BNURS506 Quiz Answering

Term: Spring 2025
Module 3: Cardiovascular & Pulmonary Systems
Name: Student L

#:	Your Answer	Feedback from Grader	Score
2	The first line of treatment this patient will receive is emergent needle decompression, which is typically performed with a large-bore needle inserted into the second intercoastal space at midclavicular line. After this intervention then it is followed by the placement of a chest tube in the fifth intercoastal space at the midaxillary line to allow continued evacuation of air and re-expansion of the lung (Panchal et al., 2020) As the tension pneumothorax is relieved, the nurse would expect to see: ● Improved respiratory rate, decreasing from the elevated rate (tachypnea) ● Increased oxygen saturation (SpO_2) toward normal values (≥ 95%) ● Resolution or reduction of chest pain ● Decreased heart rate as hypoxia and sympathetic stimulation resolve ● Improved breath sounds on the affected side, though they may still be diminished initially ● Improved mental status and reduced anxiety, indicating better oxygenation and perfusion References: Panchal, A. R., Bartos, J. A., Cabañas, J. G., Donnino, M. W., Drennan, I. R., Hirsch, K. G., ... & Kudenchuk, P. J. (2020). 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*, *142*(16_suppl_2), S366–S468. https://doi.org/10.1161/CIR.0000000000000916	Excellent explanation of treatment for a tension pneumothorax, I was looking for specific discussion surrounding the placement and management of a chest tube. One of the important assessments for a chest tube is the presence of an air leak, as it is allowing the air to escape from the pleural space. Over time, the nurse would expect to see the air leak decrease in size and intensity.	9 / 10

	Feedback: This scenario was easily to assess and follow, thank you for providing the diagnosis and patient assessment.		
4	There are a few cues that make me suggest it would be active pulmonary tuberculosis (TB). The fact that you mentioned above chronic productive cough with hemoptysis (pink phlegm), night sweats, unintentional weight loss, fever, and recent travel from a TB-endemic country (the Philippines). Some others risk factors like smoking, alcohol abuse and multiple sex partners, can be suspicion for TB related to weak immune system. Some things to consider when rooming the patient is airborne precaution since transmission is airborne and place in a negative pressure room. Staff will need to wear N95 masks, and the infection control team should be notified if applicable to site. Regarding treatment patient is looking at: ● Chest X-ray and sputum sample collection for acid-fast bacilli (AFB) smear and culture ● Possible nucleic acid amplification test (NAAT) for rapid TB detection ● HIV screening, given the immunocompromising risk If TB is confirmed or strongly suspected: ● Initiation of standard anti-TB therapy (typically a 4-drug regimen: isoniazid, rifampin, pyrazinamide, and ethambutol) ● Public health reporting and contact tracing ● Hospital admission for isolation and further management, especially if symptoms are severe or adherence is a concern ● Social services consultation if housing, substance use, or follow-up care issues are identified	You have provided all the answers that I was looking for. You gave meaning and connected the symptoms, clinical manifestations and history of Alphee to a leading diagnosis which is impressive. I also like how you included ED plan care, possible admission, discharge which all encompasses disposition.	10/ 10

	References: Centers for Disease Control and Prevention. (2021). *Tuberculosis (TB): Diagnosis and treatment of TB disease*. https://www.cdc.gov/tb/topic/treatment/tbdisease.htm Feedback: I like how the question was straight forward giving symptoms patient presents and then adding further risks factors that support his condition. TB is common for people that have lived or travel the US so this is something that I suspected firsthand as I read the scenario.		
5 ~~6~~	An LMA, or laryngeal mask airway, is a supraglottic airway device used by anesthesia providers to maintain an open airway during procedures that require general anesthesia. It is less invasive than an endotracheal (ET) tube and is placed over the laryngeal inlet rather than inserted into the trachea. LMAs are commonly used in cases where positive pressure ventilation is needed but the risk of aspiration is low, and the procedure is relatively short or non-invasive (Nagelhout & Elisha, 2022). The decision to use an **ET tube** rather than an LMA in the third case may be based on **patient-specific or surgical considerations**, such as: • **Higher risk of aspiration** • **Need for muscle relaxation and controlled ventilation** • **Longer or more invasive surgical procedures** where airway protection is critical • **Surgical positioning** (prone or steep Trendelenburg), which can make LMA use less effective or risky ET tubes provide **better airway protection and allow for higher ventilation pressures**, which is often necessary in complex or high-risk cases (Nagelhout & Elisha, 2022). **Also, in my experience working as a circulating Nurse some other considerations might be:**	Thank you for your work and feedback! Your response to the first question is spot on - thank you for the detail regarding where in the airway the LMA rests once placed as this is the critical factor that influences all other considerations. Your 3 parameters were also spot on and I have nothing to add, nice work! For the bonus - yes to listening for bilateral sounds and to observing bilateral and symmetrical chest rise. Other things the circulator can do is look for condensation on the inside of the tube, and - probably the most telling data point - the ETCO2 reading. You should also find manual ventilation easy to accomplish once the tube is placed. Thank you for your in-text citations!	10 / 10

	They have a history of difficult airway Their BMI Patient requested ET rather than LMA If the procedure is going to be in the tonsils or septum sometimes anesthesiologist prefer ET To answer the bonus question: A provider can auscultate the lungs, listening for bilateral sounds Also looking at the tummy/ or chest to see if when ventilating it rises Also looking at the pulse OX verifying that their O2 is above 93% (This bonus question was answered by what I have seen in surgery rooms, please feel free add on suggestions) References: Nagelhout, J. J., & Elisha, S. (2022). *Nurse anesthesia* (7th ed.). Elsevier. Feedback: I like how your case scenario was over a different specialty other than ER. The operating room is a place that many complications can arise, and the airway is top priority.		
8	Jenny presents with symptoms of orthostatic intolerance, elevated heart rate upon standing (HR of 130 bpm), fatigue, dizziness, nausea, and exercise intolerance, these all suggest that she has Postural Orthostatic Tachycardia Syndrome. POTS is a form of dysautonomia characterized by an excessive increase in heart rate upon standing without a significant drop in blood pressure (Raj et al., 2021). The primary test for this would be a tilt table test, or active standing test, where HR and BP are monitored from a lying to standing position. A positive POTS is confirmed if the HR increased	Your answer was amazing and extremely detailed. The inclusion of the PMH portion of the chart was intentional. I wanted to make sure it was clear that the tachycardia was not new and give the past testing to help guide people to the correct answer. Additionally, hypermobile EDS is associated with POTS, and uncontrolled POTS can trigger	10/ 10

	greater than 30 beats er min or exceeds 120 bpm within 10 min of standing, in the absence of orthostatic hypotension (Raj et al., 2021) Some lifestyle modifications would be to increase her fluid and salt intake. Increasing fluid (2–3 liters/day) and sodium intake (up to 3–10 grams/day under provider supervision) helps expand blood volume and improve circulation, which can reduce symptoms of orthostatic intolerance (Shibao et al., 2020). Wear compression garments because wearing compression stockings or abdominal binders helps promote venous return and reduce blood pooling in the lower extremities, decreasing dizziness and tachycardia when standing (Raj et al., 2021). Also, physical exercise like swimming, rowing, recumbent biking which are a structured, recumbent-base exercises that can improve autonomic function and cardiovascular conditions, leading to gradual reduction in symptoms (FU et al., 2020) For the bonus question one physiological mechanism that may be responsible is impaired autonomic regulation of blood vessel tone in which the autonomic nervous system fails to properly constrict blood vessels when a person moves to an upright position. This leads to reduced blood return to the heart (preload), decreased cardiac output, and compensatory excessive heart rate (tachycardia) to maintain blood pressure and cerebral perfusion, resulting in dizziness, fatigue, and palpitations (Raj et al., 2021). References: Fu, Q., Vangundy, T. B., Galbreath, M. M., Shibata, S., Jain, M., Hastings, J. L., ... & Levine, B. D. (2010). Exercise training versus propranolol in the treatment of the postural orthostatic tachycardia syndrome. *Hypertension*, 56(5), 962–969. https://doi.org/10.1161/HYPERTENSIONAHA.110.157115 Raj, S. R., Guzman, J. C., Harvey, P., Richer, L., Schondorf, R., Seifer, C., ... & Sheldon, R. S. (2021). Canadian Cardiovascular Society Position Statement on the diagnosis and treatment of postural orthostatic tachycardia syndrome (POTS). *The Canadian Journal of*	migraines. Thank you for the feedback, though, I'll definitely need to find a happy medium between not giving enough info to guide people to the correct answer and giving too much potentially helpful info to the point where it makes things more difficult. Grading Criteria: 2/2: proper identification of POTS 2/2: identifying the tilt-table test as testing to confirm/diagnose the condition 2/6: lifestyle modifications with brief rationale (2 points each) Bonus: 2/2, the answer properly describes one of the potential physiological mechanisms that causes POTS	

	Cardiology, 37(3), 350–361. https://doi.org/10.1016/j.cjca.2020.11.006 Shibao, C. A., Grubb, B. P., & Karabin, B. (2020). Management of postural tachycardia syndrome: A comprehensive approach. *Progress in Cardiovascular Diseases*, 63(1), 47–53. https://doi.org/10.1016/j.pcad.2020.01.002 Feedback: The chart that was made kind of threw me off. Sometimes I wonder if this present related to her other disorders that she may have. But I went off o the presenting symptoms that was given in the scenario.		
10	Looking at peters presenting symptoms of fever, new heart murmur, fatigue, increased oxygen demand, history of intravenous drug use (IVDU), his mostly likely diagnosis is infective endocarditis (IE), which is s a serious infection of the heart's inner lining (endocardium), most commonly affecting the valves. TEE is often used to detect vegetations (infectious masses) on heart valves, which are characteristic of endocarditis (Baddour et al., 2015). Due to this being a infection the mostly likely course of treatment would be antibiotic therapy such as Vanco or ceftriaxone, blood cultures would confirm which therapy is more appropriate for patient. The three associated complications to monitor would include sepsis, related to having bacteria in the blood, heart failure related to the lining, and valves being damage, and septic emboli in which vegetations from the heart valves can break off and travel to the lungs (pulmonary embolism) or brain (stroke), depending on the side of the heart affected. The way the nurse would assess for these complications would be looking for neurological deficits (stroke), respiratory distress (PE), hypotension, altered mental status, and worsening hypoxia or fatigue.	Awesome job at identifying the proper diagnosis and how you would go about treating it. Your train of thought here is evident, and you're thinking of all the right factors associated with this course of treatment, including the potential complications which you have accurately identified. Thank you for your feedback!	10/ 10

	References: Baddour, L. M., Wilson, W. R., Bayer, A. S., Fowler, V. G., Bolger, A. F., Levison, M. E., ... & Baltimore, R. S. (2015). Infective endocarditis in adults: Diagnosis, antimicrobial therapy, and management of complications. *Circulation*, *132*(15), 1435–1486. https://doi.org/10.1161/CIR.0000000000000296 Feedback: This was a wild case with multiple distressing symptoms. Since the patient was a drug user, primarily using heroin, I immediately suspected it was related to the blood and conditions that may affect the heart. Nice work choosing a condition I wasn't familiar with—it was enjoyable and informative to learn about it.		
12	1.When looking at the EKG I see elevated ST intervals which indicate STEMI. This I recall from my advance cardio life support course that us nurses take every three years. 2. The labs needed for further evaluation would include • **troponin I or T** – Most specific and sensitive biomarker for cardiac injury. • **Complete Blood Count (CBC)** – To assess for anemia or infection. • **Basic Metabolic Panel (BMP)** – Evaluates electrolytes, renal function, and glucose levels. Additional labs may include CK-MB, lipid profile, coagulation studies (PT/INR), and BNP if heart failure is suspected. (Thygesen et al., 2019). 3) Due Johns symptoms of chest tightness, diaphoresis, radiating pain to jaw/teeth, hx of smoking, HTN, HLD and EKG reports he is likely experiencing acute inferior STEMI. STEMI occurs when a coronary artery becomes completely occluded, leading to myocardial ischemia and necrosis. Inferior STEMIs commonly result from right coronary artery blockage and can sometimes involve the	1.1/1 Identifies ST elevations 2.2/2 you got it! 3.3/3 great explanation 4.4/4 thank you for providing the great answers with detailed information.	10/ 10

	right ventricle. Prompt intervention is critical to limit myocardial damage and prevent complications such as arrhythmias or heart failure (Amsterdam et al., 2014). 4) The txt for this would be aspirin as it is a blood liner and further inhibit further thrombus formation, nitroglycerin, which helps reduce myocardial oxygen demand by dilating coronary vessels. Also, other txt would include giving john oxygen maintaining his O2 above 94 or whatever protocol the hospital has. Also, immediate reperfusion therapy which is a intervention in which coronary blood flow is restored and can only be used within 90 min of STEMI (O'Gara et al., 2013). References: Amsterdam, E. A., Wenger, N. K., Brindis, R. G., Casey, D. E., Ganiats, T. G., Holmes, D. R., ... & Zieman, S. J. (2014). 2014 AHA/ACC guideline for the management of patients with non–ST-elevation acute coronary syndromes. *Journal of the American College of Cardiology, 64*(24), e139–e228. https://doi.org/10.1016/j.jacc.2014.09.017 O'Gara, P. T., Kushner, F. G., Ascheim, D. D., Casey, D. E., Chung, M. K., de Lemos, J. A., ... & Zhao, D. X. (2013). 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction. *Circulation, 127*(4), e362–e425. https://doi.org/10.1161/CIR.0b013e3182742cf6 Thygesen, K., Alpert, J. S., Jaffe, A. S., Chaitman, B. R., Bax, J. J., Morrow, D. A., & White, H. D. (2019). Fourth universal definition of myocardial infarction (2018). *Journal of the American College of Cardiology, 72*(18), 2231–2264. https://doi.org/10.1016/j.jacc.2018.08.1038 Feedback:		

	EKG leads are not my strongest suit. Although I was able to recognize ST elevation there are many others heart problems that can exist. Thanks for providing an image and not making the case scenario easy to understand.		
14	This patient is showing signs of heart failure as evidenced by shortness of breath, orthopnea (sleeping in recliner), wheezing, chest pain, activity intolerance, lower extremity numbness, and hypoxia (SpO_2 86%). The fact that his torsemide has been adjusted and still no significant improvement suggests that this patient may be experiencing **acute decompensated** HF. Also further evaluating this patient hypotension, tachycardia, and respiratory all support that his heart is failing to perfuse adequately. The bilateral lower extremity symptoms suggest poor circulation or developing peripheral edema, and his COPD and pulmonary hypertension likely exacerbate the respiratory symptoms (Yancy et al., 2013). I anticipate the doctor ordering a 120lead to rule out ischemia, adjusting his medication specially those for the heart, more IV diuretics to address fluid overload, some O2 to help increase his circulatory O2 stats, a chest x-ray, echocardiogram, and continuous cardiac monitoring as well. Lab findings that I found were **Lab Findings:** ● BNP (B-type natriuretic peptide) – Elevated (marker of heart failure severity). ● Troponin – May be slightly elevated due to cardiac strain. ● Creatinine/BUN – May be elevated due to renal hypoperfusion or over-diuresis. ● Electrolytes (Na, K) – May be abnormal, especially low potassium from diuretic use. ● Hemoglobin/Hematocrit – Possibly low if anemia is contributing to hypoxia. ● TSH – Should be checked, as hypothyroidism can worsen CHF. ● Arterial blood gases (ABG) – May show respiratory acidosis or hypoxemia. Imaging:	You answered the question clearly and concisely. I think you meant 12 lead EKG due to this chest pain and rute out MI. acute on chronic HF or CHF exacerbation, given his history of CHF.	10/ 10

	• Chest X-ray – Likely to show pulmonary congestion, cardiomegaly, or pleural effusions. • Echocardiogram – May show reduced ejection fraction or diastolic dysfunction (depending on type of CHF). References: Yancy, C. W., Jessup, M., Bozkurt, B., Butler, J., Casey, D. E., Drazner, M. H., ... & Wilkoff, B. L. (2013). 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Journal of the American College of Cardiology, 62*(16), e147–e239. https://doi.org/10.1016/j.jacc.2013.05.019 Feedback: This was a well written case scenario; I was able to assess symptoms presented and then investigate the diagnosis from there.		
16	The coworker is likely experiencing Raynaud's phenomenon (Raynaud's syndrome), a condition where exposure to cold temperatures or stress causes vasospasm of the small arteries, most commonly in the fingers. This leads to a characteristic color change sequence—white (pallor), then blue (cyanosis), then red (hyperemia)—along with pain, numbness, or difficulty with movement (Herrick, 2012). "Raynaud's is the finger color-changing syndrome." It's triggered by cold or stress, starting with the fingers turning white from lack of blood flow, then blue as oxygen runs out, and finally red when blood flow rushes back. It's painful, unpredictable, and can make simple tasks (like using touchscreens) very difficult.	Good job answering the question. You got the first two questions correct. I was looking for primary for the last question. This was my thought process behind it. This condition is classified as a primary form, since the coworker is a woman, other conditions weren't listed and because her fingertips turned white, which happens in primary Raynaud phenomenon. In the secondary Raynaud, ulcers can happen, and skin looks smooth, shiny, and tight from loss of tissue, which she doesn't have.	9.5 / 10

	Based on the coworker's comment that she has a diagnosed medical condition but didn't name it, this likely indicates secondary Raynaud's phenomenon, which occurs in association with an underlying disease such as scleroderma, lupus, or rheumatoid arthritis. Secondary Raynaud's is generally more severe and may lead to functional issues like the difficulty using touchscreens she described (Wigley & Flavahan, 2016). References: Herrick, A. L. (2012). The pathogenesis, diagnosis and treatment of Raynaud phenomenon. *Nature Reviews Rheumatology, 8*(8), 469–479. https://doi.org/10.1038/nrrheum.2012.100 Wigley, F. M., & Flavahan, N. A. (2016). Raynaud's phenomenon. *New England Journal of Medicine, 375*(6), 556–565. https://doi.org/10.1056/NEJMra1507638 Feedback: I feel like this case scenario could of used a bit more information to better assess the diagnosis, however answers were based on the symptoms presented and information provided.	However, I should have been more clear with the information in the question. I appreciate your feedback.	
18	Two major contributing factors to Ron's development of a deep vein thrombosis (DVT) are: • **Prolonged immobility (bedrest)**: Post-surgical patients who are immobile for extended periods are at increased risk of venous stasis, one of the components of Virchow's triad, which predisposes to thrombus formation (Kesieme et al., 2011). • **History of malignancy (metastatic colon cancer)**: Cancer increases the risk of thrombosis due to tumor-associated procoagulant factors and systemic inflammation (Key et al., 2020).	You nailed this, great job! I appreciate the use of in-text citations. You also were spot on with the medications indicated, LMWH is the preferred anticoagulant for cancer patients with a DVT. You also did great on the possible complications. Great work!	10/ 10

The most appropriate initial treatment for Ron, would be low molecular weight heparin (LMWH) such as enoxaparin. Enoxaparin is preferred for initial DVT treatment, especially in cancer patients, because it is effective, has predictable pharmacokinetics, and doesn't require regular monitoring like warfarin (Kearon et al., 2016). LMWH inhibits clot progression and reduces the risk of pulmonary embolism.

One serious complication of untreated DVT is pulmonary embolism (PE), where a clot dislodges from the leg and travels to the lungs, potentially obstructing pulmonary circulation. This can cause sudden shortness of breath, chest pain, hypoxia, or even death if massive and untreated (Konstantinides et al., 2020).

References:

Kearon, C., Akl, E. A., Ornelas, J., Blaivas, A., Jimenez, D., Bounameaux, H., ... & Stevens, S. M. (2016). Antithrombotic therapy for VTE disease: CHEST guideline and expert panel report. *Chest, 149*(2), 315–352. https://doi.org/10.1016/j.chest.2015.11.026

Kesieme, E., Kesieme, C., Jebbin, N., Irekpita, E., & Dongo, A. (2011). Deep vein thrombosis: A clinical review. *Journal of Blood Medicine, 2*, 59–69. https://doi.org/10.2147/JBM.S19009

Key, N. S., Khorana, A. A., Kuderer, N. M., Bohlke, K., Lee, A. Y. Y., Arcelus, J. I., ... & Falanga, A. (2020). Venous thromboembolism prophylaxis and treatment in patients with cancer: ASCO clinical practice guideline update. *Journal of Clinical Oncology, 38*(5), 496–520. https://doi.org/10.1200/JCO.19.01461

	Konstantinides, S. V., Meyer, G., Becattini, C., Bueno, H., Geersing, G. J., Harjola, V. P., ... & ESC Scientific Document Group. (2020). 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS). *European Heart Journal, 41*(4), 543–603. https://doi.org/10.1093/eurheartj/ehz405 Feedback: DVTs are very serious post-op, that's one of the major symptoms PACU nurses look for. This case scenario was well written.		
20	Two key abnormal physical findings in Robert that suggest a complication beyond simple airflow obstruction: • Jugular vein distention (JVD): JVD is a classic sign of increased central venous pressure and is strongly associated with right-sided heart failure or cor pulmonale, which is often a complication of chronic lung disease such as COPD (Yancy et al., 2017). • Bilateral pitting edema up to the knees: This finding also suggests systemic venous congestion and supports the likelihood of right-sided heart failure rather than isolated pulmonary disease (Inamdar & Inamdar, 2016). Differentiating whether Robert's symptoms are primarily due to COPD progression or a cardiac problem like right-sided heart failure (cor pulmonale) is crucial because treatment strategies differ significantly. COPD management focuses on bronchodilators, inhaled steroids, and oxygen therapy, while heart failure may require diuretics, ACE inhibitors, and fluid management (Vestbo et al., 2013; Yancy et al., 2017). Misdiagnosis or incomplete treatment may lead to worsening symptoms and increased hospitalizations. Moreover, the presence of both COPD and	Nice job correctly identifying and explaining the signs and the importance of differentiating diagnoses well. Strong use of evidence, it just could have focused a bit more on the patient scenario; it was a bit general.	8.5/ 10

	heart failure significantly increases morbidity and mortality risks (Inamdar & Inamdar, 2016). It is important to note the symptoms of distress the patient is currently exhibiting and further evaluation such as labs to further differentiate what diagnosis this patient currently has. References: Inamdar, A. A., & Inamdar, A. C. (2016). Heart failure in chronic obstructive pulmonary disease: A systematic review and meta-analysis. *Heart Failure Reviews, 21*(3), 349–356. https://doi.org/10.1007/s10741-015-9515-1 Vestbo, J., Hurd, S. S., Agustí, A. G., Jones, P. W., Vogelmeier, C., Anzueto, A., ... & Rodriguez-Roisin, R. (2013). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: GOLD executive summary. *American Journal of Respiratory and Critical Care Medicine, 187*(4), 347–365. https://doi.org/10.1164/rccm.201204-0596PP Yancy, C. W., Jessup, M., Bozkurt, B., Butler, J., Casey, D. E., Colvin, M. M., ... & Westlake, C. (2017). 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure. *Journal of the American College of Cardiology, 70*(6), 776–803. https://doi.org/10.1016/j.jacc.2017.04.025 Feedback: The case scenario was well written however the question did seem; a bit lengthy.		