

OXYGEN CONSERVATION DEVICES

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Long term oxygen therapy has gone through many changes over the last few decades based upon improvements in technology and modifications made to the reimbursement of the equipment and services provided. Oxygen is currently reimbursed modality neutral. This means that the home respiratory care provider is reimbursed a fixed fee to provide oxygen therapy services regardless of how the therapy is provided or the quantity of oxygen consumed by the patient. This coupled with reductions in reimbursement and increased cost to provide services has forced home care provider to examine ways to provide home oxygen therapy more efficiently. While this was happening the patient is being prescribed home oxygen therapy earlier resulting in a more ambulatory oxygen patient. This mobile patient needs a smaller lighter oxygen system to allow them to lead an active as lifestyle as possible. The combination of all these factors aided in making oxygen conservation devices part of the standard of practice for home oxygen therapy.

The current standard for ambulatory oxygen systems is for the oxygen system to weigh less than ten pounds and provide a minimum duration of four hours. To meet these requirements oxygen conservation devices are employed in multiple applications including usage with compressed gas cylinders, liquid oxygen systems and portable oxygen concentrators for utilization at rest, with activity and while sleeping.

The pulse dose oxygen conservation devices may either be electronic or pneumatic. They operate as time-cycled and/or on demand, responding to a pressure drop triggered by the patient's inspiratory effort and then providing a predetermined bolus of oxygen. Pulse dose oxygen conservation devices vary from manufacturer to manufacturer. Each organization which had developed an oxygen conservation device determined their own equivalency to continuous oxygen liter flows. Each oxygen conservation device available delivers its own unique bolus of oxygen. Reservoir systems utilizing a either nasal or pendant reservoir are another alternative to provide oxygen conservation.

With each oxygen conserving device being unique in providing therapy equivalent to continuous flow the current practice guidelines recommend that each patient be assessed when home oxygen therapy is prescribed. Baseline data should be obtained when a patient is setup and instructed on home oxygen to allow the clinician to follow the course of the disease. Oxygen conservation begins with the titration of the patient's continuous oxygen liter flow to an appropriate oxygen saturation which should be prescribed by a physician. Once the continuous liter flow necessary to meet the needs of a patient is determined this liter flow can be used as a starting point in determining the setting necessary on a conservation device. Patients should be assessed at a minimum at rest and with activities of daily living. Many patients may benefit from having different oxygen liter flow setting for rest and activity. This allows for the patient's physical and lifestyle needs to be met simultaneously. By using two different oxygen settings optimal conservation of oxygen is achieved to allow the patient longer periods of time away from their stationary oxygen system but at the same time always meeting the physicals of the patient. If the oxygen conservation device will be used while sleeping, nocturnal pulse oximetry should be performed to insure adequate oxygen saturation while sleeping. It is important to remember that a significant number of patients on continuous oxygen therapy may desaturate while sleeping. Patients who appear to not tolerate an oxygen conservation device at night should potentially be evaluated to determine how well they maintain their oxygen saturation on continuous flow oxygen nocturnally. If a home oxygen therapy patient has significant oxygen desaturation on continuous flow oxygen at night then it may be beneficial for the patient to be studied in a sleep laboratory to aid in determining the cause and possible treatment for their desaturation at night.

With the advancement of oxygen conserving technology traveling is oxygen has gotten easier but planning is still necessary. The Federal Aviation Administration has approved some portable oxygen concentrators for usage on aircraft. While traveling meetings the lifestyle requirements for some patients it is necessary to determine what is oxygen therapy equipment is necessary to meet their needs at rest, with activity and nocturnally while out of their providers service area. If a patient is able to travel either by automobile or aircraft and be able to take the necessary equipment with them to meet all their needs a plan still

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