

# Clinical and experience outcomes for the use of a new traditional negative pressure wound therapy pump on complex wounds in the post-acute setting

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## Introduction

- Traditional negative pressure wound therapy (tNPWT) is believed to improve wound healing outcomes through a multimodal mode of action<sup>1</sup>, including the promotion of blood flow.
- Near-infrared spectroscopy (NIRS) is a newer technology which allows clinical evaluation of changes in perfusion during treatment with tNPWT.

## Methods

- Case information for 5 wounds treated in the post-acute setting with a new tNPWT system\* were extracted retrospectively and recorded on anonymized forms.
- A NIRS\*\* system was used to measure oxygen saturation, deoxygenated hemoglobin, oxygenated hemoglobin, and total hemoglobin at the wound site before initial application and throughout treatment with tNPWT.

## Results

- All wounds progressed or fully closed.
- Figure 1 demonstrates a case example and NIRS results. Table 2 depicts the changes in wound dimensions and NIR from start of therapy with tNPWT to final measurement.

Figure 1. Case 4



### Presentation:

45-year-old male with relevant history of hypertension, diabetes mellitus, arterial insufficiency, osteomyelitis, and tinea pedis presented to the wound clinic following for wound treatment following abscess with incision and drainage.

### Treatment:

A tNPWT dressing<sup>†</sup> was applied and the tNPWT pump set to deliver continuous or variable intermittent pressure throughout the 19 days to therapy.

### Outcome:

tNPWT was discontinued at 19 days and the wound was fully closed at day 21.

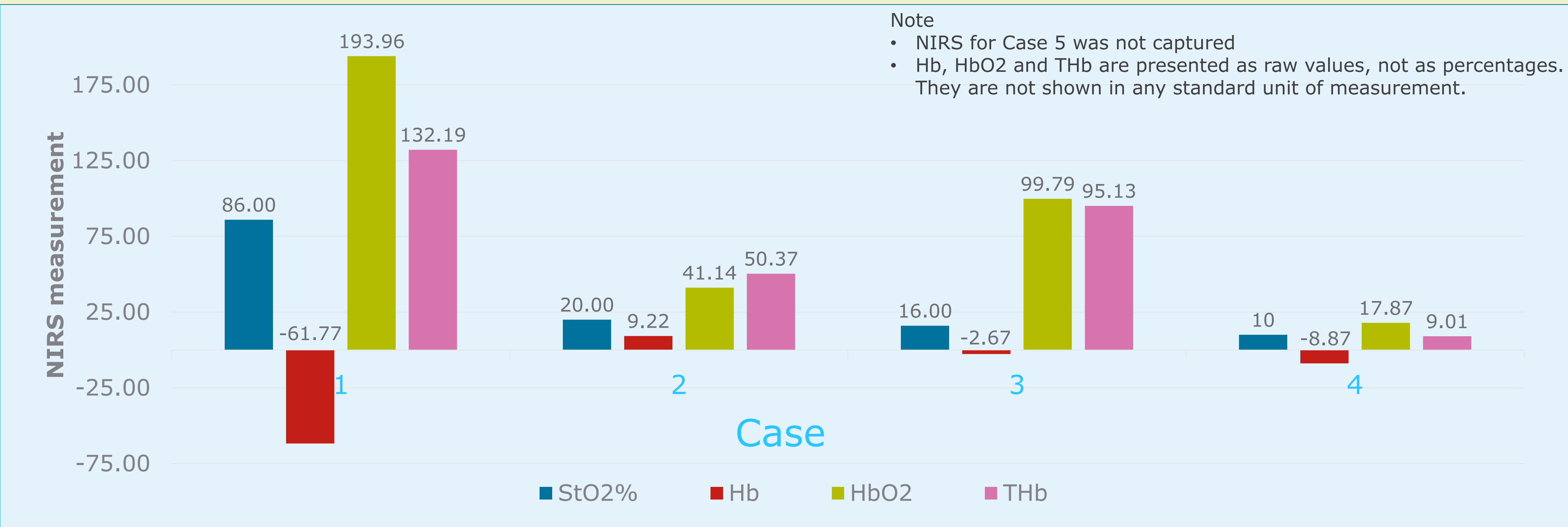
## Discussion

The combination of tNPWT with NIRS monitoring provides a quantifiable method to assess wound evolution and optimize therapeutic decisions. Data collection is ongoing.

Table 1: Mean percentage change in wound dimensions

Case	Wound Location	Wound dimensions at start of NPWT		Wound dimensions at discontinuation of wound treatment		Percentage wound dimension change	
		Area (cm <sup>2</sup> )	Volume (cm <sup>3</sup> )	Area (cm <sup>2</sup> )	Volume (cm <sup>3</sup> )	(%)	
						Area (cm <sup>2</sup> )	Volume (cm <sup>3</sup> )
1	Hand	3.75	unspecified	0.04	unspecified	98.93	unspecified
2	Abdomen	3	1.5	0	0	100.00	100.00
3	Foot	20	40	0	0	100.00	100.00
4	Foot	4	6	0	0	100.00	100.00
5	Knee	7	2.8	0	0	100.00	100.00

Figure 2: Change in Near-Infrared Spectroscopy measurement from first to final measurement



**Reference:**  
<sup>1</sup>Apelqvist J, Willy C, Fagerdahl A, et al. EWMA Document: Negative Pressure Wound Therapy: Overview, Challenges and Perspectives. Journal of Wound Care. 2017;26:S1-S154.  
\*RENASYS™ EDGE System, Smith and Nephew, Hull, UK  
\*\*SNAPSHOTNIR, Kent Imaging, Calgary, AB, CANADA  
<sup>†</sup>RENASYS™-F Foam Dressing Kit with Soft Port, Hull, UK

**Abbreviations**  
StO2 = Oxygen saturation  
Hb = Deoxygenated Hemoglobin  
HbO2 = Oxygenated Hemoglobin  
THb = Total Hemoglobin