B for Breathing

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If you think you the patient has a significant AIRWAY or BREATHING issue

= CODE BLUE

Introduction

- This assessment and 1st line management principles is aimed for junior medical staff in non-critical care units looking after a patient with respiratory distress secondary to COVID-19
  - Clinical assessment
  - Basic management principles – what to do before assistance arrives
  - COVID-19 specifics

Clinical Assessment

1. What is their work of breathing (WOB)?
    - Mental status
    - How many words can they speak?
    - Accessory muscle use – intercostal + subcostal recession, nasal flaring
2. What is their resp rate? (actually measure it)

- Even if everything else is normal, if they look like they are about to stop breathing from exhaustion – they may just do so!

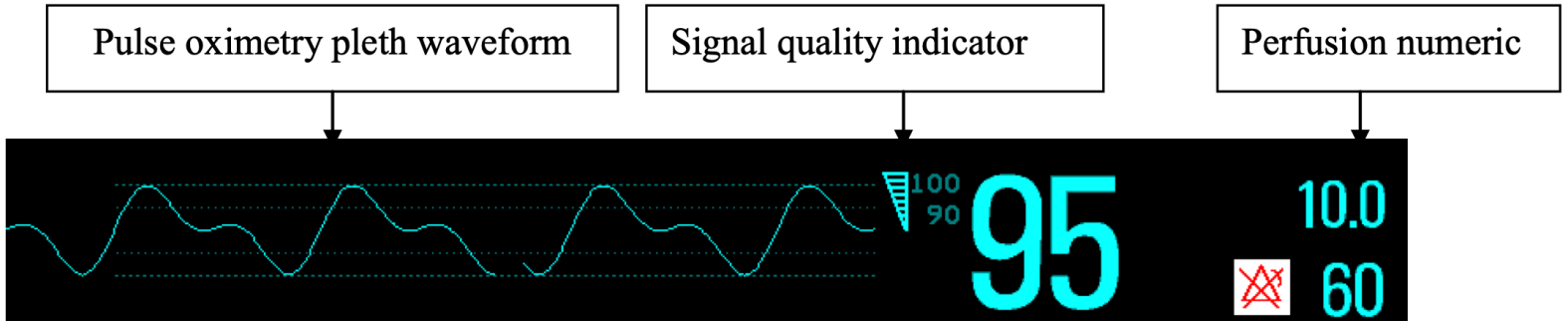
Clinical Assessment

3 What is their venous oxygen saturation on saturation probe?

- If patient in significant distress – aim 100%
- Otherwise
  - Aim >92%
  - COPD/smoker = aim >88%
- Check probe

Poor reading?

- Nail-polish/fake nails (put the probe sideways!)
- BP cuff on same arm
- Cool peripheries – strongly consider additional cardiac issue
- Ask for a central monitor



https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0005/306329/liverpoolSpO2_Monitoring.pdf

Clinical Assessment

4 Auscultation

- Is there bilateral AE to bases?
  - Is this consolidation or effusions?
  - Is there a pneumothorax?
- Is there wheeze?

Clinical Assessment

1

Work of Breathing

- Mental status
- Accessory muscle use
- Able to talk

2

Respiratory Rate

3

Oxygen Saturation

- Check the probe

4

Auscultate

Basic Management Principles

- The things you can do if
  - A) The patient is in mild distress
  - B) Before HELP arrives (i.e. Senior Reg, MET, CODE teams)

1. Patient Position

- Sit up the patient
- Support with pillows and legs up (to prevent sliding down the bed)

If a patient is too tired to sit = CODE blue

<u>Sitting vs lying</u>

- Increased lung volumes (especially reserve volumes)
- Decreases WOB (less work of the diaphragm, less effect of abdomen + chest wall)

2. Is this patient hypoxic?

Indicated by saturation probe

- If the oxygen saturation probe is low then they are hypoxic regardless of the VBG/ABG result

Increase Oxygen (inspired i.e. FiO2)

- Non-rebreather = best for COVID patients
- Hudson Mask = good too
- HFNP can be used – requires additional PPE as is aerosolizing
- NIV not recommended
- NO nebulisers (MDI is ok)

3. Is this patient hyper/hypo ventilating?

Indicated by RR + WOB

Get a blood gas

- ABG = more accurate for hypoxemia
- VBG = can be used, esp. if you are not skilled in getting an arterial gas

If they are “working hard” they need to be considered for early intubation → call ICU/CODE BLUE

4. Has this patient's clinical condition significantly changed from previously?

Yes = ESCALATE

- Order repeat CXR
  - Look for:
    - Worsening consolidation esp. bilateral infiltrates
    - Pleural effusions
    - Pneumothorax
  - NO indication for CT Chest in most patients
    - Little added diagnostic value, difficult for respiratory distress patients to lie flat, risks of transporting patients
- Repeat bloods
  - Include VBG/ABG
  - Include CRP
    - For tracking severity and prognosis
    - If normal CRP – need to consider non respiratory causes of respiratory distress

Management Summary

1

Patient position

- Sit up + support

2

Is this patient Hypoxic?

- Increase oxygen

3

Is this patient hypo/hyper ventilating?

- Get at blood gas
- Escalate

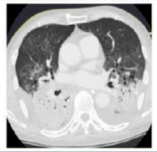
4

Has this patient deteriorated?

- Escalate
- CXR
- Repeat bloods – CRP + Blood Gas

Specific for COVID-19

- These patients may deteriorate on the wards
  - Most patients admitted to ICU are ~ day 8 of illness

Typical features according to current publications Age Mean (SD) 55,5 (13·1), Male (68%) Exposure to Huanan seafood market in Wuhan, China (49%) Chronic medical underlying illness (51%) Admission to Intensive Care Unit (23%)								
INCUBATION PERIOD and ONSET OF SYMPTOMS 3 DAYS AGO		**FIRST WEEK**				**SECOND WEEK**		
	SETTING	**WARD** Illness day 4	**WARD** Illness day 5	**WARD** Illness day 6	**WARD** Illness day 7	**WARD/ICU** Illness day 8	**ICU** Illness day 9	**ICU** Illness day 10	**ICU** Illness day 11
	REPEATED SAMPLING OF THE NASOPHARYNX AND TRACHEAL ASPIRATES (IF INTUBATED) BY rRT-PCR FOR THE COVID-19	Initial important viral shedding		Decrease of the viral shedding sometimes associated with transient respiratory deterioration		Respiratory failure, increase of the viral shedding and viremia or Decrease of the viral shedding, and superinfections			Duration of viral excretion unknown
	OXYGEN THERAPY AND MECHANICAL VENTILATION	NO		Consider oxygen support	FNC	FNC followed by MV	MV		MV
	ORGAN FAILURE	**Typical signs according to current publications** Fever, cough, and shortness of breath (15%) bilateral pneumonia (75%), lymphopenia (35%), thrombocytopenia (12%), prothrombin time decreased (30%), elevated liver enzyme levels (about 30%)		Deterioration of respiratory status with most often spontaneous recovery		ARDS If shock beware of superinfections ⚠ Possible renal failure Neurological failure unlikely Hemostasis disorders			YES
	CO-INFECTION/SUPERINFECTION	NOT LIKELY				Consider a possible HAP/VAP and other nosocomial infections (see text for diagnostic procedures)			Profound immune paralysis and late onset infections
	ANTIBIOTICS	NO				Consider antibiotic therapy			YES
	ANTIVIRAL AGENTS	NO				Consider antiviral agents if deterioration[a]			
LONG TERM INFO PENDING									

FNC = flow nasal cannula; HFNC = high flow nasal cannula; HAP = healthcare-associated pneumonia; VAP = ventilator-associated pneumonia; MV = Mechanical ventilation;
[a] The use of immunomodulation including corticosteroids is unlikely but debated

Bouadma, L., Lescure, F., Lucet, J. *et al.* Severe SARS-CoV-2 infections: practical considerations and management strategy for intensivists. *Intensive Care Med* (2020)

Specific for COVID-19

- Supportive care and early invasive airway management are the key principles in managing these patients.
  - Avoid hypervolemia (see C for Circulation for details)
  - Continue patient's regular medications to avoid other complications
- Assessing acute respiratory distress and escalating early is essential in the best management for these patients.
- Management that is generally NOT indicated, except in some specific circumstances as guided by senior clinicians.
  - NIV is not recommended (if they need this they need to be considered for intubation)
  - No nebulisers (MDI + spacer OK)
  - No antibiotics – will be considered in deteriorating patients
  - No steroids