

Other Neuromuscular Conditions

Drug Overdose - Muscular Dystrophy - Stroke - Tetanus

Recognize It

- Overdose: slow/shallow breathing, altered level of consciousness, possible airway loss.
- Muscular dystrophy: chronic progressive weakness with weak cough and secretion retention.
- Stroke: sudden neurologic deficit, aspiration risk, poor airway protection.
- Tetanus: muscle rigidity, spasms, possible laryngospasm and ventilatory failure.

Gather This

- Trend respiratory rate, SpO₂, sensorium, breath sounds, and cough strength.
- Check VT, VC, and MIP/NIF whenever respiratory muscle weakness is possible.
- ABG helps detect rising CO₂, falling pH, or hypoxemia.
- Assess ability to swallow, clear secretions, and protect the airway.

Do This

- Give oxygen for hypoxemia and support ventilation when needed.
- Intubate if airway protection fails, LOC worsens, or ventilatory failure appears.
- Use suctioning/bronchial hygiene when secretions cannot be cleared.
- For overdose, identify the drug and antidote if available - but airway comes first.

Exam Traps

- Do not wait for every test when the patient cannot protect the airway.
- Weak cough + retained secretions = airway clearance problem.
- Neuromuscular cases may look stable until VC/MIP suddenly drop.



Myocardial Infarction

Chest pain cases: oxygenation, monitoring, and respiratory support

Recognize It

- Classic clues: chest pain/pressure, diaphoresis, nausea, anxiety.
- May show dyspnea, tachycardia, dysrhythmias, or pulmonary edema.
- RT priority: assess oxygenation and support ventilation if failure develops.

Gather This

- Vital signs, SpO₂, breath sounds, heart sounds, and chest pain description.
- 12-lead ECG is high yield for suspected MI.
- ABG if respiratory distress or oxygenation/ventilation status is unclear.
- Chest x-ray when pulmonary edema or CHF is suspected.

Do This

- Give oxygen if hypoxemic or in respiratory distress.
- Place on cardiac monitoring and alert the cardiac/medical team.
- Support ventilation if pulmonary edema or respiratory failure develops.
- Treat the respiratory problem while the team treats the MI.

Exam Traps

- Do not treat wheezing blindly as asthma when the story is cardiac.
- Crackles or frothy secretions after MI point toward pulmonary edema.
- Watch for hypotension and shock after a major cardiac event.



Shock

Poor perfusion: identify type, support oxygen delivery, fix the cause

Recognize It

- General picture: pale/cool/clammy, weak pulse, low BP, altered LOC.
- May have tachypnea, hypoxemia, poor capillary re-fill, and low urine output.
- Types to know: cardiogenic, hypovolemic, septic, anaphylactic, neurogenic, traumatic.

Gather This

- Vital signs, SpO₂, LOC, skin signs, breath sounds, and urine output.
- ABG/lactate pattern may show metabolic acidosis from poor perfusion.
- Hemodynamics help separate pump failure vs. volume loss vs. vasodilation.
- CBC/cultures if infection or bleeding is suspected.

Do This

- Give oxygen early; ventilate if respiratory failure develops.
- Hypovolemic: fluids/blood support. Septic: antibiotics plus fluids/pressors.
- Cardiogenic: support pump function and avoid unnecessary fluid overload.
- Anaphylactic: epinephrine, airway support, bronchodilator if bronchospasm.

Exam Traps

- Shock is a circulation problem that quickly becomes an oxygen delivery problem.
- Low BP plus altered LOC is unstable: act, do not over-gather.
- Treat the type of shock, not just the low blood pressure.



Pulmonary Embolism and Cor Pulmonale

Dead space emergency vs. chronic right-heart strain

Recognize It

- PE: sudden dyspnea, chest pain, tachycardia, anxiety, possible hemoptysis.
- PE risk clues: post-op, immobility, fractures, clots, pregnancy, estrogen therapy.
- Cor pulmonale: chronic lung disease with JVD, edema, increased work of breathing.

Gather This

- PE: ABG often shows respiratory alkalosis with hypoxemia.
- PE: D-dimer, V/Q scan, CT angiography, or pulmonary angiogram if indicated.
- Capnography may show low exhaled CO₂ compared with PaCO₂.
- Cor pulmonale: assess CVP, ECG/RV strain signs, history of COPD or pulmonary HTN.

Do This

- Give oxygen and monitor ABGs/vitals closely.
- PE: anticoagulants; thrombolytics for severe/appropriate cases.
- Prevent clots with early movement and anti-embolism measures when appropriate.
- Cor pulmonale: treat underlying lung disease; diuretics/vasodilators as ordered.

Exam Traps

- PE = ventilation without perfusion: a dead space problem.
- Sudden post-op dyspnea with chest pain should scream PE.
- Cor pulmonale is usually chronic; PE is often sudden.



Bronchiolitis - CF - Foreign Body

Pediatric obstruction patterns that show up fast

Recognize It

- Bronchiolitis: infant/toddler, viral symptoms, wheezing, retractions.
- Cystic fibrosis: thick secretions, recurrent infections, failure to thrive.
- Foreign body: sudden cough/wheeze/stridor, often after eating or playing.

Gather This

- Assess retractions, nasal flaring, color, SpO₂, and work of breathing.
- Breath sounds: wheeze, diminished sounds, unilateral changes, crackles.
- CF: sputum culture, sweat chloride/genetic testing when diagnostic workup is needed.
- Foreign body: chest/neck x-ray may help, but bronchoscopy is definitive.

Do This

- Oxygen for hypoxemia; support hydration and secretion clearance.
- CF: airway clearance, bronchodilator if bronchospasm, antibiotics if infection.
- Foreign body with severe distress: airway support and bronchoscopy/removal.
- Escalate to ventilation if fatigue or respiratory failure develops.

Exam Traps

- Unilateral wheeze/decreased breath sounds = possible foreign body.
- CF is a secretion disease: clearance plus infection control matter.
- Kids fatigue quickly; worsening LOC is late and dangerous.



Meconium Aspiration and Apnea

Newborn distress: obstruction, hypoxemia, and immature drive

Recognize It

- Meconium aspiration: stained fluid, respiratory distress, coarse breath sounds.
- Findings may include cyanosis, grunting, retractions, tachypnea, and low SpO₂.
- Apnea of prematurity: premature infant with breathing pauses plus bradycardia/desaturation.

Gather This

- Apgar score, heart rate, respiratory effort, color, tone, and SpO₂.
- ABG/capillary gas if ventilation status needs assessment.
- Chest x-ray for aspiration pattern, hyperinflation, or infiltrates.
- For apnea: monitor frequency, duration, HR drop, SpO₂ drop, and stimulation response.

Do This

- Follow neonatal priorities: warm, position, clear airway only if needed, stimulate.
- If HR/ventilation is poor: positive pressure ventilation is the key intervention.
- Meconium with distress may require advanced airway/vent support.
- Apnea: tactile stimulation, CPAP/oxygen if needed, caffeine therapy per order.

Exam Traps

- In newborns, heart rate tells you if ventilation is working.
- Do not delay PPV when the newborn is not breathing effectively.
- Apnea plus bradycardia in a premature infant is a high-yield clue.



IRDS and Bronchopulmonary Dysplasia

Prematurity problems: surfactant deficiency vs. chronic lung injury

Recognize It

- IRDS: premature infant, surfactant deficiency, grunting, nasal flaring, retractions.
- CXR often shows low-volume lungs with diffuse hazy/ground-glass appearance.
- BPD: chronic oxygen/ventilator history with ongoing oxygen need and poor compliance.

Gather This

- Gestational age, birth history, Apgar, SpO₂, and work of breathing.
- ABG/capillary gas for oxygenation and ventilation status.
- CXR pattern helps separate IRDS, TTN, pneumonia, and air leak problems.
- Monitor ventilator pressures and oxygen requirement over time.

Do This

- IRDS: CPAP/PEEP, oxygen, and surfactant therapy when indicated.
- Use gentle ventilation strategies to reduce barotrauma/volutrauma.
- BPD: oxygen, nutrition/growth support, bronchodilators/diuretics if ordered.
- Wean oxygen slowly and monitor for pulmonary hypertension risk.

Exam Traps

- Premature plus early distress = think surfactant deficiency.
- High pressures can improve oxygenation but also cause lung injury.
- BPD is usually chronic after neonatal ventilation/oxygen exposure.



Congenital Heart Defects and CDH

Neonatal cyanosis: heart mixing vs. lung compression

Recognize It

- CHD: cyanosis, murmur, poor feeding, tachypnea, low SpO₂ that may not correct normally.
- Right-to-left shunts cause hypoxemia that may not respond well to oxygen alone.
- CDH: scaphoid abdomen, severe distress, bowel sounds in chest, shifted mediastinum.

Gather This

- Pre/post-ductal SpO₂, ABG, CXR, heart sounds, pulses, perfusion.
- CHD: echocardiogram is key for diagnosis.
- CDH: chest x-ray shows bowel loops in thorax and lung compression.
- Assess for pulmonary hypertension and severe hypoxemia.

Do This

- Stabilize airway and oxygenation; avoid excessive bagging in CDH if possible.
- CHD: prostaglandin may be needed for ductal-dependent lesions.
- CDH: intubate, decompress stomach with OG/NG tube, prepare for surgical repair.
- Severe cases may require advanced support such as HFOV or ECMO.

Exam Traps

- Cyanosis that does not fix with oxygen may be cardiac shunting.
- CDH is not asthma or pneumonia - the lungs are compressed.
- Do not aggressively mask ventilate CDH; air can worsen bowel distention.



Sleep Disorders

Central vs. obstructive apnea made simple

Recognize It

- Sleep apnea clues: snoring, morning headaches, daytime sleepiness, obesity, HTN.
- OSA: airway blocks but patient still makes breathing effort.
- Central apnea: no airflow because the brain is not sending drive to breathe.
- Apnea event: breathing stops for at least 10 seconds.

Gather This

- Polysomnography/sleep study is the key diagnostic test.
- Track apnea-hypopnea index, oxygen desaturations, heart rhythm, and sleep stages.
- ABG may show chronic ventilatory failure in severe/chronic cases.
- Assess neck circumference, BMI, medications, and heart/lung comorbidities.

Do This

- OSA: CPAP is first-line positive airway pressure support.
- Weight loss, sleep positioning, avoiding sedatives/alcohol may help.
- Central apnea: treat underlying cause and consider appropriate PAP mode.
- Oxygen may be added only when indicated; fix obstruction/ventilation problem.

Exam Traps

- Effort present but no airflow = obstructive.
- No effort and no airflow = central.
- Do not diagnose sleep apnea from symptoms alone; recommend a sleep study.



Hypothermia

Cold patient: rewarm, oxygenate, protect the heart

Recognize It

- Core temp low with shivering, confusion, slow respirations, bradycardia.
- Severe cases may show weak pulse, arrhythmias, hypotension, and coma.
- Pulse oximetry may be unreliable with poor perfusion.

Gather This

- Core temperature is the key measurement.
- Monitor ECG continuously because cold myocardium is irritable.
- Assess ABG, electrolytes, glucose, and mental status.
- Look for drowning, trauma, intoxication, or exposure history.

Do This

- Handle gently; rough movement can trigger dysrhythmias.
- Give warmed humidified oxygen and ventilatory support if needed.
- Remove wet clothing and use passive/active rewarming depending on severity.
- Severe hypothermia may require warmed IV fluids or advanced rewarming.

Exam Traps

- Do not assume a cold patient is dead without proper assessment.
- Rewarm before judging some rhythms/medication response.
- Bradycardia can be expected; protect the airway and heart.

Pneumonia and AIDS

Infection patterns: consolidation vs. immune compromise

Recognize It

- Pneumonia: fever, productive cough, crackles, dyspnea, pleuritic pain.
- CXR: infiltrates or consolidation; percussion may be dull over involved areas.
- AIDS: weight loss, recurrent fever, opportunistic infections such as Pneumocystis.

Gather This

- Pneumonia: CXR, ABG if distress, CBC, sputum culture if infection workup needed.
- Assess oxygenation, breath sounds, sputum amount/color, and hydration status.
- AIDS/HIV workup may include ELISA/confirmatory testing and bronchoscopy/biopsy if indicated.
- Watch for ventilatory failure in severe pneumonia.

Do This

- Oxygen for hypoxemia; antibiotics when bacterial infection is suspected/confirmed.
- Lung expansion and bronchial hygiene can help prevent/treat atelectasis and secretions.
- Large pleural effusion may require thoracentesis.
- Pneumocystis treatment may include aerosolized pentamidine with proper precautions.

Exam Traps

- Consolidation plus fever plus sputum = pneumonia pattern.
- Colored secretions support infection; do not order antibiotics for every cough blindly.
- Use standard precautions; protect staff during aerosolized treatments.



Renal Failure and Diabetes

Kussmaul breathing and metabolic acidosis clues

Recognize It

- Kussmaul breathing = deep, fast breathing to compensate for metabolic acidosis.
- Renal failure clues: low urine output, fluid overload, edema, crackles if CHF develops.
- Diabetes/DKA clues: hyperglycemia, dehydration, fruity breath, altered LOC.

Gather This

- ABG: expect metabolic acidosis patterns.
- Check glucose, electrolytes, BUN/creatinine, and urine output.
- Assess fluid status: edema, crackles, blood pressure, daily weights if available.
- Monitor mental status and signs of respiratory fatigue.

Do This

- Support oxygenation/ventilation if respiratory failure develops.
- Diabetes/DKA: monitor glucose closely and treat metabolic cause per protocol.
- Renal failure: monitor fluids/electrolytes and watch for pulmonary edema.
- Dialysis may be needed depending on severity and provider orders.

Exam Traps

- Do not treat Kussmaul breathing as primary hyperventilation/anxiety.
- The lungs are compensating; the root problem is metabolic.
- Fluid overload can become CHF/pulmonary edema quickly.



Thoracic Surgery

Post-op chest cases: prevent atelectasis and monitor complications

Recognize It

- Recent chest surgery with pain, shallow breathing, splinting, low volumes.
- Common problems: atelectasis, retained secretions, pneumothorax, bleeding, pneumonia.
- Chest tubes may be present after thoracic procedures.

Gather This

- Vital signs, SpO₂, breath sounds, cough strength, pain level, chest tube status.
- Chest x-ray helps evaluate lung expansion, pneumothorax, and tube position.
- ABG if oxygenation/ventilation is questionable.
- Assess incentive spirometry performance and secretion clearance.

Do This

- Oxygen for hypoxemia; encourage deep breathing, coughing, and early mobility.
- Incentive spirometry and lung expansion therapy prevent atelectasis.
- Bronchial hygiene/suctioning if secretions are retained.
- Report sudden dyspnea, absent breath sounds, new air leak, or heavy bleeding.

Exam Traps

- Pain causes shallow breathing - treat pain so the patient can expand lungs.
- Atelectasis prevention is a major RT priority after surgery.
- Sudden unilateral absent sounds after surgery = think pneumothorax/chest tube issue.



Head Trauma

Protect the airway and control oxygenation/ventilation

Recognize It

- Altered LOC after trauma, vomiting, irregular respirations, unequal pupils.
- Main RT concern: airway protection and preventing hypoxemia/hypercapnia.
- Increased ICP signs may include bradycardia, hypertension, and abnormal breathing.

Gather This

- Glasgow Coma Scale, pupils, respiratory pattern, SpO₂, ABG.
- CT scan is key for brain injury evaluation.
- ICP monitoring may be indicated in severe head injury.
- Assess aspiration risk, vomiting, facial trauma, and cervical spine precautions.

Do This

- Maintain airway with C-spine protection; intubate if unable to protect airway.
- Avoid hypoxemia; ventilate appropriately to prevent CO₂-related ICP changes.
- Elevate head of bed if allowed and avoid excessive suctioning/stimulation.
- Coordinate with trauma/neuro team for ICP and sedation management.

Exam Traps

- Do not hyperventilate routinely; reserve for acute ICP crisis per direction.
- Low GCS plus poor airway protection = intubation priority.
- Always think C-spine precautions with trauma.



Spinal Cord Injuries

Level of injury predicts breathing problems

Recognize It

- High cervical injury can impair diaphragm function and cause ventilatory failure.
- Lower cervical/thoracic injuries weaken cough and intercostal/abdominal muscles.
- Neurogenic shock may cause hypotension with bradycardia after spinal injury.

Gather This

- Level of injury, respiratory rate/pattern, SpO₂, VT, VC, MIP/NIF.
- ABG trends for CO₂ retention and hypoxemia.
- Assess cough strength, secretion retention, and breath sounds.
- Monitor BP/HR for neurogenic shock and autonomic issues.

Do This

- Protect C-spine; support airway and ventilation early when high injury suspected.
- Use assisted cough, suctioning, and bronchial hygiene for secretion clearance.
- Mechanical ventilation may be needed for high cervical injuries.
- Lung expansion therapy helps prevent atelectasis.

Exam Traps

- C3-C5 keeps the diaphragm alive - high injuries are dangerous.
- Normal SpO₂ early does not rule out ventilatory failure; watch CO₂ and VC.
- Weak cough means secretions will build up.

