

A Device for High-Flow Nasal Oxygen Therapy

Sir,

The high-flow nasal cannula (HFNC) has proved itself to be a boon during the COVID-19 pandemic by helping in avoiding the need for invasive mechanical ventilation.^[1] A recent article has also established that it poses a minimal risk as far as bio-aerosol dispersion is concerned.^[2] With the rapidly increasing number of patients, HFNC is increasing in popularity. However, the cost and availability of this device are the limiting factors that are depriving a large number of the affected population of its benefit. We describe here a device that can be assembled with readily available components in the healthcare setups in quick time. This device can be used to administer humidified oxygen at a higher flow than conventional oxygen therapy.

The resources required for these devices are; two oxygen sources (central pipeline or cylinders), two oxygen flow meters, oxygen tubings, nasal cannula and a humidifier. Humidifiers (Fischer and Paykel Healthcare Limited, Auckland, New Zealand) are provided with mechanical ventilators. In our setup, they are now replaced with heat and moisture exchange filters applied at the patient end of breathing circuit during mechanical ventilation. We attached the inlet of such a humidifier to two oxygen sources with the help of oxygen flow meters and tubings [Figure 1 inset]. Both of these oxygen sources can deliver up to 15 L/min of oxygen. The outlet of the humidifier is connected to another tubing having a nasal cannula at its distal end [Figure 1]. The humidifier is switched on, and the temperature is set to the desired level. Both the oxygen flowmeters are opened gradually to start oxygen flow that is delivered to the patient via the humidifier.

Precautions to be undertaken during the use of our device include continuous clinical monitoring along with oxygen

saturation monitoring. Care should be taken that the connections are snugly fitting, and an N95 mask must be used by the patient during its use. The limitations of this device are that it does not incorporate pressure sensor at the patient end, the maximum monitored flow that can be administered is 30 L/min and the inspired oxygen concentration cannot be fixed. However, it provides an option to provide increased flow during the management of COVID-19 patients. It is cost-effective and easy to assemble in a short time that can be life-saving in a pandemic situation, especially in low resource setups.

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Conflicts of interest

There are no conflicts of interest.

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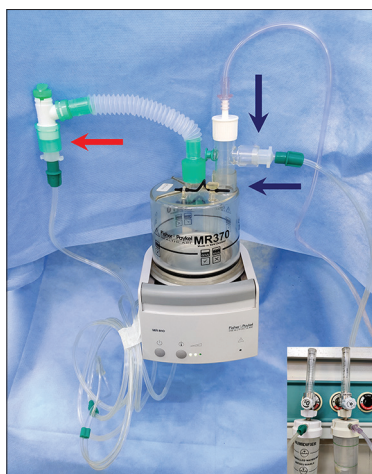


Figure 1: The ready to use assembled device with two oxygen sources (inset)

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