CATEGORY: ADVANCED THERAPIES

PICO™ SINGLE-USE NEGATIVE PRESSURE WOUND THERAPY (sNPWT) IN NON-HEALING WOUNDS

MAKING THE CASE

INTRODUCTION

Non-healing wounds have been defined as those that fail to heal with standard therapy in an orderly and timely manner (Troxler et al, 2006). Nurses are repeatedly changing and dressing these wounds several times a week for months on end and, as a result, non-healing wounds are associated with considerable financial and resource burden that falls on outpatient, community and home care budgets (McCluskey et al, 2020; Hampton et al, 2022). Thirty percent of all wounds were identified as non-healing in 2017/18, and 67% of total expenditure was spent on managing these wounds (Guest et al, 2020); therefore, early identification of non-healing wounds, timely intervention and targeted use of advanced wound care products are essential to optimise future wound care services and outcomes for patients (Vowden, 2011; Guest et al, 2017). In particular, negative pressure wound therapy (NPWT) has numerous benefits for non-healing wounds, including contraction of the wound edges to reduce wound size, volume and oedema, induced angiogenesis and granulation tissue formation, and improved tissue perfusion (WUWHS, 2018).

PICO™ sNPWT: HOW IT WORKS

PICO™ single-use negative pressure wound therapy (PICO™ sNPWT) is a wound care system comprised of a four-layer sealed wound dressing connected to a vacuum pump (Figure 1). With a unique AIRLOCK™ technology layer, PICO™ sNPWT removes exudate and delivers negative pressure consistently across the wound and its surrounding zone of injury, including the periwound area (Figure 2; Casey, 2019; Smith+Nephew, 2021).

PICO™ sNPWT helps to 'kickstart' the healing process (Hampton, 2015) and stimulates wound contraction (Dowsett et al, 2017), blood flow to the wound and granulation tissue formation, may help reduce

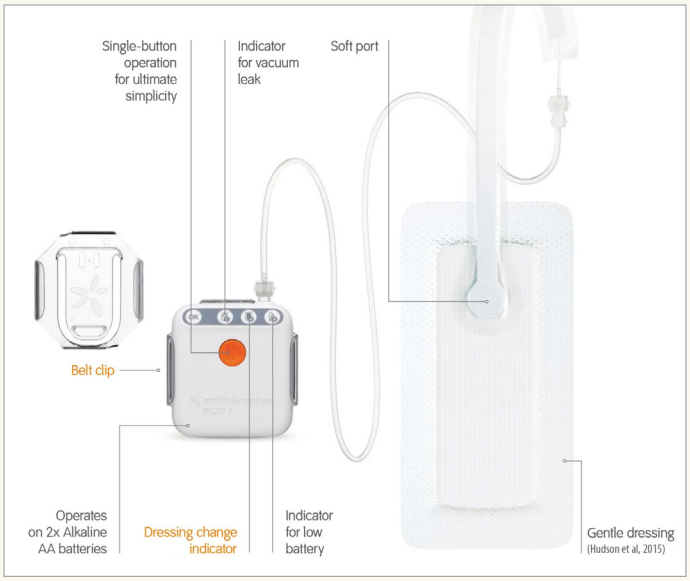

Figure 1. PICO™ sNPWT and dressing © 2023 Smith+Nephew

local tissue oedema (Smith+Nephew, 2019; 2021) and removes fluid and bacteria from the wound bed (Karlakki et al, 2013; Malmsjö et al, 2014; Schwartz et al, 2015; Mcmanus and Woodmansey, 2018). PICO™ sNPWT is small, disposable and easy-to-use, making NPWT more accessible in the community (Dowsett et al, 2017), which helps improve patient mobility and increase satisfaction rates in comparison to a conventional NPWT device (Kirsner et al, 2019a). The PICO™ sNPWT pathway (see QR code) was developed to support clinical decision-making when using PICO™ sNPWT, to improve healing rates and reduce the cost burden on the health economy in comparison to standard care (Dowsett et al, 2017).

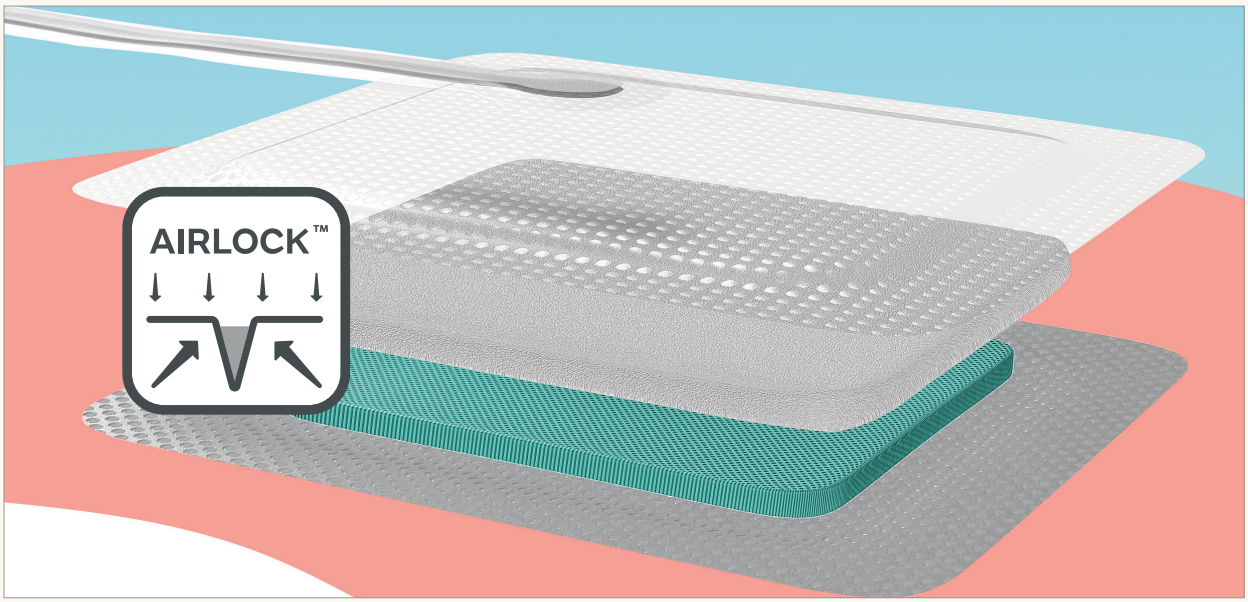

Figure 2. AIRLOCK™ technology layer of PICO™ sNPWT (© 2023 Smith+Nephew)

This Making the Case guide was developed using the literature and data provided by Smith+Nephew

MAKING THE CASE

Explanation of how to use this guide: This document can be used to make the case for implementing effective prevention and management measures and may be supported by data from your own care setting. As well as economic impact, it is important to know the impact of interventions on patient quality of life and outcomes.

PICO™ sNPWT pathway
non-healing wounds clinical practice pathway

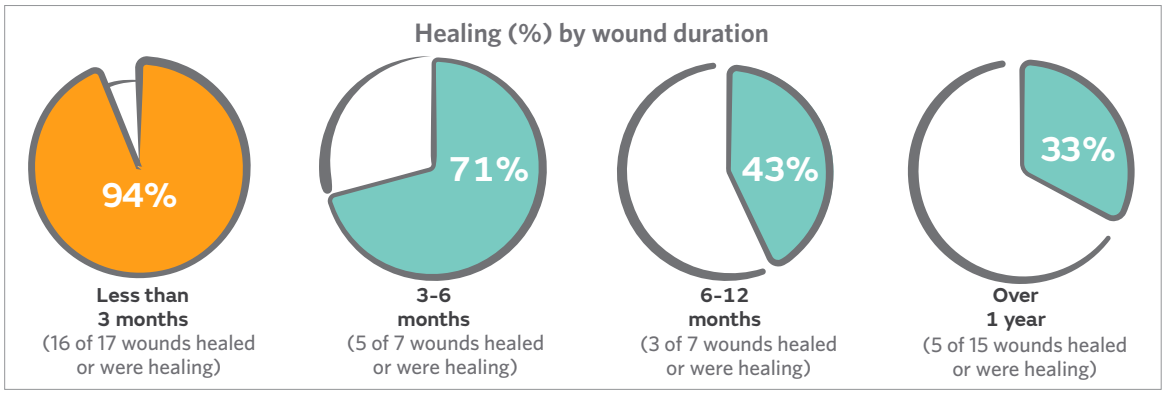

Figure 3. Success rates in healing with PICO™ sNPWT (Dowsett et al, 2017)

COST AND CLINICAL BENEFITS OF PICO™ sNPWT

There is a growing body of evidence that suggests the use of PICO™ sNPWT as part of a pathway for non-healing wounds helps improve healing rates, reduce associated costs and release nursing time compared with standard care (Hurd et al, 2014; Dowsett et al, 2017; McCluskey et al, 2020; Hughes et al, 2021). A 323-patient service evaluation found that when appropriately integrated into a care pathway, PICO™ sNPWT has potential to release an estimated 4,792 nursing hours and reduce intervention costs by an estimated £271,603 (Hampton et al, 2022). Moreover, using the PICO™ sNPWT pathway resulted in statistically significant improvements in the healing trajectory of 52 non-healing wounds, with a 33.1% (£50,000) cost reduction and a release of 119 days of nursing time over 26 weeks, as compared to what was predicted with standard care (Figure 3; Dowsett et al, 2017).

Compared to traditional NPWT (tNPWT), PICO™ sNPWT helped promote undisturbed healing and has shown significant reductions in wound area, depth and volume (Kirsner et al, 2019b). PICO™ sNPWT also helped reduce wound surface damage, use of healthcare resources and fillers, and dressing change frequency, as well as improve reepithelialisation and quality of granulation tissue, as compared to tNPWT (Kirsner et al, 2019b; Brownhill et al, 2021).

Although advanced therapies, including NPWT, were traditionally viewed as expensive and complex to use, evidence suggests that when integrated into existing care pathways, these technologies can help improve healing rates, reduce clinical hours, prevent admission/readmission and improve outcomes for patients with non-healing wounds (Dowsett et al, 2012; 2017). Adoption of advanced therapy requires a fundamental change of mindset; while the uptake of NPWT is high for complex and heavily exuding wounds, early intervention with sNPWT devices (such as PICO™ sNPWT) provides clinical benefits for non-healing wounds with low to moderate levels of exudate (Dowsett et al, 2017).

PATIENT BENEFITS OF PICO™ sNPWT

Non-healing wounds have a negative impact on patients and reduce quality of life, with potential increases in pain and issues related to mental health (Olsson et al, 2019). Therefore, as a canister-free, portable, pocket-sized and discreet system, PICO™ sNPWT may limit these consequences by allowing patients the freedom to continue with daily activities of living (Hurd et al, 2014).

Prior to use of PICO™ sNPWT, wounds often require frequent dressing changes, causing problems for patients in both their work and family lives, and can leave them feeling unable to socialise with friends due to odorous wounds (Beggs, 2018; O'Toole, 2019). However, application of a PICO™ sNPWT dressing has been shown to positively impact patients' lives and allow them to return to work (Beggs, 2018), with reduced dressing changes and nursing visits, as well as potential efficiency savings, as compared to previous care with standard dressings (Sharpe et al, 2018*).

**Reduction per patient of 1–2 outpatient visits and 1–3 home visits per week over a 12-week treatment period (n=4)*

SUMMARY: WHY USE PICO™ sNPWT COMPARED TO CARE WITH STANDARD DRESSINGS?

- Potential to improve healing rates
- Potential to release nursing hours and reduce intervention costs (Hampton et al, 2022)
- Provides a compressive force that delivers negative pressure across the wider zone of injury to improve wound healing
- Manages low to moderate levels of exudate
- Portable and disposable system, with a wear time of 7 to 14 days.

References

Beggs N (2018) Use of PICO sNPWT on a diabetic foot ulcer (DFU) by Podiatry. Smith+Nephew

Brownhill RV, Huddleston E, Bell A et al (2021) Pre-Clinical Assessment of Single-Use Negative Pressure Wound Therapy During In Vivo Porcine Wound Healing. *Adv Wound Care* 10(7): 345-56

Casey C (2019) Consistent delivery of therapeutic negative pressure levels by a single use negative pressure wound therapy system (sNPWT)* in a wound model. Paper presented at: EWMA; 2019; Gothenburg, Sweden

Dowsett C, Davis L, Henderson V et al (2012) The economic benefits of negative pressure wound therapy in community-based wound in the NHS. *Int Wound J* 9(5): 544-52

Dowsett C, Hampton J, Myers D, Styche T (2017) Use of PICO to improve clinical and economic outcomes in hard-to-heal wounds. *Wounds International* 8(2): 52-9

Guest JF, Vowden K, Vowden P (2017) The health economic burden that acute and chronic wounds impose on an average clinical commissioning group/health board in the UK. *J Wound Care* 26(6): 292-303

Guest JF, Fuller GW, Vowden P (2020) Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018: update from 2012/2013. *BMJ Open* 10(12): 045253

Hampton J (2015) Providing cost-effective treatment of hard-to-heal wounds in the community through use of NPWT. *Community Wound Care* S14-S20

Hampton J, Meagher H, Sharpe A et al (2022) Multi-centre, international practice-based evidence using PICO single-use negative pressure wound therapy: challenging current behaviours in wound care practice. *Wounds International* 13(2): 46-53

Hughes J, Costello M, Belshaw M et al (2021) The burden of dehisced wounds in the community: using early results from a multi-centre service evaluation to propose a standard of care to improve patient outcomes and safeguard woundcare budgets. *British Journal of Healthcare Management* 27(1): 16-25

Hurd T, Trueman P, Rossington A (2014) Use of portable, single use negative pressure wound therapy device in home care patients with low to moderately exuding wounds: a case series. *Ostomy Wound Management* 60(3): 30-6

Karlakki S, Brem M, Giannini S et al (2013) Negative pressure wound therapy for management of the surgical incision in orthopaedic surgery: A review of evidence and mechanisms for an emerging indication. *Bone Joint Res* 2(12): 276-84

Kirsner R, Cyaandi D, Reyzelamn A et al (2019a). Randomized controlled trial on the efficacy and acceptance of a single-use negative pressure wound therapy system versus traditional negative pressure wound therapy in the treatment of lower limb chronic ulcers (VLU and DFU). Paper presented at: EWMA; 2019; Gothenburg, Sweden

Kirsner R, Dove C, Reyzelman A (2019b) A prospective, randomized, controlled clinical trial on the efficacy of a single-use negative pressure wound therapy system, compared to traditional negative pressure wound therapy in the treatment of chronic ulcers of the lower extremities. *Wound Repair Regen* 27(5): 519-29

Malmsjö M, Huddleston E, Martin R (2014) Biological effects of a disposable, canisterless negative pressure wound therapy system. *Eplasty* 14: e15

McCluskey P, Brennan K, Mullan J et al (2020) Impact of a single-use negative pressure wound therapy system on healing. *Journal of Community Nursing* 34(1): 36-43

Mcmanus H, Woodmansey E (2018) Bacterial retention within a multi-layered absorbent AIRLOCK™ Technology single use negative pressure wound therapy (sNPWT) dressing. Paper presented at: EWMA; 2018; Krakow, Poland

Olsson M, Järbrink K, Divakar U et al (2019) The humanistic and economic burden of chronic wounds: A systematic review. *Wound Repair Regen* 27(1): 114-25

O'Toole M (2019) Use of PICO sNPWT to promote healing in leg ulcer. Smith+Nephew

Schwartz JA, Goss SG, Facchin F et al (2015) Single-use negative pressure wound therapy for the treatment of chronic lower leg wounds. *J Wound Care* 24: S4-S9

Sharpe A, Myers D, Searle R (2018) Using single use negative pressure wound therapy for patients with complicated diabetic foot ulcers: an economic perspective. *Wounds UK* 14(4): 89-93

Smith+Nephew (2019) PICO Biomechanical Study. Internal Report. DS/19/211/R

Smith+Nephew (2020) What is PICO. Available at: https://www.smith-nephew.com/en/health-care-professionals/products/advanced-wound-management/pico-family#pico-features (accessed 16.06.2023)

Smith+Nephew (2021) PICO™ Pressure Mapping Study. Internal Report. DS/19/211/R - Part B

Troxler M, Vowden K, Vowden P (2006) Integrating adjunctive therapy into practice: the importance of recognising 'hard-to-heal' wounds. Available at: http://www.worldwidewounds.com/2006/december/Troxler/Integrating-Adjunctive-Therapy-Into-Practice.html (accessed 18.01.2023)

Vowden P (2011) Hard-to-heal wounds Made Easy. *Wounds International*

World Union of Wound Healing Societies (2018) Consensus document. Surgical wound dehiscence: improving prevention and outcomes. *Wounds International*

Wounds UK

This Making the Case guide was developed using the literature and data provided by Smith+Nephew