



COVID-19 UPDATE

18 January 2021

GUIDELINE ON THE USE OF OXYGEN CONCENTRATORS

South Africa's second wave of COVID-19 infections has resulted in a significant increase of patients presenting to Mediclinic Southern Africa (MCSA) acute care facilities. One of the effects of the increase in patient volumes was a significant increase in oxygen consumption. In some of our facilities, the oxygen consumption has more than doubled when looking back at consumption during the first wave. The significant strain on our oxygen system (both volume and reticulation) has led us to investigate other sources of oxygen.

TAKE NOTE:

This device is normally used for home-based care, and should not be confused with oxygen in the acute care setting. Please take note of the following before using these devices.

General Info:

- An oxygen concentrator is a device that takes in the oxygen we normally breathe (that consists of 21% oxygen), removes other gases from the air and delivers 85-95% pure oxygen (this is NOT the FiO_2) – it just refers to the purity of the oxygen that is being delivered
- Can deliver flows between 0 & 5L/min. The current device (OLV-5) will deliver 93% pure oxygen between 0.5 & 5 L/min. The concentration of oxygen DOES not increase with the increase of flow
- Ideally, we should only use nasal cannulae on these devices based on the flow rate. The higher the flow rate, the more difficult it becomes for these devices to supply the higher concentration of oxygen
- The device needs about 10 minutes in operation before it can deliver the pure oxygen – so please consider this before putting the machine on a patient (switch on & only put the patient on after 10 minutes)
- The device runs on power supply and will therefore require an electrical point
- There are 2 filters at the back of the machine, it is first filter and second filter. Please see instruction manual for the pictures on these filters and where they fit in
- Please consult your Technical Manager & the user manual before you implement these devices in your facility

14.3 Oxygen concentration and flow diagram

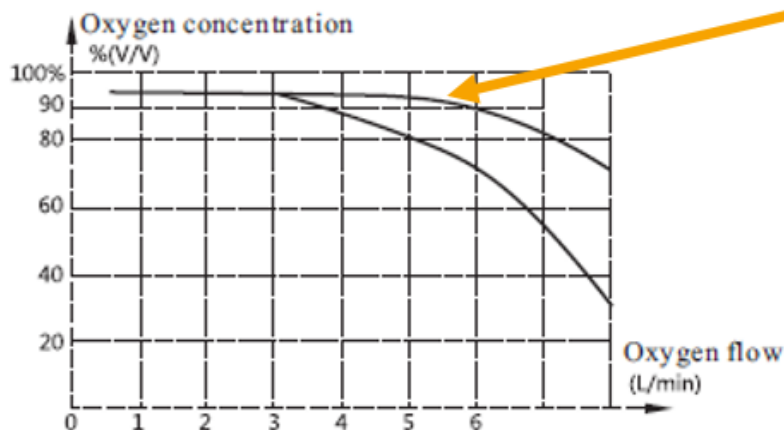


Fig. 8 Functional diagram of oxygen concentration and flow when the outlet nominal pressure is 0.

Where to use:

- These devices can be used in the EC Covid Surge Area for patients that need a low concentration of oxygen while waiting to be seen by a doctor (green & yellow patients)
- Devices can also be used for ward patients needing low flow oxygen support (nasal cannula), especially in areas where oxygen reticulation is a challenge

Infection Prevention & Control principles

- **Filters**
 - For multiple patient use at the Emergency Centre Covid Surge area:
 - Replace both filters once a week (see User Guide)
 - For single patient use in a ward:
 - Wash both filters weekly in soap and water, rinse, dry and return to machine
 - Replace both filters between patients
- **Humidifier**
 - Ideally used for patient comfort when using oxygen (oxygen concentrator can be used without humidification, but it is not recommended)
 - For multiple patient use at the Emergency Centre Covid Surge area:
 - At least 6 hourly, remove, empty and wash humidifier bottle with soap and water, rinse with clean water, then rinse with hypochlorite 1:1000 ppm to disinfect, rinse with clean water again and refill with sterile water (water from pour bottle)
 - Replace humidifier bottle once a week (simultaneously with filter change)
 - For single patient use in a ward:
 - Top up the humidifier bottle with sterile water from pour bottle (per patient) when necessary
 - Replace humidifier bottle between patients
- **Concentrator device**

- *For multiple patient use at the Emergency Centre Covid Surge area*
 - Clean the exterior of the device with moist cloth and a detergent (not a wet cloth) and then wipe with hypochlorite 1:1000ppm to disinfect all surfaces at least once per shift
- *For single patient use in a ward:*
 - Clean the exterior of the device with moist cloth and a detergent (not a wet cloth) and then wipe with hypochlorite 1:1000ppm to disinfect all surfaces between patients and during normal environmental cleaning
- **Nasal cannula**
 - Each patient must have their own nasal cannula which will be removed and used for further oxygen treatment on the same patient as needed

Patient safety

- Patients in the EC Covid Surge Area that are still awaiting doctor intervention, should as a minimum standard have a mobile oxygen saturation device to monitor the patient's oxygen saturation
- Ward patients who are receiving oxygen therapy via an oxygen concentrator in a ward, should have their normal vital signs assessments done, including oxygen saturation, as per nursing procedure
- If the oxygen saturation of the patient on the oxygen concentrator is not improving, or not maintained at an appropriate level, this should be escalated to the medical practitioner / shift leader and the patient should be moved to a more appropriate oxygen therapy device

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