

COMMUNITY COLLEGE ONCOLOGY
Caring for Patients with Lung Cancer

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Community College Oncology
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Chaely Medley, RN, MSN, AGNP-C

Caring for Patients with Lung Cancer

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Our Presenter



Chaely Medley, RN, MSN, AGNP-C

Chaely Medley, RN, MSN, AGNP-C, graduated from Appalachian State University in 2013 with her BS in nursing and started her nursing career in a medical-surgical oncology unit before moving to critical care.

In 2019 she graduated from The University of North Carolina at Chapel Hill with her MS in nursing studying Adult Gerontology Primary Care with a focus in Oncology.

She has since worked with Thoracic Oncology at UNC where she works with patients on both standard of care therapies and clinical trials. She enjoys volunteering with the Lung Cancer Initiative of NC and serving as a guest lecturer and preceptor at the UNC School of Nursing.

Her clinical interests lie in optimizing small-cell lung cancer management, patient-reported outcomes, quality of life, and palliative care.

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3. In 2023, Chaely was included in two abstracts presented at the ASCO Quality Care Symposium and ultimately published in the Journal of Clinical Oncology.

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2. Chaely's favorite aspect of medical oncology is building relationships and shared experiences with patients and their families.
1. Teaching and engaging others in the importance of informed quality patient care is an honor.

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Caring for Patients with Lung Cancer

Chaely J. Medley RN, MSN, AGNP-C

February 6, 2024



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Learning Objectives

- Identify common causes and symptoms of lung cancer
- Discuss the diagnostic process for lung cancer, including next generation sequencing
- Describe the lung cancer staging and classification system
- Recall treatment options available to patients and most common adverse effects of these therapies

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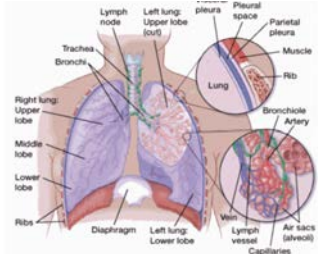
What is Lung Cancer?


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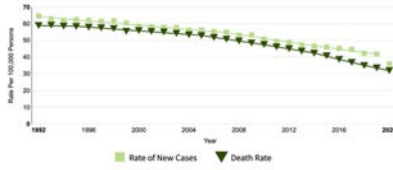
- Lung cancer occurs when cells originating in the lungs begins to grow out of control.
- Lung cancer may begin in the lungs, but it has the ability to metastasize to other areas in the body, most commonly the brain, bones, liver and lymph nodes.
- Lung cancer is the leading cause of cancer death in the US (CDC, 2023).




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- In 2023, lung cancer accounted for 12.2% (238,340 new cases) of all new cancer cases, and accounted for 20.8% (127,070 deaths) of all cancer deaths (SEER, 2023).




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Who Gets Lung Cancer?

- Lung cancer is the leading cause of cancer death overall and among both men and women. The second leading cause of cancer death is prostate for men and breast for women.
- Lung cancer is more common in men than women.
 - Among men, most common in African Americans
 - Among women, most common in non-hispanic white females
- Most commonly diagnosed among people aged 65-74.
 - Median age at diagnosis is 71 (American Lung Association).

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FIVE-YEAR RELATIVE SURVIVAL RATES BY CANCER TYPE BY STAGE AT DIAGNOSIS	
Stage	Survival Rate
Small Cell Lung Cancer	
Localized	29.3%
Distant	2.6% to 3.2%
Non-Small Cell Lung Cancers	
Squamous cell carcinoma	
Localized	46.8%
Regional	26.8%
Distant	5.8%
Adenocarcinoma	
Localized	70.8%
Regional	44.5%
Distant	8.4%
Large cell carcinoma	
Localized	53.6%
Regional	28.3%
Distant	5.4%

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Risk Factors for Lung Cancer

- **Smoking**
 - Considered a modifiable risk factor
 - Approximately 80% of lung cancer deaths in the US each are related to smoking.
 - Smoking history is estimated in packs per year (PPY)
 - Number of packs per day x number of years
 - 2ppd x 20yrs = 40ppy
- Secondhand smoke exposure
- Radon gas exposure
- Other chemical exposures
 - Asbestos, arsenic, diesel exhaust, silica, chromium (American Cancer Society, 2023)

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Types of Lung Cancer

- **Non-Small Cell Lung Cancer (NSCLC)** - about 85% of all lung cancers
 - **Non-squamous**
 - Adenocarcinoma - mucous cells, usually found in outer parts of the lung
 - Squamous - flat cells lining the inside of the airways, smoking related
- **Small Cell Lung Cancer (SCLC)** - 10-15% of all lung cancers
 - Usually found in central chest, very aggressive (DeLong, 2021)

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Signs and Symptoms

Cough, especially one that changes or becomes productive	Bone pain
Unilateral wheezing	Nervous system changes
Dyspnea (shortness of breath)	Headache, dizziness, weakness, numbness, dizziness
Pneumonia	Lymphadenopathy (swelling of the lymph nodes)
Chest pain or pain in shoulder and arm	Jaundice (yellowing of the skin and eyes)
Hemoptysis (coughing up blood or rust colored sputum)	Superior Vena Cava Syndrome
Vocal cord paralysis (hoarseness)	Paraneoplastic Syndromes
Atelectasis	SIADH, Cushing syndrome, LEMS
Neurologic changes	Blood clots (DeLong, 2021)
Lethargy (feeling tired or weak)	
Unexplained weight loss	


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Knowledge Check #1

Which of the following are risk factors for lung cancer (select all that apply)?

- Exposure to tobacco smoke (smoking or secondhand)
- Exposure to radon gas
- Exposure to certain chemicals
- Exposure to chocolate

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How Do We Find Lung Cancer?


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Screening

- The American Cancer Society recommends yearly screening for lung cancer with a low-dose CT (LDCT) scan for people aged 50 to 80 years who smoke or used to smoke and have at least a 20ppy history.
- CT scans use cross sectional soft tissue images to analyze tissue for density, thus revealing tumors or displaced organs (American Lung Association).

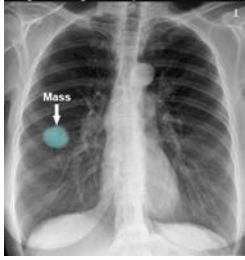



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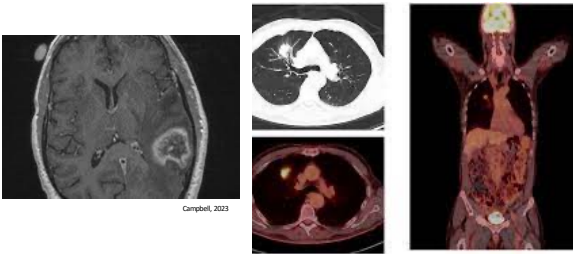
Diagnosis: Imaging

- Chest x-rays are usually the first test used to diagnose a lung mass.
- CT scans are then used to create a more detailed image.
- PET-CT scans are done most often after cancer is diagnosed and used to completely stage the cancer by seeing where else cancer cells in the body exist.
- Brain MRI is used to determine whether or not lung cancer has metastasized to the brain (American Lung Association, 2022).




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Campbell, 2023


(Categrary, 2021)

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Biopsy

- Once suspected cancer is seen on imaging, a biopsy is necessary to confirm pathology of the cancer
- Bronchoscopy** - procedure where a thin tube with a camera at the end is passed through the mouth/nose and throat to visualize and sample tissue.
- Thoracoscopy** - a tube similar to that used in a bronchoscopy is passed through two or three small cuts made in the chest.
- Mediastinoscopy** - similar test with entrance at the bottom of the neck, most often used to sample lymph nodes when looking for metastatic disease
- Percutaneous needle biopsy** - may be CT or US guided, used when tissues are not central enough to undergo sampling with bronchoscopy (American Lung Association, 2022).

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Staging

Staging is done to determine the extent of disease, likely prognosis, and to determine therapy plans.


NSCLC is staged using the TNM classification system and is staged 0-IV

T: features of the primary tumor, such as size and invasiveness

N: metastasis to regional lymph nodes

M: presence or absence of distance metastases (American Lung Association, 2024)

Stage	Primary Tumor	Node Involvement	Metastasis
Occult	Tx	N0	M0
Stage 0	Tis	N0	M0
Stage IA1	T1a or T1a	N0	M0
Stage IA2	T1b	N0	M0
Stage IB	T1c	N0	M0
Stage IIA	T2a	N0	M0
Stage IIB	T1b, T1c, T1d, or T2b	N1	M0
Stage IIIA	T3	N0	M0
Stage IIIB	T1b, T1c, T1d, or T2b	N2	M0
Stage IIIC	T3	N2	M0
Stage IVA	T4	N0	M1a
Stage IVB	T4	N1	M1a
Stage IVC	T3 or T4	N2	M1a
Stage IVB	T1b, T1c, T1d, or T2b	N3	M1b
Stage IVC	T3 or T4	N3	M1b
Stage IVB	Any T	Any N	M1c or M1d

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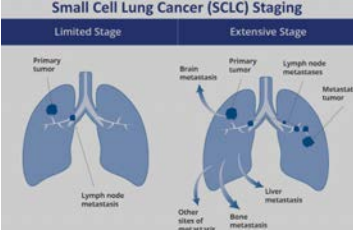
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Staging

SCLC is staged using the Veterans Administration Lung Study Group (VALSG) staging system.

Limited Stage : tumor confined to one hemithorax and regional lymph nodes.

Extensive stage: tumor beyond this area in contralateral lung or extra thoracic sites (American Lung Association, 2024).





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Next Generation Sequencing

- Assessing tumor-genomic changes and programmed death-ligand 1 (PD-L1) expression is critical before initiating therapy.
- NGS is molecular testing conducted on biopsy tissues to provide comprehensive molecular profile for NSCLC.
- This information helps drive treatment decisions by anti-cancer therapies (Cainap, Balacescu, Cainap, Pop, 2021).



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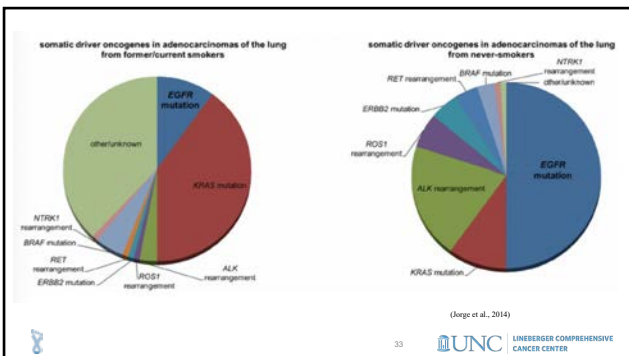
Knowledge Check #2

Which of the following are diagnostic procedures for lung cancer (select all that apply)?

- Screening
- Imaging (chest x-ray, CT scan, PET-CT scan, MRI)
- Biopsy
- Hearing test


 


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How Do We Treat Lung Cancer?





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Treatment

- Once tissue type and staging is confirmed, patients and families can discuss treatment options with their oncologist.
- Treatment is determined by evidence based practice while balancing both quality and duration of life. These are patient driven discussions.
- Often times, these decisions involve medical, surgical, and radiation oncology. Other specialists such as palliative care medicine and nutritionists may also be involved at this time.





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Treatment

- About 20% of NSCLC patients are stage I or II at time of diagnosis, and can be treated with surgery, adjuvant therapy (chemotherapy or targeted therapy following surgery) and radiation therapy (for patients unwilling or unable to undergo surgery).
- Surgery may be performed for :
 - Occult NSCLC (depending on where the cancer has spread)
 - Stage 0 (carcinoma in situ) NSCLC
 - Stage I or stage II NSCLC
 - Stage IIIA NSCLC, with or without radiation therapy (Willers, Stinchcombe, Barriger, et al, 2015)




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Treatment


- Stage IIIA NSCLC disease presentations can range from resectable tumors with microscopic metastases to lymph nodes to unresectable, bulky disease involving multiple nodal stations.
- Treatment typically centers around immunotherapy with platinum based chemotherapy prior to surgery (neoadjuvant) with goals of:
 - Reduction in tumor size
 - Early eradication of micro metastases
 - Better tolerability
- Adjuvant chemotherapy, targeted therapy for patients with EGFR mutated NSCLC, and immunotherapy for patients whose tumors have at least 1% PD-L1 expression increases survival (National Cancer Institute, 2023).

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Treatment


- Patients with stages IIIB and IIIC NSCLC do not benefit from surgery alone and are best managed by chemotherapy and radiation therapy.
- This typically involves concurrent daily radiation and weekly chemo for six weeks. Close co-management with the medical and radiation oncology teams is paramount.
- Following this, most patients undergo systemic consolidation therapy for one year with durvalumab, an anti-PDL1 monoclonal antibody (National Cancer Institute, 2023).

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Treatment


- 40% of patients with newly diagnosed NSCLC have stage IV disease.
- Goals of treatment are to control symptoms and prolong survival, taking into account patient history, molecular features, age, comorbidities, and performance status.
- First line treatment consists of either targeted therapy or immunotherapy and chemotherapy, either as combination therapy or alone.
- Radiation and surgery are typically used for palliation of symptoms (National Cancer Institute, 2023).

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Treatment


- Of the 10-15% of patients with SCLC, 80-85% of them will present with extensive stage disease.
- Treatment for limited stage disease focuses on chemotherapy and radiation. These patients may choose to undergo prophylactic cranial irradiation (PCI) with the intent of preventing brain metastasis.
- First line treatment for extensive stage disease focuses on combined chemotherapy and immunotherapy (National Cancer Institute, 2023).



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Side Effects


- Surgery
 - Pain
 - Cough
 - Dyspnea (difficulty breathing)
 - Collapsed lung
 - Fatigue
 - Blood clots
- Radiation Therapy
 - Skin changes
 - Dyspnea
 - Cough
 - Esophagitis, stomatitis
 - Loss of hair, skin changes
 - Loss of appetite
 - Fatigue, weakness
 - Pneumonitis, fibrosis (Delong, 2021)



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Types of Medications



- Chemotherapies:
 - Cisplatin
 - Carboplatin
 - Paclitaxel
 - Gemcitaine
 - Pemetrexed
 - Etoposide
- Immune Checkpoint Inhibitors
 - Pembrolizumab, Nivolumab (PD-1)
 - Durvalumab, Atezolizumab (PD-L1)
 - Ipilimumab, tremelimumab (CTLA-4)
- Targeted therapies
 - Bevacizumab
 - Ramucirumab
 - Sotorasib (KRAS)
 - Osimertinib (EGFR)
 - Crizotinib (ALK, ROS1)
 - Dabrafenib, trametinib (BRAF)
 - Selpercatinib (RET)
 - Capmatinib (MET)
 - Trastuzumab deruxtecan (HER2)
 - Larotrectinib (NTRK) (American Cancer Society, 2023)



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Side effects

- **Chemotherapy**
 - Nausea, vomiting
 - Appetite, taste changes, weight loss
 - Fatigue, weakness
 - Diarrhea, constipation
 - Mucositis
 - Changes to electrolytes
 - Myelosuppression
 - Alopecia
 - Peripheral neuropathy
- **Immunotherapy**
 - Itching, skin rash
 - Joint pain
 - Diarrhea
 - Thyroid changes
 - Fatigue
 - Organ toxicity (DeLong, 2021)



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Knowledge Check #3



Which of the following are treatments for lung cancer (select all that apply)?

- Surgery
- Chemotherapy
- Radiation
- Immunotherapy
- Behavior therapy

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Supportive Care

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Respiratory Distress

- Causes
 - Surgical resection
 - Airway obstruction/restriction
 - Inflammation/infection
 - Effusions
- Presentation
 - Cough, dyspnea, pleuritic pain, tachycardia
- Supportive measures
 - Supplemental oxygen
 - Prompt intervention for acute clinical concerns
 - Respiratory medications, non-pharmacological supportive care
 - Pulmonary rehabilitation (DeLong, 2021).

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Fatigue

- Cancer-related fatigue is prevalent in 75% of patients with metastatic disease, may be directly related to treatment or the cancer itself, and can last for years to months following treatment (DeLong, 2021).




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Fatigue



- Causes:
 - Cancer pathology
 - Anti-cancer treatments
- Presentation
 - Worsening performance status
 - Tiredness, weakness
 - Depression
- Supportive measures
 - Increase both rest and exercise
 - Seek companionship, supportive relationships
 - Prompt clinical intervention for reversible clinical concerns (anemia, dehydration, electrolyte imbalances)
 - Palliative care involvement (DeLong, 2021)

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Nausea, Vomiting, Weight loss



- **Causes**
 - Chemotherapy
 - Radiation therapy directed at the GI tract, liver, or brain
 - Anorexia-cachexia syndrome
- **Presentation**
 - Severe weight loss, muscle wasting
 - Electrolyte abnormalities, dehydration
 - Fatigue, lethargy
- **Supportive measures**
 - Aggressive antiemetic regimen
 - Referral to nutrition therapy; encouraging high fat, high protein, high calorie diet
 - PEG tube placement
 - Dose reductions or delays
 - Prompt attention to electrolyte abnormalities or other acute presentations (DeLong, 2021)

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Pain

- **Estimated to occur in 20% to 50% of patients with cancer**
- **Management is highly individualized**
- **Causes**
 - Dependent on location and size of tumor
 - Treatment related (post operative, post radiation therapy)
- **Supportive care**
 - Oral analgesics
 - Non-pharmacologic measures
 - Early involvement of palliative care
 - Prompt management of acute presentation (National Cancer Institute, 2023)



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Pain

TYPES OF LUNG CANCER PAIN	
Pain Type	Definition
Somatic	Caused by stimulation of afferent nerves in skin, connective tissue, muscles, joints, or bones. Characterized by localized, throbbing, sharp, or aching pain. Responds well to analgesics.
Visceral	Caused by pressure or distention. Pain is deep, more diffuse.
Neuropathic	Caused by peripheral or central sensory nerve trauma. Characterized by burning, shooting, or tingling sensations and poor response to analgesics.
Paraneoplastic syndrome	Several different types of pain, caused by bony metastases, peripheral nerve compression, brachial plexus pressure (Pancoast tumor), or epidural spinal cord compression.
Postoperative	Normally anticipated pain following a surgical procedure.
Mucositis	Inflammation of the oral mucosa as a result of cancer therapies.
Postirradiation	The result of radiation fibrosis.

National Cancer Institute, 2023



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Knowledge Check #4

Which of the following are side effects of cancer therapy that often require supportive care for lung cancer (select all that apply)?



- Fatigue
- Nausea, vomiting, weight loss
- Pain
- Tinnitus



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Palliative care



- Medical specialty focused on management of symptoms to promote quality of life, used through all stages of lung cancer.
- Studies show incorporation of palliative care at time of diagnosis for metastatic disease improves patient outcomes.
- Received in addition to cancer care, often times with teams working together (American Lung Association, 2022).



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Hospice Care

- Care provided to both patient and family when a patient is considered terminally ill and no longer pursuing anti-cancer therapies.
- Hospice goals are to allow patients to die comfortably with necessary support for both patient and family.
- Hospice care involves physicians, nurses, social workers and therapists that work with a patient either in a facility or in the patients home to manage end-of-life care on an as needed basis (American Cancer Society, 2023).



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Questions?




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Thank you!!!



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Caring for Patients with Head and Neck Cancers
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