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When Your Wound Is Chronic, Your Lifeboat May Be the Cleanser You Use

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Wound Cleansing

Wound cleansing is the active removal of surface contaminants, loose debris, non-attached non-viable tissue and micro-organisms from the wound surface and surrounding skin. Therapeutic wound cleansing is a more rigorous cleansing of hard-to-heal wounds to remove exudate or debris and optimize assessment, to enable collection of a swab or biopsy sample or to assist in hydrating a wound bed. It is important to realize that wound cleansing is not an afterthought.

There is no "ideal" wound cleansing solution; rather, selection of an appropriate solution should be based on the following:

- Wound assessment (etiology, location, visible structures)
- Infection risk
- Colonization with drug-resistant organisms
- Efficacy and organism sensitivities of solutions
- Goals of care
- Local policies and resources

According to guidelines published by thought leaders in a consensus guideline published in the Journal of Wound Repair and Regeneration (JWC), "All chronic wounds should be assumed to be contaminated or infected with bacteria." (See box). This guideline on hard-to-heal wounds in JWC states, "The presence of biofilm in hard to heal wounds and its significant contribution to delay healing is well documented. To initiate and support wound healing the biofilm must therefore be disrupted/removed."

These guidelines also suggest that certain wound cleansers may be more effective than others for managing bacteria and removing biofilm while not killing an unacceptable amount of wound cells (keratinocytes, fibroblasts, vascular endothelial cells) that are required to heal the wound.

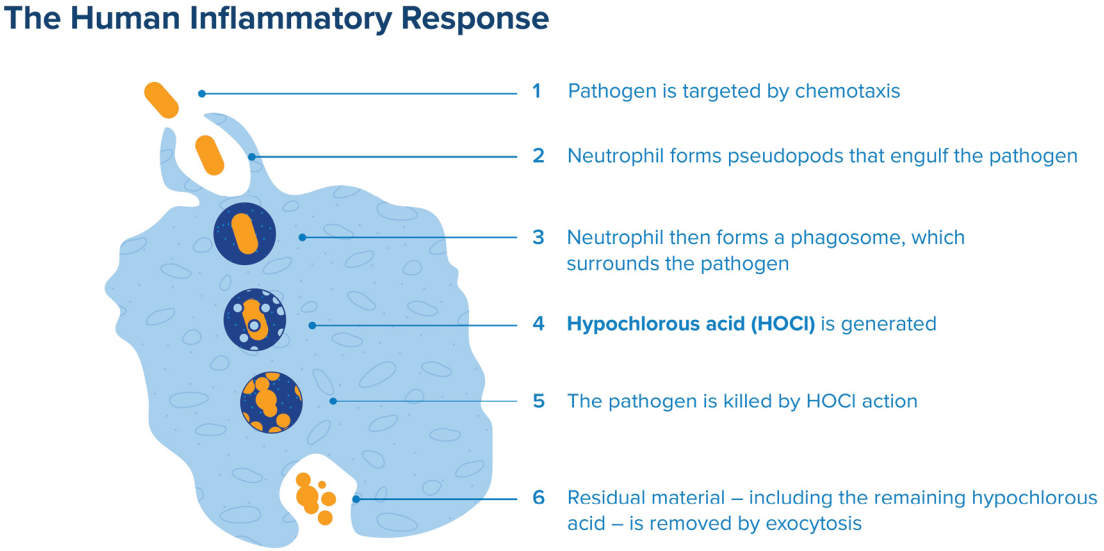


Figure 1. Oxidative Burst Pathway

Latest Treatment Guidelines[1-4]

April 2022: Wound Repair and Regeneration – Treatment Guidelines

March 2022: International Wound Infection Institute (IWII) – Wound Infection in Clinical Practice

March 2020: Journal of Wound Care (JWC) International Consensus Guidelines – Hard-to-Heal Wounds

November 2019: National Pressure Injury Advisory Panel (NPIAP) – International Guidelines

Topical Antiseptics

The NPIAP recommends clinicians "Use topical antiseptics in tissue-appropriate strengths to control microbial burden AND promote healing in pressure injuries." The IWII warns that topical antiseptics are non-selective and can by cytotoxic. This means they can kill skin and tissue cells that are critical to wound repair and thus impair the healing process. According to these guidelines, older antiseptics like hydrogen peroxide, traditional sodium hypochlorite, specifically Dakin's solution, and chlorhexidine (CHG) are no longer recommended for use in open wounds due to the risk of tissue damage that is associated with their use.

Hypochlorous Acid as an Antimicrobial Preservative

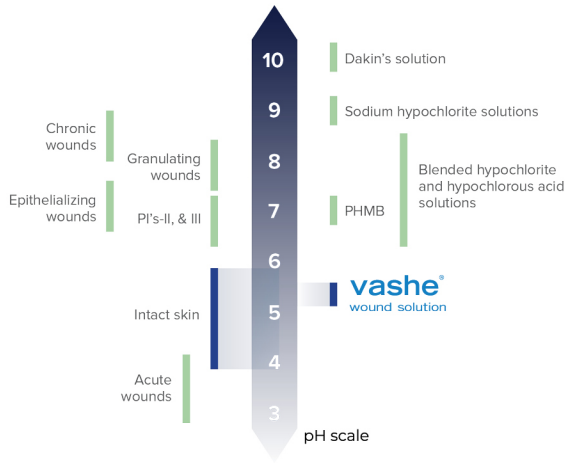
Pure hypochlorous acid is naturally generated in the body to kill pathogens (pHA) (see Figure 1). Vashe Wound Solution (see Figure 2) contains 0.033% hypochlorous acid as an antimicrobial preservative that is included for safe use and storage of the product. It is relatively non cytotoxic compared to many other traditional cleansers that contain antiseptic ingredients and other antimicrobial preservatives.

Wound Bed pH

As chronic wounds heal, there is a significant decrease in the wound pH, and the reverse is also likely true - that wound acidication via mildly acidic means creates a better healing environment. This increases protease activity and oxygen release, reduces toxicity of bacterial end products, enhances destruction of abnormal collagen and increases macrophage and fibroblast activity and control of enzyme activity. A higher pH also seems to select for pathogens, versus more harmless bacteria, over time. Vashe Wound Solution has a pH that mimics that of intact skin (see Figure 3), thus optimizing the wound's pH for wound healing, and at the same time discouraging the growth of pathogens, which evidence shows, prefer a higher pH wound environment, which is, of course, also associated with chronicity, tissue growth and decreasing bacterial growth.

Figure 2. Vashe Wound Solution

Figure 3. Cleanser Solutions pH Levels



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