



# GIVING COPD PATIENTS MORE OPTIONS FOR OXYGEN THERAPY

*By Stephanie Richardson*

Over the past year, researchers have recognized that the worldwide burden of chronic obstructive pulmonary disease is greater than it has been previously recognized. Many physicians believe the incidence of COPD will increase over the next 30 years as the global population increases.

Up to 10 percent of adults ages 40 and older are believed to have moderate to severe COPD. These rates more than double among the elderly, according to many of the most recent studies of COPD prevalence.

Long-term oxygen therapy, when properly prescribed and maintained, is the only non-surgical therapy clinically proven to extend the lives of patients with COPD and low blood-oxygen levels. In addition to prolonging life, long-term oxygen therapy improves the quality of life for many patients who use oxygen-dispensing units in homes and vehicles.

With more people requiring this intervention, new types of therapeutic systems have entered the market to meet the needs of younger, more active patients.

In the past, oxygen cylinders were heavy and difficult to transport. Some of the latest developments in oxygen cylinders have increased mobility and lightened the load for patients using them at home, and clinicians using them in hospitals.

Lightweight aluminum and higher-strength aluminum alloys are two of the more popular manufacturing materials for cylinders. Newer options, hoop-wrapped cylinders with aluminum lin-

ers and carbon composite cylinders, are ultra-light and easier to carry than traditional cylinders.

Carbon composite and hoop-wrap cylinders can provide patients with up to 50 percent more oxygen than conventional aluminum cylinders of the same size. They can be filled to 300-bar pressure, increasing oxygen delivery time significantly. Increase oxygen capacity is important to patients because they will gain ambulatory time and need to change cylinders less often. Homecare providers also benefit by saving money on deliveries. In this age of ever-increasing fuel costs, fewer trips to patient homes are required to change out cylinders.

Another feature that helps improve cost is a regulator built into the cylinder. This eliminates the need to inventory, repair or replace separate regulators. By reducing these maintenance and administrative costs, the patient is ensured better usability and profitability. The built-in regulator also allows clinicians to set precise flow rates quickly and easily to reduce waste.

Integrating an oxygen regulator with a cylinder also makes dispensing oxygen safer. A cylinder-regulator combination unit by their design, avoids the need for the critical step of connecting the regulator to the cylinder, which according to the FDA and NIOSH, have contributed to regulator fires in the past. A built-in relief valve increases safety for filling, storing and daily operation. These units feature either stainless steel handles or plastic covers with integrated han-

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## Featured Oxygen Delivery Devices



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dles with no removable parts to help users transport the cylinder safely. In addition, they provide an expanded flow control range, typically from 0.25 to 25 Lpm for maximum versatility along with pressurized connection for use with ventilators.

### State of the Art Oxygen Concentrators/Home Systems

Oxygen concentrators of the past were bulky machines that were often eyesores sitting in living rooms and bedrooms. Now, concentrators are shrinking, taking up a smaller footprint in living areas. Some new concentrators even come with a portable component to provide patients with a complete home oxygen system. To ensure proper patient oxygenation, long-term oxygen therapy needs to be carefully administered with the right equipment to provide the best treatment for the patient. One oxygen system produces a total of 3,000 mL/min of oxygen. That means the user will have more oxygen available for use at rest, during sleep, at exercise, and at altitude.

One of these systems offers both continuous low and a generous pulse dosing option. This same system lowers operational costs by reducing monthly deliveries and simplifying inventory management and space. Another system's concentrator is equipped with a unique valve system that supports quiet operation when a patient is at rest.

Here are some other clinical features of home oxygen therapy systems that have patients and clinicians excited:

- Battery operated concentrators
- Automatic saturation technology provides consistent FIO<sub>2</sub>
- Approved for prescriptions of 0.5 to 3 Lpm
- Compatibility with CPAP and bi-level devices
- Reverts to continuous flow when no breath is detected

- Operates over a wide temperature range
- AC/DC and batter power for longer travel times

Some home systems include a component that converts gaseous oxygen from any concentrator to a supply of liquid oxygen. This device typically runs for four to six hours each day and liquefies up to 2 liters of oxygen per day. That means a patient can fill a portable device up to four times a day with up to 16 hours worth of liquid oxygen. Most importantly, because the liquid oxygen can be created at home, patients are freed from the constraints of a delivery schedule and time-consuming cylinder fills.

### Delivery interfaces

New twists on oxygen interfaces are adding to patients' ability to be mobile while using oxygen therapy.

One of the newest delivery devices is used much like a hands-free headset operators may use during long phone calls. The interface sits over the top of the head and connects to the oxygen tubing, which can be fed to the patient's side or back to the oxygen tank. An arm comes around front of the headpiece. The arm can be fitted with a nasal cannula or reservoir cup for mouth breathers. An added feature is that the interface is reversible, in that the arm can be attached to either the right or left side, as the patient prefers.

For patients requiring oxygen treatment in the hospital, a new mask can deliver from 24 to 90 percent oxygen – as much as 40 Lpm. The mask eliminates carbon dioxide rebreathing, and its open design gives caregivers the ability to perform suctioning or oral care through the mask. The same design allows patients to communicate more easily while wearing it. Naso-gastric tubing also can be threaded through the mask. A similar type mask is available for pediatric patients.

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