

New NPWT Standard for Treatment of Traumatic & Surgical Wounds

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Introduction clinical problem:

Acute care hospital patients present a variety of wound care challenges that include patient condition, comorbidities, trauma injuries, exposed tissue structures and risk of infection. Our facility wound care goals include temporary wound coverage following debridement, wound preparation for subsequent surgery, reduce risk of infection and reduce healing time when possible. Our acute care facility routinely sees complex wounds from necrotizing fasciitis to trauma patients from gunshot wounds. In 2020, there were 45,222 firearm-related deaths in the United States. Necrotizing Fasciitis (NF) affects up to 1,500 individuals annually where 1 in 5 die. Treatment of NF includes aggressive surgical debridement and antibiotics concomitant with NPWT. Evidence based recommendations to have standardized the use of Negative Pressure Wound Therapy (NPWT) for patient care^{1,2,3}.

Clinical Approach:

The European Wound Management Association (EWMA) describes the standard of care for NPWT devices contain an electronically controlled feedback system⁴. Our hospital adopted an innovative NPWT system that intelligently maintains set pressure at the wound site⁴ and complies with the EWMA recommendations while dynamically adapting in real time to changes in wound exudate volume and viscosity as a part of wound care protocols⁵. The new NPWT system was utilized to treat patients.

Patient Outcomes:

Case 1 w/gunshot wound 100% closed in 4 weeks. Case 2 w/ gunshot wound resulted in BKA and 100% closed in 9 weeks. Case 3 w/spider bite, a known methamphetamine abuser, was successfully treated with 95% closure in 5 weeks. Case 4 w/necrotizing fasciitis 100% closed in 21 weeks. Case 4 was able to complete 19 of 21 weeks of NPWT AT HOME.

CONCLUSIONS

All four patients were successfully treated with the new NPWT system to manage their complex wounds. Average Wound closure was 99%. This four patient case series supports there is a robust NPWT system option for patients with complex wounds. Our facility has standardized to new NPWT system that innovates on the standard of care⁵.

Patient	M / F	Age	Weeks on NPWT	Initial Measurements (cm)			Final Measurements (cm)			Volume Reduction
				Length cm	Width cm	Depth cm	Length cm	Width cm	Depth cm	
1	M	18	4	28	10	0.6	0	0	0	100%
2	M	55	9	17	8	1	0	0	0	100%
Pt 3 wound 1	M	48	4	15	2.8	1.4	0.75	0.14	0.07	95%
Pt 3 wound 2				20.5	4.8	1.6	1.025	0.24	0.08	95%
Pt 3 wound 3				12.8	3.5	2.8	0.64	0.175	0.14	95%
Pt 4 wound 1	F	49	21	9	20	3.5	0	0	0	100%
Pt 4 wound 2				0	0	15	0	0	0	100%
Pt 4 wound 3				2	7	2.5	0	0	0	100%
Pt 4 wound 4				3	15.5	5.5	0	0	0	100%
			9.5							98%

Patient 1



Week 1

Patient 2



Week 1

Patient 3



Week 1

Patient 4



Week 1



Week 4



Week 9



Week 4



Week 21

References:

1. Kaushik, et al. Journal of Wound Care. 2017;26(10):600-606
2. Ziederman, & Lee. Burns & Trauma. 2021 (9) tkab024
3. Krug et al., Injury, int. Care Injured, 2011; 42, 51-5-12
4. Apelqvist, J., Willy, C., Fagerdah, A.M. et al. Negative Pressure Wound Therapy - overview, challenges and perspectives. J Wound Care 2017; 26: 3, Suppl 3, 51-5113.
5. Paglinawan R, Schwab P, Bechert K. Negative pressure wound therapy system Innovates standard of care via intelligent pressure control and dynamic exudate removal. Wounds. 2020;32(10):51-58.

†Invia® Liberty™ NPWT System; Medela AG Presented at the SAWC Spring April 7-9, 2023.

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