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*Patient Reported Outcome of late effects of radiation symptoms following treatment with Hyperbaric Oxygen Therapy (HBOT)*

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**MEASURE ID: USWR26**

**MEASURE DESCRIPTION:**

The percentage of patients 18 or older undergoing 10 or more treatments with HBOT for late effects of radiation whose self-reported symptoms improve by at least 2 categories on the appropriate questionnaire (e.g., the Hematuria classification scale, the Chandler grade, the Cystitis questionnaire, the Bowel questionnaire, the head and neck questionnaire).

**DENOMINATOR:**

All patients, age 18 or older, treated for late effects of radiation with at least 10 treatments of HBOT and who complete a validated symptom questionnaire before and after the treatment series

**NUMERATOR:**

The percentage of patients 18 or older undergoing 10 or more treatments with HBOT for late effects of radiation whose self-reported symptoms improve by at least 2 categories on the appropriate questionnaire

**DENOMINATOR EXCLUSIONS:**

Patients who receive fewer than 10 treatments, patients whose questionnaire data are incomplete for the purposes of scoring

**DENOMINATOR EXCEPTIONS:**

None

**NUMERATOR EXCLUSIONS:**

None

**HIGH PRIORITY MEASURE:**

Yes

**HIGH PRIORITY TYPE:**

Outcome

**MEASURE TYPE:**

Patient-Reported Outcome-based Performance Measure (PRO-PM)

**NQS DOMAIN:**

Person and Caregiver Centered Experience and Outcomes

**CARE SETTING:**

Ambulatory, Ambulatory Care: Clinician Office/Clinic, Ambulatory Care: Hospital, Ambulatory Surgical Center, Hospital Outpatient, Office Based Surgery Center, Outpatient Services, Rehabilitation Facility, Rehabilitation Facility: Inpatient

**PUBLISHED SPECIALTIES:**

Acute Care; Emergency Medicine; Hematology & Oncology; Internal Medicine; Mental/Behavioral Health; Nuclear Medicine; Obstetrics/Gynecology; Otolaryngology; Pain Management; Psychiatry; Physical Medicine & Rehabilitation; Physical Therapy/Occupational Therapy; Plastic and Reconstructive Surgery; Podiatry; Psychology; Radiation Oncology; Urology; Wound Care

**PREFERRED MEASURE PUBLISHED CLINICAL CATEGORY:**

Hyperbaric Medicine, Cancer

**INCLUDES TELEHEALTH:**

No

**MEANINGFUL MEASURE AREA:**

Functional Outcomes

**MEANINGFUL MEASURE AREA RATIONALE:**

HBOT can improve Late effects of radiation, symptoms of which dramatically impact quality of life, activities of daily living (e.g., urination, defecation, eating, etc.), hospitalization rate and life expectancy.

**MEASURE CALCULATION TYPE:**

Proportional Measure

**NUMBER OF PERFORMANCE RATES:**

1

**PERFORMANCE RATE DESCRIPTION:**

Not provided

**INDICATE OVERALL PERFORMANCE RATE:**

1st Performance Rate

**RISK ADJUSTED STATUS:**

No

**CLINICAL RECOMMENDATION STATEMENT:**

HBOT is indicated in the management of late effects of radiation including soft tissue radionecrosis and osteoradionecrosis. HBOT results in a significant reduction in morbidity among patients with late effects of radiation and is still the only treatment demonstrated to improve vascularity within the irradiated field. The impact of HBOT on Late Effects of Radiation can best be evaluated by patient reported symptoms.

**QCDR MEASURE RATIONALE:**

Cancer is a significant global health problem. In the U.S., this problem is increasing rather than decreasing with the national epidemic of HPV associated cancers which often require maximal doses of XRT to areas like the head and neck and the rectum. Radiotherapy is a successful treatment for many cancers and the survival rates is high with about 50% of people having radiotherapy being long-term survivors. There is a risk of serious complications developing after radiotherapy for cancer referred to as late effects of radiation or radiation tissue injury (LRTI). LRTI can have a profound impact on quality of life and treatment is almost exclusively symptomatic. Only HBOT can impact the underlying cause which is hypo-vascularity in the irradiate field. A Cochrane review of the literature found that HBOT improved patient reported outcome in LRTI affecting bone and soft tissues of the head and neck, radiation proctitis and cystitis. Outcome of late effects of radiation to both bone and soft tissue are best measured by patient reported symptoms. Hyperbaric oxygen therapy for the treatment of the late

effects of radiotherapy", 28 April 2016 Authors: Bennett MH, Feldmeier J, Hampson NB, Smee R, Milross C. [https://www.cochrane.org/CD005005/GYNAECA\\_hyperbaric-oxygen-therapy-treatment-late-effects-radiotherapy](https://www.cochrane.org/CD005005/GYNAECA_hyperbaric-oxygen-therapy-treatment-late-effects-radiotherapy)

**STUDY CITATION:**

More research is needed to understand the patient reported outcome of LTRI after HBOT making this an ideal target for a PRO measure. The symptoms of LTRI have a significant impact on quality of life since they impact activities of daily living (e.g., eating, bowel and bladder function, speaking, etc.). Thus, the impact of LTRI on quality of life, and the benefit of HBOT are best determined via patient reported questionnaires. Many such questionnaires have been validated due to the prevalence of LTRI and its severity. Small studies have documented an improvement in LENT?SOMA [Late Effects Normal Tissue Task Force (LENT)-Subjective, Objective, Management, Analytic (SOMA)] score at completion of HBOT therapy (n= 150 participants). The mean improvement in LENT?SOMA score was greater in the HBOT group (5.0 with HBOT versus 2.6 with control, P value = 0.002). In another trial, the Bowel Bother subscale at completion of therapy (n = 150), (Clarke 2008) showed a mean improvement of 14.1% (P value = 0.0007) following HBOT. Shao (2011) reported pelvic pain improved 9 points (SD 7.9) with HBOT. Teguh (2009 ) reported an improvement of several points in the QoL items relating to xerostomia and dysphagia using the EORTC, Head and Neck cancer module. 1. Hyperbaric oxygen therapy for late radiation tissue injury. Bennett, et. Al, 28 April 2016, Cochrane Database of Systematic Reviews <https://doi.org/10.1002/14651858.CD005005.pub4>.