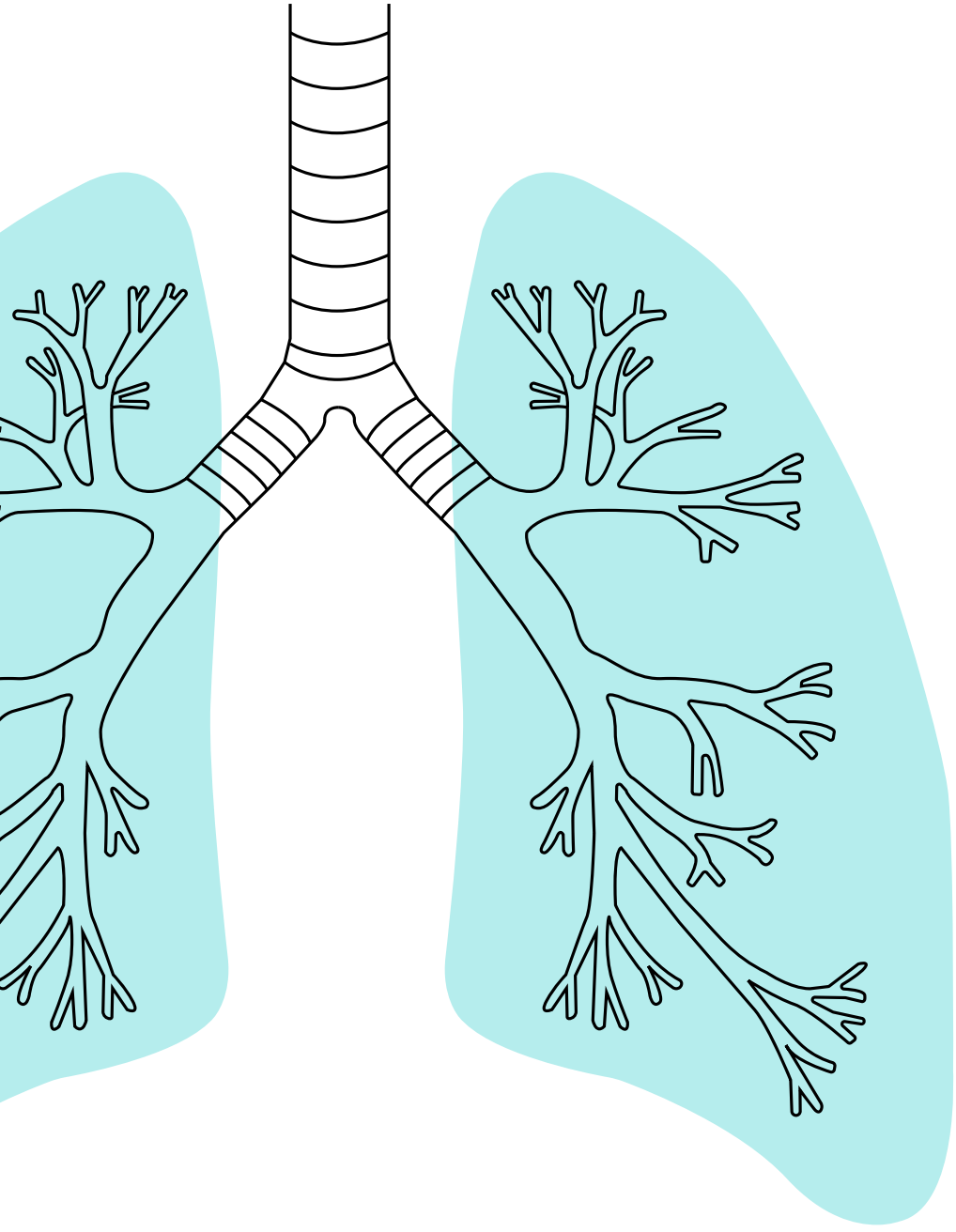
ocera™

oxygen efficient respiratory aid

The challenge

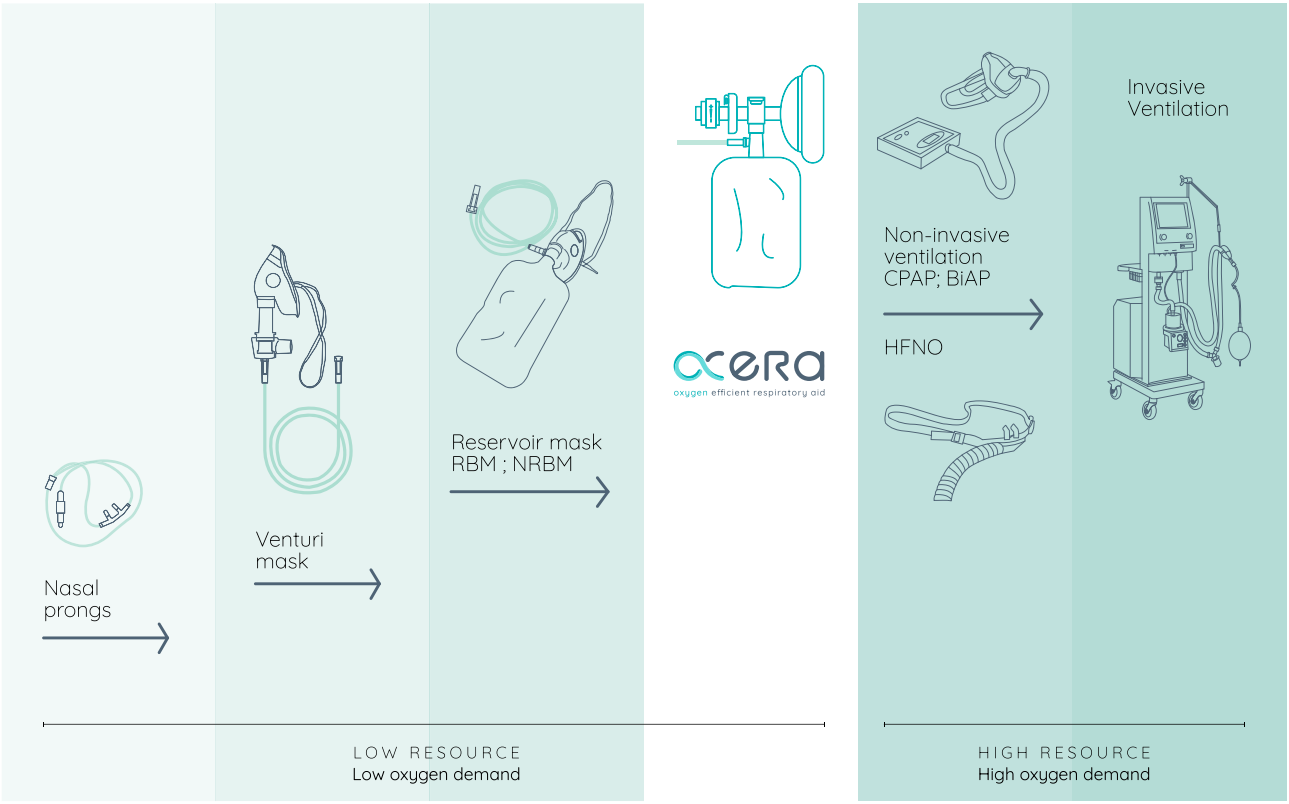
South Africa, like many developing countries, finds itself burdened with a high Covid-19 patient load but with a lack of skilled staff, ICU and high care facilities and bulk oxygen supplies to be able to effectively manage patients.

Umoya was founded in March 2020 and sought to extend the spectrum of care available in these low resource settings and to bridge the gap between standard oxygen mask therapy and ventilation strategies such as High flow nasal cannulas, BiPAP and CPAP. This resulted in the development of the OxERA™ device.



Umoya has partnered with long established UK and Cape Town based medical device manufacturer, Gabler Medical, who hold the necessary Emergency Covid-19 SAHPRA approvals for manufacture, sales and distribution (local and international) of the OxERA™.

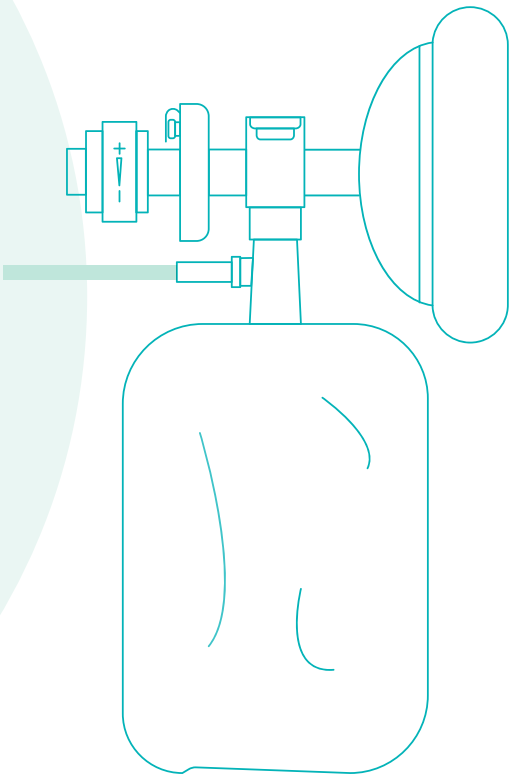
OxERA™ bridges the gap between the two resource environments and extends the care available at small hospitals and clinics.



The innovative OxERA™ is an all-in-one device using an anaesthetic mask and an adjustable mechanical PEEP valve that is simple, cost effective and oxygen efficient. Tests have shown that not only can consistently higher levels of oxygen be delivered with the critical benefit of PEEP/PEP, but less oxygen is usually needed as the flow rate can be adjusted to the patient's demand rather than having to be left fully open to compensate for leaks, as in an open system.

In our oxygen resource constrained environment, this is a game changer. This allows even the most basic facilities that are dependent on bottled oxygen or small oxygen concentrators to provide a higher level of clinical care than they are currently able to. It also means that the device is suitable for use in transferring patients in ambulances where other options are limited.

How does it work?

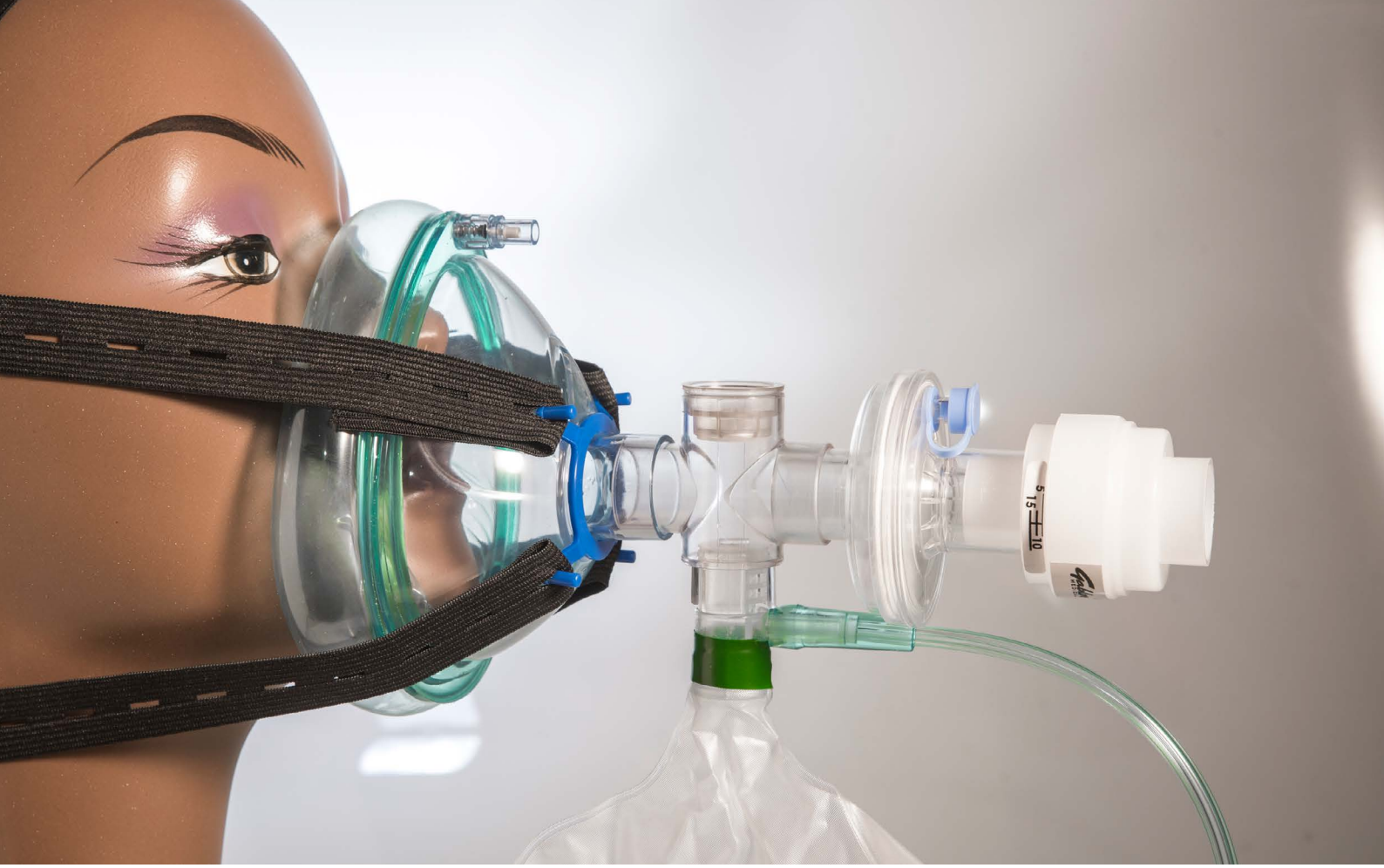


The OxERA™ device assists patients by providing high percentage oxygen plus maintaining slight pressure, to keep their lungs from collapsing during expiration, via an adjustable PEEP* valve. This reduction in atelectasis improves oxygenation, decreases trauma to the alveoli and reduces the work required to re-open the alveoli and hence the work of breathing.

It comprises a custom designed main housing, incorporating an adjustable PEEP valve (5 – 15 cm H_2O), anti-asphyxiation valve (for safety) and oxygen supply via tubing and accumulator bag. The oxygen tubing can be connected to any available source of oxygen.

Commercial medical devices such as an anaesthetic mask and viral filter complete the package together with simple but effective elastic head straps.

* Positive End Expiration Pressure (PEEP) and Positive Expiration Pressure (PEP) assist with oxygenation by preventing atelectasis (collapse) of the small air sacs called alveoli in the lungs.



Key to the device's efficient use of oxygen is the fact that incoming oxygen is accumulated in the bag during expiration and is, therefore, available during inspiration together with the flow in the line.

In loose fitting masks and especially nasal prongs, high flow nasal canulae and even CPAP units, the lack of any accumulation of oxygen in a sealed system means that large percentages (up to 66%) of the feed oxygen are simply wasted – making them very oxygen inefficient. Under our Covid-19 conditions, with so many patients requiring oxygen at the same time, this is a major problem.

The key benefits

Clinically effective – Able to provide superior levels of FiO_2 and care compared to standard non-rebreather oxygen masks.

Low oxygen consumption – Up to 15 l/min required, as it can operate at any oxygen flow rate by entraining extra room air, as required, through the anti-asphyxiation valve. This is no more than the standard oxygen masks already being used. Can be used on any oxygen source from oxygen conentraters to bottled and piped ward oxygen.

Efficient oxygen consumption – through the snug fitting mask and accumulator bag, more oxygen flowing down the line is available to the patient rather than being wasted when the patient exhales.

Cost effective – locally designed and manufactured with off-the-shelf items used where possible.

Simple to use – All levels of hospital staff and GPs quickly become familiar with using the device, meaning it can be used anywhere.

Safe to use – Equipped with an anti-asphyxiation safety device in case oxygen supply runs out or is disconnected. Expired air filtered to keep environment safe for health care workers. Fully SAHPRA approved for Covid-19 emergency use.

Portable – Can be used anywhere where a suitable oxygen source is available, ranging from home and ambulances to tertiary hospital level.

Manufacturing, sales & support.

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UMOYA

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