

Arterial Blood Gas Practice Questions

Assume the ABG is interpretable. Assess the ABG for acid/base status. Each question is worth 10 points. There are 10 questions, resulting in a total of 100 possible points.

1. An 84 year old female presents with dyspnea, fever, and a 5 day history of a productive cough with yellow sputum. The Chest X-ray reveals bilateral lower lobe pneumonia. An ABG is drawn in the emergency department. The ABG results are:

pH: 7.27
PCO₂: 58
PaO₂: 60
HCO₃: 26

	acid	normal	base
pH			
PaCO ₂			

uncompensated
respiratory
acidosis

2. A 63 year old female presents to the ED with persistent vomiting. The client states the persistent vomiting started 2 days ago. Her ABG in the ED reveals:

pH: 7.58
PCO₂: 55
PaO₂: 80
HCO₃: 46

	acid	normal	base
PaCO ₂			
pH			
HCO ₃			

partially compensated
metabolic
alkalosis

3. A 28 year old male with obsessive compulsive disorder presents to the ED with a severe anxiety attack. The client complains of shortness of breath, chest pain, and tingling in bilateral upper and lower extremities. Client states "I feel like I am about to pass out". The physical exam reveals a heart rate of 124 and a respiratory rate of 38. An ABG is drawn and the results are as follows:

pH: 7.55
PCO₂: 23
PaO₂: 99
HCO₃: 19

	acid	normal	base
HCO ₃			
pH			
PCO ₂			

partially compensated
respiratory
~~alkalosis~~
alkalosis

4. A 50 year old female with a past medical history of cirrhosis secondary to alcoholism arrives to the clinic for a new patient visit. An ABG is performed. The result of this ABG reveals _____

pH: 7.46
PCO₂: 20
PaO₂: 80
HCO₃: 17

	acid	normal	base
pH			
HCO ₃			
PCO ₂			

partially compensated
respiratory alkalosis

5. A 20 year old male with ulcerative colitis presents with profuse diarrhea. The client states that the diarrhea started 3 days ago. An ABG is obtained and it is:

pH: 7.28
PCO₂: 27
PaO₂: 90
HCO₃: 13

	acid	normal	base
pH			
HCO ₃			
PCO ₂			

partially
compensated
metabolic acidosis

Arterial Blood Gas Practice Questions

6. A 30 year old female arrives to the ED with complaints of a cough with productive green sputum, blurry vision, shortness of breath, polyuria, and polydipsia. The client admits to being an insulin dependent diabetic since age 6 and chronic kidney disease with a baseline creatinine of 2.3. A CXR is performed and reveals significant bilateral infiltrates. A point of care blood sugar is completed and reads >600 HIGH. Patients UA is positive for ketones. Sputum culture is pending. An ABG is completed and reveals:

pH: 7.19
PCO₂: 35
PaO₂: 60
HCO₃: 9

	acid	normal	base
pH			
PCO ₂			
HCO ₃			

uncompensated metabolic acidosis

7. A 55 year old male with idiopathic pulmonary fibrosis presents with abdominal pain. A BMP, CBC, ABG, and Abdominal CT is completed. The ABG is:

pH: 7.33
PCO₂: 52
PaO₂: 50
HCO₃: 26

	acid	normal	base
pH			
PCO ₂			
HCO ₃			

uncompensated respiratory acidosis

8. The ABG on a 29 year old pregnant woman reveals:

pH: 7.48
PCO₂: 30
PaO₂: 95
HCO₃: 20

	acid	normal	base
pH			
PCO ₂			
HCO ₃			

partially compensated respiratory alkalosis

9. A 36 year old provider begins to have stridor shortly after putting on latex gloves. The provider has a significant history of asthma with allergies to pollen. An ABG is completed and reveals:

pH: 7.21
PCO₂: 64
PaO₂: 70
HCO₃: 26

	acid	normal	base
pH			
PCO ₂			
HCO ₃			

uncompensated respiratory acidosis

10. A 75 year old male with hypertension, hyperlipidemia, coronary artery disease, stage III CHF secondary to ischemic cardiomyopathy presents to his PCP for a routine appointment. The PCP is aware that the patient takes 40mg of furosemide twice daily. Labs are performed. The ABG reveals the patient is in:

pH: 7.48
PCO₂: 49
PaO₂: 75
HCO₃: 37

	acid	normal	base
pH			
PCO ₂			
HCO ₃			

partially compensated metabolic alkalosis