DIANE'S NGN NCLEX 2026 STUDY SERIES

Lung Cancer — All Types

Comprehensive review of SCLC & NSCLC subtypes · Risk factors · Clinical manifestations · Priority nursing care · Treatment modalities

Respiratory System | Oncology | Clinical Judgment | Priority Care

1 Definition & Overview

#1
Leading cause of cancer-related death in U.S. (men & women)

~85%
Linked to tobacco smoke (active or secondhand)

2 Categories
Small Cell (SCLC) & Non-Small Cell (NSCLC) — treated very differently

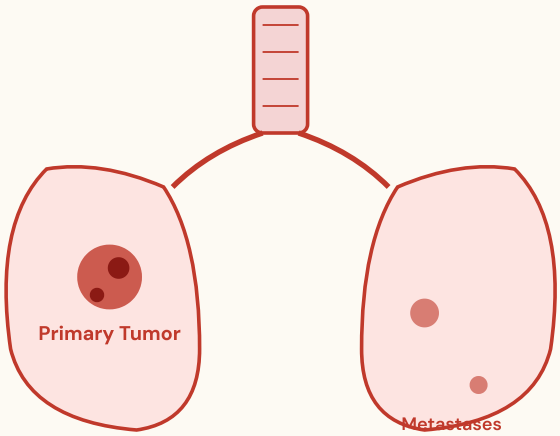
<20%
5-year survival rate — often diagnosed late due to silent early stage

→ **Lung cancer** = uncontrolled malignant growth of cells in lung tissue, most often originating from the bronchial epithelium.

→ Commonly metastasizes to **brain, bone, liver, and adrenal glands** via blood and lymph spread.

→ Classified by **cell type**, which dictates treatment, prognosis, and likelihood of paraneoplastic syndromes.

2 Pathophysiology — Step by Step



Bronchial tree & lung tissue

1. **Carcinogen exposure** (tobacco smoke, radon, asbestos) damages bronchial epithelium repeatedly.

2. **DNA mutations** accumulate in tumor suppressor genes (p53) and oncogenes (KRAS, EGFR), allowing uncontrolled cell growth.

3. **Malignant cells proliferate** in bronchial mucosa → form a tumor that obstructs airway, invades nearby tissue, and produces abnormal substances.

4. **Local effects:** airway obstruction → atelectasis, post-obstructive pneumonia, hemoptysis, pleural effusion.

5 **Metastasis** via blood/lymph to brain, bone, liver, adrenals; tumor secretes hormones causing **paraneoplastic syndromes** (SIADH, hypercalcemia, Cushing's).

3 Types of Lung Cancer

Small Cell (SCLC) — ~15%

- ✓ **"Oat cell"** — small, round cells
- ✓ **Centrally located** near hilum
- ✓ **Most aggressive** — grows & spreads fastest
- ✓ Almost always linked to **smoking**
- ✓ Often metastatic at diagnosis
- ✓ Associated with **SIADH, Cushing's, Lambert-Eaton**
- ✓ Treated mainly with **chemo + radiation** (rarely surgery)

Non-Small Cell (NSCLC) — ~85%

- ✓ Slower growth than SCLC
- ✓ Three subtypes: **adenocarcinoma, squamous, large cell**
- ✓ May be diagnosed at earlier, treatable stage
- ✓ **Surgical resection** possible if localized
- ✓ Targeted therapy & immunotherapy effective
- ✓ Better long-term prognosis when caught early

📋 NSCLC Subtype Comparison

Subtype	% of Lung CA	Location	Key Population	Distinct Feature
Adenocarcinoma	~40%	Peripheral	Most common in non-smokers, women, younger patients	Glandular tissue origin; often EGFR/ALK mutations — responds to targeted therapy
Squamous Cell	~25–30%	Central (near bronchi)	Strong smoking link; men > women historically	Causes **hypercalcemia** via PTHrP secretion; cavitates; often hemoptysis
Large Cell	~10–15%	Peripheral	Smokers; less common subtype	Undifferentiated, rapid growth, early metastasis

Subtype	% of Lung CA	Location	Key Population	Distinct Feature
Small Cell (SCLC)	~15%	Central	Almost exclusively smokers	**Most aggressive**; paraneoplastic syndromes; chemo/radiation focus

4 Risk Factors

Tobacco Smoke (#1 Cause)

Active smoking causes 80–90% of cases · Risk increases with pack-years · Secondhand smoke also significant

Radon Gas

2nd leading cause; odorless gas in basements

Asbestos

Construction, shipyards, insulation work

Family History

First-degree relative ↑ risk

Air Pollution

Diesel exhaust, particulate matter, occupational dust

Prior Radiation

Chest radiation for prior cancer (e.g., breast, lymphoma)

Chronic Lung Disease

COPD, pulmonary fibrosis, prior TB scarring

5 Signs & Symptoms

*Early lung cancer is often **silent** — most symptoms appear once tumor is large or has spread.*

Early / Subtle Signs

- **Persistent cough** >3 weeks (or change in chronic cough)
- **Hemoptysis** — blood-tinged sputum
- Wheezing or new-onset stridor
- Hoarseness (laryngeal nerve involvement)
- Mild dyspnea on exertion
- Recurrent pneumonia / bronchitis
- Vague chest discomfort
- Fatigue

Late / Advanced Signs

- **Unexplained weight loss**, anorexia, cachexia
- **Bone pain** (skeletal metastases)
- Severe dyspnea, pleural effusion
- **Superior Vena Cava Syndrome** — facial/neck/arm edema, distended neck veins
- **Horner's syndrome** (Pancoast tumor) — ptosis, miosis, anhidrosis
- **Clubbing** of fingers
- Headache, seizures, focal deficits (brain mets)
- Jaundice, RUQ pain (liver mets)

RED FLAG Findings — Notify HCP Immediately

- **Massive hemoptysis** (>200 mL/24 hr) — risk for asphyxiation; airway is the priority
- **SVC Syndrome** — facial swelling, JVD, dilated chest veins → oncologic emergency
- **Spinal cord compression** from bone mets → back pain, weakness, bowel/bladder changes
- **Cardiac tamponade** from malignant pericardial effusion (Beck's triad)
- **Tumor lysis syndrome** after chemo — ↑K, ↑phos, ↓Ca, ↑uric acid → arrhythmias
- **Severe hyponatremia** from SIADH (SCLC) — Na <120 → seizures

Paraneoplastic Syndromes — High-Yield Associations

Syndrome	Cancer Type	Key Lab/Sign	Nursing Watch
SIADH	Small Cell	↓ Na, ↑ urine osmolality, fluid retention	Seizure precautions; fluid restriction
Cushing's syndrome	Small Cell (ectopic ACTH)	↑ Cortisol, ↑ glucose, ↓ K, HTN	Glucose monitoring, BP
Hypercalcemia	Squamous Cell (PTHrP)	Ca >10.5 — bones, stones, groans, moans	Hydration, fall precautions, telemetry
Lambert-Eaton	Small Cell	Proximal muscle weakness improving with use	Aspiration & fall risk
Horner's (Pancoast)	Apical NSCLC	Ptosis, miosis, anhidrosis on one side	Severe shoulder/arm pain — assess

6 Diagnostics & Staging

SCREENING

Low-Dose CT (LDCT)

Annual screening for adults age 50–80 with ≥20 pack-year smoking history.

INITIAL

Chest X-ray

First-line if symptoms; may detect mass, infiltrate, effusion, or atelectasis.

IMAGING

CT Chest with Contrast

Better tumor characterization, lymph node involvement, staging.

STAGING

PET Scan

Detects metabolic activity — identifies metastases throughout body.

DEFINITIVE

Bronchoscopy + Biopsy

Gold standard for diagnosis. NPO 6–8 hr pre-op. Post: assess gag reflex BEFORE oral intake.

CYTOLOGY

Sputum Cytology

Early morning specimens × 3 days; detects shed malignant cells.

STAGING

Mediastinoscopy

Surgical evaluation of mediastinal lymph nodes — guides surgical eligibility.

FLUID

Thoracentesis

Drains pleural effusion + cytology. Position upright, leaning forward; max ~1000 mL/session.

7 Priority Nursing Interventions — ABC Framework

A
Airway

- Position **High-Fowler's** or tripod
- Suction PRN — gentle, brief
- Monitor for stridor, obstruction
- Have suction & emergency airway at bedside
- Monitor for massive hemoptysis

B
Breathing

- Administer O_2 as ordered
- Monitor SpO_2 & respiratory rate
- Teach **pursed-lip** breathing
- Encourage incentive spirometry
- Pace activities to reduce dyspnea

C
Circulation

- Assess for **SVC syndrome** (JVD, facial edema)
- Monitor BP — risk for hypotension or HTN crisis
- Watch for **cardiac tamponade**
- Telemetry if hypercalcemia or chemo-related
- Manage fluid balance (SIADH = restrict)

Additional Priority Care

- ✓ **Pain management** — chronic, often severe; round-the-clock opioids; assess for bone pain
- ✓ **Nutrition** — small frequent high-protein/high-calorie meals; address taste changes from chemo
- ✓ **Energy conservation** — cluster care, plan rest periods
- ✓ **Smoking cessation** — even after diagnosis improves outcomes
- ✓ **Infection prevention** — neutropenic precautions during chemo (no fresh flowers, raw food, large crowds)
- ✓ **Emotional/psychosocial support** — depression, anxiety, end-of-life planning, palliative referral
- ✓ **Skin care** for radiation site — water only, no metals/talc/lotions, pat dry

✓ **Safe handling** — chemo waste & body fluids per protocol × 48 hr post-infusion

8 Pharmacology & Treatment Modalities

🔪 Surgery

- **Lobectomy** — removal of one lobe (most common)
- **Pneumonectomy** — entire lung removed
- **Wedge resection** — small section
- Mainly for early-stage NSCLC
- Post-op: chest tube management, position on OPERATIVE side or back (pneumonectomy)

📡 Radiation Therapy

- External beam (most common)
- Stereotactic body radiation (SBRT)
- Used for both SCLC & NSCLC
- Skin care: water only, no powders/zinc/lotions
- Watch for esophagitis, pneumonitis, fatigue

💊 Chemotherapy

- Mainstay for SCLC
- Common: **Cisplatin/Carboplatin + Etoposide**
- NSCLC: paclitaxel, docetaxel, pemetrexed
- Bone marrow suppression, N/V, neuropathy
- Antiemetics + neutropenic precautions

🎯 Targeted & Immunotherapy

- **EGFR inhibitors**: erlotinib, gefitinib, osimertinib
- **ALK inhibitors**: crizotinib, alectinib
- **Immunotherapy**: pembrolizumab, nivolumab, atezolizumab
- Watch for autoimmune side effects (pneumonitis, colitis, hepatitis, endocrinopathy)

Drug / Class	Use	Key Toxicity	Nursing Priority
Cisplatin	SCLC & NSCLC chemo	Nephrotoxicity, ototoxicity, peripheral neuropathy	Aggressive IV hydration; monitor BUN/Cr; audiogram
Etoposide	SCLC chemo	Bone marrow suppression, hypotension	Monitor CBC, infuse slowly, BP during infusion
Paclitaxel	NSCLC chemo	Hypersensitivity, neuropathy, neutropenia	Pre-medicate with steroid + antihistamine

Drug / Class	Use	Key Toxicity	Nursing Priority
Erlotinib (Tarceva)	EGFR-mutated NSCLC	Acneiform rash, diarrhea, ILD	Take on empty stomach; monitor lung function
Pembrolizumab	Immunotherapy NSCLC	Immune-mediated pneumonitis, colitis, hepatitis	Hold for any new dyspnea, severe diarrhea, ↑ LFTs
Bevacizumab	Anti-angiogenic (NSCLC)	Hemorrhage, HTN, impaired wound healing	BP monitoring; hold before surgery
Ondansetron / Aprepitant	Chemo-induced N/V	Headache, constipation, QT prolongation	Give before chemo + scheduled doses
Filgrastim (Neupogen)	↑ neutrophils after chemo	Bone pain, splenomegaly	Monitor CBC, treat bone pain with acetaminophen
Morphine / Opioids	Chronic cancer pain, dyspnea	Sedation, constipation, respiratory depression	Bowel regimen; monitor RR; naloxone available

9 NCLEX Test Traps ⚠️

❌ **Wrong Choice**

"Hemoptysis is expected with lung cancer — continue to monitor."

✅ **Right Choice**

Quantify volume. **Massive hemoptysis (>200 mL/24 hr) = airway emergency** — position on AFFECTED side, suction ready, notify HCP.

❌ **Wrong Choice**

Treat SCLC with surgery as the first line.

✅ **Right Choice**

SCLC is treated primarily with **chemotherapy + radiation**; usually metastatic at diagnosis. Surgery is reserved for very early limited disease.

❌ **Wrong Choice**

Restrict fluids on ALL lung cancer patients.

✅ **Right Choice**

Fluid restriction is for **SIADH (SCLC)**. Patients on cisplatin or with hypercalcemia (squamous) need **aggressive IV hydration**.

❌ **Wrong Choice**

Position post-pneumonectomy patient on the unaffected side.

✅ **Right Choice**

Post-pneumonectomy: position **supine or on the operative (affected) side** to allow remaining lung to expand. Avoid lying on the unoperative side (compresses the only working lung).

❌ **Wrong Choice**

Apply zinc oxide to soothe radiation skin reaction.

✅ **Right Choice**

Avoid **metals (zinc oxide), talc, lotions, perfumes** on radiation field. Use plain water

only, pat dry, cornstarch for itch.

❌ Wrong Choice

Allow patient on chemo-induced neutropenia to receive fresh flowers from family.

✅ Right Choice

Neutropenic precautions: NO fresh flowers, plants, raw fruits/vegetables, undercooked meat, or crowds. Strict hand hygiene.

❌ Wrong Choice

Monitor for hyperkalemia in patient with paraneoplastic SIADH.

✅ Right Choice

SIADH causes **dilutional hyponatremia**. Watch for Na <135 and seizures. Initiate seizure precautions and fluid restriction.

10 Patient & Family Education

🚭 Prevention & Risk Reduction

- Smoking cessation — biggest modifiable risk
- Avoid secondhand smoke
- Test home for radon (esp. basements)
- Wear PPE for occupational exposures
- Annual LDCT screening if eligible

🍎 Nutrition

- Small, frequent, high-calorie/high-protein meals
- Use plastic utensils if metallic taste
- Bland foods if mouth sores; soft if dysphagia
- Hydrate well unless SIADH (then restrict)
- Nutritional supplements (Ensure, Boost)

🛡️ Infection Prevention

- Vigorous handwashing
- Avoid sick contacts & large crowds during chemo
- Annual flu vaccine + pneumococcal & COVID
- Report fever ≥100.4°F (38°C) immediately
- No live vaccines while immunosuppressed

💪 Activity & Energy

- Pace activities — rest before fatigue
- Prioritize most important tasks for high-energy times
- Mild exercise as tolerated (walking)
- Pulmonary rehab if recommended

📞 When to Call HCP

- Fever, chills, persistent cough, ↑ dyspnea
- New or worsening hemoptysis
- Severe pain not relieved by meds
- Facial/neck swelling (SVC syndrome)
- New neurologic symptoms (mets)
- Unexplained bruising or bleeding

💜 Psychosocial & End-of-Life

- Discuss advance directives early
- Palliative care can begin alongside treatment
- Hospice referral when appropriate
- Support groups; spiritual care
- Caregiver support & respite resources

11 Memory Boosters & Mnemonics

📣 "CAUTION" — Warning Signs of Cancer (ACS)

C	**Change** in bowel/bladder habits
A	**A** sore that does not heal
U	**Unusual** bleeding/discharge
T	**Thickening** or lump
I	**Indigestion** or difficulty swallowing
O	**Obvious** change in mole/wart
N	**Nagging** cough or hoarseness ← **LUNG CANCER CUE**

🫁 "SCLC = Smoking, Spreads, Sodium-low (SIADH), Steroids (Cushing's)"

Key features of **Small Cell Lung Cancer**:

- **S**moking-related (almost always)
- **S**preads early & aggressively
- **S**odium-low (SIADH)
- **S**teroids high (ectopic ACTH → Cushing's)
- **C**entrally located

🦴 Hypercalcemia → "Bones, Stones, Groans, Moans, Psychiatric Overtones"

Squamous cell lung cancer secretes PTH-related peptide → ↑ Ca:

- **Bones** — pain, fractures
- **Stones** — kidney stones
- **Groans** — abdominal pain, constipation
- **Moans** — fatigue, weakness
- **Psychiatric** — confusion, depression

"Pancoast = Pain"

Apical tumor → severe shoulder/arm pain + Horner's syndrome (ptosis, miosis, anhidrosis)

"SVC = Swollen, Veined, Cyanotic"

Facial edema, JVD, dilated chest veins — oncologic emergency

"Adeno = Air-edge"

Adenocarcinoma is peripheral; most common subtype; non-smokers/women

"Squamous = Smoker, Central, Cavitates, Calcium↑"

4 C's of squamous cell lung cancer

Pneumonectomy → Operative side

Lay on AFFECTED (operative) side or supine — protects remaining lung

Radiation Skin = Water Only

NO metals (zinc), talc, lotions, perfumes; cornstarch OK for itch

12 NCJMM Clinical Judgment Scenario

SCENARIO: *A 68-year-old male with a 45 pack-year smoking history is admitted with a 6-week history of persistent cough, blood-tinged sputum, hoarseness, and a 15-lb unintentional weight loss. CT chest shows a 4-cm right hilar mass with mediastinal lymphadenopathy. Bronchoscopy biopsy confirms* **small cell lung cancer (SCLC)**. *On admission, vital signs are BP 128/78, HR 96, RR 22, SpO_2 92% on room air. Sodium 124 mEq/L, urine osmolality elevated. Patient reports a headache and feels "foggy."*

1	**Recognize Cues**	Hemoptysis · weight loss · hoarseness · ↓SpO_2 · **Na 124** (hyponatremia) · ↑ urine osmolality · headache · cognitive fogginess · SCLC diagnosis · 45 pack-year history
2	**Analyze Cues**	Pattern matches **SIADH** — paraneoplastic syndrome common in SCLC. Tumor secretes ectopic ADH → water retention → dilutional hyponatremia → cerebral edema → headache, confusion, seizure risk. Hypoxia + airway obstruction also concerning.
3	**Prioritize Hypotheses**	**#1 Priority:** Severe hyponatremia from SIADH → seizure/cerebral edema risk. **#2:** Hypoxia from tumor/airway. **#3:** Hemoptysis trending toward larger volume. **#4:** Pain & psychosocial needs.
4	**Generate Solutions**	Initiate **seizure precautions** · Implement **fluid restriction (~800–1000 mL/day)** · Strict I&O · Daily weights · Monitor neuro q2h · Apply O_2 to maintain SpO_2 ≥92% · Quantify hemoptysis · Anticipate hypertonic saline if Na <120 or symptomatic · Notify HCP/oncology · Emotional support & family teaching.
5	**Take Action**	Place patient on seizure precautions (padded rails, bed low, suction ready) · Restrict fluids · Apply 2 L/min O_2 via NC · Notify HCP of Na 124 + neuro changes · Administer ordered hypertonic saline slowly via pump (no faster than 0.5 mEq/L/hr to prevent osmotic demyelination) · Reposition to High-Fowler's · Document baseline neuro & respiratory status.

6

Evaluate Outcomes

Positive: Na rising slowly toward 130 · headache resolving · alert & oriented · SpO_2 ≥94% · no seizure activity · no worsening hemoptysis · patient verbalizes understanding of treatment plan. **Reassess** q2h initially; adjust plan with chemo initiation and oncology consult.