

WOCN Position Statement

Clean Versus Sterile: Management of Chronic Wounds

Mary Kay Wooten, MSN RN CWOCN, Kathryn Hawkins, MT CIC, for the WOCN Council and the APIC 2000 Guidelines Committee

This document is a collaborative effort of the Association for Professionals in Infection Control and Epidemiology, Inc. (APIC) and the Wound, Ostomy Continence Nurses Society (WOCN). Its purpose is to review the evidence on which chronic wound care practice is based and to present approaches for chronic wound care management. Areas of controversy include a lack of agreement on the definitions of "clean" and "sterile" technique and a lack of consensus as to when each is indicated in the management of chronic wounds. Current wound care practices are extremely variable and are frequently based on rituals and traditions as opposed to a scientific foundation.

Definitions

Various definitions associated with wound care have been proposed, published, and debated.¹ Terms have been used interchangeably, all of which are subject to an individual's interpretation. The following definitions are an attempt to provide a point of reference for the terms used in this document.

Sterile technique involves strategies used in patient care to reduce exposure to microorganisms and maintain objects and areas as free from microorganisms as possible. Sterile technique involves meticulous hand-washing, use of a sterile field, use of sterile gloves for application of a sterile dressing, and use of sterile instruments. "Sterile to sterile" involves the use of only sterile instruments and materials in dressing change procedures; contact between sterile instruments or materials and any nonsterile surface or product must be avoided.²⁻³

Clean technique involves strategies used in patient care to reduce the overall number of microorganisms or to prevent or reduce the risk of transmission of microorganisms from one person to another or from one place to another. Clean technique involves meticulous hand-washing, maintaining a clean environment by preparing a clean field, using clean gloves and sterile instruments, and preventing direct contamination of materials and supplies. No "sterile to sterile" rules apply.³⁻⁴ This technique may also be termed "nonsterile."

Aseptic technique is the purposeful prevention of the transfer of organisms from one person to another by keeping the microbe count to an irreducible minimum.⁵ Some authors have made a distinction between surgical asepsis or "sterile technique" and medical asepsis or "clean technique."³

No touch technique is a method of changing surface dressings without directly touching the wound or any surface that might come in contact with the wound.⁶

Colonization is the presence of microorganisms without signs and/or symptoms of infection. All chronic wounds are colonized to varying degrees.⁶

Infection is the presence of microorganisms with signs and symptoms of disease. Signs and symptoms which may be indicative of infection include erythema, edema, changes in character/increase in drainage, and increased odor, fever, altered mental status, and/or increased white blood cell count.⁷

A **wound** is a "disruption of normal anatomic structure and function."⁸

An **acute wound** is a wound that either heals by regeneration or in a timely and orderly process.⁸

A **chronic wound** is a wound that has "failed to proceed through an orderly and timely process to produce anatomic and functional integrity."⁸

A **surgical wound** is a wound in which primary healing occurs when the wound edges have been drawn together to achieve closure.⁹ A surgical wound may be considered an acute wound.

Discussion

A survey developed by the Nursing Consortium for Research Practice concluded that a great variation exists "with regard to sterile technique in wound care practices."¹⁰ In the survey, technique choices among staff nurses were based on the education level of the caregiver, "how I was taught in school," and perception of infection risk to the patient.¹ Again, the element of a scientific foundation for wound care practice was not evident.

In 1993, Stotts and colleagues employed a descriptive, exploratory research survey to obtain information regarding wound care practices in the United States.¹¹ Two hundred and forty-two (242) members of WOCN responded to the survey. Of the respondents, 51.4% reported use of sterile technique and 43% reported use of nonsterile technique. The percentages varied when the type of wound and care settings were taken into consideration. It was also shown that, in preparation for discharge from the hospital, 90% of patients with open wounds were taught to perform nonsterile technique at home regardless of whether clean or sterile technique was used during hospitalization.

A review of the literature revealed no specific scientific research studies to support the use of either "clean" or "sterile" technique in any given patient care setting. However, a study was performed that compared the use of sterile saline or tap water for cleaning acute traumatic soft tissue wounds.¹² Analyses of strikethrough contamination associated with saturated sterile dressings have also been published.^{13,14} Clinical Practice Guidelines published by the Agency for Health Care Policy and Research, recommend that "clean dressings, rather than sterile ones, be used in the treatment of pressure ulcers" as long as dressing procedures comply with institutional infection control guidelines.⁶ However, these recommendations are based

on expert opinion and not on evidence-based research. It must be reiterated: There is *no* consensus or expert opinion on the controversy of “clean versus sterile” in the management of chronic wounds. Expert opinions are based on current practice and anecdotal notes, not on evidence-based practice. In addition, it should be noted that current practices have not been shown to be either beneficial or harmful.

Wound care is now provided in a variety of patient care settings including acute care, subacute care, long-term care, outpatient clinics, and in the home. The question arises: Should a different technique be utilized in the delivery of wound care based on the healthcare setting? Decisions made about the type of technique to be used may be more reasonably based on what will be done to the wound, rather than where or to whom the care is delivered. Other factors that may influence the technique are the status/acuity of the patient, the healthcare setting itself, and/or encounters with and type of caregiver.¹⁰ For instance, a frail, elderly patient who is receiving immunosuppressant drugs who has a large, full thickness skin loss sternal wound and who is to receive daily dressing changes to the wound might benefit from “sterile” technique. A middle aged patient who was in an automobile accident and subsequently developed a noninfected Stage III pressure ulcer and who is to receive hydrocolloid dressing changes to the wound every 3–4 days, might be adequately managed using “clean” technique. However, there is no scientific evidence or consensus that any one of these conditions is more or less important in selecting the appropriate method of care for the wound.

Basic considerations for technique selection

The following factors should be considered when planning chronic wound care (see Table 1).

- What is clean, what is sterile, and what is contaminated? Keep items apart by using “no touch technique.” The healthcare provider must have a thorough understanding of these entities to accomplish the goal of separation.
- Type and extent of wound care procedure: How invasive is the procedure? Is debridement to be performed? Does the procedure involve simply changing a transparent film dressing or hydrocolloid or extensive packing of the wound? Consideration should also be given to the location and depth of the wound.

Type of supplies/instruments to be used

Solutions for cleansing/treatment—Use and maintenance may be based on likelihood of exposure to organisms in the care setting. Initially, solutions such as commercially prepared wound cleansers and normal saline are sterile. The life of these solutions is based on manufacturers’ recommendations and the policy of the healthcare institution providing the care. Unfortunately, no scientific evidence exists to guide the policies of the healthcare institution.

Also to be considered is the care setting: Who will be doing the wound care? What is the environment in which the care will be delivered?

Table 1. Suggested Technique for the Management of Chronic Wounds

Intervention	Handwashing	Gloves	Supplies (Includes solutions and dressing supplies)	Instruments
Wound cleansing	Yes	Clean	Normal saline solution or commercially prepared wound cleanser-sterile; maintain as clean per care setting policy*	Irrigation with sterile device; maintain as clean per care setting policy
Routine dressing change without debridement	Yes	Clean	Sterile; maintain as clean per care setting policy*	Sterile; maintain as clean per care setting policy
Dressing change with mechanical, chemical, or enzymatic debridement	Yes	Clean	Sterile; maintain as clean per care setting policy*	Sterile; maintain as clean per care setting policy
Dressing change with sharp, conservative bedside debridement	Yes	Sterile	Sterile	Sterile

* “Maintain clean as per care setting policy” means that each care setting must address the parameters for maintenance, such as expiration dates for supplies, consideration of cost, and correct interpretation of the manufacturer’s recommendations.

Conclusions

- There is no agreement on the definitions of “clean” or “sterile” technique.
- The definitions of “clean” and “sterile” are not as important as choosing the appropriate intervention for the procedure when managing chronic wounds.
- Evidence-based research is needed to support either “clean” or “sterile” management of chronic wounds. This research would best be accomplished by formal scientific studies in multi-site locations that would include *all* healthcare settings.
- Critical examination of evidence-based research could well lead to increased cost effectiveness and improved patient outcomes.
- Such research could also impact reimbursement regulations resulting in considerable savings in healthcare dollars without compromising patient safety.

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Suggested Reading

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4700 W. Lake Avenue
Glenview, IL 60025-1485
www.wocn.org
888/224-9626