

# Non-healing lower extremity wounds

64-year-old lady suffered a trauma injury to the ankle. The wound was conservatively managed but remained unhealed after 6 to 7 weeks. No underlying co-morbidities existed that might account for the delayed wound healing, but oedema was present around the ankle and the wound would not close.

Smith & Nephew's PICO NPWT system was applied on the 14th July 2011 with a 10cm x 20cm dressing was applied on the 14th July 2011. 1 week later, oedema has subsided around the ankle injury and the wound was considerably smaller. In particular the depth of the wound bed had reduced from 1 cm to 0.5 cm deep.

3 weeks after treatment with the PICO NPWT system, the wound was almost closed. PICO was replaced with moist wound healing therapy (ALLEVYN<sup>®</sup> Gentle Border Lite).

Non-healing trauma wound prior to PICO therapy



PICO in situ post-application



PICO prior to dressing change



PICO dressing removal



Wound progressing towards healing after 1 week of PICO therapy



Wound after 2 weeks of PICO therapy



Wound after 3 weeks of PICO therapy



Treatment moved to MHW after 3 weeks of PICO



# Non-healing lower extremity wounds

A 63-year-old diabetic male underwent a forefoot amputation of the right leg over 2 years ago. Blood supply to the limbs was severely compromised in this patient as noted by his vascular surgeon, and consequently the wound failed to heal despite two skin graft attempts.

Smith & Nephew's PICO NPWT system was applied to the wound to manage exudate and after only 2 weeks of treatment, the wound had undergone dramatic changes.

Wound dimensions prior to commencement of PICO: 8 - 9cm by 2.5 - 3cm, with a depth of 0.5 - 0.7cm.

After two weeks of PICO treatment, wound dimensions progressed to 7cm x 2cm x 0.2cm.

Non-healing forefoot amputation wound prior to PICO therapy



PICO application



PICO prior to dressing change



Wound after 1 week of PICO therapy



Wound after 2 weeks of PICO therapy



# Non-healing lower extremity wounds

Mr K suffered a traumatic injury to his lower left limb following a road accident. The wound was cleaned and closed in theatre, but later suffered a partial dehiscence of the wound. Significant oedema was also present.

Smith & Nephew's PICO NPWT system was applied to the dehiscenced wound. After 1 week of treatment with PICO the wound dimensions reduced from 6cm to 4.5cm in length, from 4cm to 3.5cm in width, and from 0.3 cm to 0 cm in depth. Some hyper-granulation of the wound was noted after the first dressing change which was treated with a topical application of silver nitrate. No further hyper-granulation was noted.

After 3 weeks of PICO treatment the wound reduced further in size: length 3.5cm and width 3cm. At this point the wound had progressed sufficiently to justify switching to an advanced wound dressing (ALLEVYN<sup>®</sup> Non-Adhesive).

Dehiscenced surgical wound prior to PICO therapy



Initial PICO dressing application



PICO in-situ prior to removal (7 days)



Wound after 1 week of PICO therapy



Wound after 2 weeks of PICO therapy



Wound showing progression of healing (3 weeks of PICO therapy)



Wound progression deemed sufficient to moved to MWH



# Non-healing lower extremity wounds

An 82-year-old male with a history of diabetes, MI and poor peripheral circulation underwent a partial foot amputation 6 weeks earlier due to tissue necrosis, infection and undermining.

Following surgery, the wound was treated with a combination of dressings prescribed by the orthopaedic team of Mepitel™ in the bottom of the wound, then MELOLIN® and sealed with Tegaderm™. This resulted in the wound becoming macerated, and an increase in odour and pain caused the patient to worry that the wound was going to break down again and require further amputation.

The patient changed to a different care provider and initially the patient was treated with ACTICOAT® and ALLEVYN® to manage infection prior to treating with PICO. After 1 week the patient was completely pain free, presumably due to the reduction in bioburden and able to sleep at night again.

The wound was then treated with PICO NPWT over the course of 9 weeks, by which time the wound was closed sufficiently to switch to conventional wound management therapy, and the patient was able to walk again.

Non-healing amputation wound prior to PICO treatment



Wound after 1 week of PICO therapy



Wound after 2 weeks of PICO therapy



Wound after 3 weeks of PICO therapy



Wound after 7 weeks of PICO therapy



Wound almost healed and PICO stopped after 9 weeks of therapy



# Non-healing lower extremity wounds

77-year-old Male was being treated for a wound that had failed to heal using conventional wound management therapy for over a year. The patient had previously suffered a stroke.

The patient was initially treated with RENASYS<sup>®</sup> GO for 2 months in the hospital to encourage granulation, but in order to allow the patient to be discharged, treatment was switched over to PICO.

PICO NPWT was initiated 26th July 2011 and terminated 6 weeks later (8th September 2011) after which time it was deemed the wound had progressed sufficiently to closure to justify a switch to conventional wound therapy.

Wound prior to PICO therapy



Wound after 2 weeks of PICO therapy



Wound after 4 weeks of PICO therapy



Wound after 5 weeks of PICO therapy



Wound almost healed after 6 weeks of PICO therapy



# Diabetic foot ulcers

60-year-old male with diabetes with a wound in the plantar region of the foot. The wound presented with significant undermining, was susceptible to infection and failed to respond to conventional wound management therapy. The wound was 1.8cm x 1cm in size when the PICO NPWT system was initiated. The undermining extended to a depth of 2.8cm. A 10cm x 20cm PICO dressing was applied and the undermining was packed with a silver alginate. After 1 week the undermining reduced to 2cm. After 2 weeks of treatment with PICO, the extent of undermining reduced further to 1cm in depth, and the wound dimensions had reduced to 1.2cm by 0.8cm. Slight maceration was noted around the wound edge after removal of the second dressing, where the dressing was not wholly covering the wound.

Non-healing diabetic foot ulcer (DFU) prior to PICO therapy



Significant undermining in DFU



Initial PICO application



PICO in-situ post-application



PICO prior to dressing removal (7 days)



Wound after 1 week of PICO therapy



Reduction in undermining from 2.8cm to 2cm



PICO prior to dressing removal (7 days)



Further reduction in undermining (1cm). Wound area has reduced from 1.8cm x 1cm to 1.2 x 0.8cm.



Wound after 2 weeks PICO therapy



# Leg ulcers

86-year-old male with a medical history of stroke, arterial insufficiency, and spinal stenosis, had undergone 2 vascular surgery procedures in the previous 2 years to improve peripheral circulation. The patient suffered with a painful arterial ulcer on the forefoot, present for 1 year. 4 months prior to PICO commencement the wound had rapidly deteriorated, becoming infected, sloughy and necrotic and very painful. Exudate levels increased and dressing change frequency involving home visits to the patient had to be more frequent.

Antibiotic treatment and pain management was initiated, but the wound deteriorated further, exposing tendon. Topical silver dressings were able to eventually control the bioburden although the wound itself did not improve. The patient was at risk of amputation.

PICO NPWT treatment was initiated on 31st May 2011 as a last attempt to salvage the foot before amputation. After 2 weeks the pain associated with the wound was subsiding and the wound bed looked clean and granulating. Each week saw an improvement in the wound size and a gradual reduction in pain medication.

Treatment was discontinued on the 23rd August 2011 and the wound was completely healed 2 weeks later.

**Treatment Costs:** 18.01.11 to 23.08.11: Total cost of managing the wound conservatively excluding doctor visits and pain relief was 42,512 SEK. Treatment with PICO including staffing costs was 21,845 SEK to wound closure. Saving potential amputation and aftercare costs of 0.5 million SEK.

Arterial ulcer prior to PICO therapy



Wound after 1 week of PICO therapy



Improvement in wound appearance after 2 weeks of PICO therapy



Wound after 3 weeks of PICO therapy



Significant reduction in wound area following 6 weeks of PICO therapy



Wound after 7 weeks of PICO therapy



Wound almost closed after 12 weeks of PICO therapy. Treatment discontinued



Wound healed 2 weeks later



# Pressure ulcers

A 49-year-old female suffered a fractured tibia of the left leg in June 2009. A pressure ulcer formed on the patients knee as a result of an incorrectly fitted plaster cast. No other co-morbidities existed other than Multiple Sclerosis.

The pressure ulcer was managed with conventional wound care but failed to heal and remained open for 2 years. The location of the wound created additional problems since any movement of the knee placed a significant amount of strain on the healing tissue.

Smith & Nephew's PICO NPWT system was used over a period of 9 weeks until the wound was almost closed then switched to moist wound healing.

Non-healing wound over the knee prior to PICO therapy



Wound after 1 week of PICO therapy



Wound after 7 weeks of PICO therapy



Wound showing significant progression to healing after 9 weeks of PICO therapy



# Pressure ulcers

92-year-old male with a history of hypertension, hip reconstruction and spinal stenosis was suffering from a painful wound under his right heel which had failed to heal with conventional wound therapy for 2 years.

The foot was hard to move and mobility was restricted due to the painful ulcer, causing the patient to be wheelchair bound. As a result, the patient was taking significant pain relief medication (morphine, codeine, paracetamol and Lyrica<sup>™</sup>) to relieve the peripheral and neurological pain.

The wound was treated with PICO NPWT for 8 weeks in total, after which time the wound had almost completely healed and it was deemed appropriate to switch treatment to conventional therapy.

**Treatment Costs:** Prior to treating with PICO, costs of managing the wound for 2 years were estimated to total 91,360 Kr, the total costs of healing the wound with PICO were 10, 640 Kr. Due to the simplicity of dressing application with PICO, wound care was delegated to nursing assistants which helped reduce staffing costs further.

Non-healing pressure ulcer prior to PICO therapy



Wound after 6 weeks of PICO therapy



Wound almost completely healed after 8 weeks of PICO therapy



# Non-healing lower extremity wounds

Mr S was undergoing chemotherapy when he suffered a trauma wound over the left tibia.

The wound had failed to heal with conventional therapy. In order to give the wound a chance to heal, chemotherapy was discontinued and a PICO NPWT system was applied.

Multi-layer compression bandaging was also applied to both legs to manage oedema.

After 1 week of therapy, the wound had improved in size and appearance. Compression therapy was discontinued as oedema had subsided.

PICO therapy was continued for a second week in which the wound made further progress. Unfortunately this patient's cancer had spread throughout the body, so NPWT treatment was discontinued.

Non-healing trauma wound prior to PICO therapy



PICO in-situ post-application



Application of PICO under compression therapy



PICO prior to dressing change



Wound after 1 week of PICO therapy



Wound after 2 weeks of PICO therapy



# Leg ulcers

78-year-old female with the autoimmune disease Sjögren's syndrome. A 10cm x 5cm wound on the lower limb failed to respond to conventional wound management therapy that the patient had been receiving up to 3 times a week for 4.5 years. The painful non-healing wound was significantly affecting the patients quality of life and not surprisingly, the patient had given up hope of ever healing her wound.

The patient's care provider was changed in April 2011 and on initial assessment, the presence of a biofilm was suspected. The wound was treated with ACTICOAT® and ALLEVYN® in conjunction with compression therapy (PROFORE® Lite). Whilst the level of bioburden appeared to decline, no obvious progression in healing was noted. In July 2011, PICO treatment was considered to try and progress the wound further.

Initially the patient was reluctant to try a new therapy but agreed to use PICO NPWT for 2 weeks. Following a notable improvement in the wound, the patient was happy to continue with PICO further. Compression therapy was continued in conjunction with PICO for a total of 18 weeks, after which time the wound dimensions had reduced to an area of 2.5cm<sup>2</sup> and pain had subsided.

**Treatment Costs:** Prior to treating with PICO, managing the wound for 4.5 years was estimated to cost 235,872 SEK. The total cost of healing the wound with PICO for 18 weeks including staff was 25,500 SEK. Although the cost per week of using PICO was greater than conventional treatment, the wound healed over a significantly shorter time period using PICO and the total cost to heal the wound was a fraction of the cost previously expended whilst managing the wound conservatively.

Non-healing leg ulcer (4.5 years)  
prior to PICO therapy



Wound after 2 weeks PICO therapy  
showing reduction in wound area  
and improved appearance



Wound after 16 weeks PICO  
therapy



Wound almost closed following  
18 weeks PICO therapy

