



Respiratory System

Total points **8/38**

In normal breathing, what is the main muscle(s) involved in inspiration?

0/1

The diaphragm

The lungs

The intercostal

All of the above

Correct answer

The diaphragm

What is respiration?

1/1

- The movement of air into and out of the lungs to continually refresh the gases there, commonly called 'breathing'



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- Movement of oxygen from the lungs into the blood, and carbon dioxide from the lungs into the blood, commonly called 'gaseous exchange'
- Movement of oxygen from blood to the cells, and of carbon dioxide from the cells to the blood
- The transport of oxygen from the outside air to the cells within tissues, and the transport of carbon dioxide in the opposite direction

What should be included in your initial assessment of your patient's respiratory status?

0/1

- Review the patient's notes and charts, to obtain the patient's history.
- Review the results of routine investigations.
- Observe the patient's breathing for ease and comfort, rate and pattern.
- Perform a systematic examination and ask the relatives for the patient's history.



Correct answer

Observe the patient's breathing for ease and comfort, rate and pattern.

What is the most accurate method of calculating a respiratory rate?

0/1

- Counting the number of respiratory cycles in 15 seconds and multiplying by 4
- Counting the number of respiratory cycles in 1 minute
One cycle is equal to the complete rise and fall of the patient's chest
- Not telling the patient as this may make them conscious of their breathing pattern and influence the accuracy of the rate
- Placing your hand on the patient's chest and counting the number of respiratory cycles in 30 seconds and multiplying by 2

Correct answer



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Counting the number of respiratory cycles in 1 minute One cycle is equal to the complete rise and fall of the patient's chest

What should be included in a prescription for oxygen therapy?

0/1

- You don't need a prescription for oxygen unless in an emergency
- The date it should commence, the doctor's signature and bleep number
- The type of oxygen delivery system, inspired oxygen percentage and duration of the therapy
- You only need a prescription if the patient is going to have home oxygen

Correct answer

The type of oxygen delivery system, inspired oxygen percentage and duration of the therapy



You are caring for a patient with a tracheostomy in situ who requires frequent suctioning. How long should you suction for?

0/1

- If you preoxygenate the patient, you can insert the catheter for 45 seconds
- Never insert the catheter for longer than 10-15 seconds
- Monitor the patient's oxygen saturations and suction for 30 seconds
- Suction for 50 seconds and send a specimen to the laboratory if the secretions are purulent

Correct answer

Never insert the catheter for longer than 10-15 seconds

You are caring for a patient with a history of COAD who is requiring 70% humidified oxygen via a facemask. You are monitoring his response to therapy by observing his colour, degree of respiratory distress and respiratory rate. The patient's oxygen saturations have been between 95% and



98%. In addition, the doctor has been taking arterial blood gases. What is the reason for this?

0/1

- Oximeters may be unreliable under certain circumstances, eg if tissue perfusion is poor, if the environment is cold and if the patient's nails are covered with nail polish
- Arterial blood gases should be sampled if the patient is receiving >60% oxygen
- Pulse oximeters provide excellent evidence of oxygenation, but they do not measure the adequacy of ventilation
- Arterial blood gases measure both oxygen and carbon dioxide levels and therefore give an indication of both ventilation and oxygenation

Correct answer

Arterial blood gases measure both oxygen and carbon dioxide levels and therefore give an indication of both ventilation and oxygenation



When using nasal cannulae, the maximum oxygen flow rate that should be used is 6 litres/min. Why?

0/1

- Nasal cannulae are only capable of delivering an inspired oxygen concentration between 24% and 40%
- For any given flow rate, the inspired oxygen concentration will vary between breaths, as it depends upon the rate and depth of the patient's breath and the inspiratory flow rate
- Higher rates can cause nasal mucosal drying and may lead to epistaxis
- If oxygen is administered at greater than 40% it should be humidified You cannot humidify oxygen via nasal cannulae

Correct answer

Higher rates can cause nasal mucosal drying and may lead to epistaxis

Why is it essential to humidify oxygen used during respiratory therapy?



0/1

- Oxygen is a very hot gas so if humidification isn't used, the oxygen will burn the respiratory tract and cause considerable pain for the patient when they breathe
- Oxygen is a dry gas which can cause evaporation of water from the respiratory tract and lead to thickened mucus in the airways, reduction of the movement of cilia and increased susceptibility to respiratory infection
- Humidification cleans the oxygen as it is administered to ensure it is free from any aerobic pathogens before it is inhaled by the patient
- Humidifying oxygen adds hydrogen to it, which makes it easier for oxygen to be absorbed to the blood in the lungs This means the cells that need it for intracellular function have their needs met in a more timely manner

Correct answer

Oxygen is a dry gas which can cause evaporation of water from the respiratory tract and lead to thickened mucus in the airways, reduction of the movement of cilia and increased susceptibility to respiratory infection



In a fully saturated haemoglobin molecule, responsible for carrying oxygen to the body's tissues, how many of its haem sites are bound with oxygen?

1/1

2

4

6

8

Prior to sending a patient home on oxygen, healthcare providers must ensure the patient and family understand the dangers of smoking in an oxygen-rich environment.

Why is this necessary?

0/1

- It is especially dangerous to the patient's health to smoke while using oxygen
- Oxygen is highly flammable and there is a risk of fire
- Oxygen and cigarette smoke can combine to produce a poisonous mixture



- Oxygen can lead to an increased consumption of cigarettes

Correct answer

Oxygen is highly flammable and there is a risk of fire

Which is not considered in an oxygen prescription?

0/1

- It should be prescribed
- Regular pulse oximetry monitoring must be available in all clinical environments
- Can be given to patients who are not hypoxaemic
- It must be signed and dated

Correct answer

Can be given to patients who are not hypoxaemic

Mr Green, a COPD patient was sent home with oxygen prescription at 2 litres per minute. He is dyspnoeic, anxious and panicking when you visited him. What is your most immediate nursing action to relieve dyspnoea?



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0/1

- Call the emergency department for ambulance
- Increase O2 rate
- Tell patient to calm down in a loud voice
- Calmly instruct patient to do deep breathing

Correct answer

Calmly instruct patient to do deep breathing

Patient is in for oxygen therapy

0/1

- A prescription is required including route, method and how long
- No prescription is required unless he will use it at home
- Prescription not required for oxygen therapy

Correct answer

A prescription is required including route, method and how long

What percentage of the air we breath is made up of oxygen?

0/1

- 16%
- 21%



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- 26%
- 31%

Correct answer

21%

Which of the following oxygen masks is able to deliver between 60-90% of oxygen when delivered at a flow rate of 10 – 15L/min?

0/1

- Simple semi rigid plastic masks
- Nasal cannulas
- Venture high flow mask
- Non-rebreathing masks

Correct answer

Non-rebreathing masks

What do you need to consider when helping a patient with shortness of breath sit out in a chair?

0/1

- They shouldn't sit out in a chair; lying at is the only position for someone with shortness of breath so that



there are no negative effects of gravity putting pressure on the lungs

- Sitting in a reclining position with the legs elevated to reduce the use of postural muscle oxygen requirements, increasing lung volumes and optimizing perfusion for the best V/Q ratio The patient should also be kept in an environment that is quiet so they don't expend any unnecessary energy
- The patient needs to be able to sit in a forward leaning position supported by pillows They may also need access to a nebulizer and humidified oxygen so they must be in a position where this is accessible without being a risk to others
- There are two possible positions, either sitting upright or side lying Which is used is determined by the age of the patient It is also important to remember that they will always need a nebulizer and oxygen and the air temperature must be below 20° C

Correct answer

The patient needs to be able to sit in a forward leaning position supported by pillows They may also need access to



a nebulizer and humidified oxygen so they must be in a position where this is accessible without being a risk to others

Your patient has bronchitis and has difficulty in clearing his chest. What position would help to maximise the drainage of secretions?

0/1

- Lying flat on his back while using a nebulizer
- Sitting up leaning on pillows and inhaling humidified oxygen
- Lying on his side with the area to be drained uppermost after the patient has had humidified air
- Standing up in fresh air taking deep breaths

Correct answer

Lying on his side with the area to be drained uppermost after the patient has had humidified air

Many people suffering with long-term breathlessness adopt positions that will best facilitate their inspiratory muscles.



All of the following are resting positions that can help reduce the work breathing except:

0/1

- Lying flat on his back while using a nebulizer
- High side-lying with an oxygen saturation at 88-92%
- Forward lean sitting position with a temporary 2% fall in oxygen saturation
- Relaxed standing position with a temporary 4% fall in oxygen saturation

Correct answer

Lying flat on his back while using a nebuliser

Position to make breathing effective?

1/1

- Left lateral
- Supine
- Right Lateral
- High sidelying



You are caring for a 17 year old woman who has been admitted with acute exacerbation of asthma. Her peak flow readings are deteriorating and she is becoming wheezy. What would you do?

0/1

- Sit her upright, listen to her chest and refer to the chest physiotherapist
- Suggest that the patient takes her Ventolin inhaler and continue to monitor the patient
- Undertake a full set of observations to include oxygen saturations and respiratory rate Administer humidified oxygen, bronchodilators, corticosteroids and antimicrobial therapy as prescribed
- Reassure the patient: you know from reading her notes that stress and anxiety often trigger her asthma

Correct answer

Undertake a full set of observations to include oxygen saturations and respiratory rate Administer humidified oxygen, bronchodilators, corticosteroids and antimicrobial therapy as prescribed



A COPD patient is about to be discharged from the hospital.
What is the best health teaching to provide this patient?

1/1

- Increase fluid intake
- Do not use home oxygen
- **Quit smoking**
- Nebulize as needed

What ABG readings will you expect among COPD patients?

0/1

- Increased pCO₂, decreased pO₂
- Decreased pCO₂ and pO₂
- Increased pCO₂ and pO₂
- Decreased pCO₂, increased pO₂

Correct answer

Increased pCO₂, decreased pO₂

Which of the following indicates signs of severe Chronic Obstructive Pulmonary disease (COPD)?

1/1

- High pO₂ and high pCO₂
- Low pO₂ and low pCO₂



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- Low pO₂ and high pCO₂
- High pO₂ and low pCO₂

As a nurse, what health teachings will you give to a COPD patient?

0/1

- Encourage to stop smoking
- Administer oxygen inhalation as prescribed
- Enroll in a pulmonary rehabilitation programme
- All of the above

Correct answer

All of the above

Joy, a COPD patient is to be discharged in the community. As her nurse, which of the following interventions will you encourage her to do to prevent progression of disease.

1/1

- Oxygen therapy
- Breathing exercise
- Cessation of smoking
- Coughing exercise



A COPD patient is in home care. When you visit the patient, he is dyspnoeic, anxious and frightened. He is already on 2 liter oxygen with nasal cannula. What will be your action?

0/1

- Increase the flow of oxygen to 5 L
- Ask the patient to calm down
- Call the emergency service
- Give Oramorph 5 mg medications as prescribed

Correct answer

Ask the patient to calm down

Which of the following is not a cause of Type 1 (hypoxaemic) respiratory failure?

1/1

- Asthma
- Pulmonary oedema
- Drug overdose
- Granulomatous lung disease

What is the purpose of clamping a chest tube?

0/1

- To prevent further lung collapse and entry of air



- To minimize the feeling of pain on drain insertion
- To aid the drain into the correct position
- To minimize risk of infection

Correct answer

To prevent further lung collapse and entry of air

All but one is an indication for pleural tubing:

0/1

- Pneumothorax
- Abnormal blood clotting screen or low platelet count
- Malignant pleural effusion
- Post-operative, for example thoracotomy, cardiac surgery

Correct answer

Abnormal blood clotting screen or low platelet count

Which of the following is an indication for intrapleural chest drain insertion?

0/1

- Pneumothorax
- Tuberculosis
- Asthma



- Malignancy of lungs

Correct answer

Pneumothorax

The three most significant life-threatening emergency situations with a tracheostomy tube include:

0/1

- Blockage, displacement, vagal reflex
- Blockage, displacement, hypoxia
- Blockage, displacement, haemorrhage
- Blockage, displacement, raised ICP

Correct answer

Blockage, displacement, haemorrhage

Which of the following is a potential complication of putting an oropharyngeal airway adjunct:

0/1

- Retching, vomiting
- Bradycardia
- Obstruction
- Nasal injury



Correct answer

Obstruction

When an oropharyngeal airway is inserted properly, what is the sign?

0/1

- Airway obstruction
- Retching and vomiting
- Bradycardia
- Tachycardia

Correct answer

Retching and vomiting

Common cause of airway obstruction in an unconscious patient

0/1

- Oropharyngeal tumor
- Laryngeal cyst
- Obstruction of foreign body
- Tongue falling back

Correct answer



Tongue falling back

Although oxygen is essential for every cell in the body, the body's need to rid itself of carbon dioxide is the most vital stimulus to respiration in a healthy person (Marieb and Hoehn, 2010). Which medication should the nurse anticipate the doctor to prescribe on a patient with respiratory acidosis?

0/1

- Oxygen therapy
- Bronchodilator
- Sodium chloride
- Sodium bicarbonate

Correct answer

Bronchodilator

A male patient for surgery in one hour is hyperventilating. What should the nurse do first to reduce the risk of respiratory alkalosis?

1/1

- **Teach the patient breathing techniques**
- Have the patient breathe into a paper bag
- Encourage the patient to try to remain calm



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- Position the patient in a high-Fowler position

A nurse identifies clubbing when assessing a patient's hands. Which conclusion can the nurse make concerning this observation?

0/1

- The patient has liver disease
- The patient has diabetes mellitus
- The patient has a nutritional deficiency
- The patient has a long-term oxygen deficit

Correct answer

The patient has a long-term oxygen deficit