Wound Debridement: An Overview

Here are the ins and outs of coding these procedures.

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Today, most practitioners understand that debridement can provide benefits to a wound, and they would also agree that the terms *debridement* and *wound healing* tend to go hand-in-hand. Yet, most would also agree that understanding when to debride a wound, how often to debride a wound, what tools to use, and how to do it can be confusing.

For the physician, as well as the patient, treating a wound, especially one that won't heal, can be frustrating, expensive, and very time-consuming. Knowing the importance of debridement to wound healing is essential.

It is generally accepted that necrotic tissue, eschar, hyperkeratotic tissue, and foreign material in a wound bed can slow and even prevent wound healing from being achieved. The rationale is that removing this hindering material can effectively reduce the bacterial load on the wound surface, decrease pressures, and help lead to an increased level in healing. In addition, debridement is also thought to potentiate the host response, which can help kick-start the healing process in an otherwise chronic and stagnated wound.

One clear example of this increase in response was shown during research performed by Steed and colleagues in 1996 across five different wound care centers.[1] This prospective, randomized, and double blind study of one-hundred and eighteen patients was initially developed to determine the effectiveness of the topical growth factor rhPDHF (Regranex®, Healthpoint Biotherapeutics). Yet, the results revealed much more once the data were tabulated. While it was clear that the topical growth factor did assist in healing wounds, there was noted inconsistency between the wound centers' healing rates (Table 1).

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	Center 1 rhPDHF group	Center 5 placebo group
Debridement %	15%	59%
Healed %	20%	32%

Table 2: Head-to-head comparison of data from Center 1 and Center 5 from Steed et al.[1] showing increased effects of debridement without added rhPDHF

When the five centers were compared based on their dedication to debridement, it became evident that when wound debridement was performed regularly with clinical follow-up, the success of healing at each respective wound center increased. In fact, when examining the data closely, it is noted that the healing rate at Center 5 was greater where regular debridement was paired with an application of a topical placebo than in Center 1, where the growth factor rhPDHF was being placed on the wounds but only limited debridement was being performed (Table 2).

More evidence, provided in a retrospective review of data collected by Cardinal and colleagues[2] from two separate randomized, prospective trials studying topical wound treatments on both venous leg ulcerations and diabetic

		Center 1	Center 2	Center 3	Center 4	Center 5	All Patients
Regranex Group	Debridement %	15%	33%	37%	45%	68%	81%
	Healed %	20%	50%	64%	50%	53%	83%
Placebo Group	Debridement %	19%	35%	43%	58%	59%	87%
	Healed %	10%	17%	36%	17%	32%	25%

Table 1: Data extracted from Steed et al.[1] showing individual center results of debridement levels and healing levels

Continued on page 102

foot ulcerations also found strong evidence in support of the use of debridement in wound care.

Table 3 compares the percentage of healing between visits when debridement was and was not performed on patients' wounds in both cases of venous leg ulcerations and diabetic foot ulcerations. There is a trend to faster healing when regular debridement was performed on both types of wounds. The percent of wounds that were healed in each study at 12 weeks is shown in Table 4. This table compares the centers that were considered to perform regular debridement to those that did not in both cases of venous leg ulcers and diabetic foot ulcerations. Again, regular debridement shows an improved end result.

Healing rates of associated with debridement at 12 weeks

	Venous Leg Ulcers	Diabetic Foot Ulcers
Serial Debridement Centers	47%	29%
Other Centers	30%	15.0%

Table 4: Comparison of healing at 12 weeks in centers that performed regular debridement to centers that did not perform regular debridement of wounds. From Cardinal, et al.[2]

Interval healing with and without debridement

	Venous Leg Ulcers	Diabetic Foot Ulcers
Debridement	11.7%	15.5%
Without Debridement	8.7%	12.5%

Table 3: Comparison of healing (% median surface area reduction) in wounds that were and were not debrided. From Cardinal, et al.[2]

With the increased evidence of the effectiveness of debridement being presented in these two articles as well as many other studies also published over the past few years, an increased level of debridement being performed on wounds in wound care centers and private clinics alike shouldn't be surprising. One should also not be surprised when insurance companies ask if regular debridement is being performed before approving advanced technology like negative pressure systems or cell-based therapy.

Medicare and Debridement

It should also be noted that this recent uptick in debridement was also noted by Medicare by an increase in the number of claims submitted for surgical debridement of wounds. This prompted an investigation of the Office of the Inspector General. The end result—new, more specific CPT codes were introduced in 2011 for wound care that we should all be familiar with now.

There are multiple ways to perform debridement of a wound, each with its own specific advantages and disadvantages. Below is a review of each type of debridement based on their American Medical Association CPT codes:[3]

CPT 11042–11047

11042: Debridement, subcutaneous tissue (includes epidermis and dermis, if performed); first 20 sq cm or less.[3]

11043: Debridement, muscle and/or fascia (includes epidermis, dermis, and subcutaneous tissue, if performed); first 20 sq cm or less.[3]

11044: Debridement, bone (includes epidermis, dermis, subcutaneous tissue, muscle and/or fascia, if performed); first 20 sq cm or less.[3]

These codes describe debridement by means of removing actual skin, muscle, fascia, bone, etc, not just fibrin and devitalized slough. This type of debridement is performed typically with a scalpel or curette and done to remove less than ideal tissues in and around the wound bed so that new, healthier tissue can grow into the void created. Tissues could be necrotic skin, muscle, and bone or it could be contaminated, devitalized skin, muscle, or bone that is acting to harbor a bacterial load; removing tissue may help the healing process by decreasing the risk of infection.

Whatever the purpose, this code is not expected to be performed repeatedly in a short period, in most cases, as

Continued on page 103

tissues such as skin, muscle, fascia and bone cannot regrow quickly. Reasons to use this code signaling an aggressive debridement repeatedly would include cases of advancing necrosis and/or infection of a wound bed and periphery.

CPT 97597–97598

97597: Debridement (e.g., high pressure waterjet with/without suction, sharp selective debridement with scissors, scalpel and forceps), open wound, (e.g., fibrin, devitalized epidermis and/or dermis, exudate, debris, biofilm), including topical application(s), wound assessment, use of a whirlpool, when performed and instruction(s) for ongoing care, per session, total wound(s) surface area; first 20 sq cm or less.[3]

As this code suggests, it relates to debridement (excision or non-excision) of fibrin, exudates, biofilm, etc. This is the type of debridement that one would expect to perform on a regular basis as a part of good wound care. This debridement is not overly aggressive, but is purposeful in that the goal is to remove the obvious foreign material for a dirty, but otherwise healthy, wound bed. Removing fibrin, eschar, biofilm, and the like from a wound bed can effectively reduce the bacterial load which serves to hinder the wound's ability to heal, and increases the patient's risk of infection.[4]

CPT 97602

97602: Removal of devitalized tissue from wound(s), without anesthesia (e.g., wet-to-moist dressings, enzymatic, abrasion), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session.

Like the aforementioned codes CPT 97597 and 97598, this code again pertains to the removal of devitalized tissue from a wound bed. However, this debridement may be done by means of the dressing being applied. Applying wet-to-dry dressings is a popular method by some due to its ability to perform mechanical debridement of a wound. However, one potential drawback of wet-to-dry dressing debridement is its non-selective nature which can lead to the removal of healthy granulation tissue to be removed with use.

Selective Enzymatic Debridement

Topical ointments applied to a wound may also provide another means for wound debridement, including continued debridement even after the patient leaves the office. Such debridement can be performed by the use of collagenase (Santyl®, Healthpoint Biotherapeutics). Collagenase (Santyl®) is the only FDA-approved topical enzymatic debridement agent and works by means of selective enzymatic action targeting defective collagen segments.[5] This would suggest that Santyl® not only breaks down debris, but may also assist in building a well-developed collagen scaffold and decreasing scar tissue within the healing wound bed.[6] Figure 1 shows a patient with a fibrotic wound bed and the effects of collagenase (Santyl®) at removing eschar and fibrotic tissue. In addition, since colla-

Continued on page 104

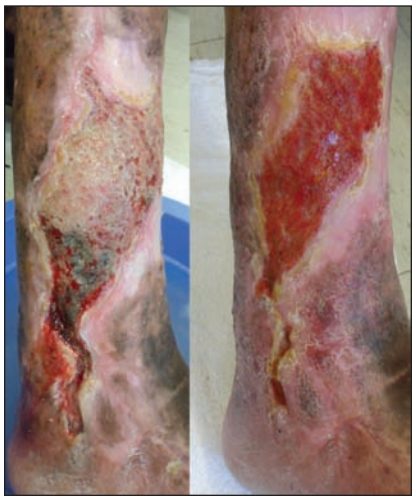

Figure 1: Effective debridement of high levels of fibrotic tissue and wound slough over the duration of 2 weeks with use of collagenase (Santyl)

genase (Santyl®) performs selective enzymatic debridement it may be used without risk of harming healthy tissues in the wound bed or the peri-wound region. Figures 2 and 3 are further examples of collagenase (Santyl®) performing effective wound debridement and progression to closing of large, difficult to heal wounds. To maximize your results, the manufacturer recommends applying collagenase (Santyl®) at a nickel thickness (2mm). When applying compression over the wound it may be useful to apply a padded border to the peri-wound region to help prevent the topical application from being squeezed away from the wound bed. [Figure 4]

These cases highlight wounds that would be challenging to debride in the office with a scalpel or curette, because of the amount of fibrotic tissue present and their potential to create a lot of discomfort for the patient. However, by starting debridement in the office and using specialized dressings containing collagenase (Santyl®) to perform selective, enzymatic debridement a granular wound bed can be achieved. **PM**

Figure 2: Use of collagenase (Santyl) throughout the healing stages of a wound to effectively remove debris and maintain a healthy wound bed.

Figure 3: Wound slough and debris is removed without causing harm to new, healthy tissues forming in and around the wound allowing for faster healing

Figure 4: Use of a bordered dressing to help maintain high levels of collagenase (Santyl) at the wound site when being used under a compressive dressing such as an Unna's wrap which can left in place for multiple days at a time.

References

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