

## PICO<sup>o</sup> significantly reduces the rate of surgical site complications and superficial surgical site infections compared to standard care in high risk sternotomy patients

Results of an RCT of the PICO<sup>o</sup> negative pressure wound therapy system for closed surgical incision management in cardiothoracic surgery



### Evidence

- Level 1 evidence
- Prospective, open label, parallel group, randomised controlled trial (RCT) in 80 patients
- NPWT (PICO<sup>o</sup>) for up to 6 days versus standard care
- Follow-up for 6 weeks for the presence of wound dehiscence or infection



### Surgical site complications were significantly reduced by PICO<sup>o</sup> compared to standard care

- PICO<sup>o</sup> 3 /40 = 7.5%; Standard care 10/40 = 25.0%

Statistically significant ( $p=0.0339$ )



### Superficial infections of the sternotomy wound were significantly reduced by PICO<sup>o</sup> compared to standard care

- PICO<sup>o</sup> 1 /40 = 2.5%; Standard care 7/40 = 17.5%

Statistically significant ( $p=0.0254$ )



### There were no deep sternotomy wound infections (mediastinitis) seen in this study

- Reduced antibiotic use seen with PICO<sup>o</sup>

Statistically significant ( $p=0.0402$ )

## COMMENTS:

Patients undergoing off-pump coronary artery bypass grafting (CABG) with internal mammary artery (IMA) harvesting are a high risk group for wound complications.

Some patients in this RCT had other wound healing risk factors:

- BMI > 30 (PICO<sup>o</sup> group 45%, Standard care 42.5%)
- Diabetes mellitus (PICO<sup>o</sup> group 22.5%, Standard care 27.5%)

The consequence of a deep sternal wound infection (mediastinitis) is very serious and has significant mortality rate.

The rate of surgical site infection seen in this study (standard care) was in the upper range of normal according to the literature.

The absence of marginal skin necrosis of the wound in the PICO<sup>o</sup> group (compared to 12% in standard care) may provide support for the PICO<sup>o</sup> mechanism of action of improved tissue perfusion.

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Title:	Preliminary outcome of treatment of postoperative primarily closed sternotomy wounds treated using negative pressure wound therapy
Aim of the study:	A randomised controlled trial assessing closed sternotomy wound healing outcomes (dehiscence and SSI) after coronary artery bypass grafting (CABG) with or without NPWT
Study Type:	RCT
Wound Type:	Sternotomy - Closed surgical incision
Speciality/Indication:	Cardiothoracic
Products:	PICO <sup>o</sup>
Number of patients:	80 patients in the RCT: (PICO <sup>o</sup> 40; Standard care 40)
Reference:	<i>Polish Journal of Surgery</i> (2014) Vol 86(Issue 10): 456-465   DOI: 10.2478/pjs-2014-0082   Published online 3rd February 2015
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