by a Hematology/Oncology clinic nurse who meets with individual patients and their families to provide personalized chemotherapy education, informational brochures, packets and educational DVDs for reinforcement of their learning. When the clinic nurse is unavailable, back up services for patient education are provided by chemotherapy nurses in the Hem-Onc Procedure clinic. Patients who are receiving oral chemotherapy are assessed prior to and early during their course of treatment by a chemotherapy pharmacist, in order to assess baseline and interval development of symptoms and to insure patient compliance with medication self-administration.

Patient screening for psychosocial distress is coordinated by the clinic's social worker using a self-assessment tool. The clinic nurse also is in regular contact by phone with patients who are being case managed for problems requiring close monitoring or complex coordination.

HEM-ONC PROCEDURE CLINIC

The Hematology-Oncology Procedure Clinic is co-located within the medicine ward 3F, where inpatients receiving cancer treatments are typically admitted. Procedure Clinic staff provide supportive therapies and cancer treatment to outpatients and those inpatients who are not on a medical service. The physical facility for treatment includes 18 patient bays, with an adjacent patient lounge for patients and family. Educational materials are available there as well as in the patient education library on the first floor. Trudy Harpole is nurse manager and Kathleen Nelson is assistant nurse manager of the Hem-Oncology Procedure Clinic. The center provides outpatient care five days per week and is staffed by six full time registered nurses, four of whom are Oncology-certified nurses, and one of whom is an advanced practice nurse certified in hospice and palliative care services. Four physician assistants and an Oncology Social Worker also support patient care. The nursing staff serves the outpatient Hematology/Oncology clinics, administers chemotherapy, and provides other patient care needs, such as the transfusion of blood products, antibiotics, and immunoglobulin therapy and integrative care modalities. Vascular access device care, symptom management, and patient education are also provided by the nursing staff. Any necessary weekend chemotherapy administration is provided by a designated chemotherapy-trained staff of inpatient care nurses. Approximately 325 treatments are provided in the clinic monthly. A home infusion chemotherapy program is available to select patients, as identified by the providers and nursing staff. For patients receiving home infusion chemotherapy who live remotely from the Minneapolis facility, some Community Based Outpatient Clinics (CBOC's) have been trained and have begun assisting with co-management of home infusions. The Hem-Onc Procedure Clinic also provides access to the physical and occupational therapy programs, including the Rehabilitation Service and the Palliative Care program.

Submitted by: Sharon Luikart, MD, Chief Hematology Oncology

CONTINUOUS IMPROVEMENT:

2013 Annual Report of Quality Improvements for the Cancer Program

EARLY INTERVENTION OF PALLIATIVE CARE FOR HEAD & NECK CANCER PATIENT STUDY

Dr. Kristopher Hartwig and Dr. Mark Klein are conducting a palliative care early intervention study for head and neck cancer patients. The goal of the study is to evaluate the feasibility of incorporation of palliative care in patients with head and neck cancer treated with concurrent chemotherapy and radiation. It is modeled after a 2010 Palliative Care Study that shows that patients with early intervention in stage IV head and neck cancers survive longer than those without these interventions.

Patients are recommended for palliative care consultation if they have squamous cell carcinoma of the head and neck and are treated with concurrent chemotherapy and radiation (definitive or adjuvant therapy). The selected patients are offered palliative care consultation in their first week of treatment. If interested in palliative care, the participant fills out five questionnaires. The questionnaires are subsequently filled out again at weeks six, twelve, twenty six, and fifty two. These results will be compared to patients with retrospective involvement of palliative care. This study will be conducted over the next 1 ½ years. As of this date, retrospective data from the charts of fifty one patients has been abstracted and analyzed. In addition, there is an ongoing prospective cohort, which will be compared to the retrospective cohort. Currently, six patients who are receiving palliative care have been enrolled. Data collection and analysis are ongoing.

The results of this project may be able to guide incorporation of routine palliative care in the treatment of head and neck cancer patients. Barriers to enrolling in palliative care concomitantly with chemotherapy and radiation should be considered in early palliative care for head and neck cancer patients.

CLINICAL PHARMACY INVOLVEMENT STUDY

A study of clinical pharmacy involvement at the point of care was conducted by Pharmacy Service. The process for oral chemotherapy education and administration was evaluated. In the past patients were prescribed a 30 day supply of chemotherapy medication without any consultation by the pharmacy staff. With the new process that was trialed, the patients were counseled either in-person or via telephone. The counseling included a baseline assessment by the pharmacist to determine the patient's current health status. If there are no concerning baseline symptoms, a 15 day supply was dispensed. After 7-10 days, the patient was called and the pharmacist reviewed the patient's health status including

any side effects from the medication. If the patient had any concerning side effects or symptoms, the ordering oncologist was contacted to determine any changes in the treatment plan and medications. If no concerning symptoms were identified, the remaining medication for the time period were dispensed to the patient. As a result of the study, the patients have a better understanding of their medications and the side effects. In addition, the amount of unused medication being wasted due to onset of concerning side effects or symptoms has decreased.

PERFORMANCE MEASURES FOR CANCER SCREENING

By the end of the 3rd quarter of 2013, the Minneapolis VA Health Care System was successfully meeting all the performance measures related to cancer screening (see table below).

Performance Measure	Target	Q1-13	Q2-13	Q3-13	Q4-12	Num	Denom	YTD%
Breast Cancer screen- 50-69 yrs (HEDIS)	77%	74%	77%	79%	NA	83	108	78%
Cervical CA screen q3 yrs- 21-64 yrs (HEDIS)	86%	92%	97%	90%	NA	161	172	93%
CRC screening approp- 50-75 yrs (HEDIS)	67%	78%	78%	73%	NA	637	811	76%

Submitted by Susan Chattin, RN, BSN, Quality Consultant

RADIATION ONCOLOGY 2013

The Department of Radiation Oncology treats approximately 500 new cancer patients a year. It is a regional VA Radiation Oncology Department and provides radiation therapy services for a five-state area of the Midwest. The department provides both outpatient and inpatient consultative services and is available for emergency consultations 24 hours a day, 365 days a year.

The department provides the following radiotherapy treatments: external beam radiotherapy including 3D conformal radiotherapy and intensity-modulated radiotherapy (IMRT), stereotactic ablative radiotherapy and prostate brachytherapy. Patients requiring other specialized radiation therapy procedures, such as gamma knife radiosurgery, are referred to the University of Minnesota Medical Center Department of Radiation Oncology, in Minneapolis.

Equipment includes two Varian Clinac iX linear accelerators both with dual-energy 6 MV and 18 MV photons and a spectrum of 6 to 20 MeV electrons, image-guided radiotherapy (IGRT) with on-board imaging and cone-beam CT, respiratory gating technology, Philips large-bore 16 slice 4DCT simulator, Pinnacle Treatment Planning System, Variseed intraoperative brachytherapy treatment planning system and Aria Record-and-Verify. Our dosimetry data has been reviewed and approved by the Radiological Physics Center (RPC).

The personnel of the department includes two radiation oncologists, one PhD medical physicist, two certified medical dosimetrists, seven radiation therapy technologists, one OCN-certified clinical nurse specialist, one LPN, and one medical support assistant.

The department, including the prostate brachytherapy program, is fully accredited by the American College of Radiology (ACR) and The Joint Commission (TJC). Additionally we are affiliated with the University of Minnesota, and our radiation oncology physicians hold faculty appointments there. Radiation Oncology residents from the University of Minnesota currently rotate through the department on a regular basis. The department also offers rotations for Medical Dosimetry students from the University of Wisconsin-Lacrosse and Radiation Therapy Technology students from the Fairview School of Radiation Therapy

The department participates in the Cancer Committee, Radiation Safety Committee, and various multidisciplinary tumor conferences. The department participates in multi-institutional clinical protocols through The Alliance for Clinical Trials in Oncology).

Quality control and quality assurance of radiation therapy treatment and prostate brachytherapy is carried out based on practice guidelines and technical standards from the following: ACR, AAPM, NHPP, and NRC.

Submitted by: Joaquin Silva, MD, Chief Radiation Oncology

CANCER CONFERENCES

During 2013 the Minneapolis VA had a very active Cancer Conference schedule. The purpose of a cancer conference is to prospectively present selected cancer cases in order to discuss treatment management options in a multidisciplinary setting. The conferences also offer an educational opportunity for physicians working or in training at the facility. Conferences represent the facilities top cancer sites. The CoC has established that at least 15% of the annual analytic cancer case load must be presented at a cancer conference. Approximately 463 of our 1,052 new analytic cases, or 44%, were presented. Conferences were well attended with a total conference attendance for the year of 1,806 participants. The facilities ENT conference also offers Continuing Medical Education (CME) credits for attendees.

In January 2013 a Colorectal Cancer Conference was started by the facilities new colorectal surgeon, Dr. James Ogilvie.

The following conferences were held in 2013:

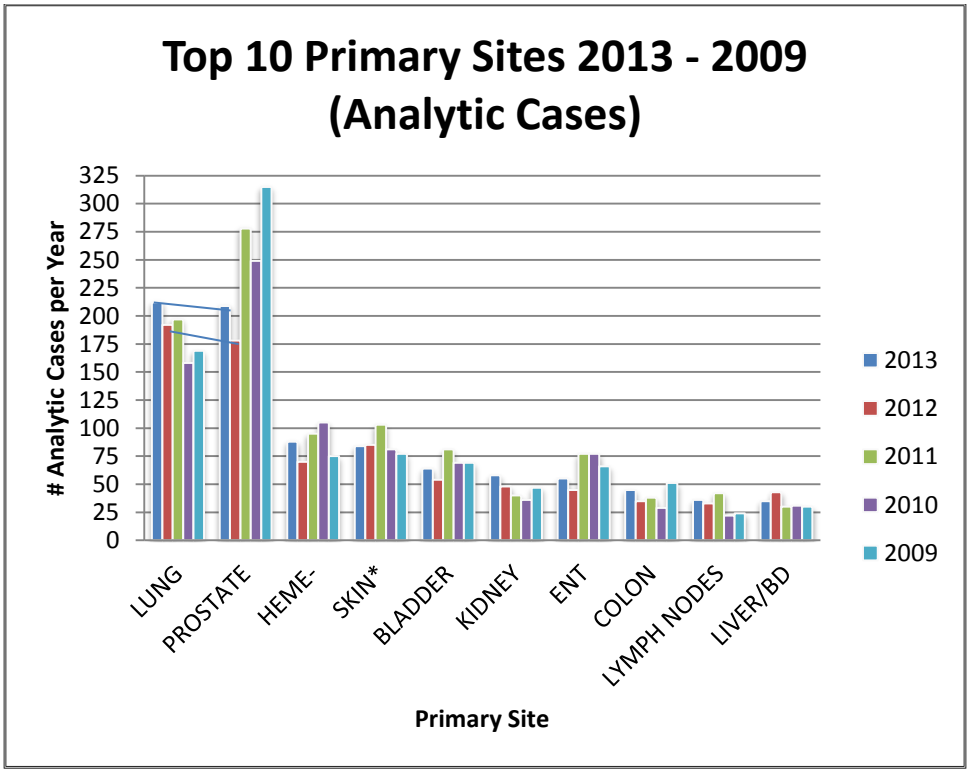
2013 Cancer Conferences			
	# Conferences	# Patients Presented	# Participants
Urology	12	76	89
Chest	47	239	951
Colo-Rectal	6	29	78
ENT	38	86	640
Liver	6	33	48

Submitted by: Patricia Albrecht, CTR

TOP PRIMARY SITES 201 -2009

In 2012 lung cancer replaced prostate cancer as the site with the largest number of analytic cases at the MVAHCS. This remained the same in 2013; however the numbers of lung and prostate cases were very close. The number of ENT cases fell off in 2012 was still down a bit in 2013.

Top 10 Primary Sites					
# Analytic Cases 2013-2009					
Primary Site:	**2013**	**2012**	**2011**	**2010**	**2009**
LUNG/BRONCHUS	212	192	197	158	169
PROSTATE GLAND	209	178	278	249	315
HEMATOPOIETIC	88	70	95	105	75
SKIN *	84	85	103	81	77
BLADDER	64	54	81	69	69
KIDNEY	58	48	40	36	47
ENT	55	45	77	77	66
COLON	45	35	38	29	51
LYMPH NODES	36	33	42	22	24
LIVER/ BILE DUCTS	35	43	30	31	30



*Skin sites represent primarily melanoma with 39% of these stage 0, but also include Merkel Cell Carcinoma, CTCL and Paget's Disease.

CANCER REGISTRY

The Cancer Registry serves as a resource for the collection, management and analysis of data on persons with a diagnosis of cancer, as well as certain types of benign tumors. All patients initially diagnosed and/or receiving all or part of their initial treatment for cancer at the Minneapolis VA Health Care System (MVAHCS) are considered *Analytic Cases* and are accessioned into the registry and followed throughout their lifetime. Patients receiving subsequent treatment at MVAHCS, are also accessioned (effective 1/1/2010). These cases as well as cases diagnosed at autopsy and those reportable by agreement (and not collected by the Commission on Cancer) are included in the *Non-analytic* category. The primary goal of the Cancer Registry is to provide data and statistics which can be utilized to evaluate the success of specific treatment modalities, as measured by the disease free interval and length of survival. Data collected is used by the hospital's medical staff and ancillary services and by the VA Central Cancer Registry (VACCR). Data on Minnesota residents is also sent to the Minnesota Department of Health (MDH) because cancer is a reportable diagnosis. The MDH follows VA guidelines for protecting the confidentiality of this data. The MDH analyses the State data for trends in the incidence of cancer, looking for possible cancer clusters and it also examines the data for populations that may be underserved in the provision of health and screening care.

The Minneapolis VA Medical Center has compiled data on cancer patients since 1961, however the computerized database dates back to only 1988. The Cancer Registry now uses the "OncoTraX" software package developed by The Veteran Affairs Oncology Program. Currently 26,164 tumors are available in the computer database. There are approximately 7,190 analytic patients requiring active follow-up according to the Commission on Cancer rules. The registry has consistently maintained follow-up in compliance with CoC standards.

The Cancer Registry is currently staffed with 3 FTE's. There is one CTR lead, and 2 part-time CTR's doing case abstracting. There is one additional FTE doing follow-up and placement and tracking of AJCC Cancer Staging Forms.

During 2013 the Cancer Registry processed 17 requests for information, contributing to one IRB approved study. The number of requests processed has been declining from a high of 48 in 2010. It is not clear if the number of requests is down due to fewer studies or if it is down due to alternate methods of collecting the data.

Cancer Registry Statistics and Workload

The table on the following pages lists the cases accessioned into the Cancer Registry from 2009 to 2013; by primary site. The number of analytic cases has remained fairly consisten; with 1,097 in 2009, and 1,052 in 2013. Total registry cases (analytic and non-analytic) have increased slightly from 1,142 in 2009 to 1,213 in 2013. There has been a notable increase in cases accessioned since the late 1990's. In the period from 1995-1999 there was an average of 703 analytic cases accessioned and 759 total cases.

Cancer Registry Statistics (page 1 of 4)
Distribution of Primary Cancer Sites 2013-2009
Minneapolis VA Health Care System

ANNUAL SUMMARY REPORT:	2013			2012			2011			2010			2009		
PRIMARY SITE:	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC
System: C00 Lip/Oral Cavity/Pharynx															
LIP	1	1		9	7	2	16	16		18	16	2	4	4	
TONGUE, BASE	2	2		4	4		5	5		7	7		7	7	
TONGUE, OTHER/NOS	6	6		6	5	1	6	6		7	7		7	7	
GUM	1	1								2	2				
FLOOR OF MOUTH	6	6		1	1		3	3		1	1		5	5	
PALATE	2	2		2	2		3	3		1	1		3	3	
OTHER/NOS MOUTH PARTS	4	4					1	1		3	3		5	5	
PAROTID GLAND	2	1	1	4	3	1	4	4		2	2				
MAJOR SALIVARY GLANDS,							1	1					1	1	
TONSIL	12	11	1	7	6	1	7	7		9	8	1	9	9	
OROPHARYNX	2	2					5	4	1	5	5		3	3	
NASOPHARYNX	2	2		1	1		3	3		1	1				
PYRIFORM SINUS	2	2		2	2		5	5		1	1		1	1	
HYPOPHARYNX				1	1										
OTHER LIP/ORAL	2	2								1	1				
SUBTOTAL	44	42	2	37	32	5	59	58	1	58	55	3	45	45	0
System: C15 Digestive Organs															
ESOPHAGUS	33	30	3	24	22	2	32	31	1	20	18	2	29	29	
STOMACH	18	14	4	13	11	2	29	23	6	20	12	8	16	16	
SMALL INTESTINE	3	3		1		1	3	3		7	4	3	2	2	
COLON	46	45	1	45	35	10	45	38	7	31	29	2	51	51	
RECTOSIGMOID JUNCTION	2	2		6	5	1	2	2		5	5		5	5	
RECTUM	16	16		20	16	4	22	21	1	22	19	3	15	15	
ANUS/ANAL CANAL	2	1	1	6	3	3	4	3	1	6	6		3	2	1
LIVER/INTRAHEPATIC BIL	40	35	5	49	43	6	36	30	6	32	31	1	30	30	
GALLBLADDER				3	2	1				1	1				
BILARY TRACT - OTHER/N	6	3	3	5	5		3	3		5	5		4	4	
PANCREAS	24	22	2	27	26	1	28	26	2	29	28	1	23	23	
OTHER-DIGESTIVE ORGANS	2	2		1	1		3	3					2	2	
SUBTOTAL	192	173	19	200	169	31	207	183	24	178	158	20	180	179	1

Cancer Registry Statistics (page 2 of 4)
Distribution of Primary Cancer Sites 2013-2009
Minneapolis VA Health Care System

ANNUAL SUMMARY REPORT:	2013			2012			2011			2010			2009		
PRIMARY SITE:	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC
System: C30 Respiratory System/Intrathoracic															
NASAL CAV,MIDDLE EAR	1	1		1	1		1	1							
ACCESS SINUSES							1	1		1	1				
LARYNX	12	12		14	12	2	17	17		24	21	3	21	21	
TRACHEA															
LUNG/BRONCHUS	224	212	12	208	192	16	209	197	12	169	158	11	169	169	
THYMUS	1	1		1	1										
HEART/MEDIASTINUM/ PLEURA	3	3		5	4	1	5	4	1	3	2	1	5	5	
OTHER-RESP SYS/INTRATH															
SUBTOTAL	241	229	12	229	210	19	233	220	13	197	182	15	195	195	0
System: C40 Bone/Joint/Cartilage															
BONES/JOINTS/ARTICULAR															
BONES/JOINTS/ARTICULAR	2	2		1	1		2	2		1	1		1	1	
SUBTOTAL	2	2	0	1	1	0	2	2	0	1	1	0	1	1	0
System: C42 Hematopoietic/															
HEMATOPOIETIC/RETICULO	95	88	7	82	70	12	112	95	17	130	105	25	78	75	3
SUBTOTAL	95	88	7	82	70	12	112	95	17	130	105	25	78	75	3
System: C44 Skin (excluding reproductive)															
SKIN	95	84	11	108	85	23	113	103	10	100	81	19	86	77	9
SUBTOTAL	95	84	11	108	85	23	113	103	10	100	81	19	86	77	9
System: C47 Peripheral Nerves/ Autonomic Nervous System															
PERIPHERAL NERVES/AUTO															
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
System: C48 Retroperitoneum/															
RETROPERITONEUM & PERI	1	1		2	2		1	1		2	2		1	1	
SUBTOTAL	1	1	0	2	2	0	1	1	0	2	2	0	1	1	0
System: C49 Connective/ Subcutaneous/ Other Soft Tissue															
CONNECTIVE/ SUBCUTANEOUS	7	4	3	8	8		6	4	2	7	6	1	6	6	
SUBTOTAL	7	4	3	8	8	0	6	4	2	7	6	1	6	6	0

Cancer Registry Statistics (page3 of 4)
Distribution of Primary Cancer Sites 2013-2009
Minneapolis VA Health Care System

ANNUAL SUMMARY REPORT:	2013			2012			2011			2010			2009		
PRIMARY SITE:	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC
System: C50 Breast (excluding skin)															
BREAST	9	5	4	12	8	4	11	5	6	6	4	2	2	2	
SUBTOTAL	9	5	4	12	8	4	11	5	6	6	4	2	2	2	0
System: C51 Female Genital Organs															
VULVA				2	1	1	2	2					3	1	2
VAGINA															
CERVIX UTERI	4		4	2		2	10		10	7		7	4		4
CORPUS UTERI	1	1					2	2		2	1	1	5	5	
UTERUS, NOS															
OVARY										1	1				
OTHER-FEMALE GENITAL O													1	1	
PLACENTA															
SUBTOTAL	5	1	4	4	1	3	14	4	10	10	2	8	13	7	6
System: C60 Male Genital Organs															
PENIS	5	5		4	4		3	3		4	4		2	2	
PROSTATE GLAND	280	209	71	247	178	69	344	278	66	324	249	75	338	315	23
TESTIS	1	1		5	5		2	2		4	4		4	4	
MALE GENITALIA, OTHER/							1	1		1	1				
SUBTOTAL	286	215	71	256	187	69	350	284	66	333	258	75	344	321	23
System: C64 Urinary Tract															
KIDNEY	68	58	10	52	48	4	47	40	7	42	36	6	47	47	
RENAL PELVIS	4	4		1	1		6	6		6	6		2	2	
URETER	4	3	1	5	5		3	3		3	3		3	3	
BLADDER	72	64	8	68	54	14	85	81	4	79	69	10	70	69	1
URINARY ORGANS-OTHER	2	2		2	1	1	5	5		1	1		3	3	
SUBTOTAL	150	131	19	128	109	19	146	135	11	131	115	16	125	124	1
System: C69 Eye/ Brain/ Other CNS															
EYE/ADNEXA	2		2	3	3		1	1		2		2	1	1	
MENINGES	9	7	2	6	6		10	9	1	5	4	1	3	3	
BRAIN	6	5	1	12	10	2	12	11	1	8	7	1	12	12	
SP CORD,CRANIAL NERVES	1	1		1	1		6	5	1	2	1	1	4	3	1
SUBTOTAL	18	13	5	22	20	2	29	26	3	17	12	5	20	19	1

Cancer Registry Statistics (page 4 of 4)
Distribution of Primary Cancer Sites 2013-2009
Minneapolis VA Health Care System

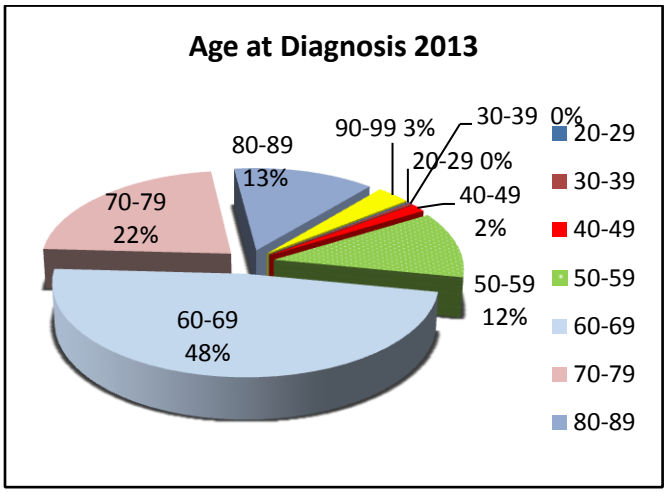
ANNUAL SUMMARY REPORT:	2013			2012			2011			2010			2009		
PRIMARY SITE:	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC	TOTAL CASES	ANALYTIC CASES	NON-ANALYTIC
System: C73 Thyroid/ Other Endocrine															
THYROID GLAND	12	11	1	10	8	2	11	11		8	5	3	4	4	
ADRENAL GLAND															
OTHER ENDOCRINE GLANDS	3	3		3	2	1	2		2	5	5		3	3	
SUBTOTAL	15	14	1	13	10	3	13	11	2	13	10	3	7	7	0
System: C76 Other Ill Defined Sites															
OTHER ILL-DEFINED SITE							2	2		3	3		2	2	
SUBTOTAL	0	0	0	0	0	0	2	2	0	3	3	0	2	2	0
System: C77 Lymph Nodes															
LYMPH NODES	39	36	3	37	33	4	47	42	5	27	22	5	25	24	1
SUBTOTAL	39	36	3	37	33	4	47	42	5	27	22	5	25	24	1
System: C80 Unknown Primary															
UNKNOWN PRIMARY SITE	14	14		13	12	1	15	13	2	9	9		12	12	
SUBTOTAL	14	14	0	13	12	1	15	13	2	9	9	0	12	12	0
GRAND TOTAL	**1213**	**1052**	**161**	**1152**	**957**	**195**	**1360**	**1188**	**172**	**1222**	**1025**	**197**	**1142**	**1097**	**45**

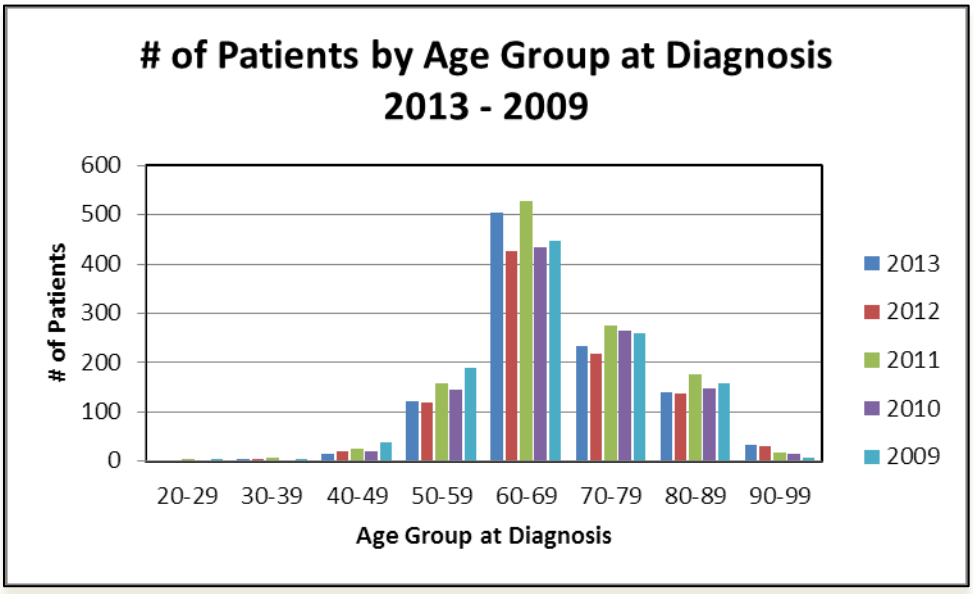
PATIENT DEMOGRAPHICS (Analytic Cases 2013)

Age at Diagnosis

In 2013, 47.8% of our patient's with a new reportable neoplasm were between the ages of 60-79. 22% of our patients were in the 70-79 year old age group. Over the years the percentage of cases diagnosed in a particular age range have remained remarkably similar.

Analytic Cases 2013		
Age Group	# of Cases	% of Cases
20-29	2	0.2%
30-39	4	0.4%
40-49	15	1.4%
50-59	122	11.6%
60-69	503	47.8%
70-79	233	22.1%
80-89	139	13.2%
90-99	34	3.2%
Total	1052	100.0%





PATIENT DEMOGRAPHICS Analytic Cases 2013

Distribution by Gender and Race

In 2013, 97% of our patients with a new reportable neoplasm were male, and 93% were Caucasian.

2013 Analytic Cases		
Gender	# Patients	% of Total
Female	27	3%
Male	1025	97%
Total	1052	100%

2013 Analytic Cases MVAHCS		
Race	# Patients	% of Patients
American Indian, Eskimo	11	1%
Black	42	3%
White	981	93%
Unknown/Unspecified	18	2%
Total	1052	100%

Distance Traveled (MVAHCS vs. All CoC Hospitals 2000 to 2011)

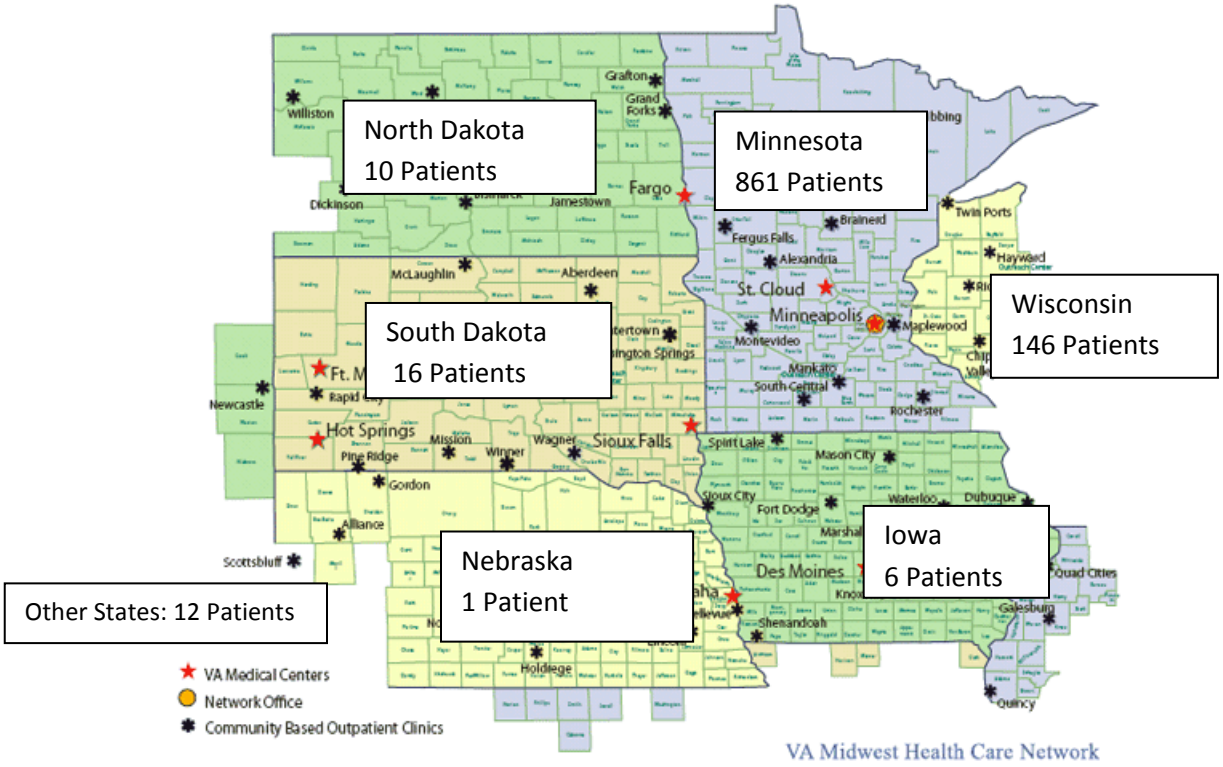
Comparing the distance our patients travel for treatment against data for all other CoC approved hospitals compiled by the National Cancer Database, we see that approximately 34% of our patients travel 100 miles or more, compared to 6% for all other hospitals. Conversely only 11% of our patients travel 10 miles or less compared to 39% for all other CoC approved hospitals nationwide. (2012 data was not yet available).

Distance Traveled of All Sites Cancer Diagnosed in 2000 to 2011
Minneapolis VA Health Care System, Minneapolis MN
vs. All Types Hospitals in All States
All Diagnosed Cases - Data from 1613 Hospitals

#	*Distance Traveled*	My (N)	Oth. (N)	My (%)	Oth. (%)
1.	**<=5 miles**	524	2317577	4.64%	18.43%
2.	**6-10 miles**	698	2616192	6.18%	20.8%
3.	**11-24 miles**	2481	3479467	21.97%	27.67%
4.	**25-49 miles**	1433	1739032	12.69%	13.83%
5.	**50-99 miles**	2280	992239	20.19%	7.89%
6.	**>=100 miles**	3799	727719	33.64%	5.79%
7.	**Unknown**	78	703627	0.69%	5.6%
	Col. TOTAL	**11293**	**12575853**	**100%**	**100%**

2013 State of Residence at Diagnosis

The Minneapolis VA Medical Center is a Regional Referral Center with patients referred primarily within the area representing VISN 23. Approximately 82% (861/1052) of our new analytic patients in 2013 were residents of Minnesota. Approximately 14% (146/1052) were residents of Wisconsin. 4.3% (45/1052) of our patients came from other states.



County of Residence at Diagnosis

Approximately 59% of our patients reside in the counties making up or immediately surrounding the metropolitan area, the remaining 41% reside outside of the metro area.

METRO COUNTIES AT DIAGNOSIS	
ANOKA	79
CARVER	11
DAKOTA	86
HENNEPIN	196
RAMSEY	72
SCOTT	32
WASHINGTON	31
Total	507
% of MN Cases	507/861 = 59%

Facility Referred From:

Patients from a wide variety of facilities are referred to the Minneapolis VA Health Care System for veteran benefits and the services provided here. In 2013 the St Cloud VA Medical Center referred 54 patients to MVAHCS.

FACILITY REFERRED FROM	
St Cloud VA Medical Center	54
Black Hills VA Medical Center	11
Abbott Northwestern Hospital	8
Fargo VA Medical Center	7
Saint Mary's Hospital - Duluth	6
Fairview University Hospital	4
Des Moines VA Medical Center	3
Mayo Clinic	3
Health East	3
St Luke's Hospital of Duluth	3
Other Hospitals	52

Facility Referred To:

During 2013 many patients were referred elsewhere for treatment; either for specialty care, or for care closer to home. Below are some of the facilities that our patients were referred to.

FACILITY REFERRED TO:	# OF PATIENTS
FAIRVIEW UNIVERSITY MEDICAL CENTER	32
ABBOTT NORTHWESTERN HOSPITAL	17
FAIRVIEW LAKES REGIONAL HEALTH	16
ST CLOUD VA MEDICAL CENTER	10
FAIRVIEW RIVERSIDE MEDICAL CENTER	9
MAYO CLINIC	6
BLACK HILLS VA MEDICAL CENTER	5
ST LUKE'S HOSPITAL OF DULUTH	4
ST CLOUD HOSPITAL	4
LUTHER HOSPITAL	4
FARGO VA MEDICAL CENTER	4
OTHER HOSPITAL	36
Total:	147

Focus on Non-Small Cell Lung Cancer

During 2014 it is expected that lung cancer accounts for about 13% of all cancer diagnoses, but 27% of all cancer deaths. " The incidence rate has been declining since the mid-1980s in men, but only since the mid-2000s in women. From 2006 to 2010, lung cancer incidence rates decreased by 1.9% per year in men and by 1.2% per year in women."

"Cigarette smoking is by far the most important risk factor for lung cancer; risk increases with both quantity and duration of smoking. Cigar and pipe smoking also increase risk. Exposure to radon gas released from soil and building materials is estimated to be the second leading cause of lung cancer in Europe and North America."

(American Cancer Society, Cancer Facts & Figures 2014, p. 15)

During 2013 the Minneapolis VA Health Care System diagnosed and/or treated 172 new cases of non-small cell lung cancer. The average age of these patients was 70.5 years. None of our patients was less than 55 years, and 6 patients were age 90 or older. 6 of the 172 (3.5%) patients were female and 166 (96.5%) were male. The patient's race was identified as White/Caucasian on 158 (92%) of patients and as Black/African American on 9 (5%) of patients. Four patients were identified as Native American (2%) and one was listed as an unknown race.

Age Group at Diagnosis 2013 All NSCLC	
Age Group at Dx	# of Patients
50-59	12
60-69	80
70-79	48
80-89	26
90-99	6
Total	172

Lung Cancer and Tobacco Use

Of the 172 patients diagnosed with non-small cell lung cancer in 2013, 40% reported current use of cigarettes and 53% reported past use; the majority of these patients had quit more than 1 year before diagnosis. These numbers are quite different than those reported in 2009, when they were almost reversed with 54% being active smokers and 37% being previous smokers. These numbers likely reflect at least in part, the facility's smoking cessation efforts.

Smoking History of Patients with a 2013 Lung Cancer Diagnosis		
Tobacco Type/Use	# of patients	% of total
Cigarette Smoker, Current	68	40%
Cigar or Pipe Smoker, Current	6	3%
Multiple Types of Tobacco Products	2	1%
Never Used	2	1%
Snuff/Chew/Smokeless	2	1%
Previous Use	92	53%
Total	172	100%

Histology of all Lung Cancers Diagnosed at MVAHCS in 2013

There are 2 major subdivisions of lung cancer based on the histology of the cancer cells. The more common type of lung cancer is Non-Small Cell Lung Cancer. According to American Cancer Society data, approximately 14% of cases are small cell and 84% are non-small cell. Non-small cell cancers have a better prognosis and more treatment options. The Minneapolis VA numbers show a slightly higher proportion, 18% of our patients with small cell lung cancer and 81% with non-small cell lung cancer.

HISTOLOGY OF 2013 LUNG CANCERS AT MVAHCS	# Cases	% of Total
ADENOCARCINOMA, NOS	65	
SQUAMOUS CELL CARCINOMA, NOS	39	
ADENOSQUAMOUS CARCINOMA	2	
ADENOCARCINOMA WITH MIXED SUBTYPES	2	
BRONCHIOLO-ALVEOLAR ADENOCARCINOMA, NOS	2	
BRONCHIOLO-ALVEOLAR CARCINOMA, MUCINOUS	1	
CARCINOMA, NOS	1	
MUCINOUS ADENOCARCINOMA	2	
NON-SMALL CELL CARCINOMA	7	
CARCINOID TUMOR, NOS	1	
PSEUDOSARCOMATOUS CARCINOMA	4	
LARGE CELL NEUROENDOCRINE CARCINOMA	3	
NSCLC SUBTOTAL	**129**	*61%*
CLINICALLY DIAGNOSED CASES W/ NO PATHOLOGY REPORT	43	
CLINICAL DX ONLY SUBTOTAL	**43**	*20%*
Total NSCLC Including Clinically Diagnosed Cases	**172**	81%
MARGINAL ZONE B-CELL LYMPHOMA, NOS	2	
Lymphoma of the Lung	**2**	1%
SMALL CELL CARCINOMA, NOS	37	
COMBINED SMALL CELL CARCINOMA	1	
SMALL CELL LUNG CANCER TOTAL	**38**	18%
2013 LUNG CANCERS	212	100%

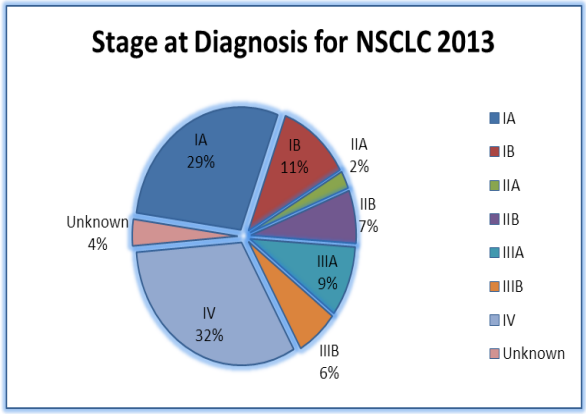
A Look at Non-Small Cell Lung Cancer (NSCLC) in 2013

Minneapolis VA Health Care System

Stage at Diagnosis

In 2013, 172 cases of NSCLC were diagnosed. Approximately 48% were diagnosed at an early stage (stage 0-II), 15% were diagnosed at stage III, and 32% were diagnosed at stage IV. These numbers include patients with both pathologically diagnosed cancer and clinically diagnosed cancer.

Non-Small Cell Lung Cancers 2013 MVAHCS		
Best Stage at DX	# of Cases	% of Cases
IA	49	28%
IB	19	11%
IIA	4	2%
IIB	12	7%
IIIA	16	9%
IIIB	11	6%
IV	55	32%
Unknown	6	3%
Total	172	100%
Note: excludes lymphomas		



Stage at Diagnosis using NCDB Definitions

When comparing our cases to those listed in the National Cancer Database (NCDB), we see a few differences in our data based on the definitions of cases included in the NCDB. The NCDB defines non-small cell carcinoma according to histology codes. The code range used is ICD-O codes 8012-8035, and 8046-8576. These ranges exclude many of the clinically diagnosed cases given a code described as carcinoma, not otherwise specified (NOS) and “neoplasm, malignant”. Using the NCDB definitions, 44 of our cases are eliminated (30 of them stage I), *bringing our total of NSCLC cases to 128*.

NSCLC by Stage at DX 2013 Using NCDB Definitions		
Best Stage at DX	# of Cases	% of Cases
I	38	30%
II	11	9%
III	24	19%
IV	51	40%
Unknown	4	3%
	128	100%

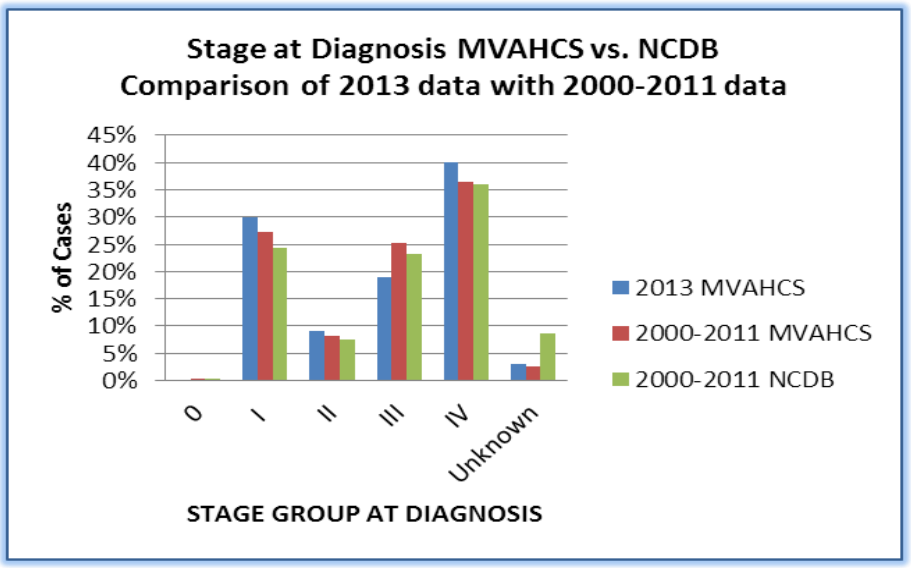
Stage at Diagnosis using NCDB Definitions (continued)

In looking back at previous years, the MVAHCS data shows a modest increase in the percent of cases diagnosed at stage I and II, and a modest decrease in cases diagnosed at stage III and IV. Our proportion of cases diagnosed at stage III-IV is the same as all cases from NCDB facilities. Stage IV diagnoses however, were a higher percentage of cases in 2013 than our own previous 10 year average and the NCDB 10 year average.

The following chart shows our current 2013 data for stage at diagnosis compared to cumulative data from 2000-2011 in the National Cancer Database for both our facility and the NCDB as a whole.

Stage at Diagnosis MVAHCS in 2013 vs. MVAHCS 2000-2011 and NCDB 2000-2011			
Stage at Diagnosis	2013 MVAHCS	2000-2011 MVAHCS	2000-2011 NCDB
Stage I-II	39%	35.5%	31.8%
Stage III-IV	59%	61.8%	59.2%
Unknown	3%	2.6%	8.6%

Stage at Diagnosis NSCLC MVAHCS 2013 vs. MVAHCS & NCDB 2000 -2011						
	2013 MVAHCS		2000-2011 MVAHCS		2000-2011 NCDB (all states, all hospitals)	
Stage at DX	# of Cases	% of Cases	# of Cases	% of Cases	# of Cases	% of Cases
0	0	0	2	0.2%	3182	0.2%
I	38	30%	363	27.3%	335972	24.4%
II	11	9%	109	8.2%	102361	7.4%
III	24	19%	336	25.3%	321095	23.3%
IV	51	40%	486	36.5%	494977	35.9%
Unknown	4	3%	34	2.6%	118778	8.6%
Occult	0	0%	0	0.0%	1401	0.1%
NA	0	0%	0	0.0%	9	0.0%
Total	128	100%	1330	100.0%	1377775	100.0%

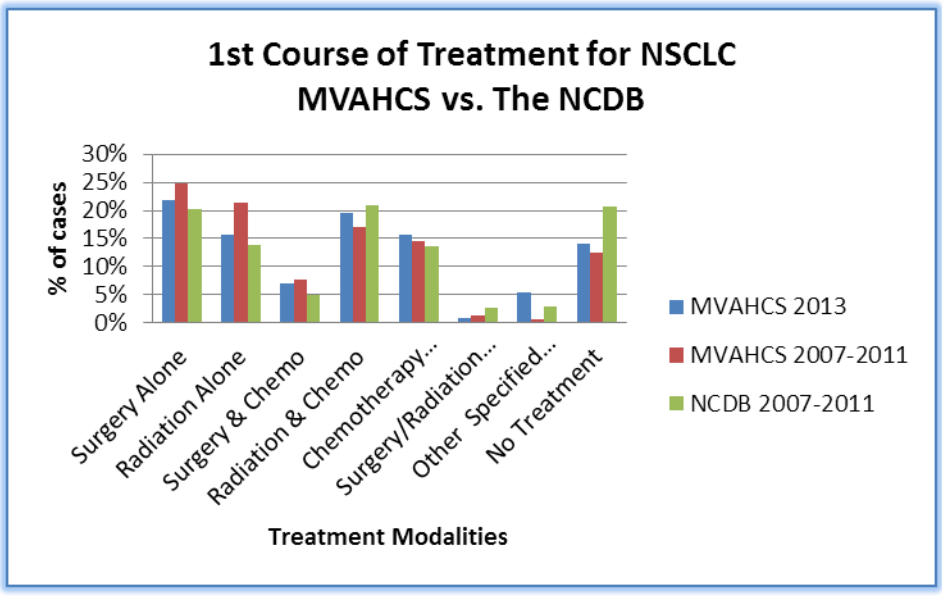


First Course of Treatment for Non-Small Cell Lung Cancer

First course of treatment modalities for NSCLC at the Minneapolis VA Health Care System were very similar to those used nation-wide in the NCDB. Slightly more patients were treated with surgery alone. The number was 22% for the MVAHCS in 2013 and 24.9% from 2007-2011 vs. 20.3% in the NCDB for 2007-2011. These numbers may correlate with the somewhat higher number of cases diagnosed at stage I and II.

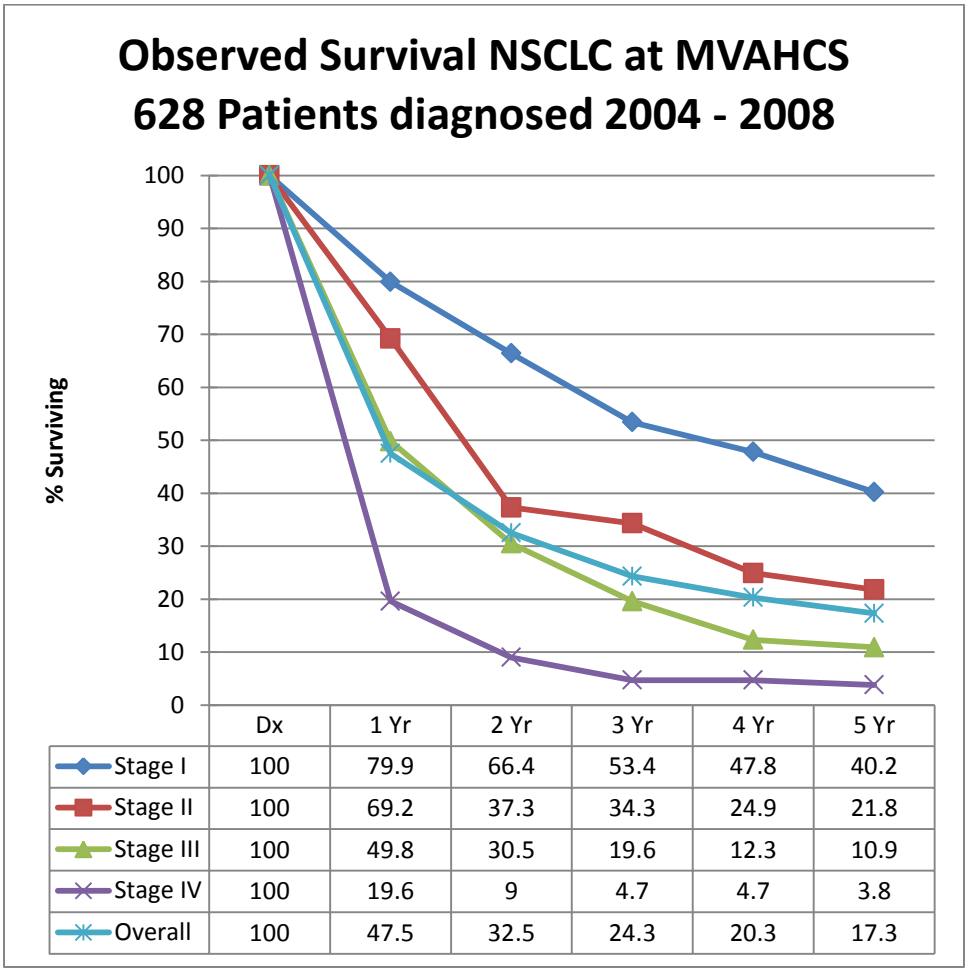
The number of patients receiving chemotherapy alone was somewhat higher at the MVAHCS with 16% in 2013 and 14.5% from 2007-2011 as compared to 13.5% in the NCDB for 2007-2011. Fewer patients received no treatment at the MVAHCS with only 14% in 2013 and 12.5% from 2007-2011 compared to 20.7% of patients from 2007-2011 in the NCDB.

Treatment Category	2013 Cases MVAHCS	% of 2013 Cases	2007-2011 Cases MVAHCS	2007-2011 % of Cases MVAHCS	2007-2011 Cases NCDB	2007-2011 % of Cases NCDB
Surgery Alone	28	22%	151	24.9%	124506	20.3%
Radiation Alone	20	16%	130	21.4%	84968	13.9%
Surgery/Chemo or Chemo/Surgery	9	7%	47	7.7%	29987	4.9%
Radiation & Chemo or Chemo & Radiation	25	20%	103	17.0%	128591	21.0%
Chemotherapy Alone	20	16%	88	14.5%	82802	13.5%
Surgery/Radiation/Chemo	1	1%	8	1.3%	17151	2.8%
Other Specified Treatment	7	5%	4	0.7%	17909	2.9%
No Treatment	18	14%	76	12.5%	126437	20.7%
Total	128	100%	607	100.0%	612351	100%



Observed 5 Year Survival for Non-Small Cell Lung Cancer
MVAHCS Data

Survival statistics for patients diagnosed and/or treated at the Minneapolis VA Health Care System are similar to those experienced at other Cancer Programs. Survival for early stage lung cancers is better than that for more advanced stage cancers. Observed *overall* 5 year survival for non-small cell lung cancer patients at the Minneapolis VA Health Care System for cases diagnosed between the years 2004-2008, was 17.3% (n = 628 cases). The overall 5 year survival rate published by the American Cancer Society was 17%. (American Cancer Society, Cancer Facts & Figures 2014, p.15).



	Dx	1 Yr	2 Yr	3 Yr	4 Yr	5 Yr
Stage I	100	79.9	66.4	53.4	47.8	40.2
Stage II	100	69.2	37.3	34.3	24.9	21.8
Stage III	100	49.8	30.5	19.6	12.3	10.9
Stage IV	100	19.6	9	4.7	4.7	3.8
Overall	100	47.5	32.5	24.3	20.3	17.3

Data prepared by: Patricia Albrecht, CTR

Reviewed and approved by: The MVAHCS Cancer Committee 12/4/2014