

# NREMT® EMR - Quiz Questions with Answers

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# Airway, Respiration & Ventilation

Airway, Respiration & Ventilation

1.

Your EMS unit is dispatched to a home two blocks from your station for a choking infant. Upon your arrival, a young woman runs out of the house holding a conscious infant who is in obvious respiratory distress and unable to breathe. The woman explains she is babysitting, and she saw the infant's brother put something in the infant's mouth. Before she could see what it was, the baby started choking. You assess the infant's airway and determine there is no air exchange.

How should you begin treating this patient?

**Perform five back slaps followed by five chest thrusts, continuing until the object is dislodged or the infant becomes unconscious**

Perform five chest compressions followed by five back slaps, continuing until the object is dislodged or the infant becomes unconscious

Perform five chest thrusts followed by five back slaps, continuing until the object is dislodged or the infant becomes unconscious

Perform five back slaps followed by five abdominal thrusts, continuing until the object is dislodged or the infant becomes unconscious

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*Correct answer: Perform five back slaps followed by five chest thrusts, continuing until the object is dislodged or the infant becomes unconscious*

*With the infant facedown on your forearm and their head lower than their trunk, deliver five back slaps forcefully between the infant's shoulder blades. Turn the infant over, faceup, with their head lower than their trunk. Using two fingers, deliver five chest thrusts in the middle of the sternum. Continue these steps until the foreign object is expelled or the patient becomes unconscious.*

*Only do chest compressions if the patient is or becomes unconscious.*

*When a conscious infant has a complete airway obstruction, start with back slaps, not chest thrusts.*

*Abdominal thrusts are not indicated for an infant. Their internal organs are still developing and susceptible to injury.*

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2.

What carries oxygenated blood from the lungs to the heart?

**Pulmonary veins and venules**

Pulmonary arteries and venules

Pulmonary veins and arteries

Pulmonary capillaries and venules

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*Correct answer: Pulmonary veins and venules*

*The pulmonary venules surround the alveolus of the lungs and carry oxygen-rich blood. The pulmonary venules connect the capillaries to the pulmonary vein, directing the oxygen-rich blood from the capillaries to the pulmonary vein toward the heart.*

*The pulmonary artery carries deoxygenated blood away from the right ventricle to the lungs.*

*Arteries carry oxygenated blood **away** from the heart, while pulmonary veins carry blood **to** the heart.*

*Pulmonary capillaries are the junction points between the pulmonary arteries and the pulmonary veins.*

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3.

What is an example of an airway adjunct?

**An oral airway**

A bag-mask device

A non-rebreather mask

A nasal cannula

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*Correct answer: An oral airway*

*Airway adjuncts are used to maintain an open airway in a patient who cannot manage their airway. Two examples are an oral airway and a nasal airway. An oral airway is only used for unresponsive patients without a gag reflex. A nasal airway can be used for conscious or unconscious adults with or without a gag reflex. Nasal airways can be used for children by a trained healthcare provider, but EMRs do not typically have this skill in their scope of practice.*

*Bag-mask devices, non-rebreather masks, and nasal cannulas are pieces of oxygen delivery equipment that provide supplemental oxygen or ventilation.*

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**4.**

You are assessing an unconscious male who fell from a three-story building while working on his roof. He struck his head on the concrete and has severe head trauma. He has grunting respirations and a gag reflex but cannot manage his airway alone. Firefighters have already performed the jaw-thrust maneuver and implemented spinal precautions.

What is the next step in managing this patient's airway?

**Call medical control to see if they advise placing a nasal airway**

Measure an appropriately sized nasal airway and place it in the patient's nostril

Place a nasal cannula on the patient at six liters per minute

Measure an appropriately sized oral airway and place it in the patient's mouth

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*Correct answer: Call medical control to see if they advise placing a nasal airway*

*If a patient has sustained severe head trauma, the insertion of a nasal airway could further damage their brain. Call medical control to see what they advise in this situation. If they do not want you to insert a nasal airway, manage the airway using a bag-mask device or a non-rebreather mask, depending on the patient's respiratory rate.*

*If the patient did not have severe head trauma, you would measure an appropriately sized nasal airway and place it in the patient's nostril.*

*A patient with severe head trauma needs high concentrations of oxygen. A nasal cannula is not helpful in this scenario.*

*The patient has a gag reflex, so an oral airway is contraindicated.*

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**5.**

You are called to a residential living facility for an unresponsive 88-year-old female. Upon arrival, you find the patient pulseless and not breathing on her couch, with no signs of trauma. You and your partner move the patient to the floor to start CPR. Your partner starts compressions while you perform a head tilt-chin lift maneuver. The patient has intact dentures in place.

Which of the following should be done before ventilating the patient?

**Leave the dentures in place**

Remove the dentures

Perform a finger sweep

Suction the patient's mouth

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*Correct answer: Leave the dentures in place*

*When dentures are intact and not loose in the mouth, leave them in place. Firmly attached dentures make a better seal between the patient's mouth and the breathing device, offering better ventilation.*

*Only remove dentures when they are loose or dislodged to prevent them from obstructing the airway while providing ventilation. If dentures are removed, place them in a safe spot so they will not get lost or damaged.*

*Performing a finger sweep or suctioning the patient's mouth is not indicated. If you perform ventilation and receive resistance, a finger sweep or suctioning would be necessary.*

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**6.**

You are an off-duty EMR and receive a knock on your door at midnight. Your neighbor is on the doorstep, holding her 2-year-old daughter. When you open the door, the mother looks frightened and says her daughter is very sick. You bring your neighbor and her daughter into your house to assess the child. The patient has noisy, whooping inhalations and a seal-like barking cough. The mother states the coughing started suddenly, and the child has had a cold for the past three days.

You call 911 and ask for a unit to respond to your location. The dispatcher explains the response may be delayed.

How should you treat a patient with croup until an EMS unit arrives?

**Turn on a hot shower, shut the bathroom door so the room can steam, then have the mother and child go into the bathroom**

Turn on a cold shower and have the mother and child go into the bathroom

Wait with the mother and child outside in the cool air

Give the child Tylenol and a glass of cool water

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*Correct answer: Turn on a hot shower, shut the bathroom door so the room can steam, then have the mother and child go into the bathroom*

*Croup is an upper airway infection that causes swelling and narrowing of the airway. Patients with suspected croup respond best to warm, moist air. The warm air relaxes the vocal cords and lessens the croupy sound, which effectively treats the patient while reassuring the parent.*

*Cool air is not recommended for patients with croup, as it will further constrict the airway. Most patients who develop croup do so after having a common cold and being in a cool environment.*

*Giving the patient Tylenol and a glass of cool water is not advised. Patients with croup have a narrowing of the airway, and giving anything by mouth is contraindicated.*

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7.

Which of the following is **not** an essential skill that is used when treating pediatric respiratory emergencies?

**Listening to breath sounds**

Opening the airway

Administering basic life support

Suctioning

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*Correct answer: Listening to breath sounds*

*Four essential skills are used when treating pediatric respiratory emergencies:*

- *opening the airway*
- *basic life support*
- *suctioning*
- *using airway adjuncts*

*Listening to breath sounds is a skill that EMRs are taught, but it is not an essential skill for treating pediatric emergencies.*

*Opening the airway is done to alleviate a blocked airway and allow basic life support to be administered, such as rescue breathing or ventilation. Suctioning can be performed if needed, and airway adjuncts can be used to help maintain the patient's airway.*

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**8.**

You respond to a private residence for an unknown medical emergency. An 83-year-old female appears confused with deep, rapid breathing and a fruity odor to her breath.

Which medical emergency do these findings suggest?

**Diabetic coma**

Hypoglycemia

Stroke

Seizure

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*Correct answer: Diabetic coma*

*When a patient has deep, rapid breathing and a fruity odor to the breath, suspect a diabetic coma. These symptoms result from extra ketones in the body, causing acid to build up in the blood. This buildup triggers the respiratory system to breathe faster. Breathing faster expels more carbon dioxide, which is an acidic compound in the blood.*

*Hypoglycemia, strokes, and seizures do not produce deep, rapid breathing and a fruity odor to the breath.*

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**9.**

A patient with emphysema is being transported from a hospital to a specialized facility an hour away. The onboard oxygen cylinder was empty at the start of your shift, and you were in the process of changing it when you received the call for this transfer. You are using a portable oxygen cylinder for the patient.

How long will your portable size D oxygen cylinder last?

**3 hours**

2 hours

5 hours

1 hour

*Correct answer: 3 hours*

*Oxygen is compressed to 2,000 pounds per square inch (psi) and stored in portable cylinders. The portable oxygen cylinders used by most EMS systems are either size D or E. D-sized cylinders hold 340 L of oxygen, and E-sized cylinders hold 660 L of oxygen. Oxygen cylinders must be marked with a green color and be labeled as medical oxygen. Depending on the flow rate, D cylinders can last for 3 hours, and E cylinders can last for up to 5 hours.*

*Both types of portable cylinders hold enough oxygen to last longer than 1-2 hours, so multiple calls or long transfers can be done without having to replace the oxygen cylinders.*

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**10.**

You have been dispatched to a private residence for a possible drowning. When you arrive, a young woman meets you in the driveway carrying a limp infant. The woman says she was babysitting the 10-month-old female and found her facedown in the dog's water bowl. The babysitter is unsure how long the patient was in the water. She says she patted the infant on the back, which made her vomit a small amount of water. You notice vomit in the patient's airway.

How long can you suction an infant at one time before providing ventilation?

**5 seconds at a time**

10 seconds at a time

20 seconds at a time

15 seconds at a time

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*Correct answer: 5 seconds at a time*

*Suctioning draws air and material from the airway, starving the patient of oxygen. After suctioning for 5 seconds, provide ventilation or supplemental oxygen, depending on the patient's condition. Once the patient has been oxygenated, suctioning can be repeated for 5 seconds at a time, followed by ventilation or oxygen, until the materials or secretions are removed.*

*Children can be suctioned for no more than 10 seconds at a time before needing ventilation or oxygen. Infants can only be suctioned for 5 seconds at a time because their lungs are much smaller than a child's.*

*Suctioning for 20 seconds at a time is not recommended for any patient.*

*Adults can be suctioned for no more than 15 seconds at a time before providing ventilation or oxygen.*

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**11.**

During a mass-casualty incident (MCI) with 15 patients, you use the START triage method. Your first patient has a respiratory rate of 36 breaths per minute.

What is your next step?

**Give them a Priority 1 tag (red/immediate)**

Give them a Priority 2 tag (yellow/urgent)

Give them a Priority 3 tag (green/delayed)

Give them a Priority 4 tag (black/deceased)

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*Correct answer: Give them a Priority 1 tag (red/immediate)*

*During an MCI, patients with a respiratory rate above 30 breaths per minute are given a Priority 1 tag, which is red and marked immediate. Patients who are breathing this rapidly are showing one of the primary signs of shock and need immediate medical attention as soon as additional resources are available.*

*According to the START triage method, patients breathing greater than 30 breaths per minute are not stable and need immediate transport. If the patient's respiratory rate was below 30 breaths per minute and they did not have an altered level of consciousness or circulatory issues, they could be put in the Priority 2 category.*

*A patient who demonstrates more than 30 breaths per minute cannot be put in the delayed category, as they may not receive treatment for up to three hours.*

*The patient should not be considered deceased since they are still breathing.*

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12.

To assess a patient for adequate breathing, the rescuer will look, listen, and feel.

Which of the following is not a characteristic of respiratory arrest that is observed with the look, listen, and feel method?

**Lack of pulse**

Lack of chest movement

Lack of breath sounds

Lack of air against the side of the face

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*Correct answer: Weak or absent pulse*

*The three characteristics of respiratory arrest when looking, listening, and feeling are lack of chest movement, lack of breath sounds, and lack of air against the side of your face. The rescuer will look for the patient's chest to rise and fall, listen for breath moving in and out of the patient's nose and mouth, and feel for the patient's breath against the side of the face.*

*A lack of pulse is not determined when looking, listening, and feeling for breathing. Feeling for a pulse is done after assessing the patient's breathing. A lack of pulse would indicate the patient is in cardiac arrest.*

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**13.**

You are called to an in-home daycare for a 6-month-old male with difficulty breathing. The daycare provider said she was feeding the patient a bottle of formula when he developed difficulty breathing. She adds that the patient has a cold, and his nose seems to be clogged.

What should you use to suction the nose of an infant?

**A bulb syringe**

A rigid-tip suction catheter

A tonsil-tip catheter

A flexible catheter

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*Correct answer: A bulb syringe*

*When suctioning the nose of an infant, a bulb syringe is used. Infants are nose breathers, so if their nose is clogged, they will quickly develop difficulty breathing. To use the bulb syringe, squeeze the bulb, gently insert it into the nostril, and then slowly release the bulb so it draws the fluid or mucus out of the nostril. Once the bulb has expanded, remove it from the nostril and squeeze the contents into a tissue or towel. Repeat on the other nostril.*

*A rigid-tip or tonsil-tip suction catheter is used to suction contents out of the mouth, not the nose.*

*A flexible catheter can be used to suction contents from a child's nose but not from an infant's.*

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**14.**

Why do patients with carbon monoxide poisoning have false readings from a pulse oximeter?

**Their red blood cells are saturated with carbon monoxide.**

Their white blood cells are saturated with carbon monoxide.

Their red blood cells are saturated with carbon dioxide,

Their white blood cells are saturated with oxygen.

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*Correct answer: Their red blood cells are saturated with carbon monoxide.*

*When a patient is experiencing carbon monoxide poisoning, their red blood cells are saturated with carbon monoxide. Since the pulse oximeter measures the oxygen saturation in the red blood cells, false readings will occur. Carbon monoxide poisoning typically affects patients who inhale smoke from a house or a vehicle fire. Other ways a patient can have carbon monoxide poisoning is by using a barbecue grill inside an improperly ventilated location or living in a home with a faulty water heater.*

*White blood cells do not carry oxygen. They fight infection.*

*In someone with carbon monoxide poisoning, the red blood cells are saturated with carbon monoxide, not carbon dioxide.*

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**15.**

A 6-year-old male has difficulty breathing. Upon arrival, you find the patient limp on the couch in obvious respiratory distress.

What is a sign of possible respiratory failure?

**A breathing rate of fewer than 10 breaths per minute**

A breathing rate of fewer than 20 breaths per minute

A breathing rate of fewer than 25 breaths per minute

A breathing rate of fewer than 8 breaths per minute

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*Correct answer: A breathing rate of fewer than 10 breaths per minute*

*The normal respiratory rate for a child of preschool age (3-6 years old) is 20-25 breaths per minute. When the breathing rate drops to fewer than 10 breaths per minute, the child has respiratory failure. Other signs of respiratory failure are limp muscle tone, unresponsiveness, a decreased or an absent heart rate, and weak or absent distal pulses.*

*A breathing rate of fewer than 20-25 breaths per minute is within normal limits.*

*If a child is breathing at a rate below 8 breaths per minute, they are in severe respiratory failure.*

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16.

What happens to the alveoli as a person ages?

**The alveoli lose their elasticity.**

The alveoli shrink.

The alveoli rupture.

The alveoli enlarge.

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*Correct answer: The alveoli lose their elasticity.*

*As a person ages, the alveoli lose their elasticity. When this occurs, it makes it harder to inhale oxygen and exhale carbon dioxide. Older patients typically have a reduced lung capacity, so they do not exchange as much air with each breath. Also, the muscles that assist with respiration become weaker with age, making it harder for older patients to cough. When this occurs, older patients are more susceptible to respiratory disease than younger patients.*

*The alveoli do not shrink as a person ages, but they lose their shape and elasticity. They are still the same size, just flatter.*

*The alveoli also do not rupture or enlarge as a person ages.*

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17.

For the purposes of rescue breathing, what is the standard age range for children?

**1 year to the beginning of puberty**

1 year to 8 years

1 year to the beginning of adulthood

1 year to 10 years

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*Correct answer: 1 year to the beginning of puberty*

*For the purposes of performing rescue breathing, a child is any individual between the ages of 1 year and the start of puberty (12 to 14 years old). It is important to determine whether you are providing rescue breathing for a child or an adult, as children need a faster rate of ventilation than an adult. Provide ventilation with a breath every 2-3 seconds for a child and a breath every 6 seconds for an adult.*

*Patients are still considered children at the ages of 8 and 10. If a patient is beginning adulthood, they will be treated as an adult.*

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18.

If a patient is breathing inadequately with noisy respiration, what condition is present?

**There is a partial blockage or constriction along the respiratory tract.**

There is a complete blockage along the respiratory tract.

There is a partial or complete blockage in air moving into the lungs.

There is a partial or complete blockage in air moving from the lungs.

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*Correct answer: There is a partial blockage or constriction along the respiratory tract*

*When a patient has noisy respiration, such as wheezing or gurgling, suspect a partial blockage or constriction somewhere along the respiratory tract. They may have a blockage from a foreign object, infection, inflammation, or constriction from an illness or disease. Besides noisy respiration, patients may develop pale or cyanotic skin, especially around the lips or fingernail beds.*

*If there was a complete blockage along the respiratory tract, noisy respiration would not be audible since there would be no passage of air.*

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**19.**

While working as an EMR at a volunteer fire station, you hear honking. You look outside and see a woman in a vehicle honking and frantically waving to you. As you approach the vehicle, you see an unresponsive infant in a car seat and a small boy sitting next to the infant. The woman says she was driving when her son said the baby was not breathing. You pull the infant out of the car seat and begin rescue breathing.

How is rescue breathing done on an infant?

**Cover the infant's nose and mouth with your mouth and give a puff of air for one second**

Cover the infant's mouth with your mouth and give a puff of air for two seconds

Pinch the infant's nose, cover their mouth with your mouth, and give a puff of air for one second

Cover the infant's nose and mouth with your mouth and give a puff of air for two seconds

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*Correct answer: Cover the infant's nose and mouth with your mouth and give a puff of air for one second*

*For an unresponsive infant who needs rescue breaths, cover the infant's nose and mouth with your mouth and give a puff of air for one second. After the chest has risen and fallen, repeat one more rescue breath. After the initial two rescue breaths, continue rescue breathing, giving one breath every 2 to 3 seconds, for a total of 20 to 30 rescue breaths per minute.*

*If you only cover the infant's mouth and do not include the nose, your breath will escape from their nostrils. Both the mouth and nose need to be covered, and each breath is given for one second, not two seconds. Take care not to overinflate their tiny lungs.*

*Do not pinch the nose of an infant, as this only is appropriate for children and adults.*

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**20.**

Your partner asks you to insert a nasopharyngeal airway (nasal airway) into an unconscious patient. The patient sustained severe trauma to their jaw, and an oral airway is not recommended.

What is one disadvantage of a nasal airway?

**It cannot support through-suctioning.**

It cannot be used for conscious patients.

It does not allow accurate size measurements.

It cannot be used in patients with an intact gag reflex.

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*Correct answer: It cannot support through-suctioning.*

*One disadvantage of a nasopharyngeal airway is that you cannot suction through it. The inside diameter of the nasal airway is too small for the standard whistle-tip catheter suction tip. When using an oral airway, you can suction around the airway once it is in place, which is an advantage to using an oral airway, but it is not recommended in this scenario.*

*The nasopharyngeal airway can be used in conscious and unconscious patients.*

*The nasal airway can be accurately measured by measuring the airway from the patient's earlobe to the tip of their nose.*

*Nasal airways can be used in patients with a gag reflex, whether they are conscious or unconscious.*

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**21.**

Your partner has measured a nasal airway to place in a semi-conscious 70-year-old male with four respirations per minute. According to his wife, he accidentally took his painkiller prescription twice, then started having difficulty breathing 20 minutes later. You notice your partner is struggling to place the nasal airway.

What should your partner do?

**Remove the device and try the other nostril**

Keep trying to force the device

Switch to an oropharyngeal airway

Remove the device and hold the airway open manually

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*Correct answer: Remove the device and try the other nostril*

*If resistance is met, the airway should be removed, and the other nostril should be tried. Some patients have one nostril that is larger than the other, so the larger nostril should be tried first. If resistance is met in the larger nostril, the smaller one should be tried next.*

*Never force a nasal airway into a patient's nose, as this can cause trauma to the nose and airway. Some patients have a deviated septum, which will cause resistance.*

*A semi-conscious patient will have a gag reflex, so an oral airway is contraindicated.*

*Only remove the airway and maintain an open airway manually if both nostrils have been tried without success.*

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**22.**

Which of the following is **not** a sign of a severe airway obstruction?

**A forceful cough**

A silent cough

Poor air exchange

Increased difficulty breathing

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*Correct answer: A forceful cough*

*A forceful cough occurs in patients with a partial airway obstruction. They are still receiving air around the partial obstruction, allowing them to cough forcefully.*

*A silent cough, poor air exchange, and increased difficulty breathing indicate a severe (complete) airway obstruction. Without fresh oxygen entering the lungs, the body quickly consumes the oxygen from the last breath. The patient cannot breathe in or out, and they will be unable to speak but can produce a silent cough.*

*Patients with a complete airway obstruction need immediate help; otherwise, they will become unconscious within three to four minutes.*

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**23.**

What is the respiratory rate in a conscious, healthy newborn?

**Over 40 breaths per minute**

Over 50 breaths per minute

Over 30 breaths per minute

Over 20 breaths per minute

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*Correct answer: Over 40 breaths per minute*

*Newborns typically breathe 40-60 times per minute. Physiologically, newborns have smaller lungs and weaker respiratory muscles, and they mostly breathe through their noses. On average, newborns and infants younger than 6 months take 40 breaths per minute.*

*Since the range is 40-60 breaths per minute, a respiratory rate of over 50 breaths per minute would exclude 40 breaths per minute, which is a healthy rate.*

*A respiratory rate of 20 or 30 breaths per minute for a newborn would indicate respiratory distress. The patient would require ventilation.*

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**24.**

An ambulance was called following a domestic disturbance, and CPR is in progress on an unknown-aged male. When you arrive, an officer is doing compressions on the patient and says they withheld ventilation since they did not have a mask. You go to the patient's head to start ventilation.

How do you place the mask from a bag-mask device on the patient's face?

**Start by putting the angled or grooved end of the mask over the bridge of the nose, then bring the mask down to the groove between the lower lip and chin**

Start by putting the mask down to the groove between the lower lip and chin, then place the angled or grooved end of the mask over the bridge of the nose

Start by putting the angled or grooved end of the mask underneath the nose, then bring the mask down to the groove between the lower lip and chin

Start by putting the angled or grooved end of the mask over the bridge of the nose, then bring the mask down to the bottom of the chin

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*Correct answer: Start by putting the angled or grooved end of the mask over the bridge of the nose, then bring the mask down to the groove between the lower lip and chin*

*To place the mask on the patient, start by putting the angled or grooved end of the mask over the bridge of the nose. Next, bring the mask down to the groove between the lower lip and chin. Seal the mask using the proper technique, holding it in position. It is ready to provide ventilation.*

*Do not place the mask underneath the nose. The nose needs to be covered so the ventilated air does not escape from the nose.*

*Mask placement at the bottom of the chin will be too large to provide adequate ventilation.*

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25.

What structure does the airway divide into below the trachea?

**The bronchi**

The bronchioles

The lungs

The alveoli

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*Correct answer: The bronchi*

*Below the trachea, the airway divides into the bronchi, which are two large tubes that are supported by cartilage. The bronchi act as a passageway for air from the mouth and trachea, down to the alveoli, and back out of the body.*

*The bronchi keep branching into smaller airways called bronchioles in the lungs. The bronchioles deliver air to the alveoli, allowing the exchange of oxygen and carbon dioxide.*

*The bronchioles terminate in tiny air sacs called alveoli, which exchange oxygen and carbon dioxide in the lungs. The tissues receive oxygen, and carbon dioxide is eliminated from the body.*

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**26.**

An 88-year-old female patient with difficulty breathing is coughing up greenish-yellow sputum and has a slight fever.

Which common infectious disease often affects older adults?

**Pneumonia**

Emphysema

Congestive heart failure

Asthma

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*Correct answer: Pneumonia*

*Pneumonia is a common infectious disease that older adults are susceptible to because of their weakened immune systems. Pneumonia frequently kills older adults and is considered a true medical emergency. Minor symptoms can quickly become a major illness. Any older patient with congestion and a possible fever should be seen by a physician.*

*Emphysema, congestive heart failure, and asthma affect many older adults, but they are not infectious diseases.*

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27.

When suctioning a patient using a suction control port on a rigid tip catheter, how do you create the suction?

**Place a finger over the suction control port for the allotted time**

Do not place a finger over the suction control port

Place a finger over the suction control port for 1 to 2 seconds

Place a finger over the suction control port for 5 to 10 seconds

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*Correct answer: Place a finger over the suction control port for the allotted time*

*With a suction control port on a rigid tip catheter, place a finger over the suction control port for the allotted time to suction the patient. For example, for an infant, place a finger over the suction control part (a small hole located close to the tip's handle) for no more than 5 seconds at a time.*

*If no finger is placed over the suction control port, suction will not be created.*

*If the finger is removed at any point, the suction will be lost. Keep a finger over the hole until suctioning is completed.*

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**28.**

What is the function of the epiglottis?

**To prevent food from entering the larynx**

To prevent food from entering the pharynx

To prevent food from entering the nasopharynx

To prevent food from entering the esophagus

*Correct answer: To prevent food from entering the larynx*

*The epiglottis keeps food from entering the larynx and is located at the upper end of the larynx. It is a leaf-shaped flap that prevents food from entering the larynx when at rest. The epiglottis stays open during breathing, allowing air into the larynx, and folds down to cover the larynx when swallowing.*

*The pharynx is a tube that runs from the back of the nose down into the neck. The epiglottis does not prevent food from entering the pharynx.*

*The nasopharynx is the portion of the nasal cavity that connects the nasal cavity to the larynx. The epiglottis does not prevent food from entering the nasopharynx.*

*The esophagus is the muscular tube connecting the throat to the stomach. The epiglottis only covers the larynx when swallowing.*

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**29.**

A 23-year-old female is lying on her back with vomitus around her. Her friends said she had a little too much to drink, then vomited and passed out. Your partner asks you to roll the patient onto her side so she won't aspirate.

If a patient aspirates vomitus, where does it go?

**The lungs**

The stomach

The esophagus

The trachea

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*Correct answer: The lungs*

*When a patient aspirates vomitus, it ends up in the lungs. This can happen due to decreased tongue control when a patient is unresponsive or intoxicated. If the patient was conscious, she would be able to cough or spit the vomitus out of her airway. Aspirating vomitus into the lungs could cause aspiration pneumonia and create further problems.*

*When a person swallows food or liquid, it goes down the esophagus and into the stomach. When a person aspirates, the foreign material goes down the trachea, ending up in the lungs.*

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**30.**

You and your partner are at the scene of a motor vehicle accident with two patients. One patient has minor injuries, and the other is unconscious and unresponsive. You call for an additional ambulance to respond, and you and your partner start treating the unconscious patient. You want to place an oropharyngeal airway to open their airway.

How do you select an appropriately sized airway?

**Measure from the patient's earlobe to the corner of their mouth**

Measure from the patient's earlobe to the tip of their nose

Measure from the top of the patient's ear to the corner of their mouth

Measure from the top of the patient's earlobe to the tip of their nose

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*Correct answer: Measure from the patient's earlobe to the corner of their mouth*

*Before inserting an oral airway into an unconscious patient without a gag reflex, choose the correct size by measuring from the patient's earlobe to the corner of their mouth. When the airway is inserted, it will rest inside the patient's mouth with the flange resting against the lips. The other end will rest on the back of the throat, keeping the tongue from blocking the airway.*

*To place a nasopharyngeal airway, measure from the patient's earlobe to the tip of their nose. An oral airway is measured to the mouth, and a nasal airway is measured to the nose.*

*Both types of airway measurements start from the patient's earlobe, not from the top of the ear.*

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**31.**

You are working as an EMR, and your protocol and training allow you to administer oxygen. How often should you check the patient's breathing and pulse while administering oxygen?

**At least every 5 minutes**

At least every 10 minutes

At least every 15 minutes

At least every 20 minutes

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*Correct answer: At least every 5 minutes*

*Per the current recommendations, check a patient's pulse and breathing rate at least every 5 minutes while oxygen is being administered. If a patient requires oxygen, their condition can quickly deteriorate, so checking their breathing and pulse every 5 minutes allows quick action if their condition does decline. Checking every 5 minutes also offers the patient reassurance.*

*Checking the patient's pulse and breathing every 10, 15, or 20 minutes would not provide up-to-date information on the patient's condition.*

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**32.**

An infant patient was found in their crib unresponsive and not breathing. You feel a brachial pulse and are ready to begin rescue breathing.

After the initial two rescue breaths, how often will you give a rescue breath?

**Every 2-3 seconds**

Every 1-2 seconds

Every 3-4 seconds

Every 5-6 seconds

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*Correct answer: Every 2-3 seconds*

*For an infant, give a rescue breath every 2-3 seconds after the initial 2 rescue breaths. Be careful not to overinflate the patient's lungs, as they are smaller than a child's or an adult's lungs. Use small puffs of air, just enough to make the chest rise with each breath. Providing a breath every 2-3 seconds gives 20 to 30 rescue breaths per minute.*

*Giving a rescue breath every 1-2 seconds would not allow the patient's chest to recoil after the breath.*

*Infants breathe faster than adults because their lungs are smaller, so they need a rescue breath every 2-3 seconds.*

---

**33.**

Your paramedic partner asks you to place a nasal cannula on a patient who is having respiratory difficulties. At a flow of 1 to 6 liters per minute (L/min), how much oxygen will be delivered to the patient?

**24% to 44% oxygen**

50% to 75% oxygen

21% oxygen

Up to 90% oxygen

*Correct answer: 24% to 44% oxygen*

*A nasal cannula delivers between 24% and 44% oxygen when supplied at 1 to 6 L/min. Some patients will have different medical conditions, such as chronic respiratory issues, that may require a lower concentration of oxygen. Low-flow oxygen can also be used for fairly stable patients such as those with mild shortness of breath or slight chest pain. Some patients will be on home oxygen and already have a nasal cannula in place. If so, leave the patient's nasal cannula at their home prior to transport to the hospital and place a new one.*

*Nasal cannulas do not provide 50% to 75% oxygen. They are incapable of providing high concentrations of oxygen via the two small nostril prongs.*

*Room air provides 21% oxygen.*

*Non-rebreather masks provide up to 90% oxygen when administered at a flow rate of 10 to 15 L/min.*

---

**34.**

You and your partner are called to a local park for a 24-year-old female who is having difficulty breathing after being stung by a bee. Upon your arrival, the patient's sister explains that she forgot her EpiPen at home, and your local protocols do not allow you to carry EpiPens in your ambulance. The patient is in respiratory arrest, and your partner calls for advanced life support backup while you prepare to administer a rescuer ventilation.

Where should you position yourself in relation to the patient?

**Kneel above the patient's head**

Kneel on the right side of the patient's head

Kneel on the left side of the patient's head

Straddle the patient's body

---

*Correct answer: Kneel above the patient's head*

*To position for a rescuer ventilation, kneel at the patient's head. In this position, keep the airway open by maintaining the neck in an extended position, make a tight seal on the mask, and squeeze the bag. The bag-mask device does not maintain the patient's airway in an open position; it needs to be maintained by the rescuer. During ventilation, continue to stabilize the head in an extended position via the head tilt-chin lift maneuver or a neutral position if the jaw-thrust maneuver is used.*

*Kneeling on the right or left side or straddling the patient does not allow you to maintain their airway, make a tight seal on the mask, and squeeze the bag. These steps can only be accomplished by kneeling at the patient's head.*

---

**35.**

An 8-year-old female was found facedown in the family swimming pool. Her father said she was unattended for two minutes while he went to check on her brother who was napping inside the house. The father performed CPR, and the patient vomited. The patient has labored respirations and is coughing up water. You observe vomitus in her airway and are preparing your suction device.

How long can the patient be suctioned before needing supplemental oxygen or ventilation?

**10 seconds at a time**

15 seconds at a time

20 seconds at a time

5 seconds at a time

*Correct answer: 10 seconds at a time*

*When suctioning a child, suction for no more than 10 seconds at a time before providing ventilation or oxygen. Suctioning draws air and material from the airway, robbing the patient of oxygen. After suctioning for 10 seconds, provide ventilation or supplemental oxygen depending on the patient's condition. Once they have been oxygenated, suctioning can be repeated for 10 seconds at a time, followed by ventilation or oxygen, until the material or secretions are removed.*

*Adults can be suctioned for 15 seconds at a time since they have larger lungs and do not become oxygen-deprived as quickly as children or infants.*

*Suctioning for 20 seconds at a time is not recommended for anyone.*

*For an infant, limit suctioning to 5 seconds at a time because their lungs are much smaller than a child's.*

---

**36.**

Which type of lubricant is used to coat a nasal airway before inserting it into a patient's nostril?

**Water-soluble**

Oil-based

Alcohol-soluble

Mineral-based

---

*Correct answer: Water-soluble*

*A water-soluble lubricant is used to coat a nasal airway before inserting it into a patient's nostril. Water-soluble lubricants are gentle and versatile, and they will not cause irritation to the nostrils. The lubricant makes it easier to insert the nasal airway and helps minimize trauma to the nostrils.*

*Oil-, alcohol-, and mineral-based lubricants are not used in a prehospital setting, as they can irritate a patient's skin and airways and inflict further damage.*

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**37.**

When a conscious patient has difficulty breathing, in what position are they usually most comfortable?

**Sitting**

Standing

Lying on their side

Lying on their back

*Correct answer: Sitting*

*A patient who has difficulty breathing is generally most comfortable when sitting. This provides better expansion of the lungs. The sitting position allows the breathing accessory muscles to pull up the ribs, which helps draw in more air.*

*Patients who are having trouble breathing **may** feel more comfortable standing, but typically the patient will feel weak from the exertion of breathing and will be more comfortable sitting. The majority of patients with difficulty breathing will be sitting when help arrives.*

*Most patients have greater difficulty breathing when lying on their side or back and feel as if their lungs cannot fully expand. Some illnesses or diseases contribute to difficulty breathing when lying down, especially if the patient has fluid in their lungs. They will describe feeling like they are being suffocated.*

---

**38.**

You are called to a private residence for an unknown medical emergency involving an infant. When you arrive, a woman meets you at the front door holding an infant who is having a seizure. The woman states that her daughter was nursing and suddenly started seizing. The patient is hot to the touch, and the mother reports the infant has had a fever for the past 12 hours. The patient is 10 months old with no past medical history.

How should you manage this patient's airway and breathing?

**After the seizure ends, maintain an adequate airway and provide supplemental oxygen.**

While the patient is seizing, provide supplemental oxygen.

After the seizure ends, provide supplemental oxygen.

While the patient is seizing, try to open their airway and provide supplemental oxygen.

---

*Correct answer: After the seizure ends, maintain an adequate airway and provide supplemental oxygen.*

*To maintain an adequate airway and breathing, wait until the seizure ends, then maintain an adequate airway and provide supplemental oxygen. While an infant is having a seizure, keep them safe by holding them or placing them on the floor or a bed. Once the seizure is over, assess their airway and breathing and provide supplemental oxygen using a pediatric non-rebreather mask.*

*Do not try to assess their airway or breathing during a seizure. The best treatment during a seizure is to keep the patient from injuring themselves.*

*Once the seizure ends, provide supplemental oxygen **after** maintaining an adequate airway.*

---

**39.**

A 5-year-old male has a partial airway obstruction after swallowing a piece of hard candy. He is able to pass air around the object, but it is not visible in the mouth or throat and cannot be removed.

During transport to the emergency department, how will you provide supplemental oxygen?

**Hold an oxygen mask 1-2 inches away from the patient's face**

Place an oxygen mask over the patient's face with an airtight seal

Place a nasal cannula on the patient

Place an oxygen mask over the patient's face but do not pull the straps snug

---

*Correct answer: Hold an oxygen mask 1-2 inches away from the patient's face*

*Children with a partial airway obstruction need to be reassured and kept calm. The recommended method to provide supplemental oxygen is to hold an oxygen mask 1-2 inches away from the patient's face. This method provides supplemental oxygen but does not frighten the child as much as an airtight seal may.*

*A nasal cannula is not the preferred way to give supplemental oxygen, as it only provides a low-flow concentration of oxygen. High-flow oxygen is preferred.*

*Placing a mask directly on the child, even if the straps are not tightened, can cause them to be frightened and make the partial airway obstruction a complete airway obstruction.*

---

**40.**

While working as an EMR at a sports event, you are called to the stands for a female with shortness of breath. When you arrive, you find a 50-year-old female complaining of shortness of breath for the past 10 minutes, with a history of cardiac problems. You place a non-rebreather mask on her before taking her vital signs.

How many liters per minute of oxygen should you provide?

**10-15 liters per minute**

5-10 liters per minute

4-6 liters per minute

15-20 liters per minute

---

*Correct answer: 10-15 liters per minute*

*A non-rebreather mask can deliver concentrations of oxygen as high as 90%. Once you explain the procedure and fill the reservoir bag, place the mask on the patient. Oxygen is stored in the reservoir bag, and when the patient inhales, oxygen is drawn from the reservoir bag. When the patient exhales, the air is let out through one-way valves on the side of the mask.*

*Any flow below 10-15 liters per minute will collapse the reservoir bag and will not provide an adequate supply of oxygen.*

---

41.

You are administering rescue breathing for an adult patient who is breathing inadequately. How often will you provide a breath after your initial two breaths?

**Every 6 seconds**

Every 2 seconds

Every 5 seconds

Every 8 seconds

---

*Correct answer: Every 6 seconds*

*When an adult patient is breathing inadequately and requires rescue breathing, you will initially give two rescue breaths spaced seconds apart. After these initial rescue breaths, continue to provide a rescue breath every 6 seconds. Breathing every 6 seconds provides 10 breaths per minute for an adult.*

*Providing a breath every 2, 5, or 8 seconds will not be as beneficial to the patient.*

---

**42.**

During the administration of rescue breathing to a patient in respiratory arrest, how long does it take to provide one breath?

**1 second**

2 seconds

3 seconds

6 seconds

---

*Correct answer: 1 second*

*During rescue breathing for a patient in respiratory arrest, each breath will take 1 second. Breathe until the patient's chest rises (1 second), then pause for the patient to exhale passively. The patient's chest should fall after each breath is given to avoid gastric distension (i.e., enlargement of the stomach).*

*Longer breaths can cause gastric distension and vomiting, which will compromise the patient's airway and increase their risk of aspiration.*

---

**43.**

What is the normal resting respiratory rate for children ages 3 to 6 years?

**20 to 25 breaths per minute**

30 to 60 breaths per minute

25 to 50 breaths per minute

20 to 30 breaths per minute

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*Correct answer: 20 to 25 breaths per minute*

*The normal resting respiratory rate for children ages 3 to 6 years is 20 to 25 breaths per minute. Newborns' and infants' respiratory rates are considerably higher than children's and adults' since their lungs are small and still developing. As an infant grows, their lungs become larger, and their respiratory rate slows.*

*Thirty to 60 breaths per minute is the respiratory rate for newborns.*

*The respiratory rate for infants is 25 to 50 breaths per minute.*

*Toddlers 1 to 3 years of age have a respiratory rate of 20 to 30 breaths per minute.*

---

**44.**

You are assisting a paramedic who has intubated an unconscious patient, and they ask you to ventilate the patient while they start an IV. Your jump kit contains a bag-mask device, a nasal cannula, and a non-rebreather mask.

How are you going to ventilate the patient?

**Attach the bag-mask device without the mask directly to the end of the endotracheal tube and squeeze the bag**

Attach the bag-mask device with the mask directly to the end of the endotracheal tube and squeeze the bag

Place the non-rebreather mask over the end of the endotracheal tube and add oxygen at 15 liters per minute

Blow directly into the tube

---

*Correct answer: Attach the bag-mask device without the mask directly to the end of the endotracheal tube and squeeze the bag*

*To ventilate a patient who has been intubated, attach the bag-mask device without the mask directly to the end of the endotracheal tube and squeeze the bag. The endotracheal tube is in the patient's trachea; when the bag is squeezed, the air goes directly into the patient's lungs.*

*A patient cannot be ventilated using the bag-mask device with the mask attached, as there would be no seal around the patient's mouth.*

*Placing a non-rebreather mask on the patient and adding oxygen at any flow rate only provides supplemental oxygen. The patient is not breathing and needs ventilation.*

*Blowing directly into the tube creates an exposure risk. Among the available tools, the bag-mask device is the best option.*

---

45.

Some vaccinations are given to infants to help prevent epiglottitis. Which type of bacteria causes epiglottitis?

**Haemophilus influenzae type b**

Staphylococcus aureus

Group A streptococcus

Bordetella pertussis

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*Correct answer: Haemophilus influenzae type b*

*Epiglottitis is usually caused by an infection with Haemophilus influenzae type b, which is also known as Hib. This bacterium also causes meningitis, pericarditis, pneumonia, and other infections of the blood, joints, and bones. Once immunized, the patient is offered long-term protection against epiglottitis and the other diseases mentioned.*

*Staphylococcus aureus commonly causes croup.*

*Strep throat is an infection caused by group A streptococcus.*

*Whooping cough, also called pertussis, is caused by Bordetella pertussis.*

---

**46.**

You are working as an EMR in a medical tent at a concert. You have a trauma and airway kit to treat patients for any type of medical emergency. A distraught young woman approaches the tent and says her boyfriend was huffing (i.e., inhaling harmful chemicals) before the concert and now has difficulty breathing. You grab your medical bag and follow the woman to the patient.

How should you treat a patient who was huffing?

**Keep them calm and still and administer high-flow oxygen while calling for transport to a medical facility**

Have them go to the medical tent and administer high-flow oxygen while calling for transport to a medical facility

Keep them calm and still and administer low-flow oxygen while calling for transport to a medical facility

Have them go to the medical tent and administer low-flow oxygen while calling for transport to a medical facility

---

*Correct answer: Keep them calm and still and administer high-flow oxygen while calling for transport to a medical facility*

*For a patient who was intentionally inhaling volatile chemicals (huffing), keep them calm and still and administer high-flow oxygen while calling for transport to a medical facility. Chemicals that individuals huff include gasoline, spray paint, paint thinners, lacquers, cleaning compounds, and other aerosol stimulants. Users put the chemicals in a plastic bag and inhale the toxic chemicals to get high. Damage to major organs and the central nervous system can result from inhaling these chemicals.*

*Because the damage to internal organs and the central nervous system can occur from huffing, the patient should not walk to the medical tent. Low-flow oxygen will not be as useful to the patient as high-flow oxygen. Increased oxygenated blood will help counteract the toxins that have entered the patient's bloodstream. All patients who have huffed need rapid transport to a medical facility.*

---

47.

Which of the following is not a recommended treatment for a child with suspected epiglottitis?

**Examine their throat**

Provide oxygen

Arrange for prompt transport

Make the patient comfortable

---

*Correct answer: Examine their throat*

*When a child has epiglottitis, their epiglottis is so inflamed that the trachea is blocked from receiving air. An examination of the throat could make the epiglottis become more inflamed, resulting in a complete airway blockage. Never examine a patient's throat or place anything in their mouth when epiglottitis is suspected.*

*The recommended treatment is to provide oxygen, arrange for prompt transport, and make the patient comfortable. Often, this means handling the child as little as possible and allowing a parent to hold them.*

---

**48.**

Your EMS unit is called for a 58-year-old male in respiratory distress. Upon your arrival, you see a patient slumped on the couch.

What is the first step in assessing this patient's airway?

**Check the patient's level of responsiveness**

Perform the head-tilt/chin-lift maneuver

Check the patient's respiratory rate

Perform the jaw-thrust maneuver

---

*Correct answer: Check the patient's level of responsiveness*

*The first step in assessing a patient's airway is to check their level of responsiveness. As you approach the patient, you can ask how they are doing or what their name is. If the patient is conscious and responsive, you can assume they have an open airway.*

*If the patient is unresponsive without a suspected spinal injury, perform the head-tilt/chin-lift maneuver to open their airway, after checking their responsiveness.*

*Checking the patient's respiratory rate will be done later in the assessment.*

*If the patient is not responsive and has a suspected spinal injury, perform the jaw-thrust maneuver to open their airway.*

---

**49.**

A bag-mask device has three parts. Which of the following is **not** part of a bag-mask device?

**Supplemental oxygen**

Self-inflating bag

One-way valves

Face mask

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*Correct answer: Supplemental oxygen*

*A bag-mask device consists of a self-inflating bag, one-way valves, and a face mask. The mask is placed on the patient's face with a tight seal. When the bag is squeezed, air is pushed through a one-way valve, into the mask, and then into the patient's mouth and nose. When the patient passively exhales, a second one-way valve releases the air.*

*Supplemental oxygen can be used with a bag-mask device, providing up to 90% oxygen. However, it is not one of the three parts of the device.*

---

50.

Which of the following is **not** part of the upper airway?

The trachea

The larynx

The pharynx

The nasopharynx

---

*Correct answer: The trachea*

*The respiratory system is divided into the upper and lower airways. The trachea is the beginning of the lower airway and starts just below the larynx, which is in the upper airway.*

*Other features in the upper airway include the pharynx (throat), the nasopharynx (nose), and the oropharynx (mouth).*

*Besides the trachea (windpipe), the lower airway consists of the bronchial trees and the lungs.*

---

**51.**

Which medical term refers to difficulty breathing or shortness of breath?

**Dyspnea**

Apnea

Tachypnea

Hyperpnea

*Correct answer: Dyspnea*

*Dyspnea is the medical term for difficulty breathing or shortness of breath and can range from mild to severe. Most causes of dyspnea seen by EMRs are the result of lung, heart, neuromuscular, vascular, and metabolic diseases. People can also get dyspnea at high altitudes and during exercise, but it typically fades without medical intervention.*

*Apnea is the absence of breathing, such as in those with respiratory and cardiac arrest. Apnea can also be a temporary cessation of breathing, especially during sleep.*

*Tachypnea is the medical term for abnormally rapid, shallow breathing. Common causes of tachypnea include a lack of oxygen or elevated carbon dioxide in the blood.*

*The term hyperpnea (forced respiration) is an increased volume of air when breathing. It can occur with or without an increase in the patient's respiratory rate and is characterized by deep breathing.*

---

52.

When can an oral airway be used?

**When a patient is unconscious and does not have a gag reflex**

When a patient is conscious and does not have a gag reflex

Any time a non-rebreather mask is needed to assist with ventilation

Any time a bag-valve mask is needed to assist with ventilation

---

*Correct answer: When a patient is unconscious and does not have a gag reflex*

*An oral airway can only be used on patients who are unconscious and do not have a gag reflex. Oral airways stimulate the gag reflex in conscious patients, which can cause them to vomit and possibly aspirate.*

*Conscious patients will always have a gag reflex. An oral airway cannot be used on conscious patients with a gag reflex, even if a bag-valve mask is used to assist ventilations. A non-rebreather mask would not be used to assist ventilations, and are used on patients who are breathing on their own and will most likely not tolerate an oral airway.*

---

**53.**

Abdominal thrusts (i.e., the Heimlich maneuver) should be done on a conscious adult or child patient who is choking. How do abdominal thrusts help expel a foreign object?

**The thrusts compress the air that remains in the lungs, pushing it upward through the airway and exerting pressure against the foreign object.**

The thrusts compress the bladder, pushing the foreign object out of the airway.

The thrusts compress the internal organs, which push air upward through the airway and exert pressure against the foreign object.

The thrusts compress the xiphoid process, expelling the foreign object from the airway.

---

*Correct answer: The thrusts compress the air that remains in the lungs, pushing it upward through the airway and exerting pressure against the foreign object.*

*Abdominal thrusts are the currently accepted treatment for a conscious adult or child who has a completely obstructed airway. Abdominal thrusts compress the air that remains in the lungs, pushing it upward through the airway to exert pressure against the foreign object. This pressure helps expel the foreign body, sometimes "popping" the object a great distance. All patients who have had an airway obstruction removed by the Heimlich maneuver should be examined at a hospital by a physician.*

*When performing abdominal thrusts, the rescuer is compressing the abdomen. Compressing the bladder does not push foreign objects out of the body.*

*Internal organs can be damaged if too much force is used or the hands are not in the correct location. However, compressing the internal organs does not cause the foreign object to be expelled.*

*The correct hand placement is below the xiphoid process, directly above the navel. Do not compress the xiphoid process, as this could harm the patient.*

---

**54.**

You are using a bag-mask device to provide artificial ventilation to a patient who is in respiratory arrest. By adding 10 to 15 liters per minute (L/min) of supplemental oxygen to the device, you are delivering what oxygen concentration to the patient?

**90%**

21%

75%

100%

*Correct answer: 90%*

*Using a bag-mask device with supplemental oxygen at 10-15 L/min provides an oxygen concentration of 90%. After connecting the oxygen tubing from the flowmeter outlet to the inlet nipple on the bag-mask device, adjust the flow on the pressure regulator to deliver between 10 and 15 L/min. For a patient in respiratory distress, the higher flow is preferred to deliver the maximum amount of oxygen.*

---

**55.**

How should a patient's airway be managed if they are sitting in a vehicle after an auto accident?

**Place one hand under the chin and the other hand on the back of the patient's head**

Place one hand under the chin and the other hand on the patient's forehead

Place one hand on the neck and the other hand on the back of the patient's head

Place one hand on the forehead and the other hand on the top of the patient's head

---

*Correct answer: Place one hand under the chin and the other hand on the back of the patient's head*

*When a patient is sitting in a vehicle after an auto accident, manage their airway by placing a hand under the chin and the other hand on the back of the patient's head. This technique helps raise the head to a neutral position to open the airway while stabilizing the patient's spine. This technique also manages the airway without requiring the rescuer to enter the vehicle, and it offers easier monitoring of the patient's carotid pulse and their breathing patterns.*

*Do not place a hand on the patient's forehead, neck, or the top of their head to manage their airway.*

---

**56.**

According to the START triage system for a mass-casualty incident (MCI), what should be done for patients who are not breathing?

**Clear the mouth of any foreign material and use the head tilt-chin lift maneuver to open the airway**

Clear the mouth of any foreign material and use the jaw-thrust maneuver to open the airway

Tag the patient as deceased

Tag the patient as immediate

---

*Correct answer: Clear the mouth of any foreign material and use the head tilt-chin lift maneuver to open the airway*

*For a patient who is not breathing, clear the mouth of any foreign material and use the head tilt-chin lift maneuver to open the airway. In an MCI, there is not enough time to stabilize every patient's spine. The jaw-thrust maneuver is not recommended during an MCI for this reason, and the head tilt-chin lift maneuver is more effective for opening a patient's airway.*

*Do not tag the patient as deceased or immediate until you clear the mouth of any foreign material and use the head tilt-chin lift maneuver to open the airway.*

---

**57.**

A patient arrives in the emergency department with severe shortness of breath. As you wheel the patient into an exam room, the charge nurse asks you to place a non-rebreather mask on the patient at 15 liters per minute (L/min).

Which steps are involved in using a non-rebreather mask?

**Adjust the oxygen flow to 15 L/min to inflate the reservoir bag, place the mask on the patient, and adjust the straps to ensure a snug fit**

Place the mask on the patient, adjust the straps to ensure a snug fit, and adjust the oxygen flow to 15 L/min

Adjust the oxygen flow to 10 L/min to inflate the reservoir bag, place the mask on the patient, and adjust the straps to ensure a snug fit

Adjust the oxygen flow to 5 L/min to inflate the reservoir bag, place the mask on the patient, adjust the straps to ensure a snug fit, and increase the flow to 15 L/min

---

*Correct answer: Adjust the oxygen flow to 15 L/min to inflate the reservoir bag, place the mask on the patient, and adjust the straps to ensure a snug fit*

*With a non-rebreather mask, first adjust the oxygen flow to 15 L/min to inflate the reservoir bag, place the mask on the patient, and adjust the straps to ensure a snug fit. Observe the patient while they breathe to ensure the reservoir bag stays at least partially inflated when the patient inhales.*

*Do not place the mask on the patient first. The reservoir bag needs to be inflated before the mask is placed on the patient.*

*Do not fill the reservoir bag with a flow rate of 5 L/min; the nurse asked for 15 L/min.*

---

**58.**

A 44-year-old male patient was riding a motorcycle and struck a tree. The patient is breathing, has an altered mental status, and has severe facial injuries.

What is the immediate danger to patients with severe facial injuries?

**Airway obstruction**

Irreparable facial damage

Brain damage

Spinal injury

---

*Correct answer: Airway obstruction*

*Airway obstruction is an immediate danger to patients with severe facial injuries.*

*When a patient has suffered significant injuries to the face and facial bones, there can be a lot of bleeding, and the facial bones can collapse. Both of these injuries obstruct the airway.*

*Irreparable facial damage and brain damage may occur, but they are not a primary immediate danger to the patient. Airway, breathing, and circulation (ABCs) are always the key concerns when assessing a patient.*

*When a patient has severe facial injuries, suspect a spinal injury. However, airway obstruction is the primary immediate danger to patients with severe facial trauma.*

---

**59.**

What is a sign of respiratory distress in infants?

**A breathing rate of more than 60 breaths per minute**

A breathing rate of more than 80 breaths per minute

A breathing rate of more than 30 breaths per minute

A breathing rate of more than 50 breaths per minute

---

*Correct answer: A breathing rate of more than 60 breaths per minute*

*The normal respiratory rate for an infant up to one year of age is 25-50 breaths per minute. When an infant is breathing faster than 60 breaths per minute, they are in respiratory distress.*

*If an infant was breathing more than 80 breaths per minute, they would be in severe respiratory distress.*

*Infants who are breathing between 30 and 50 breaths per minute have normal respiratory rates.*

---

**60.**

Your EMS unit is dispatched to a private residence for a 30-year-old male with a seizure. When you arrive, the patient's roommate says that the patient has a history of epilepsy that is usually controlled by medication. They had been playing video games when the patient started seizing, and you find him disoriented on the couch with no signs of injury or respiratory distress. You and your partner move the patient to the floor to assess his airway.

What are your next steps regarding the patient's airway?

**Open the patient's airway and place him in the recovery position**

Open the patient's airway, place an oropharyngeal airway, and put him in the recovery position

Open the patient's airway, place a nasopharyngeal airway, then place him in a sitting position

Open the patient's airway and place him in a sitting position

---

*Correct answer: Open the patient's airway and place him in the recovery position*

*After a patient has stopped seizing, open their airway using a head tilt-chin lift maneuver. Once the airway is open, place the patient in the recovery position, allowing any blood or saliva to drain from the patient's mouth. Patients who have experienced a seizure may have excessive oral secretions due to tongue biting.*

*Do not place an oropharyngeal airway in any patient who has a gag reflex, as this can induce vomiting.*

*A nasopharyngeal airway is not indicated since the patient is not in respiratory distress.*

*Do not place the patient in a sitting position because they will typically slump to the side, making it difficult to maintain an open airway.*

---

61.

Which method is used to remove a foreign object from an unconscious patient's mouth if they have no gag reflex?

**Sweep a finger from one side of the back of the mouth to the other side**

Reach into the mouth with an index finger and a thumb

Never put fingers in a patient's mouth

Reach into the mouth with both index fingers

---

*Correct answer: Sweep a finger from one side of the back of the mouth to the other side*

*If an unconscious patient has no gag reflex and foreign material is suspected in their mouth, use a finger sweep. Curve your index finger into a C-shape and sweep from one side of the back of the mouth to the other side. The finger can be wrapped with a piece of gauze to help remove the foreign material.*

*Do not reach into the mouth with the index finger and thumb, as this may push the foreign body further into the trachea.*

*Fingers may be put in a patient's mouth if they are unconscious and without a gag reflex. If the patient has a gag reflex, they may bite the fingers.*

*Reaching into the mouth with both index fingers is not advised, as this can push foreign material further down the throat.*

---

**62.**

You are dispatched to an unresponsive male at a local bar. Upon your arrival, the bar manager states that an unknown-aged male had six beers and a hamburger, started vomiting on the way to the restroom, and is now unresponsive in the hallway. The patient is lying on his back with vomit in his airway.

How long can an adult be suctioned before requiring ventilation or oxygen?

**15 seconds at a time**

10 seconds at a time

20 seconds at a time

5 seconds at a time

---

*Correct answer: 15 seconds at a time*

*Suction an adult for no more than 15 seconds at a time before providing ventilation or oxygen. Suctioning draws air and material from the airway, robbing the patient of oxygen. After suctioning for 15 seconds, provide ventilation or supplemental oxygen, depending on the patient's condition. Once the patient has been oxygenated, suctioning can be repeated for 15 seconds at a time, followed by ventilation or oxygen, until the material or secretions are removed.*

*Children can be suctioned for no more than 10 seconds at a time before needing ventilation or oxygen.*

*Suctioning for 20 seconds at a time is not recommended for anyone.*

*For an infant, limit suctioning to 5 seconds at a time because their lungs are much smaller than a child's.*

---

63.

What type of respirations will a patient in shock demonstrate?

**Rapid and shallow respirations**

Rapid and deep respirations

Slow and shallow respirations

Slow and deep respirations

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*Correct answer: Rapid and shallow respirations*

*When a patient is in shock, they will demonstrate rapid and shallow respirations because their organs are not receiving enough blood or oxygen. They breathe rapidly and shallowly because the sympathetic nervous system is stimulated, and acidosis is present. The patient is trying to get more oxygen, so their respirations are rapid. With rapid respiration, the elimination of carbon dioxide is disrupted, so the patient will breathe shallowly.*

*Patients who are in shock do not breathe slowly or deeply. They are starved of oxygen, so rapid, shallow respirations are expected.*

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**64.**

When assessing for signs of adequate breathing in an unconscious patient, which of the following is **incorrect**?

**Feel whether the patient's chest is rising**

Look for the rise and fall of the patient's chest

Listen for air sounds from the patient's nose and mouth

Use the side of your face to feel for air movement

---

*Correct answer: Feel whether the patient's chest is rising*

*When assessing for signs of adequate breathing in the unconscious patient, use the look, listen, and feel technique:*

- 1. Look for the rise and fall of the patient's chest.*
- 2. Listen for the sounds of air passing in and out of the patient's nose and mouth.*
- 3. Feel air movement from the patient using the side of your face.*

*When the side of your face is close to the patient's nose and mouth, feeling for air movement, you are observing the rise and fall of the patient's chest.*

---

**65.**

For an adult patient who presents with difficulty breathing, when would you assist with rescue breathing?

**When the respiratory rate is under 8 or over 40 breaths per minute**

When the respiratory rate is under 6 or over 30 breaths per minute

When the respiratory rate is under 4 or over 46 breaths per minute

When the respiratory rate is under 10 or over 20 breaths per minute

---

*Correct answer: When the respiratory rate is under 8 or over 40 breaths per minute*

*If a patient has difficulty breathing, evaluate their quality of breathing and respiratory rate. Determine the rate by watching the rise and fall of their chest for one minute or count the number of breaths in 15 seconds and multiply by four to get the number of breaths per minute. When the respiratory rate is under 8 or over 40 breaths per minute, you will need to provide rescue breathing. Rescue breathing can be done using a bag-mask device, mouth-to-mask, or mouth-to-barrier device.*

*Do not wait for a patient's respiratory rate to fall to 4 or 6 breaths per minute before providing rescue breathing. A patient is in severe respiratory distress when their rate is 4- 8 breaths per minute.*

*Providing rescue breathing when a patient's respiratory rate is 40 or greater is done to bring the patient's carbon dioxide levels down. When a patient breathes at 40 breaths per minute or greater, the carbon dioxide and oxygen exchange cannot effectively occur in the alveoli, and carbon dioxide builds in the patient's blood.*

---

**66.**

An unconscious, unresponsive 10-year-old male was involved in a motor vehicle accident. The patient is not breathing and does not have a gag reflex. Your partner asks you to place an oral airway in the patient.

How should you determine the correct size of the oral airway?

**Measure from the patient's earlobe to the corner of the mouth on the same side as the ear**

Measure from the patient's earlobe to the corner of the mouth on the opposite side of the ear

Measure from the patient's earlobe to the corner of the mouth to the tip of their nose

Measure from the top of the patient's ear to the corner of the mouth on the same side as the ear

---

*Correct answer: Measure from the patient's earlobe to the corner of the mouth on the same side as the ear*

*To measure the proper size of an oral airway for a child or an adult, measure from the patient's earlobe to the corner of the mouth on the same side as the ear. This is the closest estimate that the oral airway will fit the patient. If the oral airway is too large, it can push the tongue to the back of the throat and cause a complete airway obstruction. If the airway is too small, it will not keep the tongue from occluding the airway.*

*If you measured from the patient's earlobe to the corner of their mouth on the opposite side of the ear, the airway would be too large.*

*Measuring from the patient's earlobe to the tip of their nose is appropriate for a nasal airway for an adult patient.*

*If you measured from the top of the patient's ear to the corner of their mouth, the airway would be too big.*

---

**67.**

When a patient is cold, pulse oximeter readings can be inaccurate. What is the physiological reason for inaccurate readings from a cold patient?

**The blood vessels in the fingertips or earlobes are constricted.**

The patient is shivering.

The blood vessels in the fingertips or earlobes are dilated.

The pulse oximeter will not stay on a cold fingertip or earlobe.

---

*Correct answer: The blood vessels in the fingertips or earlobes are constricted.*

*When a patient is cold, the blood vessels in the fingertips or earlobes are constricted. When the blood vessels constrict, blood flow (perfusion) decreases to the fingertip or earlobe, which can cause an inaccurate reading.*

*Shivering is a sign that the patient is cold, not the physiological mechanism of inaccurate readings.*

*The pulse oximeter will stay on a cold patient's finger or earlobe since small clamps hold it in place.*

---

68.

What is the process of selecting a properly sized bag-mask device?

**The mask should fit over the bridge of the patient's nose and in the groove between their lower lip and chin.**

The mask should fit underneath the patient's nose and in the groove between the lower lip and chin.

The mask should fit over the bridge of the patient's nose and the bottom part of the chin.

The mask should fit underneath the patient's nose and the bottom part of the chin.

---

*Correct answer: The mask should fit over the bridge of the patient's nose and in the groove between their lower lip and chin.*

*To find the proper size mask for a patient, make sure the mask fits over the bridge of their nose and in the groove between the lower lip and chin. A mask that is too small or too large will make a good seal impossible.*

*If the mask is placed underneath the patient's nose, any ventilation provided can leak from the patient's nose, making it ineffective.*

*A mask that fits the bottom part of the chin will be too large to make or maintain a good seal.*

---

69.

Which term describes the exchange of oxygen and carbon dioxide that occurs in the alveoli?

**Alveolar ventilation**

Minute ventilation

Artificial ventilation

Pulmonary ventilation

---

*Correct answer: Alveolar ventilation*

*Incoming oxygen passes from the alveoli into the blood, and the outgoing carbon dioxide passes from the blood into the alveoli. The exchange of oxygen and carbon dioxide that occurs in the alveoli is called alveolar ventilation.*

*Minute ventilation is the amount of air pulled into the lungs and removed from the lungs in 1 minute.*

*Artificial ventilation, also called artificial respiration, is administered to someone who is not breathing or breathing inadequately with ventilation.*

*Pulmonary ventilation is the process of breathing. It consists of air flowing into the lungs when inhaling and air leaving the body when exhaling.*

---

70.

What is the most common cause of circulatory failure in children?

**Respiratory failure**

Renal failure

Cardiac failure

Organ failure

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*Correct answer: Respiratory failure*

*The most common cause of circulatory failure in children is respiratory failure. If a child has respiratory failure, it needs to be corrected quickly or the patient can develop circulatory failure, leading to cardiac arrest. The signs of circulatory failure are an increased heart rate, decreased respiration, pale or blue skin, and changes in mental status. Children most often go into respiratory failure before circulatory failure, while adults typically have circulatory failure that leads to cardiac arrest.*

*Renal failure, cardiac failure, and organ failure are not the most common causes of circulatory failure in children.*

---

**71.**

Your EMS unit is called to a private residence at 4 a.m. for a 3-year-old male with difficulty breathing. Upon your arrival, the patient is in his mother's arms, demonstrating a seal-like barking cough.

Which condition is this patient likely experiencing?

**Croup**

Epiglottitis

Asthma

Flu

*Correct answer: Croup*

*Croup is an upper airway infection that primarily affects children between the ages of 6 months and 6 years. The lower throat swells and compresses the airway, resulting in a characteristically hoarse, whooping noise during inhalation and a seal-like barking cough. Croup often occurs during the early hours of the morning and is usually preceded by the common cold. The seal-like barking cough is the greatest indicator of croup.*

*Epiglottitis is a serious respiratory condition that is caused by an inflammation of the epiglottis. When a patient has epiglottitis, the epiglottis is so inflamed and swollen that air movement into the trachea is completely blocked. Because of this, the patient will not cough.*

*Asthma is caused by a spasm or constriction and inflammation of the smaller airways in the lungs, producing the classic wheezing sound, not a seal-like barking cough.*

*When a patient has the flu, they will typically have body aches, a fever, and nausea and vomiting. The flu does not produce a seal-like barking cough.*

---

72.

Which of the following characteristics indicates that an infant is experiencing respiratory failure?

**A breathing rate of fewer than 20 breaths per minute**

A breathing rate of fewer than 18 breaths per minute

A breathing rate of fewer than 30 breaths per minute

A breathing rate of fewer than 10 breaths per minute

---

*Correct answer: A breathing rate of fewer than 20 breaths per minute*

*The normal infant breathing rate is 25-50 breaths per minute, so when the breathing rate drops to fewer than 20 breaths per minute, the infant is in respiratory failure. Other signs of respiratory failure are limp muscle tone, unresponsiveness, a decreased or an absent heart rate, and weak or absent distal pulses.*

*A breathing rate of fewer than 30 breaths per minute is within normal limits.*

*If an infant is breathing at a rate below 10 breaths per minute, they are in severe respiratory failure.*

---

**73.**

A 3-year-old female is in obvious respiratory distress after being rescued from a house fire. The patient inhaled toxic fumes and requires assisted ventilation. Her gag reflex is intact, and she has a respiratory rate of 6 breaths per minute.

How would you proceed with treating this patient?

**Provide assisted ventilation using a bag-mask device with supplemental oxygen**

Insert a nasal airway and provide assisted ventilation using a bag-mask device with supplemental oxygen

Insert an oral airway and provide assisted ventilation using a bag-mask device with supplemental oxygen

Place a non-rebreather mask on the patient at 15 liters per minute

---

*Correct answer: Provide assisted ventilation using a bag-mask device with supplemental oxygen*

*When a patient has a respiratory rate of 6 breaths per minute, they will require assisted ventilation. For this scenario, give assisted ventilation using a bag-mask device with supplemental oxygen.*

*An oral airway is not indicated since the patient has a gag reflex, and EMRs typically cannot use nasal airways for children.*

*Placing a non-rebreather mask on the patient at 15 liters per minute only delivers supplemental oxygen; it does not provide artificial ventilation.*

---

**74.**

A bag-mask device attached to oxygen can deliver up to what percent of oxygen to a patient?

**90%**

40%

60%

50%

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*Correct answer: 90%*

*A bag-mask device attached to oxygen can deliver up to 90% oxygen to a patient, and it is the ideal device to use when a patient is not breathing or is unable to breathe adequately on their own.*

---

75.

What is the waste product that the lungs transport outside of the body?

**Carbon dioxide**

Carbon monoxide

Nitrogen

Helium

---

*Correct answer: Carbon dioxide*

*The airway transports oxygen from the air to the lungs upon inhalation and then transports the waste product (carbon dioxide) from the lungs to the air upon exhalation. The exchange of carbon dioxide and oxygen happens in the alveoli in the lungs, and the carbon dioxide is eliminated from the body when a person exhales.*

*Carbon monoxide is a poisonous gas that can kill a person at high levels. It is not a waste product that the body eliminates.*

*The air we breathe is approximately 78% nitrogen, along with oxygen and carbon dioxide. Nitrogen is essential for the growth of most living things and a vital ingredient of proteins.*

*Helium is a non-toxic gas, but it is not inhaled or eliminated as waste upon exhalation.*

---

76.

How does carbon dioxide become a waste product?

**Through metabolism**

Through digestion

Through inspiration

Through exhalation

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*Correct answer: Through metabolism*

*Carbon dioxide becomes a waste product through metabolism. When oxygen enters the body through inhaled air, it passes through the thin walls that separate the alveoli (air sacs) from the blood vessels, where it is absorbed by the blood. Carbon dioxide, which is a waste product of metabolism, passes from the blood into the alveoli and is exhaled.*

*Digestion does not turn carbon dioxide into a waste product.*

*Carbon dioxide does not enter the body through inspiration. When air is inhaled, it consists of oxygen and nitrogen.*

*Carbon dioxide leaves the body through exhalation, but that is not what turns the carbon dioxide into a waste product.*

---

77.

When a patient has emphysema, what problem has developed in their lungs?

**The alveoli are damaged**

The airways in the lungs are inflamed

The lungs are infected

The smaller air passages are spasming or constricted

---

*Correct answer: The alveoli are damaged*

*When a patient has emphysema, the cause is damage to the alveoli (small air sacs) in the lungs. When the alveoli are damaged by toxins, smoking, or other irritants, the alveoli become damaged. The air sacs lose their shape and elasticity, and the normal exchange of carbon dioxide and oxygen is diminished, causing difficulty breathing. The most common cause of emphysema is cigarette smoke.*

*When the airways in the lungs are inflamed, it is called chronic bronchitis. Some patients with emphysema will also have chronic bronchitis, but in emphysema, the alveoli are damaged.*

*Patients with a lung infection will have pneumonia, and those who have spasming or constriction of the smaller air passages will develop asthma.*

---

**78.**

You are called to a fast-food restaurant for a pregnant female who is choking. When you arrive, the patient is conscious with her hands around her throat. Her spouse is providing back slaps to the patient, with no results. The spouse says that she is 38 weeks pregnant and started choking on a piece of chicken.

How would you treat this patient?

**Perform chest thrusts until the object is expelled or the patient becomes unconscious**

Perform abdominal thrusts until the object is expelled or the patient becomes unconscious

Perform back slaps until the object is expelled or the patient becomes unconscious

Perform chest compressions until the object is expelled or the patient becomes unconscious

---

*Correct answer: Perform chest thrusts until the object is expelled or the patient becomes unconscious*

*For a patient in the later stages of pregnancy, perform chest thrusts until the object is expelled or the patient becomes unconscious. Chest thrusts are performed by standing behind the patient and placing your arms under the patient's armpits to encircle the patient's chest. Press with quick, backward thrusts.*

*In the later stages of pregnancy, hands cannot be wrapped around the patient's abdomen to perform abdominal thrusts, so chest thrusts are used.*

*Back slaps are used on infants who have a complete airway obstruction but are not used on children or adults.*

*Chest compressions would only be used on an unconscious patient.*

---

**79.**

An eight-year-old male was found unresponsive on his bedroom floor. There are no signs of trauma, and the patient has a history of seizures, which are usually controlled by medication. You perform the head-tilt/chin-lift maneuver to open the patient's airway.

When you tilt the head back, what position is best to maintain an open airway?

**A neutral or slight sniffing position**

A hyperextended position

An extended position

A natural position

---

*Correct answer: A neutral or slight sniffing position*

*When doing the head-tilt/chin-lift maneuver on children, take care not to hyperextend the neck when tilting the head back. If a child's neck is hyperextended, it can occlude the airway. The best position is a neutral or slight sniffing position, where the opening of the child's ear should be at the same level as the child's shoulder. A folded towel or blanket can be placed under the child's shoulders to maintain this position if needed.*

*There is no term called an extended position.*

*If the patient was in a natural position, they would be lying as you found them. The airway needs to be opened, so the head-tilt/chin-lift maneuver should be used with the patient in a neutral or sniffing position.*

---

**80.**

Without supplemental oxygen added, how much oxygen does the bag-mask device deliver?

**21%**

90%

24%

44%

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*Correct answer: 21%*

*Without supplemental oxygen added, the bag-mask device delivers 21% oxygen, which is the percentage of oxygen in room air.*

*When supplemental oxygen is added to the device, the patient receives up to 90% oxygen. For that reason, it is always recommended to use supplemental oxygen with a bag-mask device if available.*

*A nasal cannula can deliver 24% to 44% oxygen when the flow is set to 1 to 6 liters per minute.*

---

**81.**

During a mass-casualty incident (MCI), you assess a patient who is breathing fewer than 30 breaths per minute.

What is the next step in management?

**Begin circulation and mental status observations**

Move to the next patient

Apply a non-rebreather mask at 15 liters per minute

Apply a nasal cannula at 6 liters per minute

---

*Correct answer: Begin circulation and mental status observations*

*During an MCI, if a patient is breathing at a rate below 30 breaths per minute, begin circulation and mental status observations. To do this, check the patient's carotid pulse and have them follow a simple command.*

*Do not switch to the next patient until all three steps of triage—breathing, circulation, and mental status—have been completed.*

*An MCI does not allow enough time or resources to apply oxygen to patients. Oxygen administration is done when more personnel and resources arrive or during transport.*

---

**82.**

You are on scene with a 10-month-old female who possibly swallowed a bobby pin while crawling. The patient is in no obvious respiratory distress and appears alert. What should you do next?

**Arrange for prompt transport to an appropriate medical facility**

Call the patient's pediatrician for advice

Have the mother observe the child and call 911 if needed

Call medical control for advice

---

*Correct answer: Arrange for prompt transport to an appropriate medical facility*

*Patients who have swallowed sharp or straight objects such as bobby pins, bones, or safety pins need to be promptly transported to an appropriate medical facility. Round objects can more easily pass through the intestinal tract and stomach, but straight or sharp objects need special instruments and techniques for removal.*

*Calling the patient's pediatrician or medical control for advice is not recommended. Prompt transport to a medical facility is required.*

*Since the infant needs medical intervention, observation by a parent is not sufficient.*

---

**83.**

A patient who experienced a motorcycle accident has a suspected spinal injury. You attempt to open the patient's airway using the jaw-thrust maneuver but are unsuccessful and do not see the patient's chest rise with ventilation.

What should be the next step in managing the patient's airway?

**Attempt the head tilt-chin lift maneuver and provide ventilation**

Try five abdominal thrusts and then provide ventilation

Perform a finger sweep and provide ventilation

Keep the head neutral and provide ventilation

---

*Correct answer: Attempt the head tilt-chin lift maneuver and provide ventilation*

*If the jaw-thrust maneuver is ineffective in opening the patient's airway, the head tilt-chin lift can be used as a second attempt. Next, provide ventilation and look for a chest rise with each ventilation. The head tilt-chin lift is not the first choice for a patient with a suspected spinal injury, but if a patient is unable to manage their airway, they will not receive oxygen. Managing the airway is the first priority in this scenario.*

*Since this patient does not have any sign of an obstructed airway from a foreign body, abdominal thrusts or a finger sweep are not indicated.*

*Keeping the head in a neutral position will not resolve a tongue-blocked airway. The head tilt-chin lift maneuver needs to be performed.*

---

**84.**

You have responded to a local park for a 10-year-old female with difficulty breathing. The patient's mother says the child has a history of asthma and left her inhaler at home. Her husband is en route with the inhaler. The patient is in obvious respiratory distress with audible wheezes. The father arrives with the inhaler as you finish obtaining vital signs.

What is the next step in treating this patient?

**Help a parent administer the patient's medication**

Administer supplemental oxygen

Contact the patient's physician for advice

Transport to the emergency department

---

*Correct answer: Help a parent administer the patient's medication*

*The patient needs her asthma medication before any other treatment takes place. Asthma causes spasms and inflammation of the smaller airways in the lungs, and patients usually present with audible wheezing. Some asthma medications help relax the airways to facilitate easier breathing, while others reduce airway swelling and inflammation.*

*Administering oxygen can help the patient with her breathing, but the first priority is to help administer the patient's medication.*

*The parents can call their physician for advice if they wish, but the medication will likely help with the patient's breathing. It is not the EMR's responsibility to contact the patient's physician for advice.*

*If the parents want the patient to be transported to the ED for an assessment, you can provide transport. This would be decided after the patient's father arrives with the inhaler.*

---

**85.**

You are an off-duty EMR enjoying a picnic in the park with your family when your daughter points to a young boy who appears to be choking. You see a young male coughing forcefully, and you quickly offer help. The boy's parents say he was eating a piece of chicken when he started coughing, but nothing has been expelled from his mouth.

What is the best course of action?

**Encourage the boy to keep coughing and suggest rapid transport to a hospital**

Give five back slaps and suggest rapid transport to a hospital

Give five chest thrusts and suggest rapid transport to a hospital

Give five abdominal thrusts and suggest rapid transport to a hospital

---

*Correct answer: Encourage the boy to keep coughing and suggest rapid transport to a hospital*

*When a patient has a partial or mild airway obstruction, they are able to gag and cough. This indicates that some air is passing around the obstruction. The most effective treatment for a patient with a mildly obstructed airway is to encourage them to keep coughing. Coughing is the most effective way of expelling a foreign object. If the patient cannot expel the object by coughing, they need rapid transport to a hospital for removal if needed.*

*Back slaps and chest thrusts are performed on conscious infants who have a severe airway obstruction. They are not used on children or adults.*

*Abdominal thrusts are recommended for children and adults with a severe airway obstruction. Since the patient is coughing, he does not have a severe airway obstruction, and abdominal thrusts are not recommended.*

---

**86.**

You are a new EMR working for a volunteer fire department. At a weekly training session, the chief asks you to assemble a portable oxygen tank for the medical bag. He then asks you how much oxygen can be delivered through the flowmeter.

What is the correct response?

**1 to 15 liters per minute**

1 to 10 liters per minute

0.1 to 15 liters per minute

1 to 12 liters per minute

*Correct answer: 1 to 15 liters per minute*

*The flowmeter can be adjusted to deliver supplemental oxygen between 1 and 15 liters per minute. Oxygen in the cylinder is stored at 2,000 psi. Oxygen can only be used when the pressure in the tank is regulated to 50 psi, which is achieved by using the pressure regulator. The pressure regulator and the flowmeter are a single unit that is attached to the outlet of the oxygen cylinder. After the pressure has been reduced, the flowmeter can be adjusted to deliver 1 to 15 liters per minute.*

*The flowmeter can go as high as 15 liters per minute and as low as 1 liter per minute.*

---

87.

What does a pulse oximeter assess when it is used on a patient's fingertip or earlobe?

**The amount of oxygen saturation in red blood cells**

The amount of oxygen saturation in white blood cells

The amount of oxygen saturation in plasma

The amount of oxygen saturation in platelets

---

*Correct answer: The amount of oxygen saturation in red blood cells*

*Pulse oximetry uses a photoelectric cell that measures the light that passes through a fingertip or an earlobe. The machine that performs this function is called a pulse oximeter, which consists of a sensing probe and a monitor. In a healthy patient, the normal oxygen saturation when breathing room air should be between 94% and 100%.*

*Pulse oximetry does not assess the oxygen saturation in white blood cells, plasma, or platelets.*

---

88.

Besides being smaller, how does a child's airway differ from an adult's regarding airway obstruction?

**A child's tongue is relatively larger than an adult's tongue.**

A child's tongue is relatively smaller than an adult's tongue.

A child's larynx is relatively smaller than an adult's larynx.

A child's larynx is relatively larger than an adult's larynx.

---

*Correct answer: A child's tongue is relatively larger than an adult's tongue.*

*A child's airway is smaller in diameter and shorter in length than an adult's, and it is smaller in relation to the rest of the child's body. Because of the smaller size, secretions and swelling from illnesses or trauma can easily block a child's airway. Also, a child's tongue is relatively larger than an adult's tongue and can more easily block their airway.*

*The larynx in children is located more anteriorly than an adult's, but the larynx does not cause airway obstruction.*

---

**89.**

The pediatric assessment triangle (PAT) was developed to offer a rapid impression of a pediatric patient using sight and sound. Which part of the PAT refers to breathing?

**Work of breathing**

Respiratory rate

Breaths per minute

Difficulty breathing

*Correct answer: Work of breathing*

*The three parts of the PAT are appearance, work of breathing, and circulation to the skin. Work of breathing refers to how much effort the child's breathing involves. This is a more accurate indicator of a child's condition than simply counting their respiratory rate. Work of breathing considers four factors for a child:*

- *abnormal breath sounds*
- *abnormal positioning*
- *retractions of the neck or chest*
- *flaring of the nostrils*

*The respiratory rate is not one of the parts of the PAT. Determining the respiratory rate will be done later in the patient assessment.*

*Breaths per minute are the same as the patient's respiratory rate, which is performed later.*

*Difficulty breathing is not part of the PAT.*

---

**90.**

You are a solo rescuer providing ventilation for a patient. When using your hands to seal a mask using a bag-mask device, which technique should be used to make the seal?

**The E-C clamp technique**

The B-C clamp technique

The E-D clamp technique

The A-C clamp technique

---

*Correct answer: The E-C clamp technique*

*To provide one-rescuer ventilation to a patient, seal a mask using a bag-mask device using the E-C clamp technique. Using your middle, ring, and little fingers, make an "E." Place these three fingers of one hand under the angle of the jaw, lifting upward. With the same hand, make a "C" with the index finger and the thumb. Place the "C" over the mask. Clamp the mask by lifting the jaw and bringing the mask in contact with the jaw. Continue to hold this position and use the other hand to squeeze the bag on the bag-mask device.*

*There are no clamp techniques called the B-C, E-D, or A-C.*

---

**91.**

What is an adult's normal breathing rate at rest?

**12 to 20 breaths per minute**

12 to 14 breaths per minute

8 to 12 breaths per minute

15 to 24 breaths per minute

*Correct answer: 12 to 20 breaths per minute*

*Normally, an adult has a resting breathing rate of 12 to 20 breaths per minute, depending on their age, fitness level, and health. A fit, healthy person will typically have a lower resting breathing rate. Each breath includes inhalation and exhalation and can be observed by watching the rise and fall of the patient's chest. At a breathing rate of 12 to 20 breaths per minute, carbon dioxide exits the lungs at the same rate that the body produces it.*

*Anything less than 12 breaths per minute can be cause for concern, especially when the breathing rate is below 8. Patients with a decreased respiratory rate will need assisted ventilation. A breathing rate above 20 breaths per minute is also a cause for concern. A rapid breathing rate can be attributed to asthma, anxiety, lung infection, or heart failure.*

---

92.

What is the most common airway obstruction noted in unconscious patients?

**The tongue**

A foreign body

Blood

Vomit

---

*Correct answer: The tongue*

*When a patient is unconscious, the tongue relaxes into the upper airway, causing an obstruction. For this reason, the head-tilt/chin-lift and jaw-thrust maneuvers are used to open the patient's airway, which keeps the tongue from blocking it. Airway adjuncts can keep the tongue from relaxing into the airway.*

*A foreign body, blood, and vomit can also cause an airway obstruction, but the tongue is the most common culprit.*

---

**93.**

You are working as a volunteer EMR and firefighter and have responded to a call for an asthma attack. You are alone on the call with the 12-year-old male patient and his parents. The patient is in respiratory distress with audible wheezing. The patient's mother says they ran out of the patient's medication, and local protocols do not allow you to carry oxygen in your jump kit. You inform dispatch that an advanced life support (ALS) unit should respond.

What can you do to help the patient's breathing until the ALS unit arrives?

**Ask the patient to purse their lips as if blowing up a balloon and blow forcefully upon expiration**

Ask the patient to purse their lips as if blowing up a balloon and blow slowly upon expiration

Ask the patient to purse their lips as if blowing up a balloon and hold their breath for 3 seconds before expiration

Ask the patient to purse their lips as if blowing up a balloon and blow for 5 seconds upon expiration

---

*Correct answer: Ask the patient to purse their lips as if blowing up a balloon and blow forcefully upon expiration*

*When there is a delay in a patient receiving medication or oxygen during an asthma attack, ask the patient to sit down, purse their lips as if blowing up a balloon, and blow forcefully upon expiration. Breathing through pursed lips helps in two ways: the parents and the patient see something is being done to help the patient, and this method relieves some of the internal lung pressure that is causing the asthma attack.*

*Exhaling slowly does not have the same effect on internal lung pressure.*

*When a patient is having an asthma attack, they should not hold their breath or blow for five seconds. They are already anxious from difficulty breathing and lack of oxygen, and it is important to help them remain calm.*

---

**94.**

At the start of an ambulance shift, you check the rig to make sure everything is stocked and ready. You notice the main oxygen cylinder has 700 psi, and the portable cylinder is 300 psi.

When should an oxygen cylinder be replaced with a full cylinder for emergency use?

**When the cylinder contains under 500 psi**

When the cylinder contains under 700 psi

When the cylinder contains under 600 psi

When the cylinder contains under 1,000 psi

---

*Correct answer: When the cylinder contains under 500 psi*

*Oxygen cylinders should be replaced when the cylinder contains under 500 psi. An oxygen pressure below 500 psi is considered too low for emergency use and should be replaced with a full cylinder that contains 2,000 psi.*

*If the cylinder contains over 500 psi, there is enough remaining oxygen for emergency use.*

---

95.

Which of the following is **not** one of the three common respiratory emergencies that affect pediatric patients?

**Pneumonia**

Asthma

Croup

Epiglottitis

---

*Correct answer: Pneumonia*

*Pneumonia is an infection that inflames the air sacs in one or both lungs. It is caused by viruses, bacteria, and fungi and chiefly affects older adults. Pediatric patients can develop pneumonia, but it is not one of the three most common respiratory emergencies (i.e., asthma, croup, and epiglottitis) in pediatric patients.*

---

**96.**

Which of the following is not a symptom of epiglottitis?

**The patient is lying down**

The patient is sitting upright

The patient cannot swallow

The patient is drooling

---

*Correct answer: The patient is lying down*

*Epiglottitis is a severe respiratory emergency that usually occurs in children ages 3 to 6 years. Epiglottitis is a severe inflammation of the epiglottis that completely blocks air movement into the trachea. The patient will not tolerate lying down since they are having trouble breathing.*

*Symptoms of epiglottitis include the following:*

- *The patient is sitting upright*
  - *The patient cannot swallow*
  - *The patient is drooling*
  - *The patient cannot cough*
  - *The patient is frightened and anxious*
  - *Their chin is thrust forward*
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**97.**

A patient with a stoma has had which body part removed?

**The larynx**

The nasopharynx

The trachea

The oropharynx

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*Correct answer: The larynx*

*When a patient has a stoma, their larynx has been surgically removed due to cancer, an injury, radiation, or another type of disease. This type of surgery is called a laryngectomy.*

*The nasopharynx is the upper part of the throat behind the nose. If surgery was performed on the nasopharynx, it would not leave the patient with a stoma.*

*When the larynx (voice box) is removed, the patient cannot speak because the windpipe (trachea) is separated from the throat. Air can no longer be sent from the lungs through the mouth to speak.*

*The oropharynx is in the middle part of the throat behind the mouth. If a patient had surgery on the oropharynx, they would not be left with a stoma.*

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**98.**

Your EMS unit has been dispatched to a boating dock for a 39-year-old male with difficulty breathing. When you arrive, the boat captain on a scuba diving tour boat says the patient started to panic underwater and ascended faster than he should have. You start assessing the patient and notice pink froth coming from his mouth and nose. He complains of chest pain and shortness of breath. The patient has no medical history and takes no medication.

What is the patient most likely experiencing?

**Air embolism**

Stroke

Heart attack

Chronic obstructive pulmonary disease

*Correct answer: Air embolism*

*Two specialized injuries associated with scuba diving. One is air embolism, and the other is decompression sickness. Usually, an EMR cannot differentiate between the two conditions, which are caused by air bubbles being released into the body as a result of the pressure changes when diving. If an air embolism causes a collapsed lung, the signs and symptoms are chest pain, shortness of breath, and pink or bloody froth coming from the mouth, nose, or both.*

*If an air embolism affects the brain or spinal cord, the signs and symptoms may resemble a stroke.*

*The patient is having chest pain due to a collapsed lung, not because of a heart attack. Any patient with chest pain should raise suspicion for cardiac causes, but this patient has the characteristic signs and symptoms of air embolism.*

*The patient has no medical history, so chronic obstructive pulmonary disease is unlikely.*

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