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**Indications for hyperbaric oxygen therapy**

**Approved indications**

The Undersea and Hyperbaric Medicine Society along with most third-party payors have concluded that hyperbaric oxygen therapy is an approved and efficacious primary and/or adjunctive therapy for the following conditions:

* Air or gas embolism
* Gas gangrene
* Crush injury
* Compartment syndrome
* Acute peripheral ischemias
* Decompression sickness
* Enhanced healing in selected problem wounds
* Exceptional blood loss anemia
* Necrotizing soft tissue infections
* Osteomyelitis
* Delayed radiation injury (soft tissue and bony necrosis)
* Compromised skin grafts and flaps
* Carbon monoxide poisoning

**Two indications that deserve special consideration**

**Radiation-induced tissue damage**

Soft tissue radionecrosis (STRN) and osteoradionecrosis (ORN) are delayed radiation injuries that occur in tissues and bones that have been exposed to radiation, most commonly during a course of radiation therapy for cancer treatment. The hallmark of these conditions is a progressive destruction of small blood vessels (endarteritis) that results in tissue hypoxia and fibrosis.

These tissues and bones are at risk for spontaneous breakdown and tend to show poor healing after surgical or traumatic insult. These conditions typically have a slow onset and symptoms may not present for months to years after radiation exposure. Any tissue in the irradiated field can be affected, including the mandible (osteoradionecrosis), bladder (radiation cystitis), and bowel (radiation proctitis and enteritis).

HBO encourages neovascularization (regrowth of new blood vessels) in these tissues and can return oxygenation to near pre-radiation levels. This enhances healing in tissues with clinically evident disease and can even be used prophyactically to prepare compromised, previously irradiated tissues for planned surgical procedures. This is especially known in the case of mandible ORN where utilizing HBO before, and after, tooth extraction has been shown to minimize the incidence of post-operative jaw breakdown.

**Diabetic foot wounds**

Diabetic foot wounds are largely a result of impaired healing due to tissue hypoxia in conjunction with other complications of the underlying diabetes. HBO has been shown to enhance neovascularization (regrowth of new blood vessels) and improve tissue oxygenation, which allows the normal healing processes to occur. In recognition of this, Medicare has recently approved the use of HBO to treat diabetic foot wounds if they are at least a Wagner's class III (involvement of deeper tissues-bone, tendon, joint capsule-with abscess, osteomyelitsis, or tendonitis) and have failed other therapies for greater than 30 days.

**Indications for hyperbaric oxygen therapy approved by the Undersea and Hyperbaric Medical Society55**

1. Air or gas embolism
2. Carbon monoxide poisoning and smoke inhalation; carbon monoxide poisoning complicated by cyanide poisoning
3. Clostridial myositis and myonecrosis (gas gangrene)
4. Crush injury, compartment syndrome, and other acute traumatic ischaemias
5. 5 Decompression sickness
6. Enhancement of healing in selected problem wounds
7. Exceptional blood loss (anaemia)
8. Intracranial abscess, actinomycosis
9. Necrotising soft tissue infections
10. Osteomyelitis (refractory)
11. Delayed radiation injury (soft tissue and bony necrosis)
12. Skin grafts and flaps (compromised)
13. Thermal burns
14. *Problem wound: (Left) chronic infection, 8 months of discharging sinus..* Nocardia brasiliensis *cultured. No improvement with surgical debridement and high dose antibiotic therapy .(RIght) Complete resolution ofwound with 19 HBO treatments (1 hour at 18 m pressure[1.8 bar] with 30 minute ascent to surface pressure). Severe burns treated with HBO.*