

Cheat sheet guide to CPAP- continuous positive airway pressure

Non-invasive ventilation

This will be used for awake patients with type I respiratory failure. This means that the patient is hypoxic but not retaining carbon dioxide. Type II failure means that the patient is both hypoxic and hypercapnic.

Monitoring required

Continuous SpO₂, ECG, BP

Arterial line is desirable

Machines to be used:

1. Optiflow- this uses very high flow humidified oxygen delivered by nasal cannulae and this generates a positive pressure. It's very well patient tolerated, can eat and drink. It may not generate enough pressure to help with oxygenation so this may be used to permit breaks from tight fitting CPAP masks and/ or as part of weaning of supportive ventilation back to breathing on normal oxygen masks.
2. Trilogy 100- this will be only be used CPAP mode via tight fitting facemask or full face masks.
3. Philips V60- this will only be used in CPAP mode via tight fitting facemask or full face masks.

The trilogy and V60 will initially be used as dry circuits so do not need the extra humidification. We may introduce this at a later date.

Respiratory plan

- Patients who are getting better will often have a weaning plan to gradually build up the strength to come off the NIV support. Breaks should be permitted to enable eating and drinking as well to reduce the risk of pressure sores developing.
- Some patients may need to go onto optiflow to have a break or very high flow oxygen delivered through other face masks

When giving breaks, you must ensure the replacement oxygen delivery is ready primed to be used. Likewise, it is important to set up the machine prior to fitting it on the patient.

Initial settings for a patient new to CPAP

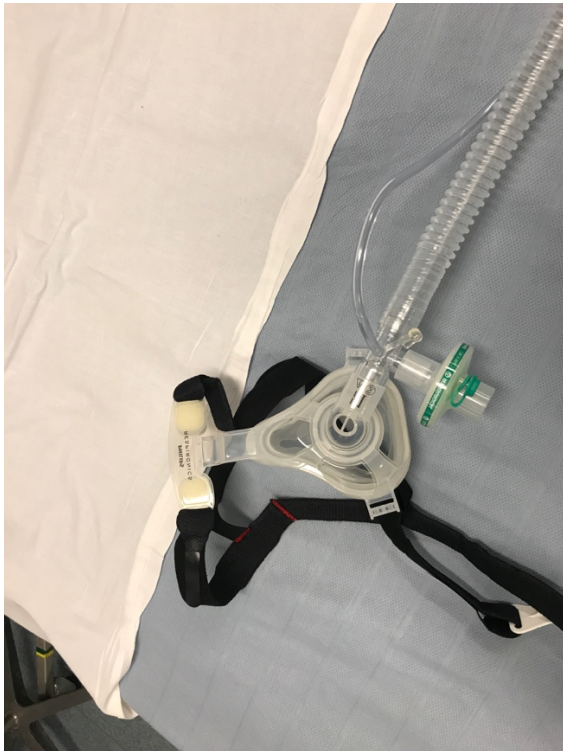
CPAP mode, pressure 10 cm water, oxygen concentration above current concentration

Adjust pressure and FiO₂ according to blood gases

If > 70-80% O₂- need to be increasing CPAP pressures

Circuits

- Use the same circuit for both trilogy and V60
- Remove the pressure line from the circuit for trilogy and bung the exposed patient end
- Use HME filters at the machine end (new circuit comes with one HME at machine end) and a the exhaust end on right angle (not where the mask fits)
- Replace filters every 24 hours or when visibly water logged



Facemask fitting

Two types of masks:

Full face mask or standard mask over mouth and nose

Variety of sizes

Need to consider claustrophobia

How to help fit is best advised by the CCU nurses and online video resources

Face mask- Leak- optimal range is 30-60 L/min

< 30- at risk of pressure sores

- 100 – like putting a patient in a fan

Disclaimer- this was written in a hurry at very short notice by Dr Siobhan King, Consultant Anaesthetist, who does not claim to be an expert in the field of Intensive Care!! Please seek advice from Critical Care or ARCU nurses and physicians.

- 60- might be ok but try to adjust

Basics of set up

Refer to quick set up manufacturer guides

Our own online videos are available at <https://anaesthetic.site/r-ccu-cpap-philips-trilogy-100-v60-machines/> but manufacturer has American videos to watch

- Both machines will alarm when not connected to oxygen supply or to the patient
- Both remember last used patient settings and alarm settings
- Try to avoid altering alarm parameters beyond standard
- There are low and high priority alarms (apnoea/ disconnection!) and these need to be acknowledged to be cleared

Whilst these machines, especially V60, are capable of delivering other non-invasive ventilation, we will be using CPAP mode only.

Patient comfort

You will need to hold the patient's hand for the first 30 mins as it's like sticking your head out of a window from a fast moving car.

Patients will think they can't breathe- it will be strange and reassure them they can!

For the trilogy 100

Think old fashioned iPod- it is not touch screen!

After turning the machine on....

There will be three things to set:

1. CPAP mode (should be default)- ignore c-flex
2. Pressure – start at 10 cmH20 for new patient
3. FiO2- start at higher than current oxygen concentration and then titrate

Press underneath “menu” in the middle



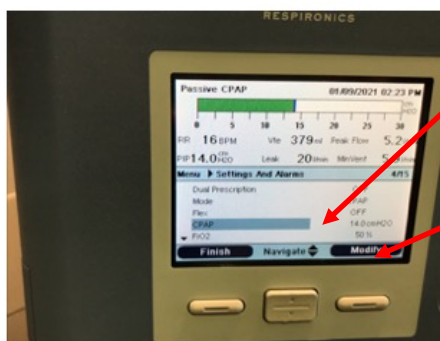
Use toggle button to scroll to “settings & alarms” and press “select”



Toggle down to highlight settings & alarms

“Select”

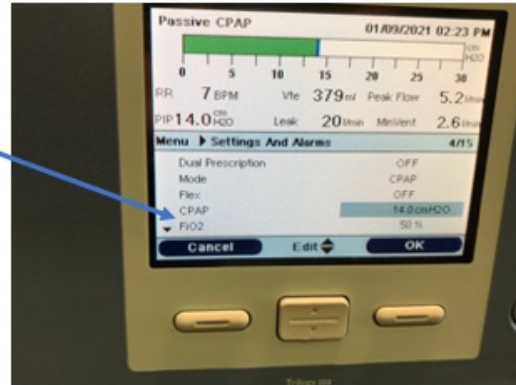
Menu of “settings & alarms”- to check ventilation mode & set CPAP pressure



- ensure “mode” says “CPAP”- (use toggle the arrow button and press “modify” to change if needed)
- Toggle down to “CPAP” & press “modify” to alter pressure

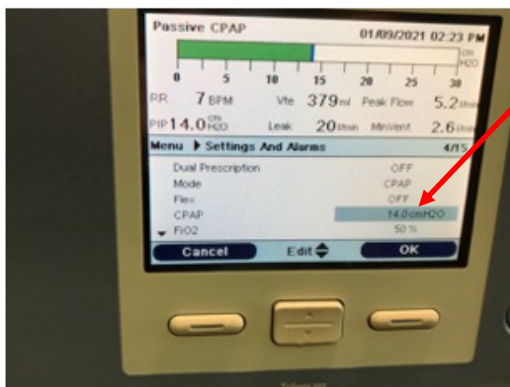
To adjust inspired oxygen (FiO₂)

- Toggle down to FiO₂ and adjust like the pressure



To alter CPAP pressure

- Toggle up & down to desired pressure & press "OK"



When desired parameters have been set, need to confirm by pressing 'finish' and then 'exit' to get back to main screen and start delivering CPAP.

Parameters displayed underneath green moving inhale/exhale graphic

- Pressure being delivered by machine
- Tidal volume that patient is generating
- Respiratory rate
- Leak from the circuit and mask that indicates how well the mask is fitted

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If you need to give emergency 100% O₂- then press button underneath and 'yes' to confirm

Emergency 100% oxygen



- Press button underneath 100% O₂
- This will need to be confirmed

Prior to turning off have alternate oxygen supply ready

To reduce aerosolization, turn off CPAP and then remove mask quickly

Disclaimer

This guide is not intended to replace the manufacturers' instructions and is merely an abridged version for ease

V60

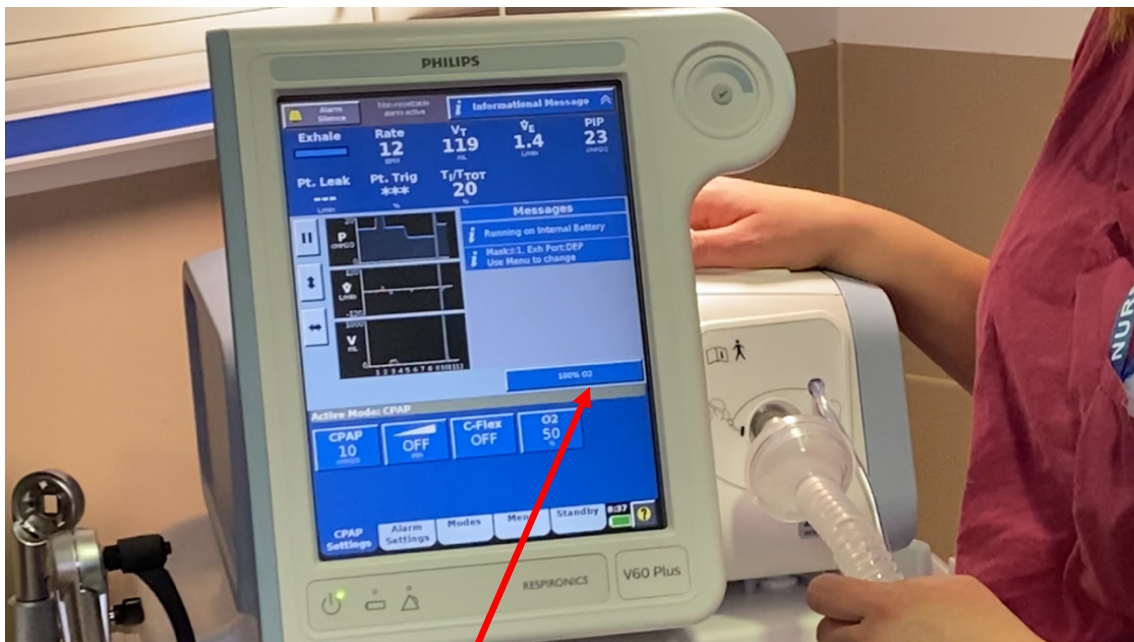
This is touch screen so it is much more intuitive

After turning the machine on....

There will be three things to set:

1. CPAP (batch) mode (should be default)- ignore c-flex and ramp
2. Pressure – start at 10 cmH20 for new patient
3. FiO2- start at higher than current oxygen concentration and then titrate

Use the touch screen or iPod wheel to adjust pressure and FiO2



If you need to give emergency 100% O2- then press button underneath and 'yes' to confirm- this will give 2 minutes to then enable you to adjust your settings

Prior to turning off have alternate oxygen supply ready

To reduce aerosolization, turn off CPAP and then remove mask quickly

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Good luck and thank you so much to all of the Theatre, Critical Care and other redeployed staff working in the Raedwald Critical Care Covid Expansion Area

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