

Hyperbaric Oxygen Therapy for Difficult Wound Healing in Newfoundland & Labrador

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The Issue

- Hyperbaric Oxygen Therapy (HBOT) delivers pure, pressurized oxygen into a sealed chamber. It is conventionally used to treat decompression sickness, carbon monoxide poisoning, certain kinds of wounds, and delayed radiation injuries.
- Since taking responsibility for the provincial HBOT unit in March 2010, Eastern Health has been developing policies for clinical HBOT in the province. Eastern Health has increased infrastructure and human resources capacity for HBOT and intends to continue these efforts to meet an expected rising demand for HBOT services.
- In partnering with CHRSP, Eastern Health sought research-based evidence to guide decision making about the clinical and cost effectiveness of HBOT for difficult wounds, health conditions requiring special attention in the province.

The Question

What does the scientific literature tell us about the clinical and economic effectiveness of hyperbaric oxygen treatment for difficult wound healing (i.e., diabetic foot ulcers, pressure ulcers, delayed radiation-induced injury, thermal burns, skin grafts and flaps, and revascularization after organ transplantation) considering the expected patient populations and given the social, geographic, economic and political contexts of Newfoundland and Labrador?

The Results

- Research evidence supports HBOT as clinically-effective and cost-effective for treating diabetic foot ulcers. While evidence supports HBOT as clinically-effective for treating delayed radiation-induced injuries of the head, neck and pelvis, there is insufficient evidence as to whether HBOT is cost-effective for the same injuries.
- There is insufficient evidence about the clinical or cost effectiveness of HBOT for: pressure ulcers, delayed radiation-induced injuries in other parts of the body, thermal burns, skin grafts, skin flaps, or revascularization after organ transplantation.
- The cost effectiveness of HBOT for appropriate non-healing wounds increases as the number of treated patients increases.
- The appropriate and timely referral of patients for HBOT treatment improves with integration of wound-care management into existing chronic and acute health service programs.
- Overall, evidence for the clinical and cost effectiveness of HBOT for non-healing wounds is limited. As a result, future studies will be needed to augment the evidence base concerning HBOT for a number of conditions.
- With increased awareness of the effectiveness of HBOT for wound care, HBOT referrals are likely to increase in the province. The incidence of health conditions that may result in non-healing wounds is also expected to rise. The province will therefore require greater capacity and more efficient HBOT chamber use to meet a growing demand for HBOT. The province may also need to consider a methodology for ensuring HBOT is an appropriate treatment option.
- Eastern Health may benefit from knowledge exchange with HBOT units across Canada to learn more about service development and appropriate clinical applications for hyperbaric oxygen therapy.
- Patients from outside St. John's may benefit from telehealth consultations prior to HBOT; they may also need service options that are designed to reduce their length of stay for treatment.
- The current HBOT location in the Health Sciences Centre may pose problems for those with limited mobility. Exposure to public areas when accessing the HBOT facility may also pose an infection risk.
- Cost effectiveness can be improved by addressing overtime issues, training, specialized pediatric options, and remuneration models, and by optimizing human resources and capacity.
- Organizational considerations include integrating HBOT into a wound-care management program and addressing acute-care/chronic-care service issues.

The Local Context