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Health economic assessment of negative pressure wound therapy use in the management of subcutaneous abdominal wound healing impairment (SAWHI) in the out-of-hospital setting

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Abstract

Development of subcutaneous abdominal wound healing impairment (SAWHI) can greatly affect patient care. Complications from SAWHI include delayed healing, increased risk of infection, and fascial dehiscence resulting in increased patient care and associated costs. Treatment options include conventional wound treatment or negative pressure wound therapy, both of which can be used in the out-of-hospital setting. However, limited published evidence on cost-effectiveness exists. A conservative health economic model was created to assess the cost–benefit of negative pressure wound therapy in the out-of-hospital setting for the management of SAWHI. Study data from a published multicentre randomised controlled trial were used and represented 221 patients that received care in the out-of-hospital setting. The mean per-patient total cost within 42 days was slightly higher in the negative pressure wound therapy group (2034.98 € versus 1918.91 €); however, when wound closure rates were considered, a cost savings of 4155.98 € per closed wound was observed with the use of negative pressure wound therapy (4324.34 € versus 8480.32 €). A cost-effectiveness analysis was constructed, and negative pressure wound therapy was observed to have a lower cost of care and a higher incremental closure rate.

KEYWORDS

cost–benefit analysis, economic model, negative pressure wound therapy, wound healing

Key Messages

- a conservative health economic model was created to assess the cost–benefit of negative pressure wound therapy in the out-of-hospital setting for the management of subcutaneous abdominal wound healing impairment
- study data from a published multi-centre RCT were used, representing 221 patients (NPWT $n = 68$; control $n = 153$) receiving care for SAWHI in the out-of-hospital setting

- a cost savings of 4155.98 € per closed wound was observed with the use of NPWT when wound closure rates were used in the health economic model

1 | INTRODUCTION

Subcutaneous abdominal wound healing impairment (SAWHI) can occur as spontaneous dehiscence after surgery or wounds that remain open after surgery because of infection or subcutaneous tissue loss after abdominal fascial closure.[1] Patient-related risk factors such as obesity, malnutrition, tobacco use, advanced age, or concomitant disease can increase the risk for SAWHI development.[2] Complications from SAWHI include delayed healing, increased risk of infection, and fascial dehiscence, which affect costs of care.

Treatment options for SAWHI include conventional wound treatment (CWT), which encompasses the use of wound care dressings, or negative pressure wound therapy (NPWT), both of which can be used in the inpatient and out-of-hospital (OOH) setting. A multicentre, randomised clinical SAWHI study compared wound healing outcomes between NPWT and CWT.[1] Significantly more study participants achieved wound closure within 42 days with NPWT than with CWT, the mean time to wound closure within the 42-day timeframe in the per-protocol (PP) population was significantly shorter in the NPWT arm ($P < 0.001$), and more CWT patients required treatment after 42 days.[1] When resource use was assessed, the time to first wound closure documentation within 132 days was significantly shorter in the NPWT arm, total treatment length within 42 days was significantly shorter in the NPWT arm in the PP population, and significantly fewer dressing changes were performed in the NPWT arm with a significantly lower time expenditure per study participant.[3] Additionally, significantly fewer wound-related procedures per study participant with a correspondingly lower time expenditure were performed in the NPWT arm.[3]

The published RCT reported significant differences in wound healing outcomes and resource use in favour of NPWT between the two treatment options. Inherent cost differences exist between CWT and NPWT; however, limited published evidence on cost-effectiveness is available for the management of SAWHI in the OOH setting. This study assessed the potential cost–benefit of NPWT compared with CWT in SAWHI treatment in patients that received care in the OOH setting using data from the SAWHI RCT study.[1,3]

2 | METHODS

2.1 | Health economic modelling

A conservative health economic model was created to assess the cost–benefit of NPWT versus conventional wound treatment for patients with SAWHI in the OOH setting. The model focused on OOH usage because of the lack of published evidence on cost-effectiveness of NPWT use in this setting. As such, the cost of a patient's hospital stay was not included in the calculations. The model considers cost per closed wound based on resource parameters captured in the 42-day study treatment period in the PP population and the primary study endpoint captured at 42 days in the OOH study population.

2.2 | Data source

Study data from a published multicentre SAWHI RCT were used to develop the health economic model.[1,3] The SAWHI RCT has been previously registered at ClinicalTrials.gov: (NCT01528033) and with the German Clinical Trials Register (DRKS00000648).

2.3 | Study population

Data from patients (≥18 years) with spontaneous wound dehiscence after abdominal surgery, active reopening of the incision, or patients with open postsurgical abdominal wounds were assessed.[1] Data from 331 patients from the SAWHI RCT per-protocol population were used.[1] Patients received either NPWT ($n = 157$) or CWT ($n = 174$). The NPWT population was limited to patients who received NPWT in OOH settings. Wound closure rates from patients who completed NPWT in hospital or were exclusively treated in hospital were excluded.

NPWT (3 M™ V.A.C.® Therapy, 3 M Company, St. Paul, MN, USA) was performed according to the manufacturer's instructions, utilising continuous negative pressure at −125 mmHg with dressing changes every 2–3 days. NPWT was discontinued once the wound was deemed suitable for closure via primary or secondary intention. After NPWT use was discontinued, CWT was implemented following the study site's local wound care guidelines.

The CWT group received local wound care according to the study site's clinical standards and guidelines. Wound dressings included hydrocolloid dressings, foam dressings, alginate dressings, self-adhesive non-woven dressings, antimicrobial dressings, and hydrofiber dressings with and without silver.

2.4 | Outcomes assessed

The cost benefit of NPWT compared with CWT in SAWHI treatment was assessed in patients that received care in the OOH setting. Outcomes assessed included wound closure rate, resource use, and cost of care within 42 days. Cost of care included material costs and health care professional (HCP) labour per dressing changes and wound-related procedures, along with total cost of surgical wound closure per patient, including materials and resources.

2.5 | Previously published model parameters

The health economic model used data from the previously published SAWHI RCT.[1,3] Number of patients in each treatment arm, wound healing rates, treatment length, time to wound healing, type of dressing and wound care-related procedure materials used, number and type of wound care procedures, type of HCP providing care, and time required for dressing changes and wound care-related procedures were obtained from the previously published SAWHI RCT.[1,3]

Mean length of SAWHI treatment was 22.8 ± 13.4 days for NPWT and 30.6 ± 13.3 days for CWT in the total PP population.[3] Mean length of NPWT use was 14.6 ± 9.1 days.[3] Mean number of dressing changes was 10.7 per patient in the NPWT arm and 20.8 per patient in the CWT group. Mean total time for dressing changes was 195.8 min in the NPWT group and 277.5 min for the CWT group for both the inpatient and OOH settings.[3] Number of wound-related procedures were 3143 in the NPWT group and 6237 in CWT group,[3] Mean HCP work time for dressing changes was calculated by multiplying the mean total time for dressing changes and the number of patients to give total minutes of HCP work time for dressing changes. For wound-related procedures, mean time was multiplied by the frequency of resources used to give HCP work time. The work time for each wound-related procedure was then added for all wound-related procedures to give total HCP work time. These calculations were repeated for each HCP type.

2.6 | Measurement of resources and costs

2.6.1 | Wound care dressing and NPWT device cost

The cost of dressings was calculated as a weighted mean per the top five dressings used within the specific treatment arm population. Dressing cost included the costs of all materials required to cover and protect the wound. Cost for NPWT was determined as the mean daily cost of therapy including device rental and all disposable materials required to deliver NPWT. Material dressing cost was identified from the Sellmer product list for wound care.[4] If a dressing category was not listed, open-source mean material prices were used. The mean daily cost of NPWT was calculated using the maximum NPWT material selling price for the daily cost of device rental and disposable materials.

2.6.2 | Wound care procedures

The material used per wound care procedure data was generated by an estimate of the material used for wound care procedures in SAWHI-type wounds with sizes similar to those observed in the SAWHI RCT (Table 1).[1] The referenced prices for wound care procedure-related material consumption were based on list prices and provided as means from identified product classes in Lauer Tax and open source product prices.[5]

2.6.3 | Health care professional labor cost

HCP labour costs were assessed and calculated for dressing changes and wound care-related procedures

TABLE 1 Total material costs per wound-related procedure[4,5]

Wound care related procedure	Material cost per procedure
Wound lavage	13.70 €
Cleansing	12.75 €
Sharp debridement	16.29 €
Autolytic debridement	21.32 €
Biological debridement	42.02 €
Enzymatic debridement	98.82 €
Mechanical debridement	26.99 €
Wound drainage	18.94 €

TABLE 2 Healthcare provider resource cost per hour[6,7]

Health care professional	Salary per month	Total labour cost per month[a]	Total labour cost per hour[b,c]
Assistant physician	4602.70 €	6906.05 €	47.07 €
Specialist physician	7801.61 €	11 702.42 €	79.79 €
Physician	5551.07 €	8326.60 €	56.77 €
Nursing auxiliary	2284.28 €	3426.42 €	23.36 €
Nursing staff	3539.56 €	5309.34 €	36.20 €

[a]Salary per month × 1.5 = HCP cost per month.
[b](HCP cost per month × 12 months) ÷ 220 working days = HCP Cost per day.
[c]HCP cost per day ÷ 8 h = HCP cost per hour. Salary per month was calculated using specialist and nurse salaries.[6,7]

TABLE 3 Post-NPWT dressing cost

Dressings	Material cost	# of dressing entries	Total dressing cost[a]
Hydrocolloid	14 €	21	296 €
Soft-adhesive foam bandage	23 €	20	456 €
Antimicrobial dressings	46 €	19	876 €
Alginate dressing	28 €	15	421 €
Self-adhesive non-woven bandage	1 €	11	11 €
Total cost of dressings		86	2061 €
Mean dressing cost			*23.96 €*

[a]Weighted mean per the top five dressings used.

TABLE 4 CWT dressing cost

Dressings	Material cost	# of dressing entries	Total dressing cost[a]
Antimicrobial dressings	46 €	70	3227 €
Alginate dressing	28 €	42	1180 €
Hydrofiber with silver dressings	85 €	36	3060 €
Self-adhesive foam bandage	18 €	34	611 €
Hydrofiber dressing	32 €	33	1056 €
Total cost of dressings		215	9133 €
Mean dressing cost			*42.48 €*

[a]Weighted mean per the top five dressings used.

(Table 2).[6,7] These costs were determined as the mean cost per HCP type per hour. The total HCP labour cost per month used 1.5 to account for employee add-ons such as social insurance, workplace cost, employee benefit cost, and sick leave.[8] The total HCP labour cost per month was calculated as Salary per month × 1.5 = HCP cost per month. The total HCP labour cost per hour was calculated as (HCP cost per month × 12 months) ÷ 220 working days = HCP cost per day and HCP cost per day ÷ 8 hours = HCP cost per hour. The HCP labour cost for dressing changes and wound care-related procedures was calculated as (Minutes of HCP labour ÷ 60 min) × HCP cost per hour = HCP labour cost.

2.6.4 | Cost of surgical wound closure

The model considers the total number of surgical wound closures in the study population until the SAWHI RCT primary endpoint of confirmed wound closure. The cost of surgical wound closure was obtained from the medical fee schedule (Gebührenordnung für Ärzte, GOÄ) reimbursement for larger wounds (>4 cm), which is 32.18 € in Germany for the OOH setting.[9]

2.7 | Incremental cost-effectiveness plot

A decision tree of NPWT versus CWT for management of SAWHI was constructed. The overall cost to full

TABLE 5 Daily cost of NPWT

Germany NPWT list price	Item cost	Daily cost
NPWT unit (Rental)	49.00 €	49.00 €
NPWT dressing[a,b]	34.50 €	11.50 €
NPWT canister unit[a,b]	67.32 €	22.44 €
Total daily cost of NPWT		*82.94 €*

[a]Dressings and canister unit are changed every 3 days.
[b]Item cost ÷ 3 days = Daily cost.

TABLE 6 Human resource cost per dressing change

Category	NPWT ($n = 157$)	CWT ($n = 174$)
Time per HCP type (min)		
Nursing auxiliary	1280.00	516.00
Nursing staff	17 248.00	28 556.80
Physician	14 458.40	14 150.00
Labor cost per HCP type		
Nursing auxiliary	498.39 €	200.91 €
Nursing staff	10 406.31 €	17 229.29 €
Physician	13 680.61 €	13 388.80 €
Total HCP labor cost[a]	24 585.31 €	30 819.00 €
Mean per patient HCP labor cost for dressing changes[b]	*156.59 €*	*177.12 €*

Abbreviation: HCP, health care provider.
[a](Minutes of HCP labour ÷ 60 min) × HCP cost per hour = HCP Labor cost.
[b]Total HCP labour cost ÷ Size of study population = Mean per patient HCP labour cost for dressing changes.

wound closure and wound closure rate at 42 days were used as outcomes.

2.8 | Statistical analysis

Categorical variables were analysed using Fisher's exact test and are represented as the number of patients (Excel, Microsoft, Redmond, WA, USA). Statistical significance was assessed at $P < 0.05$. An incremental cost-effectiveness plot was generated using TreeAge Pro Healthcare 2022 (TreeAge Software, LLC, Williamstown, MA, USA).

3 | RESULTS

3.1 | Study parameters

A total of 68 patients received NPWT and 153 patients received CWT in the OOH setting. Wound closure was achieved in 32/68 NPWT patients (47.1%) compared with 35/153 (22.9%) of CWT patients within the 42-day study period ($P = 0.0005$). Material cost per dressing change was based on mean treatment duration and mean number of dressing changes per treatment arm (NPWT 10.7 versus CWT 20.8). This resulted in a mean daily dressing change frequency (mean number of dressing changes ÷ treatment duration) of 0.5 dressing changes per treatment day for the NPWT group and 0.7 dressing changes per treatment day for the CWT group. The NPWT treatment duration was split into two segments, the NPWT period (mean of 14.6 days) and the post-NPWT CWT period (8.2 days). Cost of CWT

TABLE 7 Wound-related procedure material cost per treatment arm

Category	NPWT ($n = 157$)	CWT ($n = 174$)
Wound cleansing (n)	1428	3009
Material cost per procedure	13.70 €	13.70 €
Total cost	19 558.12 €	41 226.04 €
Wound lavage (n)	589	1270
Material cost per procedure	12.75 €	12.75 €
Total cost	7504.65 €	16 195.05 €
Sharp debridement (n)	96	120
Material cost per procedure	16.29 €	16.29 €
Total cost	1558.47 €	1954.20 €
Autolytic debridement (n)	2	84
Material cost per procedure	21.32 €	21.32 €
Total cost	42.64 €	1790.88 €
Biological debridement (n)	0	1
Material cost per procedure	42.02 €	42.02 €
Total cost	-	42.02 €
Enzymatic debridement (n)	6	14
Material cost per procedure	98.82 €	98.82 €
Total cost	592.92 €	1413.13 €
Mechanical debridement (n)	154	508
Material cost per procedure	26.99 €	26.99 €
Total cost	4151.06 €	13 697.43 €
Wound drainage (n)	39	61
Material cost per procedure	18.94 €	18.94 €
Total cost	740.55 €	1157.23 €
Other procedures performed (n)	829	1170
Material cost per procedure	31.35 €	31.35 €
Total cost	25 976.06 €	36 667.48 €
Total procedure material costs	60 124.48 €	114 143.45 €
Mean material costs per patient[a]	*382.96 €*	*656.00 €*

[a]Total procedure cost ÷ Study population = Mean material costs per patient.

TABLE 8 Human resource cost for wound-related procedures

Category	NPWT (*n* = 157)	CWT (*n* = 174)
Time per HCP type (min)		
Nursing auxiliary	1696.70	3740.40
Nursing staff	16 833.00	25 246.10
Assistant physician	10 028.30	11 853.00
Specialist physician	6910.90	5994.70
Labor cost per HCP type		
Nursing auxiliary	660.64 €	1456.38 €
Nursing staff	10 155.92 €	15 231.83 €
Assistant physician	7867.71 €	9299.28 €
Specialist physician	9190.25 €	7971.87 €
Total labor cost[a]	27 874.53 €	33 959.37 €
Mean per patient labor cost for wound-related procedures[b]	*177.54 €*	*195.17 €*

Abbreviations: HCP, health care provider.
[a](Minutes of HCP labour ÷ 60 min) × HCP cost per hour = HCP labour cost.
[b]Total HCP labour cost ÷ Size of study population = Mean per patient labour cost for wound-related procedures.

TABLE 9 Total surgical wound closure cost[9]

Category	NPWT (*n* = 157)	CWT (*n* = 174)
Cases with defined wound closure (*n*)	103 (83%)	75 (43%)
Wound closure by secondary intention	31 (30%)	37 (49%)
Surgical wound closure	72 (70%)	38 (51%)
Cost per surgical wound closure	32.18 €	32.18 €
Total cost of surgical wound closure	2316.96 €	1222.84 €
Mean cost of surgical wound closure per patient[a]	*14.76 €*	*7.03 €*

[a]Total cost of surgical wound closure ÷ Total treatment arm population = Mean cost of surgical wound closure per patient.

TABLE 10 Health economic model of NPWT use in patients with SAWHI in the out-of-hospital setting

Category	NPWT (*n* = 157)	CWT (*n* = 174)
Dressing changes		
Mean material cost per patient	1303.13 €	883.59 €
Mean human resource cost per patient	156.59 €	177.12 €
Total cost per patient	*1459.72 €*	*1060.71 €*
Wound-related procedures		
Mean material cost per patient	382.96 €	656.00 €
Mean human resource cost per patient	177.54 €	195.17 €
Total cost per patient	*560.50 €*	*851.17 €*
Surgical wound closure		
Mean cost per patient	*14.76 €*	*7.03 €*
Mean total cost per patient	*2034.98 €*	*1918.91€*
Total cost of care in patients in OOH setting	NPWT (*n* = 68)	CWT (*n* = 137)
Number of patients with wound closure	32 (47.1%)	31 (22.6%)
Total cost of care in the OOH setting[a]	138 378.64 €	262 890.04 €
Mean cost per patient per wounds closed[b]	*4324.34 €*	*8480.32 €*
Cost savings	*4155.98 €*	

Abbreviations: OOH, out-of-hospital.
[a]Mean total cost per patient × Number of patients in the OOH setting = Total cost of care in the OOH Setting.
[b]Total cost of care in OOH ÷ Wound closure rate = Mean cost per patient per wound closed.

dressings per treatment arm was calculated as 23.96 € for NPWT and 42.48 € for CWT (Tables 3-4). The mean daily cost of NPWT including device rental and disposable materials and was calculated as 82.94 € (Table 5).

The total time needed for dressing changes in the PP population was reduced in the NPWT arm because of fewer dressing changes performed and shorter time required for dressing changes for both the inpatient and OOH setting.[3] This reduced time in the NPWT group led to a reduced calculated HCP labour cost per dressing change (156.59 € versus 177.12 €, Table 6).

Wound-related procedures were reduced in the NPWT group,[3] leading to reduced material costs per wound-related procedure in the NPWT group (382.96 € versus 656.00 €, Table 7). HCP labour cost per wound procedure was slightly lower in the NPWT group (177.54 € versus 195.17 €, Table 8).

The total cost of surgical wound closure per patient including materials and resources was calculated. Total surgical wound closure cost was 2316.96 € in the NPWT study population compared with 1222.84 € in the CWT study population, resulting in a mean per-patient cost for wound closure of 14.76 € for NPWT versus 7.03 € for CWT (Table 9).

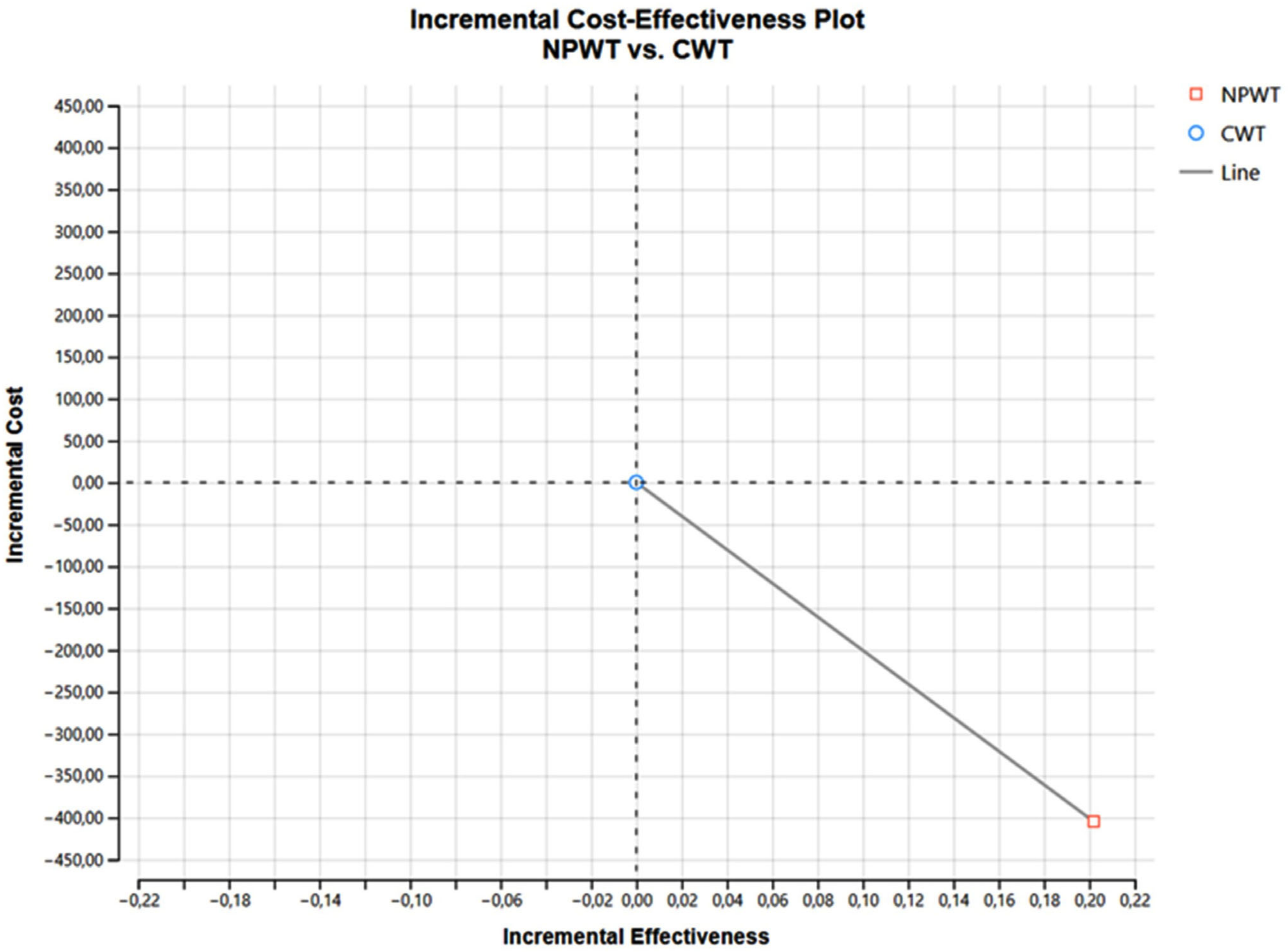

FIGURE 1 Cost-effectiveness analysis of NPWT use for management of SAWHI patients. The blue circle represents CWT use; The red box represents NPWT use. NPWT is more effective and less expensive than CWT.

3.2 | Health economic model

The mean per-patient total cost within 42 days was slightly higher in the NPWT group (2034.98 € versus 1918.91 €, Table 10); however, when the health economic model takes wound closure rates into account, a cost savings of 4155.98 € was observed with the use of NPWT (4324.34 € versus 8480.32 €).

A cost-effectiveness analysis was constructed using a decision tree of NPWT versus CWT use in the management of SAWHI. NPWT was observed to have a lower cost per closed wound and a higher incremental closure rate (Figure 1).

4 | DISCUSSION

The potential cost-benefit of NPWT compared with CWT in SAWHI treatment was assessed in patients that received care in the OOH setting. Data for the health economic model were obtained from a previously published RCT comparing NPWT and CWT with a complete set of validated clinical outcomes and health economic parameters reported.[1,3] The presented health economic model demonstrated a cost–benefit with the use of NPWT in the management of SAWHI in the OOH population.

The health economic model considered the OOH perspective related to treatment outcomes of SAWHI management. Total human resource time was higher for nursing than physician care in both the NPWT and CWT groups. Further, nursing staff provided a larger percentage of total work in the OOH settings. The increased nursing contribution to care in OOH is more relevant for the NPWT group because of the reimbursement requirements during the RCT timeframe. The SAWHI RCT was conducted at a time when limited to no OOH NPWT reimbursement infrastructure was in place. As such, the health economic model considered a higher amount of physical labour for the NPWT group and can be considered conservative as it overestimates physician involvement.

The health economic model used the mean per-patient total cost per closed wound, allowing for the setting-specific effectiveness of NPWT versus CWT to be assessed. This allows the model to be specific to the study's findings and reduces assumptions in the model as the study provides both clinical outcomes and resource consumption for the same population within the same observation period. While the mean per-patient costs were slightly higher for NPWT within the 42-day observation period, cost savings were observed when clinical effectiveness was considered. However, the HCP labour cost for dressing changes was lower in the NPWT group. Additionally, unpublished data from Seidel et al report that among patients with OOH care, the patients receiving NPWT in the OOH setting have shorter treatment times compared with patients transferred to OOH care after completion of NPWT, indicating a potential clinical benefit of NPWT use in the OOH setting.

The mean per-patient cost for surgical wound closure was higher in NPWT; although, this cost is minor compared with mean per-patient total cost over 42 days of care, as it represents <1% of mean per-patient total cost. Additionally, the costs for surgical wound closure may be overestimated in this health economic model as the majority of German health insurance companies will only pay the evidence-based medicine fees, which further adds to the conservative approach of the model. The mean saving potential for the use of NPWT in the OOH setting is driven by the significantly improved wound closure rate and the reduced material costs observed in this group. Taken together, this demonstrates the potential to save 49% in the cost of care to close SAWHI wounds with NPWT.

An incremental analysis was used to assess NPWT cost-effectiveness for the total study population. The analysis was based on resource cost per treatment day and time to first wound closure. Results showed that NPWT was dominant because of lower cost of care and higher wound closure rate. A sensitivity assessment of incremental cost was also performed using the published data for time to first wound closure. Variation in the number of days to wound closure suggested that NPWT could be more expensive than CWT; however, this is seen only at the far end of the data range and is unlikely for the overall population. A probabilistic sensitivity analysis was completed and indicated with 80% confidence that NPWT use is cost-beneficial compared with CWT.

Limited cost-effective evidence exists on the use of NPWT for SAWHI in the OOH setting. There is some published evidence on the use of NPWT in-home or care, community-based care, or long-term acute care for surgical, acute, and chronic wounds.[10-12] In the home care setting, a review of the published literature reported a reduction in time to wound closure compared with control dressings with the use of NPWT.[10] A United Kingdom-based study assessed the use of NPWT in the community care setting where a majority of wounds (68.8%) were surgical.[11] In wounds that originated in the hospital and transitioned to community care, the mean cost per day was reported as 38.50.[11] While there was no cost comparison to a control, the authors did note earlier discharge from the hospital when NPWT was available, providing an estimated 4814 in cost savings per patient compared with costs of care in the hospital setting.[11] Similarly, De Leon et al reported that NPWT in the long-term acute care setting in a United States post-surgical population was associated with an $11.90 cost per cubic centimetre reduction in NPWT patients compared with a $30.92 cost per cubic centimetre in patients receiving advanced moist wound healing therapies.[12] A direct comparison to published literature could not be made; however, the currently available evidence supports the cost-effectiveness of NPWT for the management of acute wounds in the OOH and long-term acute care settings.

Limitations exist for this study, including a short observation period, fragmented material resource use data, limited OOH reimbursement infrastructure during the study period, and variations in the use of surgical wound closure between the study sites. The data for this health economic model were obtained from an RCT with an observation period of 42 days. However, the majority of patients did not reach wound closure at that stage, especially in the CWT arm. To more accurately measure the potential cost-effectiveness of NPWT, cost per closed wound was used for the health economic model. Another limitation was the fragmented material resource use data. While the SAWHI RCT attempted to capture and evaluate material consumption during the study in both the hospital and OOH settings, the related data were fragmented and insufficient for the use of a quantitative approach to determine consumption. Only the type of material used per treatment arm was available. The model used a weighted mean of the top five dressings used in each treatment arm to mitigate this limitation. Additionally, the resource costs for the dressings and NPWT used the list prices that can be 2–4 times higher than the average selling price creating a more conservative health economic model.

The SAWHI RCT was conducted at a time when no OOH NPWT reimbursement infrastructure was in place in Germany. As such, only a limited, case-by-case OOH reimbursement was available, resulting in a reduced transfer of NPWT patients into OOH settings. Additionally, there were variations in the use of surgical wound closure in the two groups, with 70% of the NPWT group undergoing surgical wound closure compared with 51% of the CWT group patients. This variation may be because of differences in the health care provider's preferences or that NPWT is often used to prepare wounds for surgical closure compared with CWT, which promotes wound healing by secondary intention. Despite these limitations, the mean cost per patient per closed wound is lower in the NPWT group for an estimated cost savings of 4156 €.

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CONFLICT OF INTEREST

Frank W Brennfleck is a consultant for 3M. Christine Bongards is an employee of 3M.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from previously published studies. These data were derived from the following resources available in the public domain: Seidel D, Diedrich S, Herrle F, et al. Negative Pressure Wound Therapy vs Conventional Wound Treatment in Subcutaneous Abdominal Wound Healing Impairment: The SAWHI Randomized Clinical Trial. JAMA Surg. 2020;155(6): 469-78.doi:10.1001/jamasurg.2020.0414; Seidel D, Lefering R. NPWT Resource Use Compared With Conventional Wound Treatment in Subcutaneous Abdominal Wounds With Healing Impairment After Surgery: SAWHI Randomized Clinical Trial Results. Ann Surg. 2022;275(2): e290-8.doi: 10.1097/SLA.0000000000004960, Clinical Trials.gov: (NCT01528033), and the German Clinical Trials Register (DRKS00000648).

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