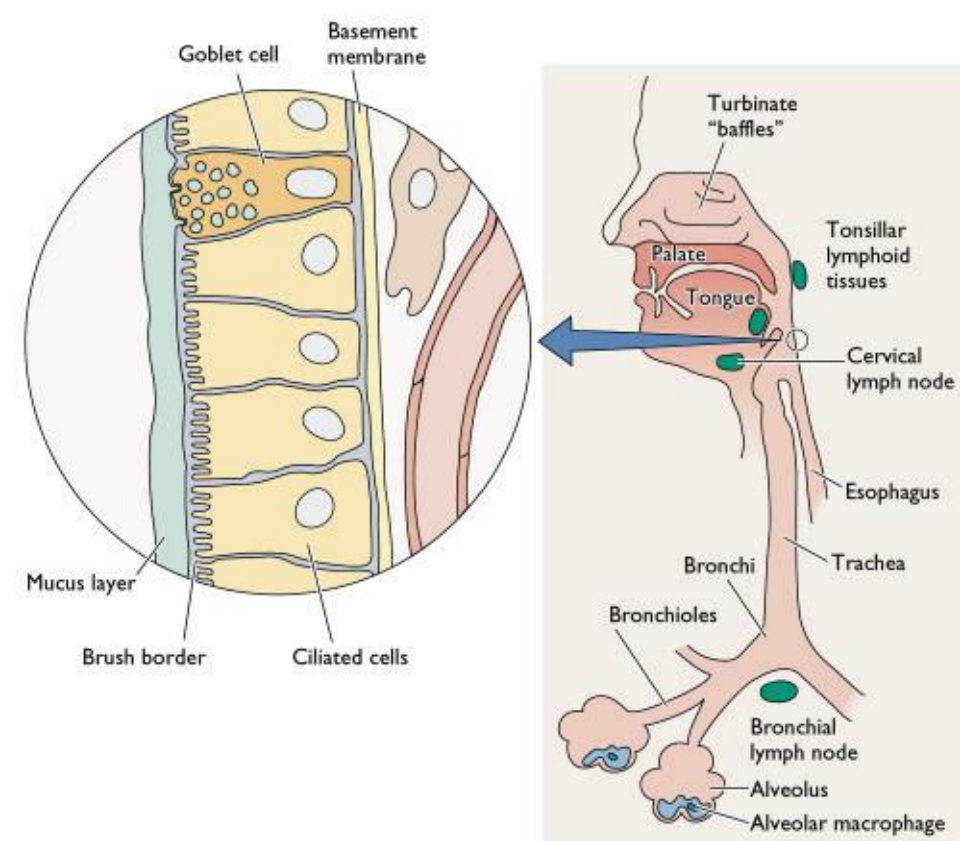
RESPIRATORY DISEASE

AND PRACTICE IN HOSPICE

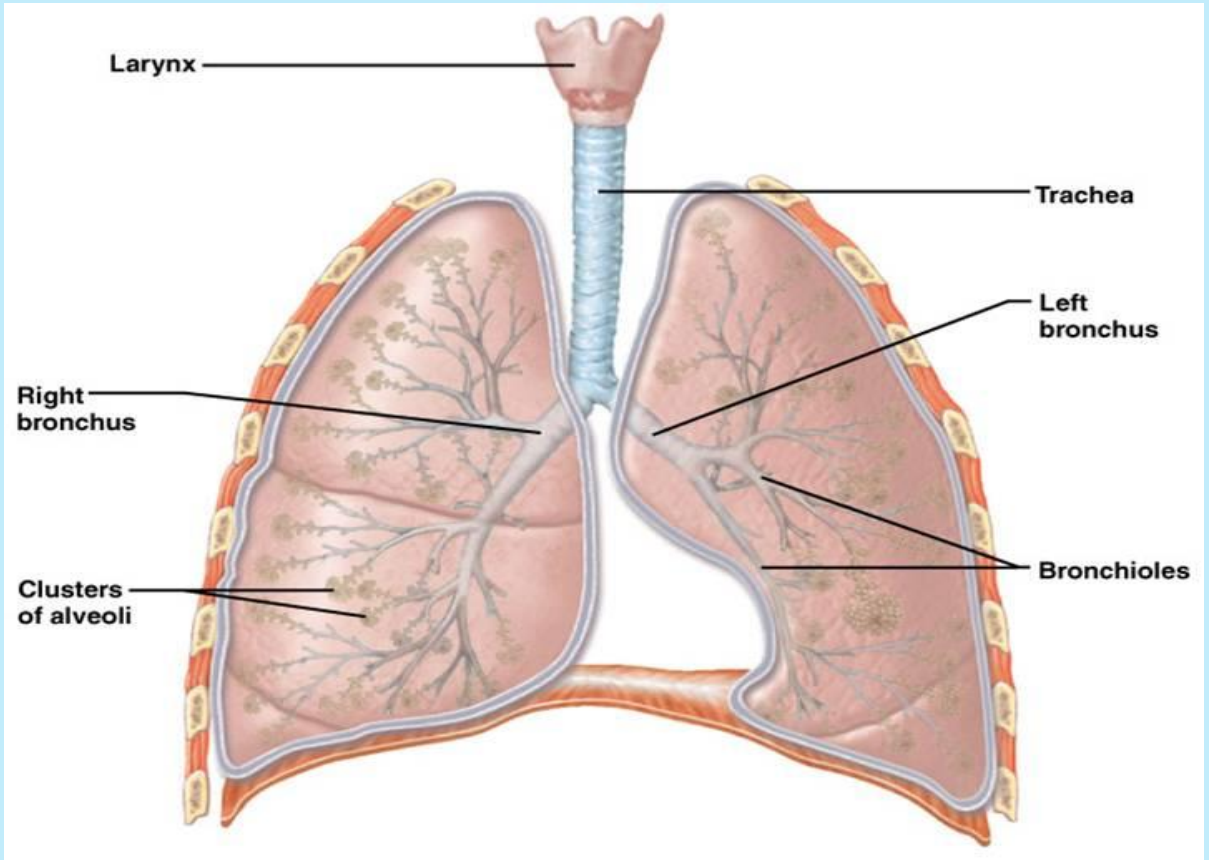
Anatomy and Physiology

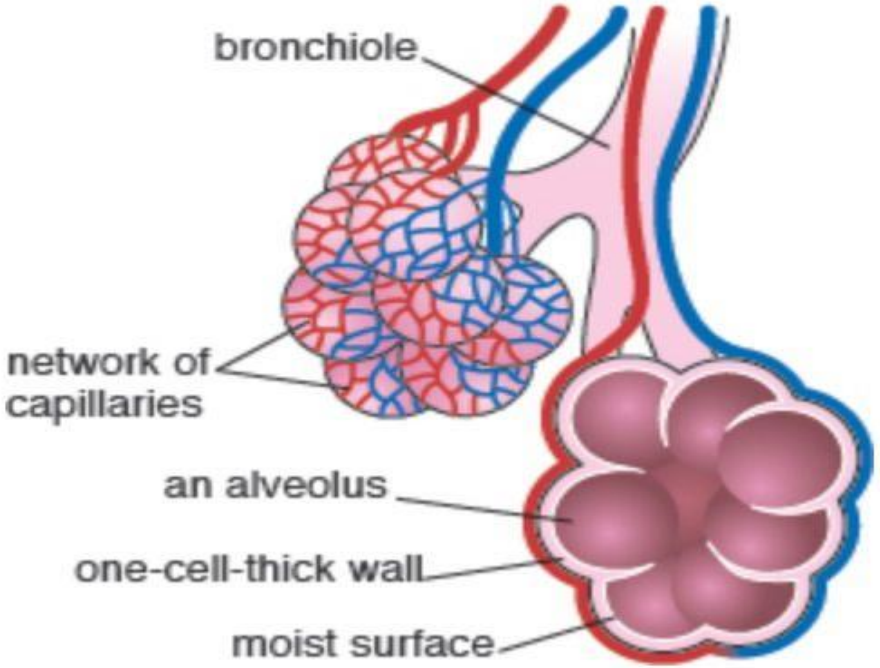
- Upper Respiratory Tract
  - Nostrils, nasal cavity, mouth, pharynx, larynx
  - Mucous membrane
  - Cilia



Lower Respiratory Tract

- Trachea
- Bronchi
- Bronchioles
- Alveoli





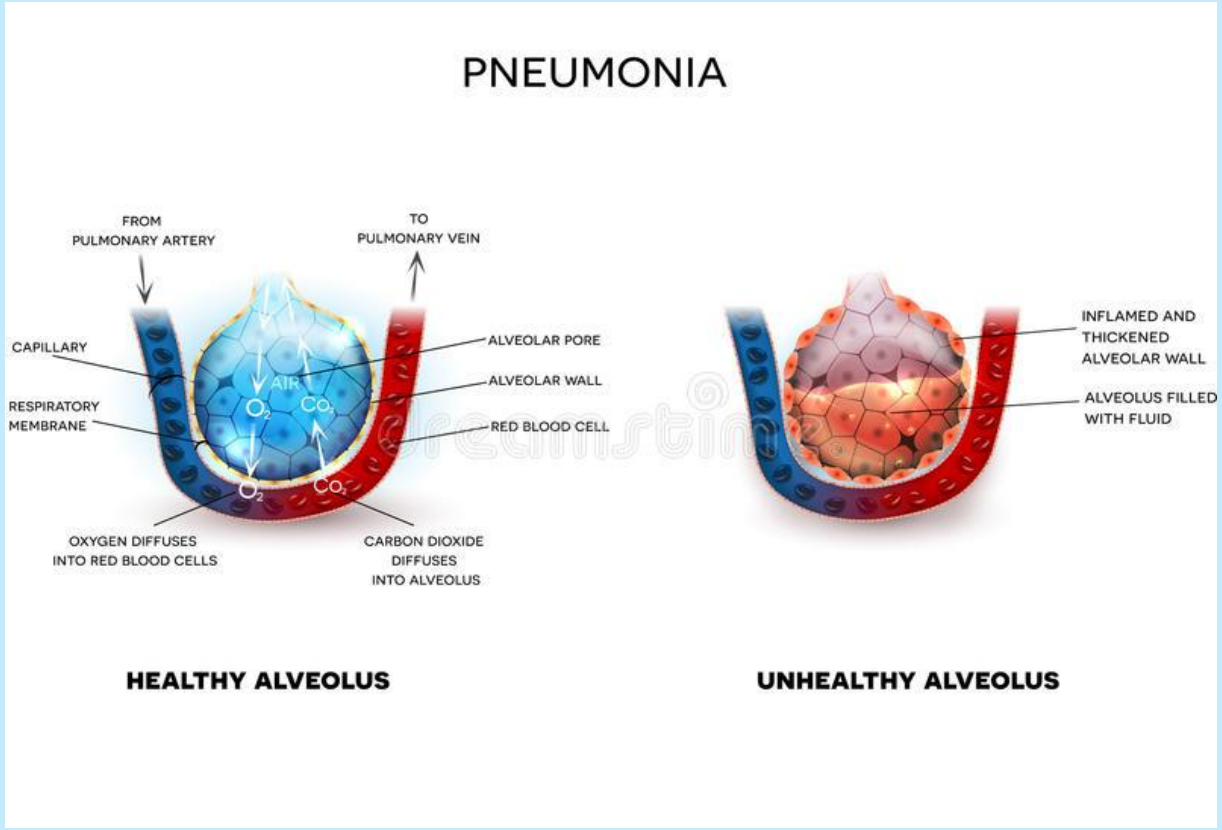
A cluster of alveoli showing the specialised features for gaseous exchange

PNEUMONIA

- Invading organism > immune response
- Capillaries become leaky
- Fluid leaks into alveoli
- Decreased surface area for gas exchange

- Impaired gas exchange leads to hypoxia
  - Increased work of breathing
  - Possible decreased SpO2

- Mucous production increases
- Alveoli fill further with fluid, debris from WBC



PNEUMONIA

CAUSES

Virus, Bacteria, Fungi

SIGNS & SYMPTOMS

Fever, chills, cough, SOB, fatigue

COMMUNITY AQUIRED PNEUMONIA (CAP) VS. HOSPITAL AQUIRED PNEUMONIA (HAP)

TREATMENTS

Antibiotics, Antivirals, Antifungals, Analgesics/Fever reducers

Respiratory medications (MDI, HHN)

Oxygen Therapy

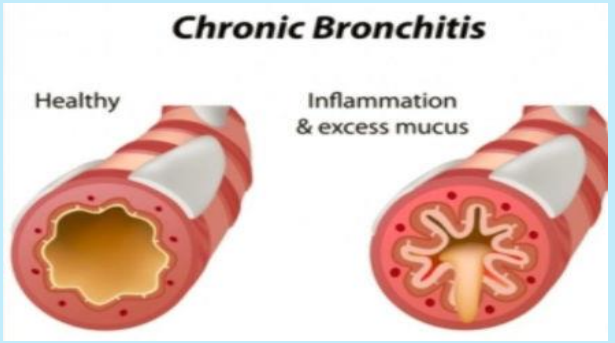
COPD

EMPHYSEMA

- Fibers of Alveoli damaged
- Decreased elasticity, impacts exhalation
- Reduction of alveolar capillary exchange area

CHRONIC BRONCHITIS

- Overproduction and hypersecretion of mucus
- Airflow obstruction (luminal airflow obstruction of small airways)
- Epithelial remodeling
- Alteration of airways surface tension
  - Predisposition to collapse



COPD

CAUSES

- Smoking, Environmental Exposure, Alpha- 1 deficiency

SIGNS & SYMPTOMS

- Typically occur late in the disease
- Chronic cough
- Dyspnea
- Frequent respiratory infections
- Cyanosis
- Fatigue
- Increased sputum production
- Wheezing

Diagnosis

- Pulmonary Function Testing (PFT's)
- CT, Xray, ABGs, Lab studies (Alpha-1) – less reliable

COPD

TREATMENT

Smoking cessation

Medications

Bronchodilators:

Inhaled Steroids/ Combination inhalers –Albuterol (short acting) Serevent (long acting)

Oral Steroids

Theophylline-Theo-Dur

Antibiotics (Azithromycin)- Reduced frequency of exacerbations and improved QOL. Minimal side effects and cost effective.

Oxygen Therapy, Nebulizer treatments (DuoNeb very effective method of addressing dyspnea in COPD)

DRUG TREATMENT PRINCIPLES

- COPD is a progressive disease
- Maintain regular treatment as long as possible
- Regimens should be patient specific and influenced by:
- Severity of symptoms
- Frequency and severity of exacerbations
- Patient's ability to effectively use available drug delivery devices
- Decrease symptoms and/or complications
- Reduce frequency and severity of exacerbations
- Medications do not modify the long term decline in lung functions seen with COPD

RESPIRATORY ASSESSMENT

- Must accurately capture level of Dyspnea during assessment
  - Are they SOB at rest? If not, do they become SOB with activity?
    - If patient denies SOB assess for:
      - Short or choppy sentences
      - Audible wheezing or coughing
      - Voice breathy, or appearing out of breath
      - Pursed lip breathing, nasal flaring, use of accessory muscles, diaphragmatic breathing
      - Other symptoms such as lightheadedness, fatigue, chest pain
  - Assess in quantifiable measures
    - Respiratory rate, baseline, during activity, following activity
      - How much did it increase, after how many feet?
      - How long did it remain elevated?
      - How long after rest did it take to recover to baseline?
      - Did they need to rest during activity? How many rest periods? How long was each rest period?
      - Was there a change in SpO2?

RESPIRATORY ASSESSMENT

- Activities of Daily Living
  - Have they recently lost ability to perform tasks they could before?
    - Can't bend over to put on socks or shoes due to SOB
  - Does it take longer to perform routine tasks?
  - Do they need frequent rest periods?

- Oxygen usage
  - Are they new to Oxygen?
  - Have they had a recent increase in liter flow?
  - Are they using PRN O2 more frequently? If so, how much more?

- Medications
  - Ask about medication use.
    - Are they using rescue inhaler more frequently?
    - Are they using nebulizer more often than usual?

PATIENT EDUCATION

MEDICATION

- Inhaler use
  - Order of inhalers
  - Proper use & instruction
- Nebulizer Use
  - Educate on ordered use
  - Cleaning and maintenance of equipment
- Antibiotics
  - Complete all doses
- Compliance
  - Risks of not following med regime
  - Compliance with Oxygen
- Assess for any issues refilling meds
  - Financial
  - No assistance or ability to pick up meds
    - Social Worker referral

PATIENT EDUCATION

DISEASE EXACERBATION

- Pneumonia
  - Signs & Symptoms of reoccurring or worsening infection
  - Monitor appetite, fatigue, weakness
- COPD
  - Signs & Symptoms of COPD exacerbation
  - COPD Pathway & Complex Care Team
  - Energy conservation
  - Relaxation techniques
  - Nutrition
  - Self-care management

EXACERBATION PREVENTION STRATEGIES

- Flu vaccine, pneumococcal vaccine
- Reduce risk of infection (Hand washing, avoid crowds)
- Reduce exposure to irritants

OXYGEN THERAPY

Liters Per Minute (LPM)	Approximate FiO2
1	24%
2	28%
3	32%
4	36%
5	40%
6	44%
7	48%
8	52%
9	56%
10	60%

FiO2 OF ROOM AIR = 21%

Nasal Cannula- O2 flow should be < 6 LPM
Humidity not required for flows < 4 LPM
Concentration varies with patient's breathing pattern

Simple Mask- 35-50% O2 at flows of 6-10 LPM

Non-rebreathing mask- 80-100% O2 at flows of 12-15 LPM
Never humidify, do not remove one-way valve

Aerosol mask/tracheostomy mask-
28-100% O2 dependent on dial setting
Never use flows < 8 LPM
Use only sterile water

Venturi mask- 24-50% O2 depending on which connector is used
Never use bubble humidifier
Never cover connectors
Most accurate way to deliver specific FiO2

OXYGEN THERAPY

O2 CYLINDER SET UP

HOSPICE ELIGIBILITY

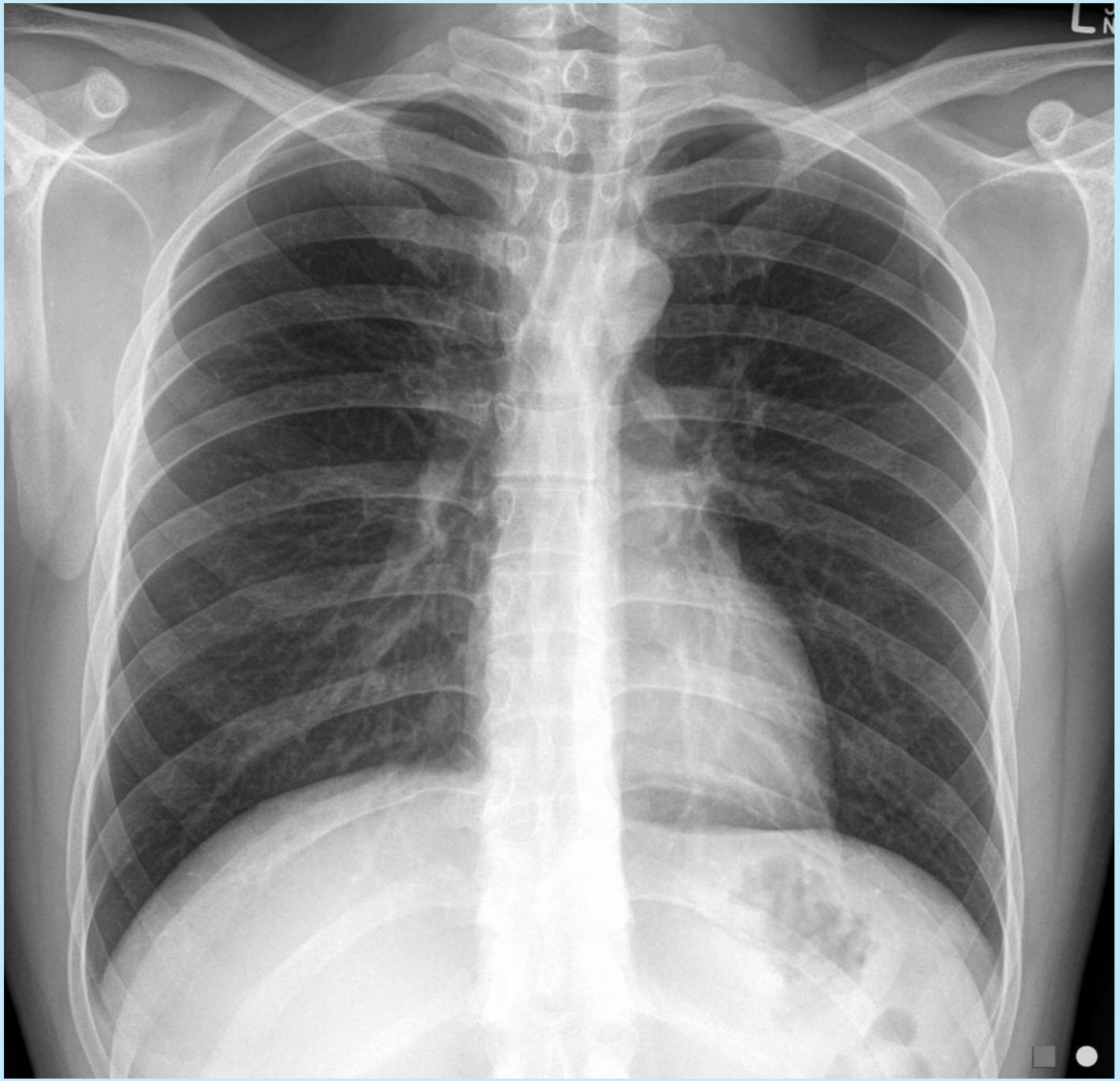
- How can we use the respiratory assessment information to support continued hospice eligibility?
- O2 sats <88%
- Disabling dyspnea at rest
- Decreased functional capacity (use of PPS)
- Decreasing response to bronchodilators
- Oxygen dependence increasing

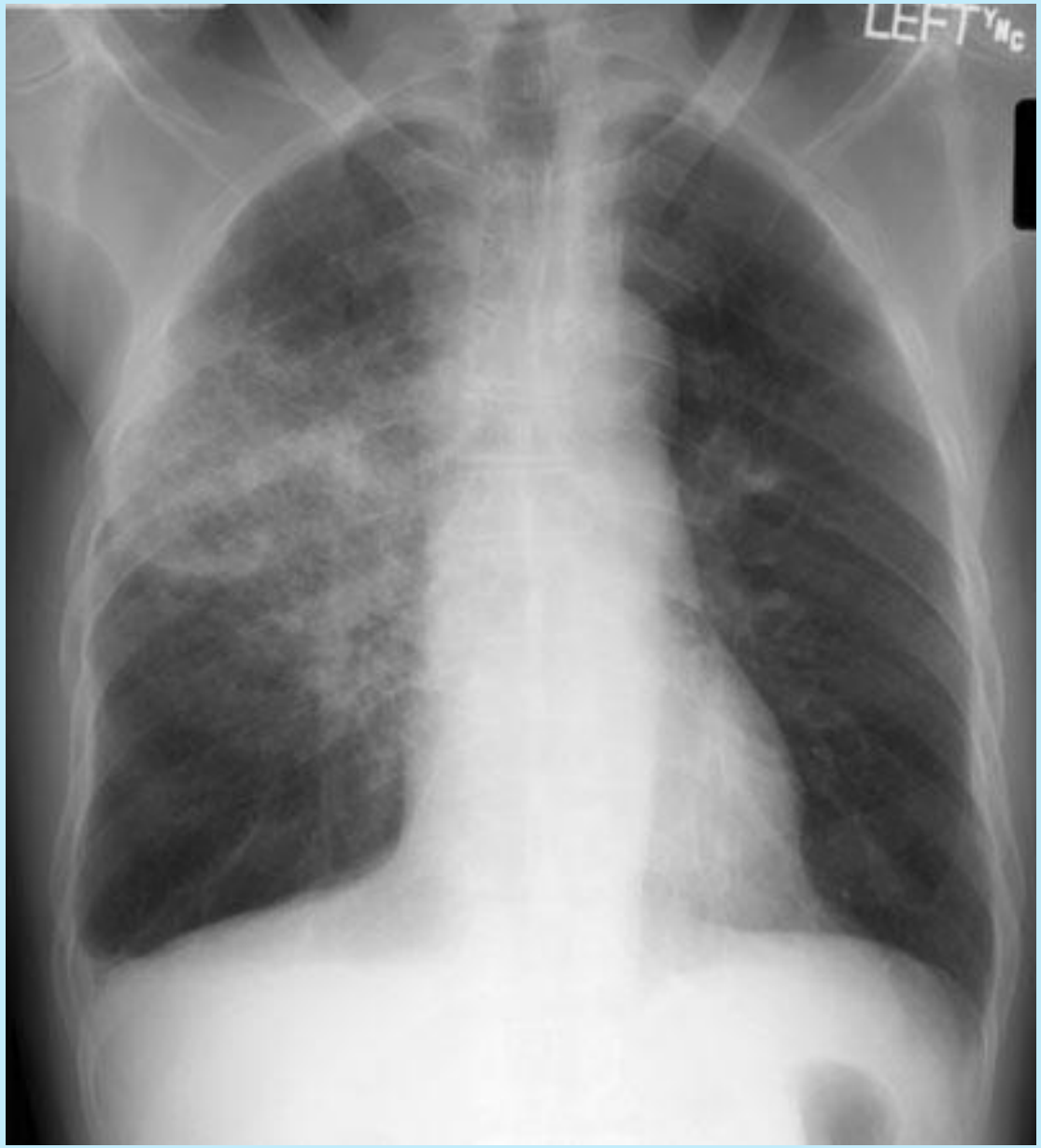
OXYGEN THERAPY

O2 Cylinder Delivery Chart:

	Use Times (Shown In Hours)							
Flow Rate:	1	1.5	2	2.5	3	4	5	6
M4								
Pulse Dose	5.7	3.8	2.9	2.3	1.9	1.4	1.1	.9
Continuous Flow	1.9	1.3	.9	.7	.6	.5	.4	.3
M6								
Pulse Dose	8.3	5.5	4.1	3.3	2.8	2.1	1.7	1.4
Continuous Flow	2.7	1.8	1.4	1.1	.9	.7	.6	.4
ML6								
Pulse Dose	8.6	5.7	4.3	3.4	2.9	2.1	1.7	1.4
Continuous Flow	2.8	1.9	1.4	1.1	.9	.7	.6	.4
M9								
Pulse Dose	9.75	7.5	5.1	3.9	3.4	2.5	2	1.7
Continuous Flow	3.4	2.5	1.8	1.5	1.25	.94	.75	.63
C								
Pulse Dose	12.1	8.1	6.1	4.9	4.0	3.0	2.4	2.0
Continuous Flow	4.0	2.7	2.0	1.6	1.3	1.0	.8	.7
D								
Pulse Dose	21.0	14.0	10.5	8.4	7.0	5.2	4.2	3.5
Continuous Flow	6.9	4.6	3.5	2.8	2.3	1.7	1.4	1.2
E								
Pulse Dose	34.4	23.0	17.2	13.8	11.5	8.6	6.9	5.8
Continuous Flow	11.4	7.6	5.7	4.6	3.8	2.8	2.3	1.9

This chart is intended to be used only as a guide.

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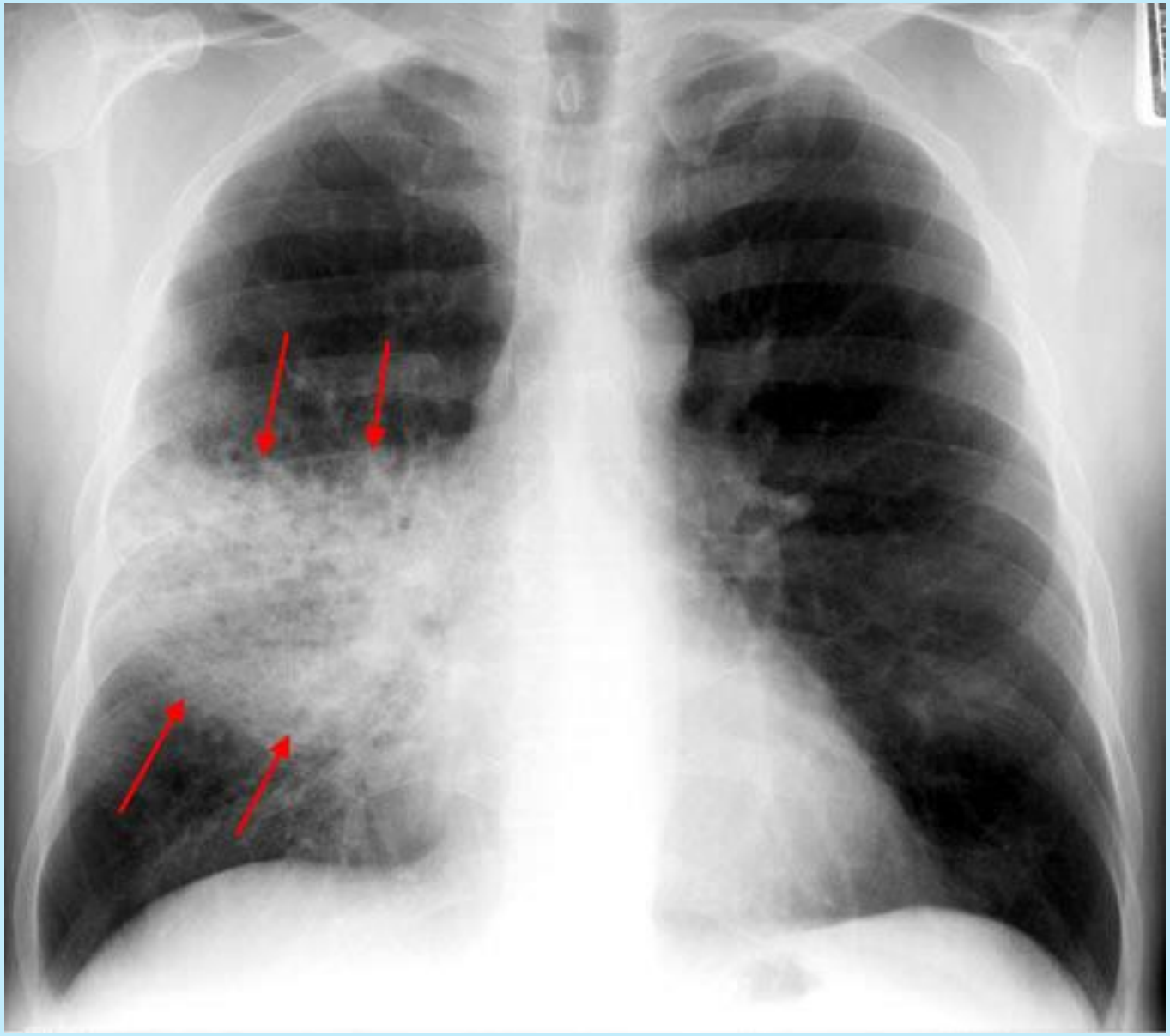

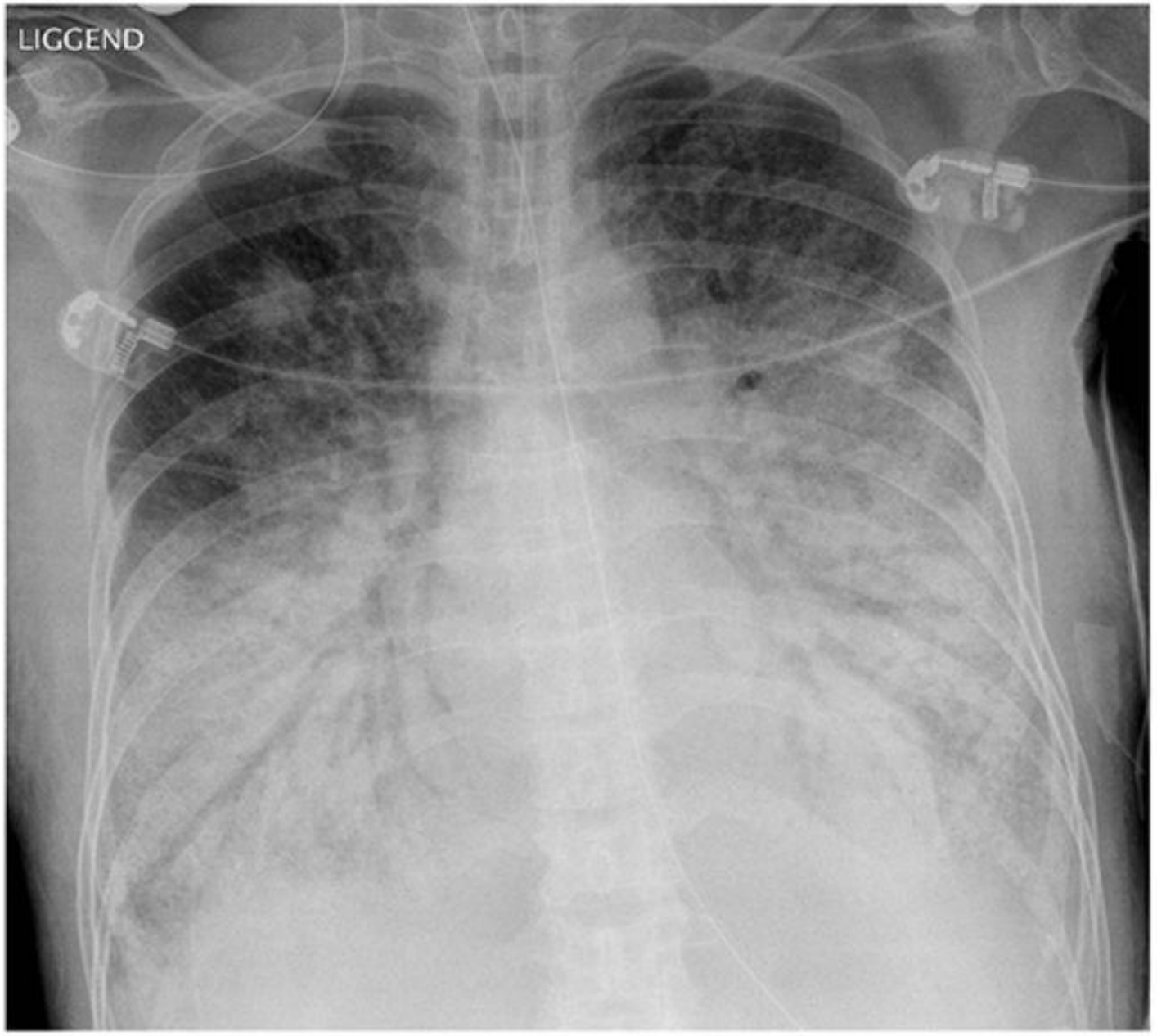
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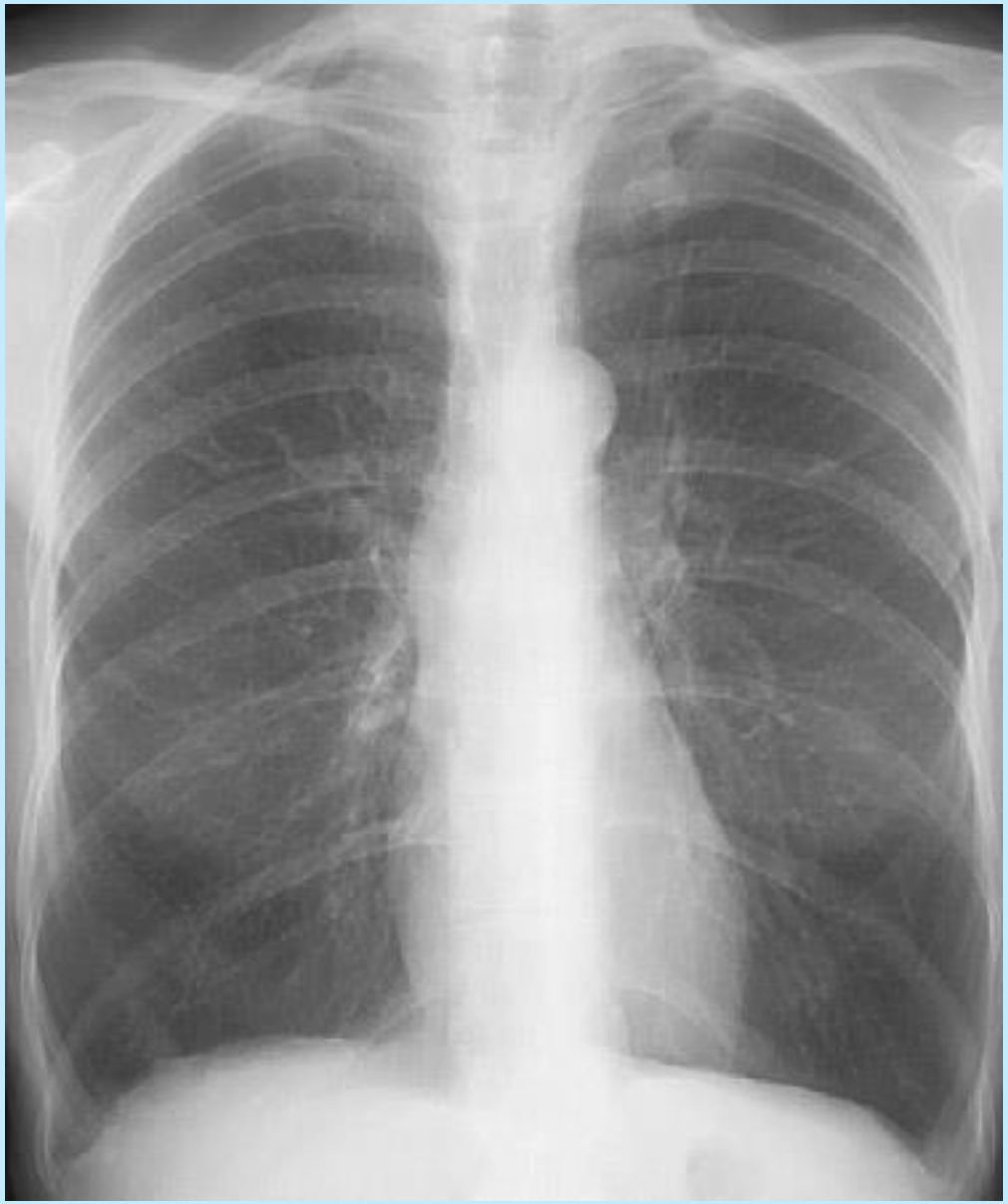

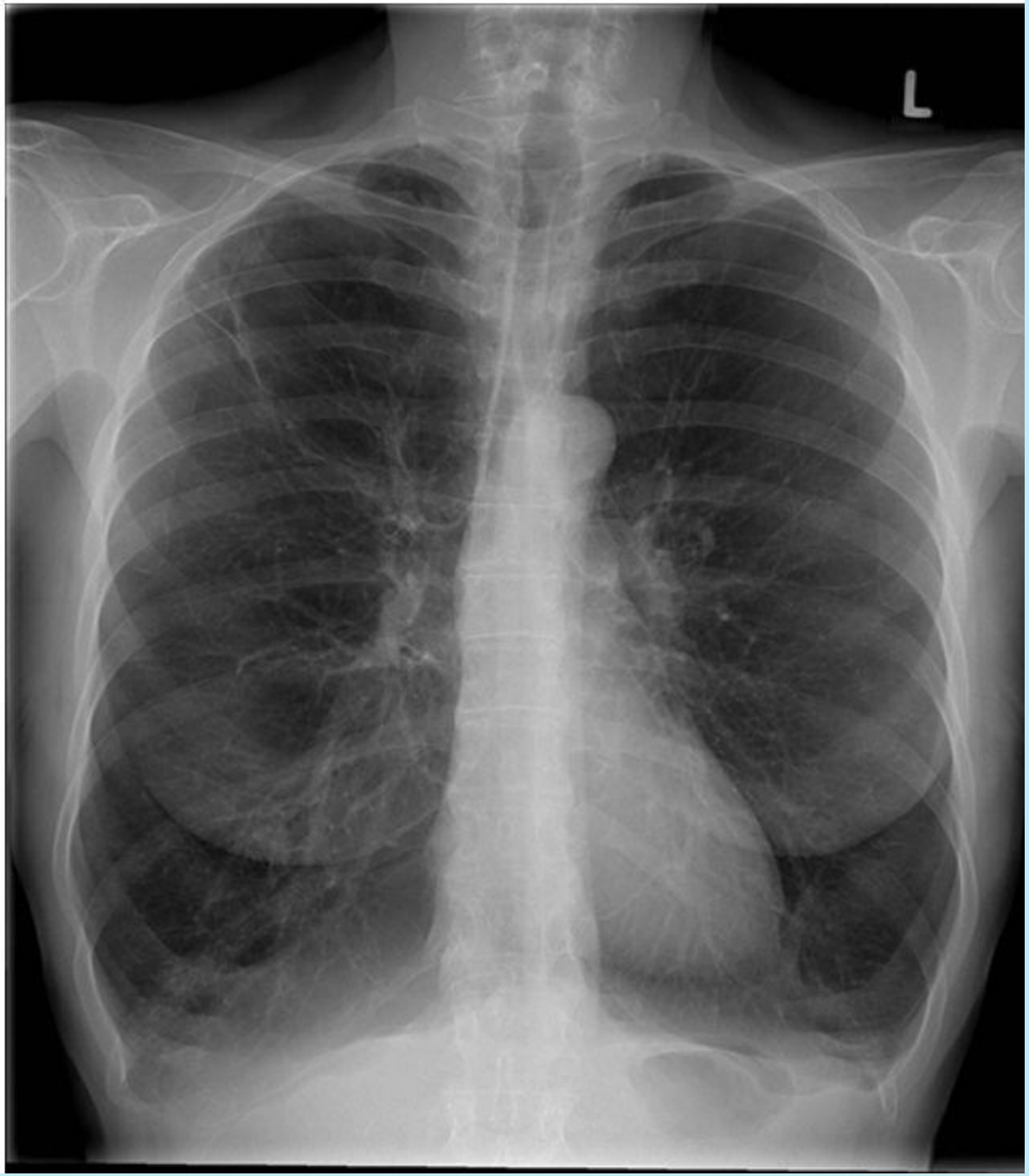
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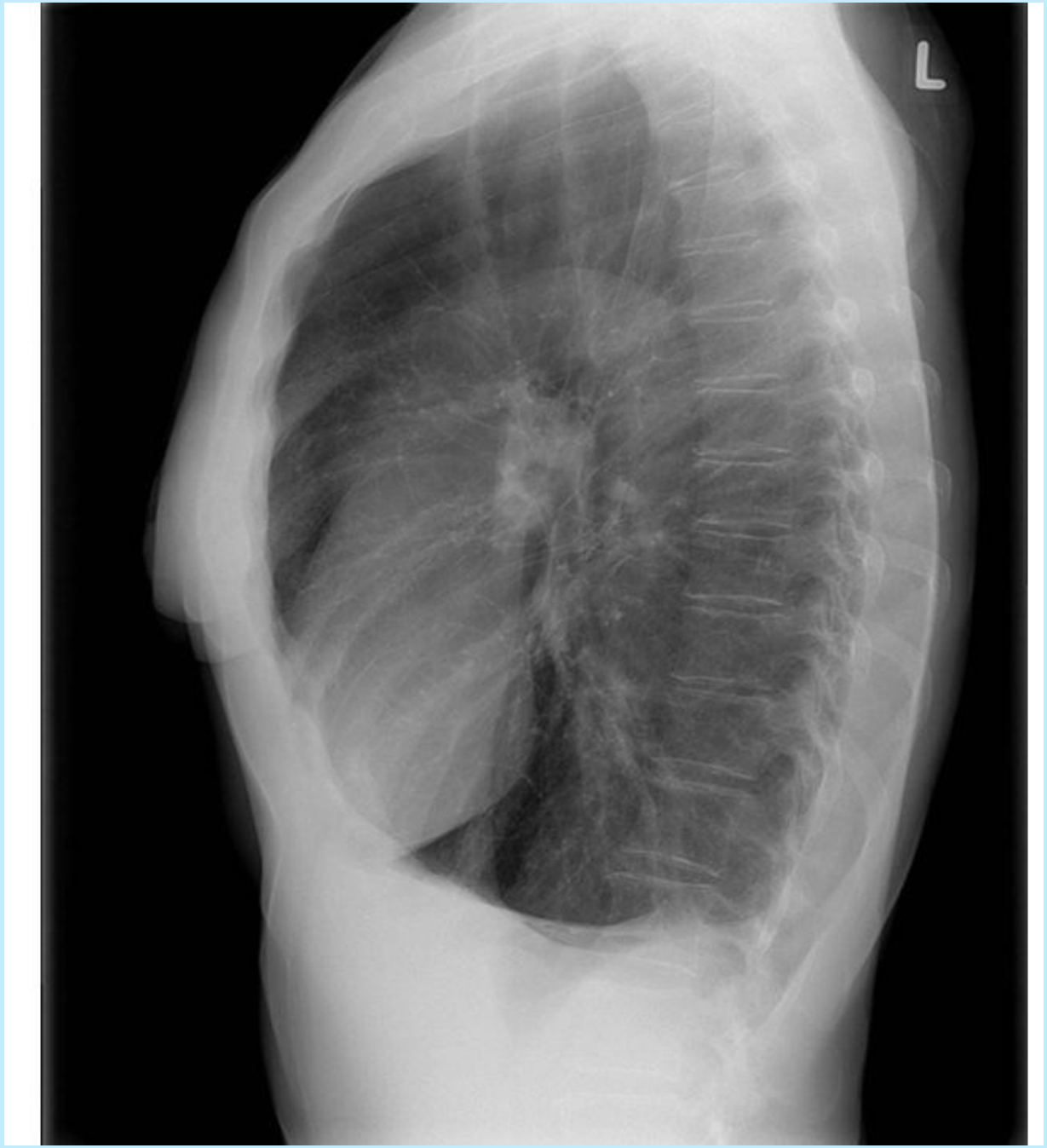
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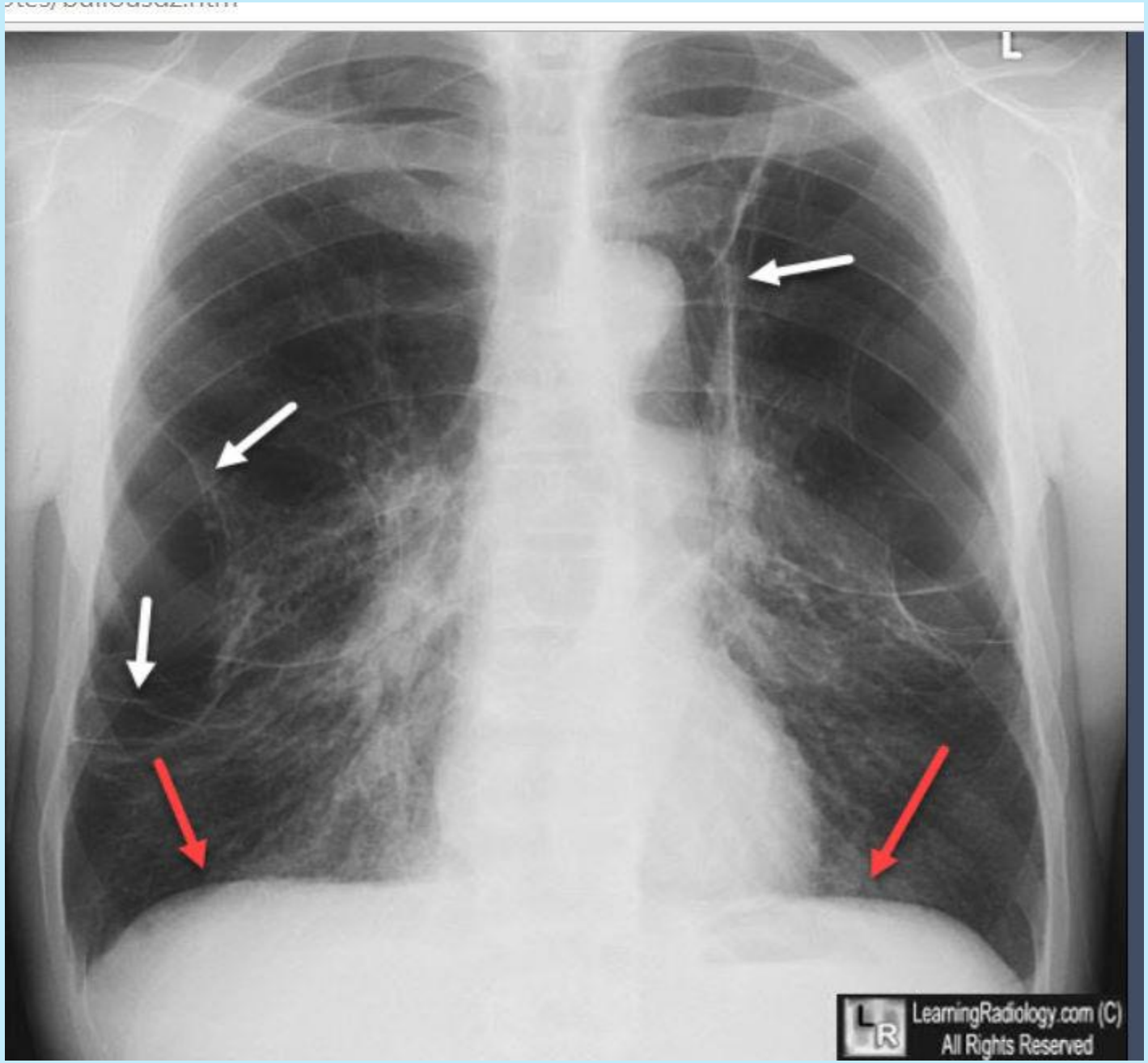
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QUESTIONS?

RESOURCES