

New Developments in Enzymatic Debridement Therapies: “No-Touch” Application



Difficult-to-heal and chronic wounds such as diabetic, venous, and pressure ulcers are among the most challenging wounds to treat. Billions of dollars are spent on the management of these wounds annually.¹⁻³ Beyond the burden to the healthcare system, the negative impact these wounds have on a patient’s quality of life make reducing time to closure an essential component of the treatment plan.

Difficult-to-heal wounds and chronic wounds are sometimes seen as one in the same. As the biochemical abnormalities of wounds become better defined, we are beginning to understand that these wounds may be quite different from one another and defined as follows: difficult-to-heal wounds feature a healing process prolonged from weeks into months⁴ and chronic wounds fail to progress through the normal sequence of repair.⁵

Regardless of their definitions, these wound types can profoundly affect the wound care specialist’s choice of treatment. Moreover, because these wounds are typically caused by conditions that impair sensation and/or compromise or alter perfusion (eg, diabetes,⁶ venous hypertension,⁷ and immobility-induced pressure on soft tissues covering bony protuberances⁸), delayed healing heightens the risk of the wound becoming chronic if effective treatment is not rendered expeditiously. This rationale underlies the guidance from the Centers for Medicare and Medicaid Services, which advises practitioners to re-assess treatment choices if a pressure ulcer fails to heal within 2 to 4 weeks.⁹

While many proven strategies for assessing and treating such wounds are available, the foundation for good standard wound care begins with meeting three fundamental challenges: 1) removing necrotic tissue, 2) managing bioburden, and 3) achieving an ideal moisture balance. If these challenges are not adequately addressed, normal healing will not proceed and all other attempts to promote healing will fail.

Necrotic tissue in a wound can increase infection risks and interfere with healing by promoting bacterial growth and inflammation. Consequently, removal of necrotic tissue is a necessary first step in preparing a wound to heal.¹⁰



The Role of Debridement

Debridement is recommended in virtually every published guideline on wound care as one of the most effective means of removing two formidable wound healing barriers: necrotic tissue and bioburden. The probable exception to the debridement mantra is a lower extremity or heel ulcer in the presence of ischemia severe enough to prevent healing. In this scenario, leaving stable, dry, adherent, and intact eschar is acknowledged to be in the best interest of the patient unless the eschar or surrounding tissues begin to separate, liquefy and drain, or become indurated, fluctuant or erythemic, indicating an infectious process.⁹ Choosing the appropriate debridement venue (surgical, mechanical, autolytic, or enzymatic) involves consideration of not only the wound but also the patient.

Although considered to be the quickest and most thorough debridement method available, excisional debridement is not always an appropriate or available option due to the lack of available expertise or instrumentation and absence of a safe environment or if the patient cannot tolerate the risk of pain or bleeding. In addition, excisional debridement can disrupt cell migration and proliferation and interrupt healing in wounds that have begun to re-epithelialize and progress toward healing¹¹ or in wounds where healthy tissue is difficult to distinguish.

Enzymatic debridement. The topical application of enzymes to break down devitalized (necrotic) tissue uses proteolytic enzymes such as papain-urea or collagenase. Enzymatic debridement is the preferred method for patients with wounds who are not candidates for excisional debridement or when excisional debridement is not available. However, when the need for debridement is emergent due to systemic infection or sepsis, enzymatic debridement should not be used because this approach will take longer than excisional debridement.

Enzymatic debridement is safe, effective, selective, easy to use, and does not harm healthy tissue. It is preferred for wounds requiring continuous debridement to keep the wound free of necrotic debris. Because it does not require any special equipment or specially trained staff, in some settings, enzymatic debridement will be more versatile and convenient than other forms of debridement. Enzymatic debridement can be used in both infected and non-infected wounds with any amount of necrotic tissue and with none to moderate amounts of exudate. It also can be used in selected wounds with either adequate or less-than-adequate perfusion for healing.

While removing necrotic tissue, controlling bioburden, and keeping moisture in balance are essential, another key part of good wound care – nurturing – cannot be overstressed. Nurturing therapies that help promote healing are beneficial in difficult-to-heal and chronic wounds. These types of wounds can be nurtured

indirectly by protecting the wound bed and healthy growing cells from local and environmental influences and directly through the use of therapies that actively stimulate the healing process.

An Innovative Technique: “No-Touch” Application

“No touch” application. Avoiding physical contact with the wound has been recommended by the Association for Professionals in Infection Control and Epidemiology (APIC) and the Wound, Ostomy and Continence Nurses Society (WOCN) as a strategy for reducing infection risk in difficult-to-heal and chronic wounds.¹² If a treatment does not need to be applied with a tongue depressor, cotton swab, or human hands, risks of introducing pathogens that could lead to infection or disturbing a healing wound bed are minimized. These are important clinical considerations because 1) avoiding infection is an essential element of wound care and 2) disturbing emerging healthy granulation tissue through manual application of a therapy may reverse progress toward healing and/or delay time to healing.

Of the currently available enzymatic debriding agents, only **ACCUZYME®** and **PANAFIL®** offer the unique Spray Emulsion (SE) delivery form. The spray emulsion delivery form provides a continuous spray, resulting in “no touch” application delivery.

 **ACCUZYME (Papain, Urea)**
is the most widely used

enzymatic debrider and the preferred treatment when surgical debridement is inappropriate or unavailable. The papain-urea formulation effectively liquifies a variety of denatured, nonviable proteins (including fibrin, collagen, and elastin) without harming healthy, viable tissue. ACCUZYME is effective and well tolerated in a variety of partial- and full-thickness wounds, including diabetic ulcers, pressure ulcers, varicose ulcers, infected wounds, postoperative wounds, traumatic wounds, burns, carbuncles, and pilonidal cyst wounds. A small percentage of patients may occasionally experience a brief stinging sensation on application when using ACCUZYME.

 **PANAFIL (Papain, Urea, Chlorophyllin Copper Complex Sodium)**
is a dual-action wound therapy used most effectively when granulation tissue is apparent and the maintenance of a healthy

wound bed and the nurturing effects of pro-healing ingredients are required. PANAFIL combines the enzymatic debridement activity of papain-urea with the pro-healing properties of its chlorophyllin copper complex. PANAFIL safely and effectively controls necrotic tissue, reducing the risk of infection and promoting healing in a variety of partial- and full-thickness wound types (diabetic ulcers, pressure ulcers, varicose ulcers, infected

wounds, postoperative wounds, traumatic wounds, burns, carbuncles, and pilonidal cyst wounds). A small percentage of patients may occasionally experience a brief stinging sensation when PANAFIL is first applied.

ACCUZYME SE and PANAFIL SE are designed to potentially reduce the risk of infection in a manner consistent with APIC and WOCN recommendations. In addition, the efficiency of the SE delivery form offers the potential for more applications per container and an increased coverage area as compared to ointment formulations, possibly providing cost savings to the healthcare system. Further, the SE canisters offer the convenience of a continuous spray that allows both healthcare professionals and patients to apply the treatments at a variety of angles; thereby, simplifying access to wounds in harder-to-reach locations.

The innovative delivery design of ACCUZYME SE and PANAFIL SE is the first wound care treatment to receive the "Ease-of-Use" Commendation from the Arthritis Foundation. This recognition is particularly relevant, given the overlapping prevalence of difficult-to-heal and chronic wounds and arthritis in elderly populations.

Accordingly, the combined benefits of a "no-touch" application technique and the ease-of-use factors inherent in the spray emulsion delivery form of ACCUZYME SE and PANAFIL SE provide healthcare professionals with a significant advance in wound management.

References

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Rx ONLY

 **Accuzyme® SE**
(Papain, Urea) Spray Emulsion

Patent Pending

DESCRIPTION: ACCUZYME SE enzymatic debriding spray contains papain, USP (6.5 x 10⁵ USP units of activity based on Lot 10C389 per gram of spray) and urea, USP 10% w/w in a base composed of anhydrous lactose, cetearyl alcohol & ceteth-20 phosphate & dicetyl phosphate, fragrance, glycerin, methylparaben, mineral oil, potassium phosphate monobasic, propylparaben, purified water, and sodium hydroxide.

CLINICAL PHARMACOLOGY: Papain, the proteolytic enzyme from the fruit of carica papaya, is a potent digestant of nonviable protein matter but is harmless to viable tissue. It is active over a pH range of 3 to 12. Papain is relatively ineffective when used alone as a debriding agent and requires the presence of activators to stimulate its digestive potency. In ACCUZYME SE, papain is combined with urea, a denaturant of proteins, to bring about two supplemental chemical actions: (1) to expose by solvent action the activators of papain, and (2) to denature the nonviable protein matter in lesions and thereby render it more susceptible to enzymatic digestion. Pharmacologic studies have shown that the combination of papain and urea result in twice as much digestive activity as papain alone.

INDICATIONS AND USES: ACCUZYME SE is indicated for debridement of necrotic tissue and liquefaction of slough in acute and chronic lesions such as pressure ulcers, venous and diabetic ulcers, burns, postoperative wounds, pilonidal cyst wounds, carbuncles and miscellaneous traumatic or infected wounds.

CONTRAINDICATIONS: Do not use if you are allergic to or have known or suspected hypersensitivity to any ingredient in this product.

PRECAUTIONS: See Dosage and Administration. Not to be used in eyes.

ADVERSE REACTIONS: ACCUZYME SE is generally well-tolerated and non-irritating. A transient "burning" sensation may be experienced by a small percentage of patients upon applying ACCUZYME SE. Occasionally, the profuse exudate from enzymatic digestion may irritate the skin. In such cases, more frequent dressing changes will alleviate discomfort until exudate decreases.

DOSAGE AND ADMINISTRATION: Cleanse the wound with ALLCLENZ® Wound Cleanser or saline. Avoid cleansing with hydrogen peroxide solution as it may inactivate the papain. NOTE: Papain may also be inactivated by the salts of heavy metals such as lead, silver and mercury. Contact with medications containing these metals should be avoided. In accordance with good wound care practices, protect the periwound with a skin protectant of choice to prevent and/or reduce maceration and irritation due to drainage from the wound. Apply a single, even layer of ACCUZYME SE daily or twice daily with dressing change or as recommended by physician. Irrigate the wound at each redressing to remove any accumulation of liquefied necrotic material. If eschar is present, it may be necessary to consult a qualified practitioner in the use of a #10 blade to cross-hatch the eschar prior to application of ACCUZYME SE in order to improve penetration of the product. Prior to cross-hatching, moisten the eschar with saline or a suitable wound cleanser such as ALLCLENZ Wound Cleanser.

INSTRUCTIONS FOR USE: Hold the ACCUZYME SE spray bottle 2"–4" from wound. Upon first use, depress the nozzle gently to break seal. Apply drug in a single layer to cover wound bed. Note that application of cover dressing (gauze or appropriate dressing of choice) should cause drug to disperse for additional coverage. Wipe nozzle with clean gauze after each use. It is not necessary to shake or prime the bottle.

HOW SUPPLIED: 34 mL bottle.

Store in a cool place.

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Upon application, a small percentage of patients may occasionally experience a brief stinging sensation when using ACCUZYME SE. Please see Full Prescribing Information on back.

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