

The Application of Pure Hypochlorous Acid (pHA) Cleanser in Advanced Chronic Wound Management

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BACKGROUND

Chronic wounds in long-term care (LTC) facilities represent a major clinical challenge due to persistent inflammation, biofilm formation, high microbial burden, and impaired host immune response. Stage III and IV pressure injuries and chronic vascular ulcers frequently demonstrate delayed healing secondary to sustained bacterial colonization and inflammatory dysregulation.

Hypochlorous acid (HOCl) is an endogenous antimicrobial agent produced by activated neutrophils during the oxidative burst. Stabilized pure hypochlorous acid (pHA) solutions have emerged as advanced wound cleansers designed to replicate this physiologic antimicrobial mechanism while minimizing cytotoxicity. Unlike traditional antiseptics (e.g., povidone-iodine, hydrogen peroxide, Dakin's solution), HOCl solutions demonstrate broad-spectrum antimicrobial activity with low toxicity to fibroblasts and keratinocytes, making them suitable for ongoing wound bed preparation.¹⁻³

Emerging literature suggests that HOCl-based cleansers may reduce biofilm burden, decrease local inflammation, and improve conditions necessary for granulation tissue formation.⁴⁻⁶

This clinical analysis evaluates the role of pHA as an adjunctive therapy in the management of advanced chronic wounds within a physician-led wound care program serving LTC facilities in Maryland and Washington, DC.

METHODS

This retrospective clinical review included **seven patients** with advanced chronic wounds treated in LTC settings under the direction of Comprehensive Wound Care Services

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Wound Types Included:

- Stage IV sacrococcygeal pressure injuries
- Stage IV hip pressure injuries
- Chronic bilateral lower extremity vascular ulcers

Baseline Assessments:

- Wound length, width, and depth
- Presence of slough and necrotic tissue
- Exudate volume and malodor
- Clinical signs of microbial burden
- Periwound tissue condition

Treatment Protocol:

- Systematic cleansing with pure hypochlorous acid (pHA)
- Conservative or sharp debridement as clinically indicated
- Advanced wound dressings per protocol
- Ongoing serial measurement and assessment

Follow-up evaluations measured wound size reduction, tissue quality, slough burden, and progression toward closure.

*Vashe Wound Solution
Urigo Medical North America Fort Worth, TX
Created with support from Urigo Medical North America, Fort Worth

RESULTS

All seven patients demonstrated measurable improvement following incorporation of pHA into their wound management protocol

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Observed Clinical Improvements:

- Reduction in wound size and depth
- Decreased slough and devitalized tissue
- Enhanced granulation tissue formation
- Reduced malodor
- Improved wound bed appearance

Representative Case:

A Stage IV sacrococcygeal wound measured **18 cm × 11 cm × 6.5 cm** on December 4, 2024. By December 26, 2024, the wound demonstrated:

- Marked reduction in slough
- Improved tissue quality
- Positive granulation trajectory

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Bilateral vascular ulcers and hip pressure injuries similarly showed accelerated wound bed optimization and progression toward closure.

No adverse tissue reactions or delayed healing responses were observed.

Patient A.K. (3/21/25) treated for **10 weeks with Vashe BID**. The second image shows the wound after the 10-week treatment period, demonstrating a noticeable improvement in both wound size and overall appearance.



A shorter treatment interval from 2/28/26 to 3/11/26, status post **sharp debridement with Vashe BID**. Please review the corresponding before-and-after images.



DISCUSSION

Chronic wounds are frequently stalled in the inflammatory phase due to biofilm persistence and bacterial burden. HOCl has demonstrated rapid antimicrobial activity against gram-positive bacteria, gram-negative bacteria, fungi, and viruses.^{1,4}

Importantly, in vitro studies demonstrate that properly formulated HOCl solutions exhibit significantly lower cytotoxicity to fibroblasts and keratinocytes compared with commonly used antiseptics.^{2,3} This distinction is clinically relevant in chronic wounds, where preservation of viable tissue is critical for granulation and epithelialization.

HOCl has also been shown to:

- Disrupt biofilm architecture
- Reduce inflammatory cytokine activity
- Support physiologic wound healing pathways^{5,6}

In LTC populations—where immobility, diabetes, vascular disease, and malnutrition are prevalent—non-cytotoxic antimicrobial cleansing strategies may be particularly valuable.

CONCLUSION

This clinical analysis supports the integration of pure hypochlorous acid (pHA) cleansers as a core component of advanced chronic wound management in long-term care settings.

Key findings include:

- Consistent wound size reduction
- Improved tissue quality and granulation
- Decreased slough and odor
- Safe tolerability profile

While limited by sample size and retrospective design, these findings align with emerging literature supporting HOCl as a safe and effective wound cleansing technology. Larger prospective, randomized trials are warranted to further define standardized pHA protocols across diverse wound types.

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