



Precision Wound Hygiene in Managing an Infected Stage IV Pressure Injury

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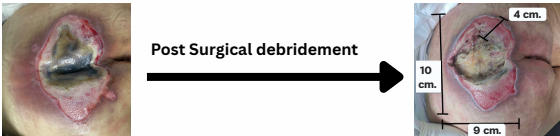
INTRODUCTION

Stage IV pressure injuries complicated by biofilm and extensively drug-resistant (XDR) bacterial infection present severe healing barriers, high complication risks, and poor quality of life. This case study presents the successful clinical management of an infected Stage IV sacral pressure injury utilizing the 4-step Wound Hygiene protocol, temporary fecal diversion, and advanced wound dressing technologies under a multidisciplinary team.

CASE PRESENTATION

Patient Profile: A 71-year-old Thai female with diabetes mellitus, hypertension, and dyslipidemia. She underwent decompressive laminectomy with posterior pedicle screw fixation (T9-T12) for thoracic spinal stenosis.

Wound Assessment: One month post-surgery, she developed a massive Stage IV sacral pressure injury (10 x 9 x 4 cm) featuring extensive necrotic tissue, heavy and foul-smelling exudate, and macerated edges.



Microbiology: Tissue culture confirmed the presence of extensively drug-resistant *Acinetobacter baumannii* (CRAB).

Initial Scores: Braden Score was 11 (very high risk), and BWAT Score was 46. Conventional treatment with twice-daily wet dressings containing 1% silver sulfadiazine failed to improve the wound, and the patient experienced severe pain and emotional withdrawal.

TEMPORARY FECAL DIVERSION

To prevent fecal contamination of the sacral wound (a major barrier to healing), a temporary loop colostomy was surgically performed in the Right Upper Quadrant (RUQ). This successfully diverted stool and maintained wound cleanliness.

Stoma assessment:

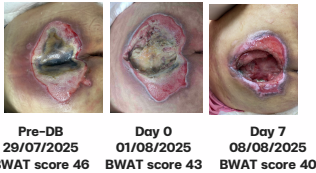
Type of stoma	Loop colostomy
Site	RUQ
Size	40 * 30 mm.
Stoma height	Moderate protruding
Shape	Oval
Peristomal skin	Intract
Opening of lumen	Proximal: Rt.Lateral, Distal: Lt.Lateral
Effluent	Green paste
Additional condition (if any)	Bed ridden, hand tremors and muscle weakness, Elderly caregiver



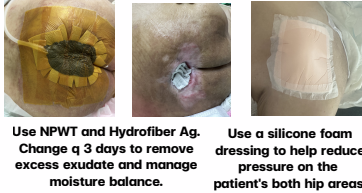
MANAGEMENT

- Cleansing:** Cleansing the wound with NSS, Packing c PHMB solution 15 min to disrupt biofilm, remove cellular debris, and minimize bacterial load.
- Debridement:** Performed aggressive surgical debridement in co-operation with the Plastic Surgery team to eradicate necrotic tissue harboring CRAB.
- Wound Edge Management:** Managed and debrided macerated wound edges; aggressively scraped biofilm surrounding the borders to stimulate epithelialization. Protect the periwound skin with a skin barrier film and hydrocolloid dressing.
- Dressing Selection:** Initiated Negative Pressure Wound Therapy (NPWT) with absorptive dressing (Weeks 1-4, changed every 3 days) to draw exudate and maintain moisture, followed by Hydrofiber Ag (Months 9-11).

Surgical Debridement In collaboration with the Plastic Surgery Team.



NPWT system + Absorptive dressings.

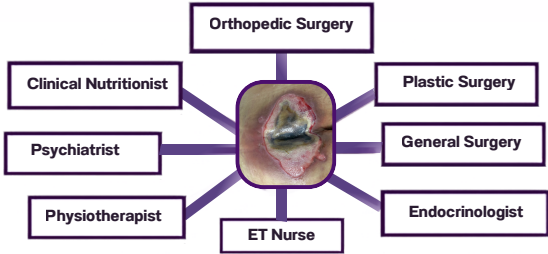


MULTIDISCIPLINARY CARE

Nutritional Support: Maintained high-protein diet with 2 egg whites per meal. and micronutrients to support tissue synthesis and immune response.

Pressure Redistribution: Used specialized pressure-relieving surfaces and applied foam dressings on bilateral hips to prevent new injury.

Psychological Interventions: Provided emotional and cognitive support to reduce pain-related anxiety and promote active participation.

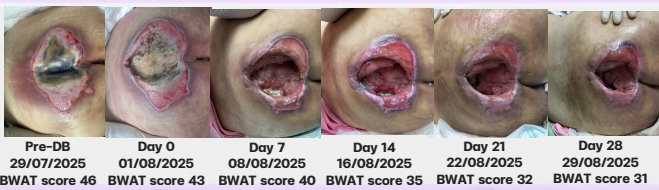


Patient-centric care requiring 8 distinct specialties for a holistic intervention.

CLINICAL RESULTS

- Infection Eradicated:** Biofilm and CRAB infection resolved completely without recurrence.
- Rapid Healing:** Wound bed filled with 100% healthy granulation tissue; wound edges contracted progressively.
- Score Improvement:** BWAT Score decreased from 46 to 31 in 4 weeks, and reached 19 (near complete closure) at 11 months.
- Quality of Life:** Severe pain and anxiety resolved; dressing frequency reduced from twice daily to twice weekly.

Results: Weeks 1-4 used the NPWT.



August 8, 2025 (Day 7)
Decreased bodily fluid levels,
BWAT Score decreased to 40.

August 29, 2025 (Day 28)
Significant biofilm reduction,
BWAT Score: 31

Results: Months 1-11

No infection



Month 1 - 7 ----> NPWT

August 29, 2025 (Month 1)
Granulation tissue growth is good,
BWAT Score: 31

June 17, 2026 (Month 11)
No infection found in the wound bed,
BWAT Score: 19

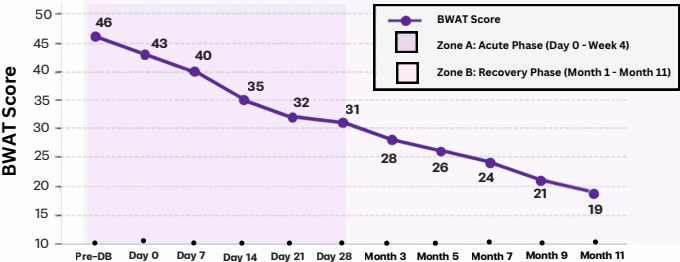
DISCUSSION

Integrating precision Wound Hygiene with temporary fecal diversion and advanced wound care technologies (NPWT & Hydrofiber Ag) under a multidisciplinary framework successfully controlled a highly challenging XDR-CRAB infection, promoted tissue regeneration, and restored patient quality of life.



BWAT SCORE TREND (11 MONTHS)

BWAT Score Trend Over 11 Months of Wound Hygiene Protocol



REFERENCES

- Bates-Jensen, B. M., McCreath, H. E., Harputlu, D., & Patlan, A. (2019). Reliability of the Bates-Jensen Wound Assessment Tool for pressure injury assessment: The Pressure Ulcer Detection Study. *Wound Repair and Regeneration*, 27(4), 386-395. <https://doi.org/10.1111/wrr.12714>
- International Wound Infection Institute. (2022). Wound infection in clinical practice: Principles of best practice. *Wounds International*.
- Murphy, C., Atkin, L., Swanson, T., et al. (2020). Defying hard-to-heal wounds with an early antibiofilm intervention strategy: Wound Hygiene. *Journal of Wound Care*, 29(Suppl. 3b), S1-S26.

BWAT Score
Assessment Form

