

# Assessing Patient Response to Wound Therapies with SnapshotNIR to Avoid Amputation

Presented by: Erin Buchness, MHL, RN, DAPWCA

**PATIENT HISTORY:**

A 57-year-old female patient with a significant history of diabetes, peripheral arterial disease (PAD) with a prior transmetatarsal amputation to the left foot congestive heart failure (CHF), dialysis-dependent, and tobacco abuse was admitted to the clinic.

**CASE STUDY DETAILS:**

In January 2023, the patient’s arterial duplex showed monophasic blood flow in the peroneal, anterior tibial, and dorsalis pedis arteries. An angiogram was accomplished but no intervention was required. In February 2023, due to gangrene and osteomyelitis, a right great toe amputation was performed with primary closure. The patient was followed by her podiatrist postoperatively and then referred to the wound center for hyperbaric oxygen therapy (HBOT) treatments.

The patient was admitted to the wound center in February 2023. At her first appointment, her right foot amputation site was assessed and her baseline tissue oxygenation (S<sub>t</sub>O<sub>2</sub>) was captured with SnapshotNIR.

*“SnapshotNIR assisted in our clinical decision-making and wound plan of care implementation. Without it, we would not be able to assess the patient’s response to the advanced modalities as efficiently or effectively.”*

**- Erin Buchness, MHL, RN, DAPWCA**

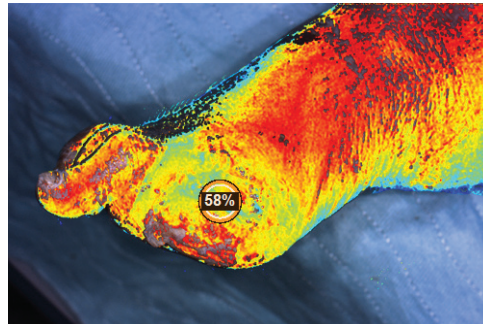


Fig 1A: 3/28/23: Pre-debridement image of the healing diabetic foot ulcer.

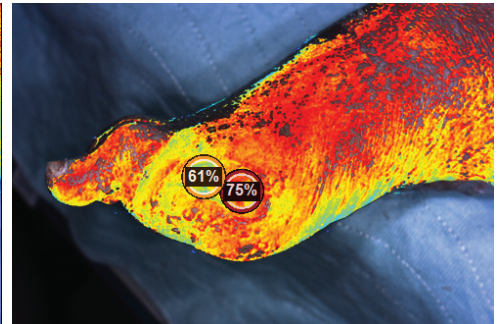


Fig 1B: 3/28/23: Post-debridement image of the healing diabetic foot ulcer.



Fig 2A: 4/13/23: Pre-debridement image of the healing diabetic foot ulcer.

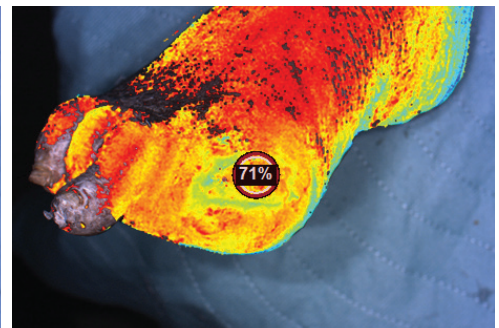
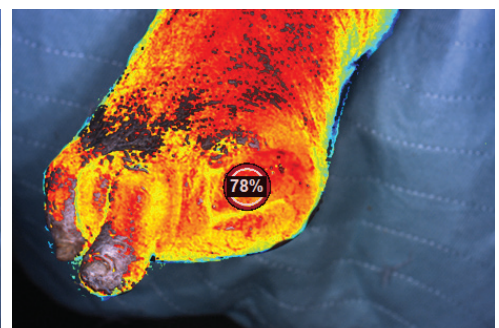


Fig 2B: 4/13/23: Post-debridement image of the healing diabetic foot ulcer. Note the increase in oxygenation.



**Erin Buchness**

Erin Buchness, MHL, RN, DAPWCA is the Clinical Nurse Manager of the Mercy Wound Care and Hyperbaric Center at Springfield, MO.



**CASE DETAILS CONTINUED:**

The Snapshot imaging showed an  $S_tO_2$  of 68% which indicated marginal tissue oxygenation to support healing. The patient was authorized for hyperbaric oxygen therapy treatments (HBOT) for a Wagner Grade 3 diabetic foot ulcer and her first hyperbaric treatment commenced ten days later.

At her seven-week post-operative surgical appointment, following the completion of sixteen hyperbaric treatments, the podiatrist did not believe her foot was salvageable and recommended a below-the-knee amputation. The patient refused additional surgery or amputation and continued with advanced wound care and HBOT.

The patient completed a total of forty HBOT treatments. SnapshotNIR images were obtained at weekly intervals and the effectiveness of the hyperbaric treatments was assessed with the device. Continued increases in  $S_tO_2$  during HBOT correlated with wound improvement suggesting enhancement of tissue oxygenation. The patient's positive healing trajectory led to the decision to use a type of Cellular Amniotic and Matrix-Like Products (CAMPs). Comparing the NIRS images pre- and post-debridement showed a complete, responsive, and comprehensive debridement and allowed for the successful incorporation of the CAMP into the wound bed.

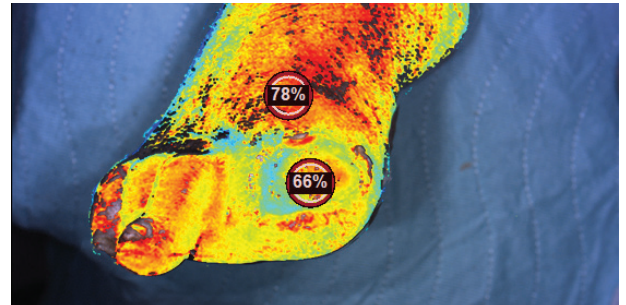


Fig 3A: 5/4/23: Pre-debridement image of the healing diabetic foot ulcer.

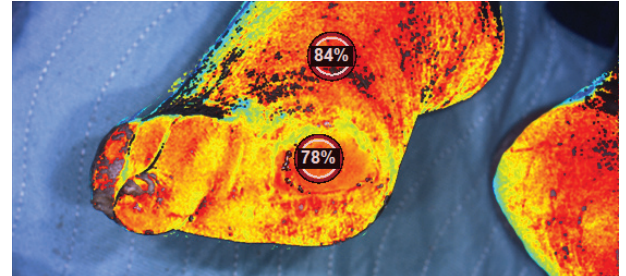


Fig 3B: 5/4/23: Post-debridement image of the healing diabetic foot ulcer. Note the increase in oxygenation.

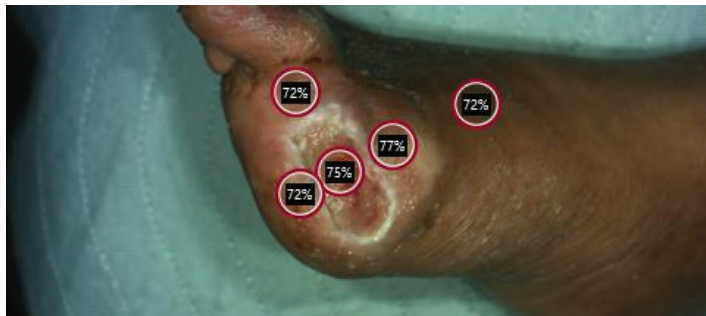


Fig 4A: 6/8/23: Pre-debridement image of the healing diabetic foot ulcer.

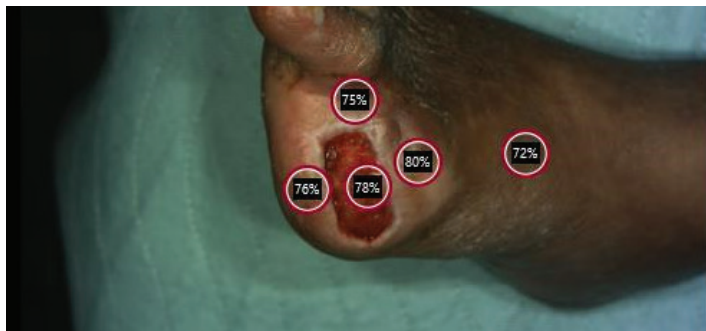
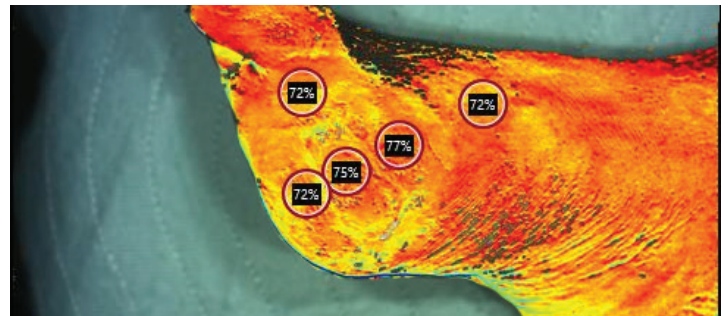
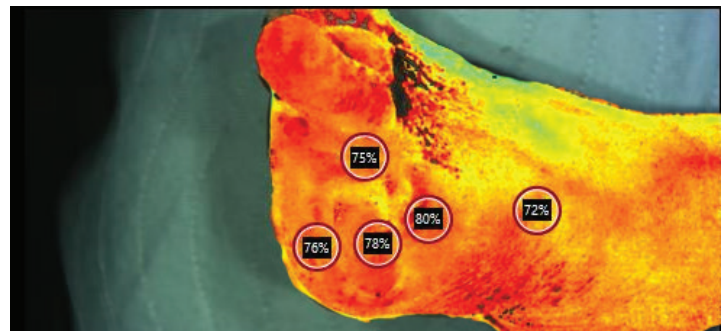


Fig 4B: 6/8/23: Post-debridement image of the healing diabetic foot ulcer. Note the increase in oxygenation.



**IMPACT:**

By using NIRS imagery to document and assess the patient's improved tissue oxygenation from the hyperbaric treatments and positive response to the Cellular Amniotic and Matrix-Like Products, clinicians felt very confident in their advanced plan of care.

The critical insights obtained from SnapshotNIR correlated with clinical improvements and suggested that the wound would heal. This treatment algorithm and enhanced decision-making using SnapshotNIR resulted in wound healing and limb preservation.

\*Date of study: February 2022 - June 2022.

