

+ Control your risks, control your outcomes

Is your revision arthroplasty patient at risk
of developing a surgical site complication?



Smith+Nephew

PICO[◇]

Single Use Negative Pressure
Wound Therapy System

Helping you get **CLOSER TO ZERO[◇]**
surgical site complications¹

possiblewithpico.com

PICO ORTHOPEDIC RISK QUESTIONNAIRE REVISION



Is your patient high risk?

Operative time

Revision hip arthroplasty (rTHA) can take, on average, 78 mins longer compared with primary procedures²

Revision

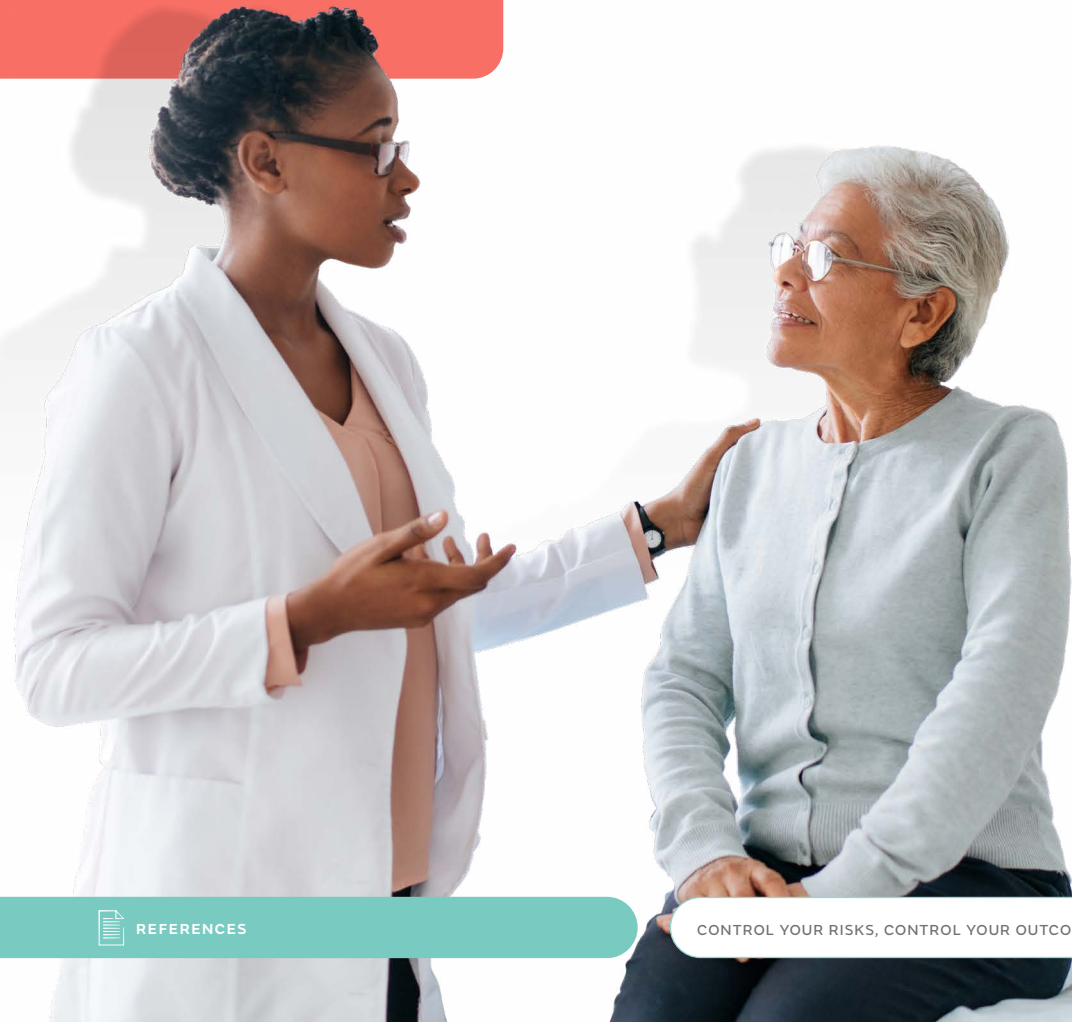
Surgical site infection (SSI) risk can double with rTHA compared with primary procedures³

Deep or organ space SSI can nearly quadruple with rTHA compared with primary procedures³



SSI risk can double

with rTHA compared
with primary procedures³



Is your patient high risk?

Certain patient factors correlate with SSI development following primary and revision arthroplasty⁴. Pre-operative identification can determine the probability of an SSI developing post-operatively⁴.

Procedure				
TJA procedure	Primary hip	Primary knee	Revision hip	Revision knee
Score	0	1	3	3

Chronic obstructive pulmonary disease		
Presence	Yes	No
Score	1	0

Diabetes		
Presence	Yes	No
Score	1	0

Long term insulin use		
Presence	Yes	No
Score	1.5	0

Rheumatoid arthritis or inflammatory arthropathy		
Presence	Yes	No
Score	1.5	0

Tobacco use		
Presence	Yes	No
Score	1.5	0

Lower-extremity osteomyelitis or pyogenic arthritis		
Presence	Yes	No
Score	2	0

Pelvis, thigh, leg traumatic fracture		
Presence	Yes	No
Score	2	0

Lower-extremity pathologic fracture		
Presence	Yes	No
Score	2.5	0

Morbid obesity (BMI ≥ 40)		
Presence	Yes	No
Score	2.5	0

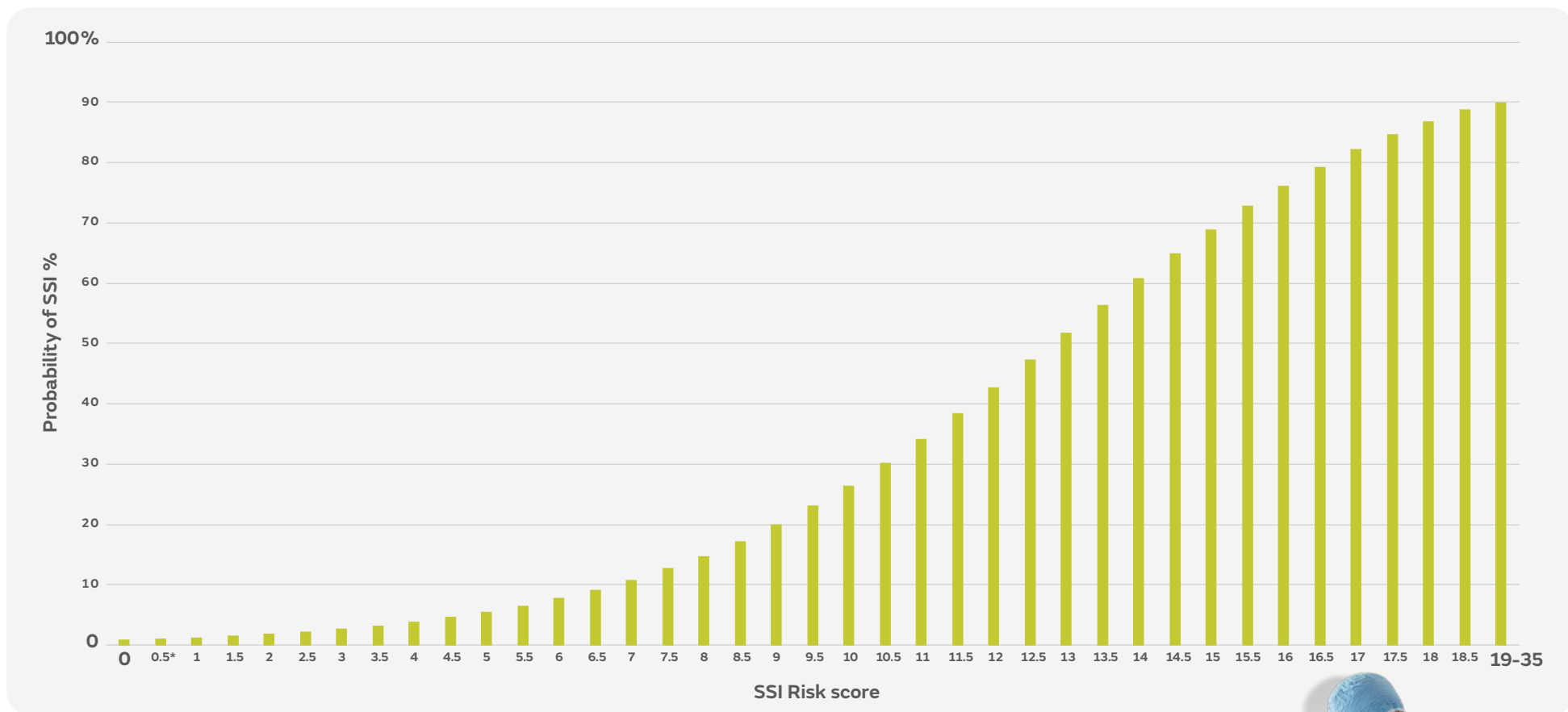
Primary bone cancer		
Presence	Yes	No
Score	4	0

Reaction to prosthesis or implant within 3 years		
Presence	Yes	No
Score	4	0

Staphylococcal septicemia		
Presence	Yes	No
Score	4.5	0

TOTAL PATIENT SCORE:

SSI risk score and corresponding probability of SSI



Certain patient factors correlate with SSI development following primary and revision arthroplasty⁴. Pre-operative identification can determine the probability of an SSI developing post-operatively⁴.

*Interpolated value. A score of 0.5 is not a possible result of any combination of positive risk factors.



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The prophylactic use of incisional NPWT significantly reduced **LoS** by an average of **1.87 days*** following revision hip and knee arthroplasties²



The risk of developing a post-operative SSC depends on the type of surgery and patient risk factors^{6,7}

The presence of just **1 major risk factor** or **2** or more moderate risk factors, places patients at high risk of an SSC and means you should consider **PICO® sNPWT**⁶



Category

Patient-related risk factor

Procedural-related risk factor



Major risk factor
presence of 1 = high risk of surgical site complication

! BMI $\geq 40\text{kg/m}^2$ or $\leq 18\text{kg/m}^2$

! Extended surgery[†]

! Uncontrolled insulin dependent diabetes mellitus

! Emergency surgery

! Renal dialysis

! Hypothermia



Moderate risk factor
presence of 2 \geq high risk of surgical site complication

! ASA physical status $>II$

! Anaemia / blood transfusion

! Age < 1 year or > 75 years

! High wound tension after closure

! BMI $30-39.9\text{kg/m}^2$

! Dual antiplatelet treatment

! Immunosuppression

! Suboptimal timing or omission of prophylactic antibiotics

! Smoking (current)

! Tissue trauma / large area of dissection / large area of undermining

Table adapted from World Union of Wound Healing societies Consensus, 2016. The risk factors represented in this table are examples only and not an exhaustive list.¹⁴

*Compared with standard care; 6.71 days v 8.58 days; $p = 0.019$. [†]Defined as $>T$ (hours) which is dependent on the type of surgical procedure, and is the 75th centile of duration of surgery for a particular procedure, e.g. coronary artery bypass graft has a T of 5 hours and caesarean section has a T of 1 hour.

+ Revision surgery

Dr Thomas Goetzmann, Clinique Louis Pasteur, Essey les Nancy (France)
PICO^o sNPWT on a surgical incision after rTKA surgery

Patient

A 73 year-old female, the patient was unable to walk unaided.

Class 1 obesity

History of rTKA surgery due to infection; the patient had already received two rTKAs.

The patient underwent a left rTKA and put on antibiotics

PICO sNPWT treatment methodology

- It was decided to apply the PICO sNPWT System in the OR. The chosen PICO dressing size was 10 x 40cm and the incision line measured 21cm L, with sutures present
- The surgeon decided to leave the PICO System in place for 6 days

Course of PICO sNPWT

- The patient was in hospital for 6 days before transfer to post-acute care and rehabilitation.
- The patient's leg was not immobilized and she was able to wear her compression stocking
- At D6, 20% saturation of the dressing was observed
- There was no sign of inflammation under the dressing. After a team discussion, a new PICO dressing (15 x 30 cm) was applied in order to avoid any risk of dehiscence in areas where the peri-wound skin was more fragile, which was distinguishable by a whitish discolouration. The surgeon decided to leave the PICO System in place for another 6 days

Treatment outcome

- The patient was seen again at D12. The PICO dressing showed 45% saturation, and the sutures at the ends of the incision line were removed. There was no sign of inflammation or dehiscence. The surgeon continued PICO therapy for another 7 days, with the same dressing size
- PICO sNPWT was discontinued at D19. The dressing showed two stains, and all remaining sutures were removed. Antibiotic therapy was discontinued on the same day
- The total duration of treatment was 19 days. The PICO dressing was then replaced by a hydrocellular dressing
- By D47, the incision was fully healed without any complications
- The patient was pleased with the outcome and with the device, which helped prevent further complications and allowed her to resume physiotherapy sessions in order to regain mobility
- The surgeon was also pleased with the device



The patient was able to receive physiotherapy throughout treatment with **PICO** sNPWT in order to regain the ability to walk unaided

*PICO not indicated for compression in the United States

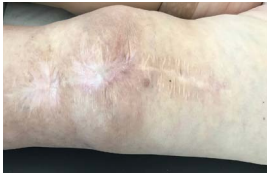
+ Revision surgery^(continued)

Dr Thomas Goetzmann, Clinique Louis Pasteur, Essey les Nancy (France)
PICO^o sNPWT on a surgical incision after rTKA

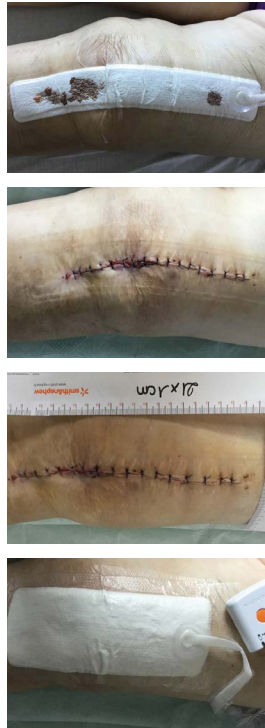


Evolution of closed surgical incision with PICO^o sNPWT

Before surgery



Day 6



Day 12



Day 19



Day 47



REFERENCES

CONTROL YOUR RISKS, CONTROL YOUR OUTCOMES | 7

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Important Safety Information

The PICO pumps contain a MAGNET. Keep the PICO pumps at least 4 inches (10 cm) away from other medical devices at all times. As with all electrical medical equipment, failure to maintain appropriate distance may disrupt the operation of nearby medical devices. For full product and safety information, please see the Instructions for Use.

References: 1. Saunders C, Buzza K, Nherera L. 2019. A single use negative pressure system reduces surgical site complications compared with conventional dressings in closed surgical incisions: a systematic literature review with meta-analysis. Poster presented at the European Wound Management Association. 2. Bozic KJ, Katz P, Cisternas M, Ono L, Ries MD, Showstack J. Hospital resource utilization for primary and revision total hip arthroplasty. *JBJS*. 2005 Mar 1;87(3):570-6. 3. Leekha S, Sampathkumar P, Berry DJ, Thompson RL. Should national standards for reporting surgical site infections distinguish between primary and revision orthopedic surgeries? *Infection Control & Hospital Epidemiology*. 2010 May;31(5):503-8. eek. 4. Everhart JS, Andridge RR, Scharschmidt TJ, Mayerson JL, Glassman AH, Lemeshow S. Development and validation of a preoperative surgical site infection risk score for primary or revision knee and hip arthroplasty. *JBJS*. 2016 Sep 21;98(18):1522-32. 5. Mhaske AS, Budithi S, Karlakki S. Incisional negative pressure wound therapy can reduce wound complications and hospital stay in revision hip and knee arthroplasty. Paper presented at: EFORT; 2019; Lisbon. 6. Sugrue M, Ciprandi G, Djohan R, et al. World Union of Wound Healing Societies (WUWHS) Consensus Document. Closed surgical incision management: Understanding the role of NPWT. *Wounds Int* [Internet]. 2016. www.woundsinternational.com/wuwhs/view/consensus-documentclosed-surgical-incision-management-understanding-the-roleof-npwt (Last accessed July 29, 2017). 7. The World Health Organisation (2016) Global Guidelines for the Prevention of Surgical Site Infection. [online] Available from <https://apps.who.int/iris/bitstream/handle/10665/250680/9789241549882-eng.pdf?sequence=8> (Last Accessed June 2020).

