

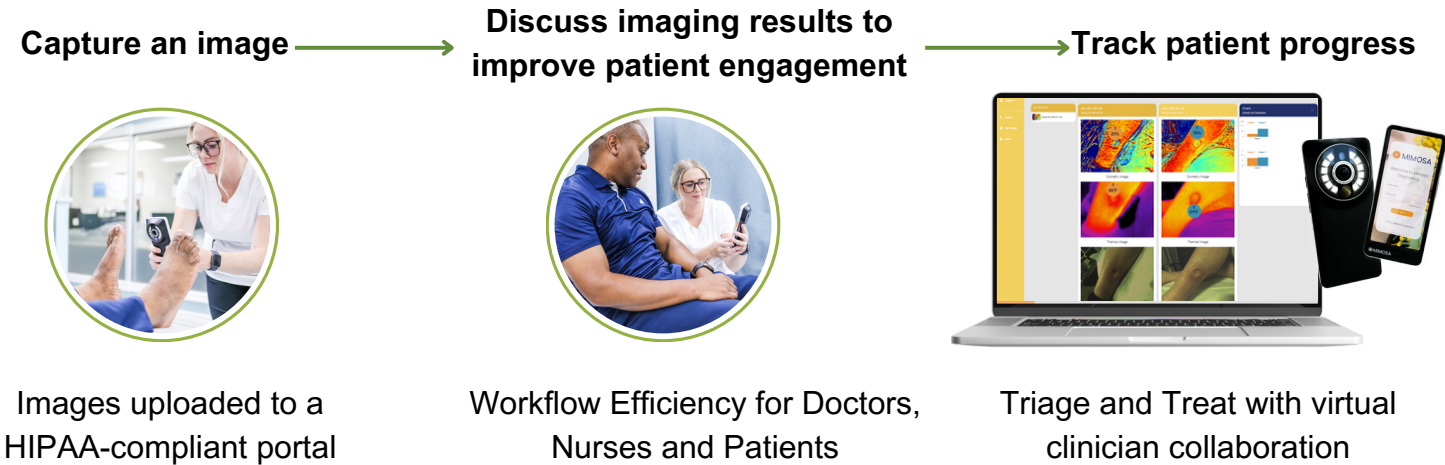
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Introduction

Hypoxia is a primary risk factor for non-healing wounds (Ercengiz and Mutluoglu 2023). Among the advanced therapeutic approaches for treating wounds, hyperbaric oxygen therapy (HBOT) possesses a distinctive capability to alleviate tissue hypoxia, diminish pathological inflammation, and mitigate the effects of ischemia-reperfusion injury (Fife, Eckert, and Carter 2016). Yet challenges persist in patient qualification for HBOT, documentation of HBOT efficacy and effectiveness, justification of additional dives, and patient compliance. Consequently, suboptimal HBOT workflows may lead to financial burdens on the healthcare system. This study explores the financial impact of integrating a portable Multispectral Near-Infrared Spectroscopy (NIRS) imaging device into the HBOT workflow, aiming to evaluate its influence on health resource utilization (HRU) and financial outcomes compared to the conventional standard of care.

Methods



The study utilized an FDA-cleared handheld mobile NIRS and IR thermal imaging device (MIMOSA Pro, MIMOSA Diagnostics, Toronto, Canada). NIRS and thermal data were collected during the initial patient qualification for HBOT, as well as pre- and post-treatment sessions. Imaging data helped to qualify patients for HBOT, document therapeutic efficacy, and keep patients engaged and committed to the treatment by demonstrating improvements to tissue health following each dive.

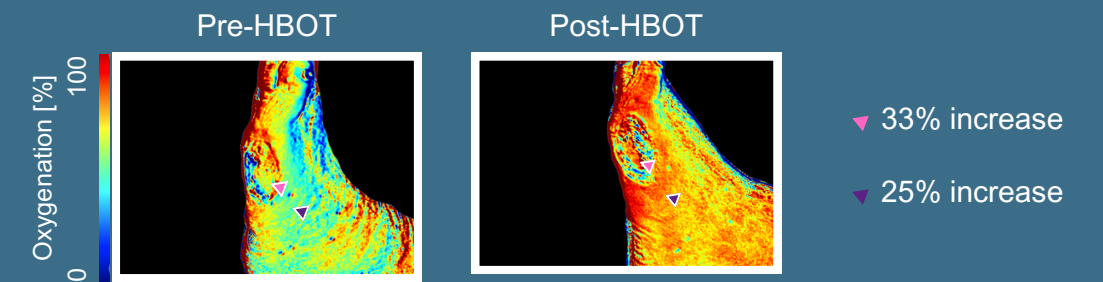
The assessment of financial implications involved a retrospective analysis, comparing data from the three months preceding the integration of NIRS imaging into the HBOT workflow to the three months following implementation.

Discussion & Conclusion

NIRS imaging stands out as a valuable complementary tool for HBOT workflow. It has the potential to optimize patient flow-through by improving patient qualification rates and physician buy-in, as well as enhance patient compliance through visual demonstrations of treatment outcomes. Additionally, NIRS provides an objective measure for assessing responses post-therapy, aiding in justifying additional treatment. The study's analysis of health resource utilization outcomes, qualification success rates, and financial metrics contributes to a comprehensive understanding of how optimizing the HBOT workflow impacts both healthcare practices and economics.

Results

"We had Dr. W not a believer in HBOT. He saw the increase in oxygenation after HBO therapy compared to prior to the therapy. A week later, he referred an HBOT patient."



| | Standard of care (Q4 2023) | MIMOSA Scenario (Q1 2024) |
|--|----------------------------|---------------------------|
| # of HBOT appointments | 157 | 197 |
| % of patients that attended appointments (compliance rate) | 68% | 84% |
| Revenue per Session | \$600 | |
| Total Revenue | \$63,600 | \$99,600 |
| Missed opportunity | \$36,000 | |

SOC vs MIMOSA Scenario:

- **25% increase in # of appointments:** optimizing patient flow-through by improving physician buy-in and patient qualification rates.
- **16% increase in patient compliance:** enhancing patient compliance through visual demonstrations of treatment outcomes.
- **\$36,000 increase in revenue:**
 - + \$12,000 in revenue/quarter
 - + \$24,000 in revenue for new patient

