

Tactical Approaches to Managing Moisture-Associated Skin Damage (MASD): Insights from a Retrospective Case Study

Ravi Kamepalli, MD¹; Bhavya Kamepalli³, BS²; Uday Kode³, BS²

¹Mercer University School of Medicine, ²Michigan State University, ³MD/DO Candidate

Abstract

Moisture-associated skin damage, MASD, is a very common issue in healthcare settings, especially for people at risk of immobility or incontinence. The sacral and coccyx areas are mostly affected by MASD because prolonged exposure to any form of moisture, be it urine, feces, or perspiration, damages the protective barrier of the skin and causes inflammation, maceration, and erosion of the skin. This case-study retrospective chart review of 185 patients with MASD located in the sacral/coccyx area provides insight into the management and outcomes of this condition. Treatment consisted of AMD Gauze dressing, Calmoseptine Ointment (60% Zinc Oxide), and No Sting Cyanoacrylate to assist in skin protection and moisture control, along with skin separation techniques to reduce the accumulation of moisture under the folds of skin. Consistent supervision allowed for the monitoring of progress, and proactive measures, including hygiene maintenance and moisture control were part of the management plan.

Analysis of the data revealed an average healing time of approximately 4.51 weeks, with the majority of cases being "Stable," "Improving," "Resolved," and "Healed." This suggests that most patients experienced positive improvement; however, 8 cases had less than favorable outcomes, defined as "Deteriorating" or "Worsening" statuses, which means that while the general trends are usually positive, the speeds of improvement and responses to therapeutic input can vary based on comorbidities or outlying factors. These variations underline the need for personalized and adaptive treatment plans and a continuous assessment mechanism to improve patient outcomes.

Several important lessons can be learned from this experience. First, it enables a multifaceted approach to managing MASD, including not only the use of targeted treatments but also consistent patient education and monitoring. The findings underline the variability of healing rates, meaning that the needs of patients can best be addressed through individualized care strategies. This retrospective review has also found early intervention and repeated assessment to be important for preventing complications and improving outcomes from healing. Overall, this case study shows the huge impact that this management strategy, combined with personalized care, can have on MASD healing and the quality of life for patients.

Introduction

Moisture-Associated Skin Damage (MASD) is a common and preventable condition resulting from prolonged exposure of the skin to moisture, including urine, feces, sweat, or wound exudate. It is particularly prevalent in patients with incontinence or immobility, and most frequently affects the sacral and coccyx regions. The compromised skin barrier in these areas can lead to inflammation, maceration, erosion, and increased susceptibility to infection or pressure injury.

To improve identification and classification of incontinence-associated skin damage, the GLOBIAD (Global IAD Expert Panel) tool was utilized. This system provides standardized staging criteria based on severity, appearance, and tissue involvement, supporting more consistent diagnosis and treatment planning.

Despite the availability of classification tools like GLOBIAD, MASD is often underrecognized or misclassified in clinical settings. Early detection and intervention are critical to preventing progression and reducing patient discomfort. Effective management typically involves moisture control, barrier protection, and individualized skin care protocols.

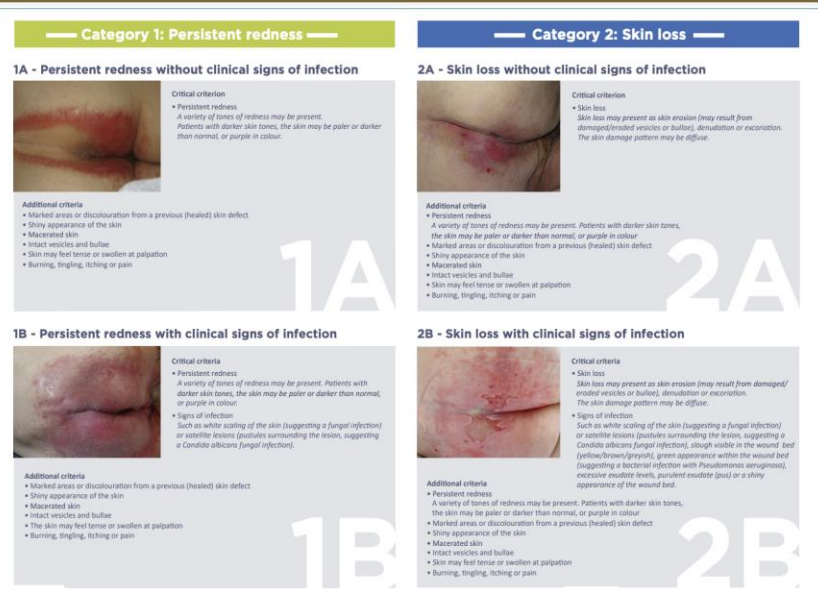


Image 1. GLOBIAD Staging Criteria¹

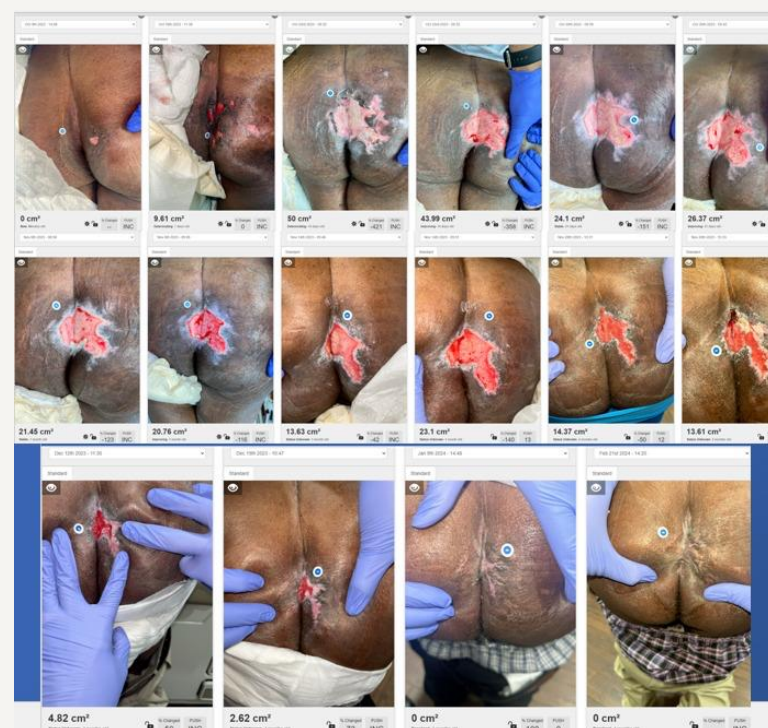


Image 2. Example of a healed case of MASD that led to Decubitus Ulcer

Methods

A retrospective chart review was performed on 185 patients with Moisture-Associated Skin Damage (MASD) in the sacral and coccyx areas. Inclusion criteria were patients with documented sacral MASD that were treated uniformly with a standardized plan of care.

MASD of each patient was staged according to the GLOBIAD (Global IAD Expert Panel) staging system, which grades incontinence-associated dermatitis on the basis of visual appearance, tissue damage, and severity. This staging gave a clinical baseline for assessing progression and response to treatment.

The treatment protocol utilized was:

- AMD gauze dressings for bacterial control and absorption of moisture
- Calmoseptine ointment (60% zinc oxide) to heal and to act as a barrier to moisture
- No Sting Cyanoacrylate skin protectant to reinforce the skin's outer layer and prevent additional breakdown
- Skin separation methods to reduce skin-on-skin contact and decrease moisture in skin folds
- Supportive care interventions involved:
 - Regular skin examination
 - Hygiene management
 - Moisture control measures

Continued nursing evaluation and recording Progress of the patient was assessed using descriptive outcome status categories: "Healed," "Resolved," "Improving," "Stable," "Deteriorating," and "Worsening." Data was also extracted on comorbidities such as heart disease, renal disease, vascular disease, and diabetes mellitus in order to examine their influence on healing patterns. Data were collected and compared to determine the mean healing time and trends in response to treatment. Results were also compared by GLOBIAD stage and comorbidity presence, providing insight into possible predictors of prolonged or complicated healing.

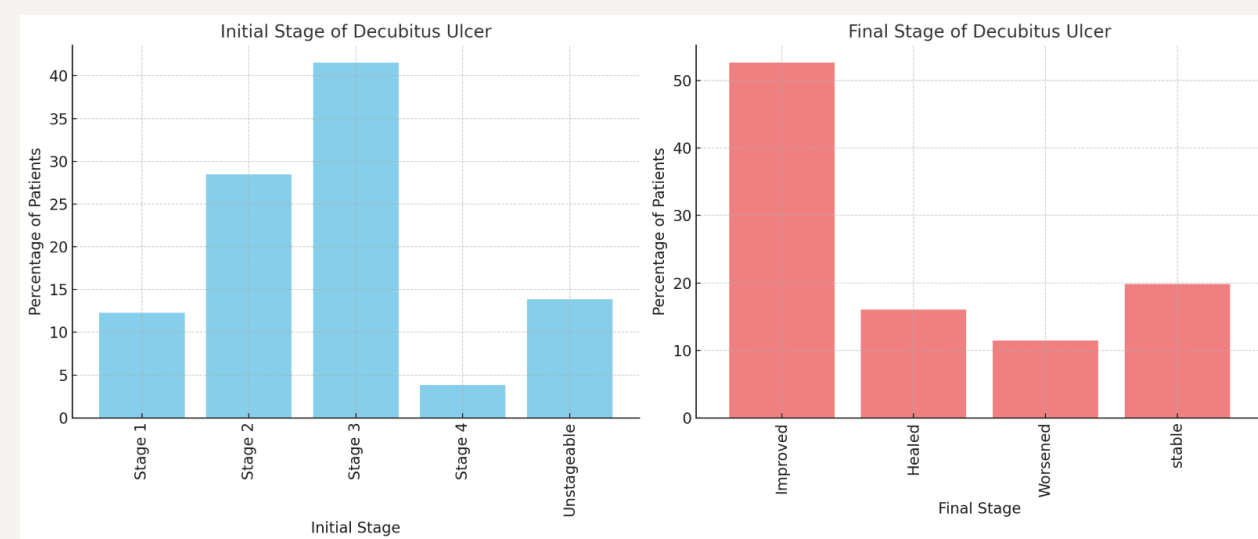


Figure 1. Initial vs Final Stage of Decubitus Ulcer

Results

Figure 1. Data

Overall, the percentages of patients in each final stage of decubitus ulcer healing are as follows

- **Improved:** 45.26%
- **Stable:** 17.37%
- **Healed:** 13.16%
- **Worsened:** 7.89%

Figure 2: Data

- **cat1A:**
 - Healed: 50%
 - Improved: 33.33%
 - Worsened: 16.67%
 - Stable: 0%
- **cat1B:**
 - Healed: 14.29%
 - Improved: 57.14%
 - Worsened: 3.57%
 - Stable: 25%
- **cat2A:**
 - Healed: 12.75%
 - Improved: 56.86%
 - Worsened: 8.82%
 - Stable: 21.57%
- **cat2B:**
 - Healed: 0%
 - Improved: 44.44%
 - Worsened: 11.11%
 - Stable: 44.44%

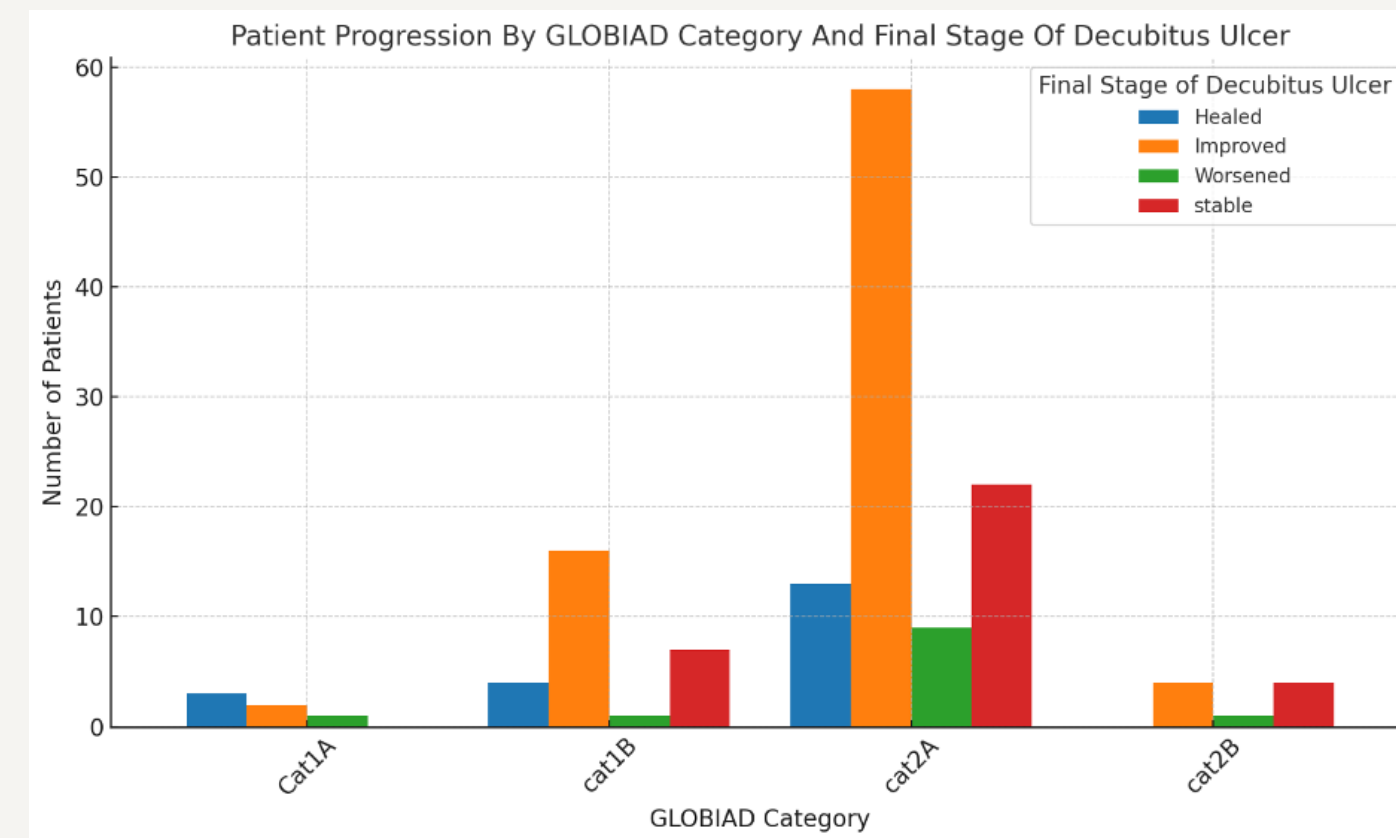


Figure 2. Patient Progression by GLOBIAD Staging

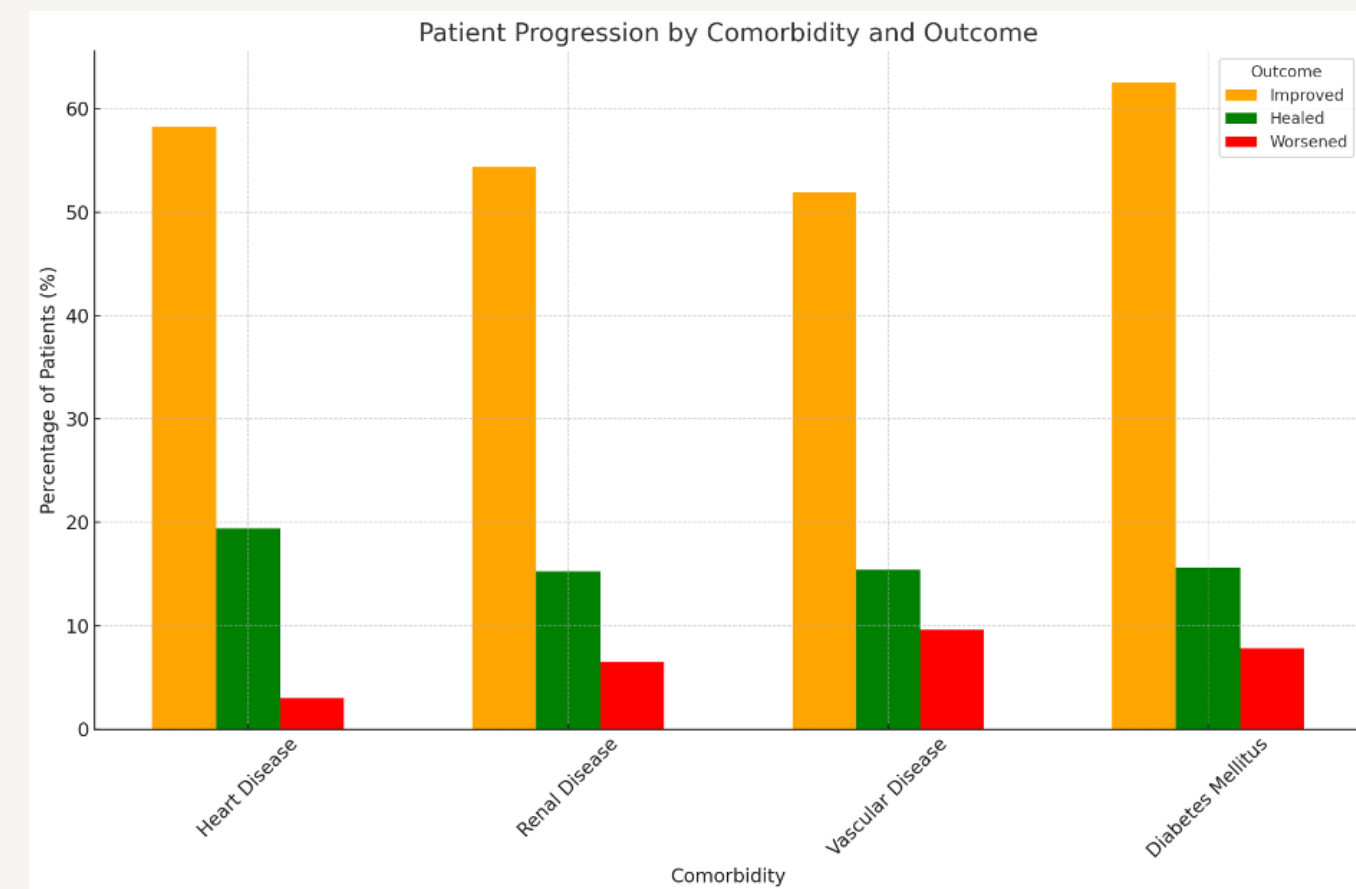


Figure 3. Patient Progression by Comorbidity Outcome

Discussion

The data provides valuable insights into the progression and healing of decubitus ulcers across a cohort of patients with varying comorbid conditions. The patients were categorized based on the **initial stage** of their decubitus ulcers, as well as their **final stage** of ulcer healing, which included categories such as "Healed," "Improved," and "Worsened."

Initial Stage of Decubitus Ulcer: The majority of patients in this cohort presented with ulcers in **Stage 2** (approximately 40% of the patients) and **Stage 3** (about 30%). These stages typically involve partial-thickness to full-thickness tissue loss, where the skin and underlying tissue are compromised but not completely necrotic. Interestingly, **Stage 1 ulcers**, representing minimal tissue damage, accounted for a smaller proportion (under 10%) of patients, suggesting that most patients had more significant damage at the time of presentation. Additionally, the **Unstageable** category, representing wounds where full tissue damage cannot be determined initially, also comprised a significant portion of the cohort (~15%).

Final Stage of Decubitus Ulcer: At the final assessment, the **"Improved"** category emerged as the most common outcome, indicating that a significant portion of patients showed positive progress. However, the **"Healed"** category remained relatively small, representing less than 20% of patients. This outcome suggests that while treatment efforts successfully prevent further deterioration in most patients, complete healing remains a challenge. Only a few patients experienced **"Worsened"** ulcers, and a moderate number showed **"Stable"** ulcers, where the condition did not significantly improve or worsen.

The GLOBIAD categories, which assess the global burden of disease, provide valuable insight into the relationship between comorbid conditions and ulcer healing outcomes. In this cohort, patients in categories such as **cat1B** (indicating mild comorbidities) tended to have better healing outcomes compared to those in more severe categories like **cat2A**, which likely corresponds to patients with more complex medical needs.

The healing outcomes of decubitus ulcers across different **GLOBIAD categories** reveal significant insights into the impact of comorbidities on recovery. In **Cat1A** (mild comorbidities), a majority of patients experienced positive outcomes, with **42.86%** achieving healing and **28.57%** improving. Only **14.29%** worsened, and no patients remained stable, indicating effective management of ulcer progression. In **Cat1B** (mild to moderate comorbidities), **44.44%** improved, and **11.11%** healed, while **2.78%** worsened and **19.44%** were stable. The relatively higher rate of stable ulcers suggests that more intensive interventions may be needed to achieve optimal healing. In **Cat2A** (moderate to severe comorbidities), **10.66%** healed and **47.54%** improved, but **7.38%** worsened, and **18.03%** remained stable. These results highlight that more severe comorbidities complicate healing and often result in slower or less complete recovery. Finally, in **Cat2B** (severe comorbidities), the outcomes were the least favorable, with **40.00%** improving, but no patients healed. **10.00%** worsened, and **40.00%** remained stable, suggesting that advanced comorbidities severely hinder recovery. Overall, **45.26%** of patients improved, **13.16%** healed, **17.37%** remained stable, and **7.89%** worsened.

The comorbidities studied were heart disease, renal disease, vascular disease, and diabetes mellitus. As shown in **Figure 3**, the methods used led to significant improvements across all conditions. In patients with **heart disease**, **76%** of patients either improved or healed. In patients with **renal disease**, **70%** showed improvement or healing. For patients with **vascular disease**, **67%** experienced improvement or healing. Lastly, in patients with **diabetes mellitus**, **78%** of patients improved or healed. These results demonstrate the effectiveness of the treatment methods across different comorbid conditions.

Conclusion

This is a retrospective case study of 185 patients with Moisture-Associated Skin Damage (MASD) in the sacral and coccyx area, emphasizing the clinical significance of early detection, selective intervention, and personalized care in the management of this vexing condition. The majority of the patients had Stage 2 and Stage 3 ulcers, reflecting extensive breakdown of the skin upon treatment. In spite of presentation severity, the standard treatment regimen—AMD gauze, Calmoseptine ointment, No Sting Cyanoacrylate, and skin separation protocols—was successful in facilitating healing, with more than 58% of patients having "Improved" or "Healed" results. Less than 20% went on to complete healing, a testament to the chronic nature of MASD and the requirement for long-term and adaptive management.

Application of the GLOBIAD classification system allowed for a formalized approach to stratify and evaluate patient risk, demonstrating an association of comorbidity burden with healing outcomes. Individuals with lower GLOBIAD categories (Cat1A/B) experienced greater healing and improvement rates, whereas individuals with greater categories (Cat2A/B) experienced more variable or poorer outcomes, with greater stability or worsening rates.

Further, comorbidity analysis also determined that heart disease patients, renal disease patients, vascular disease patients, and diabetes mellitus patients also improved with treatment with the same trend of improvement or healing rates ranging from 67% to 78% among these groups. These results confirm that the treatment modality is effective across various clinical profiles universally, but underlying health conditions affect outcomes.

Lastly, this research reiterates the value of early intervention, personalized care planning, and ongoing reassessment in MASD management. Multimodal treatment targeting both cutaneous integrity and overall health is necessary to optimize wound healing trajectories and patient quality of life. Future studies can examine how best to optimize treatment regimens and minimize time to healing, especially in patients with advanced comorbidities.

References

- 1) Wounds UK. (2017). *Back to basics: understanding moisture-associated skin damage*. Wounds UK. <https://wounds-uk.com/wp-content/uploads/2023/02/31c9a51393b86ddc521612fbd78954b2.pdf>

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