Consensus Document

Consensus on Wound Antisepsis: Update 2018

Kramer A, Dissemond J, Kim S, Willy C, Mayer D, Papke R, Tuchmann F, Assadian O. Consensus on Wound Antisepsis: Update 2018. Skin Pharmacol Physiol. 2018;31(1):28-58. doi: 10.1159/000481545. Epub 2017 Dec 21. PMID: 29262416.

B. BRAUN SHARING EXPERTISE

Study overview

Compounds reviewed

Octenidine dihydrochloride (OCT), phenoxyethanol (PE), polihexanide (PHMB), polyvinylpyrrolidone-iodine (PVP-I), sodium hypochlorite / hypochlorous acid (NaOCl/HClO), acetic acid, taurolidine, silver ions (Ag^+), silver sulfadiazine, chlorhexidine digluconate (CHD), cadexomer-iodine (C-I), triclosan, hydrogen peroxide (H_2O_2), dyes and organic mercury compounds

Type of Study

Consensus guideline

Objective

Update of the 2018 consensus on wound antisepsis, focusing on the classification, efficacy, tolerability, and indications of antiseptic agents, including mechanical methods of wound cleansing

Pathogens cited

Focus on *multidrug-resistant organisms* (MDROs)

Variables

Studies reviewed include data from in vitro experiments, animal models and clinical trials. Findings assess efficacy, tolerability, and impact on wound healing

Main findings

PHMB is a highly recommended wound irrigation solution

PHMB cleansing solutions hold a prominent position in the guidelines as a highly recommended wound irrigation solution especially in combination with betaine, as found in Prontosan®. This guideline position PHMB cleansers favorably compared to traditional agents like PVP-I and silver sulfadiazine, which are associated with higher risks of cytotoxicity and sensitization. Furthermore, PHMB's consistent performance in clinical settings, makes it a preferred choice in the guidelines over solutions such as silver sulfadiazine, hydrogen peroxide, or iodine-based agents, which are less effective in biofilm management or present higher systemic risks.

Recommended indications for wound cleansers

Indication	Active Compound	
	1st Choice	2nd Choice
Critically colonized wounds, wounds at risk of infection	PHMB	OCT, HClO, silver
Burns	PHMB	OCT, HClO
Bite, stabe, gunshot wounds	PVP-1	HClO
MDRO-colonized or infected	OCT/PE	PHIMB, OCT, silver
Prevention of surgical site infection (SSI)	PHMB	OCT/PE
Decontamination of acute, chronic wounds	PHMB, HClO	-
Wound with lack of drainage	HClO	PHMB

PHMB properties according to the guideline

- **Mode of action:** PHMB's primary mode of action is mechanical cleansing rather than pharmacological, minimizing the risks of resistance development and cytotoxic effects.
- **Synergy of the components:** Polihexanide and betaine work synergistically to aide cleansing the wound.
- **Tolerability and safety:** PHMB is well-tolerated with minimal adverse effects.
- **Versatility:** For critically colonized and infected chronic wounds, for burns as well as to prevent surgical site infection, PHMB is the best choice.
- **Comparison to other agents:** PHMB is superior to silver and PVP-I in regards to wound healing. The cleansing properties of PHMB solutions place it among the safer and more effective medical devices for wound irrigation.

Agents reviewed

- **OCT/PE:** Suitable for acute, contaminated, and traumatic wounds, including MRSA-colonized wounds. For chronic wounds, lower concentrations of OCT are preferred.
- **PHMB:** Effective for acute traumatic wounds, chronic ulcers, and burns. Promotes wound healing and decolonizes MRSA.
- **Hypochlorite:** Used for wound cleansing and irrigation. Can be used even with CNS exposure risk.
- **PVP-I:** Less favored for chronic wounds due to potential adverse effects. Remains valuable for acute, deep wounds.
- **Obsolete agents:** The guidelines strongly discourage the use of CHD, silver sulfadiazine, dyes, organic mercury compounds, hydrogen peroxide alone, and topical antibiotics (except for mupirocin in specific cases).

Clinical relevance*

Prevention of wound infections

PHMB is effective in managing wounds prone to infection, reducing contamination risks during the critical colonization stage.

Wound environment optimization

By supporting a moist environment, PHMB promotes epithelialization and granulation.

Reduction of biofilm

PHMB facilitates biofilm removal, a critical factor in managing chronic and hard-to-heal wounds.

Cost-effectiveness

Due to its prophylactic benefits, PHMB decreases the need for more aggressive or systemic treatments.

Support for debridement

PHMB serves as an adjunct to debridement by preparing the wound bed for further treatment.

*Reflects B. Braun's interpretation and not the original authors' conclusions.

Summary

The 2018 paper "Consensus on Wound Antisepsis" explores updated recommendations for the use of antiseptic agents in wound care. This comprehensive guideline highlights the resurgence of antiseptics as a crucial component in managing wounds, particularly given the rise of multidrug-resistant organisms (MDROs) and the limited effectiveness of systemic antibiotics for localized infections.

The consensus discusses the renewed importance of antiseptics, emphasizing their broad-spectrum antimicrobial capabilities and their resistance to inducing pathogen resistance. Unlike systemic antibiotics, antiseptics are lauded for their localized effects, minimal systemic side effects, and mechanisms such as cell membrane disruption that effectively destroy pathogens. Agents such as octenidine (OCT) and polihexanide (PHMB) have shown no evidence of resistance development, making them standout choices for wound care.

PHMB is identified as the preferred agent for chronic wounds and critically colonized cases due to its strong evidence of safety and efficacy. Octenidine dihydrochloride is highlighted for its effectiveness in treating acute, contaminated wounds, including those colonized by *methicillin-resistant Staphylococcus aureus* (MRSA). Povidone-iodine, while suitable for traumatic wounds, is less favored because of its potential thyroid-related side effects and higher sensitization risks. Sodium hypochlorite and hypochlorous acid are recognized as emerging agents with promising infection control properties and added anti-inflammatory benefits. On the other hand, silver-sulfadiazine is largely deemed unnecessary due to limited efficacy and concerns over resistance development.

Clinical evidence cited in the study supports the effectiveness of agents like OCT, PHMB, and hypochlorites in reducing wound size, pain, promoting healing. These agents have demonstrated benefits across diverse applications, including their integration with negative pressure wound therapy using antiseptic instillation. However, safety concerns are also addressed, as certain antiseptics, such as povidone-iodine, require careful monitoring due to potential systemic absorption risks, particularly in patients with thyroid disorders or during pregnancy. Misuse of antiseptics, such as their injection into deep tissues, is cautioned against to avoid adverse reactions.

Study at a glance *(Kramer A et al. Skin Pharmacol Physiol.; 2018)*

Objective

To update the 2018 consensus on wound antisepsis, focusing on the classification, efficacy, tolerability, and indications of antiseptic agents, including mechanical methods of wound cleansing.

Type of study

Consensus guideline.

Main findings

- PHMB with betaine holds a prominent position in the 2018 guidelines as a highly recommended wound irrigation solution .
- This guidelines position PHMB favorably compared to traditional agents like PVP-I and silver sulfadiazine, which are associated with higher risks of cytotoxicity and sensitization.
- PHMB's consistent performance in clinical settings, makes it a preferred choice in the guidelines over solutions such as silver sulfadiazine, hydrogen peroxide, or iodine-based agents, which are less effective in biofilm management or present systemic risks.

B. Braun Avitum AG | 34212 Melsungen | Germany
Phone +49 5661 71-0 | www.bbraun.com