NICE publishes a Medtech innovation briefing on PICO Single Use Negative Pressure Wound Therapy (sNPWT) for prophylactic use on closed surgical incisions to reduce surgical site complications

Helping you get CLOSER TO ZERO® surgical site complications
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PICO◇
Single Use Negative Pressure Wound Therapy System

Supporting healthcare professionals

PICO is a more effective alternative to standard surgical dressings, as it is an active therapy which helps prevent surgical site complications (SSCs) in patients at an elevated risk of SSCs[1]

Population, setting and intended user

Key patient risk factors

High BMI

The SSI rate for women undergoing caesarean section who had a BMI of ≥35[2]

ASA ≥ 3

8x

A patient with an ASA score of ≥3 is eight times more likely to suffer a complication following TKA and THA surgery[3]

Diabetes

Uncontrolled insulin dependent diabetes mellitus[4]

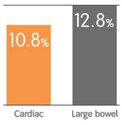
Renal dialysis[4]

Surgical risk factors

Emergency surgery

In the UK the rate of emergency caesarean section is 15% of total births[5]

High-risk elective procedures



Rates of SSI as reported in a prospective surveillance study in an NHS hospital in England 2010 - 2012[6]

Extended duration of surgery

>75

Extended surgery varies by procedure and is defined as the 75th centile of duration of surgery for a particular procedure. E.g. Coronary artery bypass graft would be 5 hours and caesarean section would be 1 hour[7]

Resource consequences: estimated financial savings

If targeted at patients at high-risk of SSCs, then even greater savings

ASA ≥3: **£7,955**[3]

BMI ≥35 Kg/m²: **£7,248**[3]

A health economic study by Nherera (2017) estimated the cost effectiveness from an NHS perspective of PICO sNPWT in reducing SSCs in patients undergoing hip and knee replacement surgery

The analysis used data from a non-blinded randomised controlled trial by Karlakki et al. (2016)[8] comparing sNPWT to current standard care

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Published evidence

A full literature search was carried out by NICE relating to the clinical effeciveness of PICO◇ sNPWT

A meta-analysis of 10 randomised controlled trials (RCTs) and 6 observational studies with a total of 1,863 patients and 2,202 incisions

***Authors** Strugala, V. and Martin, R. (2017)*

Surgical site infection[9]

Application of PICO reduced rate of SSI by 58% (relative risk 0.43, p<0.0001) compared to standard care

58% reduction

Dehiscence[9]

PICO reduced rate of dehiscence by 26.4% (relative risk 0.71, p=0.01) compared to standard care

-26.4% dehiscence rate

Length of stay[9]

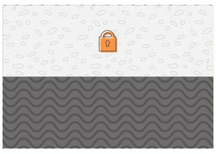
Colorectal patients treated with PICO had a mean reduction in length of stay of 5 days compared to patients treated with standard care (p<0.0004)

reduce length of stay by **5** days

The PICO dressing: pioneering by design

The innovation behind the technology

Proprietary AIRLOCK◇ technology



Stabilising the healing process

- This layer ensures that pressure is distributed in a uniform way across the incision and zone of injury[10]*
- Ensures that negative pressure is delivered consistently over 7 days of therapy[10]
- Effectively manages fluid from the incision through absorption and transpiration thereby reducing the risk of maceration[10]**

In-built protection

- In an *in vitro* study bacteria were injected into the superabsorber layer. The AIRLOCK layer prevented up to 99.9% of bacteria movement to the wound contact layer[11]
- This layer is unique to PICO and ensures bacteria is locked away from the surgical incision[11]

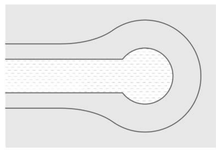
In vitro* test over 4 days at -80 mmHg * In vitro* tests over 4 and 7 days replicating low and moderately exuding wounds.

Silicone layer with all-over adhesive

Treating more than just the incision

- This layer can be placed over the intact skin to treat the underlying tissue that has been damaged[4,12]
- The gentle silicone protects the patients skin, minimising damage and pain on removal[4,12]
- The all-over adhesive ensures that the dressing stays in place therefore reducing shear force and lateral tension[13]
- The silicone layer significantly improves scar formation[14]

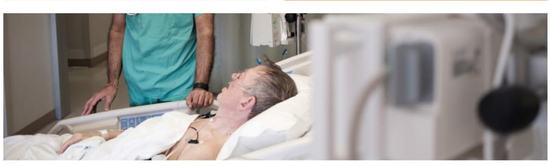
Softport and filter



Enhancing patient safety

- The softport allows the use of PICO on weight-bearing areas as negative pressure is still delivered even under compression[15,16]

The PICO system is supported by 85 clinical papers and is proven to reduce a range of surgical site complications from seroma to surgical site infection[9]



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