

Incisional negative pressure wound therapy (iNPWT) for reducing the risk of surgical site infection: an up-to-date meta-analysis and trial sequential analysis

Groenen H, Jalalzadeh H, Buis DR, et al. *eClinicalMedicine* (part of *The Lancet* group). 2023;62:102105.

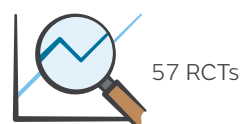
Overview

- Previously conducted meta-analysis and RCTs for negative pressure wound therapy (NPWT) prevention of SSI are contradictory
 - Implementation of NPWT is impaired due to inconsistent recommendations by international guidelines
- This study compared NPWT with standard dressings on closed incisional wounds in adult patients undergoing any type of surgery
 - Providing an up-to-date systematic review and meta-analysis



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Methodology



Meta-analysis



Combination of the results from previous studies. Meta-analysis pools the data and generates confidence intervals

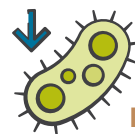
Trial sequential analysis



Determine robustness of confidence intervals on treatment effect that are generated by meta-analysis

*Abdominal, breast, cardiac, general, obstetric, orthopaedic/trauma, plastic, vascular

Results



Reduced risk of SSI using NPWT

33% reduced risk compared to standard of care, RR 0.67



Increased confidence in results

Using trial sequential analysis, the authors concluded that the data was **robust**, whilst demonstrating that future RCTs are **very unlikely** to alter benefit of iNPWT overall in this scenario

Industry involvement does not bias outcomes



No significant difference found for SSI outcomes due to industry involvement and/or sponsorship



No significant difference between -80mmHg and -125mmHg NPWT devices

-80mmHg: 10.1% of patients developed SSI (**RR 0.67**)
-125mmHg: 13.0% of patients developed SSI (**RR 0.69**)

Conclusion

This meta-analysis confidently showed that single use iNPWT reduces the risk of SSI irrespective of specific surgical specialties, whilst trial sequential analysis demonstrated the robustness of this evidence. Additionally, no significant differences were observed between -80mmHg and -125mmHg devices.



Abbreviations: iNPWT = incisional negative pressure wound therapy; NPWT = negative pressure wound therapy; RCT = randomised controlled trial; RR = relative risk; sNPWT = single use negative pressure wound therapy; SSI = surgical site infection.

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