SPECIAL COMMUNICATION

Credentialing Guidelines for Doctors of Podiatric Medicine Supervising Hyperbaric Oxygen Therapy

A Position Paper

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Hyperbaric oxygen therapy (HBOT) is a useful tool for many conditions within the scope of practice of a Doctor of Podiatric Medicine (DPM). More wound-care clinics are adding HBOT as a service line. The increasing prevalence of DPMs operating inside of these wound-care clinics has raised questions about the licensure and privileging of DPMs to supervise HBOT. This document reviews the safety of outpatient HBOT and provides guidelines for hospitals to credential DPMs to supervise treatments. (J Am Podiatr Med Assoc 105(4): 367-370, 2015)

The goal of this document is to provide guidance for institutions credentialing Doctors of Podiatric Medicine (DPMs) to supervise hyperbaric oxygen therapy (HBOT).

Hyperbaric oxygen therapy is the delivery of high concentrations of oxygen under higher than atmospheric pressures. It is administered most commonly in the United States by placing the patient in a cylindrical monoplace chamber. In some cases a multiplace chamber is used and multiple patients are treated at the same time with an attendant present inside the chamber. Hyperbaric oxygen therapy is a primary treatment for relatively few conditions that are not related to the foot or ankle, such as air gas embolism, decompression illness, and carbon monoxide intoxication. In other cases, like those related to the lower extremity, HBOT is an adjunctive therapy and it is used in combination with other treatments. Hyperbaric oxygen therapy can be delivered in both the outpatient and inpatient settings.

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Indications and Safety of HBOT

Hyperbaric oxygen therapy has been a proposed treatment for lower-extremity conditions including diabetic foot ulcers,[1,2] clostridial myonecrosis,[3] necrotizing fasciitis,[4] refractory osteomyelitis,[5] compromised skin grafts and flaps, and thermal burns.[6] Although there have been scientific papers in support and opposition of HBOT in the use of diabetic foot ulcers,[7] it cannot be disputed that many conditions in the lower extremity may benefit from adjunctive HBOT. Table 1 lists the approved HBOT indications by Medicare National Coverage Determination.

Although there are risks to any medical or surgical treatment, HBOT has a favorable safety record. Plafki et al[8] reviewed 11,376 HBOT sessions in 782 patients and found that barotrauma to the ear was the most common complication. Serious complications were very rare, such as oxygen toxicity and seizures, which occurred in only 4 patients. The treatment protocol for lower-extremity conditions use pressures below 3 atm and durations of therapy less than 2 hours and are generally considered safe.[9] The University of Pittsburgh Medical Centers reviewed all HBOT incidents from July 1, 2013, to May 31, 2014. A total

Table 1. CMS National Coverage Determination for HBOT

CMS National Coverage Determination for HBOT
1. Acute carbon monoxide intoxication
2. Decompression illness
3. Air gas embolism
4. Gas gangrene
5. Acute traumatic peripheral ischemia
6. Crush injuries and suturing of severed limbs
7. Progressive necrotizing infections
8. Acute peripheral arterial ischemia
9. Preparation and preservation of compromised skin grafts
10. Chronic refractory osteomyelitis, unresponsive to conventional medical and surgical management
11. Osteoradionecrosis
12. Soft tissue radionecrosis
13. Cyanide poisoning
14. Actinomycosis
15. Diabetic wounds of the lower extremity in patients who meet the following criteria
a. Patient has Type 1 or 2 and a lower extremity wound due to diabetes, and
b. Wound is Wagner grade III or higher, and
c. Patient has failed an adequate course of standard wound therapy

Note: Conditions in boldface are within the scope of practice for Doctors of Podiatric Medicine.

Abbreviations: CMS, Center for Medicare and Medicaid Services; HBOT, hyperbaric oxygen therapy.

of 3,378 treatments were delivered and no serious adverse events occurred, including in all treatments supervised by a DPM (written communication from University of Pittsburgh Medical Centers to Novitas Solutions, Inc, commenting on LCD# L34794, July 4, 2014). Paradigm Medical Management, an HBOT management company, reviewed data from 20 national centers between January 1, 2010, and July 1, 2014. A total of 15,476 treatments were supervised by non-MD or DOs (DPM, nurse practitioner, and physician's assistant). No serious adverse events were discovered, including cardiac arrest, pneumothorax, seizure, and no patient required transfer to an emergency department (unpublished internal review of Paradigm Medical Management Clinics, July 10, 2014).

Governance of DPMs Supervising Hyperbaric Oxygen Therapy

Doctors of Podiatric Medicine are licensed independent practitioners (LIP), like those holding a Doctor of Medicine (MD) or a Doctor of Osteopathy (DO) degree. But podiatrists are limited in their treatment by legal and administrative factors, state scope of practice, and hospital credentialing and privileging.

Licensing of healthcare professionals is not a federally enumerated power in the United States Constitution. Therefore, healthcare professionals are licensed by the states and are governed by a professional licensing board. In some states, podiatric medicine has its own licensing board, in other states it is part of the medical board. Because of the state dependency of DPM licensing, the scope of practice varies widely from state to state. The prescription and supervision of HBOT is an allowed practice for DPMs in a majority of states when HBOT is being used to treat a condition within the scope of practice.

Hospital privileging is based on education, training, and experience. When the state scope of practice allows, hospitals privilege DPMs to administer systemic therapies directly related to the treatment of a condition in the scope of practice, similar to the administration of conscious sedation, intravenous antibiotics, blood transfusions, and contrast media. Many hospitals also credential DPMs to perform procedures in anatomic regions other than the foot and ankle if it directly relates to the foot or ankle, such as harvesting a split-thickness skin graft or autologous bone graft to be applied to the foot or ankle.

Credentialing Recommendations

It is currently the industry standard for any LIP supervising HBOT to complete a 40-hour didactic safety course, which includes a knowledge test at the completion. We cannot think of a therapy or single technique in medicine requiring a higher standard for education and safety. This high standard may be reflective in our superior national safety record for HBOT.

Doctors of Podiatric Medicine are not eligible to be board certified by the Undersea and Hyperbaric Medicine Society (UHMS) or the American Board of Hyperbaric Medicine (ABHM). Both organizations are administered by MDs and exclude practitioners not holding an unlimited license (both) and those who have not completed a post-graduate training program in hyperbaric medicine (UHMS). Doctors of Podiatric Medicine can be board certified by the American Board of Podiatric Medicine (ABPM) or the American Board of Foot and Ankle Surgery

Appointment Dates: _____ **To:** _____

HYPERBARIC OXYGEN THERAPY (HBOT)
DELINEATION OF PRIVILEGES

MINIMUM THRESHOLD CRITERIA

To be eligible to apply for hyperbaric privileges, the practitioner must be a member of the medical staff:

- Basic Education – MD or DO, DPM*

  ***DPM** – HBOT privileges include only supervision of HBOT for conditions of the foot and ankle.*

- Current certification in hyperbaric medicine by either the American Board of Preventative Medicine, or the American Board of Emergency Medicine, or the American College of Hyperbaric Medicine

  OR

- Completion of an Undersea and Hyperbaric Medical Society approved Introductory Hyperbaric Training Course (minimum 40 contact hours)

  AND

- Current Basic Life Support (BLS) certification
- Proctoring of 10 HBOT dives

REAPPOINTMENT CRITERIA

- Supervision of greater than 25 HBOT dives in the past 24 months

  OR

- Completion of an HBOT refresher course (minimum 8 contact hours)

	REQUESTED	*APPROVED*	*COMMENTS*
PRIVILEGES			
Diagnosis and therapeutic management of conditions related to the use of hyperbaric oxygen therapy (HBOT). These privileges include the provision of consultations and initial evaluation for patients requiring HBOT, direction and supervision of HBOT, transcutaneous oxygen monitoring (TCOM) interpretation, as well as ordering appropriate studies and procedures relevant to diagnoses and proposed HBOT.			
DPM: Privileges include only supervision of HBOT for conditions of the foot and ankle			

_____ _____
Signature of Applicant Date

_____ _____
Department Chair/Board Approval Date

Figure 1. An example credentialing for HBOT privileges which incorporates DPMs based on their education, training, and experience.

(ABFAS). The ABPM tests for competencies on the indications and complications of HBOT.

Doctors of Podiatric Medicine are eligible to obtain Advanced Cardiac Life Support (ACLS) certification, but whether or not to require ACLS for LIP supervision of HBOT is controversial. There are really two types of HBO centers: ones offering emergency services to unstable patients with call teams available around the clock and others offering services only to stable outpatients who are cleared by a physician. It makes sense to require ACLS certification in centers which offer 24/7 emergent care. It does not make sense to require ACLS certification to supervise HBOT in stable outpatients. There is no standard from the Joint Commission on Accreditation of Healthcare Organizations, or any other organization, which requires ambulatory medicine clinics to have ACLS trained personnel and equipment on site. But in either case, DPMs can meet those standards.

It is our recommendation that facilities credential DPMs to supervise HBOT based on their education, training, and experience. The three guidelines below will demonstrate these competencies to a hospital credentialing committee.

I. Initial privileging application: Completion of a 40-hour HBOT safety course with a passing score on the knowledge assessment.
II. Initial privileging application: Proctoring of 10 HBOT dives.
III. Renewal privileging application: Supervision of more than 25 HBOT dives in the past 24 months or completion of an 8-hour HBOT refresher course.

Figure 1 provides an example of a credentialing form to be used by institutions that incorporate these recommendations.

Summary

Hyperbaric oxygen therapy is a beneficial treatment for the approved indications, but has serious and very rare safety concerns that can be reduced with the proper preparation. We do not recommend that ACLS certification be made a criterion for supervision since serious adverse events requiring ACLS are nearly unreported in HBOT; the expense of on-site ACLS teams outweighs the benefit. Personnel certified in ACLS can be readily available by CODE team or EMS for the rare instance of an emergency. Doctors of Podiatric Medicine can legally and safely supervise the delivery of HBOT when conditions to verify their education, training, and experience have been met.

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Conflict of Interest: None reported.

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