



Predictable outcomes with your high risk patients

*There are always those patients who will
have problems post-surgery no matter what
is done to mitigate potential issues.*

Helping you get CLOSER TO ZERO® surgical site complications

 **smith&nephew**

PICO[®] 7

Single Use Negative Pressure
Wound Therapy System

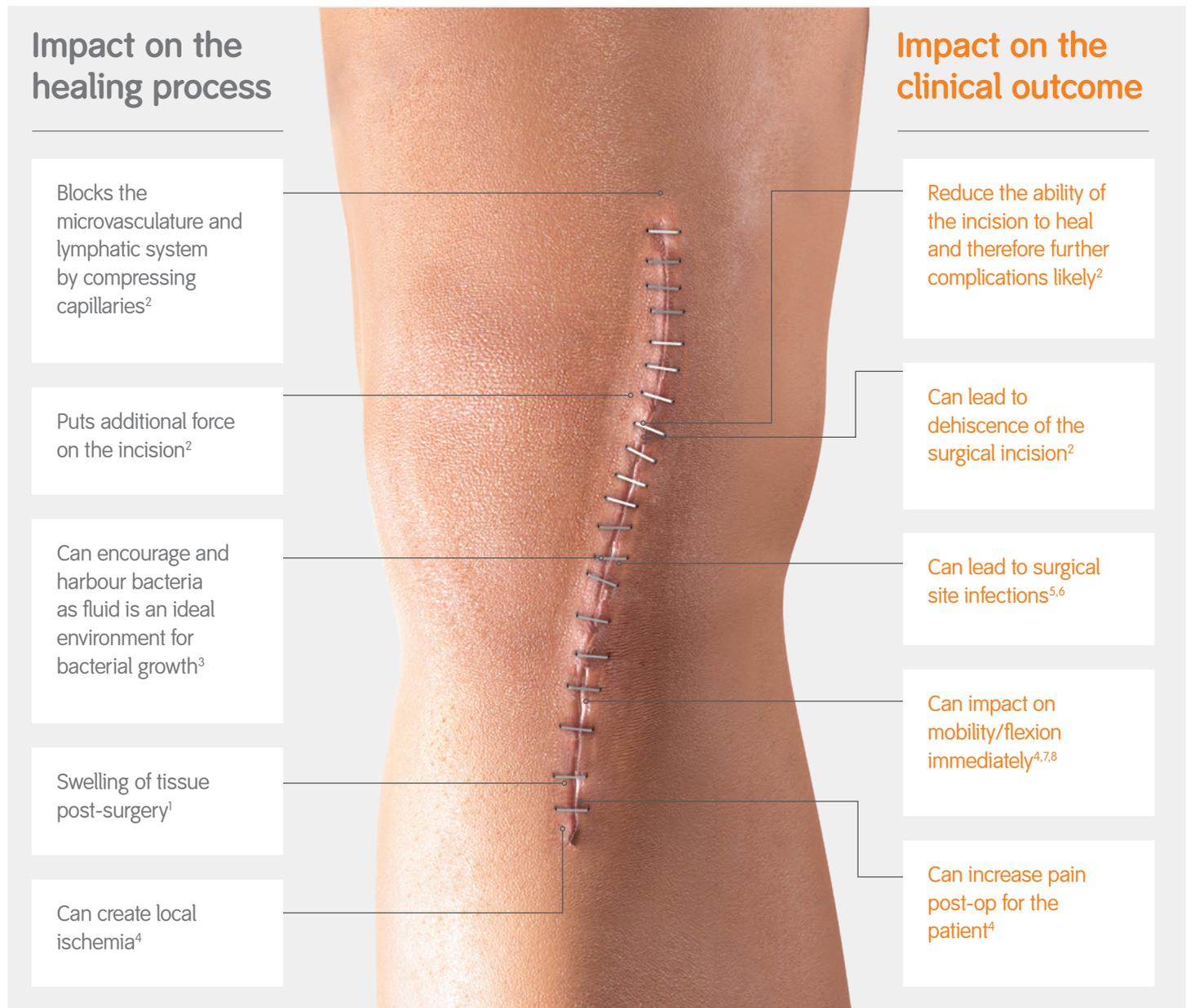


Supporting healthcare professionals

Excess oedema, the start of the complication journey

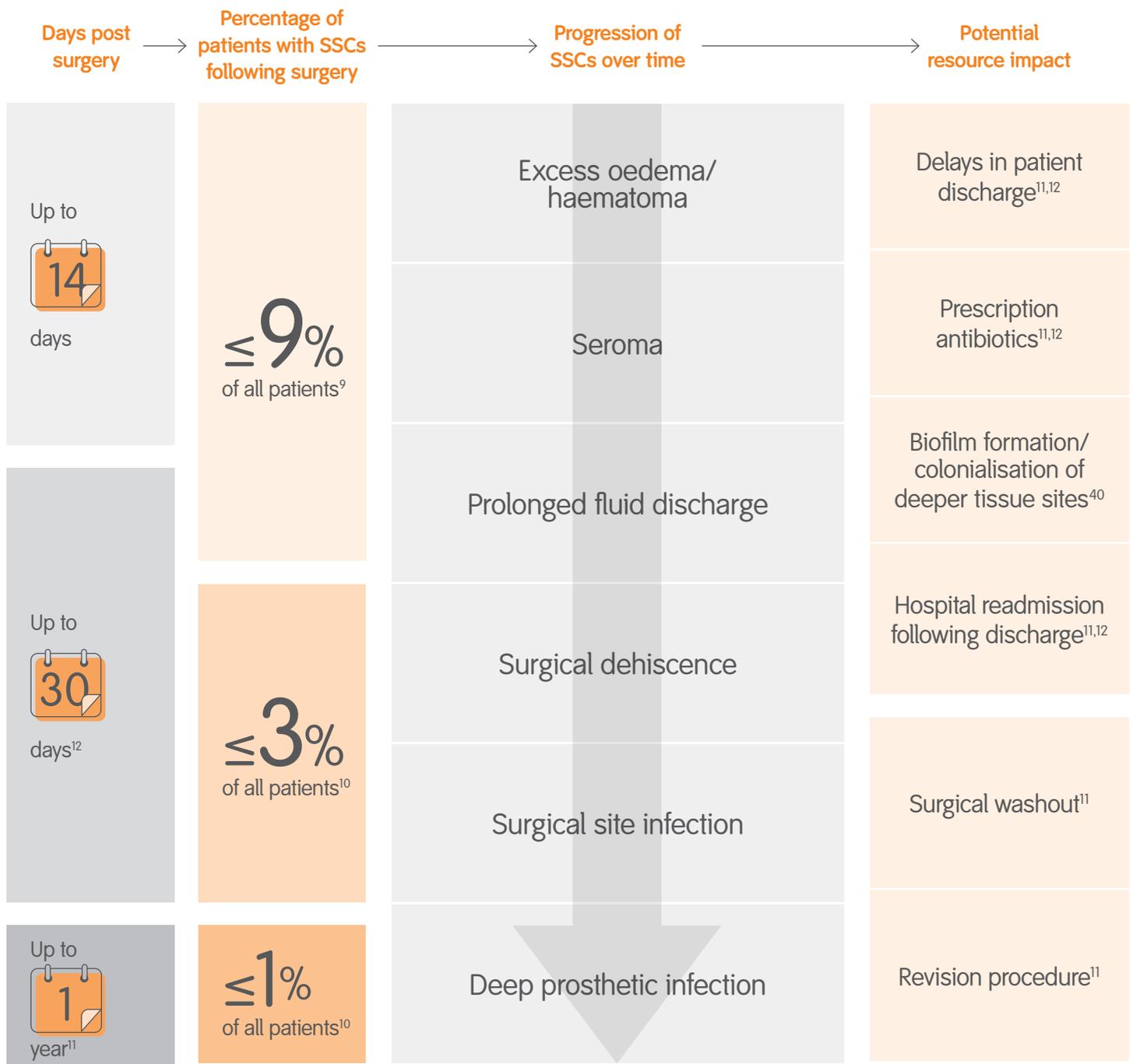
Oedema is a natural consequence of damaging tissue during surgery. The damage is not just limited to the surgical incision but in fact extends to the underlying tissue that has been retracted during surgery.¹

How does excess oedema affect your surgical outcome?



Orthopaedic flow of complications

There is a pathway of complications which begins from excess oedema and finishes with deep prosthetic infection. Each of these complications has a resource impact and if not addressed the patient will continue to be impacted.^{2,4-7,9,13,14}



How can you identify which patients are more at risk of excessive oedema?

Identifying the high risk patients

There are certain patient groups who are significantly more at risk of complications following total knee arthroplasty (TKA) and total hip arthroplasty (THA) surgery.

1. BMI ≥ 35



Morbid obesity is strongly associated with prolonged drainage following THA surgery⁵



Obese patients are at increased risk of dehiscence due to increased tension on suture lines and poor perfusion of adipose tissue²

A patient with a BMI ≥ 35 is

4.5x

more likely to suffer a complication following surgery¹⁵

2. Diabetes



Surgical wound complications are higher in diabetic patients due to compromised renal function and immune system¹⁶

In the diabetic population the deep infection rate can range between

1% to 13.5%¹⁷

3. American Society of Anesthesiologists ≥ 3



Patients with a high ASA score are suffering from a combination of co-morbidities which significantly increases their risk of complications post-surgery¹⁵

A patient with an ASA score of ≥ 3 is

8x

times more likely to suffer a complication following TKA or THA surgery¹⁵

Identifying surgical risk factors

Certain surgeries are more at risk at complications and these include:

1. Duration



Extended duration of surgery²

2. Revision



Revision surgery²

3. Location



Location of surgery e.g. foot and ankle²

4. Type

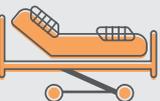


Trauma surgery due to potential of contamination²

Cost of complications

Wound complications following orthopaedic surgery are a major challenge, in particular for high risk patients. Prevention of wound complication is vital to improve patient outcomes, predict length of stay and significantly reduce costs.

Wound complication costs following surgery¹⁸

 Surgery type	 length of stay	 Additional financial cost of surgery
Hip replacement	Additional 16 days	Can add 43%
Knee replacement	Additional 8 days	Can add 34%

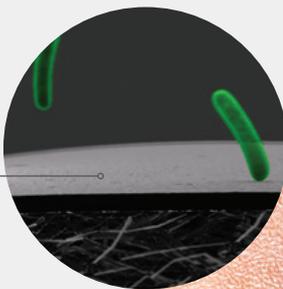


Improving outcomes with incisional negative pressure wound therapy (NPWT)

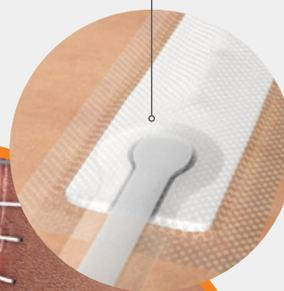
NPWT has multiple mechanisms of action that can help improve the speed, strength and quality of incisional wound healing. This can help minimise wound complications such as oedema, seroma and haematoma formation as well as dehiscence.¹⁹⁻²⁴

Benefits of NPWT

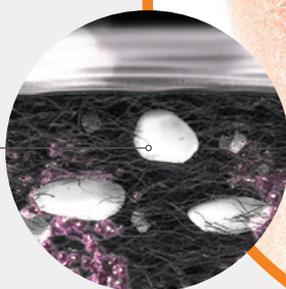
Helps protect the incision from external contamination.¹⁹



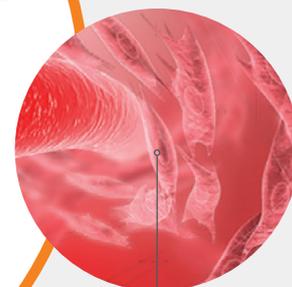
Helps hold closed incision edges together and helps reduce tensile forces across the incision.²⁰



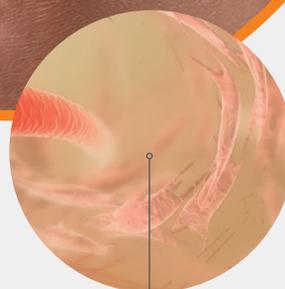
May help reduce seroma and haematoma fluid collections.²¹



Helps support improved perfusion.²²



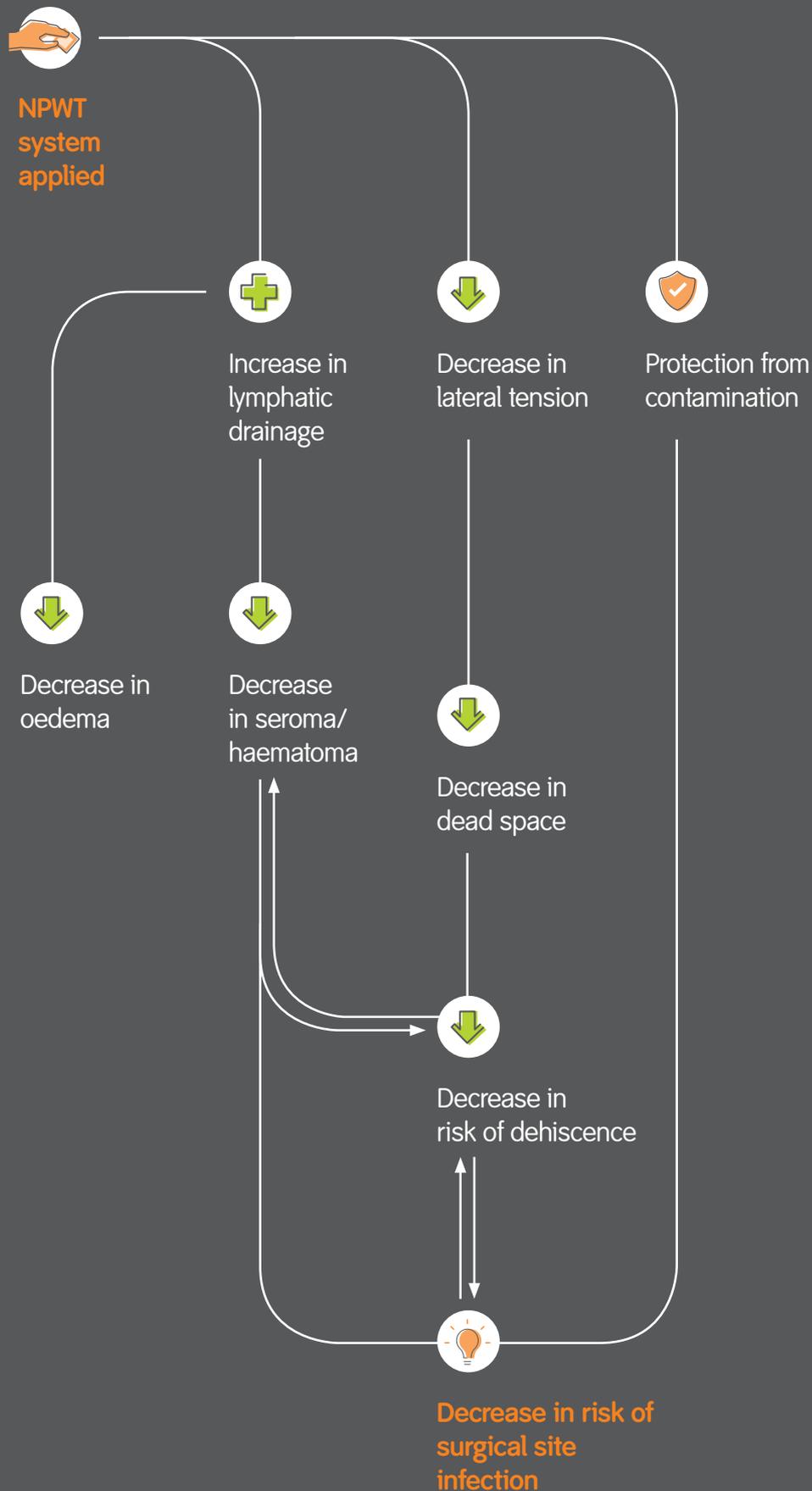
May help reduce oedema.²²



How NPWT reduces surgical site complications?

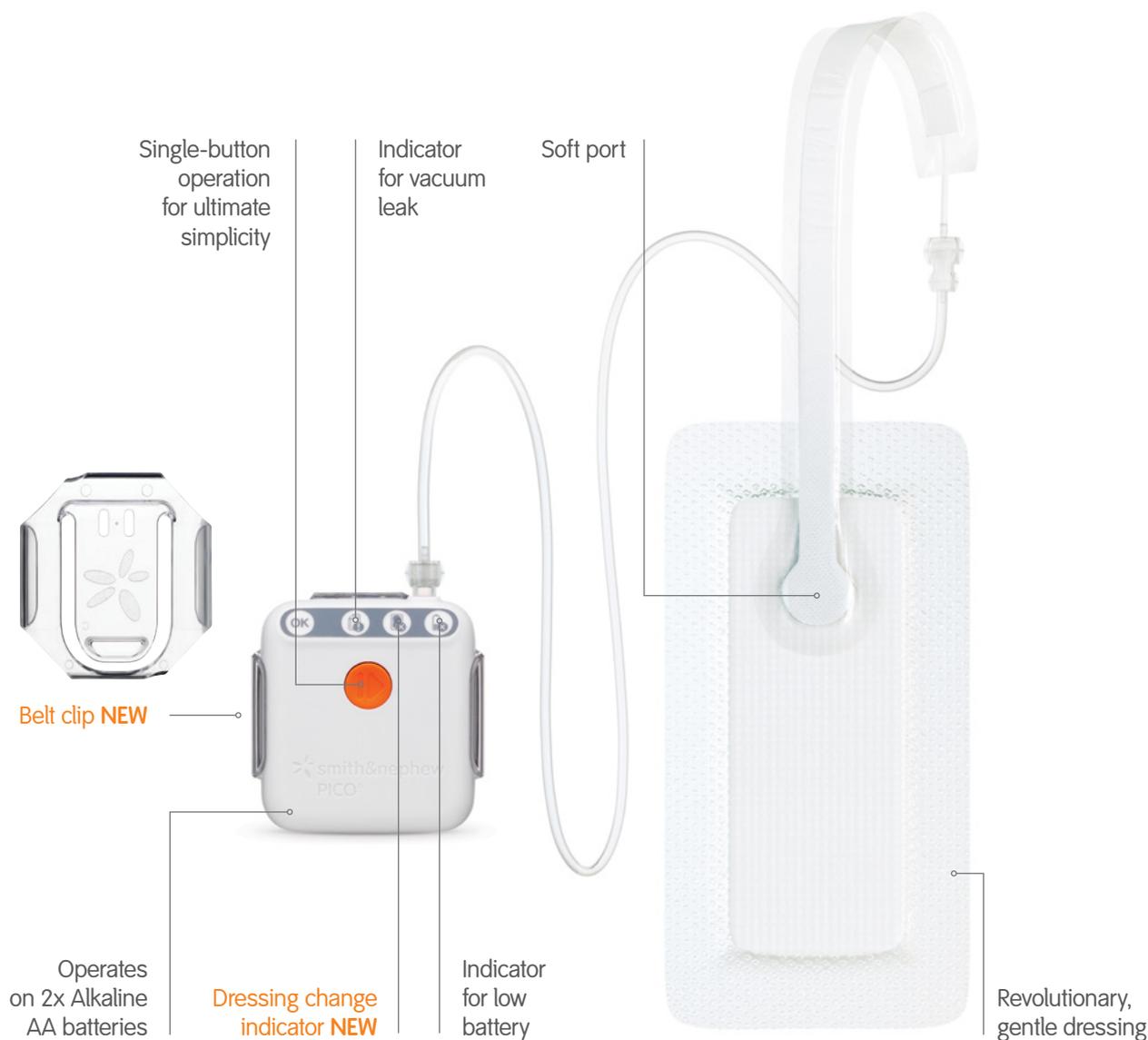
How NPWT helps?

This pathway is adapted from the WUWHS guidelines document and it shows how NPWT can help reduce SSCs and lateral tension while increasing lymphatic drainage. This effect is likely to contribute to faster and stronger healing, and a reduced risk of infection and dehiscence.²



PICO[◇] 7 with AIRLOCK[◇] Technology: new, improved single-use NPWT

The elements



Improved device performance

Enhanced management of air leaks helping to support healthcare professionals in delivering negative pressure and could potentially be used in problematic 'hard to seal' awkward areas²⁵

Improved ease of use

New user interface with a 'dressing full' indicator, optimising dressing changes

Area to write start date of therapy, helping with healthcare protocols

Improved patient quality of life

Now even quieter pump than before²⁶

New transparent belt clip for greater portability²⁷

Increased flexibility

New multipacks of 5 dressings now available, allowing therapy to be tailored to patients' clinical needs

PICO[◇] 7 dressings with AIRLOCK[◇] Technology: leading the way in NPWT for closed surgical incision sites

Anatomy of dressing

PICO multi-function dressings²⁴ provide you and your patients with the benefits of a gentle,²⁸ absorbent²⁴ and evaporative²⁴ dressing that has also been engineered to ensure effective negative pressure²⁴ is delivered on to the wound

Absorption^{24*}

20%

Approximately 20% fluid still remains in the dressing

Evaporation^{24*}

80%

On average 80% of the exudate is lost by evaporation

Super absorbent core
locking exudate away from wound^{24,29,30*}

Top film layer
has a high moisture vapour transmission rate²⁴ and protects the wounds from external contamination¹⁹

Pioneering AIRLOCK Technology
transmits pressure evenly across whole wound bed²⁴

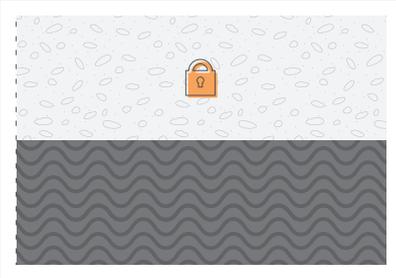
Silicone adhesive layer
protects the wound environment and helps to reduce pain on removal^{19,24}

For patient outcomes,
this changes everything

The PICO[◇] dressing

Pioneering by design

Patented AIRLOCK[◇] technology layer



Stabilising the healing process

- This layer ensures that pressure is distributed in a uniform way across the incision and zone of injury^{31*}
- Ensures that negative pressure is delivered consistently over the duration of therapy³¹
- Effectively manages fluid from the incision through absorption and transpiration thereby helping to reduce the risk of maceration^{31**}

In-built protection

- In an in-vitro study bacteria were injected into the superabsorbent layer. The AIRLOCK layer prevented up to 99.9% of bacteria movement to the wound contact layer³²
- This layer is unique to PICO and helps ensure bacteria is locked away from the surgical incision³²

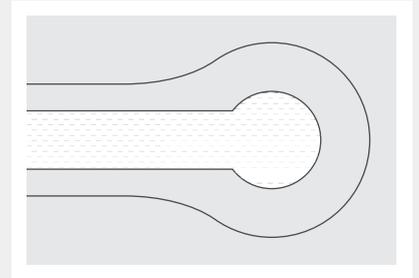
Silicone layer with all over adhesive



Treating more than just the incision

- This layer can be placed over the intact skin to treat the underlying zone of injury^{2,25}
- The gentle silicone protects the patients skin, minimising damage and pain on removal^{24,28}
- The all over adhesive helps ensure that the dressing stays in place therefore reducing shear force and lateral tension²⁰
- The silicone layer may significantly help improve scar formation³³

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^{38,39}



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.³⁴



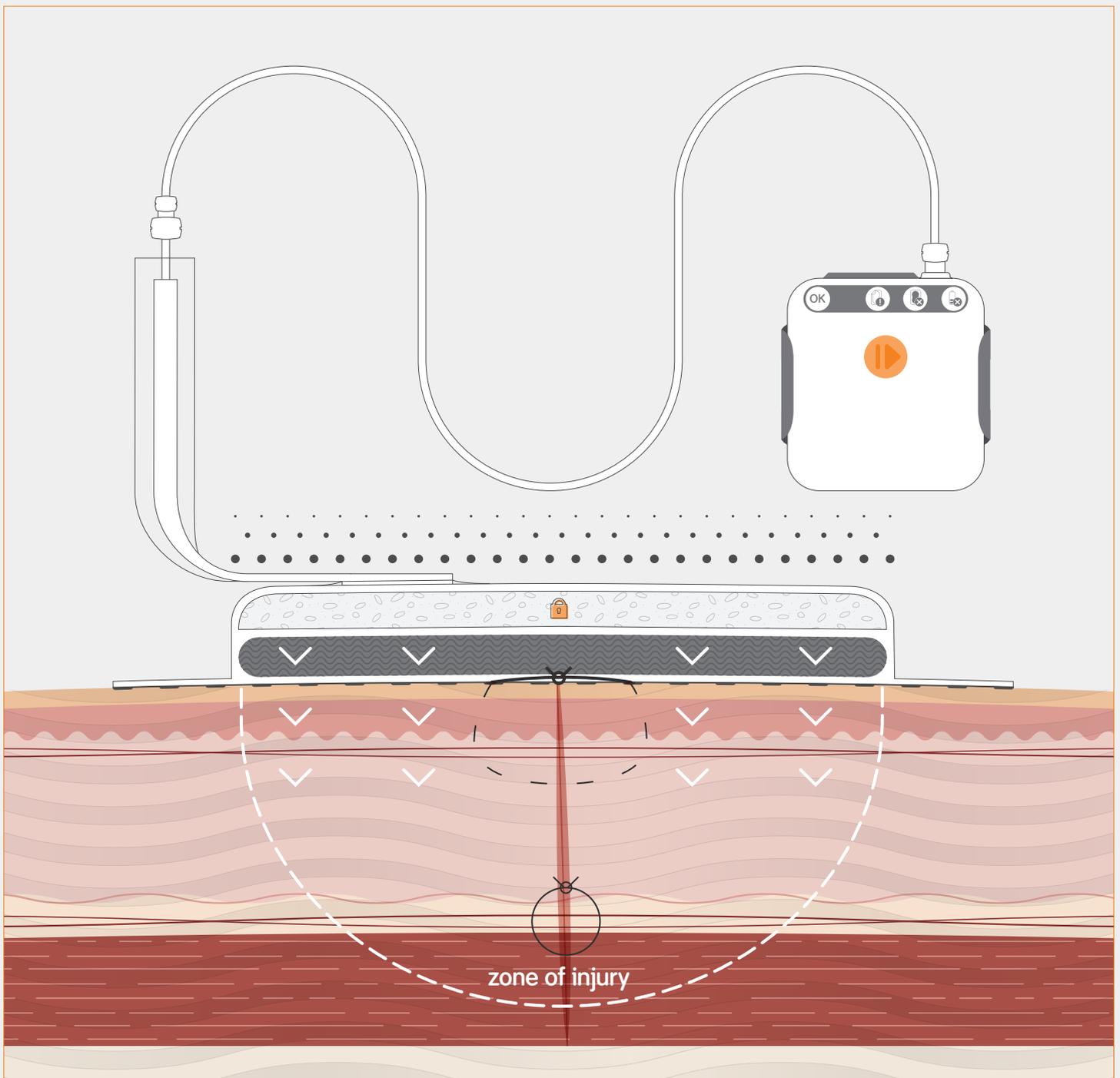
The PICO[◇] dressing

Treating the zone of injury

The underlying tissue is damaged during surgery but the PICO dressing can be placed over the entire zone of injury. This means you are not only treating the incision but the surrounding tissue.²



Clinical images provided courtesy of Dr Matthias Brem



Evidence in focus:

Study summary

Authors

Karlakki SL, et al (2016)¹²

PICO^o significantly reduced: extreme lengths of stay, distribution of wound exudate and number of dressing changes in orthopaedic closed surgical incisions¹²

This was a 220 patient Randomised Controlled Trial (RCT) of the PICO^o single-use negative pressure wound therapy (NPWT) dressing, compared to standard care, in closed surgical incisions after planned primary hip or knee replacement surgery. The PICO^o group showed an improvement in all areas investigated compared to the standard care group.



Evidence

- Level 1 evidence and adequate number of patients
- A prospective, open label, parallel group, RCT with 6 weeks follow-up
 - Incisional NPWT (PICO^o) versus standard care
- The aim of the study was to determine whether the addition of PICO^o for closed surgical incision management could give more predictable lengths of stay by managing the wound better



Patients with extreme lengths of stay (LOS) were significantly reduced by PICO^o compared to standard care

- Range of LOS: PICO^o 1-10 days; Standard care 2-61 days
- Statistically significant (p=0.003)*
- Mean overall reduction in LOS was 0.9 days
- Not statistically significant (p=0.07)*



Wound exudate distribution in the dressing after surgery was significantly reduced by PICO^o compared to standard care

- Statistically significant (p=0.007)*
- Grade 4 exudate: PICO^o 4%; Standard care 16%
 - The distribution of wound exudate in the dressing was measured on a 5-point scale



The number of dressing changes in the study was significantly reduced by PICO^o compared to standard care

- Mean dressing changes: PICO^o 2.5; Standard care 4.2
- Statistically significant (p=0.002)*



There were fewer surgical site complications (SSC) in the PICO group compared to standard care

- SSC: PICO^o 2.0%; Standard care 8.4%
- Not statistically significant (p=0.06)*

COMMENTS:

The study was performed at a specialised elective-only orthopaedic hospital: Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, UK.

Patients undergoing elective primary joint replacement surgery at the study site are under an Enhanced Recovery After Surgery (ERAS) pathway to improve predictability of discharge from hospital because this substantially improves efficiency at this hospital.

Statistical analysis suggests that PICO^o would be most beneficial in patients with ASA score ≥ 3 and BMI ≥ 35 .

Based on the results of this RCT PICO^o has been shown to have a beneficial role in primary hip or knee replacements to achieve predictable length of stay by reducing excessive hospital stay and minimising superficial wound complications. There were no deep prosthetic infections in any patients in this study.

Meta-analysis: PICO[◇] evidence

Authors

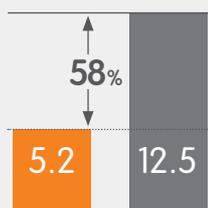
Strugala, V. & Martin, R. (2017)³⁴

This meta-analysis combines 16 articles, comprised of 10 randomised control trials and 6 observational studies, comparing outcomes for PICO single-use Negative Pressure Wound Therapy system application to standard of care.



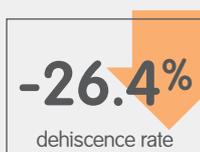
Evidence

- Level I evidence: A meta-analysis.
- A weighted analysis of 16 articles involving 1863 patients (2202 incisions).
- The aim of this meta-analysis was to pool results from multiple studies to access the average effect of PICO application across varied surgical indications on surgical site infection (SSI), dehiscence or length of hospital stay in comparison to standard of care.



Surgical Site Infection

- Application of PICO reduced rate of SSI by 58% (relative risk 0.43, $p < 0.0001$) compared to standard of care.
- Reduced risk of SSI demonstrated by PICO was significant across various surgical specialties including:-
 - Orthopaedic (relative risk 0.48, $p = 0.03$)
 - Abdominal (relative risk 0.44, $p < 0.0001$)
 - Colorectal (relative risk 0.29, $p = 0.0004$)
 - Caesarean section (relative risk 0.53, $p = 0.007$).



Dehiscence

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



Length of stay

- PICO treated patients had 0.47 days less hospital length of stay compared to standard of care ($p < 0.0001$).

For patient outcomes,
this changes everything

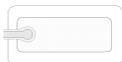
PICO[◇] could help you, your hospital and your patients to reduce...



For healthcare budgets,
this changes everything

PICO[◇] 7 system

Ordering information

Dressing	Dressing size	2x dressing kit*	1x dressing kit**	Multipacks***
	10cm x 20cm	66802002	66802012	66802022
	10cm x 30cm	66802003	66802013	66802023
	10cm x 40cm	66802004	66802014	66802024
	15cm x 15cm	66802005	-	-
	15cm x 20cm	66802006	-	-
	15cm x 30cm	66802007	-	-
	20cm x 20cm	66802008	-	-
	25cm x 25cm	66802009	-	-
	Multisite small 15cm x 20cm	66802000	-	-
	Multisite large 20cm x 25cm	66802001	-	-
Consumables	Dressing size	Product code		
	Foam dressing filler 10cm x 12.5cm x 1.5cm	66801021	-	-
	Gauze dressing filler 11.4cm x 3.7m	66802127	-	-

* 2 x dressing kit = 2 dressings + 1 pump; ** 1 x dressing kit = 1 dressing + 1 pump; *** Multipacks = 5 dressings only

For detailed product information, including indications for use, contraindications, effects, precautions, warnings, and important safety information, please always consult the Instructions for Use (IFU) prior to use.

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Supporting healthcare professionals for over 150 years

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