Guidelines for using the Helix Portable Ventilator or Glostavent® Helix anaesthesia machine (repurposed for respiratory support) for patient management during the COVID-19 pandemic.

Both the Helix Portable ventilator and Glostavent® Helix anaesthesia machines offers appropriate solutions to COVID-19 patient treatment.

The use of the Glostavent® Helix anaesthetic machines as ventilation stations for continuous support of COVID-19 patients as part of surge capacity is possible.

Diamedica recognises that use of anaesthetic machines in this way may be required under current pandemic conditions.

This guidance is being provided to support clinicians, anaesthetists, nurses, and other support staff in the safe use of the machines for this purpose.

Helix Portable ventilator | A versatile ventilation system

The Helix adult and paediatric portable Ventilator (HAPPV), provides effective and efficient ventilation in difficult environments. It is ideal for use in an Intensive Care unit.

Gas-driven | A single 10 l/min oxygen concentrator can run two-three Helix Adult/Paediatric Ventilators

Uses minimal oxygen | Uses only low flow rates and recycles drive oxygen to patients

For adult and paediatric | Tidal volume 100–1200ml

Portable | Weight 9.1 kg

Ventilation | A pneumatic piston driven ventilator with an internal battery life of 100hrs, provided drive gas is available.

Modes | A variety of controlled modes of operation, including pressure controlled, volume controlled, pressure support.

Pressure support | Triggered breathing control for pressure support to assist weaning. When trigger breathing control is turned on, the machine will recognise a patient's attempts to spontaneously breath.

Oxygen Sources | Uses drive gas from any suitable source including oxygen concentrator, cylinder, or air compressor.

Forms of ventilation | Suitable for both invasive and non-invasive forms of ventilation with appropriate interface. Patients can also be manually ventilated or breath spontaneously when the ventilator is switched off.

PEEP | Positive end expiratory pressure (PEEP) is occasionally required in some forms of lung dysfunction and this can be applied by attaching a PEEP valve to the (22mm) expiratory limb of the patient valve. The PEEP valve pressure ranges from 0-20 cmH20.

Patient Monitoring | Can be supplied with an optional handheld pulse oximeter or a multi parameter patient monitor.

Glostavent® Helix | With Integral oxygen concentrator and ventilator

Although the Glostavent® anaesthesia range have been used for many years in ICU settings, the machines should ideally be reserved for patients who need ventilating with the lowest critical care acuity scores , with critical patients showing signs of ARDS more complex ventilators are recommended.

It may be necessary to move patients from the Glostavent® Helix anaesthesia machine to a conventional critical care ventilator if the patient's lung compliance deteriorates.

When used solely for ventilation without the delivery of anaesthesia, the vaporiser control lever must be moved to zero to prevent the delivery of anaesthesia gasses. The ventilator is turned on and the tidal volume and respiratory rate controls should be set as required. No other adjustment is required. The self-inflating bag on the inspiratory limb always remains in place.

The Glostavent® Helix Ventilator

Ventilation | A time cycled, volume limited pressure generator. It is a gas driven ventilator and can therefor function largely independently of the supply of electricity. There is a small battery which is required to power the electronic circuitry. This battery should be kept fully charged by keeping the ventilator connected to the mains supply when available.

Modes | A variety of modes of operation, including pressure control and volume control.

Pressure support | Triggered breathing control for pressure support to assist weaning. When trigger breathing control is turned on, the machine will recognise a patient's attempts to spontaneously breath.

Forms of ventilation | Suitable for both invasive and non-invasive forms of ventilation with appropriate interface. Patients can also be manually ventilated or breath spontaneously when the ventilator is switched off.

PEEP | Positive end expiratory pressure (PEEP) is occasionally required in some forms of lung dysfunction and this can be applied by attaching a PEEP valve to the (22mm) expiratory limb of the patient valve. The PEEP valve pressure ranges from 0-20 cmH20.

Emergency backup | The ventilator is gas driven and can function in the absence of electricity. Compressor for ventilator backup, air only, for more than 12 hours. Battery backup for ventilator with external oxygen source, more than 300 hours

The Glostavent® Helix oxygen analyser

Oxygen analyser | Measures and displays % inspired oxygen concentration

Using the Glostavent® Helix for oxygen therapy

Oxygen Concentrator | An Integral 10 LPM oxygen concentrator that can be used to deliver up to 95% oxygen.

When used solely for oxygen therapy, the vaporiser must be set to zero. After closing the vaporiser, turn on the oxygen concentrator and set the flow meter to the desired LPM on the control panel and deliver using the mask and tubing supplied.

Patient Monitoring

The Glostavent Helix can be supplied with the G3H patient monitor, measuring the four primary vital signs: temperature, blood pressure, pulse, and breathing rate and ETCO2 (main/side stream) as an optional configuration.

The G3H patient monitor is ideally suited for use in remote locations and limited resource countries and where necessary be powered through the UPS on the Glostavent®.

For more information regarding the above, please contact info@diamedica.co.uk

For more information on COVID-19, including protective measures, please visit the WHO website.