Comparative Healthcare Resource Use and Costs for Hospitalized Patients Receiving Durable Negative Pressure Wound Therapy

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Introduction

- Durable negative pressure wound therapy (NPWT) is used in hospital settings for acute and chronic wounds.
- Previous studies have found that NPWT is associated with positive clinical and economic outcomes, but few have compared the healthcare resource use and costs between different therapy systems.

Purpose

- This study aimed to describe the costs and healthcare resource use associated with durable NPWT in the inpatient setting and to identify potential differences between manufacturers.

Methods

- This retrospective study used data from Premier, a large, national all-payer hospital database.*
- The study population included adult patients receiving durable NPWT from 2020 to 2024.
- Resource use and costs were compared for patients with diverse wound types with ≥1 durable charge(s) and categorized as Supplier A[†] or Supplier B[§] based on product and manufacturer name.
- A matched cohort was created with exact matching on wound type, hospital size, teaching status, and age (±1 year), followed by 1:4 propensity score matching using a logistic regression model that included race, ethnicity, insurance type, admission type, and Charlson Comorbidity Index (CCI) score.

Results

- A total of 733 hospitals used durable NPWT from Supplier A (n=691), Supplier B (n=12), or both suppliers (n=30).
- Matching resulted in 10,330 included patients from Supplier A (n=8,264) and Supplier B (n=2,066).
- Wound types and mean CCI in the matched cohort are described in **Table 1**.

Table 1. Wound Types and CCI Scores of Patients in the Matched Cohort

Variable	Supplier A (N=8,264)	Supplier B (N=2,066)	%	P-Value
Wound Type, N				1.00
Cellulitis with debridement	2,532	633	30.6%	-
Diabetic amputation	1,052	263	12.7%	-
Pressure ulcer	1,032	258	12.5%	-
Diabetic ulcer	856	214	10.4%	-
Non-healing surgical wounds	724	181	8.8%	-
Necrotizing fasciitis	304	76	3.7%	-
Non-pressure chronic ulcer	240	60	2.9%	-
Non-diabetic amputation	176	44	2.1%	-
Open wounds	132	33	1.6%	-
Arterial ulcer	84	21	1.0%	-
Orthopedic trauma	44	11	0.5%	-
Flap/graft	36	9	0.4%	-
Venous ulcer	32	8	0.4%	-
Unknown	1,020	255	12.3%	-
CCI Score, mean (SD)	3.1 (2.6)	3.1 (2.6)	-	0.9190

CCI = Charlson Comorbidity Index, SD = standard deviation

- Hospital length of stay (LOS) and number of OR debridements were significantly lower for Supplier A (**Table 2**).
- Duration of NPWT therapy was similar between groups, but NPWT-associated costs were $304 higher for Supplier A (**Table 2**).
- 30-day post-hospitalization wound-related costs trended lower for Supplier A but were not statistically significant, and 30-day all-cause and wound-related readmissions were similar (**Table 2**).

Results (cont'd)

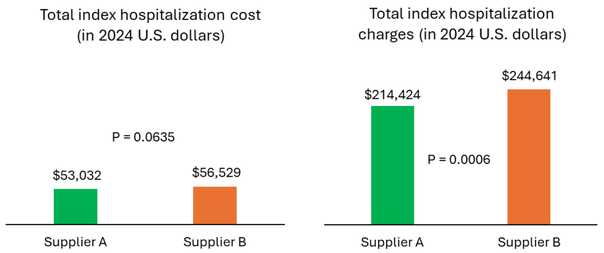
- Total hospital costs were $3,497 lower (P=0.0635) and total charges were $30,217 lower (P=0.0006) for Supplier A (**Figure 1**).

Table 2. Healthcare Resource Use for Index Admission and 30-Days Post Discharge

Outcomes	Supplier A (N=8,264)	Supplier B (N=2,066)	P-value
Index admission			
Length of stay, days	13.8	15.5	0.0001
OR debridements, n	1.1	1.5	<0.0001
Duration of NPWT, days	7.3	7.4	0.6346
NPWT-associated costs, $	672	368	<0.0001
30-days Post Discharge			
Wound-related costs, $	2679	3550	0.0675
Wound-related readmissions, %	7.8	6.8	0.1276
All-cause readmissions, %	13.8	12.2	0.0556

NPWT = negative pressure wound therapy, OR = operating room

Figure 1. Total Index Hospitalization Costs and Charges



Conclusions

- Study findings indicate differences in resource utilization including LOS, debridements, and costs for patients with complex wounds may exist between NPWT systems and should be considered in therapy selection.

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NOTE: Specific information, contraindications, warnings, precautions and safety information exist for these products and therapies. Please consult a clinician and product labeling prior to use. Rx only.

*Premier Healthcare Database (PHD; Premier, Inc.; Charlotte, North Carolina)
†Solventum (Maplewood, Minnesota)
§Smith & Nephew (Watford, United Kingdom)

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