Lake Cumberland Regional Hospital

2006 Cancer Program Annual Report (2005 statistical review of LCRH Cancer Registry Database)

LAKE CUMBERLAND
Regional Hospital
Leading the way to better healthcare.

2005 CANCER COMMITTEE MEMBERS

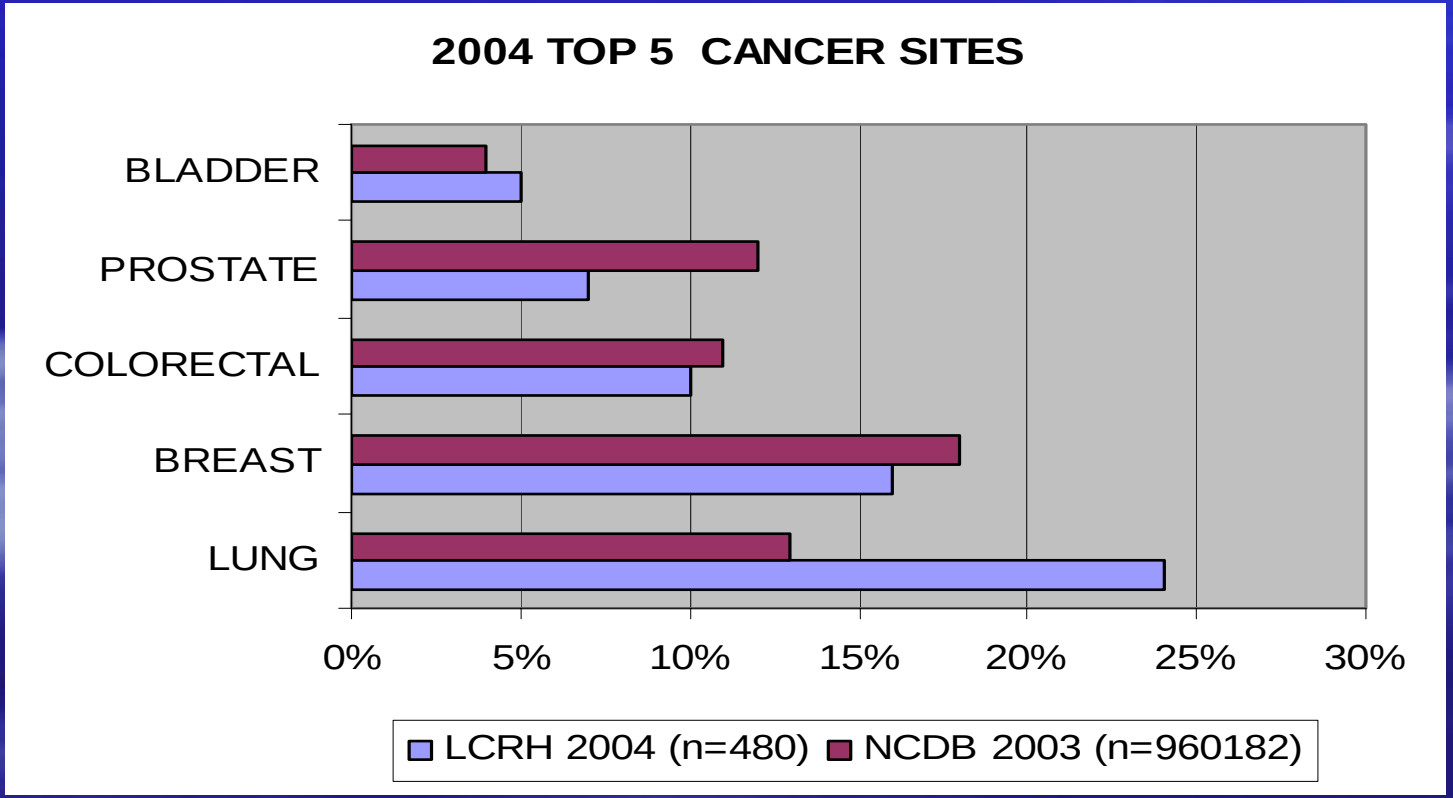
- **Fallahzadeh, Hossein, M.D., Cancer Liaison Physician, Chairperson** *(General Surgeon)*
- **Bowman, Tammy, RT(R)(T)ARRT, Cancer Program Administrator** *(Cancer Treatment Director)*
- **Perkins, Alvin, M.D.** *(Pathologist)*
- **Khan, Amtullah, M.D.** *(Radiation Oncologist)*
- **Kassem, Bachar, M.D.** *(Medical Oncologist)*
- **Lissanu, Zewdu, M.D.** *(Medical Oncologist)*
- **Mullai, N., M.D.** *(Medical Oncologist)*
- **Martin, James, M.D.** *(Diagnostic Radiologist)*
- **Ruby, Eric, M.D.** *(Urologist)*
- **Viner, Bill, M.D.** *(OB/Gyn)*
- **Dyer, Charles, M.D.** *(Gastroenterologist)*
- **Harper, Shona, RHIA, CTR** *(Tumor Registrar)*
- **Bowers, Tonya** *(Quality Coordinator)*
- **Liggett, Cathe** *(HIM Director)*
- **Brock, Tim, R.N.** *(Director of Med/Surg)*
- **Parker, Robert** *(Director of Radiology)*
- **Travis, Jeanne** *(Executive Director of Hospice)*
- **Wilson, Susan** *(Director of Community Relations)*
- **Merrick, Merrick** *(American Cancer Society)*
- **Hammer, Leslie** *(American Cancer Society)*
- **Sams, Gloria** *(Kentucky Cancer Program)*

LAKE CUMBERLAND CANCER TREATMENT CENTER

- Our state of the art facility offers patients access to leading edge equipment, with the latest advances in Radiation Oncology. The Varian Clinac 21 EX linear accelerator is capable of delivering dual energy photon therapy as well as five electron energies. The Clinac is capable of delivering 3-D conformal radiation therapy as well as IMRT (Intensity Modulated Radiation Therapy). IMRT provides a more precise definition of the delivered radiation treatment volume by varying the beam intensity across each treatment field. This allows us to maximum dose to the tumor while minimizing dose to the surrounding normal tissue. We also perform Respiratory Gated treatments as well as Dynamic Wedging. We utilize an electronic Record and Verify system to ensure accuracy and consistency with patient records.
- The staff of the Cancer Treatment Center includes a board certified Radiation Oncologist with 19 years experience, two Registered nurses, five licensed Radiation Therapists, one licensed Radiologic Technologist, one Medical Physicist, one Dosimetrist, one Oncology Social Worker, two office personal, and dieticians are available as needed.
- Our focus at the Cancer Treatment Center of Lake Cumberland Regional Hospital, is to treat our patients and their families as if they were our own family.

Top 5 Sites Comparison

- The tope 5 sites at LCRH in 2005 were: Lung, Breast, Colorectal, Prostate and Bladder. Figure 1
- Lung cancer continues to be the number one cancer diagnosed and treated at LCRH.
- In 2004, LCRH and /or treated 114 cases of lung cancer, the number remains the same for 2005. Figure 3



Stage at Diagnosis

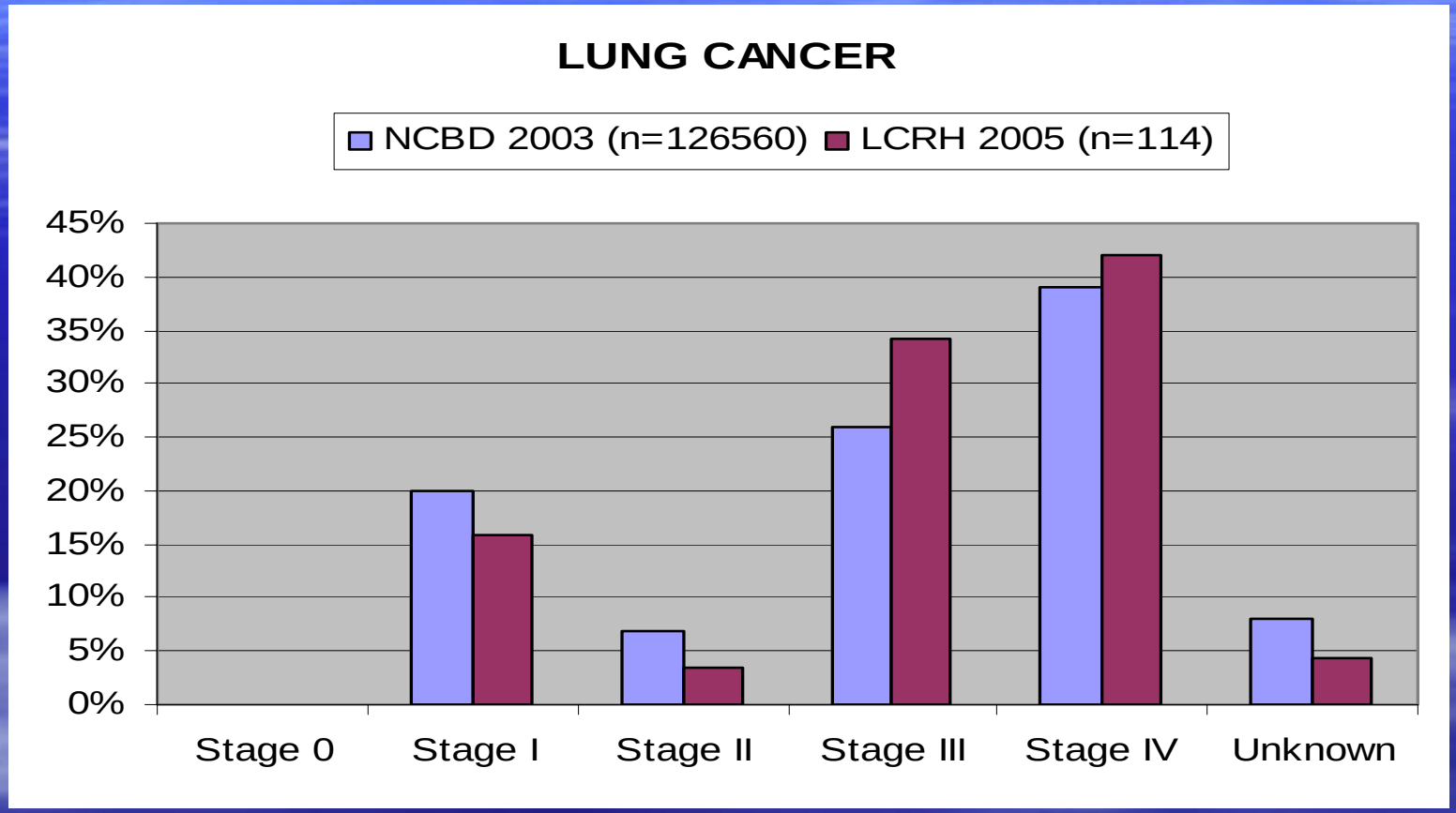
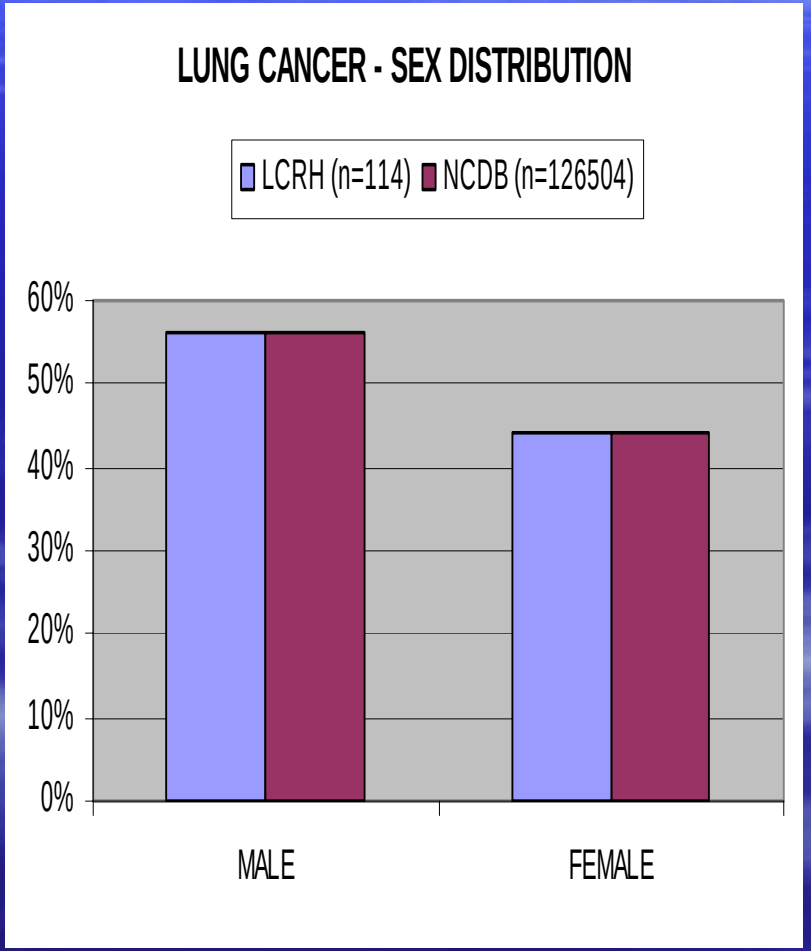


Figure 3

CASE COUNTS BY YEAR					
SITES	**2001**	**2002**	**2003**	**2004**	**2005**
Tongue	2	1	0	1	3
Salivary glands	1	0	0	0	1
Gum & hard palate	3	2	2	2	4
Buccal mucosa	0	0	0	0	2
Oropharynx	2	5	1	4	1
Nasopharynx	0	1	1	1	1
Hypopharynx	0	2	0	2	4
Esophagus	5	5	7	10	2
Stomach	9	8	7	7	3
Small Intestine	0	1	1	2	1
Colon, Rectum/Anus	48	60	68	64	50
Liver	0	1	4	0	2
Gallbladder	2	1	2	3	0
Pancreas	8	10	13	8	5
Other digestive tract	0	2	0	1	2
Nasal cavities,sinuses,ear	0	0	1	1	2
Larynx	8	9	11	13	16
Trachea,bronchus,lung-small, NSC	101	121	111	114	114
Other respiratory	1	0	1	2	0
Bone	1	1	0	0	1
Connective & soft tissue	3	4	5	1	2
Malignant melanoma	12	11	13	13	16
Other skin	2	1	3	1	5
Breast, female & male	85	85	77	67	76
Cervix	6	6	8	5	9
Endometrium (corpus uteri)	15	9	7	7	9
Ovary	3	3	5	1	4
Other female genital organs	3	1	4	1	2
Prostate	54	49	56	42	32
Testis	3	1	2	2	3
Other male genital organs	2	1	2	0	1
Bladder	20	15	18	13	24
Kidney	9	7	13	6	8
Other urinary organs	1	4	1	2	1
Brain	9	2	9	4	5
Other CNS	0	1	0	0	1
Thyroid	7	8	5	4	16
Hodgkin's	1	3	1	2	4
Non-Hodgkin's Lymphomas	17	28	16	22	21
Plasma cell tumors	7	9	6	6	5
Lymphocytic leukemias	1	2	6	1	2
Myeloid leukemias	0	4	4	2	2
Other leukemias	1	0	1	1	2
Myeloprolif. & myelodysplas.	7	1	1	2	0
Unknown primary	15	10	8	12	6
Benign/borderline brain,cns	0	0	0	8	10
Total	**481**	**500**	**501**	**460**	**480**

LUNG CANCER – A SITE-SPECIFIC STUDY

Lung cancer has a tremendous impact on U.S. mortality, with an estimated 174,470 new cases and 162,460 deaths in 2006 in men and women combined.[1] Lung cancer incidence and mortality rates increased markedly throughout most of the last century, first in men and then in women. Lung cancer now accounts for 13% of new cancer cases and 29% of all cancer deaths each year in the United States. Lung cancer is the leading cause of cancer deaths in both men and women. In 2006, it is estimated that 72,130 deaths will occur among U.S. women due to lung cancer, compared with 40,970 deaths due to breast cancer.[1]



Leading Site of New Cancer Cases and Deaths – 2006 Estimates

Estimated New Cases *		Estimated Deaths	
Male	**Female**	**Male**	**Female**
Prostate 234,460 (33%)	Breast 212,920 (31%)	Lung & Bronchus 90,330 (31%)	Lung & Bronchus 72,130 (26%)
Lung & Bronchus 92,700 (13%)	Lung & Bronchus 81,770 (12%)	Colon & Rectum 27,870 (10%)	Breast 40,970 (15%)
Colon & Rectum 72,800 (10%)	Colon & Rectum 75,810 (11%)	Prostate 27,350 (9%)	Colon & Rectum 27,300 (10%)
Urinary Bladder 44,690 (6%)	Uterine corpus 41,200 (6%)	Pancreas 16,090 (6%)	Pancreas 16,210 (6%)
Melanoma of the skin 34,260 (5%)	Non-Hodgkin lymphoma 28,190 (4%)	Leukemia 12,470 (4%)	Ovary 15,310 (6%)
Non-Hodgkin lymphoma 30,680 (4%)	Melanoma of skin 27,930 (4%)	Liver & intrahepatic bile duct 10,840 (4%)	Leukemia 9,810 (4%)
Kidney & renal pelvis 24,650 (3%)	Thyroid 22,590 (3%)	Esophagus 10,730 (4%)	Non-Hodgkin lymphoma 8,840 (3%)
Oral cavity & pharynx 20,180 (3%)	Ovary 20,180 (3%)	Non-Hodgkin lymphoma 10,000 (3%)	Uterine corpus 7,350 (3%)
Leukemia 20,000 (3%)	Urinary Bladder 16,730 (2%)	Urinary Bladder 8,990 (3%)	Multiple Myeloma 5,630 (2%)
Pancreas 17,150 (2%)	Pancreas 16,580 (2%)	Kidney & renal pelvis 8,130 (3%)	Brain & other nervous system 5,560 (2%)
All site 720,280 (100%)	All site 679,510 (100%)	All site 291,270 (100%)	All site 273,560 (100%)

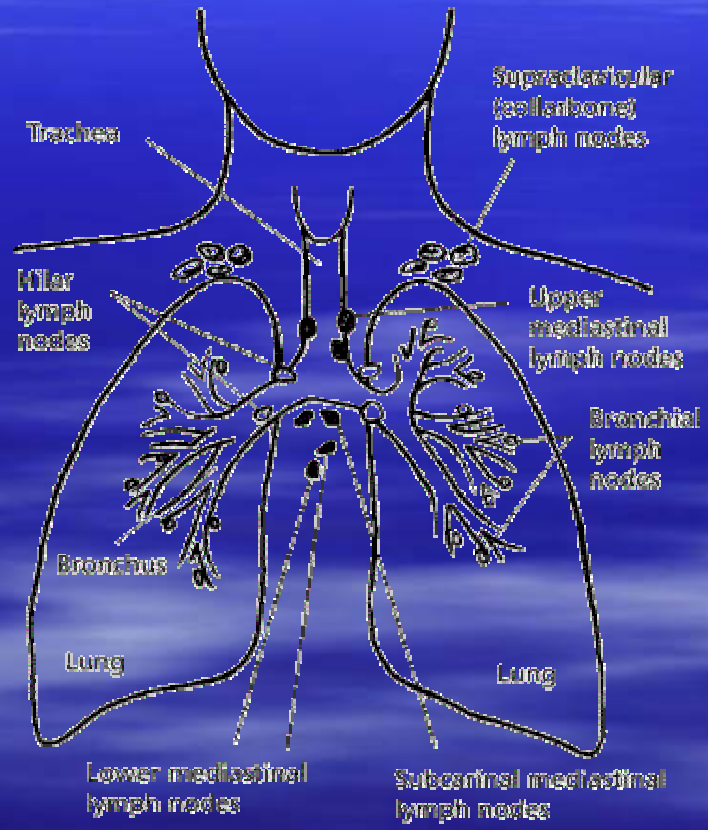
*Excludes basal and squamous cell skin cancers and in situ carcinoma except urinary bladder.

Note: Percentages may not total 100% due to rounding.

LUNG CANCER – A SITE-SPECIFIC STUDY

Histology:

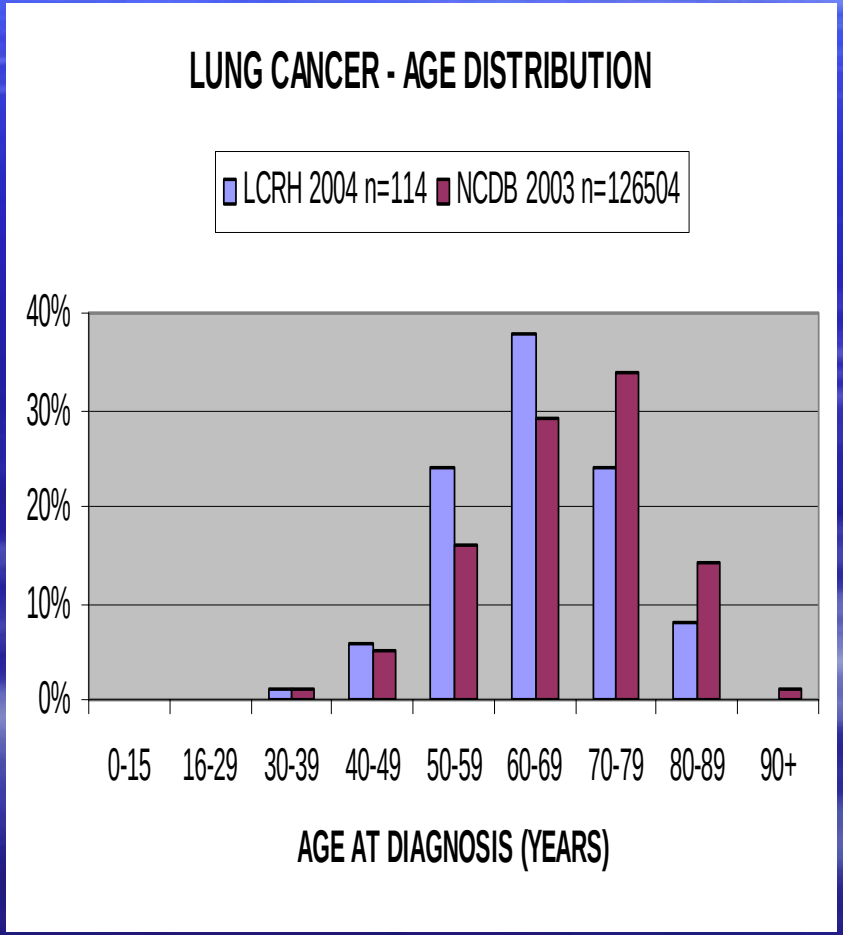
Lung cancer is classified into two major subtypes as Small cell (15-20%) and Non small cell lung (80-85%) cancer based on the cell of origin. They vary significantly in their clinical behavior, small cell being very aggressive and are treated differently.



LUNG CANCER – A SITE-SPECIFIC STUDY

Histology:

Non small cell lung cancer is further subdivided into squamous cell carcinoma, adeno carcinoma including bronchoalveolar carcinoma and large cell type. They are treated similarly depending on the stage except bronchoalveolar carcinoma which can occur on both lungs simultaneously.

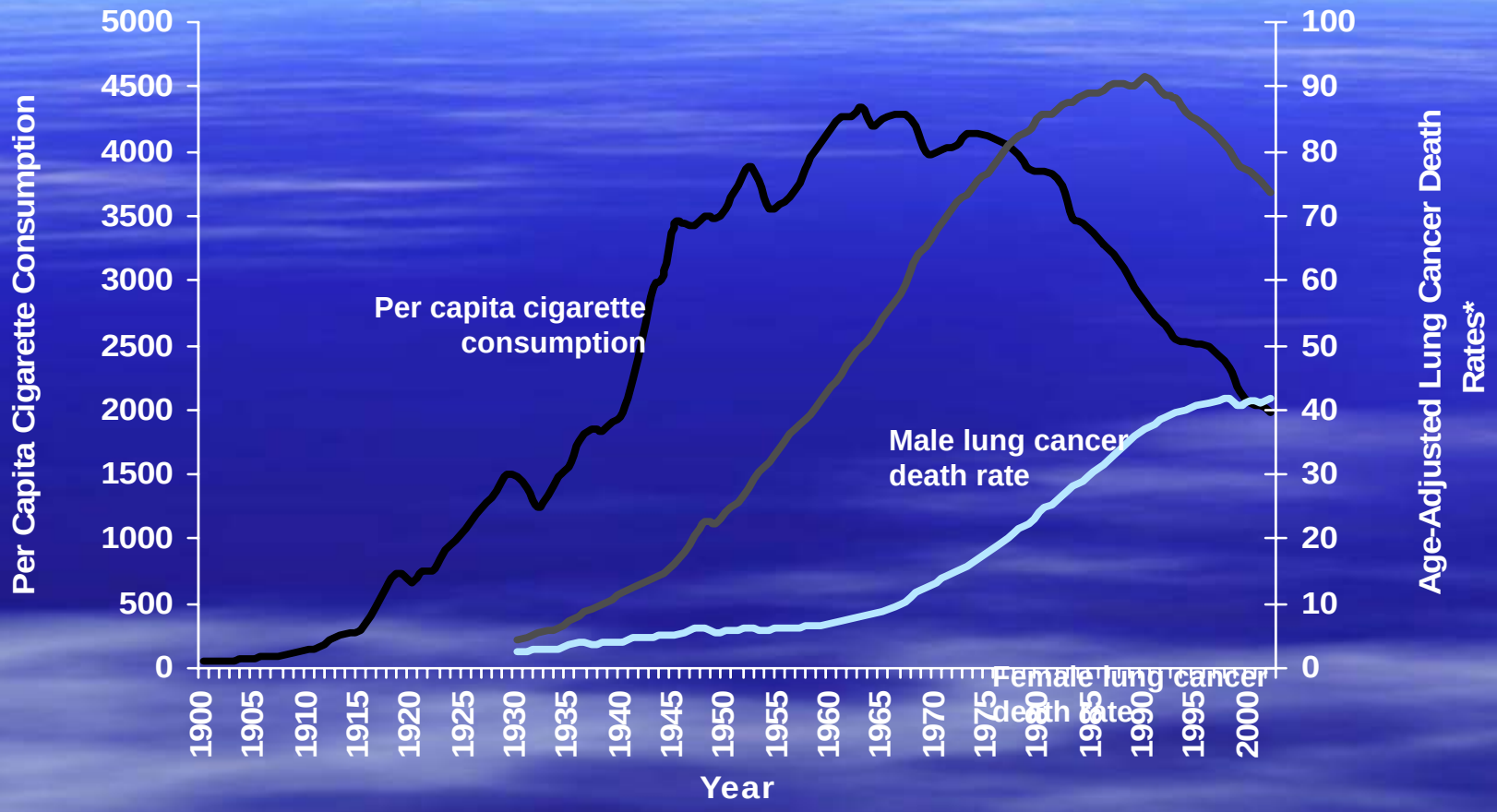


LUNG CANCER – A SITE-SPECIFIC STUDY

Risk Factors:

Cigarette smoking is the most important risk factor for small cell and non small cell type lung cancers. Both active and passive exposures are associated with increased risk (eg) non smoking children and spouse of active smokers have a 30% increase risk in lung cancer compared to spouses of non smokers. The other factors include environmental exposure to asbestos, radon, organic chemicals, certain metals, radiation and air pollution. Combination of more than one risk factor adds to the development of lung cancer.

Tobacco Use in the US, 1900-2002



*Age-adjusted to 2000 US standard population.

Source: Death rates: US Mortality Public Use Tapes, 1960-2002, US Mortality Volumes, 1930-1959, National Center for Health Statistics, Centers for Disease Control and Prevention, 2005. Cigarette consumption: US Department of Agriculture, 1900-2002.

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Signs and Symptoms:

- Depends on the location of the tumor. If the tumor is located close to the center of the airways it can present as a cough, hemoptysis and recurrent pneumonia. If the tumor is located near the periphery of the lung it can cause cough, pleural effusion, and chest pain.
- When the cancer is advanced it can cause a loss of appetite, weight loss, and symptoms related to the organ which the disease may have spread to such as the liver, bone, or brain.

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Diagnosis:

- There are no definite tests for early detection at this time. In people with high risk like coal miners, exposure to asbestos and heavy smears CT scan can detect it at an early stage. Long standing cough, recurrent pneumonia, or hemoptysis need to be evaluated promptly.
- The tests include chest X-ray and if abnormal, a CT scan. If one or both the tests are suspicious, further investigation includes bronchoscope and /or biopsy under radiological guidance. Sputum analysis could help if the cancer cells are present especially if the tumor is located near the center.
- After the diagnosis of cancer, further testing may be needed to evaluate the extent of the disease, which can include, a CT scan of the abdomen, whole body PET scan, bone scan and brain scan /MRI.

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Staging:

Depends on the extent of the tumor. The staging is different in small cell or non small cell caner.

- In small cell lung cancer if the extent of the tumor is limited to one side of the chest which can be included in one radiation portal - Limited Disease
- If the extent of the tumor beyond the above – Extensive disease which include the opposite lung, or organs outside the lung.
- In non small cell lung cancer the staging depends on the size of the tumor and the involvement and location of the lymph nodes. There are four stages which includes.

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Stage 1 - the size of the tumor is less than 3 cm and there is no lymph node involvement

Stage II – the size of the tumor is more than 3 cm and/or there is lymph node in the same side of the lung cancer

Stage IIIA – the tumor is involving the surrounding structure which can be removed by surgery and/or lymph nodes involving same side of the cancer.

Stage IIIB – the tumor involving the surrounding structure which cannot be removed by surgery and/or lymph nodes on both side of the lung

Stage IV - when the cancer is involving structures outside the lung.

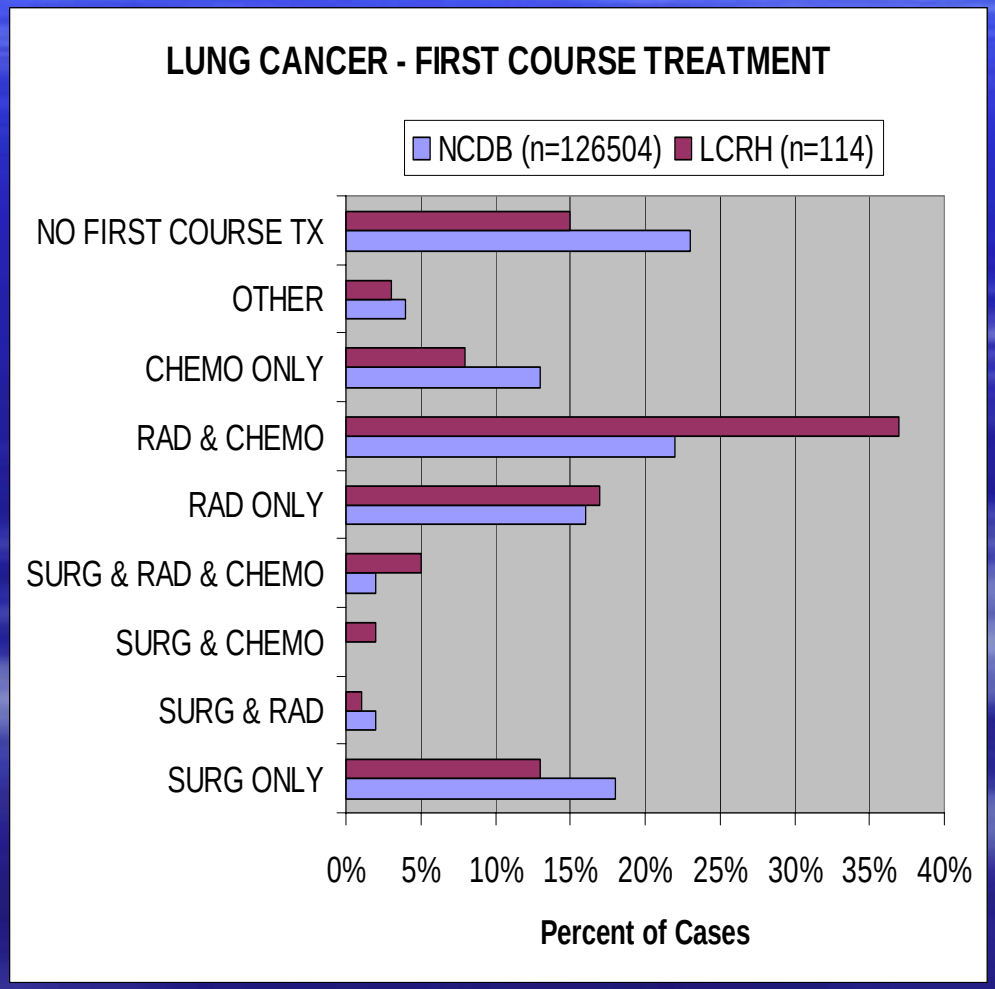
Stage Grouping for non-small cell lung cancer			
Overall Stage	**T Category**	**N Category**	**M Category**
Stage O	Tis (in situ)	N0	M0
Stage IA	T1	N0	M0
Stage IB	T2	N0	M0
Stage IIA	T1	N1	M0
Stage IIB	T2 T3	N1 N0	M0 M0
Stage IIIA	T1 T2 T3 T3	N2 N2 N1 N2	M0 M0 M0 M0
Stage IIIB	Any T T4	N3 Any N	M0 M0
Stage IV	Any T	Any N	M1

LUNG CANCER – A SITE-SPECIFIC STUDY

Treatments

There are multiple treatments available based on the type of lung cancer and the stage of the cancer.

Small cell lung caner: Surgery is not a usual option. Based of the aggressive natural course of the disease they are treated with systemic treatment like chemotherapy and radiation can be included for better local control of the disease.



LUNG CANCER – A SITE-SPECIFIC STUDY

Treatments

Non Small Cell Lung cancer: The treatments depend on the stage of the disease.

- **Stage I cancer:** Surgery is the treatment for cure followed by adjuvant treatment with chemotherapy and or radiation in selected patients
- **Stage II cancer:** Surgery is the treatment followed by adjuvant treatment with chemotherapy and or radiation in majority of patients
- **Stage III A:** Surgery can be done after chemotherapy with or without radiation depending on the response to treatment
- **Stage IIIB:** Surgery is not an option in the majority of the patients. Primary treatment includes chemotherapy and radiation
- **Stage IV:** Systemic treatment with chemotherapy and or radiation is better for palliation compared to best supportive care for the symptom relief and quality of life

LUNG CANCER – A SITE-SPECIFIC STUDY

Surgery:

- Important modality in non small cell lung cancer.

  The nature of the surgery depends on the size, location, extent of the tumor and the pulmonary reserve status of a patient including their co morbidity. It can be pneumonectomy (removing affected side of the lung) or lobectomy (part of the affected lobe of the lung).

Radiation:

- Usually in combination with surgery or chemotherapy. It can be offered before the surgery or after the surgery with systemic treatment or as the primary treatment with chemotherapy. If a patient is unable to tolerate surgery or systemic chemotherapy, radiation can be offered as the only modality for palliation for the primary lung tumor or the area of metastasis like bone and brain.

Chemotherapy:

- Various treatments are available currently as a single agent or in combination. Recently targeted treatments against angiogenesis (Avastin) or epidermal growth factor receptor (Tarceva or Erbitux) are developed and offer benefit along with chemotherapy or on occasion given alone.

LUNG CANCER – A SITE-SPECIFIC STUDY

Survival:

The overall survival has improved significantly over the years due to improved surgical, radiation techniques and better combination of chemotherapy and new targeted treatments. The 5year survival rate is only 15% for all the cancer stages combined, but 50% if detected earlier.

Summary:

Lung cancer is one of the common cancers. The risk factor is mostly related to smoking. Education regarding smoking cessation is the most important tool in the prevention of the lung cancer. Only 16% of lung cancers are detected at an early stage. (Figure 2) With aggressive local and systemic treatment in relatively healthy patients, the survival can be improved. In patients with advanced stage disease, radiation and /or chemotherapy will give symptom control and improve the overall quality of life.

Dr. Mullai, M.D.
Medical Oncologist

References

1. American Cancer Society.: Cancer Facts and Figures 2006. Atlanta, Ga: American Cancer Society, 2006.