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## Use of a dynamic care pathway in the management of 10 patients with complex diabetic foot wounds

### Introduction

Diabetic foot wounds can be complex and challenging. Negative Pressure Wound Therapy (NPWT) has recently emerged as a management option<sup>1</sup>. Wound healing consists of several phases for which different products are likely to be most appropriate, yet there is little clinical evidence for the use of whole clinical pathways that consider each phase. This pilot study investigates the use of a "dynamic care pathway" (DCP) which interlinks three interventions targeted towards different phases of wound healing.

### Method

Ten patients with chronic foot wounds were selected to receive treatment paying specific attention to Stage 1 (Debridement Phase), Stage 2 Negative Pressure Wound Therapy (Proliferative Phase) and Stage 3 advanced wound therapy (Protection/Progression Stage). Selection criteria were based on clinical judgement and patient suitability to undergo hydro-surgical debridement in a clinic setting. The screening criteria pathway is shown in figure 1. Standardised data collection included wound measurement, contraction, epithelialisation and time to heal as outcome measures.

### Results

Pre treatment mean wound area = 21cm<sup>2</sup>. All patients except one patient had one hydro-surgical debridement, with 1 patient needing two. The mean duration of NPWT treatment was 23.4 days with a mean change in wound area of -5.6cm<sup>2</sup>. One wound increased in size as further necrosis occurred necessitating the additional debridement. If this datum is excluded the mean change in wound area = -7.4cm<sup>2</sup> (a 38% decrease), mean change in wound depth = -0.4cm (a 48% reduction) and a mean duration of treatment = 49.8-days.

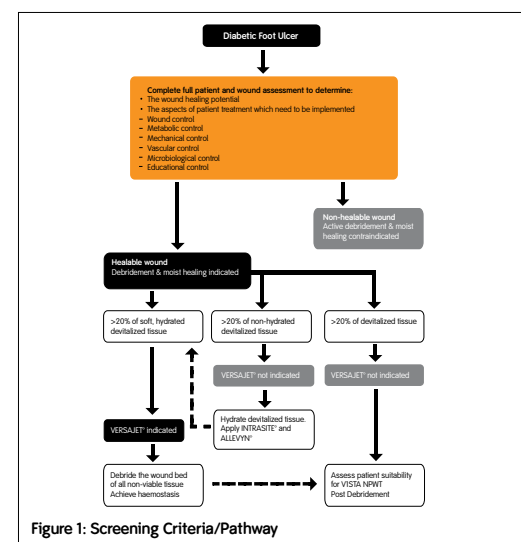
### Discussion

Acute wound healing could be described as an efficient process involving the overlapping of several healing stages with a continual sequence of mechanisms that ultimately result in the healing of the wound. The dynamic care pathway builds upon this knowledge and our growing understanding of wound bed preparation (WBP)<sup>2</sup>. There are three principles which can be referred to as the 3 'P's': Prepare the wound using VERSAJET<sup>®</sup> debridement, Promote wound healing using VISTA topical negative pressure and Protect your healing wound using conventional therapy to achieve complete closure. This case-study demonstrates the use of DCP in diabetic foot ulceration and shows the benefit of adopting this approach in these chronic complex wounds. Clinicians need to also address systemic barriers and lifestyle factors known to have a detrimental effect on healing and whilst not discussed in this poster these factors were addressed alongside the use of the DCP.

### Conclusion

Wound bed preparation is widely accepted in practice and is used by clinicians to identify barriers to healing at a wound level. The dynamic care pathway described above follows the principles of WBP and when used to manage multiple neuropathic foot ulceration the use of VERSAJET<sup>®</sup>, VISTA and ACTICOAT<sup>®</sup> provided favourable conditions to promote healing.

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Patient A: Type II Diabetes with neuropathy, Colon cancer and metastases, immobility led to pressure ulcer



Image 1: Post Hydrosurgical debridement on 24th November 2008

Image 2: after 6 weeks NPWT

Image 3: Healed 9th April 2009

Patient B: Type I diabetes with multiple neuropathic lesions (dorsal, 1st metatarsal head and heel)



Image 4: Pre Hydrosurgical debridement of dorsal ulcer

Image 5: Post debridement dorsal ulcer

Image 6: Dorsal ulcer healed – all wounds healed at different time points (dorsal ulcer first, metatarsal head second and then heel ulcer) using the DCP approach and the limb was salvaged.

### References

1. Armstrong DG and Lavery LA. Negative Pressure Wound Therapy after partial diabetic foot amputation: a multicentre, randomised controlled trial. *Lancet* 2005; 366: 1704-10.
2. Schultz GS, Sibbald RG, Falanga V, *et al*. Wound bed preparation: systematic approach to wound management. *Wound Rep Reg* 2003; 11(suppl 1): 1-28.

This poster was presented at Wounds UK, Harrogate Nov 2009  
This poster was supported by an unrestricted grant from Smith & Nephew.  
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