

Pulmonary Pathophysiology

Presentation guide

CC = Statement of the competence for a core competence

E = Elements of the competence for a specific statement of competence

P = Performance criteria for competency; associated with a specific element of the competence

Core Competence CC.5

Differentiate between the pathophysiology of diseases and disorders of the pulmonary system as it pertains to respiratory therapy

- * *Noter que pour chacune des maladies et affections du système pulmonaire, la connaissance de divers aspects/caractéristiques distinctifs peut être attendue en surplus des critères de performance de la compétence spécifique* Definition
- Etiology
- Pathophysiology
- Clinical manifestations
- Laboratory findings
- Differential diagnosis
- Management
- Prognosis
- Prevention

E.1 Differentiate between respiratory and ventilatory failure in acute and chronic states

P1.1 Compare respiratory (oxygenation) failure in acute and chronic states*

P1.2 Compare ventilatory (hypercapnic) failure in acute and chronic states*

E.2 Explain the obstructive processes of the lung

P2.1 Compare factors that produce obstruction such as: dynamic compression, loss of radial traction (tethering), inflammation, foreign bodies, secretions, hypertrophy and spasm

P2.2 Explain factors affecting air flow in the lower airways (i.e. below the glottis)

- airway lumen size
- elastic recoil of the lung
- physical properties of the inhaled gas

P2.3 Describe the characteristics of airway obstruction including:

- change in lung volumes/flows
- gas exchange abnormalities
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P2.4 Compare upper and lower airway obstructions

E.3 Differentiate obstructive airway disorders

P3.1 Describe the following disorders:

- asthma
- bronchiectasis
- bronchiolitis
- bronchogenic neoplasm
- bronchopulmonary dysplasia (BPD)
- choanal atresia
- chronic obstructive pulmonary disease (COPD) : chronic bronchitis & emphysema
- croup
- cystic fibrosis
- epiglottitis
- laryngo/tracheo/bronchomalacia
- foreign body aspiration
- meconium aspiration syndrome (MAS)
- obstructive sleep apnea (OSA)
- Pierre Robin syndrome
- pulmonary interstitial emphysema (PIE)
- vascular ring
- vocal cord dysfunction

P3.2 Compare the above obstructive airway disorders per distinct features *

P3.3 Explain the basic principles of sleep studies and screening

- Describe the stages of sleep and sleep study screening
- Distinguish between sleep related disorders
- Compare the three categories of Sleep Apnea Syndrome (SAS)
- Describe the signs, symptoms and diagnostic procedures for the evaluation of SAS

E.4 Explain the restrictive processes of the respiratory system

P4.1 Compare the restrictive processes of the respiratory system in terms of origin: extra-pulmonary versus intra-pulmonary

P4.2 Discuss the effects of restrictive processes:

- decreased compliance
- decreased lung volumes
- diffusion impairment
- airway re-modeling
- gas exchange abnormalities
- pulmonary hypertension

E.5 Compare extra-pulmonary disorders

P5.1 Describe the following disorders:

- bronchopleural fistula
- pleural effusion
- pneumothorax
- thoracic cage disorders
- traumatic chest wall injuries

P5.2 Distinguish the above extra-pulmonary disorders per distinct features *

E.6 Compare intra-pulmonary disorders

P6.1 Describe the following disorders:

- acute respiratory distress syndrome (ARDS)
- atelectasis
- collagen disorders
- diaphragmatic hernia
- hyaline membrane disease / respiratory distress syndrome (RDS)
- hypersensitivity pneumonitis
- pulmonary fibrosis
- inhalation of toxic gases
- neoplasms
- oxygen toxicity
- pharmacological toxicity
- pneumoconiosis
- pneumonia
- pneumonitis
- pulmonary contusion/hemorrhage
- pulmonary edema
- sarcoidosis
- transient tachypnea of the newborn (TTN)

P6.2 Distinguish the above intra-pulmonary disorders per distinct features *