

A 50 Patient Evaluation of the VENTURI™ Negative Pressure Wound Therapy System

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INTRODUCTION

Negative Pressure Wound Therapy (NPWT) is now an accepted treatment in wound care, but historically its use may have been restricted to the most complex wounds because of the previously high unit cost of the traditional system. With lower price alternative systems becoming available, there is an opportunity to offer this therapy to more patients. However it is important that this treatment produces acceptable clinical outcomes in a range of wound types.

To date there is no published research which compares the performance of one system with another. As a result clinicians often have to use the available non-comparative evidence and the experience of their own evaluations, which may be limited in patient numbers, wound aetiology and care settings.

A project was undertaken whereby clinicians wishing to evaluate the VENTURI™ (Talley Group Limited) NPWT system, could participate in a structured non-comparative product evaluation. This would give them the opportunity to have the outcomes and costs of their evaluation reported to them, and also collate their information with other evaluations to access information on larger patient cohorts.



METHOD

The NPWT device was evaluated on 50 patients in 10 sites in the UK over a twelve month period. Information was recorded on each patient at the initial assessment, then at each subsequent dressing change until the patient no longer required the therapy for clinical reasons, or the patient was transferred and lost to follow up.

RESULTS

The patient population participating in the evaluation were 54% male (n=27) and 46% female (n=23). The ages ranged from 22 to 87 years with a median age of 61 years. 66% (n=33) of patients were assessed by the participating clinician, as having a pre-existing medical condition which could negatively influence healing.

The VENTURI™ was evaluated over a range of treatment locations both in the hospital and community setting with:-

- 54% on hospital in-patients (n=27)
- 14% within the out-patient clinic (n=7)
- 24% in the patients home (n=12)
- 8% in a residential/nursing home setting (n=4)

In total 256 dressing changes were undertaken over the evaluation period. Figure 1 shows the specific locations where these occurred.

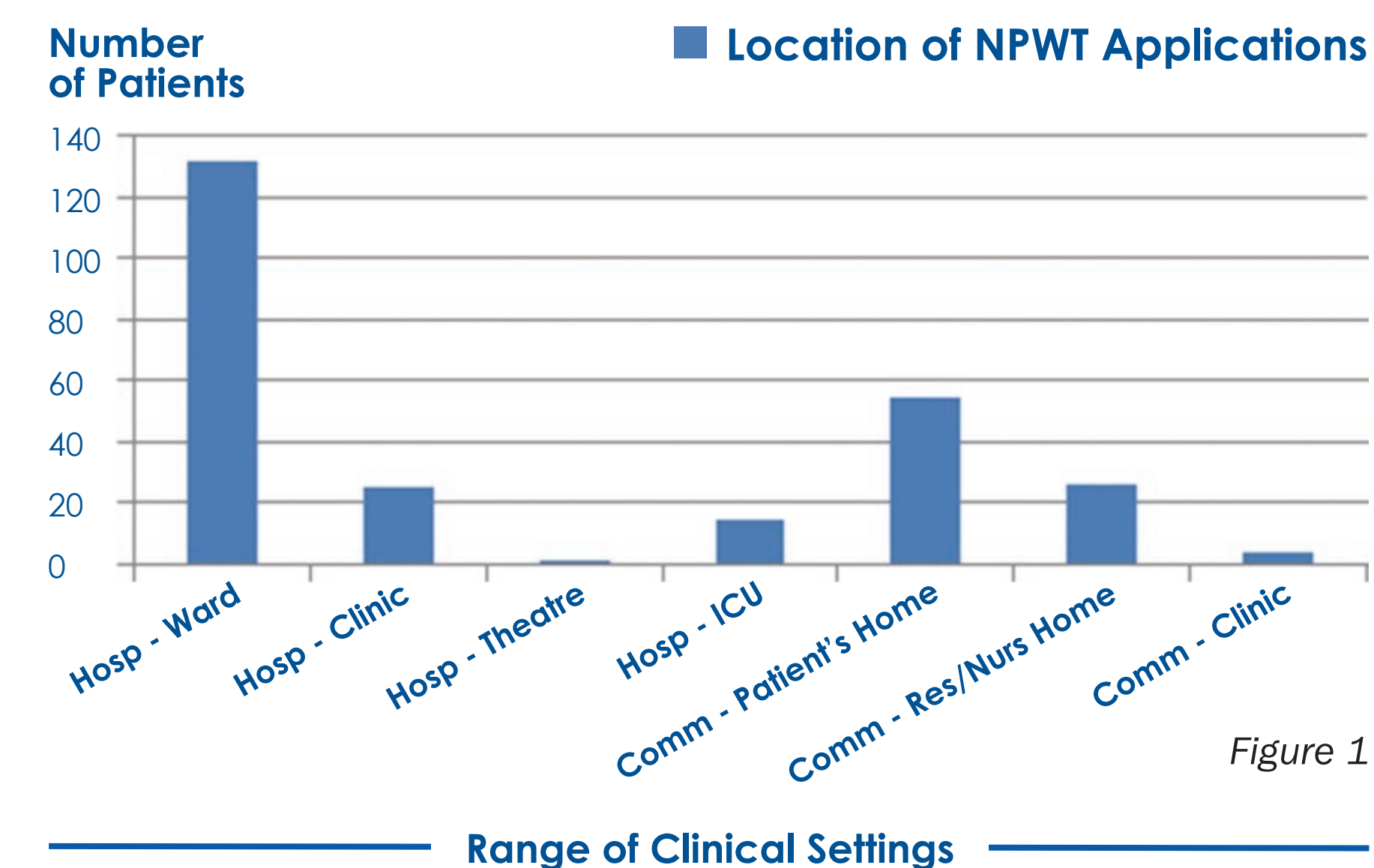


Figure 1

AT INITIAL ASSESSMENT:-

- 22% (n=11) of patients were recorded to have a wound infection ; 38% (n=19) were receiving systemic antibiotic therapy.
- 48% (n=24) of patients were documented to have a painful wound where the mean score was 6.1 (This was using a visual analogue scale); 50% (n=25) were taking analgesia.
- The previous frequency of dressing change prior to the VENTURI™ being applied, ranged from 2 to 30 changes a week; this gave a mean of 11.4 dressing changes per patient per week.
- The exudate level was assessed as high in 46% (n=23) of patients; moderate in 44% (n= 22) patients; low in 10% (n=5) patients.
- The clinical decision made by the clinician to evaluate the VENTURI™ was to promote wound healing in 54% of patients (n=27); to manage wound exudate in 42% of patients (n=21), and for "other" reasons in 4% patients (n=2).

OUTCOMES

The VENTURI™ was evaluated on a range of wounds (Figure 2), with the range of treatment duration from 3 to 25 days.

- 32 surgical wounds were recorded, out of which 21 were dehisced, 6 were new, and the remaining 5 were recorded as "other".
- 15 pressure ulcers of which 12 were recorded as grade 4, 2 were grade 3, and 1 as grade 2. The EPUAP classification system was used for consistency (EPUAP 1999).
- The remaining wounds were 1 venous leg ulcer, 1 diabetic foot ulcer and 1 graft/flap.
- Figure 3 demonstrates the wound locations across the 50 patients.

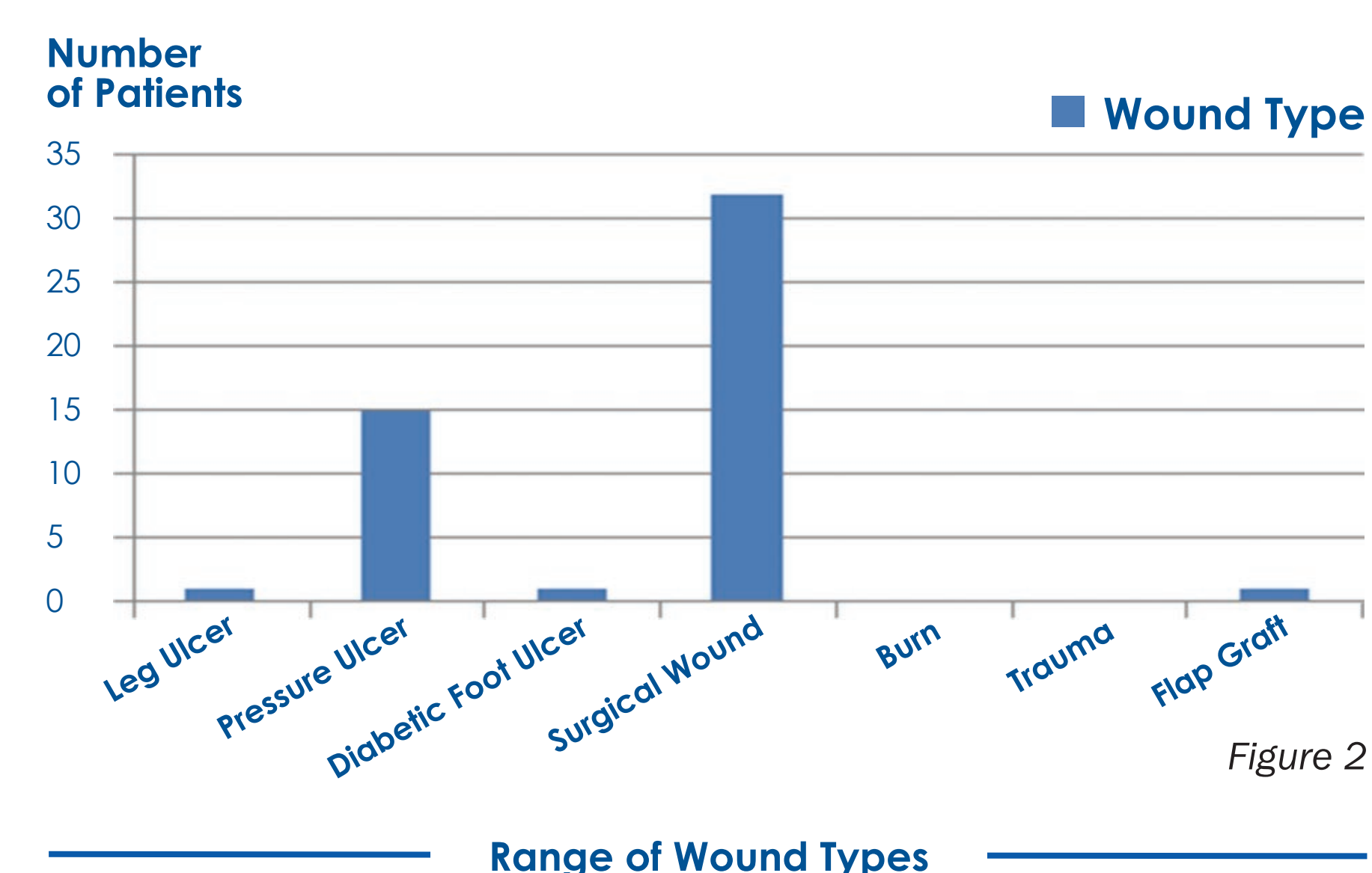


Figure 2

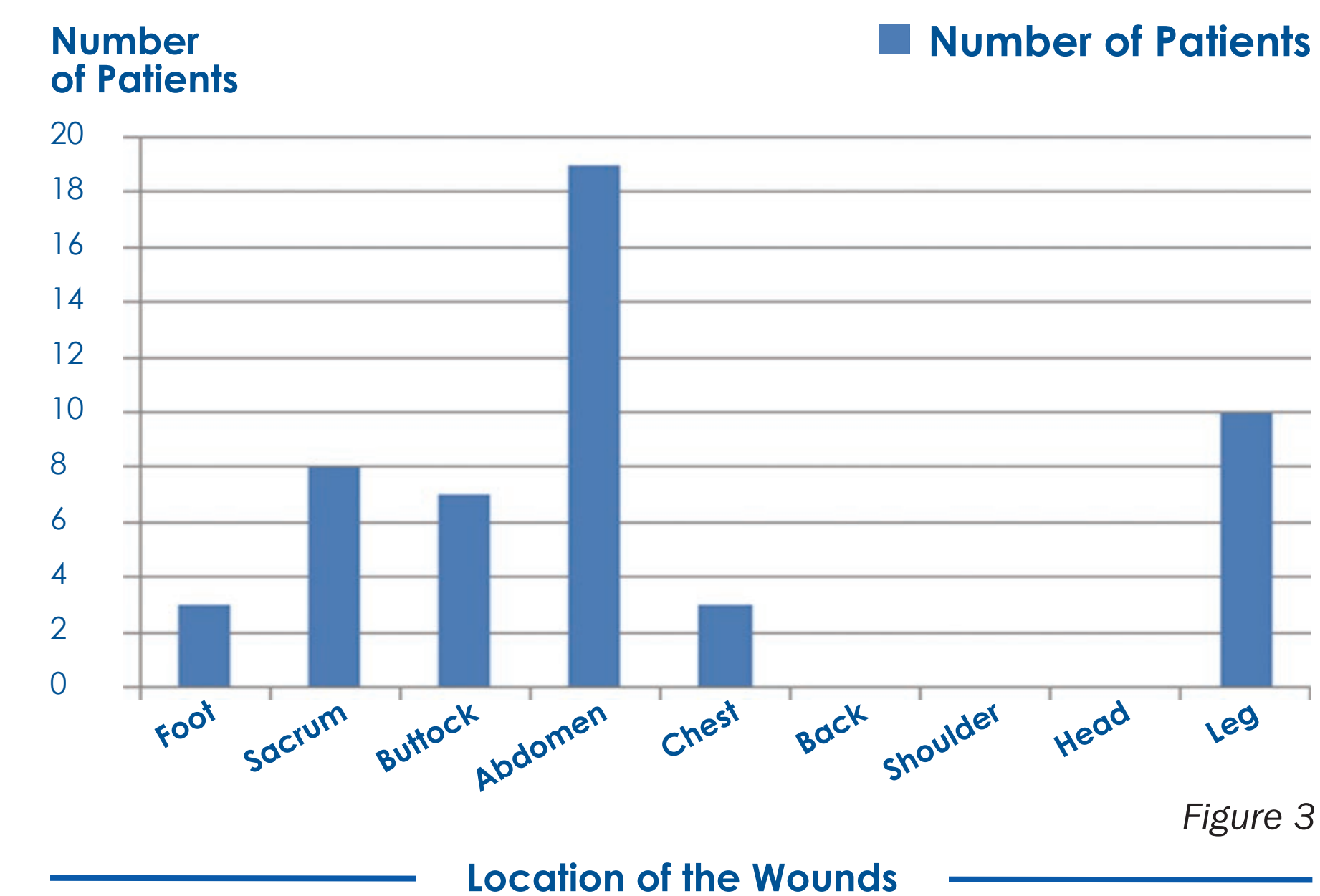


Figure 3

CLINICIANS' OPINION

At each dressing change the clinician undertaking the procedure was requested to rate the ease of application, removal and use of the pump.

- 88% of clinicians recorded the application of the VENTURI™ to be "easy". 8% were recorded as average, and 5% as difficult. However additional comments made by the nurses indicated that where there was difficulty, this was associated with the wound location not with the device.
- 97% of clinicians recorded the removal to be "easy". In 3% of responses there was missing data.
- In 100% clinicians assessed the use of the VENTURI™ pump as "easy".

PATIENTS' EXPERIENCE

Maintaining an optimum quality of life for patients with complex wounds, while promoting the healing process is an important aspect of clinical care. In recognition of this, the process enabled clinicians to measure the impact of using the VENTURI™ on each patient in the evaluation. At each dressing change the patient was assessed for discomfort during application and removal of the device, and asked whether it was comfortable during wear. They were also assessed as to whether the device inhibited mobility, or affected the ability to sleep. It was demonstrated that from 256 dressing changes:-

- 95% of patients experienced no discomfort during dressing change.
- 100% of patients found the device to be comfortable during wear time.
- 100% of patients who were able to mobilise considered that the VENTURI™ did not inhibit their mobility.
- 93% of patients were not disturbed by the noise of the pump.

WOUND OUTCOME

Over the period of the evaluation all of the wounds improved.

- There was a 93% overall reduction in devitalised tissue in the wound bed.
- There was a 91% overall increase in healthy tissue (granulation and epithelial tissue).
- There was a reduction in the number of wound cavities and sinuses, infected and painful wounds (Figure 4).
- All wounds reduced in size.

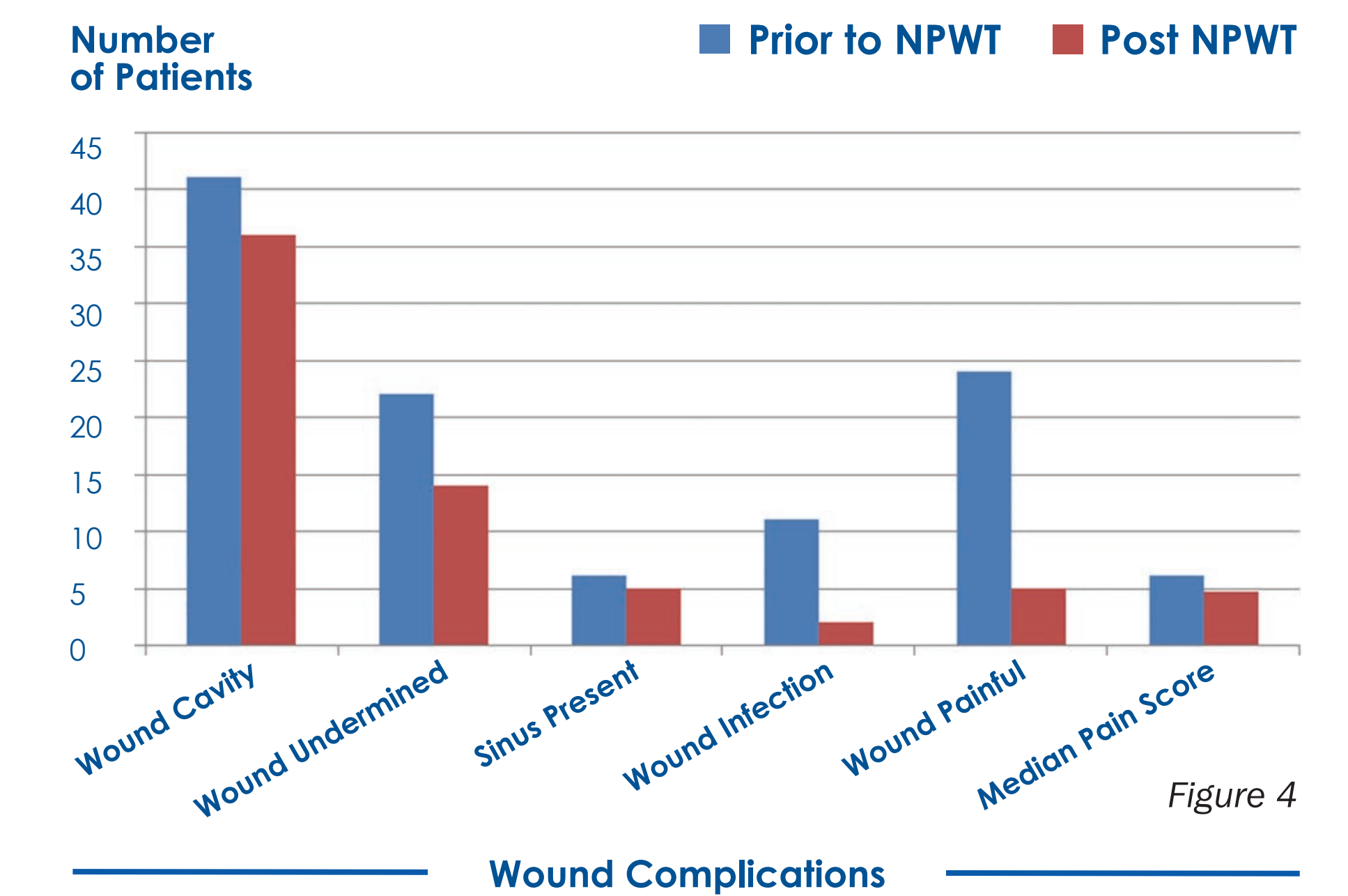


Figure 4

IMPACT ON NURSING TIME

At each dressing change the number of clinicians required to undertake this process was recorded.

- In 78% of dressing changes only 1 nurse was required. Where two nurses were required, it was commented that it was due to difficulty in wound location rather than for a device specific reason.
- With a high number of "routine" dressing changes recorded at 48 hours while using the VENTURI™, there is an opportunity to make further improvements by extending the wear-time of the device.

DISCUSSION

The process enabled the participating clinicians to generate objective data on their evaluations of the VENTURI™. It demonstrated the device to be highly acceptable to both patients and staff, and because of its ease of use and effectiveness can facilitate the appropriate use of nursing time. The evaluation of the VENTURI™ also demonstrated that it can have a positive effect on wound healing, both in reducing wound size and the incidence of devitalised tissue in the wound bed. It can also make an impact on wound complications such as pain and infection.

CONCLUSION

With the increasing burden of wound care and its associated costs, it is important that clinicians are provided with the opportunity to use new technologies in their own clinical practice. This project has enabled the participants to objectively collect information on a new NPWT device and consider the VENTURI™ as a possible cost-effective alternative option in wound care.

Reference

European Pressure Ulcer Advisory Panel Pressure Ulcer Prevention Guidelines (1999). www.epuap.org

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