I. MODULE A - REVIEW OF PATIENT ASSESSMENT (Diagnostic Tests)

A. SPECIFIC TOPICS COVERED

1. PFT
2. ABG

B. OBJECTIVES: The student will be able to:

1. Given the results of an arterial blood sample,
   a. Indicate the primary acid base disturbance.
   b. Indicate the degree of compensation.
   c. Indicate the degree of hypoxemia.
2. Draw the spirogram and PFT table labeling the lung volumes and capacities and the normal values of each.
3. Given 2 or more volumes or capacities, calculate an unknown value from the PFT table.
4. Given a volume time curve, identify the following:
   a. FVC
   b. FEV_1
   c. $FEV_1/FVC\%$
5. Given a normal flow volume loop, identify the following:
   a. Vertical and Horizontal axis
   b. PEFR
   c. PIFR
   d. FVC
6. Given a PFT, interpret the results as:
   a. Normal
   b. Obstructive without Diffusion Defect
   c. Obstructive with Diffusion Defect
   d. Restrictive without Diffusion Defect
   e. Restrictive with Diffusion Defect
7. State the significance of each of the following:
   a. $FEF_{25-75\%}$
   b. $FEF_{200-1200}$
   c. PEFR
8. State how flowrates may be assessed at the bedside.
9. Describe the significance of Poiseuille's Law when studying obstructive airway diseases.
10. Write the formula for airway resistance and give the normal value.
11. List three clinical conditions that will increase Raw.
12. Write the formula for compliance and give the normal value.
13. List three clinical conditions that will increase and reduce lung compliance.
14. Calculate and give normal values for the following formulae
    a. Tidal Volume (V_t)
    b. Minute Ventilation ($\dot{V}_E$)
    c. Alveolar Minute Ventilation ($\dot{V}_A$)
    d. CaO_2
    e. $C\bar{v}O_2$

f. CaO_2-$C\bar{v}O_2$
g. PAO_2
h. $P_{(A-a)}$ gradient
i. PaO_2/PAO_2
j. Oxygen Delivery (O_2 del)
k. Respiratory Quotient (RQ)
l. $\dot{V}/\dot{Q}$ ratio
m. Compliance
n. Airway Resistance
o. Ideal body weight

15. Define the following terms:
a. Subjective
b. Objective
c. Assessment
d. SOAP Note
e. Hypertension
f. Hypotension
g. Syncope
h. Tussive syncope
i. Dysphagia
j. Diaphoresis
k. Orthopnea
l. Stridor
m. Bradypnea
n. Anasarca
o. Hemoptysis
p. Paradoxical pulse
q. Pulsus paradoxus
r. Miosis
s. Platypnea
t. Afebrile
u. Mydriasis
v. Acrocyanosis
w. Gladiolus
x. PERRLA
y. Angle of Louis
z. Pedal edema
aa. Cachectic
bb. PMI
cc. Vesicular Breath Sounds
dd. Capillary refill
ee. Oriented x 3
ff. Glasgow Coma Scale
gg. Ptosis
hh. Diplopia
ii. Jugular venous distension
jj. Cyanosis
kk. Hepatomegaly

ll. Ascites
mm. Pyrexia
nn. Pulse pressure

16. State the four critical life functions.
17. Differentiate between:
    a. Pathology
    b. Pathophysiology
    c. Clinical Manifestations
    d. Etiology
18. Define Diagnosis Related Group and state the significance of its use.
19. Given a set of patient data, correctly identify it as subjective or objective.
20. State the key components of a physical examination.
21. Given a set of physical findings, state which disease would be associated with the findings.
22. Define Therapist Driven Protocol (TDP).
23. List the five major protocols commonly used in the management of a patient with cardiopulmonary disease.
24. State the objective of each of the five commonly used therapist driven protocols.
25. List the six anatomic alterations which characterize respiratory disease states.
26. Given an anatomic alteration, correctly identify the appropriate treatment protocol to be applied.

II. MODULE B - INTRODUCTION TO MECHANICAL VENTILATION

A. SPECIFIC TOPICS COVERED

1. Indications for Mechanical Ventilation
2. Types of Assisted/Supportive Ventilation
3. Control of acid-base balance
4. Control of oxygenation

B. OBJECTIVES: The student will be able to:

1. State the two purposes of mechanical ventilation.
2. List three indications for mechanical ventilation.
3. State the primary reason for oxygenation failure.
4. List three complications of mechanical ventilation.
5. Differentiate between positive and negative pressure ventilation.
6. Differentiate between invasive and non-invasive ventilation.
7. Differentiate between pressure- and volume-based breaths.
8. Describe how the mode of ventilation is related to patient-ventilation interaction.
9. Differentiate between minute ventilation and alveolar ventilation.
10. Describe the relationship between alveolar ventilation and $PaCO_2$.
11. State the two primary methods for controlling alveolar minute ventilation.
12. State the normal range for spontaneous tidal volume.
13. State the normal range for tidal volume during mechanical ventilation.
14. List the four primary causes of hypoxemia.
15. State two methods for improving PaO_2.
16. Describe how $PaCO_2$ is managed in patients with chronic airflow obstruction.
17. Describe how PaO_2 is managed in patients with chronic airflow obstruction.

III. MODULE C – OBSTRUCTIVE AIRWAY DISEASES

A. SPECIFIC TOPICS COVERED

1. Chronic Bronchitis
2. Emphysema
3. Bronchieactasis
4. Asthma
5. Cystic Fibrosis
6. Croup
7. Epiglottitis

B. **OBJECTIVES**: The student will be able to:

1. State the ***clinical definition*** for each of the obstructive airway diseases:
   a. Chronic Bronchitis
   b. Emphysema
   c. Bronchieactasis
   d. Asthma
   e. Cystic Fibrosis
   f. Croup
   g. Epiglottitis
2. Describe the ***anatomic alterations*** of the lungs in each of the obstructive airway diseases:
   a. Chronic Bronchitis
   b. Emphysema
   c. Bronchieactasis
   d. Asthma
   e. Cystic Fibrosis
   f. Croup
   g. Epiglottitis
3. Describe the ***etiology*** of each of the following obstructive airway diseases:
   a. Chronic Bronchitis
   b. Emphysema
   c. Bronchieactasis
   d. Asthma
   e. Cystic Fibrosis
   f. Croup
   g. Epiglottitis
4. List the ***clinical manifestations*** seen in each of the following obstructive airway diseases. Include findings of the physical examination, laboratory tests, pulmonary function tests, chest x-rays, arterial blood-gas values, and hemodynamic indices.
   a. Chronic Bronchitis
   b. Emphysema
   c. Bronchieactasis
   d. Asthma
   e. Cystic Fibrosis
   f. Croup
   g. Epiglottitis

5. Describe the ***management*** of each of the following obstructive airways disease:
    a. Chronic Bronchitis
    b. Emphysema
    c. Bronchieactasis
    d. Asthma
    e. Cystic Fibrosis
    f. Croup
    g. Epiglottitis
6. Describe why patients with obstructive lung disease breathe with a pursed-lip technique.
7. Given a smoking history, calculate a pack year.
8. Given a peak flowrate, explain the severity level.
9. List the inspiratory and expiratory accessory muscles of breathing.
10. Describe blood-gas results in patients with chronic CO_2 retention
11. List the physical examination findings in a patient with COPD.
12. List the blood-gas results in patients with mild, moderate, severe and very severe asthma.
13. Indicate the lab test used to evaluate a patient for cystic fibrosis and give normal values and values used to identify cystic fibrosis.
14. List the five grades dyspnea.
15. Given a pre- and post-bronchodilator $FEV_{1.0}$, calculate the % improvement and determine if the value is considered a significant response.

IV. MODULE D - CARDIOVASCULAR DISEASES

A. SPECIFIC TOPICS COVERED

1. Acute Myocardial Infarction
2. Congestive Heart Failure
3. Pulmonary Edema
4. Pulmonary Embolism/Infarction
5. Stroke

B. OBJECTIVES: The student will be able to:

1. State the ***clinical definition*** for each of the cardiovascular diseases:
   a. Myocardial Infarction
   b. Congestive Heart Failure
   c. Pulmonary Edema
   d. Pulmonary Embolism/Infarction
   e. Stroke
2. List the ***anatomic alterations*** of the lungs in each of the cardiovascular diseases:
   a. Myocardial Infarction
   b. Congestive Heart Failure
   c. Pulmonary Edema
   d. Pulmonary Embolism/Infarction
   e. Stroke
3. Describe the ***etiology*** of each of the following cardiovascular diseases:
   a. Myocardial Infarction
   b. Congestive Heart Failure
   c. Pulmonary Edema
   d. Pulmonary Embolism/Infarction
   e. Stroke
4. List the ***clinical manifestations*** seen in each of the following cardiovascular diseases. Include findings of the physical examination, laboratory tests, pulmonary function tests, chest x-rays, arterial blood-gas values, and hemodynamic indices.
   a. Myocardial Infarction
   b. Congestive Heart Failure
   c. Pulmonary Edema
   d. Pulmonary Embolism/Infarction
   e. Stroke
5. Describe the ***management*** of each of the following cardiovascular diseases
   a. Myocardial Infarction
   b. Congestive Heart Failure
   c. Pulmonary Edema
   d. Pulmonary Embolism/Infarction
   e. Stroke

V. MODULE E - DISORDERS/TRAUMA OF THE CHEST WALL AND PLEURAL SPACE

A. SPECIFIC TOPICS COVERED

1. Flail Chest
2. Pneumothorax
3. Pleural Effusions
4. Kyphoscoliosis

B. OBJECTIVES: The student will be able to:

1. State the ***clinical definition*** for each of the following diseases:
   a. Flail Chest
   b. Pneumothorax
   c. Pleural Effusions
   d. Kyphoscoliosis
2. Describe the ***anatomic alterations*** of the lungs in each of the following diseases:
   a. Flail Chest
   b. Pneumothorax
   c. Pleural Effusions
   d. Kyphoscoliosis
3. Describe the ***etiology*** of each of the following diseases:
   a. Flail Chest
   b. Pneumothorax
   c. Pleural Effusions
   d. Kyphoscoliosis
4. List the ***clinical manifestations*** seen in each of the following diseases. Include findings of the physical examination, laboratory tests, pulmonary function tests, chest x-rays, blood-gas results, and hemodynamic indices.
   a. Flail Chest
   b. Pneumothorax
   c. Pleural Effusions
   d. Kyphoscoliosis
5. Describe the ***management*** of each of the following diseases:
   a. Flail Chest
   b. Pneumothorax
   c. Pleural Effusions
   d. Kyphoscoliosis

VI. MODULE F - NEUROMUSCULAR DISEASES AND SLEEP APNEA

A. SPECIFIC TOPICS COVERED

1. Guillian-Barré Syndrome
2. Myasthenia Gravis
3. Sleep Apnea

B. OBJECTIVES: The student will be able to:

1. State the ***clinical definition*** for each of the following diseases:
   a. Guillian-Barré Syndrome
   b. Myasthenia Gravis
   c. Sleep Apnea
2. Describe the ***anatomic alterations*** of the lungs in each of the following diseases:
   a. Guillian-Barré Syndrome
   b. Myasthenia Gravis
   c. Sleep Apnea
3. Describe the ***etiology*** of each of the following diseases:
   a. Guillian-Barré Syndrome
   b. Myasthenia Gravis
   c. Sleep Apnea
4. List the ***clinical manifestations*** seen in each of the following diseases. Include findings of the physical examination, laboratory tests, pulmonary function tests, chest x-rays, blood-gas results, and hemodynamic indices.
   a. Guillian-Barré Syndrome
   b. Myasthenia Gravis
   c. Sleep Apnea
5. Describe the ***management*** of each of the following diseases:
   a. Guillian-Barré Syndrome
   b. Myasthenia Gravis
   c. Sleep Apnea

VII. MODULE G - NEOPLASTIC DISEASES & DIFFUSE ALEOLAR DISEASES

A. SPECIFIC TOPICS COVERED

1. Cancer of the Lung
2. ARDS
3. Near Drowning
4. Smoke Inhalation and Thermal Injury

B. OBJECTIVES: The student will be able to:

1. State the ***clinical definition*** for each of the following diseases:
   a. Cancer of the Lung
   b. ARDS
   c. Near Drowning
   d. Smoke Inhalation and Thermal Injury
2. Describe the ***anatomic alterations*** of the lungs in each of the following diseases:
   a. Cancer of the Lung
   b. ARDS
   c. Near Drowning
   d. Smoke Inhalation and Thermal Injury
3. Describe the ***etiology*** of each of the following diseases:
   a. Cancer of the Lung
   b. ARDS
   c. Near Drowning
   d. Smoke Inhalation and Thermal Injury
4. List the ***clinical manifestations*** seen in each of the following diseases. Include findings of the physical examination, laboratory tests, pulmonary function tests, chest x-rays, blood-gas results, and hemodynamic indices.
   a. Cancer of the Lung
   b. ARDS
   c. Near Drowning
   d. Smoke Inhalation and Thermal Injury
5. Describe the ***management*** of each of the following:
   a. Cancer of the Lung
   b. ARDS
   c. Near Drowning
   d. Smoke Inhalation and Thermal Injury

VIII. MODULE H - INFECTIOUS PULMONARY DISEASES

A. SPECIFIC TOPICS COVERED

1. Pneumonia
2. Tuberculosis
3. AIDS
4. Lung Abscess
5. Fungal Diseases

B. OBJECTIVES: The student will be able to:

1. State the ***clinical definition*** for each of the following disease:
   a. Pneumonia
   b. Tuberculosis
   c. AIDS
   d. Lung Abscess
   e. Fungal Disease
2. Describe the ***anatomic alterations*** of the lungs in each of the following disease:
   a. Pneumonia
   b. Tuberculosis
   c. AIDS
   d. Lung Abscess
   e. Fungal Disease
3. Describe the ***etiology*** of each of the following diseases:
   a. Pneumonia
   b. Tuberculosis
   c. AIDS
   d. Lung Abscess
   e. Fungal Disease
4. List the ***clinical manifestations*** seen in each of the following diseases. Include findings of the physical examination, laboratory tests, pulmonary function tests, chest x-rays, blood-gas results, and hemodynamic indices.
   a. Pneumonia
   b. Tuberculosis
   c. AIDS
   d. Lung Abscess
   e. Fungal Disease
5. Describe the ***management*** of each of the following diseases:
   a. Pneumonia
   b. Tuberculosis
   c. AIDS
   d. Lung Abscess
   e. Fungal Disease

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RESPIRATORY THERAPY PROGRAM

RSP 1140 WORKBOOK

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