Case Study

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Cardinal Health™ Negative Pressure Wound Therapy

Assessment of Cardinal Health™ NPWT PRO in Practice in a National Health Service (NHS) Setting

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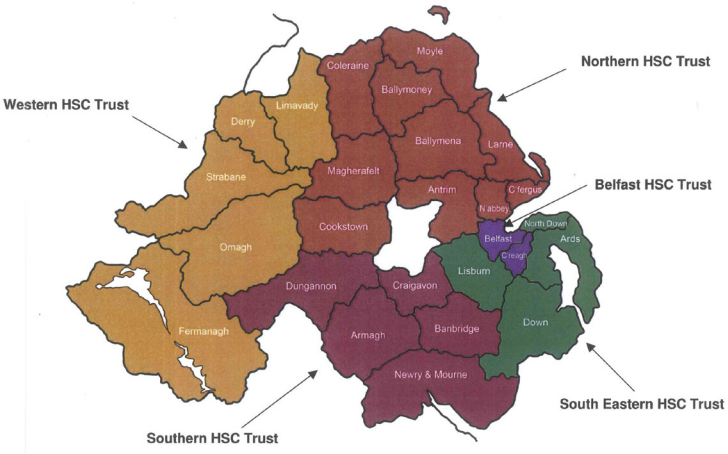
Background

- The benefits of Negative Pressure Wound Therapy (NPWT) include:
  - Tissue formation,[1,2] management of highly exuding wounds,[2,3] reduced dressing changes,[4] reduced nurse time,[5] reduced costs,[1] and improved quality of life.[1]
- Current NPWT systems capable of managing high levels of exudate are only available via a rental basis in the National Health Service.
- The rental of NPWT systems imposes an administrative burden and increased healthcare resource utilization for the treatment of the wound.
- A new Cardinal Health™ NPWT PRO device designed with single patient use replaceable canisters across the continuum of wound care, while still managing high levels of exudate, may reduce the administrative burden and healthcare resource utilization without any reduction in outcomes.

Objective

- To evaluate the Cardinal Health™ NPWT PRO device with single patient use replaceable 500 mL canisters in a HSC Trust in Northern Ireland (Figure 1) within the NHS environment.

Figure 1. NHS Service Environment



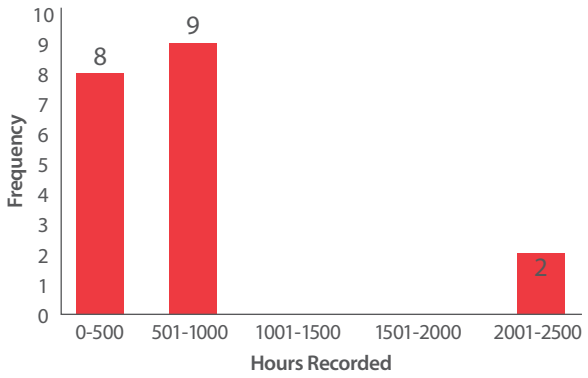
Methods

- Medicines Optimisation and Innovations Centre (MOIC) conducted the evaluation in the Northern Health and Social Care Trust (NHSCT), Northern Ireland.
- The evaluation study was conducted using all patients from October 26, 2015 who met the inclusion and exclusion criteria over a 6-month period.
- Patient inclusion criteria were:
  - Cavity wounds requiring one or more dressings a day or frequent dressing requiring opiates and/or sedation, acute and traumatic wounds, leg ulcers, diabetic foot ulcers, dehisced wounds healing by secondary intention, pressure ulcers — grade 3 or 4, flaps and skin grafts.
- Patient exclusion criteria were:
  - Necrotic tissue with eschar, malignancy in the wound, and exposed blood vessels (arteries and veins).
  - Exposed organs, untreated osteomyelitis, patients with active bleeding, patients with difficult wound haemostasis, patients on anticoagulants, and discharged home outside the NHSCT.
- The following measures were used to evaluate the Cardinal Health™ NPWT PRO device with single patient use replaceable 500 mL canisters:
  - Wound healing progression — per NHSCT Open Wound Observation Chart, compliance of the use of the product per therapy day using metered therapy analysis.
  - Staff Satisfaction Survey — hospital staff, community nurses, and Tissue Viability Nurses (TVNs).
  - Patient Satisfaction Survey
- The Patient Satisfaction Survey used a 5-point Likert scale to assess:
  - Ease to carry, like the size and weight, battery life lasted as described, alarms were easy to understand, pump operated quietly, canister easy to change, and overall satisfaction.
- The Staff Satisfaction Survey used a 5-point Likert scale to assess:
  - Ease of application, ability to achieve/maintain seal, ability to handle exudate from wound, and condition of surrounding skin.
- The Staff Satisfaction Survey was administered at the conclusion of each patient visit.
- All data was collected and entered into a Microsoft Excel spreadsheet.
- Descriptive analysis was performed to assess the Cardinal Health™ NPWT PRO device with single patient use replaceable 500 mL canisters.
- Training was provided in the NHSCT hospital and community settings at the onset of the evaluation period with on-going training throughout the duration of the evaluation period, as required.
- Reference guides and access to a 24-hour helpline were provided to all recruited patients and healthcare staff.

Results

- A total of 24 patients were indicated for NPWT of the over the duration of the 6-month service evaluation program.
- A total of 19 patients met the inclusion criteria (hospital and community):
  - 2 patients had been switched from the incumbent therapy.
  - 3 patients were excluded due to inappropriate treatment under the programme protocol.
- Patient characteristics were:
  - 68% female
  - 32% male
  - Average age of 63 years
- With the exception of 1 pressure sore (Grade 4), all patients received treatment for the management of surgical wounds.
- Therapy was initiated both in the hospital (n=16) and community settings (n=3).
- Without exception, wound size decreased over the course of therapy. In addition, there was also a reduction in exudate levels and an increase in granulation tissue.

Figure 2. Recorded Hours of Therapy



- The average number of hours recorded on the pump per patient was 707 +/- 624 hours (Figure 2).
  - Range: 120 – 2,438 hours
  - Median: 672 hours
  - Of the 19 patients involved, 90 percent received 1000 hours or less of metered therapy.
- Of the patients (14 out of 19) who completed the Patient Satisfaction Survey (Table 1), a majority strongly agreed the Cardinal Health™ NPWT PRO device with single patient use replaceable 500 mL canisters to be:
  - Easy to carry (8 out of 12)
  - Liked the size and weight (9 out of 13)
  - Battery life lasted as described (7 out of 11)
  - Overall satisfaction (8 out of 13)

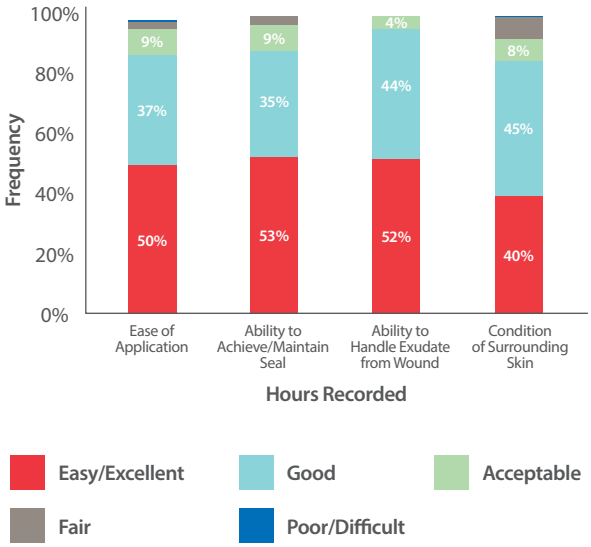
Table 1. Patient Satisfaction Survey Results

Pump Characteristics	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Device was easy to carry	8	2	0	0	2
Like the size and weight of device	9	2	0	1	1
Battery life lasted as described	7	1	1	1	1
Alarms easy to understand	3	4	2	0	0
Device was quiet	2	6	5	0	0
Canister easy to change	2	1	0	0	0
Overall satisfaction	8	3	1	0	1

Number of patients by response along the Likert Scale
Not all patients responded to every question

- There were a total of 216 Staff Satisfaction Survey results collected over the course of treatment for the 19 patients.
  - There were no reports of malodour when the device was in use.
  - The vast majority (greater than 85 percent) of Staff Satisfaction Survey responses rated the Cardinal Health™ NPWT PRO device Easy/Excellent or Good in all categories (Figure 3).

Figure 3. Staff Satisfaction Survey Results



Discussion

- The Cardinal Health™ NPWT PRO device with single patient use replaceable 500 mL canisters was perceived as easy to use, quiet and lightweight by patients. Staff found it easy to apply with the ability to achieve a good seal and handle exudate without odour.
- There was a reduced associated workload for pharmacy administration staff as rental tracking was not required.
- Patient compliance assessment through monitoring device hours of use was considered a useful additional clinical tool.
- The metered therapy also allowed staff to ensure patient compliance by monitoring device hours of use to elapsed time between dressing changes.

Conclusion

- This assessment demonstrated that the Cardinal Health™ NPWT PRO device with single patient use replaceable canisters and associated consumables are clinically acceptable in day-to-day practice.
- A larger multi-centre patient study is needed to further validate these clinical findings to provide robust evidence and associated cost implications of a non-rental device at a national level.

The information presented in this case study is specific to these patients and is not intended to be a substitute for professional medical advice, diagnosis or treatment. Always seek the advice of a licensed physician or other qualified health care professional.

References

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