

PICO[◇] Single Use Negative Pressure Wound Therapy (sNPWT) significantly reduces the incidence of surgical site infection (SSI) in at-risk patients across surgical specialities when compared with standard care

James K, Glasswell A, Costa B. Single-use negative pressure wound therapy versus conventional dressings for the reduction of surgical site infections in closed surgical incisions: systematic literature review and meta-analysis. *Am J Surg*. 2023 Oct 21. [Epub ahead of print].

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Key points

Compared with standard care:

Significant reduction in **overall, superficial, and deep SSIs** using PICO sNPWT

Significant reduction in SSIs **across surgical specialties** using PICO sNPWT

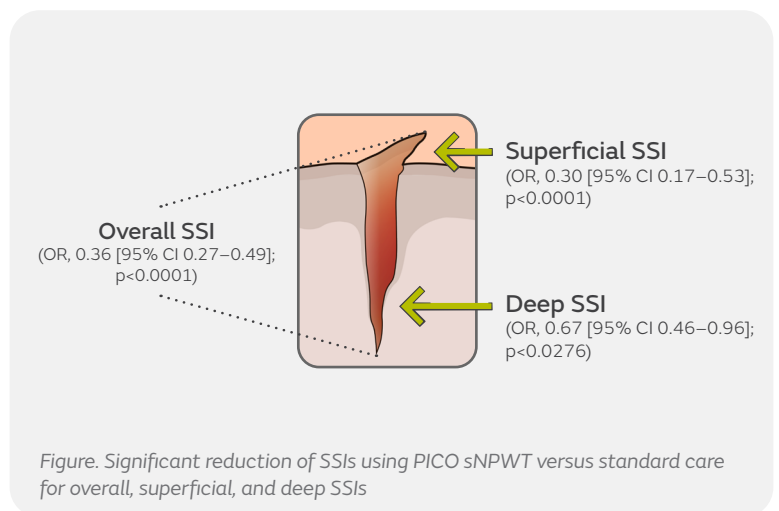
Significant reduction in SSIs **across wound classifications** using PICO sNPWT

Overview

- Systematic literature review and meta-analysis of studies using PICO sNPWT for the management of closed surgical incisions in patients at-risk of developing SSI
- Inclusion criteria for the analysis included:
 - Articles published between January 2011 to April 2021 were identified using PubMed, Embase, Cochrane Library, and ClinicalTrials.gov databases
 - Patients were followed up for ≥ 30 days after their surgical procedure
 - Majority ($>50\%$) patients treated with PICO sNPWT had ≥ 1 intrinsic or extrinsic risk factor for SSI development
- Final analysis included 14 randomised controlled trials (RCTs) and 5 non-randomised, prospective observational studies
 - 2,356 patients received PICO sNPWT
 - 2,587 patients received standard care
- Primary outcomes of the study included incidence of SSIs
 - Secondary outcomes of interest were incidence of SSI stratified by surgical specialty and wound classification

Results

- Significantly reduced the odds of developing overall, superficial, and deep SSIs (Figure)
- Significantly reduced the odds of developing overall SSIs across various surgical specialties:
 - General (OR, 0.23 [95% CI 0.11–0.49]; $p=0.0001$)
 - Gastrointestinal (OR, 0.32 [95% CI 0.11–0.93]; $p=0.0357$)
 - Obstetrics and gynaecology (OR, 0.53 [95% CI 0.31–0.89]; $p=0.016$)
 - Orthopaedics (OR, 0.45 [95% CI 0.23–0.89]; $p=0.021$)
- Significantly reduced the odds of developing overall SSI in Class I and/or Class II wounds:
 - Class I (OR, 0.31 [95% CI 0.19–0.51]; $p<0.0001$)
 - Class II (OR, 0.30 [95% CI 0.17–0.53]; $p<0.0001$)
 - Class I, II and I/II (OR, 0.35 [95% CI 0.26–0.48]; $p<0.0001$)



Conclusions

Compared with standard care, PICO sNPWT helped significantly reduce the odds of developing SSIs (overall, superficial, and deep) across a variety of surgical specialties and wound classifications.

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