Journal of Clinical and Nursing Research, 2025, Volume 9, Issue 12
http://ojs.bbwpublisher.com/index.php/JCNR
Online ISSN: 2208-3693
Print ISSN: 2208-3685

Clinical Guideline for Cleansing and Antisepsis in Chronic Wounds

Shouyu Wang[1]*, Xiaohong Sun[2], Tianke Yang[3], Huan Wang[4], Peng Shi[5], Xingkai Wang[6]

[1]The First Affiliated Hospital of Dalian Medical University, Dalian 116000, Liaoning, China
[2]Department of Nursing, The First Affiliated Hospital of Dalian Medical University, Dalian 116000, Liaoning, China
[3]The First Affiliated Hospital of Guangzhou University of Chinese Medicine, Guangzhou 510000, Guangdong, China
[4]Affiliated Hospital of Chengde Medical University, Chengde 067000, Hebei, China
[5]Dongzhimen Hospital, Beijing University of Chinese Medicine, Beijing 100000, China
[6]Shanghai Sixth People's Hospital, Shanghai 200000, China

**Author to whom correspondence should be addressed.*

Abstract: This guideline summarizes evidence-based recommendations for cleansing and antisepsis in chronic wounds. It defines target populations, assessment and decision frameworks, preferred cleansing solutions and pressures, indications and limits for antiseptics, biofilm-oriented strategies, pain control, and adaptations for high-risk patients and low-resource settings. The aim is to optimize wound bed preparation, protect viable tissue, reduce infection and iatrogenic injury, and standardize outpatient and home-care practice.

Keywords: Chronic wounds; Wound cleansing; Antisepsis; Irrigation solutions; Wound biofilm

Online publication: Dec 31, 2025

1. Introduction

In the absence of unified protocols, cleansing and antisepsis of chronic wounds are often determined by individual experience or departmental habits, leading either to overtreatment or undertreatment [1]. This guideline focuses specifically on cleansing and antisepsis in chronic wound care. Based on current evidence and expert consensus, it clarifies indications and limitations of commonly used rinsing solutions and antiseptics, defines stage- and wound-type–specific strategies, and emphasizes procedural pain control and patient comfort. The aim is to provide a practical, reproducible, and auditable framework that improves healing efficiency and patient experience while maintaining safety [2].

2. Scope and target population

This guideline applies to cleansing and antisepsis in chronic wounds of various etiologies, including but not limited to: Diabetic foot ulcers; Venous, arterial, and mixed arterial–venous leg ulcers; Pressure injuries of any stage; Radiation ulcers; Postoperative non-healing wounds; Chronic infectious wounds. The primary focus is cleansing and local antimicrobial/antiseptic management during routine and procedural dressing changes in adult patients. Recommendations may be extrapolated to adolescents or older adults with appropriate clinical judgment [3]. Ulcers directly caused by primary or metastatic malignancy, where definitive treatment depends on oncologic management. Such conditions should follow relevant emergency or specialty pathways [3].

3. Role of cleansing and antisepsis in chronic wounds

Chronic wounds are characterized by persistent inflammation, microcirculatory disturbance, and imbalance between tissue destruction and repair. Locally, necrotic tissue, fibrous slough, and high-burden microbiota (including biofilms) coexist with extracellular matrix degradation and impaired fibroblast and keratinocyte function, causing the wound to remain locked in a chronic inflammatory state [4].

From a pathophysiologic standpoint, wound cleansing is the first key step in "resetting" the microenvironment. It should be regarded as a therapeutic intervention, not merely washing the wound [3]. Its effect depends on both the physicochemical properties of the solution and the method and pressure of irrigation. In routine and most procedural dressing changes, isotonic solutions are preferred, with the main goal being physical removal of contaminants and devitalized material, rather than complete sterilization of the wound surface, which is neither feasible nor necessary [5].

4. Assessment and decision-making framework

Before any cleansing or antiseptic procedure, a structured assessment should be performed to clarify the purpose and potential risks of that particular intervention [6]. At minimum, four domains should be evaluated: Wound type and etiology. DFU, VLU, arterial or mixed ulcer, pressure injury. Different etiologies imply differing perfusion status and infection risk. Local status and pain-including exudate volume, proportion of necrotic or sloughy tissue, exposure of bone, tendon or vessels, plus resting and procedural pain levels [7]. Clinical tools such as NERDS/STONEES or BWAT may be used to semi-quantify infection and wound status, as supportive-not sole-decision bases. Standardized pain scores (NRS/VAS) help determine the need for pre-emptive analgesia and to tailor manipulation intensity [8].

5. Therapeutic principles and pathways

Overall principles include: Cleansing first, antisepsis as adjunct; Physiological safety as prerequisite, wound bed preparation as goal; Avoid excessive irritation, over-frequent cleansing, and high-pressure irrigation; Integrate cleansing into a TIME-based wound bed preparation strategy [9].

Isotonic solutions are first-line. Normal saline (0.9% NaCl) is widely used; in settings with reliable water quality, running tap water is equally safe and effective for most chronic wounds, especially in outpatient or home care [10]. In operating rooms or for profoundly immunocompromised/high-risk patients, saline or dedicated irrigation solutions are preferable.

Solutions containing alcohol, high-concentration tincture of iodine, or strong oxidizers should not be used repeatedly as routine rinsing liquids due to cytotoxicity [11]. For critically colonized wounds or those with strong suspicion of biofilm, short-term use of low-toxicity antimicrobial solutions-such as weakly acidic electrolyzed water, polyhexamethylene biguanide (PHMB), or hypochlorous acid-may be considered as part of a comprehensive regimen, but should not become chronic, long-term substitutes for isotonic cleansing [12].

Irrigation pressure is decisive for tissue safety. Low-to-moderate pressure irrigation is recommended to achieve adequate mechanical removal of debris while avoiding damage to granulation tissue and fragile neovessels [13]. In practice, this can be achieved with a syringe plus irrigation tip, gravity-drip irrigation, or gentle shower-type rinsing, adjusted to wound size, location, and patient tolerance. Special care should be taken to avoid direct high-pressure impact on the wound edge and any exposed tendon, bone, or major vessel.

Indications for topical antiseptics should be strictly defined. Recommended situations include: Clearly infected chronic wounds, especially those at high risk of anaerobic or multidrug-resistant infection [14]. Short-term local preparation before surgery .Immunosuppressed or severely metabolically compromised patients with heavy contamination/necrosis and high systemic infection risk [15].

Common agents include povidone-iodine, PHMB, silver-containing products, hydrogen peroxide and hypochlorous-based solutions. Regardless of choice, the following principles apply: Use antiseptics short-term, with limited field and clear exit strategy. Once infection is controlled and exudate improved, return promptly to isotonic cleansing. Adhere strictly to recommended concentrations, contact times, and frequencies in product labeling and guidelines [16].

Management should combine mechanical disruption sharp or mechanical debridement, careful curettage with short-term use of anti-biofilm solutions and dressings. One practical pattern is intermittent intensive cleansing plus daily maintenance cleansing: on designated intensive days, perform more thorough mechanical removal and antimicrobial treatment; on other days, maintain gentle isotonic cleansing and moisture balance [17].

Cleansing and antisepsis strategies must be adapted to specific populations and environments [18]. For diabetic foot and ischemic limbs, local tissues have low tolerance and high risk of ischemia and gangrene [19]. Tools and processes should be simplified, with strong emphasis on hand hygiene, environmental cleanliness, and patient/caregiver education to maximize safety under constrained conditions [20].

6. Follow-up and outcome evaluation

Key observational parameters include, wound area and trajectory of change ≥ 30% reduction at 4 weeks may be used as a phase-efficacy threshold Process quality indicators include: appropriate choice of cleansing solution and antiseptic according to the guideline; standardized irrigation pressure and technique; and assessment and management of procedural pain. Safety indicators include bleeding or excessive dryness caused by over-aggressive cleansing, and contact dermatitis, allergy, or delayed healing secondary to frequent antiseptic use.

7. Summary of recommendations (OCEBM A–D, Delphi Consensus)

Table 1 summarizes the key evidence-based recommendations for wound cleansing and antisepsis. It presents the recommendation strength (A–C) based on the Oxford Centre for Evidence-Based Medicine (OCEBM) levels and the consensus agreement rate from a Delphi process.

Table 1. Recommendation strength (A–C) reflects evidence quality, clinical benefit, safety, and feasibility

No.	Summary recommendation	Evidence level (OCEBM)	Strength	Delphi agreement
R1	For most chronic wounds, routine cleansing with normal saline or potable tap water is recommended; long-term use of highly cytotoxic antiseptics as standard irrigation fluid should be avoided.	1B	A	94%
R2	Before cleansing, perfusion, infection status, and pain should be systematically assessed; patients with moderate–severe pain should receive pre-emptive analgesia and, when appropriate, sedation.	2B	A	92%
R3	Low-to-moderate irrigation pressure (around 4–8 psi) should be used to reduce trauma to granulation tissue and neovessels; high-pressure "water-jet"–type irrigation is not recommended.	2C	B	90%
R4	Topical antiseptics should be used only short-term in clearly infected wounds or high-risk hosts with heavy contamination/necrosis; once infection is controlled, care should revert promptly to isotonic cleansing.	2C	B	88%
R5	For suspected biofilm and stalled healing, combined mechanical debridement plus anti-biofilm solutions/dressings is recommended rather than cleansing alone.	3B	B	87%
R6	In DFU and severely ischemic limbs, low temperature and high-force irrigation should be avoided; cleansing plans should be optimized after vascular evaluation and, where indicated, revascularization.	3C	B	85%
R7	Cleansing and antisepsis should be embedded in a multidisciplinary care pathway and coordinated with debridement, NPWT, surgical interventions, and dressing strategies.	3C	B	90%
R8	In outpatient and home-care settings, standardized operating procedures and patient education programs should be established to improve cleansing quality and adherence.	4	C	84%

8. Future directions and updating plan

High-quality evidence regarding long-term safety and healing impact of different cleansing solutions (tap water, saline, and specialized agents) and antiseptics in chronic wounds remains limited. Optimal combinations of anti-biofilm strategies and cleansing frequency also require prospective validation. This guideline encourages the establishment of multicenter databases of real-world cleansing practices and outcomes, and the conduct of randomized trials and prospective cohorts to refine recommendations.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Pisarik P, 2016, Choosing Tap Water vs. Sterile Saline for Wound Irrigation. American Family Physician, 94(2): 83–84.

[2] Daeschlein G, 2013, Antiseptics for the Treatment of Infected Wounds. Skin Pharmacology and Physiology, 26(6): 227–238.

[3] Fernandez R, Griffiths R, 2012, Water for Wound Cleansing. Cochrane Database of Systematic Reviews, 2012(2): CD003861.

[4] Gethin G, Cowman S, 2008, Bacteriological Changes in Sloughy Venous Leg Ulcers Treated with a Polyhexamethylene Biguanide (PHMB)-Impregnated Dressing. Journal of Clinical Nursing, 17(15): 2012–2019.

[5] Goldberg M, Rosenthal A, Nemetz C, 1981, Effect of Washing Closed Head and Neck Wounds on Wound Healing and Infection. American Journal of Surgery, 141(3): 358–359.

[6] Griffiths D, Fernandez S, Ussia A, 2001, Is Tap Water a Safe Alternative to Normal Saline for Wound Irrigation in the Community Setting. Journal of Wound Care, 10(10): 407–411.

[7] International Wound Infection I, 2016, Wound Infection in Clinical Practice. London: Wounds International.

[8] International Wound Infection I, 2022, Wound Infection in Clinical Practice: An International Consensus Update. London: Wounds International.

[9] Kramer A, Dissemond J, Kim S, et al., 2018, Consensus on Wound Antisepsis: Update 2018. Skin Pharmacology and Physiology, 31(1): 28–58.

[10] Leaper D, Durani P, 2008, Topical Antimicrobial Therapy of Chronic Wounds Healing by Secondary Intention Using Iodine Products. International Wound Journal, 5(2): 361–368.

[11] Leaper J, Schultz G, Carville K, et al., 2012, Extending the TIME Concept: Wound Bed Preparation and Beyond. International Wound Journal, 9(Suppl 2): 1–19.

[12] Metcalf G, Bowler G, Hurlow J, 2014, A Clinical Algorithm for Wound Biofilm Management: A Consensus Document. Journal of Wound Care, 23(3): 137–142.

[13] National Institute for H, Care E, 2014, Pressure Ulcers: Prevention and Management (CG179). London: NICE.

[14] National Institute for H, Care E, 2015, Diabetic Foot Problems: Prevention and Management (NG19). London: NICE.

[15] Pilloni A, Piraccini B, De Angelis R, et al., 2019, Use of Hypochlorous Acid Solution in the Management of Chronic Wounds. Journal of Wound Care, 28(6): 351–356.

[16] Schultz S, Sibbald G, Falanga V, et al., 2003, Wound Bed Preparation: A Systematic Approach to Wound Management. Wound Repair and Regeneration, 11(Suppl 1): S1–S28.

[17] Weiss A, Oldham G, Lin M, et al., 2013, Water Is a Safe and Effective Alternative to Sterile Normal Saline for Wound Irrigation Prior to Suturing: A Prospective, Double-Blind, Randomised, Controlled Clinical Trial. BMJ Open, 3(1): e001504.

[18] Wolcott D, Rhoads D, 2008, A Study of Biofilm-Based Wound Management in Subjects with Critical Limb Ischaemia. Journal of Wound Care, 17(4): 145–155.

[19] World Union of Wound Healing S, 2008, Wound Infection in Clinical Practice: An International Consensus. London: MEP Ltd.

[20] World Union of Wound Healing S, 2007, Principles of Best Practice: Wound Exudate and the Role of Dressings. London: MEP Ltd.