BNURS506 Quiz Answering

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

#:	Your Answer	Feedback from Grader	Score
1	1. When a child presents with exercise-induced asthma, the school nurse should perform a quick assessment, attaining vital signs (respiratory rate, oxygen saturation, and heart rate) and ensuring this is asthma that is causing the difficulty breathing (breath sounds, dyspnea at rest, general work of breathing, dry cough, chest tightness, and precipitating events), not something else, such as an obstruction (ClinicalKey, 2024). With the exercise-induced asthma confirmed, it is important to act fast, treating with a short-acting β_2-agonist via inhaler with spacer or nebulizer, which you already know he is prescribed, so it should be okay for the school nurse to administer (ClinicalKey, 2024). Parents may leave an inhaler with the school for emergencies. Further treatment is also dependent on what else this child may have readily prescribed for asthma exacerbation events. We know from the question he only has albuterol prescribed, but in other scenarios, you would want to see if oral steroids are available if there is no improvement after using the short-acting β_2-agonist (ClinicalKey, 2024). Ethan's oxygen is okay now, but I will have supplemental oxygen on standby if his oxygen begins to trend down. If treatment is proving ineffective, I would escalate this issue and recommend that the child be sent to the hospital to manage respiratory distress. 2. This child's asthma is not properly controlled as evidenced by the tachypnea, audible wheezing, use of accessory muscles, and mild distress while having a conversation. It is also evident that this child's asthma is not properly controlled, as measures to prevent exacerbation weren't used, such as a warm-up period before exercise or pre-exercise medication (ClinicalKey, 2024). Additionally, albuterol is not an appropriate maintenance medication and is typically used for episodic wheezing and exacerbation (ClinicalKey, 2024). Ethan may benefit from maintenance	Great job with explaining what immediate interventions would follow for this child. A few things to consider, keep a calm environment, and also documentation as well is needed. The second part of the question is a bit tricky, another indicator may also be family hx.	9/ 10

	treatment, such as fluticasone or budesonide, along with additional instruction to both him and his parents not to forget his inhaler at home (ClinicalKey, 2024). References: Elsevier ClinicalKey. (2024, April 19) *Asthma in children*. Retrieved April 29, 2025, from https://www-clinicalkey com.offcampus.lib.washington.edu/#!/content/clinical_overview/67-s2.0-6d 6622b2-6cc0-4c88-968e-02f2103f01a0#drug-therapy-heading-32 Feedback: You wrote a great question that shows application and critical thinking, especially with pharmacology involved. It allowed me to explore the treatment options and management of asthma and asthma exacerbation.		
3	**ABG:** mixed respiratory and metabolic acidosis **P/F ratio:** 54 **Rationale:** A P/F ratio less than 300, respiratory rate is greater than 35, a pH less than 7.20 and a low PaCO2 with a decline in mental status, a lactate ≥4 mg/dL, and an SaO2 less than 90% despite supplemental oxygen are all potential indications for intubation Elsevier (ClinicalKey, 2024). There is increased work of breathing with use of abdominal muscles, wet soundings cough with thick yellow sputum, and coarse crackles and diminished lung sounds. The low P/F ratio indicates a failure to adequately oxygenate blood despite supplemental oxygen, this may be caused by inflammation or infection (ClinicalKey, 2024). Lauras ABGs show through respiratory acidosis that her lungs are failing to remove carbon dioxide adequately and the metabolic acidosis indicates poor oxygenation to tissue (Elsevier ClinicalKey, 2025). The P/F ratio and ABGs show that the lungs aren't functioning properly requiring ventilatory support to compensate (Elsevier ClinicalKey, 2025). **Multiple Choice:** A, C, & D. Suctioning should be done on an ass needed basis (Elsevier ClinicalKey, 2025). References: Elsevier ClinicalKey. (2024, January 1) *Acute respiratory failure*. Retrieved April 29, 2025, from https://www-clinicalkey-com.offcampus.lib.washington.edu/#!/content/derived_clinical_overview/76-s2.0-B9780323755764000314	Wonderful job! Your ABG and P/F ratio are correct. I really liked your rationale, and you touched on hypoxia and hypoxemia there, which was excellent. Oxygenation is often left out of ABG interpretation, and it's one of the most important components. I wanted to mention that a P/F ratio < 300 is bad, but <100 is considered severe ARDS and definitely calls for intubation. You are also correct on the select all question and correct – suction should always be on an as needed basis. Really great work and thank you for your feedback!	10 / 10

	Elsevier ClinicalKey. (2025, February 5). *Acute respiratory distress syndrome*. Retrieved April 29, 2025, from https://www-clinicalkey-com.offcampus.lib.washington.edu/#!/content/clinical_overview/67-s2.0-e2872d2d-78ce-47cc-8fbe-7d1ce9e8b9ea Feedback: This is a great question, that causes a lot of critical thinking involving patient presentation and labs. Without some form of critical care experience, I can see how this may be difficult for people to complete. Your expectations and what you wanted were both very clear.		
5	1. An LMA is a laryngeal mask airway (Brown & Walls, 2023). 2. LMAs typically are not used in difficult airway management, so it is possible that the one case using an ET tube has a difficult airway (Brown & Walls, 2023). Algorithms such as LEMON, ROMAN, RODS, and SMART may be used to help plan intubation, if possible, especially with difficult airways (Brown & Walls, 2023). While there are many factors one may consider when choosing a device to establish an airway some may think about whether the patient is a difficult airway start, the patient's anatomy such the presence of a tumor or malformation, and the patient presentation such as the surgery they are receiving or how they present, like in an emergency (Brown & Walls, 2023). For example, if a patient arrives in cardiopulmonary arrest or a state of near arrest, the patients are deemed a "crash" airway patient and if they are a difficult airway in this case, a provider may resort to a cricothyrotomy as it is a fast, straightforward, and successful way of establishing an airway in this emergent situation (Brown & Walls, 2023). 3. To verify the airway is in the correct place an end-tidal carbon dioxide detection device should be used through six manual ventilations indicating adequate CO_2 detection by color change (Brown & Walls, 2023). If this method is unavailable, one may also use point-of-care ultrasound over the cricothyroid membrane or upper trachea to confirm positioning (Brown & Walls, 2023). References: Brown, C.A. & Walls, R.M. (2023). Airway. In Walls, R.M. (10th Ed.). *Rosen's emergency medicine: Concepts and clinical practice*. Elsevier.	Thank you for your work and feedback! I especially appreciate your comment on the word "parameter". I agree word choice is very important so thank you - I will pay more attention to how I word things. In question 1 I was hoping for more description of the LMA including where it sits in the airway once placed. But I'm realizing I didn't exactly ask for that so no points docked for that! It is the critical piece though - that establishes the factors at play. You identified 2 factors - whether the patient had a difficult airway and the context of the surgery - what procedure and whether it is an emergency. The factors I was looking for were 3 of the following: difficult airway, length of surgery (LMA for cases 3	9 / 10

	Feedback: The use of the word “parameter” leads me to look for a measurable or numerical value that would likely be the answer. In the context of the question and literature however, I think it may be more factors to consider with intubation which is what I went with for my answer. The question did cause a lot of critical thinking and really allowed me to delve into the realm of intubation.	hours or less), whether paralysis is required (no paralysis for an LMA), and aspiration risk (LMAs are not as protective for aspiration). For confirmation of placement, OR staff use: bilateral chest rise, presence of condensation in the tube, appropriate ETCO2 reading, and easy manual ventilation.	
7	Ivan is likely experiencing supraventricular tachycardia as evidenced by palpations, chest discomfort, fatigue, light headedness, rapid heart rate, and low blood pressure. Adenosine is the likely treatment as his blood pressure is low and you don’t want to give any agents that could potentially worsen that (Tung, 2023). Adenosine is a 6 mg IV bolus over 1 to 2 seconds which can then be followed with 12 mg IV bolus if no response after 1 to 2 minutes (may repeat x1 dose) (Tung, 2023). With adenosine, many report a feeling of impending doom as it is administered, so if the patient is conscious, it is important to warn them (Tung, 2023). References: Tung, P. (2023, June 16). *Supraventricular tachycardia*. Elsevier ClinicalKey. Retrieved April 19th, 2025, from https://www-clinicalkey-com.offcampus.lib.washington.edu/#!/content/clinical_overview/67-s2.0-V2338#treatment-heading-hd022 Feedback: Great question! It was written straight forward and to the point. I knew exactly where to look for my answer while spending a reasonable amount of time critical thinking about the presentation of the patient and the involved pharmacology.	Ivan is showing signs and symptoms of Supraventricular Tachycardia (SVT) (4 points). SVT is the most common arrhythmia in children, most of whom have structurally normal hearts (Dubin, 2023) (4/4) There are some non-pharmacological interventions that can be used for patients with SVT who are hemodynamically stable, that typically evoke a vagal response (ie. Blowing through a straw, icepack to the face). Since Ivan is demonstrating hemodynamic instability, I would anticipate an order for Adenosine (3 points) (3/3). This should be administered via rapid IV push through a large proximal vein, as close to central circulation as possible, followed by a rapid	8.5/ 10

		saline flush using a three-way stopcock. (3 points) (Lewis et al. 2017). (1.5/3) You included that it should be administered rapidly, but did not include some of the most important details about the administration which is that it should be followed immediately by a thorough flush, ideally using a stopcock, through a large, proximal vein if possible. Bonus info: Cardioversion is the definitive treatment for SVT for children who are hemodynamically unstable. Technically, it should not be delayed for non-pharmacological interventions or the administration of adenosine, though those interventions are often done before cardioversion as they are less invasive and usually not difficult administer (depending on hemodynamic status) (Dubin, 2023).	
9	1. The fetus is likely to have Tetralogy of Fallot (TOF) as the mother's ultrasound showed Ventricular septal defect (VSD) and aortic septal override in the fetus (Elsevier ClinicalKey, 2025). I would refer the mother to receive a fetal echocardiogram and refer her to a Maternal-Fetal Medicine provider that may specialize in this fetal diagnosis (Elsevier ClinicalKey, 2025).	You did a great job answering the 3 questions. They provided the detail I was looking for.	10/ 10

	2. When the babies are born, they are typically cyanotic (Blanchard et al., 2022). This is highly dependent on the severity of the disease as the right and left ventricular systolic pressures are equal while the pulmonary artery pressures are low (Blanchard et al., 2022). 3. Administration of alprostadil at birth to maintain patent ductus to provide adequate pulmonary blood flow in cyanotic babies (Elsevier ClinicalKey, 2025). This infusion is continued until the neonate is transferred to a specialized center for surgical repair (Elsevier ClinicalKey, 2025). Those born with tetralogy of Fallot have at some point before young adulthood undergone surgical repair (Elsevier ClinicalKey, 2025). Surgical repair is not curative and may result in arrhythmia and conduction disease (Elsevier ClinicalKey, 2025). References: Blanchard, D.G., Daniels, L.B., & Alshawabkeh, L. (2022). Cardiac Diseases. In Lockwood, C. J. (9th Ed.). *Creasy and Resnik's maternal-fetal medicine: Principles and practice.* Elsevier Elsevier ClinicalKey. (2025, March 20). *Tetralogy of Fallot*. Retrieved April 29, 2025, from https://www-clinicalkey-com.offcampus.lib.washington.edu/#!/content/clinical_overview/67-s2.0-f5005e21-a1f2-4731-971f-492dc0c0c55c#treatment-options-heading-37 Feedback: I haven't had the opportunity since nursing school to really explore fetal medicine and birth defects. Your question allowed for ample critical thinking about what to expect in the scenario and also included some pharmacology. Great job!		
11	The rhythm shown here is atrial fibrillation which rapid disorganized atrial activation resulting in ineffective contraction (Elsevier ClinicalKey, 2025). To treat this rhythm, β-Blockers are the typical for linen of action such as metoprolol. β-Blockers work by blocking β1 receptors further reducing the effects of adrenaline and noradrenaline on the heart and relax smooth muscle (Elsevier ClinicalKey, 2012). This causes the heart rate to slow and convert back into a normal rhythm. I would also caution the patient that use may also lower blood pressure, so it is also wise to check your blood pressure before taking it (Elsevier ClinicalKey, 2012).	Fantastic job answering this question! You provided excellent rationale for each component of this question and even discussed metoprolol's mechanism of action, discussing how it reduces the effects of	10/ 10

	I would educate the patient on the potential complications associated with atrial fibrillation. One common complication is the formation of clots in the atria and atrial appendage that could potential become mobile in the blood stream. It would be wise that they discuss with their provider about starting a blood thinner such as Xarelto or Warfarin to reduce the possibility of clots forming (Elsevier ClinicalKey, 2025). I would additionally go over some of the possible symptoms associated with atrial fibrillation so they can be aware if they think they may have spontaneously converted. Symptoms of this rhythm may include fatigue, dizziness, dyspnea, weakness, loss of consciousness, palpitations, light headedness, and tachycardia (Elsevier ClinicalKey, 2025). References: Elsevier ClinicalKey. (2025, January 13). *Atrial Fibrillation*. Retrieved April 29, 2025, from https://www-clinicalkey-com.offcampus.lib.washington.edu/#!/content/clinical_overview/67-s2.0-bf8f83df-c155-4df0-aa76-b26e711ced71 Elsevier ClinicalKey. (2012, July 27). *Beta Blocker*. Retrieved April 29, 2025, from https://www-clinicalkey-com.offcampus.lib.washington.edu/#!/content/drug_class_overview/79-s2.0-1216725#pharmacology-mechanism-of-action Feedback: You presented a great question that involved critical thinking in a typical clinical setting with an occurrence that happens to be very common. You also tied in pharmacology to enhance the learning and complete the picture of the patient presentation.	adrenaline and noradrenaline on the heart. I also like that you touched on how clot formation is a common complication of afib and that starting an anticoagulant is important for long-term management.	
13	B) Cardiac tamponade due to post-operative hemorrhage. Cardiac tamponade can be caused by trauma such as surgery which is the accumulation of fluids or blood between the pericardium and the heart constraining cardiac relaxation and impairing blood return to the right heart (Ball et al., 2023). This patient exhibited signs and symptoms of cardiac tamponade such as increasing shortness of breath, fatigue, tachycardia, hypotension, jugular venous distention, and muffled heart sounds (Ball et al., 2023).	You're welcome! My intention with this question was to keep it simple while encouraging you to focus on the assessment, including your auscultation skills to detect a potential cardiac tamponade. I am glad you got to explore the other choices though.	10/10

	References: Ball, J. W., Dains, J. E., Flynn, J. A., Solomon, B. S., Stewart, R. W., & Seidel, H. M. (2023). *Seidel's guide to physical examination* (Tenth edition.). Elsevier. Feedback: Thank you for a straightforward and informative question which prompted me to explore all multiple choice options to make sure I'm choosing the right one. Your question is much appreciated.		
15	The likely diagnosis for this child is Kawasaki Disease. The child's symptoms leading to this conclusion include fever, poor appetite, irritability, loss of interest, bilateral bulbar conjunctivitis without discharge, swollen, bumpy, and red tongue ("Strawberry tongue"), diffuse and red rash on the patient's back, and swollen hands (Elsevier ClinicalKey, 2025). The two drugs that will likely be administered are aspirin and IV immunoglobulin (IVIG). I would educate the parents on the purpose of the child receiving these medications and they are preventing. The purpose is to prevent coronary artery abnormalities and additional systemic inflammation. IVIG is a single dose that is to be given within 10 days of the start of the illness or as soon as possible after diagnosis (Elsevier ClinicalKey, 2025). IVIG is filled with antibodies that help the child's immune system to reduce the inflammation that is happening. Aspirin will help by not only reducing the inflammation but helping with pain that the child may be experiencing. I would also educate the parents using non-complex language and avoid medical jargon, to make sure they understand. References: Elsevier ClinicalKey. (2025, March 4). *Kawasaki Disease*. Retrieved April 29, 2025, from https://www-clinicalkey-com.offcampus.lib.washington.edu/#!/content/clinical_overview/67-s2.0-931eb11c-b378-48ed-828b-45231663cde9#clinical-presentation-heading-9 Feedback: This was a great question that involves physical assessment, pathophysiology, and pharmacology. It also required some critical thinking to connect all the dots. I	Correct diagnosis with rationale: 2.5 of 3 points Correct identification of treatment of choice: 3 points At least 2 accurate and relevant educational points: 3 points Providing references: 1 point For the diagnosis, I was hoping to see the mention of the diagnostic criteria used to diagnose Kawasaki Disease established by Tomisaku Kawasaki in 1967 (Son, 2024) and is included in the American Academy of Pediatrics (AAP) Committee on Infectious Diseases report on diagnosis of Kawasaki Disease (Committee on Infectious Diseases, AAP, 2024).	9.5/ 10

	haven't heard Kawasaki Disease since I was in nursing school, so it was a nice refresher.	Thank you for the feedback!	
17	This patient is likely experiencing vertebral (cervical) artery dissection (VAD) as a result of her chiropractic manipulation and based off her presenting symptoms (Aygun et al., 2013). With this diagnosis I would likely perform a comprehensive neurological exam to assess how extensive this injury is. To confirm the diagnosis, a MRA and CTA should be done, primarily the CTA as they are capable of detecting more subtle signs of VAD. Those with VAD are at an extreme risk of stroke in the posterior circulation (Aygun et al., 2013). References: Aygun, N., Shah, G., & Gandhi, D. (2013). Vertebral artery dissection. In *Pearls and Pitfalls in Head and Neck and Neuroimaging: Variants and Other Difficult Diagnoses* (pp. 10–12). Cambridge: Cambridge University Press. Feedback: I remember when the chiropractic trend was going around a few years ago and near the tail end of it many people were coming forward warning about VAD as a potential complication. Many people were pushing for people to be extra cautious when consulting a chiropractor. Great question that caused a lot of critical thinking and real world application.	Nice job here! You got nearly all the points I was looking for, very succinctly! It was actually a carotid artery dissection (main hint was the jaw and face pain). I realize the roller coaster and diplopia suggest vertebral artery though, so I only am deducting 0.5 points. However, you got the bonus so perfect score!	10/ 10
19	1) Ronald is likely experiencing peripheral arterial disease as exhibited by the intermittent cramping right calf pain occurs when he's walking for a long time but gets better when he stops and rests (Ball et al. 2023). Additionally, Ronald has some predisposing factors such as his history of hypertension, hyperlipidemia, diabetes, CAD, and is a current smoker (Ball et al., 2023). 2) Physical assessment can include assessing pulses, for possible systolic bruits over the arteries that may extend through diastole, loss of expected body warmth in the affected area, localized pallor and cyanosis, collapsed superficial veins, with delay in venous filling, and thin, atrophied skin and muscle atrophy (Ball et al., 2023). It is also appropriate to perform an ankle brachial index (ABI) to assess perfusion. 3) Education for Ronald would likely include discussion on medication adherence to better control his hyperlipidemia and blood pressure. Additionally, I would offer him education on smoking cessation. Smoking	1. Your answer correctly identified that Ronald likely has Peripheral Artery Disease. Symptoms of PAD include limb pain that occurs during usage (claudication) due to lack of blood flow to musculature. Ronald has signs of early PAD but later signs include ulcers from wounds that fail to heal due to insufficient blood flow. Hypertension, hyperlipidemia, diabetes,	10 / 10

	cessation and medication adherence ideally should optimize Ronalds's prognosis. References: Ball, J. W., Dains, J. E., Flynn, J. A., Solomon, B. S., Stewart, R. W., & Seidel, H. M. (2023). *Seidel's guide to physical examination* (Tenth edition.). Elsevier. Feedback: This was a great question that involved critical thinking and physical assessment concerns. I see peripheral arterial disease quite often at work and more education is definitely needed for this patient population, so I appreciate the emphasis on education in your question.	and cardiovascular disease increase the risk for PAD. Your rationale connected his symptoms and history to his diagnosis. 4/4 points 2. Your answer correctly identified one nursing physical assessment, assessing pulses. You provided an accurate description of how you would do palpate and auscultate then compare limbs. ABI is also a great assessment tool that is used to support PAD diagnosis 3/3 points 3. Your answer provided 2 pieces of education, smoking cessation and risk factor management using medication, that manage PAD and prevent further complications. 3/3 points.	