

Home Oxygen Therapy

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Health Equity Consideration

Health equity is the highest level of health for all individuals; health inequity is the avoidable difference in health status or distribution of health resources due to the social conditions in which individuals are born, grow, live, work, and age. Social determinants of health are the conditions in the environment that affect a wide range of health, functioning, and quality of life outcomes and risks. Examples include the following: safe housing, transportation, and neighborhoods; racism, discrimination, and violence; education, job opportunities, and income; access to nutritious foods and physical activity opportunities; access to clean air and water; and language and literacy skills.

Criteria

Initial Criteria for Adults (> 18 years of age)

Stationary/Portable Oxygen:

Home oxygen use is considered medically necessary when the individual has been diagnosed with a hypoxia-related condition expected to improve with oxygen therapy and **all** of the following criteria are met:

- There is documentation of **any** of the following:
 - The individual has been diagnosed with chronic obstructive pulmonary disease (COPD) or other chronic hypoxia-related condition.
 - Oxygen is needed after discharge from an acute inpatient hospitalization.
- The individual exhibits hypoxemia as defined by **any** of the following clinical criteria [either arterial blood gas (ABG) or pulse oximetry for arterial oxyhemoglobin saturation (SpO₂)] in **one** of the following groups:
 - **Group 1:**
 1. While resting (awake):
 - arterial partial pressure of oxygen (PA₂) ≤ 55 mmHg or arterial oxygen saturation (SpO₂) ≤ 88% while awake at rest, breathing room air
 2. During activity (exercise):
 - arterial PA₂ ≤ 55 mmHg or SpO₂ ≤ 88% taken during exercise, breathing room air, with demonstrated improvement in exercise-induced hypoxemia when using oxygen
 3. During sleep (stationary system only) and **any** of the following:

- arterial $PA_2 \leq 55$ mmHg or $SpO_2 \leq 88\%$ taken during sleep (overnight oximetry) for an individual who demonstrates an arterial $PaO_2 \geq 56$ mmHg or an or $SpO_2 \geq 89\%$ during the day while awake
- a greater-than-normal fall in oxygen level during sleep (a decrease in arterial PA_2 more than 10 mmHg, or decrease in arterial oxygen saturation more than 5%) associated with symptoms or signs reasonably attributable to hypoxemia (such as, impairment of cognitive processes, nocturnal restlessness, or insomnia)
- Note: "Overnight oximetry" refers to stand-alone pulse oximetry continuously recorded overnight.
- **Group 2:**
 - arterial $PaO_2 \geq 56$ mmHg or $SpO_2 \geq 89\%$ while awake at rest, and there is documentation of **any** of the following:
 - signs or symptoms of hypoxia
 - dependent edema suggesting heart failure
 - pulmonary hypertension or cor pulmonale, determined by measurement of pulmonary artery pressure, gated blood pool scan, echocardiogram, or "P" pulmonale on EKG (P wave greater than 3 mm in standard leads II, III, or AVF)
 - erythrocythemia with hematocrit $>55\%$
- **Group 3**
 - Home oxygen therapy (stationary system only) is considered medically necessary for the treatment of cluster headaches in individuals ≥ 18 years of age when the headache pattern is consistent with all of the following criteria
 - ≥ 5 severe headaches lasting 15 to 180 minutes
 - unilateral symptom presentation
 - There is documentation of **any** of the following symptoms or findings:
 - ipsilateral conjunctival injection (eye redness) or lacrimation (tearing)
 - ipsilateral nasal congestion or rhinorrhea (runny nose)
 - ipsilateral eyelid edema
 - ipsilateral forehead and facial sweating or flushing
 - ipsilateral miosis (pupillary contraction) or ptosis (eyelid droop)
 - ipsilateral sense of fullness in the ear
 - sense of agitation or restlessness

Initial Criteria for Pediatric Individuals (≤ 18 years old)

Stationary/Portable Oxygen:

- Home oxygen use for the treatment of cluster headaches in an individual ≤ 18 years is considered not medically necessary.
- Home oxygen use is considered medically necessary when the pediatric individual has been diagnosed with a hypoxia-related condition expected to improve with oxygen and **all** of the following:
 - There is documentation of **any** of the following:
 - The individual has been diagnosed with lung disease or other chronic hypoxia-related condition.
 - The individual has pulmonary hypertension and is under the care of a pediatric pulmonologist or cardiologist.
 - The individual exhibits hypoxemia as defined by **any** of the following clinical criteria:
 - Age ≥ 1 year and oxygen testing:
 - $SpO_2 \leq 93\%$ while awake
 - $SpO_2 \leq 93\%$ for at least 5% of a continuous recording period which includes a period of sleep
 - Age < 1 year and oxygen testing:
 - $SpO_2 \leq 90\%$ while awake
 - $SpO_2 \leq 90\%$ for at least 5% of a continuous recording period which includes a period of sleep

Portable Oxygen Systems

A portable oxygen system is considered medically necessary for an individual who meets the clinical coverage criteria for home oxygen and **both** of the following:

- The individual is mobile within the home.
- The qualifying oxygen study was performed while at rest (awake) or during exercise.

Note:

If the only qualifying oxygen study was performed during sleep, portable oxygen is considered not medically necessary

Rental Timeframes and Continued Use

Initial rental:

- Twelve months
 - individuals who qualify under **Group 1** criteria
 - pediatric individuals (≤ 18 years old)
- Three months

- individuals who qualify under **Group 2** or **Group 3** criteria

Continued rental:

- Continued use of oxygen for up to an additional twelve months rental is considered medically necessary when there is documentation of both of the following:
 - The individual has been re-evaluated by the treating practitioner.
 - There is documentation of continued benefit and medical need.

Note: For individuals meeting Group 2 coverage criteria, documentation must include a repeat qualifying blood gas test by the treating practitioner between the 61st and 90th days after initiation of oxygen therapy.

Additional Information

Approval Timeframes

- One stationary system and one portable system can be approved at one time.
- When a portable system is added after the initial prior approval of a stationary system, there is not a requirement for a repeat blood gas study unless the initial qualifying study was performed during sleep, in which case a repeat blood gas study must be performed while the individual is at rest while awake or during exercise within one month prior to the revised date.
- A change in suppliers does not re-start the rental period.

Oxygen Contents

- Oxygen contents are included in the fee schedule allowance for the stationary equipment. Oxygen contents are not covered in a month in which payment is made for stationary equipment.
- A maximum of three months of oxygen contents may be delivered at any one time.
- No more than one unit of service (UOS) for stationary contents and/or one UOS for portable contents per month are billable.

Oxygen Accessories

- Oxygen accessories, including but not limited to: cannulas (HCPCS A4615), tubing (HCPCS A4616), mouthpieces (HCPCS A4617), face tent (HCPCS A4619), masks (HCPCS A4620, A7525), oxygen conserving devices (HCPCS A9900), humidifiers (HCPCS E0555), nebulizer for humidification (HCPCS E0580), regulators (HCPCS E1353), and stand/rack (HCPCS E1355) are considered included in the monthly rental payment for oxygen equipment. Separately billed options, accessories or supply items will be denied as unbundling.

- Accessories used with individual-owned oxygen equipment will be denied as non-covered.
- Six months of purchases of supplies can be approved at one time.

Oxygen Testing

- Repeat qualifying oxygen testing is not required in cases where the equipment is replaced.
- Exercise testing:
 - When oxygen therapy and oxygen equipment is covered based on an oximetry study obtained during exercise, there must be documentation of three oximetry studies in the individual's medical record:
 - testing at rest without oxygen
 - testing during exercise without oxygen
 - testing during exercise with oxygen applied (to demonstrate the improvement of hypoxemia)
 - All three tests must be performed within the same testing session. Exercise testing must be performed by a treating practitioner or other medical professional qualified to conduct exercise oximetry testing.

Not Medically Necessary Indications

- Dyspnea without cor pulmonale in the absence of hypoxemia
- Angina pectoris in the absence of hypoxemia
- Severe peripheral vascular disease resulting in clinically evident desaturation in one or more extremities in the absence of hypoxemia
- Terminal illnesses that do not affect the ability to breathe

Evidence Discussion

In a 2023 systematic review and meta-analysis, Sami et al. evaluated whether long-term home oxygen therapy was associated with reduced hospital readmission among individuals with chronic obstructive pulmonary disease. Seven studies were included in the quantitative analysis, encompassing randomized clinical trials and cohort studies. Pooled results demonstrated that home long-term oxygen therapy was associated with a significantly lower risk of hospital readmission compared with no oxygen therapy. Subgroup analyses suggested a greater reduction in readmission risk with longer duration of therapy. Sensitivity analyses did not identify any influential studies, and no significant publication bias was detected. The authors concluded that long-term home oxygen therapy was associated with a meaningful reduction in hospital readmissions in individuals with chronic obstructive pulmonary disease (COPD). Study limitations included heterogeneity among included studies, limited sample sizes, and insufficient

data to adjust for potential confounders such as smoking status, body mass index, medication use, and disease severity.

In a 2023 narrative review, Wiles summarized key peer reviewed literature published between September 2022 and September 2023 addressing contemporary uses of home oxygen therapy, with emphasis on post acute care, telemonitoring, equipment advancements, and home use of high flow nasal cannula. Across the reviewed studies, home oxygen therapy was consistently described as supporting safe transition from hospital to home, maintaining adequate oxygenation, and reducing the risk of rehospitalization when combined with appropriate reassessment and monitoring strategies. Studies evaluating telehealth and remote monitoring programs reported high rates of home management success, with up to 83% of monitored individuals avoiding hospital admission and 30 day survival rates exceeding 97%, supporting the safety and effectiveness of home oxygen therapy with structured oversight. Advances in long term oxygen therapy equipment, including portable oxygen concentrators and automated flow titration devices, were associated with improved exercise tolerance, longer walking distances, and higher exercise oxygen saturation compared with fixed flow systems. Evidence regarding home high flow nasal cannula therapy indicated reductions in exacerbation frequency and improvements in oxygenation, exercise tolerance, and symptom burden among individuals with COPD. The author concluded that home oxygen therapy remained a critical component of post acute and chronic respiratory care, particularly when combined with appropriate selection, reassessment, and monitoring. Limitations of the reviewed literature included heterogeneity of study designs, reliance on observational data for several outcomes, small sample sizes in select device and high flow nasal cannula studies, and limited long term outcome data outside select populations.

Codes

HCPCS	Description
E0439	Stationary liquid oxygen system, rental; includes container, contents, regulator, flowmeter, humidifier, nebulizer, cannula or mask, & tubing
E0440	Stationary liquid oxygen system, purchase; includes use of reservoir, contents indicator, regulator, flowmeter, humidifier, nebulizer, cannula or mask, and tubing
E0430	Portable gaseous oxygen system, purchase; includes regulator, flowmeter, humidifier, cannula or mask, and tubing

HCPCS	Description
E0431	Portable gaseous oxygen system, rental; includes portable container, regulator, flowmeter, humidifier, cannula or mask, and tubing
E1392	Portable oxygen concentrator, rental
K0738	Portable gaseous oxygen system, rental; home compressor used to fill portable oxygen cylinders; includes portable containers, regulator, flowmeter, humidifier, cannula or mask, and tubing
E0433	Portable liquid oxygen system, rental; home liquefier used to fill portable liquid oxygen containers, includes portable containers, regulator, flowmeter, humidifier, cannula or mask and tubing, with or without supply reservoir and contents gauge
E0434	Portable liquid oxygen system, rental; includes portable container, supply reservoir, humidifier, flowmeter, refill adaptor, contents gauge, cannula or mask, and tubing
E0435	Portable liquid oxygen system, purchase; includes portable container, supply reservoir, flowmeter, humidifier, contents gauge, cannula or mask, tubing and refill adaptor
E0445	Oximeter device for measuring blood oxygen levels non-invasively
E0487	Spirometer, electronic, includes all accessories
E1390	Oxygen concentrator, single delivery port, capable of delivering 85 percent or greater oxygen concentration at the prescribed flow rate
E1391	Oxygen concentrator, dual delivery port, capable of delivering 85 percent or greater oxygen concentration at the prescribed flow rate, each
E0424	Stationary compressed gaseous oxygen system, rental; includes container, contents, regulator, flowmeter, humidifier, nebulizer, cannula or mask, and tubing
E0425	Stationary compressed gas system, purchase; includes regulator, flowmeter, humidifier, nebulizer, cannula or mask, and tubing

HCPCS	Description
E1354	Oxygen accessory, wheeled cart for portable cylinder or portable concentrator, any type, replacement only, each
E0455	Oxygen tent, excluding croup or pediatric tents
E1355	Stand/rack
E1356	Oxygen accessory, battery pack/cartridge for portable concentrator, any type, replacement only, each
E1357	Oxygen accessory, battery charger for portable concentrator, any type, replacement only, each
E1358	Oxygen accessory, dc power adapter for portable concentrator, any type, replacement only, each
E0441	Stationary oxygen contents, gaseous, 1 month's supply = 1 unit
E0442	Stationary oxygen contents, liquid, 1 month's supply = 1 unit
E0443	Portable oxygen contents, gaseous, 1 month's supply = 1 unit
E0444	Portable oxygen contents, liquid, 1 month's supply = 1 unit
E0447	Portable oxygen contents, liquid, 1 month's supply = 1 unit, prescribed amount at rest or nighttime exceeds 4 liters per minute (lpm)

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