
Shortness of Breath

DEFINITION

Difficult or labored breathing; shortness of breath. Dyspnea is a sign of serious disease of the airway, lungs, or heart. The onset of dyspnea should not be ignored; it is reason to seek medical attention.

PATHOPHYSIOLOGY

Dyspnea can be symptomatic of a variety of disorders, both acute and chronic. Acute conditions include acute infections and inflammations of the respiratory tract, obstruction by an inhaled foreign object, anaphylactic swelling of the tracheal and bronchial mucosa, and traumatic injury to the chest, neck, or head.

Chronic disorders usually fall into the category of chronic airflow limitation or are associated with pulmonary edema and congestive heart failure.

SIGNS & SYMPTOMS

- Altered chest excursion
- Apnea
- Assumption of three-point position to breathe (bending forward while supporting self by placing one hand on each knee)
- Changes in respiratory rate and depth
- Cough
- Cyanosis
- Dyspnea
- Fremitus
- Holding breath
- Increased anteroposterior chest diameter
- Increased restlessness, apprehension, and cognition
- Increased work of breathing, use of accessory muscles
- Nasal flaring
- Noisy respirations
- Pursed-lip breathing or prolonged expiratory phase
- Reduced vital capacity
- Respiratory depth changes
- Tachypnea/bradypnea or cessation of respirations when off the ventilator

ASSESSMENT:

- Assess and record respiratory rate and depth at least every 4 hours.
- Assess ABG levels, according to facility policy.

Normal Blood Gas Values	
pH	7.35 – 7.45
PaCO ₂	35 – 45
PaO ₂	Adults: 80 – 100 Infants: 60 – 80
HCO ₃	20 – 26

- Observe for breathing patterns.

Rates and Depths of Respiration	
Apnea	Temporary cessation of breathing, especially during sleep
Apneusis	Deep, gasping inspiration with a pause at full inspiration followed by a brief, insufficient release
Ataxic patterns	Complete irregularity of breathing with irregular pauses and increasing periods of apnea
Biot's respiration	Groups of quick, shallow inspirations followed by regular or irregular periods of apnea (10 to 60 seconds).
Bradypnea	Respirations fall below 12 breaths per minute depending on the age of patient
Cheyenne-Stokes respiration	Progressively deeper and sometimes faster breathing, followed by a gradual decrease that results in apnea. The pattern repeats, with each cycle usually taking 30 seconds to 2 minutes.
Eupnea	Normal, good, unlabored ventilation, sometimes known as quiet breathing or resting, respiratory rate
Hyperventilation	Increased rate and depth of breathing
Kussmaul's respirations	Deep respirations with fast, normal, or slow rate associated with severe metabolic acidosis, particularly diabetic ketoacidosis (DKA) but also kidney failure

Tachypnea	Rapid, shallow breathing, with more than 24 breaths per minute
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- Auscultate breath sounds at least every 4 hours.

Abnormal Breath Sounds	
Bronchospasm	Constant breath sounds of both rhonchi and wheezing; normally treated with bronchodilator.
Expiratory grunt	Frequently occurs in combination with nasal flaring and intercostal or subcostal retractions, associated with increased work of breathing.
Rales	Clicking, rattling, or crackling sound heard during inspiration and expiration.
Rhonchi	Coarse crackle sound that is wetter than a rale, suctioning recommended.
Stridor	High-pitched, musical breathing sound caused by a blockage in the throat or voice box (larynx).
Wheeze	High-pitched, whistling sound when air moves through narrowed breathing tubes in the lungs. This is heard most commonly in asthmatics and CHF

- Ask if they feel “short of breath” and note any dyspnea.
- Assess for use of accessory chest muscles.
- Monitor for diaphragmatic muscle fatigue or weakness (paradoxical motion).
- Utilize pulse oximetry to check oxygen saturation and pulse rate.
- Assess ability to mobilize secretions.
- Send specimen for culture and sensitivity testing if sputum appears to be discolored.
- Evaluate skin color, temperature, capillary refill; observe central versus peripheral cyanosis.
- Assess for thoracic or upper abdominal pain.

NURSING INTERVENTIONS

- Keep away from high concentration of oxygen in patients with chronic obstructive pulmonary disease (COPD). The usual prescribed amount is 2-3L/min.
- Place patient with proper body alignment for maximum breathing pattern.
- Encourage sustained deep breaths by:
 - Using demonstration: highlighting slow inhalation, holding end inspiration for a few seconds, and passive exhalation
 - Utilizing incentive spirometer
 - Requiring the patient to yawn
- Evaluate the appropriateness of inspiratory muscle training.

- Provide respiratory medications and oxygen, per doctor's orders.
- Maintain a clear airway by encouraging patient to mobilize own secretions with successful coughing.
- Suction secretions, as necessary.
- Stay with the patient during acute episodes of respiratory distress.
- Ambulate patient as tolerated with doctor's order three times daily.
- Encourage frequent rest periods and teach patient to pace activity.
- Encourage small frequent meals.

PATIENT TEACHING

- Educate patient or significant other proper breathing, coughing, and splinting methods.
- Educate patient about medications: indications, dosage, frequency, and possible side effects. Incorporate review of metered-dose inhaler and nebulizer treatments, as needed.
- Teach patient about:
 - pursed-lip breathing
 - abdominal breathing
 - performing relaxation techniques
 - taking prescribed medications (ensuring accuracy of dose and frequency and monitoring adverse effects)
 - scheduling activities to avoid fatigue and provide for rest periods

CULTURAL CONSIDERATIONS

- Assess for the influence of cultural beliefs, norms, and values on the patient's acceptance of breathing abnormalities.
- Discuss with the patient those aspects of his or her activity level that will remain unchanged, and work with patient to adapt to cultural expectations.
- Validate the patient's feelings regarding the impact of current lifestyle, finances, and transportation on ability to obtain rest, respiratory medications and devices needed.

COORDINATING CARE WITH NURSING ASSISTANT

- Ambulate patient as tolerated with doctor's order three times daily.
- Encourage frequent rest periods and teach patient to pace activity.
- Encourage small frequent meals.

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