

Hyperbaric Oxygen Therapy

Disclaimer

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The clinical guidelines are applicable to all commercial plans. Services are subject to the terms, conditions, limitations of a member's plan contracts, state laws, and federal laws. Please reference the member's plan contracts (e.g., Certificate/Evidence of Coverage, Summary/Schedule of Benefits) or contact Oscar at 855-672-2755 to confirm coverage and benefit conditions.

Summary

Oscar covers Systemic Hyperbaric Oxygen Therapy (HBOT) only when used for certain medical conditions (outlined below) and with obtaining a prior authorization. Most commonly, it is used to treat chronic complex diabetic wounds of the lower limbs. Oscar does not cover topical application of oxygen under any circumstances.

Definitions

"Hyperbaric Oxygen Therapy" (HBOT) is a method in which the entire body is exposed to oxygen under increased atmospheric pressure.

"Standard Wound Care" in patients with diabetic wounds includes the assessment of a patient's vascular status and correction of any vascular problems in the affected limb if possible; optimization of nutritional status, optimization of glucose control; debridement by any means to remove devitalized tissue; maintenance of a clean, moist bed of granulation tissue with appropriate moist dressings; appropriate off-loading; and necessary treatment to resolve any infection that might be present.

Clinical Indications and Coverage

General Coverage Indications

In addition to condition-specific criteria (outlined below), coverage for HBOT must meet **ALL** of the following criteria:

1. HBOT must be prescribed and administered by the licensed treating physician; **and**
2. HBOT must be administered in a chamber (such as the single-patient unit); **and**
3. Continued HBOT is limited to 30 day authorization periods unless otherwise noted in the criteria below. Continued HBOT is subject to review for medical necessity and is indicated only when **ALL** of the following criteria are met:
 - a. Adherence to hyperbaric oxygen therapy; **and**
 - b. Evidence of improvement during the authorization period, e.g. reduction in the size of wound and reduction in signs of infection and/or inflammation.

Condition-Specific Covered Indications

HBOT is covered for the following conditions:

1. *Acute air or gas embolism* - 1 treatment may be indicated; additional treatments may be indicated only if symptoms persist.
2. *Acute carbon monoxide poisoning* - 1 to 3 total treatments may be indicated depending on persistence of clinical symptoms.
3. *Acute cerebral edema*.
4. *Acute traumatic peripheral ischemia*.
5. *Anemia*, when **ALL** of the following criteria are met:
 - a. Patient unable or unwilling to receive a red blood cell transfusion; **and**
 - b. Emergent treatment, as indicated by 1 or more of the following:
 - i. Active hemolysis with progressive anemia; **or**
 - ii. Acute blood loss or active massive hemorrhage; **or**
 - iii. Hypovolemic shock.
6. *Central retinal artery occlusion*, when started within 24 hours of symptom onset - Treatment is typically indicated until CRA recanalization has occurred (usually 24-72 hours).
7. *Chronic diabetic ulcer*, when **ALL** of the following criteria are met:
 - a. Severe wound based on at least **ONE** of the following criteria:
 - i. Deep ulceration to tendon, capsule, or bone; **or**
 - ii. Deep ulcer with abscess, osteomyelitis, or joint sepsis; **or**
 - iii. Localized gangrene of the forefoot or heel.

- b. Prior evaluation and treatment of underlying peripheral vascular and/or neuropathic disease; **and**
 - c. Documentation of 30 days of standard wound care for diabetes with minimal to no healing and meets **ALL** of the following:
 - i. Glycemic optimization; **and**
 - ii. Wound is not infected or has been treated with antibiotics.
 - d. Treatment is indicated daily and meets **ALL** of the following:
 - i. Wounds must be evaluated at least every 30 days during HBOT; **and**
 - ii. Treatment is ordered and indicated for no more than 40 HBOT treatments; **and**
 - iii. Evaluation must demonstrate measurable signs of healing.
8. *Compromised skin grafts or flaps, where hypoxia or decreased perfusion has compromised viability acutely* - Treatment is indicated for 2 times per day until the graft or flap appears viable, then 1 time per day until healed. Efficacy of therapy should be reviewed after 20 treatments and discontinued if no clinical improvement.
9. *Crush injuries and compartment syndrome* - Treatment is indicated within 4-6 hours of injury, 3 times daily for 3 days, 2 times daily for 3 days, then daily for 3 days.
10. *Cyanide poisoning with co-existing carbon monoxide poisoning.*
11. *Decompression illness* - Treatment should be rapid and repeated up to 10 times only if symptoms persist.
12. *Femoral head necrosis (avascular necrosis), when **ALL** of the following are met:*
- a. Ficat stage I or II disease; **and**
 - b. When HBOT is part of a multidisciplinary approach of rehabilitation, physical therapy, smoking cessation, and surgical evaluation; **and**
 - c. Treatment specifics:
 - i. Daily treatment of at least 60 minutes with 100% oxygen, 5-6 days per week, and 4-5 weeks per cycle; **and**
 - ii. MRI and orthopedic evaluation is conducted 3-4 weeks after the end of each cycle for evaluation of further therapy.
13. *Idiopathic sudden sensorineural hearing loss* - 15 to 20 total treatments may be indicated once daily only when HBOT is initiated within 3 months after onset.
14. *Intracranial abscess* - Treatment may be indicated for 1-2 times per day. Efficacy of therapy should be reviewed after 20 treatments and discontinued if no clinical improvement.
15. *Necrotizing soft tissue infections and gas gangrene (Clostridial myositis and myonecrosis)*
- a. Documentation from a treating physician stating HBOT is used in conjunction with surgical debridement and antibiotics.

- b. Treatment is ordered and indicated for 2 times per day until there is no further extension of necrosis in previously debrided areas.
 - c. Efficacy of therapy should be reviewed after 30 treatments and discontinued if no clinical improvement.
16. *Osteomyelitis*, with documentation from a treating physician confirming that the patient is unresponsive to conventional medical and surgical management (e.g. antibiotic therapy, debridement).
17. *Radiation injury*; up to 40 HBOT treatments are indicated, when **ONE** of the following criteria are met:
 - a. Osteoradionecrosis (except of the mandible) as an adjunct to conventional treatment; **or**
 - b. Soft tissue radionecrosis as an adjunct to conventional treatment; **or**
 - c. Radiation-induced hemorrhagic cystitis; **or**
 - d. Radiation-induced proctitis; **or**
 - e. Prophylactic prevention of osteonecrosis of the jaw following tooth extraction in an irradiated field:
 - i. Prior to surgery, treatment is ordered and indicated for 20 HBOT treatments.
 - ii. Immediately after surgery, treatment is ordered and indicated for 10 HBOT treatments.

Coverage Exclusions

Absolute Contraindications for Hyperbaric Oxygen

- Concurrent administration of the antibiotic cream mafenide (Sulfamylon)
- Concurrent administration of disulfiram (Antabuse)
- Concurrent administration of antineoplastic agent doxorubicin
- Concurrent or past administration of antineoplastic agents bleomycin or cisplatin (Platinol)
- Premature infants (birth prior to 37 weeks gestation)
- Untreated pneumothorax

Other Non-Covered Indications

Oscar considers the use of HBOT to be experimental and investigational in the treatment of the following conditions including but not limited to:

- Actinomycosis
- Acute coronary syndrome
- Acute or chronic cerebrovascular insufficiency

- Acute thermal and chemical pulmonary damage (i.e. smoke inhalation with pulmonary insufficiency)
- Aerobic infection
- Alzheimer's disease
- Anaerobic infection other than Clostridial
- Anoxic brain injury
- Arthritic diseases
- Autism
- Bell's palsy
- Cancer
- Cardiogenic shock
- Central retinal artery occlusion
- Cerebral palsy
- Chronic fatigue syndrome
- Chronic peripheral vascular insufficiency
- Coronary artery disease
- Cutaneous, decubitus, and venous stasis ulcers
- Depression
- Fibromyalgia
- Fractures or fracture non-union
- Hepatic necrosis
- Inflammatory bowel disease
- Ischemic stroke
- Lyme disease
- Malignant otitis externa
- Meningioma
- Migraine and cluster headaches
- Multiple sclerosis
- Myocardial infarction
- Non-compromised skin grafts and flaps
- Osteoporosis
- Pulmonary emphysema
- Radiation injury including:
 - Radiation-induced osteonecrosis of the jaw
 - Radiation-induced retinitis pigmentosa
 - Radiation-induced retinopathy

- o Radiation-induced neurologic injury
 - o Radiation-induced xerostomia
- Senility
- Sickle cell anemia
- Surgical wound dehiscence
- Tetanus
- Thermal burns
- Tinnitus
- Traumatic brain injury
- Vascular dementia

Topical Application of Oxygen

This method of oxygen administration does not meet the definition of HBOT as stated above and there are no high quality evidence-based studies of its use in the literature. In fact, one of the only randomized trials for topical oxygen therapy in diabetic foot ulcers (Leslie et al. 1988) actually demonstrated a trend toward slower healing in the topical oxygen group. A recent small, randomized control trial (Yu et al. 2016) claimed a significant difference in healing rates between patients receiving topical oxygen therapy and those receiving standard wound care. However, the study was underpowered and it is unclear how many patients were included in each of the ulcer “stage” groups and statistical analysis is lacking. Another small prospective study (Blackman et al. 2010) showed possible improvement in healing with topical oxygen compared to a silver-based dressing but was neither randomized nor blinded. In addition, a small case series of 3 patients (Agarwal et al. 2015) described a device for applying topical oxygen and stated that these patients required fewer debridements, but there was no control group. A larger, multi-center study (Dryden et al. 2016) evaluated topical oxygen gel for both acute and chronic wounds with delayed healing, but again was simply observational and did not compare outcomes to any control group. Overall, current evidence is limited and consists of small, low quality studies that support the categorization of topical oxygen therapy as experimental and investigational. Investigational and experimental treatments are not covered by Oscar. Topical HBOT includes boot or bag systems and single limb or sacral chambers.

Applicable Billing Codes

CPT/HCPCS Codes covered if criteria are met:	
<i>Code</i>	<i>Description</i>
99183	Physician attendance and supervision of hyperbaric oxygen therapy, per session
G0277	Hyperbaric oxygen under pressure, full body chamber, per 30 minute interval
ICD-10 codes not covered:	
A00 - A04.6; A04.8 - A05.1; A05.3 - A99; B00.0 - B96.6; B96.8 - B99; L08.0, L08.81 - L08.9; L44.4; L88, L98.0	Infectious diseases other than clostridium [aerobic and nonaerobic infections]
A01.04	Typhoid arthritis [arthritic diseases]
A02.23	Salmonella arthritis [arthritic diseases]
A18.02	Tuberculous arthritis of other joints [arthritic diseases]
A33 - A35	Tetanus
A39.83	Meningococcal arthritis [arthritic diseases]
A39.84	Postmeningococcal arthritis [arthritic diseases]
A42.0-A42.9	Actinomycosis
A54.42	Gonococcal arthritis [arthritic diseases]
A69.20 - A69.9	Lyme Disease
A69.23	Arthritis due to Lyme disease [arthritic diseases]
B06.82	Rubella arthritis [arthritic diseases]
B26.85	Mumps arthritis [arthritic diseases]

B42.82	Sporotrichosis arthritis [arthritic diseases]
C00.00 - C96.9	Malignant neoplasms [cancer]
C70.0 - C70.9; C79.31 - C79.31; D42.0 - D42.9	Meningioma
D00.0 - D09.9	In situ neoplasms [cancer]
D57.00 - D57.819	Sickle-cell disorders
F01.50 - F01.51	Vascular dementia
F32.0 - F33.9	Depression
F840	Autistic disorder
G30.0 - G30.1	Alzheimer's disease
G35	Multiple sclerosis
G43.001 - G43.919	Migraine
G44.001 - G44.029	Cluster headaches
G51.0	Bell's palsy
G62.82	Radiation-induced polyneuropathy
G80.0 - G80.9	Cerebral Palsy
G93.1	Anoxic brain damage, not elsewhere classified
G98.0	Neurogenic arthritis, not elsewhere classified [arthritic diseases]
H31.021 - H31.029	Solar retinopathy
H60.20 - H60.23	Malignant Otitis Externa

H93.11 - H93.19	Tinnitus
I21.01 - I22.9	Myocardial Infarction
I24.9	Acute ischemic heart disease, unspecified
I25.10 - I25.119	Coronary artery disease
I25.700 - I25.799; I25.811 - I25.84; I25.9	Atherosclerotic heart disease of coronary artery bypass grafts [coronary artery disease]
I63.0 - I63.9	Cerebral infarction [ischemic stroke]
I65.0 - I65.9	Occlusion and stenosis of precerebral arteries, not resulting in cerebral infarction [acute or chronic cerebrovascular insufficiency]
I66.0 - I66.9	Occlusion and stenosis of cerebral arteries, not resulting in cerebral infarction [acute or chronic cerebrovascular insufficiency]
I67. 1 - I67.2; I67.4 - I67.9	Other cerebrovascular diseases [acute or chronic cerebrovascular insufficiency/accident including thrombotic or embolic stroke]
I67.1 - I67.9	Other cerebrovascular diseases [coronary acute or chronic cerebrovascular insufficiency/accident including thrombotic or embolic stroke]
I67.81-I67.82	Acute or chronic cerebrovascular insufficiency
I87.2	Venous insufficiency (chronic) (peripheral)[venous stasis ulcer]
J43.0 - J43.9	Emphysema [pulmonary emphysema]
J44.0 - J44.9	Other chronic obstructive pulmonary disease [bronchitis with emphysema]
J68.0 - J68.9	Respiratory conditions due to inhalation of chemicals, gases, fumes and vapors [Acute thermal and chemical pulmonary damage, i.e., smoke inhalation with pulmonary insufficiency]
J70.0 - J70.9	Respiratory conditions due to other external agents [Acute thermal and chemical pulmonary damage, i.e., smoke inhalation (e.g., carbon tetrachloride, hydrogen sulfide) with pulmonary insufficiency]

K50.00 - K50.919	Crohn's disease [regional enteritis][inflammatory bowel disease]
K52.0	Gastroenteritis and colitis due to radiation
K52.9	Noninfective gastroenteritis and colitis, unspecified
K529	Noninfective gastroenteritis and colitis, unspecified [inflammatory bowel disease]
K71.10 - K71.11	Toxic liver disease with hepatic necrosis, without coma [hepatic necrosis]
K72.00 - K72.01	Acute and subacute hepatic failure
K762	Central hemorrhagic necrosis of liver [hepatic necrosis]
L40.52	Psoriatic arthritis mutilans [Arthritic diseases]
L55.0 - L55.9; L56.0 - L56.9; L57.0 - L57.1 - L57.9; L58.0 - L58.9; L59.0 - L59.9	Radiation - related disorders of the skin and subcutaneous tissue
L89.000 - L89.95	Pressure ulcers [decubitus ulcers]
M00.00 - M12.19; M12.50 - M19.93	Arthropathies [arthritic diseases]
M27.2	Inflammatory conditions of the jaws [radiation necrosis of jaw]
M48.40xA - M48.58xS; M84.30xA - M84.759S; M96.621 - M96.69; M97.01xA - M97.9xxS; P13.0, P13.4, S02.0xxA -	Fractures

S02.92xS; S12.000A - S12.9xxS; S22.000A - S22.9xxS	
M79.7	Fibromyalgia
M80.00xA - M80.88xS	Osteoporosis with current pathological fracture
M81.0 - M81.8	Osteoporosis without current pathological fracture
N30.40 - N30.41	Irradiation cystitis
R41.81	Age-related cognitive decline [senility]
R53.82	Chronic fatigue, unspecified
R57.0	Cardiogenic shock
S06.0x0A - S06.9x9S	Intracranial injury [traumatic brain injury]
T20.00xA - T20.39xxS; T21.00xA - T21.39xS; T22.00xA - T22.39xS; T23.00xA - T23.39xS; T24.00xA - T24.39xS; T25.00xA - T25.39xS	Burns of head, face, neck, trunk, upper limb, wrist and hand, lower limb, and multiple and unspecified body regions [thermal burns]
T66.xxxA - T66.xxxS	Radiation sickness, unspecified
T81.30xA - T81.33xS	Disruption of wound [(surgical) wound dehiscence]

CPT/HCPCS codes not covered:	
Code	Description
A4575	Topical hyperbaric oxygen chamber, disposable
E0446	Topical oxygen delivery system, not otherwise specified, includes all supplies and accessories

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