Home Oxygen Therapy

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Health Equity Considerations

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 indicated when the individual has been diagnosed with a hypoxia-related condition expected to improve with oxygen therapy and **all** of the following:

- 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 (SaO_2)] in **one** of the following groups:
  - **Group 1**:
    1. While resting (awake):
       - arterial $PO_2 \leq 55$ mmHg or $SaO_2 \leq 88\%$ while awake at rest while breathing room air
    2. During activity (exercise):

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- arterial $PO_2 \leq 55$ mmHg or $SaO_2 \leq 88\%$ taken during exercise for an individual who demonstrates an arterial $PO_2 \geq 56$ mmHg, or an or $SaO_2 \geq 89\%$, during the day while at rest. In this case, oxygen is provided during during activity (exercise) if there is evidence the use of oxygen improves the hypoxemia that was demonstrated during exercise when the individual was breathing room air.

3. During sleep (stationary system only) and **any** of the following:

- arterial PO ≤ 55 mmHg or $SaO_2 \leq 88\%$ taken during sleep (overnight oximetry) for an individual who demonstrates an arterial $PO_2 \geq 56$ mmHg or an or $SaO_2 \geq 89\%$ during the day while awake
- a greater-than-normal fall in oxygen level during sleep (a decrease in arterial PO_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 and nocturnal restlessness or insomnia).
- Note: "Overnight oximetry" refers to stand-alone pulse oximetry continuously recorded overnight.

◦ **Group 2**:

- arterial $PO_2 \geq 56$ mmHg or $SaO_2 \geq 89\%$ while awake at rest breathing, 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%

- Home oxygen use is indicated for the treatment of cluster headaches in an individual greater than 18 years old (stationary system only) when the pattern of headaches is consistent with **all** of the following:
  - ≥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 is indicated 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:
      - SaO_2 ≤ 93% while awake
      - SaO_2 ≤ 93% for at least 5% of a continuous recording period which includes a period of sleep
    - Age < 1 year and oxygen testing:
      - SaO_2 ≤ 90% while awake
      - SaO_2 ≤ 90% for at least 5% of a continuous recording period which includes a period of sleep
- Home Oxygen Use is indicated for the treatment of cluster headaches in an individual >12 years (stationary system only) when the pattern of headaches is consistent with **all** of the following:
  - ≥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

Portable Oxygen Systems

A portable oxygen system is indicated 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 not covered.

Rental Timeframes

Initial rental timeframe

- Twelve (12) months
  - individuals who qualify under **Group 1** criteria
  - pediatric individuals (≤18 years old)
- Three (3) months
  - individuals who qualify under **Group 2** criteria

Stationary/Portable Oxygen Continued Use

The continued use of oxygen for up to an additional twelve (12) months rental is indicated 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 (1) 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 (3) months of oxygen contents may be delivered at any one time.
- No more than one (1) unit of service (UOS) for stationary contents and/or one (1) 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

Definitions

Hypoxia	A condition where the oxygen supply is inadequate either to the body as a whole (general hypoxia) or to a specific region (tissue hypoxia)
Hypoxemia	An abnormally low level of oxygen in the blood.
Home oxygen system	May be in the home in the form of a gas or liquid. Home oxygen may include short-term, long-term, nocturnal, palliative, or ambulatory oxygen.
Short-term oxygen therapy	Provided temporarily during a period of severe hypoxemia [e.g., exacerbation of Chronic Obstructive Pulmonary Disease (COPD)].
Long-term oxygen	Delivered to individuals with chronic hypoxemia.
Nocturnal oxygen	Delivered during sleep only.
Palliative oxygen	May be provided as continuous, nocturnal, or during ambulation.
Pulse-dose oxygen	Delivered during inspiration only and the quantity of oxygen administered is influenced by the respiratory rate.
Continuous-flow oxygen	Delivered at a constant flow rate, regardless of the respiratory rate.
Oxygen concentrator (stationary or portable)	Separates oxygen from the air and provides a storage system for oxygen.
Portable oxygen	Delivered through lightweight systems which can be carried or pulled by individuals (e.g., carried or pulled in trolleys or portable oxygen concentrators).

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Time of need	The time period during the individual's illness when the presumption is that the provision of oxygen in the home setting will improve the individual's condition. For those individuals whose initial oxygen prescription does not originate during an inpatient hospital stay, the **time of need** is during the period when the treating practitioner notes signs and symptoms of illness that can be relieved by oxygen in the individual who is to be treated at home.

Evidence Discussion

Oxygen therapy is a treatment for individuals with various respiratory conditions, particularly those experiencing chronic hypoxemia and progressive respiratory failure. Oxygen therapy is valuable for maintaining adequate oxygenation levels and alleviating symptoms, thereby contributing to improved overall respiratory health and quality of life.[1] Long-term oxygen therapy (LTOT) is provided to individuals with severe chronic respiratory failure, pulmonary hypertension, chronic heart failure, cyanotic congenital heart disease, and severe cluster headaches. The primary indication for supplemental oxygen is to correct hypoxemia in the post-acute care environment, with the aim of transitioning patients from acute care facilities to their homes or other care settings. Home oxygen therapy has been reported to improve hypoxemia and survival rates in individuals with chronic respiratory conditions such as chronic obstructive pulmonary disease (COPD), interstitial lung disease (ILD), or pulmonary hypertension.[2] Home oxygen therapy plays a crucial role in preventing rehospitalization, as adequate oxygenation is essential for preventing complications and reducing the risk of recurrent exacerbations or respiratory failure.[1]

The delivery methods for oxygen therapy have evolved significantly to improve patient mobility and treatment effectiveness. Modern portable oxygen concentrators and demand oxygen delivery systems provide greater independence for individuals requiring long-term support. Recent technological advances including auto-demand oxygen delivery systems that automatically adjust sensitivity levels and provide pulsed flow when respiration is not detected offer comparable efficacy to continuous flow systems while extending device usage time.[2]

[1] Wiles KS. 2023 Year in Review: Home Oxygen Therapy. Respir Care. 2024;69(9):1182-1188. Published 2024 Aug 24. doi:10.4187/respcare.12070

[2] Yatani A, Nagano T, Murakami S, et al. Randomized crossover trial of a demand oxygen delivery system in nocturnal hypoxemia. Sci Rep. 2024;14(1):20505. Published 2024 Sep 3. doi:10.1038/s41598-024-71320-7

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
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

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HCPCS	Description
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
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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