

# An Evaluation of the Introduction of An Alternative Negative Pressure Therapy

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## INTRODUCTION

Negative Pressure Wound Therapy (NPWT) is an important wound care technology with significant potential to improve clinical outcomes. This technology has been shown to accelerate the closure of particularly complex and problematic wounds.

Since its induction in 1952<sup>[1]</sup> into the world of wound care, NPWT has become a significant and essential component in the treatment of managing many types of challenging wounds. The majority of health care organizations, research and clinical evaluations have generally focused on the specific NPWT brand-vacuum assisted therapy, which is dependent on the use of open-cell polyurethane foam.<sup>[2]</sup>

Alternative NPWT system brands have recently emerged in the wound care world, specifically Canada. This acute care and community site in Canada conducted an evaluation of a particular NPWT brand that utilizes the Chariker-Jeter technique (anti-microbial gauze wound filler) which has been utilized in managing multiple types of wounds for the past 19 years.<sup>[3]</sup>

## METHODS

NPWT (Chariker-Jeter technique) was applied on both community and acute care patients and a clinical evaluation was completed.

Data was collected in 2 acute care hospitals and 1 community based center.

Data was collected by both Advanced Practice and Registered Nurses. In addition, a total of 51 nurses who were directly involved in the application of the NPWT, were surveyed.

Patients were also surveyed on; pain, comfort and overall tolerance of the therapy.

Interviews with nurses who participated in the evaluation.

Patients over the age of 18 with a chronic wound and not a systemic infection were eligible.

## SAMPLE SIZE

A total of 34 patients were evaluated with an average age of 66 years. 56% of the patients were community patients and 44% were hospital patients, as well as, 84% of the patients had one co-morbidity; 19% were diabetic, 23% with history of CVA and 42% had hypertension.



## RESULTS

### OUTCOMES : NURSES

- The frequency of dressing changes was decreased therefore, both nurses and patients had a benefit.
- 100% of the nurses that had used NPWT (V.A.C.) (44) in the past reported this dressing application was easier and much quicker than V.A.C.
- No need to cut the sponge therefore any error was decreased.
- 100% of nurses reported they were satisfied with the ease of NPWT therapy application.
- Patients had higher tolerance for actual dressing changes.
- Better management of incisional and cutaneous fistulas.
- Pumps performed and managed exudate well.
- Much better for use with tunnels and undermining.
- The dressing was much easier on patients' skin.

### SPECIFIC NURSES' COMMENTS

- Packaging convenient.
- Much better for use with tunnels and undermining.
- Educating nurses, particularly agency or new nursing staff was reported to be much more efficient.
- Dressing application on geometric wounds (e.g.: Irregular wounds and leg wounds) were much easier.



### OUTCOMES : PATIENTS

- Could sit and maneuver much easier than V.A.C. dressing.
- Dressings compared to V.A.C. were reported to be not as bulky.
- Less painful.
- More comfortable particularly around undermining.
- Less dressing changes required less invasive.
- Quiet machine.
- Patient comfort, dignity and mobility were improved.



## COST COMPARISON

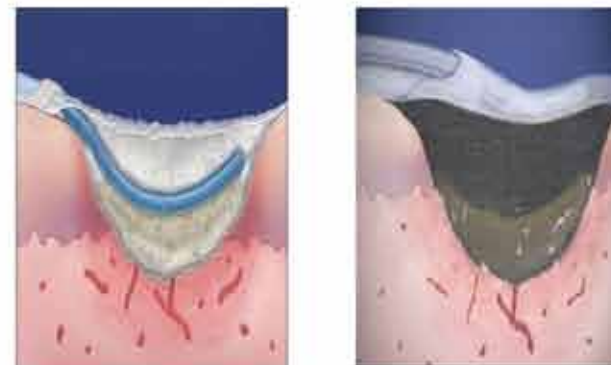
### Community Care

Type of Therapy	Rental Cost	Nursing Cost	Dressings Cost	Total Savings: per week, per community patient
NPWT	\$488.00 (CAD)	\$110.00	\$ 86.00	
V.A.C.	\$623.00 (CAD)	\$165.00	\$111.00	
Savings	\$135.00 (CAD)	\$ 55.00	\$ 25.00	\$215.00

### Acute Care

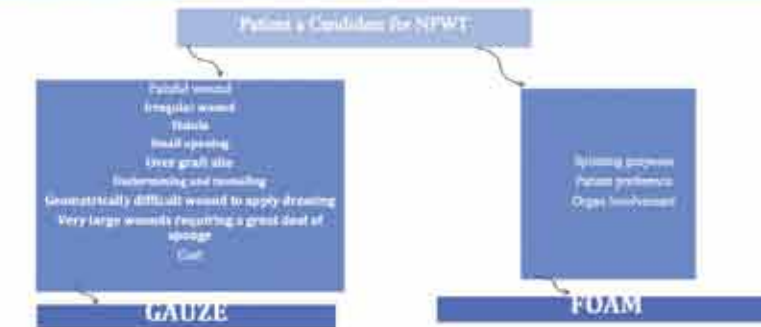
Type of Therapy	Rental Cost	Dressings Cost	Total Savings: per week, per hospital patient
NPWT	\$488.00 (CAD)	\$ 86.00	
V.A.C.	\$623.00 (CAD)	\$111.00	
Savings	\$135.00 (CAD)	\$ 25.00	\$160.00

## TYPES OF DRESSINGS : GAUZE VS. FOAMS



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## Choice of Gauze vs. Foam Dressing for NPWT



## CLINICAL OUTCOMES

This evaluation describes the following results:

- Positive clinical outcomes.
- Patient satisfaction.
- Nurses analysis on practical application of the device.
- Cost efficiency in both direct supply cost and nursing cost.
- Both of the organizations demonstrated that it is possible to introduce a new NPWT brand in a manner that is both clinically and fiscally responsible.

## DISCUSSION AND CONCLUSION

Negative Pressure Wound Therapy (NPWT) technology has significant potential to improve clinical outcomes, which has shown to accelerate closure of particularly complex and problematic wounds.

Alternative NPWT systems, such as the NPWT brand that utilizes the Chariker-Jeter technique, when compared with the NPWT brand Vacuum Assisted Closure therapy, the differential feature between the NPWT brand devices is the type and application of the actual wound filler.

Based on comments of nursing staff in community care and acute care settings, NPWT brand utilizing the Chariker-Jeter technique was able to better manage incisional and cutaneous fistulas, painful wounds, large geometrical wounds as well as, tunnels and undermining. Cost efficiency was observed in both direct supply cost and nursing cost, however both brands achieve significant clinical outcomes but the Chariker-Jeter technique was able to achieve good clinical in a specific population of patients that may of otherwise not been able to tolerate or utilize NPWT therefore, it has enhanced clinical choice in managing complex wounds in both the community and the hospital setting.

### REFERENCES AND DISCLOSURE

1. Bull AB. The Use of Negative Pressure under skin flap after radical mastectomy. Ann Surg. 1952; 135:1048.
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3. Chariker ME, Jeter KF, Trille TE, Bubard JE. Effective management of incisional and cutaneous fistulas with closed suction wound drainage. Curr Surg. 1982;34:50-63.

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