

## + Evidence in focus

**Highlights report:** European Wound Management Association (EWMA) Virtual Conference  
PICO<sup>o</sup> sNPWT satellite symposium (18 November, 2020)

# Early intervention in the management of lower limb wounds with PICO<sup>o</sup> Single Use Negative Pressure Wound Therapy System (sNPWT): a pathway and patient-focused approach

## + Plus points

The highlights from this Smith+Nephew satellite symposium at the EWMA 2020 Virtual Conference on the use of PICO sNPWT for chronic wounds show:



## Symposia overview

- Due to the COVID-19 pandemic the 2020 EWMA conference was held virtually for the first time in its history
- This Smith+Nephew PICO sNPWT satellite symposium included three informative presentations that focused on early intervention with PICO sNPWT for the management of chronic wounds
- Presentations at the symposium reviewed:
  - The benefits of early intervention with PICO sNPWT in the treatment of hard-to-heal wounds<sup>1</sup>
  - Results of a new study demonstrating the effects of PICO sNPWT compared with tNPWT in chronic lower extremity wounds<sup>2</sup>
  - Explanation of how the MoA of PICO sNPWT<sup>3-5</sup> may explain these superior outcomes<sup>2</sup> versus tNPWT

## Burden of chronic wounds

- Dr Dowsett, a tissue viability nurse consultant from the UK, and Dr Kirsner, Chairman and Professor of Dermatology at the University of Miami Miller School of Medicine, USA, both stressed the scale and cost burden of chronic wounds<sup>1,2</sup>
- In total, wound care accounts for 2–3% of local healthcare budgets in Europe<sup>6</sup> and \$28.1–\$96.8 billion of Medicare costs in the USA<sup>7</sup>
- Living with a chronic wound can have a considerable effect on patient quality of life and can be associated with pain, lack of sleep, social isolation and depression<sup>8</sup>
- Healthcare professionals spend vast amounts of time treating chronic wounds, particularly in the community setting<sup>1</sup>

## The PICO sNPWT pathway<sup>1</sup>

- Dr Dowsett explained the importance of a holistic approach for managing chronic wounds<sup>1</sup>
  - Need for accurate diagnosis, management of the underlying cause and comorbidities, wound bed preparation and early intervention with advanced therapies, such as PICO sNPWT<sup>1</sup>
- She summarised a multicentre, economic evaluation (N=52) that developed and integrated PICO sNPWT into a clinical practice pathway to help kick start hard-to-heal wounds (Figure 1)<sup>1</sup>

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### The PICO<sup>o</sup> sNPWT pathway<sup>1</sup> (continued)

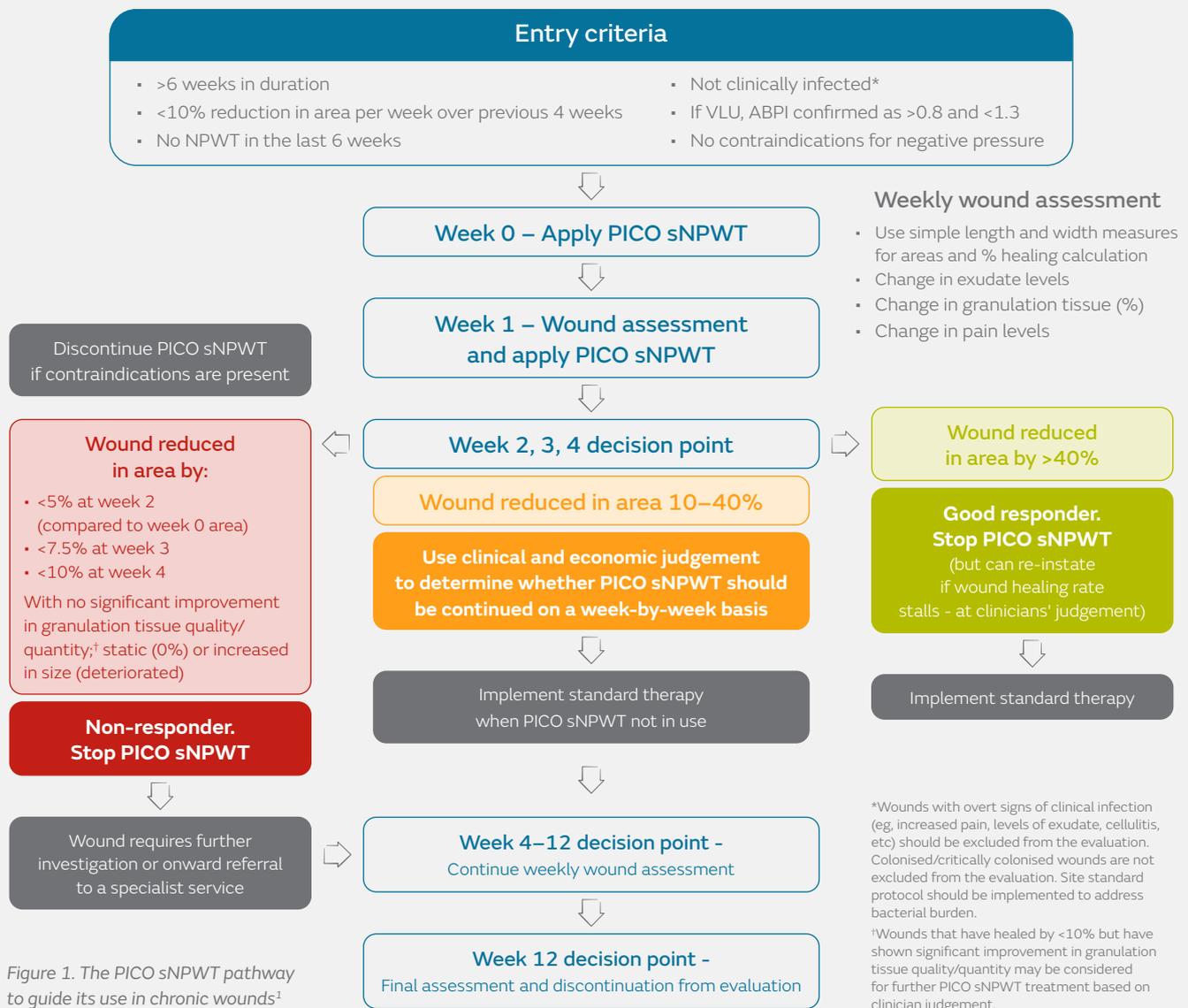


Figure 1. The PICO sNPWT pathway to guide its use in chronic wounds<sup>1</sup>

- Results showed that introduction of PICO sNPWT had a significant positive impact on the healing trajectory, with a significant reduction in wound area in just two weeks ( $p=0.006$ ), which continued following treatment cessation ( $p=0.001$ ) (Figure 2)<sup>1</sup>
- In total, 61.5% of wounds healed or were projected to heal within the next 12 weeks and PICO sNPWT was observed to help heal wounds earlier than projected targets for hard-to-heal wounds<sup>1</sup>
- Dr Dowsett emphasised that a key finding was that healing rates (healed or on a healing trajectory) were greatest with early intervention, with ~3x greater rate of healing in wounds of <3 months duration compared with >1 year (94 vs 33%)<sup>1</sup>
- Introduction of the PICO sNPWT pathway was associated with a 33% reduction in costs and helped to release 119 nursing days over a 26 week period<sup>1</sup>

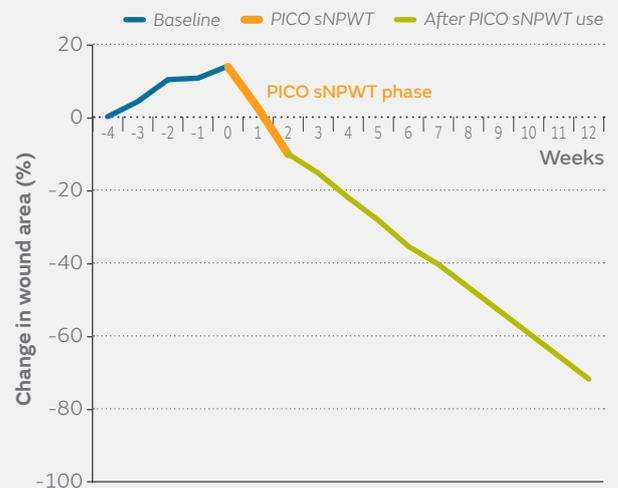


Figure 2. Weekly change in wound area (%) at baseline, with PICO sNPWT treatment and after use of PICO sNPWT

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### PICO<sup>o</sup> sNPWT compared with traditional NPWT (tNPWT); a paradigm shift

- Dr Kirsner presented the results of a multicentre, randomised controlled trial that compared PICO sNPWT with tNPWT for the treatment of chronic venous leg ulcers and diabetic foot ulcers over 12 weeks of treatment<sup>2</sup>
- Non-inferiority for the percentage change in target ulcer dimensions was assessed; however, results demonstrated that wound area, depth (Figure 3) and volume (p=0.013) were significantly improved with PICO compared with tNPWT, which Dr Kirsner stated was paradigm shifting<sup>2</sup>
- Significantly more patients were satisfied with use of PICO sNPWT than tNPWT, with improvements in willingness to use the device again, comfort, and impact on mobility, sleep and activity levels (all p<0.05)<sup>2</sup>
- A health economics analysis conducted using the data from this study demonstrated a \$15,749 estimated cost savings for all ulcers with PICO sNPWT compared with tNPWT at 26 weeks<sup>9</sup>

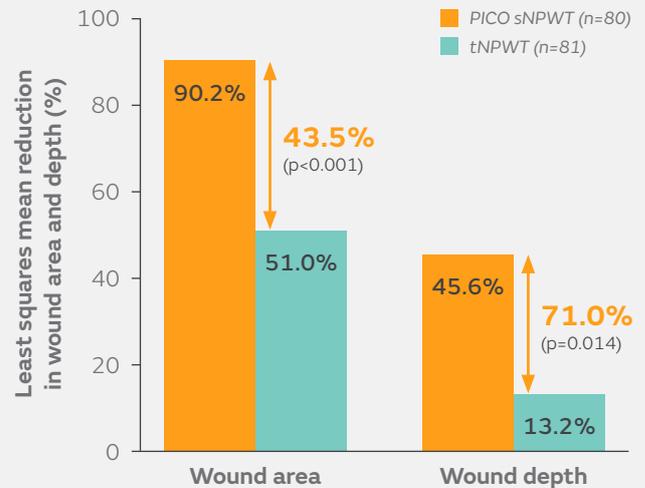


Figure 3. Relative reductions from baseline in wound area and depth with PICO sNPWT and tNPWT at 12 weeks (Intention to treat population, n=161)<sup>2</sup>

### Does the PICO sNPWT MoA explain superior outcomes<sup>2</sup> versus tNPWT?

- Dr Elizabeth Huddleston, from Smith+Nephew, UK, described the differences in clinical outcomes observed between PICO sNPWT and tNPWT in Dr Kirsner's study<sup>2</sup>
- Dr Huddleston proposed a number of factors that may be contributing to these outcomes (Figure 4)<sup>3</sup> and presented the results of an *in vivo* porcine wound healing study conducted to assess differences in MoA between PICO sNPWT and tNPWT<sup>4</sup>
- Wounds (n=24) were treated with PICO sNPWT changed every 6 days or tNPWT applied every 3 days with foam filler, and assessed at days 0, 6 and 12, similar to the protocol used in the Kirsner study<sup>4</sup>
- Wound area was significantly reduced with PICO sNPWT compared with tNPWT at days 6 and 12 (p<0.001), which was attributed to accelerated re-epithelialisation<sup>4</sup>
- While wounds filled faster with tNPWT, the quality of granulation tissue appeared more mature with PICO sNPWT, with increased mature collagen deposition and fewer proliferating cells<sup>4</sup>
- At days 6 and 12, tissue damage scores were significantly higher with tNPWT than with PICO sNPWT (both p<0.001), with noticeable bleeding at dressing removal<sup>4</sup>
- With tNPWT, foam filler particles were observed to be embedded in granulation tissue at day 12, resulting in foreign body reactions and tissue inflammation<sup>4</sup>



Figure 4. Suggested factors for improved clinical outcomes with PICO sNPWT compared with tNPWT<sup>3,5</sup>

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### Does the PICO<sup>o</sup> sNPWT MoA explain superior outcomes<sup>2</sup> versus tNPWT? (continued)

- The AIRLOCK<sup>o</sup> Technology incorporated into the PICO sNPWT dressing may also be a factor to explain the improved clinical outcomes. This feature enables delivery of consistent negative pressure levels across the whole wound area (Figure 5)<sup>3,5</sup>
- Use of PICO sNPWT resulted in minimal changes to measures of peri-wound skin barrier function, with no erythema or excessive hydration in the wound versus tNPWT<sup>4</sup>
- Finally, Dr Huddleston noted several potential benefits of the simplicity and portability of the PICO sNPWT device compared with tNPWT:<sup>3,5</sup>
  - Faster discharge from hospital
  - Reduced impact on daily living and sleep
  - Improved patient compliance
  - Fewer restrictions to mobility and activity levels

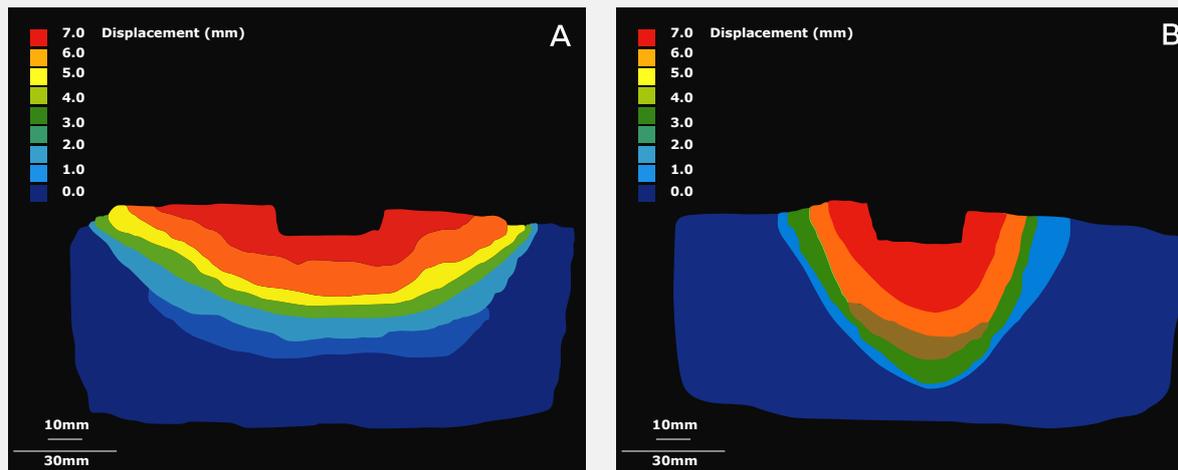


Figure 5. Computed tomography (CT) images showing differences in negative pressure delivery as tissue displacement (A) across the dressing and beyond the wound with PICO sNPWT and (B) limited to the wound area with tNPWT in porcine tissue<sup>3,5</sup>

### Summary

- Chronic wounds can be a considerable burden on patient's quality of life, clinicians' time and health care budgets<sup>1,6-8</sup>
- In accordance with the pathway, early intervention in chronic wounds using PICO<sup>o</sup> sNPWT has been shown to help kick start wound healing, reduce costs and release nursing time<sup>1</sup>
- A recent randomised controlled trial in lower extremity ulcers demonstrated superior clinical outcomes with reductions in wound area, depth and volume, and increased patient satisfaction using PICO sNPWT versus tNPWT<sup>2</sup>
- Several factors may explain these differences in clinical outcomes including:<sup>3-5</sup>
  - Undisturbed healing, wider zone of NPWT delivery, and enhanced portability and simplicity improving patient adherence

To view the presentations from this symposium or to learn more about the evidence supporting Smith+Nephew wound management products, please visit our Education and Evidence website at: [www.smith-nephew.com/education](http://www.smith-nephew.com/education)

For detailed product information, including indications for use, contraindications, precautions and warnings, please consult the product's applicable Instructions for Use (IFU) prior to use.

### References

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