

Hyperbaric Oxygen Therapy (HBOT)

MPM 8.6

Disclaimer	Refer to the member's specific benefit plan and <i>Schedule of Benefits</i> to determine coverage. This may not be a benefit on all plans or the plan may have broader or more limited benefits than those listed in these criteria.
Description	Hyperbaric Oxygen Therapy (HBOT) is a treatment modality in which the entire body is enclosed in a pressure vessel and exposed to 100% oxygen at increased atmospheric pressure of at least 1.5 x sea level or ambient pressure. Hyperbaric Oxygen Therapy aids healing in a variety of ways by increasing the oxygen that is available for cellular metabolism.
Coverage Determination	Benefit Certification is required. Log on to Pres Online to submit a request: https://ds.phs.org/preslogin/index.jsp A. <u>Diabetic Wounds:</u> HBOT is covered for the treatment of diabetic wounds, when the following criteria are met: <ol style="list-style-type: none">1. Diabetic related wounds of the lower extremity that are classified as Wagner grade 3 or higher (Wagner Classification Scale on page 3), AND2. Failure of an adequate course of standard wound therapy, with no measurable signs of healing for at least 30 days, OR Loss of function, limb or life is threatened.^{1,2,4,11,14} B. <u>Hypoxic Wound Therapy Guidelines:</u> Transcutaneous oxygen tension measurement (TcPO ₂) has a prognostic significance when used to identify patients with hypoxic non-healing lesions who are most likely to benefit from HBO therapy. Adjunctive hyperbaric oxygen is indicated in selected wound patients who demonstrate all of the following: <ol style="list-style-type: none">1. Failure of an adequate course of standard wound therapy, with no measurable signs of healing for at least 30 days, OR Loss of function, limb or life is threatened.2. Significant baseline hypoxia of TcPO₂ <40 mmHg.

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3. TcPO₂ with significant rise during oxygen challenge test at ambient pressure. TcPO₂ should increase to >35-40 mmHg. Preferably baseline values should be doubled,

OR

Hyperbaric challenge with TcPO₂ results >100 mmHg at 100% oxygen at 2 – 2.5 ATA (atmosphere absolute).^{4, 9, 15}

All cases involving the use of HBOT in preparation for surgical intervention, where the above criteria have not been met, should be referred to medical director review.

C. Other conditions covered for HBOT:

Used in the context of the conditions listed below, “acute” means that HBOT is initiated within 48 hours of the onset of the medical conditions described.

Treatment needs will vary. Initial therapy should be certified for no more than 30 days. Continued HBOT therapy is not covered if measurable signs of healing have not been demonstrated within any 30-day period of treatment.

1. Refractory chronic osteomyelitis, in the following circumstances:
 - a. Disease that persists or recurs following treatment with conventional medical and surgical management, i.e., surgery, antibiotics, aspiration of abscess.^{1,2,4}
 - b. Prior to initial debridement and antibiotic therapy when the bone involved is central, such as sternum, vertebrae, cranium (including malignant otitis media) and removal of hardware or extensive surgical debridement is relatively contraindicated.^{4,16}
 - c. Prior to extensive surgical debridement and antibiotic therapy when the patient is a child¹⁶
2. Clostridial myonecrosis (Gas Gangrene)^{1,2,4}
3. Progressive necrotizing tissue damage (necrotizing fasciitis)^{1,2,4}
4. Osteoradionecrosis, soft tissue radionecrosis, and delayed radiation injury (radiation proctitis, radiation cystitis, radiation enterocolitis). This includes pre- and post-prophylactic treatment for members undergoing dental surgery who have had radiation to the head and neck at anytime in the past^{1,2,4, 12}
5. Actinomycosis only as an adjunct to conventional therapy when the disease process is refractory to antibiotics and surgery^{1,2}
6. Compromised skin grafts and flaps, or preparation of the wound bed for graft/flap^{1,2,4,9}

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7. Acute carbon monoxide or cyanide poisoning^{1,2,4,10}
8. Decompression illness^{1,2,4}
9. Air or gas embolism^{1,2,4,14}
10. Acute crushing or severing injuries when loss of function, limb or life is threatened and when HBOT is used in conjunction with standard therapy^{1,2,4}
11. Acute traumatic peripheral ischemia, as an adjunct to conventional treatment when loss of function, life or limb is threatened^{1,2,4}
12. Acute peripheral artery insufficiency^{1,2,4}
13. Overwhelming and acute blood loss anemia when there is no transfusion alternative^{1,2,4,14}
14. Intracranial abscess, use only as an adjunct to standard therapy if one of the below criteria is met:
 - a. Multiple abscesses
 - b. Abscesses in deep/dominant location
 - c. Compromised host
 - d. Surgery contraindicated or poor surgical risk
 - e. No response or further deterioration in spite of standard surgical and antibiotic management⁴
15. Acute thermal burns, typically for deep 2nd or 3rd degree burns involving greater than 20% of the total body surface area, and less extensive burns involving the face, hands and groin area. May also be used for burns of the foot or hand in patients with comorbid conditions that negatively impact healing, such as diabetes and peripheral vascular disease^{4,9}
16. Central retinal artery occlusion⁴

Exclusions

Any clinical conditions not listed above is not covered, including but not limited to the following:

1. Diabetic wounds of locations other than the lower extremity^{1,2}
2. Fistula or pure tract wounds not amenable to TcPO₂ measurement⁴
3. Autism⁸
4. Cognitive disorders (e.g., senility, dementia)
5. Behavioral disorders
6. Acute or chronic cerebrovascular accident (stroke)
7. Cerebral palsy⁷

Medical Terms**Wagner's Classification of Diabetic Foot Ulcers:**

- | | |
|-------------|---|
| Grade 1: | Superficial ulcer without subcutaneous involvement |
| Grade 2: | Penetration through the subcutaneous tissue; may expose bone, tendon, ligament or joint capsule |
| Grade 3: | Bone infection, abscess, or osteitis |
| Grade 4 /5: | Gangrene |

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Coding

The coding listed in this Medical Policy is for reference only. Covered and non-covered codes are included in this list.

CPT Codes	Description
99183	Physical attendance and supervision of hyperbaric oxygen therapy, per session

HCPCS® Codes	Description
C1300	Hyperbaric oxygen under pressure, full body chamber, per 30 minute interval

ICD-9® Diagnosis Codes	Description
039.0-039.4	Actinomycotic infections
039.8-039.9	Actinomycotic infections
040.0	Gas gangrene
250.70-250.73	Diabetes with peripheral circulatory disorders
250.80-250.83	Diabetes with other specified manifestations
362.31	Central retinal artery occlusion
444.21-444.22	Arterial embolism and thrombosis of arteries of the extremities
444.81	Arterial embolism and thrombosis of arteries of iliac artery
526.89	Osteoradionecrosis of the jaw
707.10-707.15	Ulcer of lower limbs, except decubitus
707.19	Ulcer of other part of lower limb
728.86	Necrotizing fasciitis

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ICD-9© Diagnosis Codes	Description
730.10- 730.19	Chronic osteomyelitis
902.53	Injury to blood vessels of iliac artery
903.01	Injury to blood vessels of axillary artery
903.1	Injury to blood vessels of brachial blood vessels
904.0	Injury to blood vessels of common femoral artery
904.41	Injury to blood vessels of popliteal artery
927.00- 927.03	Crushing injury of upper limb
927.09	Crushing injury of upper limb, multiple sites
927.10- 927.11	Crushing injury of elbow and forearm
927.20- 927.21	Crushing injury of wrist and hand(s), except fingers(s) alone
927.8-927.9	Crushing injury of upper limb
928.00- 928.01	Crushing injury of hip and thigh
928.10- 928.11	Crushing injury of knee and lower leg
928.20- 928.21	Crushing injury of ankle and foot, excluding toe(s) alone
928.3	Crushing injury of toe(s)
928.8-928.9	Crushing injury of lower limb
929.0	Crushing injury, multiple sites, not elsewhere classified
929.9	Crushing injury; unspecified site
958.0	Air embolism

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ICD-9© Diagnosis Codes	Description
986	Toxic effect of carbon monoxide
987.7	Toxic effect of other hydrocyanic acid gas
989.0	Toxic effect of hydrocyanic acid and cyanides
990	Complication of radiation therapy
993.2-993.3	Effects of air pressure
996.52	Mechanical complication due to graft of other tissue, not elsewhere classified (skin graft failure or rejection)
996.90- 996.96	Complications of reattached extremity or body part
996.99	Complications of reattached other specified body part
999.1	Air embolism to any site following infusion, perfusion, or transfusion

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 2. Laura A. Mitchell, MD, Presbyterian Wound Center Medical Director, Hyperbaric and Orthopedic MD Albuquerque, NM, January 2006, April 2007
 3. Michelle R. Cassell, RN, CNS, CWOCN, Wound Program Manager, Presbyterian Hospital, Albuquerque, NM, February 2006, April 2007, May 2008, August 2009, August 2010
 4. Ronald W. Quenzer, MD, Medical Director, Hyperbaric Medicine Center, Presbyterian Healthcare Services, Albuquerque, NM, December 2005, February 2006

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<http://www.uhms.org/Default.aspx?tabid=270>

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08-25-10: Annual Review and Revision

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This Medical Policy is intended to represent clinical guidelines describing medical appropriateness and is developed to assist Presbyterian Health Plan and Presbyterian Insurance Company, Inc. (Presbyterian) Health Services staff and Presbyterian medical directors in determination of coverage. The Medical Policies are not a treatment guide and should not be used as such.

For those instances where a member does not meet the criteria described in these guidelines, additional information supporting medical necessity is welcome and may be utilized by the medical director in reviewing the case. Please note that all Presbyterian Medical Policies are available on the Internet at:

<http://www.phs.org/phs/healthplans/providers/healthservices/Medical/index.htm>