Utilizing International Consensus Panel Recommendations and a Clinical Decision Tree to Improve Negative Pressure Wound Therapy (NPWT) Outcomes

Amanda Loney[1] BScN, RN, NSWOC, WOCC(C), IIWCC; Rafael J. Diaz-Garcia[2] MD, FACS; Julie M. Murdoch[3] PhD; Mandy Spitzer[4] MBA, RN, CWOCN, CFCN; Ashley Hudson[5] RN, BSN, WOC

Significance to practice

- Negative Pressure Wound Therapy (NPWT) products became commercially available in the late twentieth century and have been embraced as a standard treatment modality for complex wounds
- NPWT was initially prescribed by clinicians for the management of large, complex wounds with high levels of exudate[1]
- A developing understanding of the multimodal mechanism of action of NPWT has expanded its application to address a range of acute and chronic wound types, regardless of their size or level of exudate[2]
- Numerous NPWT products are presently available, offering varying indications, including the treatment of acute and chronic wounds and/or the prevention of surgical site complications[3]
- Two common categories of NPWT are Traditional Negative Pressure Wound Therapy (tNPWT) and Single-Use Negative Pressure Wound Therapy (sNPWT)[3]
- Utilizing advanced wound therapies appropriately can improve patient outcomes and decrease health care expenditures[3]

Purpose

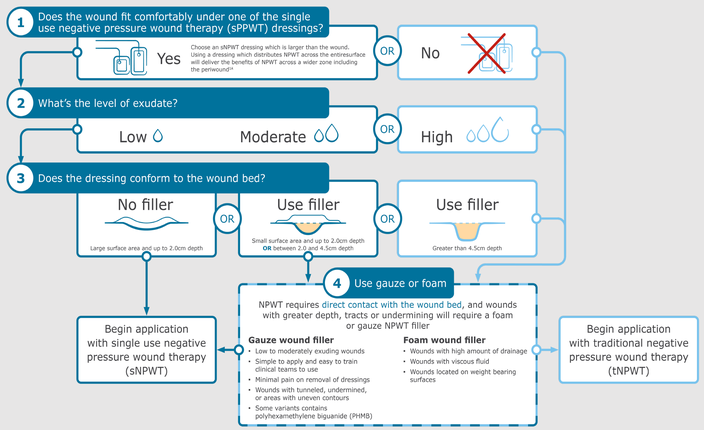
- Due to the increasing number of available product options, the need arose for expert guidance on appropriate product use
- An International Consensus Panel published 10 consensus statements and a clinical decision tree to address how and when to use NPWT and when to transition between tNPWT and sNPW[3]
- Authors examined how the clinical decision tree and consensus statements could be applied to their routine clinical practice

10 consensus statements and decision tree were based on[3]

Therapeutic goals	Care settings
Wound related factors	Economics
Patient adherence	NPWT logistic
Patient quality of life	Administration

NPWT clinical decision tree for the treatment of open wounds[3]

Figure. NPWT clinical decision tree for open wounds

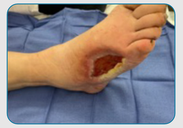


Process

- Two clinicians in the United States and Canada explored the benefits of applying the consensus recommendations into their routine wound management practice
- The case presentations illustrate the application of expert guidance through the implementation of the tNPWT and sNPWT products utilized as standard of care within both facilities, exploring the clinical, economic, logistical, and patient experience outcomes of NPWT

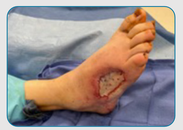
Case 1

59-year-old male with poorly controlled NPWT treatment to dorsal foot abscess, Type II Diabetes Mellitus, with a dorsal foot abscess. Resulted in a full-thickness wound with exposed tendon.



a. Status post (s/p) surgical debridement. Application of Consensus Statement 1, 3, 8, 10.

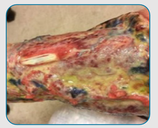
b. Treated with tNPWT and antibiotics.



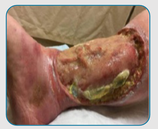
c. s/p full-thickness skin graft, sNPWT applied. Application of Consensus Statement 1, 2, 4–10.

Case 2

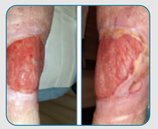
Circumferential anti-neutrophil cytoplasmic autoantibody vasculitis with pyoderma gangrenosum wound that had been present for more than 6 years.



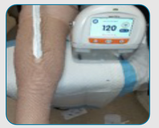
a. Wound at 1 year.



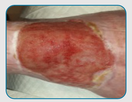
b. Wound at 1.3 years s/p pain management and debridement.



c. Wound at 6 years. Application of Consensus Statement 1, 3, 8, 10.



a. tNPWT Foam Dressing beneath a multi-layer compression bandage system *in situ*.

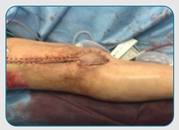


b. Transition from tNPWT after 3 weeks of therapy. Application of Consensus Statements 1, 2, 5–10.

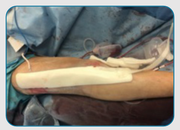
c. sNPWT *in situ*.

Case 3

Closed surgical incision and full-thickness skin graft s/p medial gastrocnemius flap.



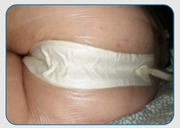
a. s/p medial gastrocnemius flap and skin graft. Consensus statement 1, 2, 4–10.



b. sNPWT *in situ*. Consensus statement 1, 2, 4–10.

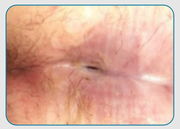
Case 4

Closure of chronic (present for >1 year) dehisced abdominal perineal resection.



a. sNPWT *in situ* to closed surgical incision after elective closure. Consensus statement 1, 2, 4–10 applied. At 2-week assessment incision was partially dehisced.

b. tNPWT foam dressing *in situ*. Consensus statement 1, 3, 5, 6–10. Once wound depth and exudate were deemed appropriate the therapy was transitioned again to sNPWT. Consensus statements 1, 2,5, 6–10 applied.



c. At discontinuation of NPWT.

Outcomes

Utilizing tNPWT and sNPWT according to the consensus panel recommendations and the clinical decision tree can assist in optimizing NPWT delivery to patients and address the logistical and economic efficiencies health systems require

References: 1. Fife C, Weir D. (2010, June). The Challenges of Negative Pressure Wound Therapy in Clinical Practice. *Today's Wound Clinic*. **2.** Birke-Sorensen H, Malmsjo M, Rome P, *et al*. (2011). Evidence-based recommendations for negative pressure wound therapy: treatment variables (pressure levels, wound filler and contact layer)--steps towards an international consensus. *Journal of plastic, reconstructive & aesthetic surgery: JPRAS*, 64 Suppl, S1–S16. https://doi.org/10.1016/j.bjps.2011.06.001 **3.** Hurd T, Kirsner RS, Sancho-Insenser JJ, *et al*. International Consensus Panel Recommendations for the Optimization of Traditional and Single-Use Negative Pressure Wound Therapy in the Treatment of Acute and Chronic Wounds. *Wounds*. 2021;33(suppl 2):S1–S11.