Developed in collaboration with the Wound Care Champions, Wound Care Specialists, Enterostomal Nurses, and South West Regional Wound Care Program (SWRWCP) members from Long Term Care Homes, Hospitals, and South West CCAC contracted Community Nursing Agencies in the South West Local Health Integration Network.

Title

Procedure: Wound Cleansing

Background

- The purpose of wound cleansing is to remove foreign bodies such as organic or inorganic debris, inflammatory contaminants and bacteria, devitalized tissue, and excess exudates, all of which can become a source of wound infection[1]
- Effective cleansing removes harmful materials from the wound bed without causing trauma to healthy living cells/tissue
- When approaching wound cleansing, one must choose the most appropriate solution and technique to use. This is dependent upon the wound characteristics, the presence of spreading or systemic infection, the goals of care, the severity of any wound related pain, the toxicity of the solution, it's allerginicity, it's availability, and it's cost effectiveness
- Solutions appropriate for wound cleansing include:

Solution	Notes
Normal Saline (NS)	• Preferred as it is isotonic (physiologically compatible), non-toxic, and inexpensive • Can be made at home by adding two tsp of table salt to 1L of boiling water (discard after 24hrs)
Sterile Water	Needed to activate metallic/nanocrystalline silver dressings
Tap Water	Can be used to cleanse chronic wounds if: • The quality is acceptable, i.e. it is potable • There are no systemic or local factors that increase the person's risk of infection (see the chart below) Tap water is cost effective and easily accessible
Commercial Cleansers	• Contain varying ingredients, including antimicrobials and/or surfactants (to lower surface tension, to lift slough/debris from the wound surface and to penetrate biofilms) • Be aware of the cleansers toxicity index (least toxic are 1:10, the most toxic are 1:1000[2]) • A desirable commercial cleanser will be isotonic, pH – balanced, have the lowest possible toxicity index, and will provide two options for delivery: direct stream (4-15PSI) and gentle spray (<4PSI)

Antimicrobials	• Indicated to reduce bacterial burden in critically colonized or infected wounds
	• NOT indicated for healthy, proliferative wounds
	• See:
	  • "Safest Topical Antimicrobials for Use in Wound Care"
	  • "Topical Antimicrobials for Selective Use in Wound Care"
	  • "Topical Antimicrobials for Cautionary Use in Wound Care"

Systemic and Local Factors That Can Increase the Risk of Infection

Systemic Factors	Local Factors
Malnutrition	Large wound area and/or depth
Edema	High degree of wound chronicity
Vascular disease and/or diabetes mellitus	Anatomic location, i.e. near anus
Use of corticosteroids and other immunosuppressant medications	Presence of foreign bodies and/or necrotic tissue in the wound
Inherited neutrophil deficits and/or immune deficient conditions	Mechanism of injury, i.e. trauma or perforated viscous
Prior surgery or radiotherapy	High degree of contamination
Alcoholism	Reduced tissue perfusion
Rheumatoid arthritis	Long or contaminated surgery

- Regardless of the solution used, it is best to use solutions that are at room temperature (20 degrees Celsius), although body temperature is ideal[3]. Cold solutions may cause the wound bed temperature to drop below 37 degrees Celsius, which slows mitotic activity for up to four hours[4]! Macrophages are also inhibited in such cold environments, and leukocyte activity reduces to zero, and as such, the incidence of sepsis is higher when cleansing solutions are cold[3]
- Cleansing techniques:

Technique	Description	Notes
Swabbing Or Scrubbing	Use of gauze to wipe/scrub away non-viable tissue and to wipe off the wound surface	Swabbing redistributes bacteria[4], traumatizes new granulation tissue[5], and sheds fibers which can contribute to granuloma formation
Compress Or Soaking	Use of gauze soaked in a cleansing solution applied directly to the surface of a wound with or without pressure to soften/loosen necrotic tissue and/or to remove gross contaminants	• Appropriate only for wounds with large amounts of necrotic debris • Soaking the wound increases the permeability of the tissue, increases bacterial counts, and does not effectively clean the wound bed[6]
Irrigating Or Flushing	Use of cleansing solutions delivered at pressures less than 15PSI to loosen/flush away non-viable tissue from the wound bed, and to stimulate granulation tissue formation	A 30cc syringe with an 18 gauge angio-cath held approximately 2cm above the wound surface will deliver approximately 8PSI when the plunger is depressed at max force. Other options include commercial cleansers set on direct stream (4-15PSI) and pre-filled NS irrigation bottles (110mL).
Sitz Bathing	Used for anorectal/gynecological wounds, sitz baths involve placing the affected area in water to reduce pain, help with per-anal hygiene, and cleanse wounds	There is a lack of randomized controlled trials supporting sitz baths to promote faster healing or fewer complications. Immersing in a tub can cause systemic vasodilatation, decreasing the circulation to the perineal area, theoretically delaying healing
Whirlpool	Use of rapidly rotating water in a tub to increase vascular perfusion and allow for mechanical wound debridement	This type of cleansing is not appropriate for clean, proliferating wounds

- Various wound characteristics can influence the method of wound cleansing used, and the solution used:

Wound Characteristic	Cleansing Method/Solution
'Healable' wound with debris	Irrigation (7-12PSI) to remove/loosen/soften debris and necrotic tissue without damaging viable tissue[7]
Healthy epithelializing wound	Low pressure (4-7PSI) cleansing, i.e. pour solution over the wound to prevent trauma and removal of growth factors[2, 8]. Avoid antimicrobial solutions
Healthy granulating wound progressing towards closure in a timely manner	Gently cleanse with non-cytotoxic solutions, warmed at room temperature, at low pressure (less than 8PSI), i.e. pour solution. No antimicrobial solutions[2, 8]
Deep wound with tunneling or undermining	Cleanse undermining/tunneling using a 30cc syringe and a pediatric NG tube/small lumen Foley/wound irrigating tip, if the angio-cath will not reach. Flush until irrigant runs clear. Massage tissue above the undermining/tunnel and reposition the person on their side to express all irrigant. **NEVER** force solution into a wound. If irrigant is not returning, **STOP** flushing and contact the primary care physician
'Non-healable' necrotic wound	As the goal is to dry out and stabilize the wound, painting such wounds with povidone-iodine and allowing it to air dry is appropriate. Do **NOT** soak or regularly cleanse stable, dry eschar in such a person
Wound with localized or spreading infection	High pressure irrigation (7-12 PSI) using 150cc + of NS or use of a commercial wound cleanser set at direct stream (4-15PSI) will help remove surface bacteria/debris/chronic wound fluid and may penetrate biofilm. Use of topical antiseptics for cleansing may be appropriate (see "Guideline: The Assessment and Management of Bacterial Burden in Acute and Chronic Wounds")

- It's important to keep the skin surrounding the wound clean and free from excessive moisture to prevent maceration, contact dermatitis, and other damage and to maintain skin integrity
- In wounds where environmental or fecal contamination of the dressing and the wound is occurring, i.e. perianal and pilonidal wounds, plantar surface diabetic foot ulcers, etc., consider cleansing the periwound with chlorhexidine x 1 minute (x5 minutes if pseudomonas is present) and rinse with saline[9]

Indications

This guideline is intended to be used by front line registered health care providers, to guide their choice of method and solution when cleansing wounds.

Guideline

NOTE: The cleansing of a wound is but one part of the holistic management of individuals admitted with/presenting with a wound.

Assessment

1. Review the person's medical records for the following information:
    a. The size, location, and characteristics of the wound to be assessed/debrided/cleansed/swabbed/dressed, as this will

	help you anticipate the supplies needed b. Documentation of current clinical signs of spreading or systemic infection c. Current wound care orders **Planning** 1. Expected outcomes: a. The person reports and demonstrates an acceptable level of comfort post procedure b. The wound is cleared of all non or loosely adherent non-viable tissue and debris 2. Explain the procedure and its purpose to the person and/or their SDM/POA C and obtain informed implied/verbal consent 3. Assess the need for pre-procedure pain medication – removal of dressings and/or the dressing procedure itself may be painful. If required, the person **must** be allotted enough time to achieve the drug's peak effect BEFORE initiating the dressing change **Implementation** 1. Provide for privacy and ensure the person is in a comfortable position to facilitate assessment of the wound and for the wound care procedures 2. Wash your hands and attend to the person with your assessment tools and anticipated wound care supplies 3. If the person is in bed, raise the bed (if you are so able to) to an appropriate ergonomic position to allow for the wound assessment and treatment while preventing self-injury 4. Ensure adequate lighting 5. Don clean disposable gloves and additional personal protective equipment (PPE), i.e. gown, goggles, and/or mask as required, if risk for splash back or spray exists 6. Remove the existing wound dressing as per the manufacturer's instructions. Observe the dressing for the appearance of the drainage on the dressing. Assess for odor 7. Dispose of the soiled dressings in the proper receptacle and remove and dispose of your soiled gloves 8. Perform hand hygiene and apply new clean disposable gloves and cleanse the wound as ordered or as per the "SWRWCP's Dressing Selection and Cleansing Enabler – HEALABLE WOUNDS" or the "SWRWCP's Dressing Selection and Cleansing Enabler – MAINTENANCE/NON-HEALABLE WOUNDS". Ensure the solution is at room temperature 9. Gently pat the wound bed dry (if required) and dry the surrounding skin with gauze 10. If indicated, and if you have the knowledge, skill, judgment, and authority, conservatively sharp debride any necrotic tissue present and re-cleanse the wound as above [see: "Guideline and Procedure:

	Conservative Sharp Wound Debridement (CSWD)"] 11. Assess the wound using the "NPUAP PUSH Tool 3.0" (see "Procedure: NPUAP PUSH Tool 3.0") 12. As indicated, implement debridement and infection management interventions as per the "Guideline: The Assessment and Management of Bacterial Burden in Acute and Chronic Wounds" and "Guideline and Procedures: Wound Debridement (excluding conservative sharp debridement)". This may include the application of a dressing to promote debridement and/or manage infection. If not, select an appropriate dressing as per "Guideline: The Assessment and Management of Moisture in Acute and Chronic Wounds" and/or as per the "SWRWCP's Dressing Selection and Cleansing Enabler – HEALABLE WOUNDS" or the "SWRWCP's Dressing Selection and Cleansing Enabler – MAINTENANCE/NON-HEALABLE WOUNDS" 13. Once you have provided wound care, remove your gloves and other PPE and dispose of them and of any soiled supplies in the appropriate receptacle 14. Dispose of any used sharps in a sharps container 15. Clean reusable equipment/surfaces touched during the procedure with soap and water or detergent wipes and dry thoroughly to prevent cross infection, returning reusable equipment to the appropriate places 16. Wash your hands 17. Assist the person to a comfortable position if required, and assess for any concerns 18. Lower the person's bed to an appropriate height (if applicable), and ensure the person's safety, i.e. apply side rails, personal alarms, restraints, etc. as per the person's care plan/medical orders 19. Discuss your findings of the assessment with the person and/or their SDM/POA C and implement referrals and further interventions as indicated 20. Share your wound assessment and intervention implementation findings/outcomes with the interdisciplinary members of the person's wound care team 21. Complete/update and implement an appropriate, person-centered, interdisciplinary plan of care, based on your holistic assessment and interventions, and as per your organization's policy **Evaluation** 1. Unexpected outcomes: a. The person reports or demonstrates an unacceptable level of comfort post procedure b. Non-viable tissue and debris remain in place on the wound bed (unless the wound is 'non-healable' in which the goal would be to dry out and stabilize non-viable tissue, not remove it)

	c. Bleeding occurs with wound irrigation d. Irrigant is retained 2. Reassess the wound using the "NPUAP PUSH Tool 3.0" at a minimum of weekly to ensure your interventions are effective, and to determine if consideration of other/additional interventions are necessary and/or interdisciplinary referrals
References	1 Bale S, Jones V. (1997). Wound care nursing: A patient-centered approach. London: Bailliere Tindall Published in association with the RCN, London. 2 Rodeheaver GT, Ratliff CR. Wound cleansing, wound irrigation, wound disinfection. In: Krasner DL, Rodeheaver GT, Sibbald RG et al., eds. Chronic wound care: A clinical source book for healthcare professionals. Fourth Ed. Wayne, PA: HMP Communications. 2008:331-332. 3 Torrance C. The physiology of wound healing. Nursing. 1986;5:162-166. 4 Thomlinson D. To clean or not to clean? Nursing Times. 1987;83(9):71-75. 5 Young T. Common problems in wound care: wound cleansing. British Journal of Nursing. 1995;4(5):286-289. 6 Michaels M. Wound cleansing versus skin aseptics. Available at: www.iceinstitute.com/online/OR27.html. 2001. Virgo Publishing Inc. 7 Longmire AW, Broom LA, Burch J. Wound infection following high-pressure syringe and needle irrigation (letter). American Journal of Emergency Medicine. 1987;5(2):179-181. 8 Bates-Jensen B, Ovington LG. Management of exudate and infection. In: Sussman C, Bates-Jensen B., eds. Wound care: A collaborative practice manual for health professionals. Third Ed. Baltimore: Lippincott Williams & Wilkins, 1997:224. 9 Payne DN, Babb JR, Bradley CR. An evaluation of the suitability of the European suspension test to reflect in vitro activity of antiseptics against clinically significant organisms. Letters in Applied Microbiology. 1999;21(1):7-12.
Related Tools (NOTE: these tools and their instructions can be found on the SWRWCP's website: swrwoundcareprogram.ca)	• Safest Topical Antimicrobials for Use in Wound Care • Topical Antimicrobials for Selective Use in Wound Care • Topical Antimicrobials for Cautionary Use in Wound Care • Guideline: The Assessment and Management of Bacterial Burden in Acute and Chronic Wounds • SWRWCP's Dressing Selection and Cleansing Enabler – HEALABLE WOUNDS • SWRWCP's Dressing Selection and Cleansing Enabler – MAINTENANCE/NON-HEALABLE WOUNDS • Guideline and Procedure: Conservative Sharp Wound Debridement (CSWD) • NPUAP PUSH Tool 3.0 • Procedure: NPUAP PUSH Tool 3.0

	• Guideline: The Assessment and Management of Bacterial Burden in Acute and Chronic Wounds • Guideline and Procedures: Wound Debridement (excluding conservative sharp debridement)