

Webinar etiquette



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Respiratory Assessment and care

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Respiratory Care

By the end of this training you will be able to:

- Conduct a respiratory assessment
- Recognise respiratory distress and deterioration
- Act/Escalate appropriately

Contents

- Respiratory System
- Chest assessment
- Signs of respiratory comprise
- Interventions
- Covid-19

The Respiratory System





The Respiratory System

- Primary purpose of respiratory system.
- Gas exchange taking in oxygen and expelling CO₂
- For this to happen the alveoli wall need to expand freely on inspiration (ventilation) and blood reaches the capillaries adequately (perfusion).
- An assault to either of the ventilation or/and perfusion system can result in compromise to gas exchange leading to Type 1 or Type 2 Respiratory failure.

Gas Exchange...



What is normal?

- Respiratory rates: 12 20 breaths per minute
- Regular breathing pattern, normal depth & frequency without accessory muscles
- Peripheral Oxygen saturation (SpO₂) : 96% or above (non COPD). 88-92% (in COPD patients) as per NEWS2.
- NICE guideline for known Non COPD Covid 19 positive patients is to escalate if SpO2 is below 94%
- Patients are:
 - Well perfused
 - Able to speak in full sentences
 - Look comfortable
 - Can cough and clear secretions

Chest assessment

- Inspection/observation: dyspnoea/breathlessness, use of accessory muscles (suggests increased work of breathing). Check the respiratory rate_12 20 breaths per minute at rest, pattern of breathing (rapid shallow breathing or a prolonged expiration). Colour of tongue and inside of lips (central cyanosis).
- Palpation: Severe CO₂ retention can cause warm hands, a bounding pulse, and a coarse irregular flapping tremor, symmetrical rising of the chest on inspiration and lowering on expiration.
- **Observations**: SpO2: >96%, RR: 12-20bpm, HR: 51 -90bpm, remember to check patients base line
- Auscultation: allows an appreciation of the intensity and quality of breath sounds and the presence of additional sounds best described as crackles, wheezes, and rubs.

Signs of respiratory comprise

- Increased work of breathing which can be associated with increased Respiratory Rate (>20bpm) and Heart Rate— shallow rapid breaths
- Drop in SpO_2 <96% on room air (94% if known Covid +)
- Patient reported perception of breathlessness.
- Increased breathlessness on minimal exertion
- Breathing with accessory muscles
- Increased Cough productive or unproductive/difficulty clearing own secretions.
- Consider Covid-19 with new continuous cough

Interventions

- Breath control exercises
- Positioning
- Teach secretion clearance techniques if indicated
- Sustained drop in SpO₂ (<96% on room air) and increased Respiratory rate and heart rate patient to be transferred to an inpatient unit/acute hospital. e.g. call ambulance? Get urgent medical review?

Inpatient Nursing Interventions

Patients who are breathless with COVID-19 may feel anxious or even terrified. This may increase the patient's respiratory rate. For these patients, a calm and gentle approach is vital and may help with symptom control.

- Give enough oxygen to maintain SaO₂ 94%-98% and review regularly
- COPD patients (who require target oxygenated SaO₂) maintain SaO₂ 88%-92%
- Regular observations follow NEWS2 flowchart and escalate early
- Maintain good positioning
- Ensure adequate hydration & nutrition (complete MUST Score)
- Ensure regular mouth care
- Regular pressure area care
- Timely medications
- Deep nasopharyngeal swabs (green) and sputum specimens
- Ensure patients cough into a tissue and dispose of sputum according to hospital infection control guidelines.
- Consider referral to Physiotherapy
- Reassure patient/family and provide regular updates on care

Why Positioning Helps

Sitting the patient up, in an upright position is best because it aids diaphragmatic movement and increased alveoli expansion (recruitment). The most effective respiration occurs in the Inferior or lower lobes. Ask your patient to take regular deep breaths.



Covid 19 Symptoms

- A high temperature
- A new, continuous cough
 - Coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours
 - If you usually have a cough, it may be worse than usual
- A loss or change to your sense of smell or taste they have noticed they cannot smell or taste anything, or things smell or taste different to normal

Covid - 19

- Mild form of the disease include symptoms such as: fever, cough, sore throat, fatigue and aching muscles
- Some develop more serious symptoms: Respiratory failure, pneumonia or sepsis
- A small number of patients will develop Acute Respiratory Distress Syndrome (ARDS) and multiple organ failure
- Have a very low threshold for escalation to expert help in any suspected Covid 19
 patient with reduced saturations and increased work of breathing or
 breathlessness- irrespective of NEWS2 score
- Always check DNAR status and advanced directives and signpost to specialist palliative care services as appropriate

Pneumonia

Pneumonia has the following effects:

• The virus attacks the lungs

• Alveoli fill with protein, red and white blood cells, bacteria and/or pus

• Oxygen exchange in the alveoli become impaired resulting in acute hypoxaemia

• Leads to Type I respiratory failure if not treated swiftly



Warning Signs of Patient Respiratory Deterioration

EARLY SIGNS	INTERMEDIATE SIGNS	LATE SIGNS
Respiratory Rate > 18-22bpm	Respiratory Rate >24bpm	Reduced Respiratory Rate
Shallow rapid breaths	Unable to talk in sentences	Abnormal breathing pattern
SaO ₂ <94% on air	SaO ₂ < 91% on air or <94% on oxygen	< 90% SaO ₂
Using accessory muscles	Using accessory muscles i.e. breathing looks like hard work, abdominal breathing	Patient tiring or fatigued
Distressed or anxious	Restlessness or panic	Altered level of consciousness (Confusion, drowsiness or unresponsive)
Pale A struggle to clear their own phlegm/sputum Sitting forward bracing themselves (tripoding)	Pursing their lips or flaring their nostrils when breathing New sounds such as wheezing, grunting or stridor	Cyanosis Pale/grey/blue lips, mucous membranes or nail beds. Cyanosis is a late sign. (For people with a darker skin tone look at their tongue to assess for cyanosis)

PLEASE NOTE: The higher the oxygen requirement needed to keep SaO₂ >94% the sicker the patient.

Escalate using SBAR

SITUATION	WHAT IS HAPPENNING AT THE PRESENT TIME
BACKGROUND	What are the circumstances leading up to this situation
ASSESSMENT	What is the current NEWS2 score and other key findings
RECOMMENDATIONS	What should the person you are calling do correct the problem

SITUATION	I HAVE A PATIENT WITH A NEWS 2 SCORE OF 12 AND RED FLAG SIGNS OF SEPSIS
BACKGROUND	Mr Uddin is a 58 year old gentleman, known to be diabetic and otherwise fit and well. He has developed a cough two days ago is displaying possible signs of coronavirus
ASSESSMENT	His Oxygen saturations are 90%, respiratory rate 28, BP is 90/50 heart rate 120bpm, temperature 38.5. He is alert but distressed and he says he hasn't passed any urine since last night
RECOMMENDATIONS	I need you to review him urgently as he needs a higher level of care

Conclusion

- Respiratory assessment is important in identifying patients who are deteriorating
- NEWS2 is a vital component of this assessment
- Patients with COVID-19 are at risk of pneumonia, sepsis and acute respiratory distress syndrome
- Patients who are deteriorating need urgent medical assistance
- Call for help using SBAR

Useful resources

- <u>https://www.england.nhs.uk/coronavirus/publication/specialty-guides/</u>
- <u>https://www.nice.org.uk/guidance/NG165</u>
- https://www.nice.org.uk/guidance/NG163
- <u>https://www.wcpt.org/sites/wcpt.org/files/files/wcptnews/images/Physiotherapy_Guideline_COVID-19_FINAL.pdf</u>
- Additional on-line teaching
 - https://learn.nes.nhs.scot/

<u>Covid-19 ICU Remote learning course</u>: space to train around 30-40 physios per day. You can do it from home on your laptop. It's a 9-5 package and you'll need audio function. Contact Terri.stewart@nhs.net for furtehr details

Health Education England have produced this <u>e-learning</u> which includes key materials to help the health and care workforce respond to Coronavirus.

Physiopedia COVID-19 online learning - please note, an account is required but this is free of charge, as is the learning package.

Respiratory on-call e-learning modules from the Chartered Society of Physiotherapy

Online learning resources for respiratory physiotherapy with COVID-19 patients - CSP pages (NHS Education for Scotland)





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Recognition of the physically deteriorating patient

Rozi Hamilton

What causes patients to deteriorate? (Generally and in Covid 19)

Early recognition of the critically ill patient is vital

- Most cardiac arrests are predictable
- Deterioration prior to
 50 80% of cardiac arrests
- Hypoxia and hypotension are common antecedents
- Delays in referral to higher levels of care



Assessment and Recognition of Deterioration

- Mental alertness/ conscious state
- Respiratory rate
- SpO2
- Pulse
- Blood pressure/ Capillary refil
- Temperature
- Use NEWS2
- Escalate using SBAR and Document

A	Airway
B	Breathing
C	Circulation
D	Disability
E	Exposure

Escalate using SBAR

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AIRWAY

Signs of Airway Problems	Causes of Airway Problems
Voice changes	CNS depressionMedications prescribed: benzodiazepines, opiates
Noisy breathing: stridor, wheeze, gurgling	Illicit Drug use/ Alcohol abuseHead Injury
Change in skin Colour	Airway obstruction- blood, vomit or foreign body
Shortness of breath/ difficulty in breathing	Infection/inflammation
Agitation and/or distress	Trauma- Ligature
Choking	Laryngospasm
Throat grabbing/ Continuous coughing with Covid - 19	Bronchospasm- asthma and anaphylaxis
	Anaphylaxis- angioedema

Signs of Breathing Problems

• Look

• Respiratory distress, Accessory muscle use, Cyanosis, High or low respiratory rate, agitation or reduced conscious level, symmetry.

Listen

ONoisy breathing, breath sounds, auscultation

• Feel

OChest expansion/ movement

Causes of Breathing Problems

Decreased

respiratory effort

Muscle weakness Nerve damage Medication

Decreased respiratory

drive

CNS depression Sedation Rapid tranquilisation

Lung disorders

Covid- 19 Infection Acute exacerbation COPD Asthma Pulmonary embolus

CIRCULATION

Signs of circulatory problems	Causes of circulatory problems
Abnormal Pulse/Heart Rate- fast, slow, weak, bounding	 Reduced Circulating Volume Fluid Losses- Poor fluid intake, Diarrhoea Bleeding Sepsis
Poor Peripheral Perfusion- delayed capillary refill time/pallor	Coronary Heart Disease- Arrhythmias, Heart attacks, Heart failure
Abnormal Blood Pressure Hypotension • Chest pain • Dizziness • Low urine output • Altered conscious level • Confusion • Agitation • Reduced consciousness Hypertension • Headache • Blurred vision	Medications Arrhythmias • Anti-arrhythmic medication • Haloperidol • Chlorpromazine • Tricyclic antidepressant • Antipsychotics Hypotension Beta blockers Diuretics Antihypertensive medication

DISABILITY		
Signs of disability problems	Causes of disability problems	
 Reduced Conscious level ACVPU Glasgow Coma Scale (GCS) Confusion/ Delirium Confusion Assessment Measure (CAM) Hypoactive (quiet) delirium Hyperactive delirium 	 Medications Prescribed Self administered recreational drugs Overdose Neurological problems Head injury Stroke/Cerebral vascular Accident / Trans-Ischaemic attack / Brain Haemorrhage 	
Abnormal blood sugarHyperglycaemiaHypoglycaemia	Diabetes mellitusType 1Type 2	

Exposure

- Call for Help- if not already
- Use SBAR
 - Situation
 - Background
 - Assessment
 - Recommendation
- Check out patient for any injuries/ Rashes
- Look at the Drug Chart or MAR Chart!



Calculate the NEWS 2 score.

Are there any red scores?

Assess what action is required including how frequently you need to record the vital signs.

Community Patient Deterioration Assessment Tool (CPDAT)				
No.	Questions		Answers	
	Health:			
1.	Has there been deterioration in the patient's medical condition since the last visit?	□Yes	□No	
1.	Is any of the NEWS readings out of the normal range? (Respond if clinically required)	□Yes	□No	
1.	Is patient less mobile than they usually are?	□Yes	□No	
1.	Is patient drowsier or more confused than usual?	□Yes	□No	
1.	Has not passed urine in the last 8 hours?	□Yes	□No	
1.	Blood sugar (BM) is uncontrolled despite medication? (Respond if patient is Diabetic)	□Yes	□No	
1.	Wound appears to be deteriorating/not healing? (Respond if patient has a wound)	□Yes	□No	
1.	Patient has increased pain?	□Yes	□No	
1.	Is there a reduction in the quantity of food and fluid intake?	□Yes	□No	
1.	In the last month, has patient often been bothered by feeling down, depressed or hopeless?	□Yes	□No	
1.	In the last month, has patient often been bothered by having little interest or pleasure in doing things?	□Yes	□No	
1.	Are there any concerns raised by carers, family members or friends?	□Yes	□No	
	Social:	L TO GP.		
1.	Patient's residence is unsafe for habitation?	□Yes		
1.	Patient requires a care package or increased care package?	□Yes		
1.	Is Patient socially isolated with associated adult safe guarding concerns?	□Yes		
	*** IF YOU ANSWER YES TO ANY OF THE ABOVE, PLEASE DISCUSS URGENTLY WITH YOUR TEAM/DEPUTY TEAM LEADER AND CONSIDER REFERRAL TO SOCIAL SERVICE.			

